



## **GOVERNMENT WASTE MANAGEMENT EFFICIENCY AND PEOPLE'S WAYS OF LIVING AS PREDICTORS OF WASTE MANAGEMENT PROCESS AMONG AGBOWO RESIDENTS OF OYO STATE**

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### **Abstract**

The research investigated government waste management efficiency and people's ways of living as predictors of waste disposal among Agbowo residents of Oyo State. Although, there have been a lot of research on effects of environmental changes on people's ways of life, it seems much empirical investigations have not been carried out on the arbitrary disposal of refuse in relation to government waste management efficiency and people's ways of living. The study adopted correlation survey design; 200 Agbowo residents participated in the research, who were sampled using simple random sampling technique. Three validated questionnaires were employed to gather data for the research. These are: Questionnaire on Government Waste Management Efficiency ( $r = 0.65$ ). Questionnaire on Peoples' Ways of Living ( $r = 0.75$ ). Questionnaire on Waste disposal ( $r = 0.83$ ). The data aggregated were analysed using multiple regression analysis. The result showed that: Significant linear relationship exist between government waste management and waste management process among Agbowo residents at  $F(1, 192) = 90.43$ ;  $Adj R^2 = 0.31$ ;  $p < 0.05$ ). Likewise, significant linear

relationship exist between people's ways of living and waste management process among Agbowo residents at  $F(1, 192) = 112.83$ ;  $Adj R^2 = 0.36$ ;  $p < 0.05$ ). Similarly, significant joint relationship exist among government waste management and people's ways of life on waste management process among Agbowo residents at  $(F(2, 191) = 98.57$ ;  $Adj R^2 = 0.50$ ;  $p < 0.05$ ). The study suggested that: People should be ready to imbibe new ways of life that will encourage tidy environment, and Government should supply trash can at strategic places.

**Key words:** Government waste management, Ways of life, Environmental-changes, Safe-habitat

## Introduction

The significant aftermaths of improper waste regulation on human heartiness and environmental productivity make research on adequate waste management expedient. Residents of Agbowo community, Ibadan engage in series of unhealthy waste disposal practices. While such acts have been proven to have deleterious effects on health, such practices yet persist among residents in the community which is a matter of concern. Waste reduction is a global priority, driven by the necessity to achieve sustainable development (Aderemi & Onawole, 2017). Improper administration of waste is a pervasive issue in rural and urban areas of numerous advanced and advancing nations resulting from people's ways of life, posing a considerable challenge (Abdel-Shafy & Mansour, 2018). Urban waste assemblage and disposal represent paramount urban environmental challenges worldwide. Solutions for managing Municipal Solid Waste (MSW) must meet financial, technical, social, legal, and environmental criteria to be effective and sustainable (Abdel-Shafy & Mansour, 2018).

Waste generation is closely linked to urbanization and lifestyle choices, and it is outpacing the rate of urban growth (Hakim, Mohsen & Bakr, 2014). Waste generation is an everyday occurrence, and the challenge of its disposal has emerged as a pressing environmental issue in many Nigerian cities (Liao, Zhao, Zhang & Chen, 2018). Nigeria generates over 25 million tonnes of solid waste annually, with urban areas producing substantial percentage (Popoola, Ayangbile & Adeleye, 2015). In numerous Nigerian urban areas, lack of effective waste management systems has resulted in haphazard disposal methods, including dumping, burning, and burying of solid wastes (Saseanu, Gogonea, Ghita & Zaharia, 2019). Waste is a comprehensive term that encompasses a wide range of unnecessary materials, as explained by the Environmental Protection Act of 1990 (Popoola, Ayangbile & Adeleye, 2015).

