Status, Problems and Challenges of Kaduna South L.G.A Nigeria on the Solid Waste Management in Unguwan Sanusi

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Abstract:- The rapid increase of people, booming budget, rapid urbanization, increase in marketable, agricultural and industrial events are the major reasons for the increase in generation of solid surplus. This paper will inspect the domestic waste management in Unguwan Sanusi, Kaduna South L.G.A Nigeria with the precise objectives which are, to identify the types of domestic waste produced, to identify the approaches of domestic surplus dumping in the study area, and to identify the challenges faced by the inhabitants resulting from waste. According to the findings of the field study, domestic waste management in Unguwan Sanusi area of Nigeria is the responsibility of both the government and private organizations because it affects both parties in some manner. The lack of adequate dumpsites provided by the relevant agencies appears to have an impact on domestic waste disposal techniques in the research area. The analysis was done and presented using, method of questionnaire where in 250 questionnaires were placed and 150 people responded. The data revealed that the respondents had a diverse range of socioeconomic characteristics. It also revealed that locals were dissatisfied with trash management procedures, with many of them being unaware of the body/agency in charge of waste management. For proper hardsurplus management, environmental teaching courses should be introduced in all levels in schools in Nigeria and an additional formal disposal site must also be provided which must be close to one another.

Keywords:- *Pollution, Domestic Waste, Dumpsites, Disposal, Management.*

I. INTRODUCTION

Wastes are constituents, materials, or objects that have been cast-off as being worthless, undesirable, defective, or no longer useful for human pecuniary productive happenings or processes [1]. Every year, millions of tons of bottles, cans, food scrap, plastics, abandoned broken down automobiles, dead animals, and other solid garbage are generated in Nigeria's urban centers [2].They lead to flooding when deposited into water drains as shown in Figure 1. Waste is typically categorized based on (a) its foundation and (b) its negative impact on personalities and the environment. (c) The proper controls for dealing with it [3]. It either originates from a workshop (market) or an office – marketable waste – or from a works –

manufacturing waste – or from the homegrown – inland or native waste – depending on the source categorization [4]. When improperly disposed of, they can contaminate water, soil, and air, spreading disease-causing bacteria. The release of harmful compounds that result from the natural decomposition process and incomplete combustion of burned garbage poses a more serious threat. Flies, cockroaches, and rats thrive in uncontrolled trash, resulting in unattractive sceneries, while putrefying organic matter emits noxious scents that pollute the air [5].

Waste can contaminate water sources, causing cholera, dysentery, typhoid, and other disease [6]. Government initiatives to cope with trash management have resulted in the formation of various entities at the state and local levels, despite these efforts, mountainous heaps of solid wastes remain a common sight in most cities that lack appropriate and efficient municipal garbage collection, transportation, and disposal, with over half of the population in urban areas having inadequate or no solid waste disposal facilities [7]. In the works of industrialised and developing countries, distinct disparities in Municipal Solid Waste Management have been observed [8]. Public vigour is no longer a key motivator of waste supervision in most industrialised countries; instead, the contemporary emphasis is on optimising surplus supervision procedures with a wider goalmouth of supply upkeep [9]. In most developing nations, municipal solid waste management (MSWM) is characterised by insufficient service coverage, service operating incompetence, limited recycling activities, insufficient handling of non-industrial perilous surplus, and insufficient landfill dumping [10].

Although surplus managing in advanced and rising nations differs, as rising countries achieve monetary growth and inhabitants increase, waste management in developing countries will become more similar [11]. The ecological and monetary burdens of solid waste supervision will increase, the rate of surplus group largely increases in direct quantity to that of a nation's advance in development. Catastrophe to provide a running system could result in greater conservational deprivation with intensification healthiness danger towards the municipal inhabitants [12].

Nigeria's waste generation situation has been a source of global and local concern. Solid wastes, among the various types of trash generated, have posed a hydra-headed challenge beyond the capacity of Nigeria's diverse solid

waste management systems. as the streets are constantly flooded with solid garbage from commercial activity[13].

Effective solid waste management can only be achieved after socio-economic features are considered in solid waste managing studies. This method would enable them to predict not only a household's spending habits and how much rubbish each item consumed would generate, but also the quality of waste generated by the household[14].

This approach was used for the first time to explore this problem, with mixed results. However, because the home is the basic unit of consumption and trash generation, it might be claimed that this technique could make it probable to translate the data gathered into an input for a general solid waste cohort projection. A study like this would help city environmental planners address the garbage problem in cities more effectively and logically[15].

