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**APPRAISAL OF REGULATORY FRAMEWORKS
ON ENVIRONMENTAL PROTECTION POLICIES
AND WASTE MANAGEMENT IN KWARA STATE, NIGERIA**

¹Amin Amin, ²Abdulrauf Ambali & ³Abdulhaleem Amin

¹Department of Public Administration, Kwara State Polytechnic, Ilorin, Nigeria

²Department of Politics and Governance, Kwara State University Malete, Nigeria

³ Faculty of Law, Ahmadu Bello, University, Zaria, Nigeria

Corresponding author: aminaminolohunoyin@gmail.com

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ABSTRACT

Waste management has become a pressing global issue, requiring the enactment and enforcement of comprehensive regulatory frameworks to promote sustainability and protect the environment. Despite the available legislations, inadequate resources and inefficient monitoring impede their proper execution, allowing noncompliance and illicit trash disposal to continue. Illegal waste sites are popping up all over the city of Kwara in Nigeria. Improper garbage disposal appears to suggest a breakdown in the state's regulatory system for environmental protection and waste management. This paper has examined the regulatory framework of environmental protection policies and waste management in Kwara state. Both primary and secondary data were used. The population of the study was 280 and the sample size was 172, which was determined through a specific formula. A total number of 172 questionnaires were distributed to the selected respondents and from these 154 responses were retrieved. Findings from the study showed that the majority of the respondents disagreed that the regulatory frameworks did not prioritise the reduction, reuse, and recycling of waste materials. These respondents were of the view that there were clear guidelines and procedures for the proper handling and disposal of hazardous waste. The study also showed that the available regulatory frameworks have encouraged public participation and awareness of waste management practices in the state. Consequently, this paper has recommended that policymakers collaborate closely with communities to design strategies that incorporate local infrastructure, resources, and behaviours to reduce waste and promote recycling. There should also be frequent monitoring to ensure compliance. The rules and policies must be amended to ensure stakeholder engagement in waste management services.

Keywords: Policies, regulatory frameworks, waste management.

INTRODUCTION

Waste management has become a pressing global concern, requiring the enactment and enforcement of effective regulatory frameworks to ensure sustainability and protect the environment (World Bank, 2019). As the world grapples with escalating waste generation, it has become imperative that the effectiveness of existing regulatory frameworks on sustainable waste management in addressing contemporary waste management challenges be thoroughly evaluated (United Nations, 2015). The evolution of waste management regulations dates back to the mid-20th century when the environmental movement gained momentum. Early waste management regulations concentrated on disposal methods, seeking to mitigate risks to public health and the environment. Over the years, these regulations have evolved to adopt a more comprehensive approach, highlighting sustainable practices that focus on waste reduction, reuse, and recycling.

Legislative instruments establish the legal foundation for waste management, while policies guide the strategic direction. Standards play a pivotal role in defining acceptable practices and benchmarks, while effective enforcement ensures compliance and accountability. There are significant disparities in waste management regulations across different regions and countries, with developed nations often boasting more comprehensive frameworks with advanced technologies; while developing nations may face challenges due to resource constraints and varying levels of awareness which can result in serious gaps when trying to achieve a globally sustainable approach to waste management. The assessment in the present study has delved into the environmental implications of existing regulatory frameworks, analyzing their effectiveness in mitigating pollution, conserving natural resources, and promoting a circular economy. Particular emphasis was placed on aligning regulations with international agreements and objectives, including the Sustainable Development Goals (SDGs) of the United Nations.

In China, the environmental policy has continued to promote innovation through proper waste management laws and regulations for the conversion of waste to wealth. For instance, the administrative regulations formulated on waste disposal by the State Council in China has advanced sustainable waste management within the country, driven by the government's strong commitment to achieving significant positive ecological outcomes aligned with sustainable development goals. The environment is facing increasing problems, including more frequent natural disasters, severe temperature fluctuations, and changing weather patterns. These environment concerns will compel people to become more conscious of how they live, particularly in the context of nations in Africa, where balancing human activity with environmental sustainability is urgently required.

In Nigeria, the National Environmental Standards and Regulations Enforcement Agency (NESREA) was established in 2007 by the Federal Government to promote a cleaner and healthier environment for all Nigerians. The agency enforces various regulations, including the National Environmental Regulations of 2011, which governs the base metals, iron, and steel manufacturing/recycling industries sector. Its aim is to prevent and minimize environmental pollution from sectoral operations by advocating the use of efficient cleaner production technologies. The Harmful Wastes Act targets the unauthorized dumping of harmful wastes, imposing criminal liability for such violations. Similarly, the National Policy on the Environment provides a strategic framework for environmental sustainability, focusing on objectives such as ensuring an environment conducive to health and well-being (Amin et al., 2024). Additionally, the National Environmental Regulations of 2009 on sanitation and wastes control, have placed a critical emphasis on comprehensive environmental sanitation, incorporating the Polluter-Pays Principle and extending producer responsibility in fostering accountability for

environmental damage (NESREA Act, 2007; Environmental Impact Assessment Act, 1992; National Environmental Regulations, 2011; Harmful Wastes Act, 2009).

At the state level, the Kwara State Environmental Protection Agency (KWEPA) was established under the Kwara State Environmental Protection Agency Law of 1992. Its primary mandate is to promote a safe and healthy environment for the residents of Kwara State. Empowered by the law, KWEPA undertakes environmental protection initiatives, research and development activities, and public education on approved waste disposal methods, operating under the directives of the State government. The legislation also instituted a governing council tasked with formulating policies and programs aimed at enhancing environmental protection, including solid waste collection and disposal regulations (Amin et al., 2023). Sustainable waste management relies on the implementation and adherence to robust regulatory frameworks that establish guidelines and standards for waste disposal, recycling, and resource recovery (Ajayi et al., 2020). However, there appears to be a lack of comprehensive understanding about the extent to which the existing regulatory frameworks for waste management in Kwara State are being adhered to and enforced. It remains uncertain whether the state has adequately developed and effectively implemented policies, rules, and regulations to promote sustainable waste management practices, such as waste reduction, segregation, recycling, and environmentally responsible disposal.

