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Strategies of Environmental Protection Policies on Sustainable Waste Management Systems in Kwara and Oyo States, Nigeria

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Abstract

The paper examined the strategies of environmental protection policies on sustainable waste management in Kwara and Oyo states in Nigeria. The study adopted Marxian Political Ecology theory. The population of this study was 11,170,478 while the sample size was 400. Out of 400 questionnaires distributed, 363 were correctly filled, retrieved and analyzed. Both primary and secondary data. SPSS version 21 was used to analyze the collected data for easy analysis. Despite growing concerns about the adverse environmental impacts of improper waste management practices, many regions and communities continue to struggle with inadequate strategies for waste disposal and recycling. It is presumably observed that there is a lack of effective strategies for the implementation of environmental protection towards sustainable waste management in Kwara and Oyo States. The study's conclusions showed that most respondents in the states of Kwara and Oyo concurred that the state has environmental conservation awareness campaigns and education initiatives. Additionally, the majority in both states concurred that the state government and NGOs collaborate on joint activities and that the dumpsite is approved. The report suggests that the governments of Kwara and Oyo states develop recycling and treatment facilities as well as more dumpsites. Priority should be given to environmentalists during the hiring, placement, and selection processes. Both States should implement landfills rather than just dumpsites, and Kwara State in particular should have an atmosphere that is supportive of private waste collectors.

Keywords*: Environment, protection, management, policy, strategies, Waste*

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INTRODUCTION

The crucial role that a quality environment plays in the lives of both humans and animals cannot be overstated. However, the health implications and the lack of coordinated policy efforts at various levels of government leave much to be desired. It is widely acknowledged that adopting qualitative environmental practices contributes to good health. This raises concerns about the effectiveness of policies aimed at ensuring sustainable waste management. It is important to approach the problem of waste management within the framework of generally recognised principles, with a focus on sustainability, especially in a nation such as Nigeria. This means developing society in all directions without endangering the ability of future generations to meet their own needs. From the Millennium Development Goals (MDGs) to the current emphasis on

Sustainable Development Goals (SDGs), the United Nations (UN) has continuously prioritised environmental challenges on a global scale. With the resumption of focus in 2015, 17 objectives have become the new focal points. The promotion of a high-quality environment is included in Goals 3, 6, 11, and 13, which are, respectively, good health and well-being, clean water and sanitation, sustainable cities and communities, and climate action.

Collaboratively, the endeavour of environmental protection encompasses the joint actions of individuals, organizations, and governments aimed at safeguarding the natural environment. Its objectives encompass the preservation of natural resources, the maintenance of the existing environment, and, whenever possible, the restoration of damaged ecosystems, along with the reversal of adverse trends. The overarching aim of environmental protection is to avert the deterioration of the natural environment, a process intensified by factors such as population growth, technological advancements, and excessive consumption. These elements have contributed to a detrimental impact on the environment, posing risks to both humans and animals. The persistent challenge of establishing an efficient waste management system is evident in many developing societies. Population growth compounds this issue, as higher population densities in specific geographic locations result in increased levels of waste generation. This exacerbates the complexity of waste management within those areas. Despite the acknowledgement of poorly managed waste as a significant environmental hazard, the ineffective handling of waste by societies plays a substantial role in magnifying existing environmental pressures and degradation (Alam, Chowdhury, Hassan, Karanjit, and Shrestha, 2007)

The United States Environmental Protection Agency (EPA) has been striving to protect the environment and human health since 1970, according to a global overview of the issue. United States citizens officially produce 4.4 pounds (2.0 kg) of municipal solid waste (MSW) per person per day, more rubbish than any other country in the world. China's environmental policies, which include appropriate waste management rules and regulations that allow trash to be converted into riches, have continued to foster innovation. The environment in Africa is ever-changing, and with it comes the need to raise awareness of the environmental problems that are contributing to these changes. People must be far more careful with how they live their lives in conjunction with the types of environmental issues our planet is facing levels in order to establish a balance between man and the environment, given the massive increase in natural

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disasters, warming and cooling periods, and various types of weather patterns. In order to guarantee a cleaner and healthier environment for Nigerians, the Federal Government of Nigeria founded the National Environmental Standards and Regulations Enforcement Agency (NESREA) in 2007. Nigeria ranks among Africa's top generators of garbage. Nigeria produces 32 million tonnes of garbage annually, according to a report by the United Nations Industrial Development Organisation, although the country's daily waste generation rate. The study will examine the strategies adopted in environmental protection policy in Kwara and Oyo states.

STATEMENT OF THE PROBLEM

Even with rising awareness of the damaging effects that inappropriate waste management methods have on the environment, many areas and towns still struggle with insufficient recycling and disposal plans. The aims of sustainability as a whole, human health, and the environment are all seriously threatened by this circumstance. Presumably, it is noted that Kwara and Oyo States lack efficient plans for integrating environmental protection with sustainable waste management. Furthermore, short-term affordability and convenience are frequently given precedence over long-term sustainability and environmental preservation in current trash management strategies. Many academics, like Matter, Dietschi, & Zurbrügg (2013, Ibrahim and Amin (2023), Amin, Raji, & Salawu (2023), have studied waste management and environmental protection. The study will look at Kwara and Oyo State's strategies for implementing environmental protection policies on sustainable waste management.