II. DESCRIPTION OF THE STUDY AREA

A. Location

Unguwan Sanusi is located in Kaduna State's Kaduna South Local Government Area, one of the Kaduna Metropolis' Local Governments. It's at 10º31'42N and 7º24'21E latitude and longitude respectively[16].

It shares a border with Kaduna Polytechnic to the east, Asikolaye to the west, Badiko to the north, & Sabon Garin Tudun Wada to the south [17]. According to 2005 national census, the population of Kaduna was 6,066,562 million. By 1963, the population of Kaduna was less than 250,000 but the 1991 census put the population at 1,307,311 [18]. The rainy period in Kaduna is warm and partly cloudy, whereas the dry time of year is scorching and partly gloomy. The malaise normally ranges from 55°F to 95°F all over the year, with temperatures infrequently dropping below 50°F or expanding over 102°F [19].

B. Sources of Municipal Solid Wastes

Municipal solid trash, also known as urban solid left-over, is made up of the objects we discard on a daily basis. The amount of MSW produced is determined by a number of factors, including living standards, the type and volume of business activity, and individual societal decisions such as eating habits, reuse, and recycling. The rate of waste generation is predisposed by a variety of factors, including population density, economic status, per capita income, economic and industrial development, as well as societal culture and individual behavior [20].

Residents, vegetable markets, candy shops, restaurants, hospitals, clinics, domestic and stray animals, stores, and commercial establishments have been the primary sources of solid waste generation throughout the region. Horticulture waste, construction and demolition waste, road comprehensive left-over, general household waste, drain slit/waste, market and marketable waste, institutional waste, murder house waste and dead faunas, sludge from STPs and ETPs, and treated biomedical waste are the ten categories that solid waste is usually divided into. Residential wastes include food wildernesses, paper, plastics, fabrics, wood, glass, leather, yard wastelands, batteries, industrial wastes include construction and demolition materials, hazardous wastes, ashes, and other specific wastes; and commercial wilds include tabloid, wooden, wraps, plastics, wood, food wastes, glass, metals, and other specific wilds; and Materials for building and demolition, hazardous wastelands, ashes, and other specific waste [21].

C. Composition of Community Solid Waste

The arrangement of public solid debris differs widely from city to municipality and changes dramatically over time. In communities where rubbish recycling is well-developed, intractable wastes like pliable film and non-recyclable plastic wrapping make up the majority of the waste stream. Food wilds, market wastes, yard wildernesses, plastic containers, and goods are the most common types of garbage in developed countries with little or no recycling. Packaging materials, as well as various types of hardsurplus are generated after uptown, marketable, organized, and manufacturing sources as shown in Fig 6. Industrial wilds, agricultural wastes, medical waste, radioactive waste, and manure sludge are not included in most municipal solid leftover arrangements. Within a specific area, the metropolis is in charge of surplus assortment [22].

The stretch outstanding waste relates to waste left from domiciliary sources comprising materials that consume not been disconnected out or sent for dispensation.Food structure, lifestyle, climate, economic development, and local landscape gardening are all elements that influence the content of garbage. The waste components were divided into three categories: recyclable, compostable, and inert materials (having negative monetary wealth). Paper and poster board, food scraps, yard accompaniments, plastics, metals, Neoprene, rawhide, and textiles, wood, glass, batteries, tires, ashes, special wastes, wraps, metals, steel, concrete, dirt, manure, pesticides, and other household hazardous wastes make up the majority of the solid waste produced in the town.

III. MATERIALS AND METHOD

A. Sources of Data

> #### Primary Source of Data

This information was gathered from an original source. They are frequently devoid of any second thoughts, evaluations, or inputs of any kind. Questionnaires, interviews, group discussions, and observations are just a few examples. The questionnaire was used to gather the necessary data.

> #### Secondary Source of Data

These are data that has been taken from a source that is not the original source. For instance, book reviews, thesis, newspapers, journals etc.

B. Method of Data Collection

➢ *Primary Data*

A questionnaire with appropriate questions was used to collect data. The survey was sent out to households and businesses in the research region. The replies to the questionnaire were gathered and analyzed individually.

➢ *Secondary Data*

Documents from both published and unpublished works are included. Reviews of related literature were also used, such as those from conferences, journals, and the internet.

C. Method of Data Analysis

The number of respondents in each questionnaire was counted, and the percentages discovered for such responses were combined to create statistical tables. Charts, and graphs were used to present the data.

By tabulating some of the data obtained that were expressed in percentages, a simple frequency table was also used.

IV. RESULTS AND DISCUSSION

A. Questionnaire Administration

In order to conduct the survey, 250 questionnaires were randomly distributed among the residents wherein only 150 residents responded which accounted 82 percent of the total.

