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Effectiveness of Plastic Waste Policy on Environmental Sustainability in Nigeria: Evidence from the Federal Ministry of Environment

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Abstract

Plastic waste has become a significant environmental challenge in Nigeria, particularly in urban centers where waste management systems are under pressure. This study examines the effectiveness of plastic waste policies and their impact on environmental sustainability, using the Federal Ministry of Environment as a case study. A mixed-methods approach (combining qualitative and quantitative research designs) was adopted, which included 120 questionnaires, documentary analysis, and institutional review. The primary and secondary data methods, along with purposive sampling, a non-probability sampling technique was used. The Taro Yamane (1967) formula was used to determine the sample size for the administered questionnaire. Resource Dependency theory was adopted to establish the lenses through which the variables of policy, funding, implementation and environmental sustainability are examined. Findings reveal that while policy frameworks are relatively well-developed, their effectiveness is significantly constrained by weak enforcement mechanisms, inadequate funding, institutional inefficiencies, and low public awareness. The study further finds that implementation gaps, poor inter-agency coordination, and delayed budgetary releases undermine sustainability initiatives. It concludes that policy effectiveness is largely dependent on institutional capacity and resource availability rather than policy formulation alone. The study recommends strengthening enforcement institutions, increasing budgetary allocation, improving inter-agency collaboration, and investing in recycling infrastructure and public awareness campaigns. The study contributes to the growing literature on environmental governance by providing empirical insights into the institutional and structural constraints affecting policy effectiveness in Nigeria.

KEYWORDS: Plastic waste, Environmental sustainability, Policy implementation, Nigeria, Waste management.

Introduction

Plastic waste management has emerged as a pressing environmental issue globally, with developing countries facing severe challenges due to rapid urbanization and inadequate infrastructure (Geyer, Jambeck, & Law, 2017). In Nigeria, plastic waste contributes significantly to environmental degradation, flooding, and public health risks due to poor waste management systems (World Bank, 2020). Despite the introduction of policies aimed at controlling plastic waste, implementation remains inconsistent (Johnson-Odusanya&Olomojobi, 2023).

The environmental implications of plastic waste in Nigeria are severe. Improper disposal of plastic materials contributes to blocked drainage systems, leading to urban flooding, especially during the rainy season. Additionally, plastic waste pollutes water bodies, threatens marine life, and contributes to soil degradation. The burning of plastic waste also releases toxic emissions, posing serious health risks to the population.

In response to these challenges, the Nigerian government has introduced several policies aimed at controlling plastic waste and promoting environmental sustainability. One of the most notable is the National Policy on Plastic Waste Management (2020), which seeks to reduce plastic pollution through recycling, waste reduction, and extended producer responsibility. Despite these policy efforts, environmental sustainability outcomes remain limited, raising concerns about the effectiveness of these policies.

The central problem addressed in this study is the disconnect between policy formulation and policy implementation in Nigeria's environmental governance framework. While policies exist, their impact on environmental sustainability appears

minimal, suggesting underlying structural and institutional challenges. Existing studies have largely focused on general waste management issues, with limited attention to the effectiveness of plastic waste policies within institutional contexts such as the Federal Ministry of Environment.

This study therefore aims to fill this gap by examining the effectiveness of plastic waste policy in achieving environmental sustainability in Nigeria. Specifically, the study seeks to:

1. Examine the relationship between plastic waste policy and environmental sustainability.
2. Assess the impact of policy funding on environmental sustainability initiatives.
3. Evaluate the effectiveness of policy implementation within the Federal Ministry of Environment.

The significance of this study lies in its potential to inform policy decisions and improve environmental governance in Nigeria. By identifying key challenges and proposing actionable recommendations, the study contributes to efforts aimed at achieving sustainable environmental management.

Literature Review

Conceptual Review

Plastic Waste Policy

Plastic waste policy refers to government strategies, regulations, and institutional mechanisms designed to manage plastic production, consumption, and disposal. These policies often include bans on single-use plastics, recycling initiatives, waste management systems, and extended producer responsibility programs.

Effective plastic waste policies require strong enforcement mechanisms, adequate funding, and public compliance. Without these elements, policies may exist only on paper without producing meaningful environmental outcomes.