LITERATURE REVIEW

Conceptual Clarification

The prevention of unintended changes to ecosystems and their component parts is known as environmental protection (Clive, Andrew, Nicoletta and Simone, 2018). Waste is defined by Coker, Achi, Sridhar, and Donnett (2016) as the underused, throwaway, or disposable sections of materials. According to UN-ESCAP (2018), trash is an inevitable byproduct of human activity. Wastes are defined as products or substances that have spoiled, been rejected or are no longer needed for their intended function by Festus and Omoboye (2015).

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Waste Management Strategies

The most desirable approach to managing waste is waste prevention. Technologies can be deployed at various stages of a product's life cycle, including manufacturing, usage, and post-use, to eliminate waste and mitigate pollution. Some effective strategies involve eco-friendly manufacturing methods that employ less hazardous materials, the implementation of advanced leakage detection systems for material storage, and innovative chemical neutralization techniques to reduce reactivity. Additionally, water-saving technologies can help decrease the demand for freshwater inputs.

Also, waste minimization encompasses a range of strategies aimed at designing and creating products or services that either reduce the quantity of generated waste or lower the toxicity of the resulting waste. These efforts are often a response to identified trends or specific products causing issues in the waste stream. Multiple strategies can be employed to minimize waste generation, such as reusing materials in industry, substituting less hazardous materials, or altering design and processing components. Waste minimization brings several advantages, including a reduction in natural resource consumption and decreased waste toxicity. This approach is particularly common in manufacturing, leading to resource conservation and significant cost savings.

Equally, recycling involves recovering valuable materials like glass, paper, plastics, wood, and metals from the waste stream for use in manufacturing new products. By incorporating more recycled materials, the need for raw materials for the same applications is reduced. Recycling not only diminishes the necessity for exploiting natural resources for raw materials but also transforms waste materials into valuable resources. It conserves natural resources, reduces energy consumption and emissions linked to the extraction of virgin materials, minimizes overall energy use and greenhouse gas emissions contributing to global climate change, and decreases the incineration or landfilling of recyclable materials.

Waste can be incinerated directly to generate energy. Incineration involves the combustion of waste at extremely high temperatures to produce electrical energy. The resulting byproduct is ash, which must be properly characterized before disposal or, in some cases, beneficially reused. This method is widely employed in developed

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countries, primarily due to limited landfill space. Approximately 130 million tons of waste are incinerated annually in more than 600 plants across 35 countries. Incineration is also used effectively to manage hazardous wastes such as chlorinated hydrocarbons, oils, solvents, medical waste, and pesticides.

EMPIRICAL REVIEW

Oberlin (2013) conducted a study focusing on the characterization of household waste in the Kinondoni municipality of Dar Es Salaam. The findings revealed a household waste generation rate of 0.44 kg/person/day. On average, the composition of household solid waste included kitchen/food waste, paper, plastics, glass, metals, aluminium, and other materials, with approximate proportions of 74.10%, 8.30%, 9%, 0.75%, 0.60%, 0%, and 7.25%, respectively. An analysis of the relationship between daily per capita household waste generation and socio-economic factors indicated a weak positive correlation with household size ($r = 0.219$ for middle-income households and $r = 0.138$ for low-income households). Additionally, the Pearson coefficient (r) suggested a very weak negative correlation ($r = -0.108$ for middle-income households and $r = -0.096$ for low-income households) between per capita daily waste generation and household income. The article was domesticated to Dar Es Salaam but did not address waste management and environmental protection policies in Kwara and Oyo States.

Armijo, Ojeda., & Ramírez (2018) undertook a study focusing on the characterization of solid waste and the recycling potential for a university campus. The study revealed that Campus Mexicali I generates 1 ton of solid waste daily, with over 65% of this waste being recyclable or having the potential for recycling. These results indicate the feasibility of implementing a segregation and recycling program on a university campus. Additionally, the study demonstrated that, given current conditions such as the number of recycling companies and their capacities, the local market can absorb all of these recyclable wastes. The article did not address waste management and environmental protection policies in Kwara and Oyo States.

Donnini, Rodrigues, Saide, & de Mattos (2007) conducted a study focusing on the recycling potential of urban solid waste designated for sanitary landfills in Brazil. The study revealed that approximately 90% of the waste held the potential for recycling, while only 10% necessitated landfilling. The study also revealed that compostable

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organic matter, represented by food and garden waste with high moisture content (51% and 41%, respectively), constituted 54% in mass and 21% in volume. The predominant plastic type in the waste stream was high-density polyethene, with an estimated disposal of about 5000 kg/day. A socioeconomic analysis of waste generation indicated that low-income neighbourhoods tended to discard relatively less packaging and more food waste, shoes, and construction debris compared to middle and high-income areas, possibly attributed to lower purchasing power and education levels. The study pointed out that more aluminium and uncoloured polyethene terephthalate were discarded during the warmer months, likely due to increased consumption of canned and bottled beverages. The article was domesticated to Brazil but did not address environmental protection policies in Kwara and Oyo States.

The attitudes of people living in Ilorin, the capital city of Kwara state, Nigeria, about the central storage of solid waste were studied by Yusuf, Adewoye, and Sawyer (2022). The results brought to light major worries among interested parties regarding unsafe disposal methods and ineffective trash collection in Nigeria. The study highlighted the fact that garbage generation in Ilorin is outpacing evacuation efforts on a daily basis, indicating the problem's increasing severity. As a result, the state of Ilorin's central solid waste storage is becoming more and more concerning, highlighting the urgent need for efficient waste management techniques. Although the article is pertinent to this work, it did not discuss Kwara and Oyo State's environmental protection policies.