B. Socio-Economic Profile of the Respondents

The gender, age range, educational level, and type of domicile of the respondents were all investigated. 50.6 percent and 49.4 percent of the 150 responses were male and female, respectively. 53% of the respondents are between the ages of 18 and 26, 27.7 percent are between the ages of 26 and 35, 13.3% are between the ages of 36 and 45, and 6.0% are amongst the ages of 46 and 55. Furthermore, 65% of the respondents have attended or are currently attending higher institutions, with secondary school leavers accounting for 24.6 percent, those with primary education accounting for 4.2 percent, and those with no formal education accounting for 4.8 percent. On Nature of Residence, those in the 'Owner Occupier' category accounts for 19.9%, 50.6% for those in the 'Family House' category while those in the 'Rented Apartment' stands at 29.55%.

C. Types of Surplus Produced in the Study Area

Out of 150 plaintiffs, 28.1 percent of respondents generated ashes/ polythene bags, 13.4% generate rubbish/cans/tins, 17.0 percent generate food wastes, 22.0 percent generate plastic/bottles/electronic appliances, and 19.7 percent generate all of the above. A picture of this is shown in Fig 7, below. The result is shown in the Fig 8. below;

D. Mode of Waste Collection

The residents gave their response regarding mode of waste collection in their area. Out of which, 58 of the 150 respondents (33.9%) use 'Curb side' as a means of household

collection, followed by 63 respondents (39.0%) who use 'Door-to-door,' 37 respondents (21.3%) who use 'Communal skip container,' and just 8 respondents (5.8%) who use 'Waste collector' as a mode of domestic waste collection. A picture of this is shown in Fig 9. The result is shown in Fig 10. below.

E. Waste Collection Center and the Person Responsible for Managing the Waste

73 of the 150 respondents replied 'YES,' accounting for 44.0 percent of the total, while 93 said NO, accounting for 56.0 percent.

Furthermore, of the 73 respondents who are aware of a garbage collection center in the study region, 49 said the government manages waste, 12 said private, and 12 said they had "no idea" who manages waste in the study area.

F. Method of waste managing/administration in the study area

In the research region, 49 respondents stated they were satisfied with the trash management approach, while 117 said they were not. They cited "insufficient official collection centers," "poor management," "lack of or no supervision," and "people's carelessness" as factors.

G. Form of Government Intervention in Waste Management

There is government intervention according to 96 of the 150 respondents, whereas there is no government intervention in waste management in the research region, according to 70 respondents.

H. Problems Faced as a Result of Waste

7 out of 150 respondents cited 'Exasperation' as a problem they face as a result of the waste in the study area, accounting for 21.3 percent, 42 cited 'Foul odour,' accounting for 25.3 percent, 20 respondents cited 'Traffic Congestion,' accounting for 12.1 percent, 58 respondents cited 'Littered Roads,' accounting for 34.9 percent, and 9 and 5.4 percent respectively.

The implications of the above statistics are that roadways are littered, with 34.9 percent being the highest percentage. This creates a slew of issues for both residents and the environment; On the one hand, cluttered roadways detract from the natural beauty of the area, induce anxiety among people, and provide opportunities for disease transmission. On the other side, it allows for road breakup or produces microscopic fissures in the road that will gradually grow if not addressed. A picture of this is shown in Fig 11. The result is shown in Fig 12 below.

V. CONCLUSION/RECOMMENDATION

According to this study, the majority of inhabitants in Kaduna's Unguwan Sanusi region (85 percent) are dissatisfied with the excellence of trash managing services. It also revealed that some Municipal solid surplus can be recycled and recovered (not measured). The study revealed that low-income, high-density communities had limited access to government-funded garbage contractors, resulting

in Wheel Barrow guys or "Mai Bola" dominating waste management services in these locations. The study also found that low-income households are more likely to sort excess at the source and contribute in a community-based hard surplus running project. It is well established that a communal solid surplus running project focused on resource recovery will be sustainable in the long run within the study area. The findings of this work as well determines that the study area's home waste management system is inefficient. This is based on the number of replies obtained, particularly for the question of "who is accountable for and manages garbage in the study region.

This learning recommends the establishment and combination of community-based solid surplus management efforts, particularly in Kaduna's low income, high-density districts. The programs would save money, produce income and service opportunities, protect local values, increase public participation, and reduce government spending on solid waste management.