Previous studies have highlighted the potential challenges and gaps in waste management practices in Nigeria as a whole (Ojekunle et al., 2020; Anifowose et al., 2021). Despite the existence of regulations, problems with limited resources, corruption, and ineffective monitoring have prevented their proper implementation, enabling non-compliance and illegal waste disposal to persist (OECD, 2000). Illegal dump sites have increasingly emerged across the metropolis of Kwara State, highlighting deficiencies in the regulatory framework for environmental protection and waste management (Debrah et al., 2021). Furthermore, the enforcement mechanisms and monitoring systems for waste management regulations appear to be inadequate or ineffective, leading to widespread non-compliance and the persistence of unsustainable waste management practices (Ferronato & Torretta, 2019). This situation poses significant risks, including environmental degradation, health hazards, and setbacks in achieving the State's sustainable development goals.

The dynamic nature of waste composition, coupled with advancements in technology and shifts in socio-economic factors, have introduced novel challenges to the field of waste management (World Bank, 2019b; European Environment Agency, 2021a). The evolving landscape necessitates a critical evaluation of the adaptability of current regulatory frameworks to effectively address these challenges. Conducting such an assessment is crucial to ensuring the continued relevance and effectiveness of waste management regulations in addressing the impacts of evolving waste characteristics and emerging technologies on environmental sustainability (World Bank, 2019a; European Environment Agency, 2021a). The success of these regulations is closely linked to the active involvement of various stakeholders, including government agencies, industry players, communities, and non-governmental organizations (UNEP, 2016; European Environment Agency, 2021a).

A thorough analysis of stakeholder engagement in existing regulatory frameworks is vital for identifying opportunities to strengthen collaboration and foster a collective sense of responsibility in waste management practices (UNEP, 2015; European Environment Agency, 2021b). The seamless integration of innovative technologies and waste-to-energy solutions into current regulatory frameworks is a critical concern in the realm of waste management (World Bank, 2019a; European Environment Agency, 2021a). It is imperative to investigate the readiness of existing regulations to

accommodate these technological advancements, as this examination is vital for fostering sustainable and efficient waste management practices (World Bank, 2019a; European Environment Agency, 2021b). Understanding the regulatory landscape's preparedness for incorporating such innovations is essential to harness the full potential of emerging technologies in optimizing waste management processes.

Many scholars have examined issues concerning the regulatory framework, environmental protection and waste management. For example, Yusuf et al. (2022) conducted a study examining residents' perceptions of the central storage of waste in the Ilorin, Kwara State, Nigeria. Their study had provided insights into local attitudes and challenges related to waste management. Similarly, Luke and Henry (2018) examined environmental policies aimed at emergency management and public safety, highlighting the intersection of environmental governance and societal resilience. The present study intends to fill the existing knowledge gap in the area. It is in the context of this unsatisfactory state of affairs that this study seeks to assess the level of implementation and compliance with regulatory frameworks for sustainable waste management in Kwara State.

LITERATURE REVIEW

Numerous studies have explored the various aspects of waste management and environmental governance in different regions. Akpoghome (2014) assessed the legal framework, issues, and solutions related to household waste management in Nigeria. It was found that the components of offences and their associated penalties varied greatly throughout the states. The study proposed methods for managing domestic waste which was practised in developed nations, and which could be effectively applied to the situation in Nigeria. It concluded that Nigeria needed to make significant progress in the areas of public education, staff training for the various agencies tasked with managing domestic waste, provision of sufficient funding, efficient monitoring, and strict penalties for noncompliance to reduce the threat of domestic waste management in Nigeria. The study however, did not investigate the regulatory framework for environmental protection in Kwara.

A study conducted in 2019 by Che-Adam et al., investigated how the characteristics of the board of directors influenced the disclosure of environmental information by companies in Malaysia. The study found that the most frequently released information by Malaysian businesses was regarding the efficient use of energy and resources, with waste management and disposal and information about reusing and recycling coming in second and third. The prevention and reparation programs were the item that Malaysian corporations disclosed the least. Furthermore, as indicated by the regression analysis, a larger percentage of non-executive directors might have resulted in a greater disclosure of environmental information. The findings demonstrate that non-executive directors have fulfilled their responsibility to strengthen the credibility of their companies by pressuring management to disclose more environmental data. In this regard, the present research is an attempt to provide a noteworthy contribution to the standards that policymakers and supervisory authorities will need to adopt to ensure that Malaysian corporations will focus attention on environmental issues and environmental disclosures in their annual reports.

David et al. (2019) examined the role of both the public and private sectors in solid waste management services in Nigeria. The study highlighted weaknesses in the public sector's supervision of private operators and emphasized the crucial need for effective legislation and enforcement to ensure proper waste disposal practices. However, the study did not specifically address the regulatory framework for

environmental protection policies in Kwara state, which is the focus of the present research. Shehu et al. (2018) investigated the consequences of ineffective policy implementation on community involvement in waste management in Bauchi State, Nigeria. Their findings highlighted the public's reluctance to pay for waste disposal services as a key factor contributing to poor waste management. While their study was focused on Bauchi State, the present research has expanded the scope to examine the regulatory framework governing environmental protection policies and waste management in Kwara State. Chik and Jusoh (2003) explored innovative waste-reduction and waste-reuse processes employed by firms in industries such as asphalt cement and concrete, ferrous metals, and Portland cement and concrete, among others. Their study identified the driving forces behind these innovations, the technologies or processes involved, and the associated economic benefits.

The study by Badri et al. (2021) was aimed at assessing the financial performance of green technology companies in Malaysia using Tobin's Q, with the market value of the company as the dependent variable. The independent variables included growth, firm size, carbon productivity, waste productivity, and energy productivity. The data was collected from ten carefully selected green technology companies, all of which were top-ranked environmentally conscious businesses listed on Bursa Malaysia. The results revealed that firm size did not have a significant impact, while the other independent variables, namely growth, carbon productivity, waste productivity, and energy productivity were all found to be significant. The results also suggest that businesses profited much from adopting green technology in terms of cost reduction, maintaining a healthy environment, and assisting businesses in becoming sustainable in the long-term.