The characterization and quantity of solid and liquid wastes in Iwo and Ibadan were studied by Ihuoma (2012). The results showed that burying solid wastes in pits and openly disposing of them in wetlands, water courses, and drains are common disposal techniques. As a result of this behaviour, the region is now littered, which is unsightly and bothersome because of the stink it produces. The article did not discuss environmental protection policies; instead, it was localised to Ibadan.

Hushie (2016) worked to promote partnerships for healthcare initiatives in Ghana between governmental and non-governmental organisations. The research findings indicate that many forms of partnerships are required for civil society organisations (CSOs) and the government in the health sector. These forms range from formal contractual arrangements to decentralised partnerships focused on lobbying. The government's and nongovernmental organisations' dedication to cooperative endeavours

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has demonstrated a crucial role in improving the provision of services, alleviating health disparities, and cutting down on delays. Non-governmental organisations add substantial value by virtue of their implementation skills, community legitimacy, knowledge, experience, and ability to draw in funds from donors. This is especially important when it comes to meeting health requirements for groups or locations that are outside the government's purview and for services that it does not offer. Waste management was not covered in the article because it was localised to Ghana.

Among other connected issues, Miranda (2013) worked on legislation that forbids the transportation, depositing, and dumping of hazardous waste on any land or territorial seas. Serious consequences for breaking this rule include life in jail and the seizure of any vehicles or equipment used to import or transport garbage to the Federal Government of Nigeria. Both the corporate body and its officers shall face the relevant penalties in situations when the corporate entity is accountable for the violation because of the carelessness or approval of its key executives. According to the Act, waste generators are required to provide secure storage systems for their wastes, and individuals are prohibited from participating in activities that are likely to generate hazardous waste without first getting a permit from the Agency. Similar requirements apply to those who generate hazardous waste: they must treat the waste using approved methods; they cannot export or transit hazardous waste without a permit from the Agency; they must obtain prior informed consent from the Agency before transporting toxic waste through Nigeria to another nation; and they must comply with all other obligations; failure to do so will result in an offence that carries a fine of N5,000,000, a five-year prison sentence, or both. Waste management was not discussed in the article.

Jenny and Tim (2021) investigated the counterintuitive relationship between rising wasteful behaviour and the warm glow of a good emotion linked to recycling. Results showed that when people are given options like repurposing bread into beer or plastic packaging into clothing both of which have become popular people may psychologically view their waste creation as a way to contribute to the greater good, which makes them feel good about themselves (a phenomenon known as the warm-glow effect). According to the study, these possible "wasteful contribution" impacts need to be considered when assessing the actual sustainability benefits of particular recycling programmes. Although it is pertinent to this work, the paper did not discuss Kwara and Oyo States' environmental protection.

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Maletz, Dornack, and Ziyang (2018) investigated recycling and source separation. The survey found that the creation of green communities and the growth of a circular economy are widely agreed upon. As leaders in this field in their respective regions, China and Germany share the goal of reducing waste's negative environmental effects and avoiding the "Not In My Backyard" (NIMBY) phenomenon. They have gained a great deal of expertise in waste reduction and effective waste management. Strategies like "Pay As You Throw," "Green Dot," and "Trade-in policy (the new for old policy)" have continuously shown higher recycling rates and decreased trash over the past 30 to 40 years. The article shows how German waste laws have changed over time to attain the country's current recycling rates while still abiding by EU regulations. The essay did not discuss waste management in Kwara and Oyo States; instead, it was tailored for China and Germany.

Matter, Dietschi, and Zurbrügg (2013) studied how residential waste segregation in Dhaka could improve the informal recycling sector. A significant amount of unrealized potential was found after the informal recycling sector, its stakeholders, trash type, and generation were all examined. To ensure the sustainability and effectiveness of the suggested improvements, any programme aiming at promoting source segregation and expanding access to recyclables must carefully take into account all interconnected parts of the waste management system. The study suggested that the informal sector's regular collection or purchase of recyclables, as well as the feasibility of adopting segregation at the household level, should be given high attention. Kwara and Oyo States; environmental protection policies were not discussed in the article.

THEORETICAL FRAMEWORK

The study adopts Marxian Political Ecological Theory. Ecological Marxists engage in critical discussions concerning the global power structure, particularly addressing issues such as resource inequality and the lopsided configuration of the international capitalist system and its impact on access to natural resources. In 1997, Roggers advocated for the concept of ecological security, defining it as the state in which a community's physical environment can fulfil its needs without depleting its natural capital. This concept aligns well with the foundations of the Marxian political ecology framework. Furthermore, Robbins (2004) pointed out that political ecology encompasses a wide array of themes, including environmental consumption, pollution, degradation, exploitation, marginalization, resource extraction, conflicts, resource

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equity, ecological justice, conservation, and control. However, it is worth noting a limitation in radical environmental critiques of capitalism. Consequently, they may not fully address the historically specific factors contributing to environmental crises in the twentieth and twenty-first centuries. This limitation prevented him from fully capturing the essential characteristics of environmental degradation that emerged with the advent of monopoly capitalism.

