



A Study Of Poor Waste Generation And Disposal In Sokoto Metropolis

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ABSTRACT

This paper attempt to discuss the current environmental poor condition of sanitation in Sokoto metropolis In relation to solid waste generation and disposal. Heaps of refuse were seen on the roads and in an unauthorized area over a long time, causing some disease outbreak. The source of data for this research are from primary and secondary sources. The researchers use FGD and KII tools in collecting information from the respondents. FGD was carried out with individuals to received opinion and perception from public while KII was conducted with government officials from SEPA. The findings show that, the volume of waste products in the study area is as a result of the rapid population growth and city expansion which leads to high demands of daily basic items and commodities. Lack of legal dumping site in the newly established areas leads to the establishment of many unauthorized refuse dump site which are being neglected by the SEPA during monthly sanitation and waste disposal. In the light of these threat, this paper suggests among others the urgent needs of awareness for the various dangers the monster can create and re-planning of the town in the metropolis in such a way that vehicle may have access to some certain places for refuse disposal. One of the strategies that can be adopted to convert the problems of high waste generation is the sources reduction method, which can be achieved through increase incentives for recycling

Keywords: Poor Waste Generation, Disposal, SEPA, Sokoto Metropolis

INTRODUCTION

Waste is a material discharged and discarded from each stage of daily human life activities, which leads to adverse impacts on human health and the environment (Bringi, 2007); whereas, solid waste refers to the leaves/ twinges, food remnants, paper/cartons, textile materials, bones, ash/dust/stones, dead animals, human and animal excreta, construction and demolishing debris, biomedical debris, household hardware (Sha'Ato *et al.*, 2007; Babatunde *et al.*, 2013). Solid waste is a global environmental problem both in less developing and developed countries. Increasing population, rapid economic growth and the rise in community living standards accelerate solid waste generation in the world (Elmira *et al.*, 2010).

Solid waste disposal is an important part of waste management system, which requires much attention to avoid environmental pollution and health problems. However, most solid waste disposal sites are found on the outskirts of the urban areas close to water bodies, farmlands, settlement, roads and in most cases blocking drainages and streets. These are suitable sites for the incubation and proliferation of flies, mosquitoes and rodents. They transfer diseases that affect human health (Abul, 2010). Solid wastes indiscriminately thrown can also lead to aesthetic problems, nuisance, and pollution of land and water bodies (Hammer, 2003). Therefore, locating proper sites for solid waste disposal far from residential areas, environmental resources and settlement is the main issue in the management of solid waste.

Management of solid waste at present in Sokoto Township including the collection, transportation and disposal of municipal solid waste is mostly unscientific, considering the scale of the problem, there is a need for immediate attention. Current location of disposal site in the study area is done without regard to environmental and public health hazard arising from disposal of waste in improper location. All social institutions, industries and the public have their way of removal of waste, while some dispose it in the nearby water body others dispose it on streets and drainage channels.

Waste have over the years been growing in virtually every known city of the world, since the industrial revolution of Britain in the nineteenth century, this is due to quest for economic growth and development which had led many countries to establish industries that produce varieties of goods and services required by the people course and which led significant present waste generation (Kalu 2006) the rapid urbanization in Nigeria had led to serious environmental degradation with domestic and industrial waste since about 1970, the booms in the city's waste can only have match the booms of oil sector in Nigeria, heaps of which tends to disfigure the city's image couple with tremendous environmental health hazard it poses.

Once upon a time, Sokoto state was awarded the cleanest in Nigeria (nation magazine 2011) but no longer after, it is surprising to many, how Sokoto found itself in the grubby state it is now. The reason according to expert is not far fetch as indiscriminate dumping of refuse has become the order of the day. In the inner city (*Cikingari*) heaps of rubbish overwhelms many areas, notable *Maituta* road, *Danfili*, *Kwandawa* and *KofarAtiku* area. In some of these areas, the garbage has virtually taken over roads and often cause auto blocked making flood a common place occurrence. The situation has left many feeling the threat of possible outbreak of disease following the poor condition and pollution of these areas.