Nyekwere and Ole (2022) examined the legal framework governing sustainable environmental practices in Nigeria, emphasizing the country's existing laws and regulatory bodies. The study revealed regulatory challenges in environmental governance despite established legal frameworks. Notably, the article did not address waste management specifically. In contrast, this research specifically investigates the regulatory framework's impact on waste management in Kwara State. Nnamdi (2014) focused on the safe disposal of municipal wastes in Nigeria, emphasizing the connection between proper waste disposal and fundamental human rights. The study highlighted challenges in municipal waste management but did not extensively address environmental protection policies. The present study, however, has focused on the regulatory framework of environmental protection policies in relation to waste management in Kwara State. Klaus (1997) introduced a theory of production incorporating waste and recycling, addressing the pressing issue of solid waste management. While his study examined the influence of government fees on waste reduction and recycling efforts, it did not specifically address environmental protection policies. In contrast, the present research has investigated the regulatory framework of environmental protection policies on waste management in Kwara State.

Awopetu et al. (2013) focused on the public's perception of waste minimization strategy in Makurdi, North Central Nigeria. The study identified limiting factors to the actualization of waste minimization but did not extensively discuss environmental protection policies. The present study, however, has focused on the regulatory framework of environmental protection policies for waste management in Kwara State. Lishan et al. (2023) examined strategies to enhance public participation in waste separation policies in Shanghai, China. While their study highlighted increased satisfaction with waste management and greater willingness to participate, it did not specifically address environmental protection policies. In contrast, the present research has investigated the regulatory framework of such policies in the context of waste management in Kwara State.

Similarly, Zikargae et al. (2022) explored the role of stakeholder involvement in improving environmental security and the livelihoods of impoverished rural communities in Ethiopia. Their study employed qualitative methods to identify models of stakeholder participation and the factors influencing engagement. The paper has recommended that non-profit organisations make full use of the grassroots strategy to secure community projects' acceptance, trust, and sustainability. The article was domesticated to Ethiopia. Onyenekenwa and Agbazue (2011) reviewed on protection of Nigeria's Environment. Findings from the study showed that improved public involvement and transparency greatly raise the standard of decisions that influence the environment. These results highlighted the potential of transparency as a vital tool for driving interventions in environmental justice, conservation, and preservation. Despite a renewed interest in evaluating the environmental impacts of development, this focus often lacks the transparency needed to effectively address persistent challenges and ensure impactful solutions.

The amended constitution of the Federal Republic of Nigeria (CFRN, 1999) charges the government with the responsibility of protecting and enhancing the nation's land, water, and air. However, this provision is part of Chapter II, which outlines the fundamental objectives and directive principles of state policy, and unfortunately, it is non-justiciable. The regulatory landscape for environmental protection in Nigeria is shaped by several key legislations and regulations. The NESREA Act of 2007 is a key piece of legislation that established the NESREA to ensure compliance with both domestic and international environmental laws. However, it is important to note that NESREA's authority is limited to the oil and gas sector. Another vital legislation is the Environmental Impact Assessment Act of 1992, which requires that development projects with potential environmental impacts undergo an environmental impact assessment. This act prohibits the initiation of projects that could cause significant environmental harm without prior evaluation of their potential adverse effects.

Additionally, KWEPA plays a pivotal role in coordinating environmental activities across state agencies, conducting public awareness campaigns, and disseminating crucial information on environmental matters (Amin et al., 2023). The Local Government Committee on Environmental Protection was created under the KWEPA statute to enforce environmental quality requirements within their respective jurisdictions. To streamline solid waste control and management, the agency authorized collaboration with local government councils or private collectors for refuse disposal within the state. Specific regulations were put in place to ensure that vehicles or containers used for waste transportation are properly covered to prevent littering. Furthermore, tenement owners or occupants are required to maintain receptacles for refuse deposition within their premises, ensuring proper waste management practices (Ahmed, 2008). The legislation explicitly designates certain actions as offences, such as the unauthorized disposal of obnoxious, toxic, or poisonous waste in undesignated areas. Burning the contents of agency-issued dustbins or receptacles is also prohibited. Offenders are liable to legal action and may be tried by a Magistrate Special Environmental Court or an Area Court. Upon conviction, offenders face a maximum penalty which is a fine of N5,000.00 (\$3.21) or imprisonment for six months (Ahmed, 2008).

The sustainable development theory was introduced by Gro Harlem Brundtland in 1987. It was first formalized in the 1987 report "Our Common Future" by the United Nations World Commission on Environment and Development (WCED), often known as the Brundtland Report. Brundtland's leadership and the impactful report played a key role in establishing and popularizing sustainable development as a central principle for global environmental and developmental policies. The report highlighted the importance of balancing economic growth, social equity, and environmental protection. The theory posits that there are complex interconnections and interdependencies between ecological

systems, social systems, and economic systems (Brundtland Report, 1987). It recognizes the importance of considering the interactions and trade-offs between these systems. Equally, sustainable development theory emphasizes the need for a long-term perspective when addressing environmental and social issues, acknowledging that present actions can have significant impacts on future generations. It also emphasises equity and justice. Sustainable development theory recognizes that environmental degradation and resource depletion disproportionately affect vulnerable populations, and it calls for inclusive approaches that promote equitable distribution of resources and opportunities. Moreover, the theory promotes integration and holistic thinking by considering environmental, social, and economic factors simultaneously. It emphasizes the importance of participatory decision-making processes that involve all stakeholders, ensuring inclusivity, transparency, and accountability in environmental and social governance (Brundtland Report, 1987).