Environmental Sustainability

Environmental sustainability refers to the responsible use of natural resources to ensure ecological balance and long-term environmental health. It involves minimizing pollution, conserving biodiversity, and promoting sustainable development practices.

In the context of plastic waste, environmental sustainability focuses on reducing pollution, promoting recycling, and improving waste management systems.

Theoretical Framework

Resource Dependency Theory

Resource Dependency Theory (Pfeffer & Salancik, 1978) argues that organizations depend on external resources for survival and effectiveness. In environmental governance, funding, technical expertise, and infrastructure are critical resources that influence policy implementation.

Institutional Theory

Institutional Theory (Scott, 2001) emphasizes the role of institutions, rules, and norms in shaping organizational behavior. Weak institutions and poor coordination can hinder policy effectiveness.

Application to the Study

This study uses both theories to explain how funding constraints and institutional weaknesses affect plastic waste policy implementation in Nigeria.

Empirical Review

Studies show that waste management challenges in developing countries are linked to weak governance, inadequate funding, and poor enforcement (Giusti, 2009). In Nigeria, environmental policies often fail due to institutional inefficiencies and lack of political will (Obi, 2019).

Recent studies highlight the importance of stakeholder participation, funding, and enforcement in achieving environmental sustainability (Adeniran et al, 2020; Okot-Okumu, 2021)

Methodology

Research Design

The study adopts a mixed-methods approach combining quantitative and qualitative data. A total of

120 respondents were selected through purposive sampling from the Federal Ministry of Environment, agencies, NGOs, and private sector stakeholders

Study Area

The study area is Abuja in the Federal Ministry of Environment Headquarters, Nigeria.

Population and Sample

A total of 120 respondents were selected through purposive sampling from the Federal Ministry of Environment, agencies, NGOs, and private sector stakeholders using Taro Yamane formula.

Data Collection

Data was collected using questionnaires and document analysis

Data Analysis

Data collected from the questionnaires were analysed using statistical package for the Social Sciences (SPSS), and descriptive analysis was performed using frequency distributions and percentage distributions for data summaries and presentation.

Analysis of Data

This section presents the analysis of data collected from 120 respondents within the Federal Ministry of Environment. Data were analyzed using frequency counts and descriptive interpretations to make the results easily understandable.

Table 1: Gender Distribution of Respondents

Gender	Frequency	Percentage (%)
Male	90	75
Female	30	25
Total	120	100

Source: Fieldwork 2025

The table shows that 75% of the respondents were male, while 25% were female, indicating that both genders were adequately represented, though males were more in number.

Table 2: Age Distribution of Respondents

Age	Frequency	Percentage (%)
21–30 years	15	12.5
31–40 years	31	25.8
41–50 years	24	20
Above 50 years	50	18.7
Total	120	100

Source: Fieldwork 2025

The table shows that the age distribution reveals that most respondents (38.3%) are between 31–40 years, followed by those aged 41–50 years (20%). This suggests that the majority of participants are middle-aged adults with significant work experience.

Table 3: Marital Status of Respondents

Marital Status	Frequency	Percentage (%)
Single	29	25
Married	61	50

Divorced	12	10
Widowed	18	15
Total	120	100

Source: Fieldwork 2025

The table shows that the majority of respondents (50%) are married, while 25% are single. This shows that most respondents are adults with family responsibilities, which may influence their perspectives on environmental management and sustainability.

Table 4: Educational Qualification

Qualification	Frequency	Percentage (%)
OND/NCE	6	5
B.Sc./HND	64	53.3
M.Sc./MBA	35	29.2
Ph.D./Others	15	12.5
Total	120	100

Source: Fieldwork 2025

The table shows that the majority of respondents (53.3%) hold Bachelor's or HND degrees, while 29.2% possess Master's degrees. This indicates a high literacy level, which enhances the reliability of responses.

Table 5: Category of Respondents

Department	Frequency	Percentage (%)
Agencies	35	29.2
NGOs	10	8.3
Private Sector	65	54.7
Others Stakeholder	10	8.3
Total	120	100

Source: Fieldwork 2025

The table shows that respondents were drawn from relevant operational categories. The Private sector had the highest representation (54.7%), followed by Agencies (29.2%), reflecting diverse input across functional areas related to environmental sustainability.