Numerous definitions of waste have emerged in recent years, but they all share a common thread: waste is material unwanted by its producer. These unwanted materials can take various forms, such as the spin-off of a manufacturing procedure, like smoke from a furnace. On the other hands, waste can be materials that have depreciated in their inherent worth from the view of the possessor, such as a read magazine, an emptied package, or a fully consumed apple, all of which have ceased to hold their initial worth

in the eyes of the buyers (Tamura, 2015). Over time, waste management authorities in Nigeria have employed various strategies to address waste management issues. Despite these efforts, municipal solid waste continues to be a prominent and distressing environmental problem that poses a significant threat to Nigerian cities (Moruf, Oluwasinaayomi & Mubarak, 2020). Universally, waste magnitude are increasing rapidly when compared with urban growth. (World Bank, 2017). Waste recycling as an approach is more preferable to waste burning or disposal (Song, Wang and Li, 2016 as cited by Orhorhoro & Oghoghorie, 2019).

In the year 2012, African nations gathered one hundred and twenty-five million tonnes of refuse, a figure envisaged to multiply in two folds by 2025. This increase in waste gathering within African nations is projected to be so substantial that no matter what kind of reductions in aggregate waste witnessed world-wide will likely be overwhelmed by nations in Africa (Africa Waste Management Outlook, 2018 cited in Popoola, Ayangbile & Adeleye, 2015). Also, Africa Waste Management Outlook, (2018) reported that nineteen of the world's fifth largest dump sites are found in Africa. The emergence of national environmental laws, enforcement, and monitoring, as well as adhering to international environmental rules and regulations are vital. At the national level, the agency plays a role not only in environmental law enforcement but also in maintaining effective interactions between national and international actors regarding environmental matters (Momodu, Dimuna & Dimuna, 2011). Prior to 1999, the responsibility for environmental laws and regulations, along with enforcement, rested with the Federal Environmental Protection Agency (FEPA). Moreover, this responsibility afterwards shifted to the Federal Ministry of Environment.

The Oyo State Government put all hand on deck to curb the gathering and disposal of refuse created in Ibadan by providing skip bins at strategic areas in the city. In spite of these supplies, piles of waste are frequently encountered along streets and in various spaces within the city. The issue of community waste is graduating to a significant environmental concern in cities in Nigeria (Popoola, Ayangbile & Adeleye, 2015). For instance, in the case of Ibadan, Moruf, Oluwasinaayomi & Mubarak (2020) noted that waste has become persistent and challenging issues to different government administration, resulting from urbanization. Waste generation in Ibadan has been on the rise since 1960. In 2012, the city generated approximately 635,000 tons of waste, equivalent to about 0.55 kg per person per day (Odewumi, Okeniyi & Agbede, 2016).

Traditionally, waste administration was primarily the responsibility of government. However, it has become evident that the public sector alone cannot effectively manage this responsibility due to the substantial financial, technical, administrative, and human resource requirements (Moruf, Oluwasinaayomi & Mubarak, 2020). In many communities, there is inadequate awareness regarding the consequences of arbitrary waste disposal, leading to diverse and harmful practices to the welfare of the community. How people handle waste also varies between rural and urban areas. This variation is largely influenced by factors such as knowledge, attitudes, and the availability of space within households. In urban areas, the fast-paced lifestyle and

limited household space often result in improper waste management practices. Burning waste and dumping it in public spaces are common methods used in urban waste disposal. Conversely, although rural areas generate less waste compared to urban areas, the waste management practices are quite similar (Iyanda & Olaniyi, 2016).

Education plays a pivotal role in imparting environmental awareness and promoting responsible waste management practices, both within families and in educational institutions. It stands as a crucial means to reduce waste generation efficiently (Rada; Bresciani; Girelli; Ragazzi; Schiavon & Torretta, 2016). Numerous studies (Iraia, Oihane, Cristina, Ana & Ainhoa 2015; Afroz, Hanaki & Kurisu 2011) have underscored the significance of knowledge acquired through western education and training in environmental protection. These studies emphasize the importance of raising public awareness regarding environmental responsibilities and fostering environmentally conscious lifestyles centered on recycling and waste reduction. Research by Radu, Serban, Zaharia & Handayani (2012) as cited by Andreea, Rodica-Manuela & Simona (2019) has demonstrated that the level of education and income significantly influences household waste management behaviors.