The theory is relevant to this study because the Kwara and Oyo States environs are polluted with heaps of refuse in many areas like Ipata, Sango, Okelele, Omoda, Isale Aluko, Pakata, and Gambari in the Ilorin metropolis of Kwara State and Gbagi market, Foko, Oniyanrin, Ogunpa Gege, Iyana Church, Beere, Bodija in the Ibadan metropolis of Oyo State. The process of waste disposal occasionally caused traffic hold-ups in some strategic areas of the urban centre. The performance of Kwara and Oyo states Ministries and agencies had been rebuked as a result of their poor performance by the general public. Many people in the states including beggars have a lot of health incidences resulting from water, air and pest-borne diseases within and areas where the prevalence of effluents prevailed.
the research.

METHODOLOGY

The study embraced Marxian Political Ecology theory. The Taro Yamane formula was used to determine the sample size, which came out to be 400, given the population of 11,170,478 in this study. Out of the 400 surveys that were issued, 363 were collected for examination. It was based on secondary data (journals, textbooks, newspapers) as well as primary data (interviews and questionnaires). The key stakeholders, which included the personnel of the Ministry of Environments and its agencies, the House of Assembly staff, environmentalists, private garbage collectors, and medical professionals in Kwara and Oyo, were interviewed and given questionnaires. The gathered data was analysed using SPSS version 21 for convenience of analysis. Regression and correlation analysis were used to analyse the data using a 5-point Likert scale: 1 for strongly disagreed, 2 for disagreed, 3 for undecided,

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DATA PRESENTATION, INTERPRETATION AND ANALYSIS

Table 1: *Bio Data*

Sex	**States**		**Frequency**	**Percentage(%)**
Male	Kwara	56	196	53%
	Oyo	140		
Female	Kwara	48	167	47%
	Oyo	119		
Total			**363**	**100%**
Age	**States**		**Frequency**	**Percentage(%)**
18-30	Kwara	20	128	35.3%
	Oyo	108		
31-50	Kwara	71	213	58.7%
	Oyo	142		
51 and above	Kwara	13	22	6%
	Oyo	9		
Total			**363**	**100%**
Educational Qualification	**States**		**Frequency**	**Percentage(%)**
SSCE	Kwara	4	12	3.3%
	Oyo	8		
ND/NCE	Kwara	14	45	12.4%
	Oyo	31		
HND/BSc/MA	Kwara	73	262	72%
	Oyo	189		
Master	Kwara	11	41	11.3%
	Oyo	30		
PhD	Kwara	2	3	1%
	Oyo	1		
Total			**363**	**100%**
Marital Status	**States**		**Frequency**	**Percentage(%)**
Single	Kwara	18	111	
	Oyo	93		30%
Married	Kwara	85	242	66.6%
	Oyo	157		
Divorced	Kwara	Nil	2	1%
	Oyo	2		
Widow	Kwara	1	5	1.4%
	Oyo	4		
Widower	Kwara	Nil	3	1%
	Oyo	3		
Total			**363**	**100%**

Source: Researcher's Field survey, 2023

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The above table indicated that the male and female respondents in both Kwara and Oyo states. The table shows fifty-three per cent (53%) of males in both Kwara and Oyo while forty-seven (47%) females in both Kwara and Oyo. It is also indicated on the table that the age group of the respondents: the figure indicates that between the ages of 18 and 30 years widely represent individuals with a response of thirty-five point three per cent (35.3%) in both Kwara and Oyo. An individual between the ages 31 and 50 years constitutes most of the responses in this survey with fifty-eight point seven per cent (58.7%) both in Kwara and Oyo; while six per cent (6%) represents individuals between 51 and above.

The table displays the educational qualifications of the respondents; most of the respondents have qualifications up to University and Polytechnic levels (HND/BSc/MA) which represents seventy-two per cent (72%) while three point three per cent (3.3%) respondents hold SSCE; twelve point four per cent (12.4%) respondents hold ND/NCE; eleven point three per cent (11.3%) respondents hold Master; while one per cent (1%) hold PhD among the respondents in both Kwara and Oyo. As a result, all most educational levels were represented in this questionnaire. The table also displays the marital status of the respondents. Thirty per cent (30%) of the respondents are single; sixty-six point six per cent (66.6%) are married, one per cent 1% are divorced, while one point four per cent (1.4%) of the respondents are widow and one per cent (1%) of the respondents are widower.

Table 2: *Responses to the strategies for the implementation of environmental protection policy in Kwara and Oyo states*

S/N	STATEMENTS	STATES	SD	D	U	A	SA	Total	Aggregate Response
1	There are awareness campaigns and education programs on environmental conservation in the state.	**Kwara**	2 (1.9%)	11 (10.6%)	2 (1.9%)	**69 (66.3%)**	20 (19.2%)	104 (100%)	**Agreed**
		Oyo	5 (1.9%)	12 (4.6%)	8 (3.1%)	**138 (53.3%)**	96 (37.1%)	259 (100%)	**Agreed**
2	There is approval of the dumpsite in the state.	**Kwara**	Nil	8 (7.7%)	6 (5.8%)	**59 (56.7%)**	31 (29.8%)	**104** (100%)	**Agreed**
		Oyo	Nil	3 (1.2%)	7 (2.7%)	89 (34.4%)	**160 (61.8%)**	259 (100%)	**Strongly Agreed**

