CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

In the contemporary global landscape, the intricate balance between human activities and environmental health has become a paramount concern (World Bank, 2020). Rapid urbanization, population growth, and industrialization have led to a surge in waste generation, posing significant challenges to sustainable development and environmental preservation (UNEP, 2019). As the world grapples with the consequences of inadequate waste management, there is an increasing recognition of the urgent need for comprehensive strategies that integrate environmental protection and sustainable waste management practices (Hoornweg, Bhada-Tata, & Kennedy, 2013). The significance of waste management extends beyond the local scale, resonating globally as nations strive to fulfil their commitments to environmental sustainability and climate action.

Safeguarding the environment involves preventing its degradation, a pressing concern exacerbated by factors like population growth, technological advancements, and excessive consumption. These elements have collectively led to detrimental consequences for the environment, posing risks to both human and wildlife well-being. The pursuit of environmental conservation aims to preserve the planet's biodiversity, fostering a symbiotic relationship between nature and humanity. This collaboration allows nature to continue its vital role in sustaining the well-being of humans, animals, and the Earth itself. Recognizing the pivotal role, the environment plays in supporting healthy living and life's existence on Earth is essential. An in-depth examination of global environmental protection initiatives since 1970 underscores the active participation of the United States Environmental Protection Agency (EPA) in safeguarding both the environment and public health (United Nations Environment Programme, 2021). The implications of poor waste management stretch far beyond unsightly landfills; they encompass environmental degradation, ecosystem disruption, and potential threats to human health (UNEP, 2021).

1.2 Statement of the Problem

The pursuit of effective strategies for implementing environmental protection towards sustainable waste management in Nigeria, specifically within Oyo State, is a critical challenge. Nigeria faces environmental degradation issues due to factors like population growth and rapid industrialization, leading to inadequate waste management practices (World Bank, 2020). Oyo State, amidst its burgeoning population and economic activities, grapples with the generation of substantial waste, emphasizing the urgency for robust waste management strategies (Oyo State Ministry of Environment and Water Resources, 2021). The absence of comprehensive and well-executed waste management initiatives in the state poses a serious threat to ecosystems, public health, and overall environmental sustainability. A thorough examination of existing environmental protection initiatives, waste management practices, and identification of barriers is essential to address this issue effectively (United Nations Environment Programme, 2021). This approach aims to develop tailored strategies that consider the unique challenges faced by Oyo State in achieving sustainable waste management and environmental protection goals.

1.3 Research Objective

i. examine the strategies for the implementation of environmental protection policies in Oyo State.

1.4 Research Question

i. What are the strategies for the implementation of environmental protection policies in Oyo State?

1.5 Significance of the Study

The study will contribute to academic knowledge by revealing the extent to which Oyo State has been able to manage waste and its implications for environmental protection. The study will serve as a guide to policymakers and other researchers on what can be done to improve public policy on proper waste management and environmental

protection in Oyo State while also contributing to the body of existing knowledge on public policy and waste management as well as environmental protection.

1.6 Scope and Limitations of the Study

The geographical scope of this study is Oyo State, Nigeria while the subject scope focuses on public policy, waste management and environmental protection. The timeline for this study will cover 1999 to 2023. The reason for choosing the timeline is to cover the fourth republic. The reason for choosing Oyo as a case study is that Oyo State is among the states that are facing a serious challenge of waste disposal and environmental protection, especially in the state capital (Ibadan). The state is littered with refuse and people pay less attention to sanitising their environments.

1.7 Definition of Terms

a. **Policy:** This refers to a course of action proposed by the government or individual or organization
b. **Public:** This refers to the members or people as a whole.
c. **Security:** This means a state of being free from disease, danger or threat.
d. **Environment:** This is referred to the conditions in which a person operates.
e. **Waste:** This refers to an act of using something carelessly or for one purpose.
f. **Management:** This refers to the process of dealing with and controlling both humans and materials**.**
g. **Implementation:** This means putting a decision or plan into execution.

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CHAPTER TWO

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Introduction

This chapter reviews scholars' opinions gathered from secondary sources; articles, journals, books, etc. on waste management and environmental protection. The chapter consists of three sections, the conceptual clarification, the review of the empirical literature, and the theoretical review.

2.2 Conceptual Discourse

2.2.1 Public Policy

Public policy can be said to be an active part of government (Clarke, 2009). Lassance (2020) defines public policy as an institutionalized proposal to solve a central problem, guided by a conception". Dye (1975) defines public policy as whatever government chooses to do or not to do. This means that public policy is the action part of the government in addressing the needs of the people. Public policy could also be referred to as the action deliberately taken by the government to achieve the desired result.