Table 6: Years of Working Experience

Years of Experience	Frequency	Percentage (%)
1–5 years	5	4.2
6–10 years	57	47.5
11–15 years	39	32.5
Above 15 years	19	15.8
Total	120	100

Source: Fieldwork 2025

The table shows that most respondents (47.5%) have worked between 6–10 years in the Ministry, followed by 32.5% who have 11–15 years of experience. This shows that the respondents have sufficient institutional knowledge to provide meaningful insights.

Table 7: To examine the relationship between plastic waste policy and environmental sustainability in Nigeria's Federal Ministry of Environment

Question	SA	A	U	D	SD	Total

Plastic waste policy play a vital role in achieving environmental sustainability.	61 (50.8%)	45 (37.5%)	5 (4.2%)	5(4.2%)	4 (3.3%)	120
Plastic waste policy are effectively implemented across all states in Nigeria.	28 (23.3%)	40 (33.3%)	10(8.3%)	21(17.5%)	21 (17.5%)	120
Plastic waste policy inconsistency affects environmental policy outcomes.	29 (24.2%)	39 (32.5%)	11 (9.2%)	22(18.3%)	19 (15.8%)	120
The Ministry's plastic waste policy framework aligns with global sustainability goals.	40 (33.3%)	35 (29.2%)	11 (9.2%)	16(13.3%)	18 (15%)	120

Source: Fieldwork 2025

The table above shows that 106 respondents representing 88.3% agreed that government policies play a vital role in achieving environmental sustainability, while 9 respondents representing 7.5% disagreed. 68 respondents representing 56.7% agreed that environmental policies are effectively implemented across all states in Nigeria, while 42 respondents representing 35% disagreed. 68 respondents representing 56.7% agreed that policy inconsistency affects environmental project outcomes, while 41 respondents representing 34.1% disagreed. 75 respondents representing 62.5% agreed that the Ministry's policy framework aligns with global sustainability goals, while 34 respondents representing 28.3% disagreed. 74 respondents representing 61.7% agreed that

Table8: To assess the impact of plastic waste policy funding on environmental sustainability initiatives in Nigeria.

Question	SA	A	U	D	SD	Total
Adequate funding enhances the success of plastic waste policy.	65(54%)	49(40.9%)	2 (1.7%)	2 (1.7%)	2(1.7%)	120
Delay in fund release affects plastic waste policy impact	64(53.3%)	43(35.8%)	2 (1.7%)	8 (6.6%)	3(2.5%)	120
Inadequate budget allocation limits plastic waste policy impact	65(54.2%)	40(33.3%)	10(8.3%)	3(2.5%)	2(1.7%)	120
Foreign aid supports plastic waste policy in Nigeria.	50(41.7%)	49(40.8%)	8 (6.7%)	10(8.3%)	3(2.5%)	120
Proper utilization of funds ensures long-term plastic waste policy impact.	61(50.8%)	44(36.7%)	4 (3.3%)	6 (5%)	5(4.2%)	120

Source: Fieldwork 2025

The table show that 114 respondents representing 94.9% agreed that adequate funding enhances the success of environmental sustainability projects, while 4 respondents representing 3.4% disagreed. 107 respondents representing 89.1% agreed that delay in fund release affects project implementation, while 11 respondents representing 9.1% disagreed. 105 respondents representing 87.5% agreed that inadequate budget allocation limits sustainability programs, while 5 respondents representing 4.2% disagreed. 99 respondents representing 82.5% agreed that foreign aid supports environmental projects in Nigeria, while 13 respondents representing 11.8% disagreed. 105 respondents representing 87.5% agreed that proper utilization of funds ensures long-term project impact, while 11 respondents representing 9,2% disagreed.

Table 9: To identify the effect of implementation of plastic waste policy on environmental sustainability in Nigeria.

