

Solid Waste Disposal and Management in Oyo Township

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Abstract

This study examines the current state of solid waste generation, disposal and management in Oyo township. The increasing population and urbanisation in the area have resulted in significant solid waste management challenges. The methodology used is survey research design in which random sampling technique, questionnaires, and oral interview were adopted. Eight areas in the study area were randomly selected and these include, Saabo, Kosobo, Oyo London, Mabolaje, Asipa, Ojongbodu, Owode and Akunlemu. 40 residents from each of the selected areas were also randomly picked to respond to questionnaire items. Percentages and tables were used to present data collected and descriptive method of data analysis was used to analyze the data. The findings indicate that inappropriate waste collection, open dumping, lack of proper disposal facilities, open defecation, lack of environmental education, inadequate solid waste management strategies among others are posing environmental challenges and health risks in the study area. The study recommends environmental literacy, periodic sanitary inspections, sustainable waste management, seeing solid waste management as social service and enforcement of anti-littering laws to address these issues.

Keywords: Solid waste, disposal, management, environmental, challenges

INTRODUCTION

Environmental challenges arising from improper disposal of solid waste are now major issues in many Nigerian urban cities and rural communities (Ukaeje, Akpan Ifeanyi and Owanah, 2020). This is as a result of huge increases in solid waste generation following the increase in population and urbanisation (Umunna, 2009). As humans engage in their daily activities to meet up with their basic human needs, a lot of unwanted materials, often referred to as waste, are generated. Mostly, wastes generated by homes, industries, organizations, schools and businesses are not properly disposed. Solid wastes are the organic and inorganic waste materials such as product packaging, grass clippings, furniture, clothing, bottles, kitchen refuse, paper, leftover food, plastic, metal, glass, appliances, paint cans, batteries etc. produced in a society which do not generally carry any value to the first users (VEP, 2019). Solid wastes thus encompass both a heterogeneous mass of wastes from the urban community as well as a more homogeneous accumulation of agricultural, industrial and mineral wastes. According to UNICEF. (2006), solid wastes are discarded materials generated from industries, commercial places or homes which are no longer of any economic value and could be organic and inorganic materials. On the other hand, Nagebu (2010), viewed solid waste as resources that should be recycled for further usage

rather than being discarded to constitute nuisance in the environment.

However, Nigeria, generates approximately 32 million tons of solid waste generally, with a daily per capita generation rate of about 0.65kg per day (Orhororo & Oghoghorie, 2019), and this number is projected to rise to 107 tons by 2050. According to Mathias, (2023), only 30% of the waste generated in Nigeria is efficiently collected and disposed of, mainly because two-thirds of urban households in most low income neighborhood lack formal waste management services, unlike middle-class and affluent neighborhood where waste is regularly collected. This reality portends, a very dire future for city residents in low-income areas who are unable to manage the volume of waste they presently produce, resulting in a plethora of health and environmental challenges for these residents. As a result of ineffective waste management system in Nigeria, solid waste is typically disposed illegally in makeshift landfills, any available open space, along highways and street corners, open drains, nearby streams and water channels.

The environmental challenges faced by cities in Nigeria is due, in part, to the increasing streams of generated solid wastes are driven by population growth, industrialization and urbanization (Ahmed & Ali, (2004); Annepu, (2012)) as well as the financial burden of waste management and lack of technical capacity of city authorities (Henry, Yongsheng & Jun, 2006; Guerrero, Maas & Hogland, (2013)). Solid waste management involves collection, transportation, and processing, recycling or ultimate disposal. Waste management needs careful planning if the desired goals are to be achieved. The management of solid wastes, particularly those generated in urban areas are increasingly becoming complex (Maity., 2014). Indiscriminate waste disposal leads to the destruction of the aesthetic beauty of the environment, causes flooding and environmental air pollution (Iro, Okorodu and Mbano, 2012). Many lives are also lost annually due to filthy environment related diseases such as diarrhea, malaria, cholera, typhoid fever etc. (Idowu, Adagunodo, Esimai & Olopade, 2012). The management of solid waste in many African cities and rural communities has been reported to be ineffective (Maity, 2014).