Statement of the Problem

It will be a disturbing issue for the people around the community if the management failed to provide a sound and reasonable measure for collecting point of solid waste despite the various activities within the community. Population houses, markets areas, institutions and urbanization are increasing within the metropolis there by generating solid waste of various kinds in large proportion without having authorize dumping centers. However, in order to create a clean, neat and hygienic environment for the community, it is obligatory on the state management to provide suitable sites for collecting solid wastes generated in the area as well as proper and regular disposal to make Sokoto clean. In 2017 the state government come out with strong committee in ensuring the quality of Sokoto sanitation, but within a year no proper result has been yield and the committee was no more in existence. It is against this background that this paper would like to answer the following research questions;

- a. What are the causes of rapid increase in waste product in the Metropolis?
- b. Where are those unauthorized dumping site located?
- c. What are the way-out for the controlling of poor waste disposal in the City?

MATERIAL AND METHODS

Data for this study comprise of both primary and secondary sources which includes textbooks, past literatures, projects, newspapers and field survey data. Focus group discussion (FGD) and key informants' interview (KII) are going to be applied as tools for data collection where public people of about 20 respondents will be used for FGD. While 2 officials from Sokoto environmental protection agency (SEPA) are going to be participants for KII. Descriptive analysis will be employed for data analysis of this research.