2.2.2 Environmental Policy

Ambali, (2015) sees environmental policy as a type of policy action deliberately taken to manage human activities to prevent, reduce or mitigate harmful effects on nature and natural resources and ensure that man-made changes to the environment do not have harmful effects on humans. Environmental policy is the commitment of an organization or government to the laws, regulations, and other policy mechanisms concerning environmental issues. These issues generally include air and water pollution, waste management, ecosystem management, maintenance of biodiversity, the management of natural resources, wildlife, and endangered species. Environmental policies can increase environmental security when implemented (Eccleston, 2010).

2.2.3 Waste

Audu (2007), defines waste as the leftover, or already used items waiting for reuse or disposal Waste is a by-product of human activity that is unavoidable (UN-ESCAP, 2018). The United Nations Statistics Division (UNSD) defines waste as "materials that are not prime products (that is products produced for the market) for which the generator has no further use in terms of his/her purposes of production, transformation or consumption, and of which he/she wants to dispose of" (UNEP-GRID, 2018). Waste refers to disposable, discarded, or unused portions of materials (Coker, Achi, Sridhar and Donnett, 2016). Coker et al. (2016) stated that waste mix differs from one user to the next due to culture, social standing, and financial status. The European Communities (EC) (1999) defined waste management by its activities, including preventing wastes, collecting, transporting, treating, controlling, and monitoring. Oyedele (2009) defines solid waste as leftovers arising from human, animal or plant activities that are discarded as useless and do not have any consumer value.

2.3 Empirical Review

Samuel and Olamide (2016) evaluated environmental sanitation and solid waste management in Ibadan North Local Government, Oyo State, Nigeria. The findings revealed that effective management of environmental sanitation and solid waste necessitates collaboration among agencies at the state and local government levels, alongside the involvement of private entities. Furthermore, the research illustrated that residents in the Ibadan North local government area exhibited positive attitudes toward certain elements of environmental sanitation, while concurrently expressing negative perceptions regarding particular aspects of solid waste management. It is noteworthy that the scope of the article was confined to the Ibadan North local government area.

Lishan, Bo, Tong, Liang, and Ouwen (2023) focused on the promotion and sustenance of public participation in waste separation policies within Shanghai, China. The research disclosed that the implementation of these policies resulted in a 5.3% increase in residents' satisfaction with waste management, accompanied by a notable 6.1% rise in willingness to participate. It emphasized that waste generation can stem from environmentally inefficient resource utilization, with potential adverse consequences, underscoring the imperative to establish and advocate for a close alignment between environmental policies and waste management. It is noteworthy that the referenced article, although valuable, lacked domestication to Nigeria and neglected to address environmental protection policies, unlike the current research, which specifically explores the strategies of environmental protection policies in the context of waste management in Oyo State, Nigeria.

Armijo, Ojeda., & Ramírez (2018) conducted a study centred on characterizing solid waste and assessing the recycling potential within a university campus. The research disclosed that Campus Mexicali I produces one ton of solid waste daily, with more than 65% of this waste being recyclable or possessing the potential for recycling. These findings suggest the practicality of instituting a segregation and recycling program within the university campus. Furthermore, the study highlighted that, considering existing conditions such as the number of recycling companies and their capacities, the local market can absorb all recyclable wastes generated. It's essential to note that the referenced article did not delve into waste management and environmental protection policies specific to Oyo State.

Dholakia (2013) conducted a research study on coordinating TB/HIV efforts through a public-private partnership, drawing insights from practical experiences in the field. The study specifically examined a three-year Public-Private Partnership Project implemented in four districts of Maharashtra. The findings revealed that the sensitization of community leaders and private health providers on issues related to TB and HIV/AIDS was a key aspect of the project. The study also highlighted the challenge of inconsistent funding, which hampers the smooth implementation of programs. Public-private partnerships were acknowledged as crucial for enhancing access to care. Additionally, the research underscored the necessity for continuous dialogue among all stakeholders for the effective implementation of such partnerships. It's important to note that the referenced article was localized to Maharashtra and did not delve into matters related to waste management and environmental protection policies.

Ijaiya and Joseph (2014) explored the reevaluation of environmental law enforcement in Nigeria. The study revealed significant challenges, including limited constitutional provisions for environmental protection, conflicts, and overlapping roles in environmental management, an overly legalistic approach by the courts, and a deficiency in mandatory disclosure of information. The research advocated for the advancement of private and public interest litigation, the introduction of procedures to enhance public participation in Nigerian environmental protection, the establishment of mechanisms to address environmental emergencies, and the creation of dedicated environmental courts. While the article is pertinent to this study, it did not specifically address waste management issues in Oyo State.

Fagbohun (2012) provided insights into Nigeria's pursuit of environmental governance through interviews. The study underscored the tangible political, economic, and social costs associated with corruption. Specifically, the research highlighted that environmental damage stemming from practices like bribery, extortion, unfair policies, and other corrupt activities constitutes a significant and expensive consequence. Recognizing the profound impact of corruption on the environment, there is a widely accepted belief that heightened transparency and increased public

participation play pivotal roles in enhancing the quality of decisions related to environmental issues. These revelations offer an avenue for intervention, emphasizing the importance of transparency as a powerful tool for promoting conservation, preservation, and environmental justice. While the article is pertinent to this study, it did not specifically address waste management matters in Oyo State.