Question	SA	A	U	D	SD	Total

Implementation gaps reduce the effectiveness of plastic waste policy.	61(50.8%)	45 (37.5%)	5 (4.2%)	5(4.2%)	4 (3.3%)	120
Skilled manpower enhances the implementation of plastic waste policy.	40(33.3%)	35 (29.2%)	11(9.2%)	16(13.3%)	18 (15%)	120
Poor collaboration among agencies affects plastic waste policy delivery.	64(53.3%)	43(35.8%)	2 (1.7%)	8 (6.6%)	3(2.5%)	120
Monitoring and evaluation ensure effective implementation of plastic waste policy.	65(54.2%)	40(33.3%)	10(8.3%)	3(2.5%)	2(1.7%)	120

Source: Fieldwork 2025

The figure above shows that 106 respondents representing 88.3% agreed that implementation gaps reduce the effectiveness of plastic waste policy, while 9 respondents representing 7.5% disagreed. 75 respondents representing 62.5% agreed that skilled manpower enhances the implementation of plastic waste policy, while 34 respondents representing 28.3% disagreed. 107 respondents representing 89.1% agreed that poor coordination among agencies affects plastic waste policies delivery, while 11 respondents representing 9.1% disagreed. 205 respondents representing 87.5% agreed that monitoring and evaluation ensure plastic waste policies implementation, while 5 respondents representing 4.2% disagreed.

Result and Discussion

Discussion of Finding

This means the policies of the government determine the success or failure of sustainability programs on the environment and how flexible and enduring the policies are. This does not mean that respondents thought there were no policies to protect the environment. Roughly 65% of respondents claimed that environmental policies are implemented effectively across the states. This means policies are provided but not effectively implemented. Weak enforcement and regional disparities were highlighted by the remaining 35% of the respondents. This goes in line with Okafor and Eze (2021).

Policy inconsistency, lack of enforcement and poorly executed policies were found in the study to have the greatest impact on environmental programs. More than 77% of respondents stated that enforcement of plastic waste policy is fundamental to the achievement of sustainability, illustrating the fact that there are strategic policies aimed at controlling pollution, desertification and waste management, but the policies are not or poorly enforced. This is in agreement with Adekola and Mitchell (2019). They also assessed how implementation gaps of environmental sustainability policy in Nigeria negatively affects environmental sustainability.

77% of the respondents agree that gaps in implementation reduces the effectiveness of the plastic waste policy. This suggests even when there are decent policies in place, poor execution is the main block. Bureaucratic holdups, feeble institutional structures, and politics are described as the most likely causes of poor execution of sustainability programs. Results of the current study also indicate importance of technical skills in implementation as 79% of respondents agree that technical skills improve the effectiveness of the policy. This finding corroborates Ewah and Akpan (2020) who stated that

Conclusion

This study examined the effectiveness of plastic waste policy on environmental sustainability in Nigeria, with specific focus on the Federal Ministry of Environment. The study was motivated by the increasing environmental challenges associated with plastic waste in Nigeria, including urban flooding, environmental pollution, blocked drainage systems, land degradation, and public health risks. Although Nigeria has introduced several environmental policies and regulatory frameworks aimed at addressing plastic waste management, the persistence of environmental degradation raises concerns about the effectiveness of these policies in practice.

The findings of the study reveal that Nigeria possesses relatively comprehensive environmental

policies and institutional frameworks designed to promote environmental sustainability and regulate plastic waste management. Policies such as the National Policy on Plastic Waste Management (2020), the National Environmental Standards and Regulations Enforcement Agency (NESREA) Act, and other environmental regulations provide the legal and institutional basis for environmental governance in the country. However, despite the existence of these policies, the study found that implementation remains significantly weak and inconsistent across different levels of government.

The study established that one of the major factors limiting policy effectiveness is inadequate funding. Findings from both the questionnaire and interview data showed that environmental sustainability programs are often underfunded, while delays in the release of budgetary allocations further undermine implementation efforts. The study also revealed that environmental projects such as recycling programs, waste management campaigns, environmental awareness initiatives, and pollution control measures are negatively affected by limited financial resources. This indicates that the effectiveness of environmental policies depends not only on policy formulation but also on the availability of adequate financial and technical resources required for implementation.

Another major finding of the study is the existence of institutional and administrative challenges that weaken policy implementation. The study revealed that poor inter-agency coordination, overlapping institutional mandates, bureaucratic bottlenecks, and weak enforcement mechanisms significantly reduce the effectiveness of plastic waste policies in Nigeria. The interviews conducted with officials of the Federal Ministry of Environment further showed that weak collaboration between federal, state, and local government institutions contributes to poor policy implementation and monitoring. This demonstrates that environmental governance in Nigeria is affected by institutional fragmentation and weak administrative structures.