STUDY AREA

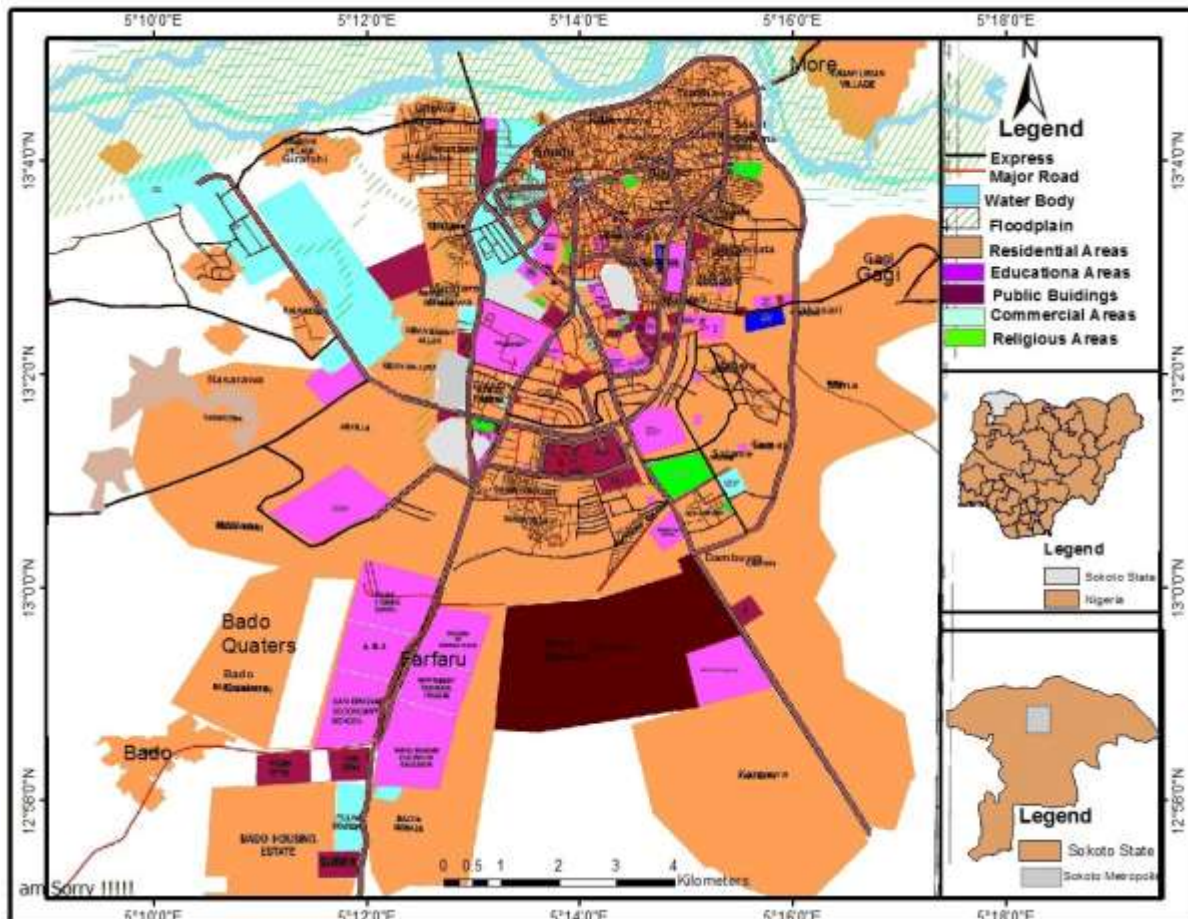
Location

Sokoto City is located in the Northwestern Nigeria, near the confluence of the Sokoto River and the Rima River. Sokoto City lies between latitudes 13° 04' N and 13° 25' N and between longitudes 5° 1' E and 5° 38' E of the meridian (Sokoto state government diary, 2019). The city which is some 90kms south of Niger republic border lies on a previously traditional caravan route that leads northward across the Sahara. The city is a constituent of five local government (LGA) areas viz: Sokoto North, Sokoto South, Wamakko, Kware and Dange-Shuni LGAs respectively. Sokoto City is situated in Savanna land, and is surrounded by isolated hills. The southern boundary is arbitrarily defined by the Sudan savannah (Orimoloye et.al, 2018).

Economic Activities

Sokoto State Government (2018) records have shown, over eighty percent (80%) of the inhabitants of Sokoto practice one form of agriculture or another. They produce such crops as millet, guinea corn, maize, rice,

potatoes, cassava, groundnuts and beans for subsistence and produce wheat, cotton and vegetables for cash. Local crafts such as blacksmithing, weaving, dyeing, carving and leather works also play an important role in the economic life of the people of Sokoto; as a result, different areas like Makera, Marina, Takalmawa and Majema became important. Sokoto City is also blessed with availability of fish due to the crossing of rivers Sokoto and Rima very close to the city (Tsoho, 2010). Thus, a large number of people along the river beds engage in fishing. Agro-allied industries using cotton, groundnut, sorghum, gum, maize, rice, wheat, sugar cane, cassava, gum Arabic and tobacco as raw materials are present in the area (Sokoto State Government, M.C.I., 2018).



Source: GIS Lab. Department of Geography UDUS.

People and Population

Being the seat of the Sokoto Caliphate, the City is predominantly Muslim and an important seat of Islamic learning in Nigeria. The 1982 population figures showed that the city has a population figure of about 185,000 persons. This grew to an estimated figure of 376,000 people in 2002 and expected to grow at 2.82% per annum (NPC, 2008). By the year 2018 the city has grown to an estimated population of 603,000 people at 2.9% increase rate from 2017, making it the 14th populous city in Nigeria (NPoC, 2019). Apart from Hausa and Fulani people, there are also the Zabarmawa and Tuareg minorities who are also indigenous people of Sokoto. However, other ethnic tribes are found within the city co-existing as either settlers or guests with their hosts. All these groups speak Hausa as a common language. Hausa people in the state are made up of Gobirawa, Zamfarawa, Kabawa, Adarawa and Arawa. Fulfulde is spoken by the Fulani whom on the other hand are of two main groups; the town Fulani (*Hausa: FulaninGida; Fula: FulbeWuro*) and the Nomads. The former includes the Torankawa, the clan of Shehu Usmanu Danfodiyo, Sullubawa and Zoramawa. The Torankawa are the aristocratic class since 1804. Culturally the state is homogeneous. The people of the state are

predominantly Muslims, and Islamic religion provides them with a code of conduct and behavior. Their mode of dress is also of Islamic origin. Two major festivals namely, *Eid-el-Fitri* and *Eid-el-Kabir* are celebrated in the state every year. The former marks the end of the Ramadan fast, while the latter features the slaughtering of rams in commemoration of an act of the Prophet Ibrahim (Sokoto State Government, 2011).