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3	There is a collaboration between the state government and NGOs for joint initiatives.	**Kwara**	2 (1.9%)	14 (13.5%)	9 (8.7%)	**53 (51%)**	26 (25%)	104 (100%)	**Agreed**
		Oyo	1 (.4%)	14 (5.4%)	20 (7.7%)	**131 (**50.6**%)**	93 (35.9%)	259 (100%)	**Agreed**
4	Enforcement of penalties and fines for improper waste disposal.	**Kwara**	1 (1.%)	7 (6.7%)	1 (2.9%)	**50 (48.1%)**	45 (43.3%)	104 (100%)	**Agreed**
		Oyo	Nil	13 (5%)	2 (.8%)	68 (26.3%)	**176 (68%)**	259 (100%)	**Strongly Agreed**
5	Establishment of recycling programs and waste separation initiatives.	**Kwara**	6 (5.8%)	3 (2.9%)	3 (2.9%)	**65 (62.5%)**	27 (26.%)	104 (100%)	**Agreed**
		Oyo	17 (6.6%)	24 (9.3%)	16 (6.2%)	**155 (59.8%)**	47 (18.1%)	259 (100%)	**Agreed**
6	Involvement of local communities and stakeholders in decision-making processes.	**Kwara**	2 (1.9%)	14 (13.5%)	6 (5.8%)	**44 (42.3%)**	38 (36.5%)	104 (100%)	**Agreed**
		Oyo	10 (3.9%)	36 (13.9%)	8 (3.1%)	**171 (66%)**	34 (13.1%)	259 (100%)	**Agreed**
7	Introduction of waste-to-energy technologies (Anaerobic Digestion, Incineration, etc.)	**Kwara**	8 (7.7%)	20 (19.2%)	17 (16.3%)	**37 (35.6%)**	22 (21.2%)	104 (100%)	**Agreed**
		Oyo	24 (9.3%)	52 (20.1%)	32 (12.4%)	**129 (**49.8**%)**	22 (8.5%)	259 (100%)	**Agreed**
8	Implementation of waste segregation at the source (Household, Commercial, Industrial).	**Kwara**	3 (2.9%)	**41 (39.4%)**	22 (21.2%)	36 (34.6%)	2 (1.9%)	104 (100%)	**Disagreed**
		Oyo	14 (5.4%)	57 (22%)	11 (4.2%)	**137 (52.9%)**	40 (15.4%)	259 (100%)	**Agreed**
9	Encouragement of the reduce, reuse, recycle (3Rs) approach	**Kwara**	6 (5.8%)	21 (20.2%)	5 (4.8%)	**57 (54.8%)**	15 (14.4%)	104 (100%)	**Agreed**
		Oyo	28 (10.8%)	37 (14.3%)	8 (3.1%)	**97 (37.5%)**	89 (34.4%)	259 (100%)	**Agreed**
10	The state adopts technology (ICT) to capture a database on waste construction.	**Kwara**	23 (22.1%)	29 (27.9%)	13 (12.5%)	**35 (33.7%)**	4 (3.8%)	104 (100%)	**Agreed**
		Oyo	67 (25.9%)	25 (9.7%)	18 (6.9%)	**104 (40.2%)**	45 (17.4%)	259 (100%)	**Agreed**

Source: Researcher's Field Survey, 2023

Table 2 shows that 66.3% +19.2% = 85.5% agreed in Kwara state which shows that there are awareness campaigns and education programs on environmental conservation in the state and Oyo state, 53.5% +37.1% = 90.6% also agreed that there

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are awareness campaigns and education programs on environmental conservation in the state. This is similar to respondent 2_{Kw} says that: The Kwara State Ministry of Environment and Forestry, together with its affiliated organisations, conducts education programmes and awareness campaigns to raise public understanding of the importance of maintaining a clean environment. A sort of jingle is used to raise awareness and encourage people to register with state-registered waste collectors in order to stop illicit trash disposal. The Babaloja and Iya Loja are met, along with several stakeholders, on market sanitation. Call a meeting and inform them that the market is too filthy, which is the reason for the gathering. Respondent 2_{Oy} says that: One of the strategies introduced by the Oyo state government is a jingle. This jingle helps to create awareness among the members of the public on the importance and danger of improper waste disposal. For instance, Baba Sabiko Gingle and Imo Toto on BCS TV widen the awareness campaign. The authority equally embarks on house-to-house campaigns and works along with the environmental tax force for security reasons. Market sanitation is carried out every Thursday. The Babaloja and Iya loja are met and some stakeholders. Respondent 3_{Oy} says that: The Oyo State Government carries out advocacy over the radio and sensitization through Iya and Babaloja Bodija, as well as community engagement by meeting the community leaders, and landlord association and addressing them on how to make the environment clean and safe for all. The Hausa community also meet and sensitize at Sabo, Ojo and it yields positive results. The Okada and Micra riders and transporters are also sensitized and the idea is welcomed.

This aligns with the findings of Mu (2020) indicate that raising public knowledge of environmental issues and encouraging public participation in environmental governance can be accomplished through environmental education and awareness campaigns. Simmons and Martin (2002) agree as well, stating that environmental education can support eco-friendly business practices and increase citizens' understanding of sustainable purchasing. The 1960s saw a rise in environmental awareness, which according to Nurudeen, Yahaya, and Ogunleye (2020) continues to have a major impact on how people develop their values, attitudes, perceptions, and behaviour towards the environment. Abayomi (2022) is of the opinion that the government has launched an extensive awareness campaign to educate the public about the importance of using toilets for sanitation. Even in cases where individuals have toilets at home, certain cultural traditions still lead them to defecate in the open. In a similar vein, Chokor (1998) contended that the initial and essential step toward effective environmental control and management is the cultivation of public

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awareness regarding the environment. Banigbe (2021) said that: Today marks World Environment Day, and our aim is to raise awareness and educate people. While we have conducted previous awareness campaigns, this new initiative is focused on demonstrating proper waste disposal methods to our community. We strongly encourage everyone to responsibly dispose of their trash by using designated bins and following proper disposal guidelines.".