Troschinetz and Mihelcic (2009) delved into the subject of sustainable recycling of municipal solid waste (MSW) within developing countries. The study unveiled that the average rate of MSW generation was 0.77 kg/person/day, with recovery rates spanning from 5% to 40%. Several pivotal factors were identified, encompassing government policy, government finances, waste characterization, waste collection and segregation, household education, household economics, municipal solid waste management (MSWM) administration, MSWM personnel education, MSWM plan, local recycled-material market, technological and human resources, and land availability. Notably, the findings highlighted a significant correlation between stakeholder involvement and the three dimensions of sustainability—environment, society, and economy. The factors driven by all three dimensions, such as waste collection and segregation, the MSWM plan, and the local recycled-material market, were particularly emphasized, indicating the need for high levels of collaboration with other factors. While the article holds relevance to this study, it did not specifically address environmental protection policies in Oyo State.

In 2007, Lavee and Sagie conducted research examining the criteria for acceptable heart donors, specifically aiming to maximize the utilization of hearts recovered from potential donors in Israel. The study brought attention to the global shortage of available donor hearts, a constraint impacting cardiac transplantations worldwide, including in Israel. Furthermore, the research revealed that involving diverse stakeholders can foster innovative strategies, such as recycling initiatives and circular economy models. The authors asserted that policies related to environmental protection and waste management are more likely to achieve effectiveness when developed with local input. It is noteworthy that while the article was localized to Israel, it did not delve into matters concerning waste management in Oyo State.

Donnini, Rodrigues, Saide, & de Mattos (2007) conducted a study centred on the recycling potential of urban solid waste designated for sanitary landfills in Brazil. The research uncovered that approximately 90% of the waste held the potential for recycling, while only 10% required landfilling. Additionally, the study highlighted compostable organic matter, comprising food and garden waste with high moisture content (51% and 41%, respectively), constituting 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 dispose of relatively less packaging and more food waste, shoes, and construction debris compared to middle and high-income areas, potentially linked to lower purchasing power and education levels. The study also observed that more aluminium and uncoloured polyethene terephthalate were discarded during warmer months, likely due to increased consumption of canned and bottled beverages. It's important to note that while the article was localized to Brazil, it did not delve into environmental protection policies in Oyo State.

Innes & Booher (2004) undertook a study focused on redefining public participation and developing strategies tailored for the 21st century. The findings underscored that engaging in collaborative participation proves effective in addressing complex and contentious issues, particularly in contexts marked by bitter disputes, such as budget decision-making. The study emphasized the importance of authentic dialogue, network building, and institutional capacity as crucial elements in this collaborative process. The authors argued for viewing participation as a multifaceted set of interactions wherein citizens and diverse stakeholders collaborate to generate outcomes. The proposed next steps included the development of an alternative practice framework, the establishment of forums and arenas, the adaptation of agency decision processes, and the provision of training and financial support. Notably, while the article was adapted to the United States, it did not delve into matters related to waste management in Oyo State.

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CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter focuses on the methodology to be used in this research work successfully. It explains the research design. It also gives details about the population and sample used for the research.

3.2 The Purpose of the Study

This study is to explore the main thrusts of public policy on waste management and its implications for environmental protection in Kwara State. It aims to investigate the issues associated with waste disposal in Oyo State. The study examines the relationship between waste management and environmental protection. The study equally aims at examining the strategies of environmental protection policies in Oyo State.

3.3 Research Design

This research is anchored on a descriptive study as it's designed.

Table: 3.3 Workflow.

S/N	**Research Objectives**	**Research Questions**	**Methods/Research Instrument**
i	Examine the strategies of the implementation of environmental protection policies in Oyo State.	What are the strategies for the implementation of environmental protection policies in Oyo State.?	Survey Questionnaire and Interview

Source: Researcher's Field Survey, 2025

3.4 Sources of Data Collection

To carry out this study, the data was collected from two major sources. These sources will include primary and secondary sources.

3.4.1. Primary Sources of Data

The primary sources of data for the analysis of this study were collected from the respondents through the design questionnaire and interview. The questionnaires were administered by the researcher. The researcher conducts an individual oral interview with people of the region. This was done to elicit further information from them concerning the issue under study.

3.4.2 Secondary Sources of Data

The secondary data for this study was collected from textbooks both published and unpublished that are found to be relevant for this study. These already written works include; textbooks, journals, magazines, newspapers, and some relevant documents that are relevant to this research work.