Urbanization in Sokoto city

The morphology of the city comprises the old city and its surrounding areas. In these conjoined areas, development is mostly in linear progression along the major roads leading outside the city. It comprises of low medium densities that comprises the government housing estates, institutions of academic learning, government ministries, recreation centers and industrial sites (Benna, 1983). Land developments in this part of the city are mostly on statutory lands provided in conformity with standards set by government to achieve its long-term spatial objectives. Master plan of the city produced by Benna associates in 1983 provided that, the town should be segregated into different land use zones which guide the allocation of formal lands such that compatible land uses are located in the same land zone and vice-versa. Thus, the city has reserved areas for commercial, residential and industrial uses. However, all sample layouts in this study are located within the conjoined areas surrounding the old Sokoto city.

The common areas where expansion is mainly increasing without proper waste dump site are, Gidan Igwai area, Gidan Dare, Gidan Kuka Bado area, Arkilla area and other smaller areas in the eastern bypass road. While in the western bypass it includes Nakasari area, Gagi area, Kurfi site, Gidan Dahala, Tamaje area, Dambuwa site, kwannawa, Tsefe and Gwuiwa Eka to mention a few.



Plate 1: Examples of some indiscriminate dump site in Sokoto metropolis
Source : Field work, 2023

REVIEW OF RELATED LITERATURE

Waste can simply be defining as any substance which required being disposed (Tim 2008). It can be seen as uncaused materials left over the completion of a process. According to Tim 2008, there are two classes of waste which are generated by activities of man on earth, waste can be categorized into organic and inorganic.

Nigeria environmental study team (1991) estimates that 20kg of solid waste is generated per capital per annum in Nigeria which is equivalent to 2.2 million tonnes a year, therefore as the population continues to grow and as the pace of urbanization and modern living raises, the rate at which waste is generated will increase. Waste is evitable products from domestic, industrial activities and process virtually all aspect of man's economic activities involves the generation of waste.

Waste disposal on the other hand can be seen as the process of getting rid of waste products which can be divided into two (2) segments, disposal of solid waste and disposal of liquid waste.

Nature and problem of solid waste disposal and management in Nigeria

According to Ogwueleka (2003) the main cause of the problem of Nigeria city poor environmental condition can be described to improper management of solid waste and the lack of seriousness in the enforcement of solid waste disposal code.

Ketley (1993), in an article entitled "Solid waste and population" (daily graphic 1993) identified the main problem facing Nigeria as the lack of suitable site for disposal of solid waste, of which we attribute to the failure of social and economic development to keep pace with the natural population increase and rural-urban migration. This is an undesirable fact because inner city residential areas in Sokoto are seriously facing these challenges due to poor planning, lack of logistics and poor attitudes towards solid waste handling. Nave (1993) state that the management of household refuse is tied to perception and socio-cultural practice which result in mode of appropriation of space which are greatly differenced according to whether the space is private or public.

This is very pertinent in Nigeria where waste management services are largely inefficient. It is estimated that about 53% of the population dump their refuse in an unauthorized site in neighborhood, and due to weak capacity to handle solid waste, unsanitary conditions are created (Benneh et al 1993). Although these weaknesses have been attributed to lack of logistics and financial management, people's attitude towards waste management should not be ignored (Nze 1978). Similarly, the problem of improper waste disposal and generation in the inner city is attributed to inaccessibility to some areas by vehicles, poor town planning and over population.

Solid Waste Management for Sustainable Development in the inner City of Sokoto Metropolis

Although sustainable development means different things to environmental planners, ecologist, economist and environmental activities, it is important to recognize that the fulfillment of human needs also depends on environmental factors such as availability of pure water, clean air, adequate living space and in many circumstance, people's ability with their environment. This problem are attributed to the inner city of Sokoto as many people are rushing to the riverside during the hot season in order to minimize the chances of disease outbreak. Furthermore, if solid waste disposal is not managed properly it effect underground water, affect the aesthetic condition of our environment and causes health hazards (Emeribe 2000).