Additionally, the differences between urban and rural locations have been observed in waste administration practices. Family with higher education levels and incomes, primarily living in cities, are prone to generate greater amounts of waste they may likewise exhibit a higher likelihood of administering their waste appropriately, in comparison with the family in domestic areas, which obviously possess low level of education and incomes. Niringiye (2010) postulated that higher levels of education lead to a greater appreciation of the consequences of mishandling solid waste and a stronger commitment to avoiding the risks associated with an unsanitary environment. Similarly, Afroz et al. (2009) was of the opinion that education correlates with substantial comprehension of waste issues in term of its impact on societal health and a willingness to offer money for waste administration services. Although Iyanda & Olaniyi (2016) acknowledged that educated individuals tend to use proper waste disposal systems, they also noted instances of indiscriminate waste disposal among literate individuals, such as dumping in streams or gutters, burning waste, and discarding it in open areas. Education serves to enhance knowledge about waste management (Yusuf & Fajri, 2022).

Similarly, environmental management training encourages desirable disposition, equipping citizenry with the understanding, disposition, worth, consignment, and expertise paramount for solving environmental problem. It also fosters a sensitive disposition, inquisitiveness, and readiness to protect the environment, reflected in terms of expertise, dispositions, and behaviors (Jazat, Akande & Ogunbode, 2023). In their study, Iyanda & Olaniyi (2016) established a link between waste disposal methods and type of housing. Face-to-face buildings were prevalent and had a higher percentage among all the research populations. Considering the environmentally unfriendly and improper methods of disposing solid waste, residents living in face-to-face buildings made a more significant contribution to these practices. It is important to note that face-to-face buildings often accommodate low-income earners, which implies that their

standard of living may be lower, and they might struggle to afford proper and dignified waste disposal methods.

Furthermore, age has indeed been identified as a factor influencing people's involvement in waste management. As noted by Kaza, Lisa, Perinaz & Frank, 2018; Awunyo-Vitor, Ishak & Seidu (2013) that age has a negative impact on the willingness to offer money for waste administration services. Older individuals may perceive waste administration as the government's function and might be less inclined to contribute financially to it. Conversely, the younger ones are often more accustomed to cost-sharing and may be more ready to contribute financially to waste management efforts, as suggested by Addai & Danso-Abbeam (2014). The author also discovered that individuals in the middle age group, typically between 21 and 60, were more inclined to pay for improved municipal solid waste management than both older individuals (above 60) and younger individuals (below 20). This trend stemmed from the belief among older individuals that solid waste management was solely the government's duty, while younger individuals did not necessarily feel concern for improved solid waste management and were therefore less willing to contribute financially. In contrast, the middle-aged generation, often burdened with family responsibilities, had a better understanding of the repercussions of poor waste administration. They were also more familiar with cost-sharing practices and, accordingly, exhibited a greater willingness to offer money for improved local waste administration services (Richard, 2015).

Additionally, cultural values in Nigeria can act as barriers to efforts aimed at improving waste management. Another challenge lies in the insubstantial commitment of manufacturers in waste managements. Furthermore, income level is a key factor that influences individuals' willingness to make responsible waste management decisions. Tamura (2015), in his analysis of individual attributes related to the request for waste management in Accra, discovered that as people's wages increases, so does their willingness to contract out the duties of waste assemblage. This means that positive relationship exists between wages increment and people's readiness to contribute to proper waste management efforts.

To better manage environmental protection, each state in Nigeria, along with its local government, has been granted the authority to establish related environmental agencies, within their jurisdiction, restricted to the respective regions or domestic authorities where they operate. As a result, the administration of waste has become a fundamental responsibility of communities and grassroots governments in each region. Nonetheless, achieving effectiveness in this unit has proven to be a significant predicament, particularly in urban centres like Ibadan, Lagos, Port-Harcourt and other urban cities. Although there have been a lot of research on effects of environmental changes on people's ways of life, it seems much empirical investigation have not been carried out on the arbitrary disposal of refuse in the urban areas in relation with government waste management efficiency and peoples ways of living. Therefore, the researchers investigated government waste management efficiency, and people's ways of living as predictors of waste disposal among Agbowo residents of Oyo State.