The theory has been accused of overemphasizing economic growth as a means to achieve sustainability, potentially perpetuating unsustainable consumption patterns and resource exploitation (Dobson, 2003). There is no clarity and measurability in the concept, making it difficult to operationalize and assess progress (Lele, 1991). Critics argue that the theory does not sufficiently address power imbalances and inequalities that underlie unsustainable practices, calling for a deeper examination of social and economic structures (Leach et al., 2010). Furthermore, the theory's implementation has been questioned due to poor political will and prioritization of short-term interests over long-term sustainability goals (Meadows, 2008). Another criticism is the insufficient consideration of global equity issues, where developing countries bear a disproportionate burden of environmental degradation and resource depletion (Shiva, 1993). Critics have also highlighted the oversimplification of ecological systems within the theory, calling for a more comprehensive understanding of ecological complexity (Murphy, 2004).

The theory is however, relevant to the present study as it offers a comprehensive framework for shaping environmental protection policies and promoting sustainable waste management systems in Kwara State. By integrating economic development, social well-being, and environmental preservation, this theory offers valuable insights into achieving sustainable outcomes for the regions. For instance, in terms of environmental protection, it guides policies focused on reducing pollution and conserving natural resources. This could include promoting renewable energy sources such as solar and wind power, adopting energy-efficient technologies in industries and buildings, and conserving vital ecosystems like forests and wetlands. Additionally, the involvement of state stakeholders in Kwara plays a critical role in the effectiveness of environmental protection policies and waste management systems. Local communities, businesses, and civil society organizations should actively participate in the decision-making processes. This can be achieved through public consultations, workshops, and collaborative partnerships. Kwara state stakeholders can participate in shaping policies related to environmental impact assessments, waste management regulations, and the establishment of recycling centres. Policies prioritize waste reduction by encouraging practices such as composting, encouraging recycling and reuse, and developing efficient waste treatment methods. For example, municipalities can establish recycling programs and provide incentives for businesses and households to separate recyclable materials from general waste. Public awareness campaigns through media and sensitization educate residents on responsible waste disposal, encouraging behavioural changes that contribute to sustainable waste management.

METHODOLOGY

This study has adopted a thematic method of analysis. The study's population consisted of 280 individuals, including staff from the Kwara State Environmental and Protection Agency (KWEPA), the Kwara State Ministry of Environment and Forestry, the Kwara State Ministry of Health, medical practitioners, lawyers, and residents. The software, Statistics Package for Social Sciences (version 21) was used to analyze the collected data. The sample size was 172, a number which was recommended by Krejcie and Morgan's (1970) formula. A total of one hundred and seventy-two questionnaires (172) were distributed. A total of 154 responses were returned and analyzed using the SPSS (version 21). A 5-point Likert scale with the following ratings: "1 = Strongly Disagree, 2 = Disagree, 3 = Undecided, 4 = Agree, and 5 = Strongly Agree", was used in the study questionnaire to gather data. A qualitative method, including key informant interviews (KII), was also used to complement the questionnaire data, with the results transcribed and analyzed through thematic analysis as stated in Equation 1.

$$\begin{aligned} n &= \frac{X^2 N P (1-P)}{e^2 (N-1) + X^2 P (1-P)} && \text{Equation (1)} \\ n &= \frac{3.841 \times 280 \times 0.5 \times 0.5}{((0.05)^2 \times 280 - 1) + (3.841 \times 0.5 \times 0.5)} \\ n &= 268.87 \\ n &= 1.56 \\ n &= 172 \end{aligned}$$

RESULTS

Table 1

Responses to the Regulatory Frameworks for Sustainable Waste Management in Kwara State

S/N	Statements	SD	D	U	A	SA	Total	Aggregate Response
1	The regulatory frameworks for waste management in the state are comprehensive and aligned with sustainable practices.	1 (6%)	29 (18.8%)	19 (12.3%)	64 (41.6%)	41 (26.6%)	154 (100%)	Agreed
2	The waste management regulations in the state are effectively enforced by the responsible authorities.	1 (6%)	25 (16.2%)	15 (9.7%)	84 (54.5%)	29 (18.8%)	154 (100%)	Agreed
3	There is sufficient monitoring and oversight of waste management activities to ensure compliance with regulatory frameworks in the state.	23 (14.9%)	105 (68.2%)	7 (4.5%)	14 (9.1%)	5 (3.2%)	154 (100%)	Disagreed
4	Adequate penalties and sanctions are imposed on individuals and organizations that violate waste management regulations in the state.	22 (14.3%)	41 (26.6%)	8 (5.2%)	66 (42.9%)	16 (10.4%)	154 (100%)	Agreed
5	The regulatory frameworks prioritise the reduction, reuse, and recycling of waste materials	12 (7.8%)	71 (46.1%)	6 (3.9%)	45 (29.2%)	20 (13%)	154 (100%)	Disagreed
6	There are clear guidelines and procedures for the proper handling and disposal of hazardous waste.	7 (4.5%)	23 (14.9%)	16 (10.4%)	68 (44.2%)	40 (26%)	154 (100%)	Agreed
7	The involvement of local communities and stakeholders in waste management decision-making processes is encouraged.	2 (1.3%)	36 (23.4%)	36 (23.4%)	42 (27.3%)	38 (24.7%)	154 (100%)	Agreed
8	The regulatory frameworks encourage public participation and awareness of waste management practices in the state.	Nil	41 (26.6%)	10 (6.5%)	55 (35.7%)	48 (31.2%)	154 (100%)	Agreed

Notes. Researcher’s Field Survey, 2023.

Statement 1: Whether the state's regulatory frameworks for waste management are thorough and aligned with sustainable practices.

Table 1 reveals that 41.6% agreed that in Kwara state, the regulatory frameworks for waste management in the state were comprehensive and aligned with sustainable practices. The result is consistent with the views expressed by **respondent 2** from the Kwara Environmental and Protection Agency who said:

“Regulatory frameworks for waste management in the state are indeed comprehensive and aligned with sustainable practices because we manage the premises, arrange the work and monitor them. The work we do is under the law and we do not go beyond the law to make sure the work is being carried out as expected in which waste collectors are being arranged to guide the waste so that the environment will not be so dirty and jam pack with refuse all around”.