Statement of the Problem

Municipal solid waste disposal and management is one of the major environmental challenges in Oyo township, Nigeria. The rapid urbanization and population growth in the area have led to increased generation of solid waste, which put pressure on existing waste management infrastructure. Indiscriminate waste disposal, inadequate waste collection and inappropriate waste management have resulted in environmental pollution, health risks and degradation of the environment. As a result of government's inability to put up efficient solid waste management system and the attitude of the residents in solid waste disposal, the problem of solid waste management persists. This highlights the need for a comprehensive assessment of waste generation patterns, management practices and challenges in Oyo township with a view to identifying solutions for sustainable waste management.

Aim and Objectives of the Study

The aim of the study is to assess the current state of solid waste generation and management in Oyo township.

To achieve this aim, the following objectives are proposed:

1. To identify waste generation patterns, that is to determine the types and quantities of solid waste generated in Oyo township.
2. To assess the existing waste collection, transportation and disposal methods.
3. To determine the various obstacles hindering effective waste management in the area.

4. To provide recommendations for sustainable waste management practices in the area.

Geography of the Study Area

Oyo township is located in Oyo State, Nigeria and it comprises of 3 local government areas which include Atiba, Oyo East and Oyo West. The town is located between latitudes 7°47'N and latitudes 7°55'N of the equator and longitudes 3°54'E and 3°59'E of the Greenwich meridian. The region basically falls within the tropical hinterland. It presents double maxima rainfall especially in the southern part bordering Ibadan region. Annual rainfall ranges between 1500mm and 2000mm. Relative humidity is over 80% in the morning and between 50% and 70% in the afternoon. Mean annual temperature is 27°C with an annual range of 8°C (Aderibigbe, 2013). The landscape consists of old hard rocks and dome-shaped hills rising gently from about 500 metres in the southern part to 1,200 metres above sea level in the northern part. The vegetation is a mixture of grass and trees typical of the Guinea Savannah vegetation.

The economy is mainly based on agriculture, with crops like maize, cassava, yam, watermelon, tomato etc being cultivated. The town is also known for its carved calabashes, leatherwork, cloth weaving, blacksmithing etc. However, the proportion of working population engaged in primary activities is declining as the economy becomes more advanced and diversified with increased urbanization (Oyedemi & Lawal, 2018).

SOLID WASTE GENERATION AND DISPOSAL IN OYO TOWNSHIP

As we all know that solid waste is the useless and unwanted products in solid form derived from the activities of human beings and discarded by the society. It is produced either as by-product of production processes or arise from the domestic or commercial sector when objects or materials are discarded after use. In Oyo metropolis, most solid waste generated comprises of the following materials:

- Domestic waste which comprises of leftover food, leaves, nylon from sachet water, nylon bags, peeling and scraps of yam, cassava, plantain etc, spoiled food, grass, wrappers from consumable food items like Indomie etc.
- Plastic materials from soft drinks, bottled water, plastic containers, packing materials, spoilt and discarded plastic buckets, drums, baskets etc.
- Spoilt and discarded shoes, sandals, clothes, wigs and artificial hair etc.
- Metal scraps from spoilt home appliances, mechanic workshops etc.
- Human and animal faeces.
- Discarded wood from furniture workshops, building materials, pallets etc.
- Papers and cartons from manufactured goods, newspapers, office papers, packing materials, cardboards etc.
- Broken pieces of glass, vehicle windscreens, bottles etc.
- Industrial, hospital and office wastes such as nylon from sachet water factory, POP wastes, hazardous wastes from medical facilities, demolition and construction wastes etc.
- Waste from dead animals.
- Agricultural wastes such as maize cobs, spoilt yams, grains, cassava, fruits like mango, cashew, maize and guineacorn stalks etc generated from orchards, vineyards and farms.
- Electronic waste such as discarded computers, office electronic equipment, mobile phones, television sets, refrigerators, electric iron etc.

Solid Waste Disposal in Oyo Township

There are no designated areas provided by the authorities where solid wastes are disposed in Oyo metropolis. Most of the areas in the town are low-income neighbourhoods. Even in the so-called middle-class and affluent neighbourhood, there is no formal waste dump sites and waste management services. Solid waste disposal sites are found everywhere there is vacant land, even within the heart of the town. Wastes are being disposed indiscriminately and inappropriately round the town and this is posing serious environmental challenges. The most common methods of solid waste disposal in Oyo and its environment include:

- Dumping of refuse along streams and canal streams like Isunwin, Ladindin, Ogbegbe and others are major solid waste dumping sites in Oyo town. Apart from solid waste dumping, these streams serve as toilet facilities where people defecate since many households do not have toilet facilities.
- Roadside especially sides of newly constructed Oyo–Ogbomosho expressway. Roadsides within the town serve as dumping sites for solid waste. Saabo axis of Oyo–Ogbomosho new expressway is an eyesore for solid waste dumping.
- Vacant plots of land and open spaces are also being used as dumping sites for solid waste. This is common in newly developed areas where there are many vacant plots of land waiting to be developed. The vacant plots also serve as toilet facilities where majority of the residents go to defecate.
- Front and back of houses in Oyo township serve as dumping sites for household generated solid waste, not even minding the danger inherent in such actions.
- Landfills located in different parts of the study area.