### Research Questions

Based on the problem identified the research answered the following questions:

1. What is the predictive power of government waste management on waste management process among Agbowo residents, Oyo State?
2. What is the predictive power of people's ways of living on waste management process among Agbowo residents, Oyo State?
3. What is the predictive power of government waste management and people's ways of living on waste management process among Agbowo residents, Oyo State?

### Methodology

The study employed correlational survey design. This research design was preferred since the researchers do not have direct control on the factors under investigation as they are inherently not manipulable.

The entire residents of Agbowo Community were the target population for the study. 200 participants were randomly selected from the target areas within the community.

**Table 1: Sample Distribution Frame**

S/N	Sampled Area within the Community	No of Sampled Participants
1.	Agbowo Express	50
2.	Major Salawu Area	50
3.	Barika-Agbegba Area	50
4.	Transformer/Ile-Eja Area	50
<b>Total</b>	<b>Four Areas</b>	<b>200</b>

Three validated questionnaires were employed to gather information for the research. These are:

1. Questionnaire on Government Waste Management Efficiency
2. Questionnaire on Peoples' Ways of Living
3. Questionnaire on Waste disposal

### Questionnaire on Government Waste Management Efficiency

This questionnaire was constructed by the investigators to measure government waste management efficiency. The instrument contained two sections: A & B. Section A consists of respondents' bio-data : Gender, Highest level of education, occupation, Section B contains 10 items on government waste management efficiency, the participants responded on four options Likert scale which are: SD = Strongly disagree, D = Disagree SA = strongly agree, A = Agree. To establish the validity of the instrument, the questionnaire was given to three experts in research instrument construction for face validity and it was further validated on a sample of 30 respondents who are outside the research coverage area and the reliability co-efficient was 0.65 using Crobach alpha.

### Questionnaire on Peoples' Ways of Living

This questionnaire was constructed by the investigators to measure peoples' ways of living. The instrument contained two sections: A & B. Section A consists of respondents' bio-data: Gender, Highest level of education, occupation, type of accommodation. Similarly, section B contain 10 items on peoples' ways of living, the participants responded on four options Likert scale which are: SD = Strongly disagree, D = Disagree SA = strongly agree, A = Agree. To establish the validity of the instrument, the questionnaire was given to three experts in research instrument construction for face validity and it was further validated on a sample of 30 respondents who are outside the research coverage area and the alpa co-efficient was 0.75

### Questionnaire on Waste disposal

This questionnaire was designed by the investigators to measure waste disposal pattern in the study area. The instrument contained two sections: A & B. Section A consists of respondents' bio-data: Gender, Highest level of education, occupation, type of accommodation and household size. Additionally, section B contained 10 items on waste disposal, the participants responded on four options Likert scale which are: SD = Strongly disagree, D = Disagree SA = strongly agree, A = Agree. To establish the validity of the instrument, the questionnaire was given to three expert in research instrument construction for face validity and it was further validated on a sample of 30 respondents which are outside the research coverage and the resulting reliability alpha co-efficient was 0.83

Data was collected from sampled residents. This was carried out through the help of four (4) research adjuncts who were trained and exposed to the significance of the research. The study was carried out within ten weeks. Multiple regression analysis was used to analyse the data gathered for the study.

## Results

**Research Question One:** What is the predictive power of government waste management on waste management process among Agbowo residents, Oyo State?

**Table 2: Regression Summary and ANOVA of Government Waste Management on Waste Management Process**

<b>Multiple R = 0.57</b>					
<b>R Square = 0.32</b>					
<b>Adjusted R Square = 0.31</b>					
<b>Standard Error = 2.96</b>					
<b>Analysis of Variance</b>					
<b>Source of Variance</b>	<b>Sum of Square</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Regression	794.93	1	794.93		
Residual	1687.82	192	8.79	90.43	0.00
Total	2482.75	193			

*Significant at  $p < .05$ .*

Table 2 reveals that there is a significant contribution of the predictor variable: government waste management on the dependent variable (waste management process among Agbowo residents).  $F(1, 192) = 90.43$ ;  $Adj R^2 = 0.31$ ;  $p < 0.05$ . This implies that government waste management predict waste management process among Agbowo residents. Table 2 further reveals a relationship between the variables  $R = 0.57$ , implies that 57% correlation exist between the variables and the adjusted  $R^2 = 0.31$ , reveals that independent variable (government waste management) accounted for 31% of the total variance observed in waste management process among Agbowo residents while the remaining 69% may be due to other factors and residuals not considered in the study. The finding implies that government waste management contribute significantly in the prediction of waste management process among Agbowo residents.