Respondent 3 a Legal Practitioner admitted that “fairly, the relevant laws are elaborate enough”. According to Ijaiya (2013), the Environmental Sanitation Law, the Kwara State Environmental Protection Agency Law, and other state legislations all seek to promote a sustainable environment conducive to improved living circumstances and growth. The outcome is comparable to Akpoghome (2014), who stated that KWEPA is in charge of enforcing laws, policies, guidelines, and regulations aimed at maintaining environmental sustainability. Littering is illegal under the statute, except in defined places. However, it was found that both literate and illiterate portions of Nigeria's population were unaware of environmental planning regulations (Ikelegbe & Onwuemele, 2012).

Statement 2: Whether the responsible authorities effectively enforce the state's waste management regulations.

Table 1 also reveals that 54.5% agreed that in Kwara state, the waste management regulations in the state were effectively enforced by the responsible authorities. The result reflects the view expressed by **respondent 2** from the Kwara Environmental and Protection Agency who said: “The Kwara State Ministry of Environment and Forestry and its agency, Kwara Environmental and Protection Agency are in charge of enforcement. The agency is more concerned about the enforcement because we discovered that people are not ready to comply without enforcement and that is really what we are doing now. For instance, most shops are being locked because they do not comply with the warning. We mandate them to give refuse to waste collectors but they prefer putting the refuse on road media instead of paying to waste collectors. We mandate them to give their waste to social waste collectors and pay tokens while households are to register with commercial waste collectors. Equally, the pedestrian who dumps refuse illegally is expected to be arrested and fined according to law. The mobile court is saddled with the responsibility to prosecute and charge the polluters with immediate effect”.

Similarly, **respondent 3** a Legal Practitioner has made the following remarks: “*abysmally low enforcement. The usual excuse of the authorities is usually insufficient funding and workforce*”. The result is in line with the Kwara State Commissioner for the Ministry of Environment who has pledged to collaborate with the state Environmental Task Force to arrest and penalize all offenders. He urged residents to support the government’s zero-tolerance policy towards filthy and unhealthy environments, emphasizing that such cooperation would play a crucial role in preventing the spread of communicable diseases and the outbreak of epidemics in the state. Additionally, he has urged traders and roadside vendors to utilize waste bins and dispose of waste properly. He further stated that if there was no compliance with waste disposal guidelines, the government would have no choice but to enforce waste control and other environmental regulations (Tribune, 2021). Olukanni and Akinyinka (2012); Olukanni et al. (2014); and Sridhar et al. (2017) have argued that the regulations governing operations were ineffective due to the lack of proper sanctions, combined with economic factors and a lack of understanding of the interdependent relationships between human and environmental resources needed to address the numerous waste management challenges. Mabogunje (1996) asserted that effective policies and well-organized mechanisms for implementation are crucial for maintaining a robust waste management system. When policies are weak, laws and controls are not properly enforced, or society is not adequately educated, waste management becomes a significant challenge.

Statement 3: Whether there is adequate monitoring and oversight of waste management activities to ensure compliance with the state's regulatory frameworks.

Table 1 indicates that 68.2% disagreed that there was sufficient monitoring and oversight of waste management activities to ensure compliance with regulatory frameworks in the state. This is similar to the view expressed by **respondent 2** from the Kwara Environmental and Protection Agency who said: "The officers are operating out of the ministry and agency to ensure proper monitoring and enhance public compliance with waste management. They are stationed in strategic places and anybody who violates sanitary law will be sanctioned, prosecuted and judged immediately". Meanwhile, **Respondent 3 a** Legal Practitioner states that "*the little monitoring tends to focus on the period environmental sanitation day(s), and even that is not enough as many violators on sanitation days are either left unchallenged or let go after some kind of compromise.* The numerous regulations governing compliance, particularly for hazardous waste, can create a complex framework that even experienced facilities find difficult to navigate. A key aspect of authorization is the state's commitment to issuing permits that align with legal regulatory requirements, inspecting and monitoring regulated activities, taking appropriate enforcement actions against violators, and ensuring that these actions are as stringent as those in the federal program.

NESREA employs proactive measures to ensure compliance with environmental laws and regulations, using enforcement powers when voluntary compliance fails. The key enforcement strategies include inspections, compliance monitoring, negotiations, legal actions, and prosecutions. Methods include issuing permits, serving notices, modifying license conditions, enforcing the "polluter pays" principle, and carrying out remedial actions. NESREA works with various stakeholders, including government agencies, civil society organizations, NGOs, and international partners, to enhance enforcement efforts.

Statement 4: Whether adequate penalties and sanctions are imposed on individuals and organizations that violate the state's waste management regulations.

Table 1 also indicates that 42.9% agreed that there were adequate penalties and sanctions imposed on individuals and organizations that violated waste management regulations in the state. A similar view was expressed by **respondent 3 a** Legal Practitioner who stated that "*In terms of the laws, there are adequate penalties and sanctions, especially on individual violators. For instance, throwing dirt/objects on the street attracts about N5000.00 which is fairly enough for an individual violator. However, in practice, many violators are allowed to go scot-free.*" Smith (2019) emphasized the importance of penalties and sanctions as effective mechanisms of deterrence. He argued that stringent penalties send a clear message that non-compliance with waste management regulations will result in significant consequences, thereby encouraging individuals and organizations to adhere to the rules.

Coglianesse and Nash (2001) advocated for a tiered system where penalties were increased based on the nature and magnitude of the violation. Malavasi and Menegaki (2017) advocated for combining economic incentives with penalties, proposing that rewards for compliance and innovative waste management could motivate sustainable practices. They also highlighted that penalties should serve not only as punishments, but also as means for restitution and remediation. Penalties collected could be reinvested into environmental restoration efforts or community projects that mitigate the impact of waste mismanagement. And that penalties and sanctions should be imposed through a transparent and accountable process. They argued that transparency in the enforcement of waste management regulations helps build trust in the regulatory framework and ensures that penalties are applied fairly

and without bias. Doelle and Lahey (2014) pointed out that penalties should be designed with a long-term perspective, aiming not only to rectify current violations but also to prevent future ones.