Refuse dump sites along new Oyo-Ogbomoso express way

Methodology

Questionnaires and oral interview were used to collect data for this study. Eight areas within Oyo township were randomly selected for the purpose of study. In each of the areas, forty copies of questionnaires were administered, making a total of three hundred and twenty copies.

The questionnaires contain information such as biodata of the respondents, types of solid waste being generated, the quantity of solid waste being generated, solid waste disposal methods, methods of solid waste management, challenges of solid waste management among others.

Random sampling technique was used to select respondents in each of the areas selected. Oral interview was also conducted with some residents of the selected areas. The data collected were analyzed and presented using percentages and cross tabulation. Descriptive method of data analysis was used to analyze the result of the findings.

Results and Discussion of Findings

Table 1 (a) Sex of Respondents

Sex	Frequency	Percentage
Male	52	16.25%
Female	268	83.8%

Author's field survey March. 2025

Table 1(b) Age of Respondents

Age Range	Frequency	Percentage
20–30 years	74	23.1%
30–45 years	176	55%
45–60 years	48	15%
Above 60 years	22	6.9%

Author's field survey March. 2025

Table 1(c): Occupation of Respondents

Occupation	Frequency	Percentage
Farming	110	34.4%
Trading	148	46.3%
Artisans	51	15.9%
Civil Servants	11	3.4%

Author's field survey March. 2025

Table 1(d): Household Size

Household Size	Frequency	Percentage
Less than 5 people	33	10.3%
5–10 people	115	35.9%
Above 10 people	172	53.8%

Author's field survey March. 2025

Table 1(e): Monthly Income Range

Income Range	Frequency	Percentage
Below ₦50,000	206	64.4%
₦50,000 – ₦100,000	87	27.2%
Above ₦100,000	27	8.4%

Author's field survey March. 2025

Table 2: Types of Waste Being Generated

Waste Type	Frequency	Percentage
Domestic Waste	301	94.1%
Agricultural Waste	265	82.8%
Industrial Waste	56	17.5%
Metal Waste	96	30%
Glass Waste	24	7.5%
Electronic Waste	31	9.7%

Author's field survey March. 2025 (Multiple Responses)

Table 3: Changes in Household Waste Generation

Response	Frequency	Percentage
Yes	219	68.4%
No	101	31.6%

Author's field survey March. 2025

Table 4: Waste Disposal Methods

Method	Frequency	Percentage
Open dumping	296	92.5%
Burning	113	35.3%
Collection by waste management agency	11	3.4%
Collection by private company	23	7.2%
Composting	16	5%
Others (specify)	58	18%

Author's field survey March. 2025 (Multiple responses)

Table 5: Availability of Recycling Programme

Response	Frequency	Percentage
Yes	17	5.3%
No	303	94.7%

Author's field survey [March. 2025](#)

Table 6: Training on Waste Management

Response	Frequency	Percentage
Yes	NIL	0%
No	311	97.2%

Author's field survey [March. 2025](#)

Table 7: Willingness to Pay for Waste Collection and Management

Response	Frequency	Percentage
Yes	47	16.7%
No	273	83.3%

Author's field survey [March. 2025](#)

Table 8: Response of Government to Waste Collection and Management

Response	Frequency	Percentage
Adequate	13	4.1%
Inadequate	307	95.9%

Author's field survey [March. 2025](#)

Table 9: Improper Waste Disposal Causes Sicknesses and Diseases

Response	Frequency	Percentage
Yes	286	89.4%
No	34	10.6%

Author's field survey [March. 2025](#)

Table 10: Challenges of Waste Disposal and Management

Challenge	Frequency	Percentage
Lack of waste collection services	268	83.8%
Inadequate waste disposal facilities	297	92.8%
Lack of awareness on proper waste disposal	183	57.2%
Others (specify)	115	35.9%

Author's field survey [March. 2025](#) (*Multiple responses*)