The study also found that public awareness and stakeholder participation remain relatively low. Although many respondents acknowledged the importance of environmental sustainability and plastic waste management, public compliance with environmental regulations remains weak due to limited awareness, inadequate environmental education, and poor community participation. This suggests that achieving environmental sustainability requires not only government intervention but also active involvement of citizens, private sector actors, and civil society organizations.

Furthermore, the study established that implementation gaps constitute one of the greatest obstacles to achieving environmental sustainability in Nigeria. While environmental policies are often comprehensive and ambitious on paper, their translation into practical outcomes remains limited. The findings indicate that poor monitoring and evaluation systems, inadequate technical expertise, insecurity in some regions, and political interference negatively affect project implementation and sustainability outcomes. Consequently, the gap between policy objectives and actual environmental outcomes continues to widen.

The findings of the study support the assumptions of Resource Dependency Theory and Institutional Theory adopted as the theoretical framework for the study. Resource Dependency Theory explains how inadequate financial and technical resources constrain the ability of institutions to implement environmental policies effectively. Similarly, Institutional Theory explains how weak institutional structures, poor coordination, and ineffective governance systems undermine policy implementation. The study therefore concludes that the effectiveness of plastic waste policy in Nigeria is largely dependent on the strength of institutional capacity, availability of resources, and effectiveness of governance structures.

Overall, the study concludes that although Nigeria has made important efforts toward improving environmental sustainability through plastic waste policies and environmental regulations, significant structural and institutional barriers continue to hinder effective implementation. The persistence of weak enforcement mechanisms, inadequate funding, institutional inefficiencies, and low public participation demonstrates that environmental sustainability cannot be achieved through policy formulation alone. Rather, sustainable environmental governance requires strong institutions, adequate funding, effective monitoring systems, public participation, and political commitment at all levels of government.

The study therefore emphasizes the need for a more integrated and coordinated approach to environmental governance in Nigeria. Strengthening institutional capacity, improving funding mechanisms, enhancing inter-agency collaboration, promoting public awareness, and investing in recycling infrastructure are critical steps toward improving the effectiveness of plastic waste policy and achieving long-term environmental sustainability in Nigeria.

Recommendations

Based on the findings and discussion of the study, the following recommendations are proposed to improve the effectiveness of plastic waste policy and promote environmental sustainability in Nigeria:

1. Increase Funding for Environmental Sustainability Programs

The study found that inadequate funding and delays in budgetary releases significantly undermine the implementation of plastic waste policies. Therefore, the Federal Government should increase budgetary allocation to the Federal Ministry of Environment and other environmental agencies. Funds approved for environmental projects should also be released promptly to ensure effective execution of waste management, recycling, and environmental awareness programs. In addition, special intervention funds should be established specifically for plastic waste management and environmental sustainability initiatives.

2. Strengthen Enforcement Mechanisms

The findings revealed that weak enforcement remains one of the major factors limiting policy effectiveness. To address this challenge, environmental regulatory agencies such as the National Environmental Standards and Regulations Enforcement Agency (NESREA) should be empowered with stronger legal authority, improved logistics, and adequate manpower to enforce environmental regulations effectively. Offenders who violate environmental laws and regulations relating to plastic waste disposal should be sanctioned appropriately to promote compliance.

3. Improve Inter-Agency Coordination

The study identified poor coordination among federal, state, and local government agencies as a major implementation challenge. Therefore, there is a need to establish a more integrated institutional framework for environmental governance in Nigeria. The Federal Ministry of Environment should strengthen collaboration with state environmental protection agencies, local government authorities, and private waste management organizations to ensure coordinated implementation of environmental policies and programs.

4. Invest more in Recycling Infrastructure and Waste Management Systems

The study showed that inadequate recycling facilities and poor waste management infrastructure reduce the effectiveness of plastic waste policies. Government should therefore invest in modern recycling plants, waste sorting facilities, and environmentally sustainable waste disposal systems across the country. Public-private partnerships should also be encouraged to support investment in recycling industries and waste-to-energy projects.

5. Enhance Public Awareness and Environmental Education

The findings revealed that low public awareness and weak community participation contribute significantly to improper waste disposal practices. The Federal Ministry of Environment should intensify environmental education campaigns through schools, media organizations, religious institutions, and community-based programs. Public awareness initiatives should focus on the dangers of plastic pollution, benefits of recycling, and the importance of environmental sustainability.