Statement 5: Whether the regulatory frameworks prioritise the reduction, reuse, and recycling of waste materials.

Table 1 also indicates that 46.1% disagreed that the regulatory frameworks prioritise the reduction, reuse, and recycling of waste materials. However, **respondent 1** from the Kwara State Ministry of Environment and Forestry made the following remarks: “We don’t do anything on how to recycle but some scavengers use to separate the waste at the dumpsite. Only people allowed at the dumpsite segregate waste. The scavengers also remit tokens to the government which is done collectively. The scavengers separate iron, and steel and sell to KAMWAYA while other materials are taken outside the state”. In the same vein, **respondent 3** a Legal Practitioner had this to say: “*Through the Environmental Protection Agency making regulations that centres on waste recycling, investing therein and encouraging the private sector to also invest*”. However, the Kwara State government has no recycling plant or treatment plant. Regulatory frameworks set guidelines for the proper sorting, collection, and processing of recyclable materials, as well as encouraging industries to use recycled materials in their production processes. Ismaila et al. (2022), emphasized the importance of adopting a more sustainable waste management approach that focuses on practices such as waste reduction, classification, reuse, recycling, and composting.

Statement 6: Whether there are clear guidelines and procedures for the proper handling and disposal of hazardous waste.

Table 1 shows that 42.2% agreed that there were clear guidelines and procedures for the proper handling and disposal of hazardous waste. This finding was best exemplified by the stance taken by **respondent 3**, the Legal Practitioner who had admitted that the principal laws were more general in terms of prohibiting all kinds of environmental pollution and indiscriminate waste disposal. There is a need for further regulations that speak specifically to the disposal of hazardous waste.

Statement 7: Whether the involvement of local communities and stakeholders in waste management decision-making processes is encouraged.

Table 1 also shows that 27.3% agreed that there the involvement of local communities and stakeholders in waste management decision-making processes was encouraged. This finding was reflected in the observation made by **respondent 3**, the Legal Practitioner who pointed out that the involvement of local communities and stakeholders in waste management decision-making processes was minimal. The decision-making was often that the government had not really involved the populace. Though there may be some seeming engagement at the level of the State House of Assembly, the reality was that the government often forced whatever unilateral decisions made down the throats of the citizenry. Wilson and Tormin (1998) emphasized that effective waste management required the active participation of various stakeholders. Egunjobi (2008) and Wahab and Ola (2016) highlighted the importance of community involvement in waste management, viewing it as crucial as other urban services. Households, as the largest group of stakeholders, play multiple roles in waste management, including waste generation, receiving waste services, and participating in urban sanitation efforts. The private sector can also play a significant role in waste collection, transport, processing, and disposal (Cointreau-Levine, 1994). Effective environmental communication can be achieved through ongoing dialogues, fostering mutual understanding among stakeholders. Zikargae et al. (2022), emphasized that the success

of environmental policies and projects depended on active stakeholder participation, which was seen as vital for sustainability and environmental security. However, while other stakeholders were invited to the validation workshop, they did not participate in the community projects or the implementation phase.

Statement 8: Whether the regulatory frameworks encourage public participation and awareness of waste management practices in the state.

Table 1 reveals that 35.7% agreed that the regulatory frameworks encouraged public participation and awareness of waste management practices in the state. This overall finding is reflected in the personal view of **respondent 2** from the Kwara Environmental and Protection Agency who pointed out that the regulatory frameworks encouraged public involvement and awareness of waste management practices in the state, but only that the people were stubborn and did not comply. Similarly, **respondent 3**, the Legal Practitioner observed that the goal of the regulatory frameworks to encourage public participation and share knowledge of waste management practices in Kwara state became a bit dicey. The relevant laws already stipulated their goal of public enlightenment, but the laws were not self-enforcing.

However, despite the ambitious goals for sustainability in the national policy on the environment, the management and governance aspects had not lived up to the policy's ideals due to a lack of public involvement in its development and implementation (Fagbohun, 2012). A significant flaw in Nigeria's environmental policy is its poor implementation, which is further weakened by persistent corruption (Onyenekenwa & Agbazue, 2011). For example, the 1999 constitution did not clearly define which agency or level of government should be responsible for overseeing environmental matters or empowered with the authority to regulate and impose penalties on polluters. This lack of clarity undermines efforts to address the cross-border nature of environmental pollution in Nigeria. Environmental policies are also shaped by political, economic, and social factors that influence their context, scope, and ideological framework (Couturier & Thaimai, 2013).

CONCLUSIONS AND RECOMMENDATIONS

The present paper has examined the existing regulatory frameworks for environmental protection policies and waste management in Kwara State. The findings showed that the majority of the respondents disagreed that the regulatory frameworks had prioritised the reduction, reuse, and recycling of waste materials, though they agreed that there were clear guidelines and procedures for the proper handling and disposal of hazardous waste. The majority of the respondents also agreed that environmental protection policies took into account the specific needs and challenges of different communities. There was a consensus among the respondents that the involvement of local communities and stakeholders was encouraged in waste management decision-making processes. The regulatory frameworks had encouraged public participation and promoted awareness of waste management practices in the state.

The Kwara State Ministry of Environment oversees policy formulation, waste management regulations, and compliance monitoring, while the Kwara State Environmental Protection Agency (KWEPA) ensures adherence to environmental laws and conducts assessments. The Kwara State Waste Management Authority (KWAMA) is responsible for waste collection, disposal, and recycling initiatives to maintain sanitation and cleanliness. At the grassroots level, Local Government Authorities play a crucial role in coordinating waste management efforts and promoting proper disposal practices

within communities. Additionally, the NESREA collaborates with state institutions to enforce national environmental regulations. The Kwara State House of Assembly's Committee on Environment legislates and reviews laws to enhance sustainability efforts. Beyond government agencies, it is recommended that private sector organizations and NGOs should contribute to environmental education, waste collection, and recycling programs. Furthermore, traditional and community leaders should play a vital role in mobilizing local engagement and ensuring cultural alignment with environmental policies.