3.5 Population and Sample of the Study

The term "population" has been defined by Odo (1992) as "the entire number of people, objects events and things that all have one or more characteristics of interest to a study The population of this study is drawn from the Oyo State Ministry of Environment and Natural Resources, Oyo State Waste Management Authority, Mottainai Recycling Limited Ibadan, Oyo State Local Government Environmentalist. According to Krejcie and Morgan's (1970) sample size determination table, in a population of three hundred and eighty (360-379), the appropriate sample size is one hundred and one (191) respondents.

3.6 Method of Data Collection

Primary data is collected with the aid of a structured questionnaire administered to various levels of staff of the local government. The researcher will administer a questionnaire directly to the respondents based on the sample size. The questionnaire is divided into two sections. The first section will capture bio-data information of the respondents while the second section focuses on information based on the concept of this research, using a 5-point Likert scale with "1= Strongly Disagree, 2= Disagree, 3 = Undecided, 4 = Agree and 5=Strongly Agree". More so, the researcher will also interview in addition to the questionnaire.

3.7 Method of Data Analysis

The data gathered is analyzed using the Statistical Package for Social Sciences (SPSS) for easy analysis. This primary data is analyzed through a pilot study, regression and correlation analysis.

3.8 Validity of the Instrument

The content approach to estimating validity is used to establish the validity of the research instrument. The questionnaire is drafted and submitted to the supervisor who scrutinizes and evaluates the strength of the instrument. The corrections, evaluation and suggestions made by the project supervisor enrich the research work.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1 Introduction

This chapter presents findings based on the administered questionnaire. The analysis comprises the results of the demographic characteristics of the respondents from each sampled and the regression estimates of the variables. A total of 191questionnaires were distributed and returned correctly. Out of the 191 questionnaires, one hundred and eighty-eight (188) were retrieved and analyzed. using Statistics Package for Social Sciences (SPSS) version 21.

4.2 The Study Area

Oyo State, situated in the southwestern region of Nigeria, is an inland state that was established in 1976. Ibadan serves as its capital. Bordered by Kwara State to the north, Osun State to the east, and Ogun State and the Republic of Benin to the southwest, Oyo State covers an approximate area of 28,454 square kilometres, ranking 14th in size (Wikipedia, 2022). The topography features old hard rocks and dome-shaped hills, gently rising from about 500 meters in the southern part to a height of around 1,200 meters above sea level in the northern part. The state's economy is predominantly agrarian, with Shaki, a western city, being referred to as the state's breadbasket. Key crops contributing to Oyo State's economy include cassava, cocoa, and tobacco. The population consists mainly of the Oyos, Oke-Oguns, Ibadans, and Ibarapas, all belonging to the Yoruba family, making it a culturally rich and indigenous city in Africa.

4.3 Data Presentation and Analysis

Table 1: Strategies for the implementation of environmental protection policy in Oyo State

S/N	STATEMENTS	SD	D	U	A	SA	Total	Aggregate Response
1	The Oyo state is implementing initiatives such as awareness campaigns and educational programs focused on environmental conservation.	5 (2.7%)	8 (4.3%)	7 (3.7%)	**101 (53.7%)**	67 (35.6%)	188 (100%)	Agreed
2	The state has approved the establishment of the dumpsite.	2 (1.1)	4 (2.1%)	2 (1.1%)	68 (36.2%)	**112 (59.6%)**	188 (100%)	Strongly Agreed
3	The state government and NGOs are collaborating on joint initiatives.	1 (.5%)	10 (5.3%)	13 (6.9%)	**100 (53.2%)**	64 (34%)	188 (100%)	Agreed
4	There is implementation of penalties and fines for improper waste disposal.	4 (2.1)	10 (5.3%)	1 (.5%)	50 (26.6%)	**123 (65.4%)**	188 (100%)	Strongly Agreed
5	There is an establishment of recycling programs and waste separation initiatives.	13 (6.9%)	15 (8%)	16 (8.5%)	**112 (59.6%)**	32 (17%)	188 (100%)	Agreed
6	Engaging local communities and stakeholders in the decision-making processes.	7 (3.7%)	23 (12.2%)	7 (3.7%)	**125 (66.5%)**	26 (13.8%)	188 (100%)	Agreed
7	Introduction of waste-to-energy technologies including Anaerobic Digestion, Incineration, etc.	20 (10.6%)	41 (21.8%)	9 (4.8%)	**90 (47.9%)**	28 (14.9%)	188 (100%)	Agreed
8	Enforcement of source-based waste segregation such as Household, Commercial and Industrial.	23 (12.2%)	25 (13.3%)	8 (4.3%)	**68 (36.2%)**	64 (34%)	188 (100%)	Agreed
9	Encouragement and promotion of the reduce, reuse, recycle (3Rs) approach	49 (26.1%)	23 (12.2%)	12 (6.4%)	**74 (39.4%)**	30 (16%)	188 (100%)	Agreed