The table also shows that 56.7% +29.8% = 86.5% agreed in Kwara state that there is approval of dumpsite in the state and 34.4% +61.8% = 96.2% of the respondents agreed in Oyo state that there is approval of dumpsite in the state. This is in line with respondent 1_{Kw} states that the state has only one authorised disposal location. It is located on Ogbomosho Road in Aiyekale. In a similar vein, respondent 4Kw claims that: There is only one authorised dumpsite in the entire state of Kwara, according to the government. However, there is agitation among the stakeholders for the creation of further dumpsites. According to respondent 6Kw, the Sokoto Aiyekale is the only authorised dumpsite in the city. They have trouble operating, particularly during the rainy season, and the site is far away with a bad access route. The results are consistent with those of Yusuf, Adewoye, and Sawyer (2022), who stated that although Kwara state has an officially approved dumpsite, including the city of Ilorin, its management has to be improved to ensure the safe and responsible disposal of trash.

However, it is found in Kwara State that dumpsite accessibility and insufficiency are an impediment, as the dumpsite was found to be too far and largely inaccessible. This is also consistent with what respondent 5_{Kw} claims, namely that there aren't enough garbage tippers available and that the dumpsite is located far from several important locations. Consequently, the truck will only remove rubbish once rather than twice or three times, leaving the leftover garbage behind and causing environmental pollution. There were instances where the practice led to environmental littering, which was upsetting and irritating (Ihuoma, 2012). Respondent $1_{Oy:}$ says that: In our dear state, there are four (4) approved dumpsites situated in four strategic local governments in Oyo state. They are Awotan dumpsite located at the Ido local government area, Lapite dumpsite in the Akinyele local government area, Ajankanga dumpsite in the Oluyole Local government area and Abaeku in the Onaara local government area. Awotan dumpsite remains the best dumpsite in Oyo state. The result is also similar to what respondent 3_{Oy} says: that the Oyo State Government approved four (4) and there is a need more for the effective waste management practice.

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Equally, the result is in line with what respondent 5_{Oy} says: Oyo State Government has approved four (4) and all the dumpsites are almost filled up especially Awotan dumpsite. The respondent added that the Oyo State Government should introduce landfills in order to have more space and also have the opportunity to convert waste to wealth. It is similar to the previous by Temitope (2017) which states that there are four (4) approved dumpsites in Oyo State. Ajakanga dumpsite was established in 1996 and is located at Old Ijebu Road. Oluyole Local Government area, Ibadan is an open dumpsite operated by the Oyo State government. The Lapite dumpsite was also established in 1996 and is located at Moniya. Oyo Road, Akinyele Local Government area and Aba-Eku dumpsite which was established in 1985 and located at Olunloyo, Akanrakan Road, Ona-Ara Local Government area and Awotan dumpsite was established in 1987 and located at Apete, Akufo Road, Ido Local Government area

The table reveals that 51% +25% = 76% agreed that in Kwara, there is a collaboration between the state government and NGOs for joint initiatives and 50.6% +35.9% = 86.5% of the respondents agreed in Oyo State that there is a collaboration between the state government and NGOs for joint initiatives. The finding is in line with respondent 1_{Kw} says that: Kwara State works with non-governmental organisations like Blue Mist and the Rotary Club. In key locations like Oyun Bridge and Tanke Oke-Odo solar power energy, willingly remove rubbish. The outcome is consistent with the findings of Hushie (2016) and Uwimana, Zarowsky, Hausler, and Jackson (2012), who noted the positive effects of partnerships between non-governmental organisations (NGOs) and governmental entities on the improvement of the environment and human health as well as the creation of initiatives targeted at managing and averting illnesses such as cholera, communicable diseases, malaria, and tuberculosis in diverse communities. This World Environment Day commemorative action was conducted in partnership with PickThatTrash, a non-governmental organisation. Members of the State Executive Council, members of the House of Assembly, and other senior government officials participated in the cleanup effort (Vanguard, June 5, 2021). The Kwara State House of Assembly's speaker, Yakubu Salihu, reaffirmed the body's commitment to collaborating closely with the executive branch and allocating funds to uphold environmental cleanliness. In order to avoid flooding, Salihu also asked the people of the state to fully utilise the equipment that the government had purchased. (Vanguard Newspaper, 2021, June 5th)

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The table reveals that 48.1% +43.3% = 91.4% agreed that in Kwara state, there is enforcement of penalties and fines for improper waste disposal and 26.3% +68% = 94.3% of the respondents strongly agreed that there is enforcement of penalties and fines for improper waste disposal. The result is similar to respondent 1_{Kw} claims that: Because some people are unlawfully disposing of their waste on public roads, others are doing so inside drainage systems or rivers, the government established a tax force and vigilantes who patrol the area day and night to keep an eye on those who are doing so. As a result, the tax force is widespread, and anyone found out will face legal action. We do occasionally set up a mobile court at the Ministry of the Environment. Those who are willing to pay the fee will be released after paying it, and those who are not will be prosecuted in court and sent to the prison yard if they are unable to pay.