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LIST OF FIGURES

Fig 1: Dustbin Containing Wastes Such as Bottles, Food Items, Cans, etc. in Nigeria
(Source: Field Survey, 2024)

Fig 2: Waste Clogging the Drainage System Leading to Contamination of Water in Nigeria
(Source: Field Survey, 2024).
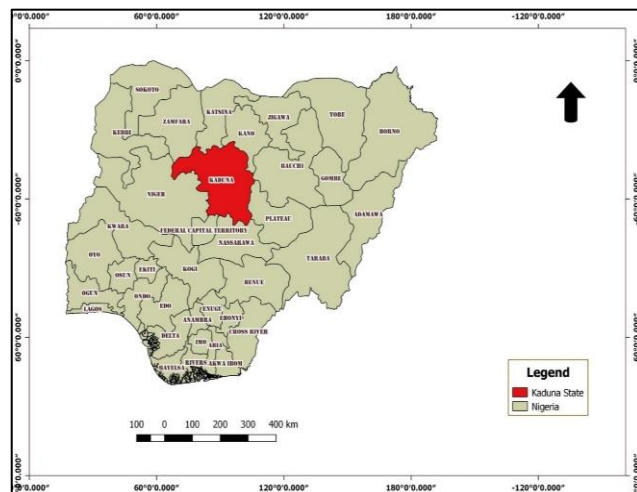
Fig 3: A Map of Nigeria Showing Kaduna State
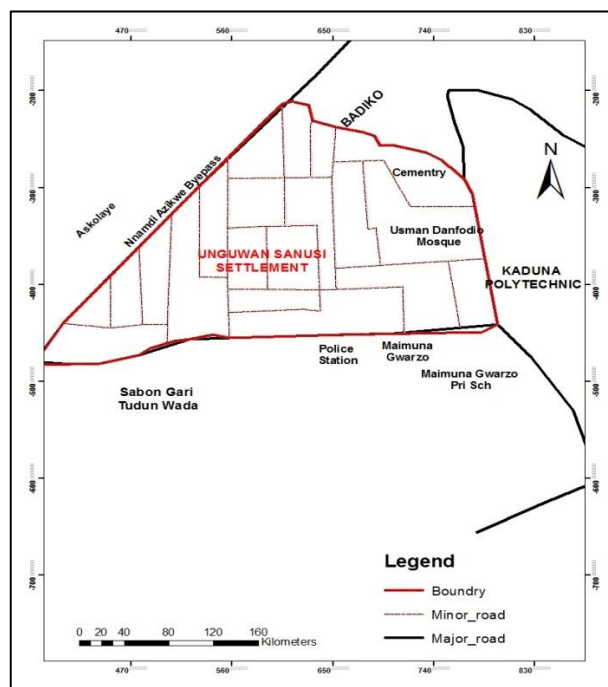Source: Author's work using QGIS 2.16.2 with data acquired from KASUPDA

Fig 4: A Digital Imagery of the Study Area
Source: Author's work using QGIS 2.16.2

Fig 5: Solid Trash, Urban Solid Waste and Objects Discarded on a Daily Basis in the Study Area
(Source: Field Survey, 2024)

Fig 6:Yard Wastelands, Product Packaging Materials &
Other Various Solid Wastes from Residential,
Marketable, Established bases within the Study Area.
(Source: Field Survey, 2024)

Fig 7: The Type of Waste Produced in the Study Area
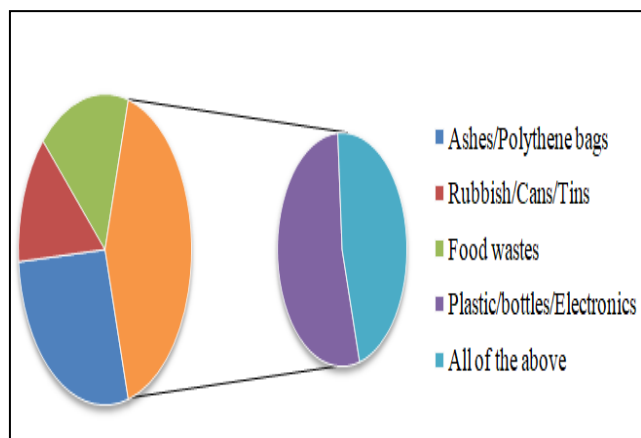(Source: Field Survey, 2024)

Fig 8: A Pie Charts Showing The Type of Waste
Produced in the Study Area
(Source: Field Survey, 2024)