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REFERENCES

- Ahmed, Y. A. (2008) Waste management in Ilorin Metropolis: Lessons for Nigerian Cities. *FUTY Journal of the Environment, School of Environmental Sciences, Federal University of Technology, Yola – Nigeria*, 3(1), 49-58.
- Ajayi, I. O., Ajumobi, O. O., & Falade, C. O. (2020). Malaria and COVID-19: Commonalities, intersections and implications for sustaining malaria control. *Pan African Medical Journal*, 37(1), 1-6. <https://doi.org/10.11604/pamj.suppl.2020.37.1.25738>
- Akpoghome, T. U. (2014). Managing domestic waste in Nigeria: Legal framework, problems, and solutions. *International Journal of Environment, Ecology*, 8–27.
- Amin, A., Abdullahi, A., & Abdurashed, H. B. (2024). Strategies of environmental protection policies on sustainable waste management in Kwara and Oyo States, Nigeria. *Journal of Administrative Science, Universiti Teknologi MARA*, 21(1), 249-274.
- Amin, A., Raji, S., & Salawu, O. I. (2023). Public policy on waste management in Kwara State, Nigeria: Implications on environmental security. *Ilorin Journal of Administration and Development, University of Ilorin*, 7(1), 12–24.
- Anifowose, Y. B., Omole, K. E., & Akingbade, O. (2011). *Waste disposal site selection using remote sensing and GIS: A study of Akure and its environs, Southwest Nigeria*. Proceedings of the Environmental Management Conference, Federal University of Agriculture, Abeokuta, Nigeria, 2–9.
- Awopetu, M. S., Coker, A. O., Awopetu, R. G., Awopetu, S. O., Booth, C. A., Fullen, M. A., Hammond, F. N., & Tannahill, K. (2013). Reduction, reuse, and recycling of solid waste in the Makurdi metropolitan area of Nigeria: Public opinions and perceptions. *International Journal of Education and Research*, 1(11), 1–12.
- Badri, M., Muhamad, R., Shekh, R., & Azman, N. H. N. (2021). Assessing financial performance of green technology companies in Malaysia using Tobin's Q. *Journal of Environmental Management and Sustainable Development*, 10(2), 25–38.
- Brundtland Report. (1987). *Sustainable development and goal*. World Commission on Environment and Development. <https://www.britannica.com/topic/Brundtland-Report>
- Che-Adam, N., Lode, N. A., & Abd-Mutalib, H. (2019). The influence of board of directors' characteristics on the environmental disclosure among Malaysian companies. *Malaysian Management Journal*, 23, 1–25. <https://doi.org/10.32890/mmj.23.2019.9682>
- Chik, A. R., & Jusoh, J. (2003). Innovative technologies for industrial wastes. *Malaysian Management Journal*, 7(2), 47–58. <https://e-journal.uum.edu.my/index.php/mmj/article/view/9765>

- Coglianesi, C., & Nash, J. (2001). *Regulating from the inside: Can environmental management systems achieve policy goals?* https://scholarship.law.upenn.edu/faculty_scholarship/2630
- Cointreau-Levine, S. (1994). *Private sector participation in municipal solid waste services in developing countries.* <https://elibrary.worldbank.org/doi/abs/10.1596/0-8213-2825-5>
- Constitution of the Federal Republic of Nigeria (CFRN), 1999 (as amended). (1999). Abuja: Government Printer.
- Couturier, A., & Thaimai, K. (2013). *Eating the fruit of the poisonous tree? Ecological modernization and sustainable consumption in the EU.* Institute for International Political Economy Berlin Working Paper, 20.
- David, O., Olukanni, D., & Christiana, O. (2019). Public-private sector involvement in providing efficient solid waste management services in Nigeria. *Recycling*, 4(2), 19. <https://doi.org/10.3390/recycling4020019>
- Debrah, J. K., Vidal, D. G., & Dinis, M. A. (2021). Raising awareness on solid waste management through formal education for sustainability: A developing countries evidence review. *Recycling*, 6(1), 1–6.
- Dobson, A. (2003). *Citizenship and the environment.* Oxford University Press.
- Doelle, M., & Lahey, W. (2014). *A new regulatory framework for low-impact/high-value aquaculture in Nova Scotia.* https://novascotia.ca/fish/documents/Aquaculture_Regulatory_Framework_Final_04Dec14.pdf
- Egunjobi, L. (2008). *Waste: A good source of wealth.* Paper presented at a 2-day workshop to mark the 2008 World Environmental Day, organised by the Oyo State House Committee on Environmental Services, held at the Conference Centre, University of Ibadan, June 5–6.
- Environmental Impact Assessment Act. (1992). *Environmental impact assessment Decree No. 86 of 1992 Laws of the Federation of Nigeria.* https://ead.gov.ng/wp-content/uploads/2017/04/EIA_Act.pdf
- European Environment Agency. (2021a). *A year in brief.* <https://www.eea.europa.eu/publications/EEA-2021-the-year-in-brief>
- European Environment Agency. (2021b). *Waste policies and targets.* <https://www.eea.europa.eu/themes/waste/waste-policies-and-targets>
- Fagbohun, M. O. (2012). *Mournful remedies, endless conflicts and inconsistencies in Nigeria's quest for environmental governance: Rethinking the legal possibilities for sustainability.* Nigerian Institute of Advanced Legal Studies.
- Ferronato, N., & Torretta, V. (2019). Waste mismanagement in developing countries: A review of global issues. *International Journal of Environmental Research and Public Health*, 16(6), 1060. <https://doi.org/10.3390/ijerph16061060>
- Harmful Wastes Act. (2009). *National policy on the environment; National Environmental Regulations.* <https://standards.lawnigeria.com/2020/08/21/national-environmental-sanitation-and-wastes-control-regulations-2009/>
- Ijaiya, H. (2013). The legal framework for solid waste disposal and management in Kwara State, Nigeria. *Journal of Sustainable Development Law and Policy*, 1(1), 96–109.
- Ikelegbe, O., & Onwuebele, A. (2012). Planning the Nigerian environment: Laws and problems of implementation. *Contemporary Journal of Social Sciences*, 1(2), 151–161.
- Klaus, C. (1997). *A theory of production with waste and recycling.* University of Mannheim and University of Toronto.
- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30(3), 607–610.
- Leach, M., Scoones, I., & Stirling, A. (2010). *Dynamic sustainability: Technology, environment, social justice.* Earthscan.