Similarly, respondent 2_{Kw} says that: In the sense that we often carry out the enforcement in cooperation with the parent ministry, the Ministry of Environment. When it is determined that the town is too dirty for the staff to arrest those dumping unlawfully on the road or in illegal locations between 7:30 a.m. and 10:00 p.m., they occasionally go on night duty. Therefore, the offender will be brought to the station and brought before the court the next day if they are caught. The offender will face severe fines. When they are numerous, the Ministry of Environment organises a mobile court so they can be charged and punished appropriately. The laws work very well, but they are hampered by a staffing shortfall. says that: In the sense that we often carry out the enforcement in cooperation with the parent ministry, the Ministry of Environment. When it is determined that the town is too dirty for the staff to arrest those dumping unlawfully on the road or in illegal locations between 7:30 a.m. and 10:00 p.m., they occasionally go on night duty. Therefore, the offender will be brought to the station and brought before the court the next day if they are caught. The offender will face severe fines. When they are numerous, the Ministry of Environment organises a mobile court so they can be charged and punished appropriately. The laws work very well, but they are hampered by a staffing shortfall. Respondent 1_{Oy} states that: Oyo state established an environmental tax force. The officers are stationed in strategic places to monitor those who are dumping waste illegally because some people are dumping their waste on road media. The violator is charged to court and pays a fine according to the judgment. The violator can be taken to prison if he fails to settle the fine. Respondent 3_{Oy} states that: The environmental officers are engaged in chasing polluters away and arresting them when they refuse to comply. The officers deal with violators and take them to court. Under eighteen (18) years violator is charged with community service such as

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sweeping the floor or road while those 18 and above will face judgment and fine. Flat tipper offence also attracts fines. It spreads waste from one place and another. The tax force along with environmental health officers assume duty before 7:00 am. To complement their efforts, members of the public are given the phone of some officials in order to call for their quick and immediate response to environmental issues. However, the commitment of the people towards environmental protection and waste management is not sufficient. Oyo (Ibadan) was known as a dirty city (Eleyele, Challenge etc the present administration is ready to change the mindset. According to Miranda (2013), the National Environmental Standards and Regulations Enforcement Agency (NESREA) is in charge of upholding environmental laws and standards in Nigeria. Their responsibilities include public education regarding appropriate trash disposal techniques and research and development projects focused on environmental protection. The table also reveals that 62.5% +27% = 89.5% agreed that in Kwara state, there is an establishment of recycling programs and waste separation initiatives and 59.8% +18.1% = 77.8% of the respondents also agreed in Oyo state that there is an establishment of recycling programs and waste separation initiatives. Respondent 2_{Kw} claims that: Despite the creation of trash separation programmes and recycling programmes, the state lacks a recycling plant.. Respondent 3_{Oy} states that: The Oyo state government embarks on a series of recycling programs and waste separation initiatives but there is no recycling plant in the state. The scavengers sort the waste and convert it to wealth. However, there is no functioning recycling plant or treatment plant in the state. The finding is in line with Jenny and Tim (2021) point out that commendable initiatives aimed at mitigating environmental harm caused by consumption, such as the transformation of plastic packaging into clothing or repurposing unused bread into beer, have gained substantial popularity.

The table also reveals that 42.3% +36.5% = 78.8% agreed that in Kwara state, there is involvement of local communities and stakeholders in decision-making processes and 66% +13.1% = 79.1% of the respondents also agreed in Oyo state that there is involvement of local communities and stakeholders in decision-making processes. The finding is in line with respondent 3_{Oy} that: Stakeholder consultation is the key to addressing environmental protection and waste management because it gives them a sense of belonging. Mekonnen, Amanuel, and Terje (2022) stress that the active involvement of stakeholders at all levels is critical to a project's success, particularly when environmental decision-making is involved. In order to guarantee sustainability and environmental security, stakeholder involvement is crucial. According to

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Richardson and Razzaque (2006), the involvement of the general public, the media, environmentalists, academics, and scientists in the environmental decision-making process enables citizens to exercise their democratic rights. Bulkeley and Mol (2003) assert that involving civil society in shaping political decisions enhances a country's capacity to enact enforceable laws and formulate sustainable environmental policies. Public participation in environmental policy-making establishes a vital connection between the public and environmental governance, making accountability and transparency more achievable. Berkes (2009) emphasizes that engaging local communities allows for the integration of indigenous practices and innovative solutions tailored to the specific challenges of each area. Gutberlet (2008) points out that collaborative education and awareness initiatives with communities can lead to improved waste management practices and a deeper understanding of environmental consequences.

The table also reveals that 35.6% +21.2% = 56.8% agreed that in Kwara state, there is the introduction of waste-to-energy technologies (Anaerobic Digestion, Incineration, etc.) and 49.8% +8.5% = 58.3% of the respondents also agreed in Oyo state that there is the introduction of waste-to-energy technologies (Anaerobic Digestion, Incineration, etc.). Moshood, Olawale, and Temitope (2022) have strongly emphasized that the adoption of a waste-to-energy system holds the potential to significantly reduce the adverse environmental impact caused by waste generation. Such a system would not only help in the production of renewable and sustainable energy but also contribute to the realization of a circular economy. Evangelisti et al. (2017) have pointed out that integrating waste-to-energy (WtE) technologies into the energy and waste management system is one of the most effective solutions for ensuring sustainable waste management and diversifying the energy generation mix.