Fig 9: Mode of Waste Collection in the Study Area
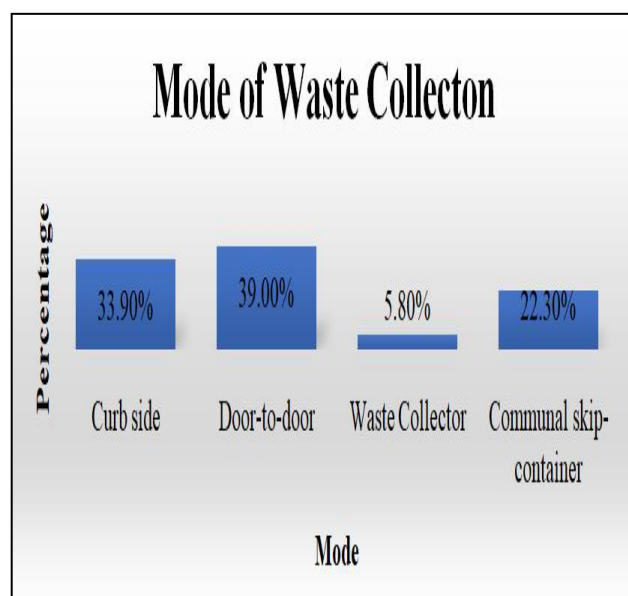(Source: Field Survey, 2024)

Fig 10: Histogram Showing the Mode of Waste Collection
in the Study Area
(Source: Field Survey, 2024)

Fig 11: Refuse Dumped in Drainages and Scattered on the
Road by Rain; is One of the Problems Faced by
Residents of the Study Area
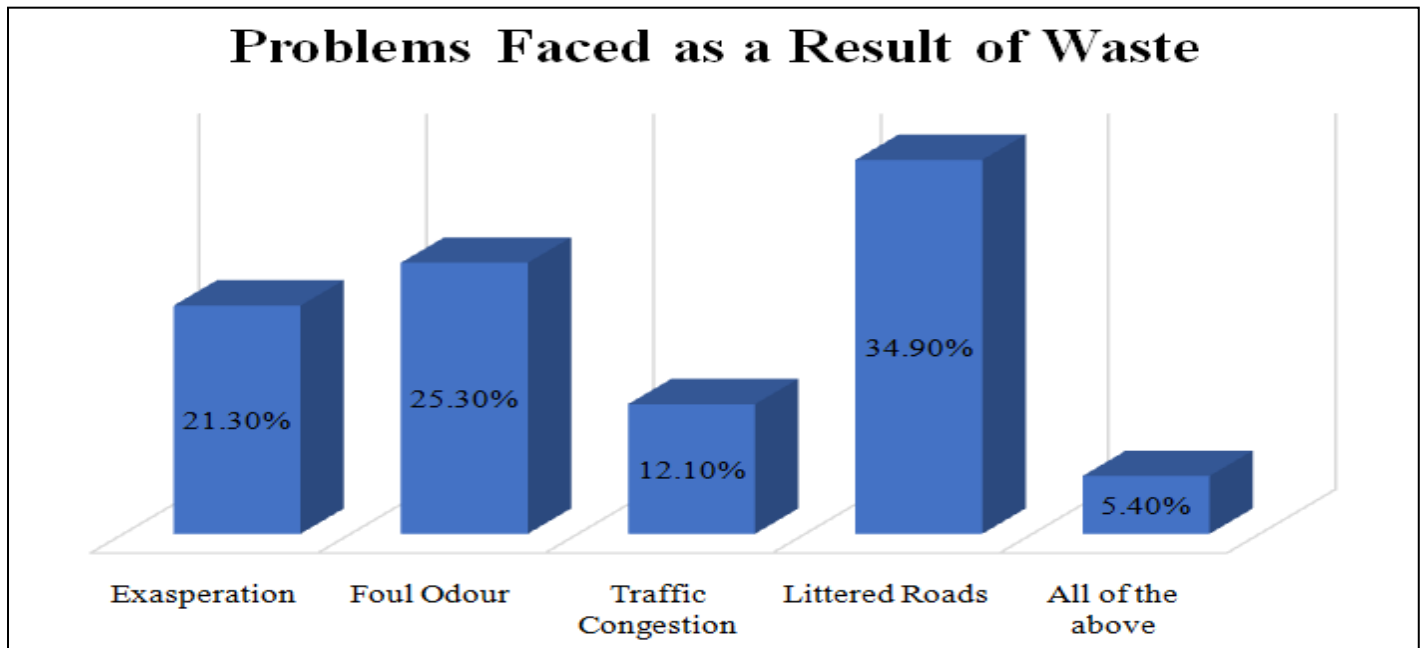(Source: Field Survey, 2024)

Fig 12: A Histogram Showing the Percentage of Problems Faced by the Residents of the Study Area as a Result of Waste
(Source: Field Survey, 2024)