Nwokocha (2012) related flooding in Lagos to closing of drainage channels by dumping solid waste there is abundant release of gaseous toxic substances into Nigerian environment as well as jeopardizing of health of scavengers as a result of burning of absolute waste. Due to contact with smokes from burning of solid waste and gaseous emission from dumpsites cases of several diseases have been recorded (Ogwueleka 2003)

The need for environmental education, awareness and public participation

Environmental education is necessary for making environmental quality (Emeribe, 2000). Much traditional solid waste management practices such as waste burning, indiscriminate open dumping of waste, ecological ideals and government regulations often arouse conflict. Enlightened debates, public awareness and even outright opposition can promote a forum for dialogue and conflict resolution which can lead to balanced policies which will enhance public commitment, such a system that involves people participation in democratic. Recycling makes use of materials that otherwise would become waste by

turning them into valuable resources. Recycling helps reduce greenhouse gas emission in part by diverting waste from landfills influence has been in the service of making the environment less attractive people are depleting natural resources and polluting the environment at an alarming rate and it is therefore important to educate people better in order for them to have positive attitude, commitment and motivation to adopt sound techniques in managing their waste product. Environmental education and awareness among decision makers will according to Emeribe (2000) considerable help in a better integration of environmental issues into development planning, budgeting and policy formations. This will be reflected in the attitude and actions of government functionaries (Aina and Salam 1992)

DATA ANALYSIS AND DISCUSSIONS

a. Response to the causes of rapid increase in waste product in the Metropolis

According to the response from FGD, 69% of the respondents strongly believe that increase in waste products is link with the increase in population and city expansion. People possess many items at their disposal such as vehicles, electronics, stationaries, food items with their containers, beverages, textile materials, shoes, nylon materials, waste product from animals' body and the like. 25% argue that People in many areas do not have nearness access to legal dumping site, which may lead to established many illegal site in particular area. The remaining 6% are of the opinion that government is not taken the responsibility of disposing the waste products regularly there by making it huge in a particular place over long period of time. Lack of manufacturing industries in the state for recycling waste products to another use is the major contributing factor that all the respondents agreed open. Therefore, public should come out with smaller companies that need the waste product for recycling in order to provide job opportunities and revenue generation to the government.

b. Response to unauthorized dumping site located

According to KII interview there are many illegal dumping sites in the city, they believed that government has been tried to block those unauthorized areas but people are always coming out with new places that are even difficult to locate. They suggest that majority of the areas that are unclean and were people are discriminately dumping the refuges are within those unauthorized areas. These places have the history of diseases breakout especially during the raining season. During the interview, it was found out that many areas produce their own illegal dumping site due to lack of nearness to the official site. The researchers carry out a survey of those areas revealed by the interviewees and come out with the list of unauthorized places in appendix 1.

c. Response to ways of controlling poor waste disposal in the City.

FGD result found out that many ways can be adopted in controlling the menace. Majority of the respondent strongly argued that, all those unauthorized areas should be converted to authorized areas, this means that those open spaces (Land) should be purchased by the government so that people should have easy access to dumping site.

it was also revealed that many areas, especially those in the less developed areas do not have a formal waste collection system in place. Also, disposal methods vary widely, for example in Australia, the most common method of disposal of solid waste is through land fill because it is a large country with low density population. In contrast it is common for waste to be incinerated in Japan, because the country is smaller and land is scarce (Wikipedia 2006). The major techniques are;

- i. Land fill
- ii. Volume reduction
- iii. Research recovery techniques

Lastly, the respondents suggest the serious penalty for the offenders which should be maintained there by avoiding politics into the system of poor waste generation.

Summary of Findings

After careful analysis of the data retrieved from FGD and KII, the researchers conclude the following findings;

- a. The volume of waste products in the study area is a result of the rapid population growth and city expansion which leads to high demands of daily basis items and commodities.
- b. Lack of legal dumping site in the newly established areas leads to the establishment of many unauthorized refuse dump site which are being neglected by the SEPA during monthly sanitation and waste disposal.
- c. It has been found out that withing the city, there are close to one hundred unauthorized refuse dumpsites in the entire metropolis.
- d. It was also revealed that absence of private companies for waste generation/disposal as well as recycling industries in the city have a strong helping hand in the poor condition of sanitation in the metropolis.

CONCLUSION AND RECOMMENDATIONS

From the foregoing analysis, it is clear that problems of achieving clean and healthy environment can only be minimized or satisfactory solved with sincerity of purpose, clear direction and commitment to the ideal of clean environment by the authority concerned, but the task of achieving this is so enormous that it should not have left for the government alone to handle. The responsibility of public and private sector must be enhanced and projected towards this objective. The author is of the opinion that the following suggestion are deem necessary.