The table also reveals that 34.6% + 1.9% = 36% agreed that in Kwara state, there is implementation of waste segregation at the source (Household, Commercial, Industrial) and 52.9% + 15.4% = 68.3% of the respondents also agreed in Oyo state that there is implementation of waste segregation at the source (Household, Commercial, Industrial). Respondent 5_{Kw} explains that garbage segregation at the dumpsite is promoted by the Kwara state government. The scavenging service is used to sort rubbish and gives the state government a token in exchange. Equally, respondent 2_{Kw} specifies that waste contractors transport garbage to a dump, where scavengers separate and sort the material. It is stated that certain trash collectors separate their material and

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deposit it in an unapproved dumpsite. This kind of behaviour is forbidden. Respondent 3_{Oy} states that: Oyo state government encourages people to sort their waste from the source. They sort the waste and convert it to wealth. The Oyo state government embarks on waste separation initiatives. Waste collectors and scavengers are allowed to operate in order to segregate waste into different categories for the purpose of reducing, reuse and recycle. The discovery aligns with the perspective expressed by Maletz et al. (2018), who emphasized that waste segregation plays a pivotal role in the roadmap toward achieving a circular economy.

The table also reveals that 54.8% + 14.4% = 69.2% agreed that in Kwara state, there is encouragement of the reduce, reuse, recycle (3Rs) approach and 37.5% + 34.4% = 71.9% of the respondents also agreed in Oyo state that there is encouragement of the reduce, reuse, recycle (3Rs) approach. Respondent 2_{Kw} declares: The three Rs: reduce, reuse, and recycle are encouraged. Scavengers separate rubbish and transport it to other locations, specifically for recycling, as the state does not have a recycling factory. Respondent 3_{Oy} states that the service of registered scavengers is allowed to operate at the dumpsite from 8:00 am to 5:00 pm daily. Scavengers are allowed to operate because their activities reduce waste. Their activities reduce waste that is to be taken to a dump site. Oberlin (2013) further unveiled that the informal practice of reusing and recycling materials like plastics, electronics, and metals involves a selling chain that extends from households to waste collectors, recycling centres, and eventually to industries. Armijo De Vega et al. (2008) and Donnini Mancini et al. (2007) contend that a well-planned and managed system of waste reuse, recycling, and recovery (RRR) can significantly reduce the volume of waste that needs disposal, up to 65% of the total waste generated. Moreover, waste recovery and reuse can yield direct economic benefits, as observed by Batool et al. (2008), Kumar et al. (2017), Li et al. (2015), and Zhang et al. (2012). Waste reuse and recycling contribute to income generation and can alleviate complications associated with handling and disposing of large volumes of solid waste, as acknowledged by Matter et al. (2013) and Wilson et al. (2006).

The table also reveals that 33.7% + 3.8% = 37.5% agreed that in Kwara state, there is the state adopts technology (ICT) to capture databases on waste construction and 40.2% + 17.4% = 57.6% of the respondents also agreed in Oyo state that there is the state adopts technology (ICT) to capture database on waste construction. Respondent 3_{Oy} states that: The Oyo state government has adopted technology (ICT) to capture databases on waste construction and monitoring purposes. The activities of waste

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collectors are monitored through tracking. CCT cameras are fixed to monitor both the waste collectors and the polluters. However, Respondent 2_{Kw} says Kwara state has not embraced information and communication technology (ICT) to gather databases on waste construction and monitoring purposes, according to the Kwara Environmental and Protection Agency. Residents in the vicinity of Government Reserve Area illegally dump trash after the Kwara State Environmental Protection Agency closes due to a lack of CCT cameras for monitoring. Similarly, in numerous key locations such as Offa Garage. before the Emir's palace and in Taiwo.

CONCLUSIONS

The study revealed that, while Kwara and Oyo States have made great achievements in
environmental upkeep and sustainable waste management, there are still areas for improvement. Awareness campaigns, education initiatives, licensed dumpsites, and collaborations with NGOs all indicate that state governments are taking a proactive approach. These programs reflect a dedication to addressing environmental concerns and cultivating a sustainable culture among citizens.

However, it is critical to improve the success of these techniques through proper implementation, monitoring, and community involvement. Implementation gaps, insufficientmonitoring methods, and a lack of community engagement can all hinder the effectiveness of well-intended programs. As a result, strong implementation frameworks, regular monitoring, and active community participation are required in environmental efforts.

Furthermore, capacity building among government agencies, community leadership training programs, and public-private partnerships can help to increase waste management infrastructure and environmental conservation activities. By investing in these areas, Kwara and Oyo states can create resilient and sustainable waste management systems that not only protect the environment but also enhance public health and well-being.

Furthermore, incorporating technology and innovation into waste management can create new potential for efficiency and sustainability. Modern waste management strategies, such as waste-to-energy projects, smart garbage collection systems, and

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digital monitoring tools, can help maximize resource usage while reducing environmental effects.

In conclusion, while Kwara and Oyo States have made remarkable efforts to protect the and manage trash sustainably, long-term success requires ongoing development, innovation, and community engagement. Addressing the identified difficulties and applying the recommended methods can lead to a cleaner, healthier, and more sustainable future for all citizens

RECOMMENDATIONS

The paper recommended that the governments of Kwara and Oyo should buy additional cars and trucks and make sure they are maintained on a regular basis. To maintain a sustainable environment, the ministries and agencies in both States should enhance the frequency of waste collection in the state. There ought to be more disposal sites built. Priority should be given to environmentalists during the hiring, placement, and selection processes. Landfills should be implemented in place of dumpsites in both States. The governments of Kwara and Oyo states ought to construct recycling and treatment facilities. Private garbage collectors should operate in a supportive atmosphere, particularly in Kwara State.

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