Table 11: What to do to Improve Waste Management

Solution	Frequency	Percentage
Increase waste collection frequency	91	28.4%
More waste disposal facilities	216	67.5%
Public education on waste management	295	92.2%
Active government involvement	304	95%

Author's field survey March. 2025 (*Multiple responses*)

From table 1a above, females constitute 268 (83.8%) of the respondents while 52 (16.25%) were male. As regards age of the respondents, 250 (78.2%) were between 20–45 years of age while 70 (21.8%) were above 45 years. A sizeable number of respondents, 148 (46.3%) as shown in table 1c are traders, 110 (34.4%) are farmers, 51 (15.9%) are artisans while civil servants constitute 3.5% of the respondents. Household size varies in the study area, 10.3% of the residents have less than 5 people in their households, while 35.9% have between 5–10 people and 53.8% of the residents have more than 10 people in their households. The observation made was that household size within the core of the town is larger than those in the suburb. From table 1e, income vary from area to area and from individuals to individuals. Majority of the respondents which constitute 64.4% earn below ₦50,000 on monthly basis, 27.2% earn between ₦50,000 – ₦100,000 while 8.4% earn above ₦100,000.

As shown in table 2 above, different types of solid waste are being generated in the study area. Almost all the respondents (94.1%) agreed to be generating domestic or household waste. On the other hand, 82.8% indicated that agricultural wastes are also being generated by them. Generation of agricultural wastes is common in the study area because of the high level of farming activities. Industrial waste, metal waste, glass waste and electronic waste are also being generated in the study area in smaller proportions. Changes in household waste is also indicated by the respondents. Findings from oral interview granted by some of the residents revealed that the volume of solid waste being generated vary from season to season. It was revealed that there are more waste generated during rainy season when there are fresh farm products like fresh maize, fresh yams, groundnut, garden egg etc. That is, households consume more during rainy season than any other season in the area because of abundance of farm products.

From table 4 above, open dumping, burning and landfill are common waste disposal methods in the study area. They constitute 92.5%, 35.3% and 18% respectively. Waste collection by government waste management agency, accredited private waste collection company and composting are almost non-available in the area. The implication is that solid wastes are being disposed indiscriminately and inappropriately on any available vacant spaces in the area. From table 5, there is no recycling programme for solid waste management. The implication is that wastes are left in open spaces unattended to which usually pose health threat to the residents of the area. The result of table 6 implies that there is no training organized to sensitize the residents on the dangers inherent in open defecation and improper waste disposal. In addition, majority of the residents are not willing to pay for waste collection and management services as shown in table 7 (83.3%). They are contented with open disposal and that paying for waste disposal will be an extra financial burden to them considering the present economic hardship in the country.

From table 8, 307 (95.9%) of the respondents were of the opinion that government's response and participation in waste collection and management in Oyo township is zero. It was also agreed by 89.4% of the residents (as shown in table 9) that open defecation and improper

waste disposal methods contribute to ill health and diseases in the area. However, table 10 shows various challenges being faced by the residents as regards waste disposal and management as agreed by the respondents. Lack of awareness on proper waste disposal constitutes a significant percentage of the responses. Table 11 shows what the respondents suggested should be done to improve waste management in the study area. Public education on waste management and active government involvement recorded the highest responses which are (92.2%) and (95%) respectively, followed by provision of more waste disposal facilities and increase in waste collection frequency (28.4%)

Conclusion

The study examined the state of solid waste generation, disposal and management in Oyo township. Findings revealed that there is a high rate of solid waste generation in the area due to increasing population, urbanization and human activities. The study also revealed that waste disposal methods in the area are largely improper, with open dumping and burning being the most common methods. There is little or no involvement of government and private agencies in waste collection and management. The absence of recycling programmes, lack of public awareness, and inadequate waste disposal facilities have contributed significantly to poor waste management practices in the area. Improper waste disposal has led to environmental degradation, pollution, and increased health risks among residents.

Recommendations

Based on the findings of this study, the following recommendations are made:

1. Government should provide adequate waste disposal facilities across the township.
2. There should be regular and efficient waste collection services.
3. Public awareness campaigns should be carried out to educate residents on proper waste disposal practices.
4. Recycling programmes should be introduced and encouraged.
5. There should be strict enforcement of environmental sanitation laws.
6. Government and private sectors should collaborate in waste management.
7. Residents should be encouraged to participate actively in proper waste disposal practices.

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