**Research Question Two:** What is the predictive power of people’s ways of living on waste management process among Agbowo residents, Oyo State?

Table 3: Regression Summary and ANOVA of People's Ways of Living on Waste Management Process

Multiple R = 0.61					
R Square = 0.37					
Adjusted R Square = 0.36					
Standard Error = 2.85					
Analysis of Variance					
Source of Variance	Sum of Square	df	Mean Square	F	Sig.
Regression	918.94	1	918.94		
Residual	1562.81	192	8.15	112.83	0.00
Total	2482.75	193			

*Significant at  $p < .05$ .*

Table 3 reveals that there is a significant contribution of the predictor variable: people’s ways of living on the dependent variable (waste management process among Agbowo residents).  $F(1, 192) = 112.83$ ;  $Adj R^2 = 0.36$ ;  $p < 0.05$ . This implies that people’s ways of living predict waste management process among Agbowo residents. Table 3 further reveals a relationship between the variables  $R = 0.61$ , which implies that 61% relationship exist between the variables and the adjusted  $R^2 = 0.36$ , reveals that independent variable (people’s ways of living) accounted for 36% of the total variance observed in waste management process among Agbowo residents, while the remaining 54% may be due to other factors and residuals not considered in the study. The finding implies that people’s ways of living contribute significantly in the prediction of waste management process among Agbowo residents.



**Research Question Three:** What is the predictive power of government waste management and people's ways of living on waste management process among Agbowo residents, Oyo State?

Table 4: Regression Summary and ANOVA of Government Waste Management, People's Ways of Living and Waste Management Process

Analysis of Variance					
Source of Variance	Sum of Square	df	Mean Square	F	Sig.
Regression	1261.01	2	630.50		
Residual	1221.7	191	6.39	98.57	0.00
Total	2482.747	193			

*Significant at  $p < .05$ .*

Table 4 reveals that there is composite contribution between the predictor variables: government waste management, people's ways of living and the dependent variable (waste management process among Agbowo residents).  $F(2, 191) = 98.57$ ;  $Adj R^2 = 0.50$ ;  $p < 0.05$ ). This implies that when government waste management and people's ways of living are taken together, the variables jointly contribute to the prediction of waste management process among Agbowo residents. Table 4 further reveals a multiple relationship  $R = 0.71$ , which implies that 71% relationship exist among the variable and the adjusted  $R^2 = 0.50$ . This reveals that independent variables (government waste management and people's ways of living) accounted for 50% of the total variance observed in waste management process among Agbowo residents while the remaining 50% may be due to other factors and residuals not considered in the study. The finding implies that there is joint contribution of government waste management and people's ways of living in the prediction of waste management process among Agbowo residents.

### Discussion of Findings

The finding from this research reveals that there is a significant linear correlation between government waste management efficiency and waste management process among Agbowo residents, the result appears in this way because government policy at times caution people in different act of indiscipline. The finding is in line with the claim of Moruf, Oluwasinaayomi & Mubarak (2020) that waste administration was primarily the responsibility of government. However, it has become evident that the public sector alone cannot

effectively manage this responsibility due to the substantial financial, technical, administrative, and human resource requirements.