10	The state employs information and communication technology (ICT) to create a database on construction waste.	1 (.5%)	24 (12.8%)	1 (.5%)	**141 (75%)**	21 (11.2%)	188 (100%)	Agreed

Source: Researcher's Field Survey, 2025

On whether the Oyo state is implementing initiatives such as awareness campaigns and educational programs focused on environmental conservation. The table shows that 53.7% +35.6% = 89.3% agreed that the Oyo state is implementing initiatives such as awareness campaigns and educational programs focused on environmental conservation. The finding aligns with the input from **respondent 2** at the Oyo State Waste Management Authority. According to them, in addressing market sanitation issues, meetings are organized with key figures such as the market, the Babaloja, Iya loja, and various stakeholders. During these meetings, the purpose is clearly communicated – emphasizing the urgent need for improved cleanliness in the market. The authorities' express concerns about the market's current state and stress the importance of implementing measures, such as registering with a waste consultant. Although waste consultants are assigned to them, compliance has been an issue, leading to efforts in convincing and engaging with the Babaloja and Iya loja.

However, the authorities express a sense of urgency, emphasizing that certain commodities in the market cannot be properly cleaned or cooked if hygiene measures are not enforced. **Respondent 2** from the Oyo State Waste Management Authority further details a strategy introduced by the state government – the use of jingles. These jingles play a vital role in creating awareness among the public about the significance and risks associated with improper waste disposal. Notable examples include the Baba Sabiko jingle and Imo Toto on BCS TV, which have significantly expanded the reach of the awareness campaign. Additionally, the authority conducts house-to-house campaigns and collaborates with the environmental tax force for security reasons. Market sanitation initiatives are implemented every Thursday, involving meetings with the Babaloja, Iya loja, and other stakeholders. Residents are encouraged to register with the waste consultant (Mottainai) to facilitate the efficient removal of their waste twice a month.

Equally, **respondent 3** from Mottainai Recycling Limited Ibadan says that: The Oyo State Government conducts radio advocacy and awareness campaigns facilitated by Iya and Babaloja Bodija. Additionally, there is active community engagement involving meetings with community leaders and landlord associations. During these engagements, discussions center on promoting cleanliness and safety in the environment. Positive outcomes are observed, particularly within the Hausa community at Sabo and Ojo, where effective sensitization efforts have taken place. Furthermore, awareness initiatives extend to Okada and Micra riders, as well as transporters, with the reception of the ideas being well-received.

The discovery aligns with Mu's (2020) assertion that environmental awareness and education serve as effective tools in mitigating environmental issues and fostering public engagement in environmental governance. This correlation is also consistent with the findings of Bjorkland and Pringle (2001), who emphasize that environmentally aware and empowered youths can be pivotal agents of change for the enduring protection and stewardship of the environment. Furthermore, the result echoes the conclusions drawn by Simmons and Martin (2002), indicating that environmental education plays a role in enhancing residents' awareness of green consumption and encouraging enterprises to adopt green production practices. In a prior investigation conducted by Jazat, Akande, and Ogunbode (2023), it was asserted that environmental education plays a pivotal role in fostering responsible behavior by equipping individuals with the essential knowledge, attitudes, values, commitments, and skills necessary for effective problem-solving. The beneficiaries of environmental education not only develop a caring attitude but also exhibit curiosity and concern for the environment, reflecting in their acquired skills, attitudes, and behavior.

On whether the state has approved the establishment of the dumpsite. The table also shows that 59.6%+36.2% = 95.8% of the respondents strongly agreed that the state has approved the establishment of the dumpsite. The finding is similar to **respondent 1** from the Oyo State Ministry of Environment and Natural Resources says that*:* In our beloved state, there are currently four approved dumpsites strategically located in key local governments across Oyo

state. These include the Awotan dumpsite in Ido local government area, the Lapite dumpsite in Akinyele local government area, the Ajankanga dumpsite in Oluyole Local government area, and the Abaeku dumpsite in Onaara local government area. Among these, the Awotan dumpsite is considered the most optimal in Oyo state. This finding is consistent with the perspective of respondent 3 from Mottainai Recycling Limited Ibadan, who emphasizes that while the Oyo State Government has approved four dumpsites, there is a pressing need for additional sites to enhance effective waste management practices. Similarly, **respondent 5** from Oyo State Local Government Environmentalist concurs, stating that all four approved dumpsites, particularly the Awotan dumpsite, are nearing full capacity. The respondent suggests that the Oyo State Government should introduce landfills to create more space and provide an opportunity to convert waste into wealth.