- Lele, S. M. (1991). Sustainable development: A critical review. *World Development*, 19(6), 607–621.
- Lishan, X., Bo, F., Tong, L., Liang, M., & Ouwen, Z. (2023). Promoting and maintaining public participation in waste separation policies: A comparative study in Shanghai, China. *Resources, Environment and Sustainability*, 12, 100112.
- Luke, A. A., & Henry, A. (2018). *Handbook of research on environmental policies for emergency management and public safety*. University of Port Harcourt, Nigeria Management, 22(6), 849–856.
- Mabogunje, A. (1996). *Environmental challenges of Sub-Saharan Africa*. Malthouse Press.
- Malavasi, M., & Menegaki, A. N. (2017). Motivations and barriers to implementing eco-innovation: A cross-national analysis of wastewater treatment plants. *Journal of Cleaner Production*, 155, 39–49. <https://doi.org/10.1016/j.jclepro.2016.08.034>
- Meadows, D. (2008). *Thinking in systems: A primer*. Chelsea Green Publishing.
- Murphy, J. (2004). *The nature of ecological sustainability*. Earthscan.
- National Environmental (Sanitation and Waste Control) Regulations. (2011). *Federal Republic of Nigeria Official Gazette*, 98(60). Abuja: Government Printer.
- NESREA Act (2007). *National Environmental Standards and Regulations Enforcement Agency (Establishment)*. <https://lawsfnigeria.placng.org/laws/nesrea.pdf>
- Nnamdi, I. (2014). Safe disposal of municipal wastes in Nigeria: Perspectives on a rights-based approach. *Afe Babalola University Journal of Sustainable Development Law and Policy*, 3(1), 72-86.
- Nyekwere, E. H., & Ole, N. C. (2022). Assessing the legal framework for the realization of environmental democracy in Nigeria. *Nnamdi Azikiwe University Journal of International Law and Jurisprudence*, 13(2), 60–64.
- Ojekunle, O. Z., Rasaki, A., Taiwo, A. M., Adegoke, K. A., Balogun, M. A., Ojekunle, O. O., Anumah, A. O., Ibrahim, A. O., & Adeyemi, A. (2020). Health risk assessment of heavy metals in drinking water leaching through improperly managed dumpsite waste in Kurata, Ijoko, Sango area of Ogun State, Nigeria. *Groundwater for Sustainable Development*, 8, 100792. <https://doi.org/10.1016/j.gsd.2020.100792>
- Olukanni, D. O., & Akinyinka, O. M. (2012). *Environment, health, and wealth: Towards an analysis of municipal solid waste management in Ota, Ogun State, Nigeria*. In Proceedings of the International Conference on Clean Technology & Engineering Management ICCEM (pp. 51–71). Covenant University.
- Olukanni, D. O., Akinyinka, O. M., Ede, A. N., Akinwumi, I. I., & Ajanaku, K. O. (2014). Appraisal of municipal waste management, its effect and resource potential in a semi-urban city: A case study. *Journal of South Africa Business and Resources*, 1–13.
- Onyenekenwa, E. C., & Agbazue, V. C. (2011). Protection of Nigeria’s environment: A critical policy review. *Journal of Environmental Science and Technology*, 4, 490–497. <https://doi.org/10.3923/jest.2011.490.497>
- Organisation for Economic Co-operation and Development (OECD). (2000). *Environmental performance reviews: Nigeria*. OECD Publishing.
- Shehu, K., Bashir, A., & Mubi, A. M. (2018). Implication of ineffective policy implementation for community participation on waste management in Bauchi State, Nigeria. *FUTY Journal of the Environment*, 12(1). <https://www.ajol.info/index.php/fje/article/view/182376>
- Shiva, V. (1993). *Ecofeminism*. Zed Books.
- Smith, J. K. (2019). Deterrence and environmental regulation. *Oxford Research Encyclopedia of Environmental Science*. <https://doi.org/10.1093/acrefore/9780199389414.013.564>
- UNEP. (2016). *United Nations Environment Programme: Annual Report 2015*. <https://www.unep.org/resources/annual-report/united-nations-environment-programme-annual-report-2015>

- United Nations. (2015). *Transforming our world: The 2030 agenda for sustainable development*. <https://sdgs.un.org/2030agenda>
- Wahab, B., & Ola, A. B. (2016). The activities of informal waste contractors in municipal solid waste management in Ibadan. *Journal of Environmental Design and Management*, 8(1), 80–97.
- Wilson, D. C., & Tormin, A. C. (1998). *Planning guide for strategic municipal solid waste management in major cities in low-income countries*. The World Bank/SDC.
- World Bank. (2019a). *Solid waste management*. <https://www.worldbank.org/en/topic/urban-development/brief/solid-waste-management>
- World Bank. (2019b). *What a waste 2.0: A global snapshot of solid waste management to 2050*. <https://openknowledge.worldbank.org/handle/10986/30317>
- Yusuf, O. R., Adewoye, S. O., & Sawyer, H. O. (2022). Residents' perception on central storage of solid wastes in Ilorin metropolis, Kwara State, Nigeria.
- Zikargae, H. M., Woldearegay, A. G., & Skjerdal, T. (2022). Assessing the roles of stakeholders in community projects on environmental security and livelihood of impoverished rural society: A nongovernmental organization implementation strategy in focus. *Heliyon*, 8(10), e10987. <https://doi.org/10.1016/j.heliyon.2022.e10987>