The finding likewise, support Orhorhoro & Oghoghorie (2019) where the authors asserted that government leadership is paramount to manage waste, especially at apex levels of government, because production systems are increasingly national and global, and corporations are increasingly multinational. The key to eliminating product waste is to stimulate environmentally sound design and distribution strategies by making producers bear the costs of end-of-life waste management. Owing from this assertion, Aderemi & Onawole (2017) opinion that waste reduction is a global priority, driven by the necessity to achieve sustainable development (Aderemi & Onawole, 2017). Improper dumping of waste is a pervasive issue in rural and urban areas of numerous advanced and advancing nations resulting from people's ways of life, posing a considerable challenge (Abdel-Shafy & Mansour, 2018). Several other variables exhibit a positive correlation with the quantity of generated waste by individual family, including family size, the availability of household members who are willing to enjoy their relaxation period outside the family compound, eating and drinking habits, and family earning sustainability (Aderemi & Onawole 2017). The waste generation is generally linked to urbanization and lifestyle choices, and it is outpacing the rate of urban growth (Hakim, Mohsen & Bakr, 2014). Increase in generation of waste within African continent is so substantial that any reductions in generation of waste witnessed in other global nations will likely be overwhelmed by the one noticed in Africa (Jazat, Akande & Ogunbode, 2023).

Similarly, the finding from this research also reveals that there is a significant correlation between people's ways of living and waste management process, this is because waste generation at times depends on the way people value their environment. The finding is in line with the claim and discoveries of previous researches. For example the result supports Hakim, Mohsen & Bakr (2014) who posited that the generation of waste is closely linked to urbanization and lifestyle choices, and it is outpacing the rate of urban growth. Likewise, the result is in consonance with the clam of Jazat, Akande & Ogunbode (2023) who asserted that there is inadequate awareness concerning the consequences of arbitrary waste disposal, leading to diverse and harmful practices in dealing with it. How people handle waste also varies between rural and urban areas. This variation is largely influenced by factors such as knowledge, attitudes, and the availability of space within households. In urban areas, the fast-paced lifestyle and limited household space often result in improper waste management practices. Burning waste and dumping it in public spaces are common methods used in urban waste disposal. Conversely, although rural areas generate less waste compared to urban areas, the waste management practices are quite similar.

Moreover, the finding from this study agree with Popoola, Ayangbile & Adeleye (2015)'s opinion that waste conglomerate are frequently encountered along various streets and in open surface of the city. The issue of domestic abnormal disposal of waste is becoming a significant ambient concern in urban centres in Nigeria. For instance, in the case of Ibadan, Moruf, Oluwasinaayomi & Mubarak, (2020) noted that abnormal disposal of waste has emerged as the most challenging and persistent issue to different government administration, resulting from urbanization. Also, Tamura (2015), in his analysis o discovered that there is a positive

relationship between people's wages increment and desire to pay for solid waste collection. This simply mean a positive relationship exist between wages increment and people's willingness to contribute to proper waste administration efforts. Afroz et al. (2009) reiterated that learning through western education correlates with a good comprehension of waste administration issues and a desire to offer their money for waste management efforts. However, Aderemi & Onawole (2017) emphasize the significance of increasing public enlightenment regarding environmental responsibilities and fostering environmentally-conscious lifestyles centered on recycling and waste reduction, all of which are fundamental components of sustainability (Aderemi & Onawole, 2017).

### **Conclusion and Recommendations**

Waste administration is regarded as paramount and a determinant of city livability. Town planners and environmentalist in Nigeria are struggling to give a feasible, prolong, and everlasting solution to the arbitrary refuse disposal in cities. The rate of waste generation has developed into a scourging and recalcitrant level in Nigeria owing from economic activities and human routine. Resulting from inadequate waste management strategies, dumping of waste in unauthorised spaces is now the norm in the nation, both in villages and urban centre, and the punishment administered on offenders are not properly handled. The neighbourhood of dumpsites are vulnerable to substantial and increasing environmental degeneration, most especially in urban centres in Nigeria. This graduate into adverse consequences on the overall maintenance of city life, outbreak of epidemics, and decline in aquatic elements as a result of water acidification and toxicity. On the bases of the findings from this study the researchers recommended that:

1. People should imbibe new ways of life that will encourage tidy environment,
2. Government should supply trash cans at all the strategic places where people drop refuse and be prompt at collecting it for disposal.
3. There should be a serious sanction for whoever is caught in the act of arbitrary waste disposal to serve as deterrent to others who may want to do same.

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