The discovery aligns with the observations made by Yusuf, Adewoye, and Sawyer (2022), who noted the existence of an officially approved dumpsite in Kwara State, encompassing the Ilorin metropolis. However, they emphasized the need for improved management of this dumpsite to ensure safe and responsible waste disposal practices. In a study conducted by Udoh and Inyang (2016), waste collection challenges were reported in the study area, including issues such as a singular dumpsite causing routing problems, the use of a single type of waste receptacle for all waste categories, inadequate consideration of bin sizes for overpopulated areas resulting in open receptacles, and waste overflow creating breeding grounds for rodents, fleas, and vermin. This finding resonates with a prior investigation by Temitope (2017), revealing that Oyo State has four approved dumpsites. The Ajakanga dumpsite, established in 1996 and located at Old Ijebu Road in Oluyole Local Government Area, Ibadan, is an open dumpsite spanning 10.034 hectares, operated by the Oyo State government. Another dumpsite, Lapite, established in 1996 at Moniya, Oyo Road in Akinyele Local Government Area, is still operational and classified as a built-up urban settlement. The Aba-Eku dumpsite, established in 1985 and situated at Olunloyo, Akanrakan Road in Ona-Ara Local Government Area, and the Awotan dumpsite, established in 1987 and located at Apete, Akufo Road in Ido Local Government Area, contribute to the waste disposal infrastructure in Oyo State.

On whether the state government and NGOs are collaborating on joint initiatives. The table reveals that 53.2%+34% = 87.2% of the respondents agreed that the state government and NGOs are collaborating on joint initiatives. The result is in line with Hushie (2016), Dholakia (2013), acknowledging the positive impact of NGO-government collaboration on environmental and health improvements. This collaboration has notably contributed to the development of programs aimed at controlling and preventing various diseases, including cholera, communicable diseases, malaria, and tuberculosis across diverse communities. W.H.O (2001) concurred, recognizing the inevitability of NGO collaboration with the public sector in healthcare provision activities, especially for impoverished individuals, specific vulnerable groups, suburban populations, disabled individuals, and the elderly. Ejaz, Shaikh, and Rizvi (2011) assert that NGOs possess heightened capacities to identify societal issues and priorities compared to governments. NGOs establish more effective communication channels with communities to discern their needs and priorities, and solutions proposed by NGOs are readily accepted by society members.

On whether there is implementation of penalties and fines for improper waste disposal. The table reveals that 65.4% + 26.6% = 92% of the respondents strongly agreed that there is implementation of penalties and fines for improper waste disposal. The result is similar to **respondent 1** from Oyo State Ministry of Environment and Natural Resources that: The 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. In addendum, **respondent 3** from Mottainai Recycling Limited Ibadan, Oyo State Ministry of Environment and Natural Resources states that: Environmental officers are tasked with removing and apprehending polluters who resist compliance, dealing with violators by taking legal action, including court proceedings.

Offenders below the age of eighteen face community service penalties such as cleaning streets, while those eighteen and older undergo legal judgment and fines, with specific penalties for flat tipper offenses that spread waste. The environmental task force, along with health officers, starts their duties before 7:00 a.m. To enhance their effectiveness, the public is provided with contact numbers of officials for reporting environmental issues promptly. Despite these efforts, public commitment to environmental protection and waste management in Oyo (Ibadan) is inadequate, with the city having earned a reputation as "the dirty city" in areas like Eleyele and Challenge. The present

administration is determined to change this perception. Miranda (2013) notes that the National Environmental Standards and Regulations Enforcement Agency (NESREA) in Nigeria is responsible for enforcing environmental standards and regulations, conducting research for environmental protection, and educating the public on proper waste disposal methods. Hakeem and Joseph (2014) emphasize that the Harmful Waste Act prohibits the illegal disposal of harmful wastes, with offenders facing severe penalties, including life imprisonment and asset forfeiture.

However, Ijaiya and Joseph (2014) argue that existing punishments for noncompliance are inadequate, and injured parties are not adequately compensated. Some environmental offenses are administratively punished rather than through corrective or criminal measures. The enforcement of environmental laws in Nigeria faces challenges, including a lack of modern technology, according to Fagbohun (2012).

On whether there is an establishment of recycling programs and waste separation initiatives. The table also reveals that 59.6% + 17% = 76.6% of the respondents agreed that there is an establishment of recycling programs and waste separation initiatives. The finding is in line with **respondent 3** from Mottainai Recycling Limited Ibadan states that: The Oyo state government has initiated various recycling programs and waste separation initiatives, although the state currently lacks a recycling plant. Despite this, the awareness around turning waste into a valuable resource has grown significantly, becoming a means of survival for many residents. Previously, the prevalent practice involved the activities of Hausa scavengers, commonly known as Bola or Aluminium. These scavengers, permitted to operate, contribute to waste reduction, particularly items like Ankara (lasting 200 years), cloth (lasting 500 years without rust), and nylon, thereby lessening the load on dump sites. While organic waste typically goes to the dump site, the government encourages waste sorting at the source, as a 240-liter waste bin equates to a drum.