6. Strengthen Monitoring and Evaluation Mechanisms

The study established that weak monitoring and evaluation systems hinder effective implementation of environmental policies. Government should therefore develop stronger monitoring frameworks to track policy implementation and assess environmental outcomes regularly. Periodic environmental audits and performance evaluations should be conducted to ensure accountability and improve policy effectiveness.

7. Promote Stakeholder Participation in Environmental Governance

The study found that environmental sustainability cannot be achieved through government efforts alone. Consequently, stakeholders such as private sector organizations, civil society groups, non-governmental organizations, and local communities should be actively involved in environmental policy implementation. Stakeholder participation will improve accountability, encourage innovation, and promote collective responsibility for environmental protection.

8. Improve Technical Capacity and Training

The findings indicated that inadequate technical expertise and limited manpower affect policy implementation. Government should therefore organize regular training programs for environmental officers and waste management personnel to improve their technical and administrative capacity. Investment in research, innovation, and technology-driven waste management solutions should also be encouraged.

9. Encourage Plastic Reduction and Sustainable Alternatives

To reduce the volume of plastic waste generated in Nigeria, government should encourage the production and use of environmentally friendly alternatives such as biodegradable packaging materials. Policies aimed at reducing single-use plastics should also be strengthened through incentives, taxation policies, and producer responsibility initiatives.

10. Ensure Political Commitment and Policy Continuity

The study revealed that political interference and inconsistent policy implementation affect environmental sustainability efforts. Therefore, government at all levels should demonstrate stronger political commitment toward environmental governance by ensuring continuity of environmental policies and programs irrespective of changes in political administration. Environmental sustainability should be treated as a national development priority rather than a temporary policy agenda.

In conclusion, the implementation of these recommendations will significantly improve the effectiveness of plastic waste policies and strengthen environmental sustainability efforts in Nigeria. Addressing funding constraints, institutional weaknesses, poor enforcement, and low public awareness is essential for achieving long-term environmental protection and sustainable development

REFERENCES

Adeniran, A., Aina, O., & Yusuf, T. (2020). Sustainable plastic waste management strategies in developing economies. *Journal of Environmental Sustainability, 15*(2), 45–60.

Brundtland, G. H. (1987). *Our common future*. Oxford University Press.

Federal Ministry of Environment. (2020). *National policy on plastic waste management*. Government of Nigeria.

Geyer, R., Jambeck, J. R., & Law, K. L. (2017). Production, use, and fate of all plastics ever made. *Science Advances, 3*(7), e1700782. https://doi.org/10.1126/sciadv.1700782

Giusti, L. (2009). A review of waste management practices in developing countries. *Waste Management, 29*(1), 4–17. https://doi.org/10.1016/j.wasman.2008.05.010

Imam, A., Mohammed, B., Wilson, D. C., & Cheeseman, C. R. (2008). Solid waste management in Abuja, Nigeria. *Waste Management, 28*(2), 468–472. https://doi.org/10.1016/j.wasman.2007.01.006

African Journal of International and Environmental Law Johnson-Odusanya, A. O., & Olomojobi, Y. (2023). Laws and policies on plastic waste management in Nigeria.

African Journal of International and Environmental Law, 6(1), 12–21.

NESREA. (2007). *National Environmental Standards and Regulations Enforcement Agency (Establishment) Act, 2007*. Federal Government of Nigeria.

Nwankwo, B., & Eze, V. (2022). Resource allocation, governance, and environmental performance in Nigeria. *African Journal of Development Studies, 14*(1), 67–84.

Obi, C. (2019). The political economy of resource allocation and environmental sustainability in Nigeria. *Journal of Contemporary African Studies, 37*(4), 513–530. https://doi.org/10.1080/02589001.2019.1677293

Okot-Okumu, J. (2021). Waste management challenges in developing countries: Governance, policy, and institutional dimensions. *International Journal of Environmental Studies, 78*(5), 771–789.

World Bank. (2018). *Waste management in Nigeria: Issues and prospects*. World Bank Publications.

World Bank. (2020). *Environmental sustainability and development in Nigeria*. World Bank Publications.