However, the absence of a functional recycling or treatment plant in the state remains a challenge. This observation aligns with Jenny and Tim's (2021) acknowledgment that commendable initiatives aimed at mitigating environmental damage, such as recycling plastic packaging into clothing or repurposing unused bread into beer, have gained popularity. Additionally, Pradipta and Harminder's (2018) previous study underscores the priority placed on recycling urban waste for sustainable environmental management in both developed and developing countries. Jacob, Kris, and Mengiseny (2021) further support the importance of waste segregation in the waste management chain, facilitating effective Reuse, Recycling, and Recovery (RRR).

On whether there is engaging local communities and stakeholders in the decision-making processes. The table also reveals that 66.5%+13.8% = 80.3% of the respondents agreed that there is Engaging local communities and stakeholders in the decision-making processes. The finding is in line with **respondent 3** from Mottainai Recycling Limited Ibadan states that: Inclusive stakeholder consultation serves as the linchpin for addressing environmental protection and waste management, fostering a sense of belonging among stakeholders. This approach aligns with the findings of Mekonnen, Amanuel, and Terje (2022), who emphasize that the success of projects, especially those involving environmental decision-making, hinges on the active participation of stakeholders across all levels. The involvement of stakeholders is paramount for ensuring sustainability and environmental security. Richardson and Razzaque (2006) note that stakeholder participation in environmental decision-making enables citizens to exercise their democratic rights through the collective engagement of ordinary people, the media, environmentalists, academics, and scientists. Borghi, Macha, Kamuzora, and Mtei (2020) contended that involving stakeholders across the policy development cycle—encompassing problem identification, agenda setting, policy formulation, adoption, implementation, and evaluation—is crucial. This engagement is essential for understanding the diverse needs of various groups and communities, including civil society organizations and donors with differing priorities. It contributes to promoting equity in policy outcomes. Lavee and Sagie (2007) argue that involving various parties can lead to innovative strategies, including recycling initiatives and circular economy models.

On whether there is the introduction of waste-to-energy technologies. The table also reveals that 47.9% + 14.9% = 62.8% of the respondents also agreed that there is the introduction of waste-to-energy technologies including Anaerobic Digestion, Incineration, etc. The finding is similar to Moshood, Olawale, and Temitope (2022) emphasized that the adoption of a waste-to-energy system holds the potential to mitigate the adverse environmental impact resulting from waste generation. Additionally, it enables the production of renewable and sustainable energy, aligning with the principles of a circular economy. Evangelisti, Lettieri, Borello, and Clif (2017) highlighted the significance of integrating waste-to-energy (WtE) technologies into the energy/waste management system to ensure sustainable

waste management and enhance the diversity of the energy generation mix. The utilization of municipal solid waste (MSW) for producing value-added products and energy carriers, such as biogas, syngas, hydrogen gas, and bio-oil, positions it as a promising renewable energy resource. UNEP (2019) reported that a significant portion of waste, ranging from 30% to 90%, is disposed of in landfills or dumpsites in Africa. Notably, plastic waste can be transformed into oil, and wood or woody biomass can yield syngas and char, as indicated by Chen et al. (2014).

On whether there is enforcement of source-based waste segregation such as Household, Commercial and Industrial. The table also shows that 36.2% + 34% = 70.2% of the respondents also agreed that there is Enforcement of source-based waste segregation such as Household, Commercial and Industrial. The result is in line with **respondent 3** from Mottainai Recycling Limited Ibadan, which states that: The Oyo state government actively promotes waste sorting at the source, encouraging residents to segregate their waste for subsequent conversion into valuable resources. Initiatives for waste separation are implemented, allowing waste collectors and scavengers to operate and facilitate the segregation of waste into distinct categories, promoting reduction, reuse, and recycling. This approach aligns with the findings of Maletz, Dornack, and Ziyang (2018), who highlight waste segregation as a crucial step in the transition toward a circular economy. Troschinetz and Mihelcic (2009) emphasize the dependency of sustainable recycling programs, among other factors, on effective waste segregation. Johnson *e tal*. (2013) affirm that waste segregation substantially contributes to effective waste management. Stoeva and Alriksson (2017) suggest that waste segregation's impact on hospital waste management can enhance energy recovery from waste and improve the recycling process.

On whether there is encouragement and promotion of the reduce, reuse, recycle (3Rs) approach. The table also reveals that 39.4% + 16% = 55.4% of the respondents also agreed that there is encouragement and promotion of the reduce, reuse, recycle (3Rs) approach. The result is similar to **respondent 3** from Mottainai Recycling Limited Ibadan, which states that: Registered scavengers are permitted to operate at the dumpsite daily from 8:00 am to 5:00 pm, contributing significantly to waste reduction. Their activities specifically target items such as cloth (Ankara), which can endure for up to 200 years, and nylon, with a lifespan of 500 years without decay. By engaging in these activities, scavengers play a crucial role in minimizing the volume of waste directed to the dumpsite. Organic waste, on the other hand, typically finds its way to the dumpsite. As an illustration, a standard waste bin has a capacity of 240 liters. To further encourage responsible waste management, the government advocates for waste sorting at the source, emphasizing the potential financial benefits of such practices. According to Armijo De Vega et al. (2008) and Donnini Mancini et al. (2007), well-planned and managed waste reuse, recycling, and recovery (RRR) initiatives can reduce the volume of waste for disposal by up to 65% of the total generated.

On whether the state employs information and communication technology (ICT) to create a database on construction waste. The table also reveals that 75% + 11.2% = 86.7% of the respondents also agreed that the state employs information and communication technology (ICT) to create a database on construction waste. The outcome aligns with the input provided by **respondent 3** from Mottainai Recycling Limited Ibadan, highlighting that the Oyo state government has integrated technology, specifically Information and Communication Technology (ICT), to compile databases for waste construction and monitoring purposes. The actions of waste collectors are closely monitored using tracking systems, and Closed-Circuit Television (CCT) cameras are strategically installed to oversee both waste collectors and individuals contributing to pollution.

CHAPTER FIVE
SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of Findings

The study revealed that respondents agreed that the Oyo state is implementing initiatives such as awareness campaigns and educational programs focused on environmental conservation. However, the authorities express a sense of urgency, emphasizing that certain commodities in the market cannot be properly cleaned or cooked if hygiene measures are not enforced. The Oyo State Government conducts radio advocacy and awareness campaigns facilitated by Iya and Babaloja Bodija. Additionally, there is active community engagement involving meetings with community leaders and landlord associations. The discovery aligns with Mu's (2020) assertion that environmental awareness and education serve as effective tools in mitigating environmental issues and fostering public engagement in environmental governance. The 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. Hakeem and Joseph (2014) emphasize that the Harmful Waste Act prohibits the illegal disposal of harmful wastes, with offenders facing severe penalties, including life imprisonment and asset forfeiture.

However, Ijaiya and Joseph (2014) argue that existing punishments for noncompliance are inadequate, and injured parties are not adequately compensated. Some environmental offenses are administratively punished rather than through corrective or criminal measures. The enforcement of environmental laws in Nigeria faces challenges, including a lack of modern technology, according to Fagbohun (2012).

Jenny and Tim's (2021) acknowledgment that commendable initiatives aimed at mitigating environmental damage, such as recycling plastic packaging into clothing or repurposing unused bread into beer, have gained popularity. Additionally, Pradipta and Harminder's (2018) previous study underscores the priority placed on recycling urban waste for sustainable environmental management in both developed and developing countries. Jacob, Kris, and Mengiseny (2021) further support the importance of waste segregation in the waste management chain, facilitating effective Reuse, Recycling, and Recovery (RRR).

Mekonnen, Amanuel, and Terje (2022), who emphasized that the success of projects, especially those involving environmental decision-making, hinges on the active participation of stakeholders across all levels. The involvement of stakeholders is paramount for ensuring sustainability and environmental security. Richardson and Razzaque (2006) note that stakeholder participation in environmental decision-making enables citizens to exercise their democratic rights through the collective engagement of ordinary people, the media, environmentalists, academics, and scientists. Johnson e tal. (2013) affirm that waste segregation substantially contributes to effective waste management. Stoeva and Alriksson (2017) suggest that waste segregation's impact on hospital waste management can enhance energy recovery from waste and improve the recycling process. The actions of waste collectors are closely monitored using tracking systems, and Closed-Circuit Television (CCT) cameras are strategically installed to oversee both waste collectors and individuals contributing to pollution.

5.2 Conclusion

The study investigated the environmental protection policies governing sustainable waste management systems in Oyo state. It found that the Oyo state government treats environmental protection and waste management seriously, addressing them through public awareness campaigns and strict law enforcement against violators. However, the study noted that some members of the public exhibit resistance to compliance. In the present era, global practices demonstrate the conversion of waste into wealth. Therefore, the Oyo State government has the opportunity

to align itself with global standards, utilizing daily waste generation as a means to enhance the economic situation of the state.

5.3 Recommendations

Oyo state government should establishment recycling plant to facilitate the conversion of waste into valuable resources. Recycling initiatives are essential for a circular economy. Incentives for the establishment of recycling facilities, collaboration with existing businesses, and promoting the use of recycled materials in local industries will drive sustainable practices. The government should invest more in cutting-edge technologies to bolster environmental protection and foster sustainable waste management practices. Investing in modern waste collection vehicles and strategically locating waste collection centers across the state will improve accessibility for residents. A robust public awareness and education campaign should be enhanced. The Oyo state government should intensify on legislation and enforcement of sanitary laws. Strengthening and enforcing waste management laws, along with penalties for violations, will deter illegal dumping and improper waste disposal. Allocating funds for innovation in waste management technologies, fostering partnerships between research institutions and private enterprises, and regularly updating strategies based on emerging technologies will ensure continued progress.

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