1. Although, it has been observed that distance pressure and in adequate dumping centers motivates people to dump refuse on the roads in the inner city, urgent awareness is needed for the instant danger and menace it can create.
2. One of the strategies that can be adopted to convert the problems of high waste generation is the sources reduction method, which can be achieved through increase incentives for recycling.
3. Government should reverse the town planning in addition of more authorized dumping site especially in the newly established areas.
4. Generated waste should be collected from the metropolis at least weakly.
5. There is need of re-planning the metropolis, so as to have the accessibility to some parts where the vehicle cannot access.
6. More waste disposal option should be provided within the study area, such as incinerator
7. There is need for adequate funding's particularly in term of vehicle and equipment's provision, construction of proper land fill and waste sorting facilities.

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Appendix 1. List of unauthorized refuse dump site in the metropolis

LOCATIONs	NAME OF PLACE	TYPE OF COLLECTION CENTRE	AUTHORIZATION
<i>Ahmadu Bello Way</i>	Savannah Bank	Bunker	Unauthorized
<i>Minaanata Area</i>	Behind Govt. Day Sec. Sch. Minaanata	Bunker	Unauthorized
<i>Emir Yahaya Road</i>	Karaye Clinic	Open Space	Unauthorized
<i>Emir Yahaya Road</i>	Sahara Area	Open Space	Unauthorized
<i>Sokoto Central Market</i>	Transformer	Open Space	Unauthorized
<i>Sokoto Central Market</i>	Kofar Gawo	Open Space	Unauthorized
<i>Sokoto Central Market</i>	Behind Kara Market	Open Space	Unauthorized
<i>Sokoto Central Market</i>	Behind Motor Park	Open Space	Unauthorized
<i>Sokoto Central Market</i>	Motor Cycle Market	Open Space	Unauthorized
<i>Kwanni Area</i>	Kwanni Area	Open Space	Unauthorized

<i>Kwanni Area</i>	Behind Salihu Anka primary School	Open Space	Unauthorized
<i>Sultan Bello Road</i>	Sokoto Old Market	Open Space	Unauthorized
<i>Sultan Bello Road</i>	Sokoto Old Market	Open Space	Unauthorized
<i>Sultan Bello Road</i>	Hubbaren Shehu Area	Open Space	Unauthorized
<i>Western Bye-Pass</i>	Cemetery Area	Open Space	Unauthorized
<i>Western Bye-Pass</i>	Tsalibawa Area	Open Space	Unauthorized
<i>Western Bye-Pass</i>	Tsalibawa Area	Open Space	Unauthorized
<i>Western Bye-Pass</i>	Runbukawa Area	Open Space	Unauthorized
<i>Western Bye-Pass</i>	Runbukawa Area	Open Space	Unauthorized
<i>Western Bye-Pass</i>	Kofar Kware Area	Open Space	Unauthorized
<i>Western Bye-Pass</i>	New Alu Juma Mosque	Open Space	Unauthorized
<i>Runjin Sambo</i>	Mechanic Village	Open Space	Unauthorized
<i>Runjin Sambo</i>	Filling Station	Open Space	Unauthorized
<i>Runjin Sambo</i>	Juma Mosque	Open Space	Unauthorized
<i>Runjin Sambo</i>	University Quarters	Open Space	Unauthorized
<i>Runjin Sambo</i>	University Quarters	Open Space	Unauthorized
<i>Runjin Sambo</i>	Kalgo Road	Open Space	Unauthorized
<i>Runjin Sambo</i>	Gidan Kuka Area	Open Space	Unauthorized
<i>Runjin Sambo</i>	Gidan Kuka Area	Open Space	Unauthorized
<i>Gidan Igwai Area</i>	GidanIgwai Area	Open Space	Unauthorized
<i>Gidan Igwai Area</i>	GidanIgwai Area	Open Space	Unauthorized
<i>Gidan Igwai Area</i>	GidanIgwai Area	Open Space	Unauthorized
<i>Gidan Igwai Area</i>	GidanIgwai Area	Open Space	Unauthorized
<i>Gidan Igwai Area</i>	GidanIgwai Area	Open Space	Unauthorized
<i>Lamido Adama Road</i>	Opp. Tudun Wada Area	Open Space	Unauthorized
<i>Lamido Adama Road</i>	Rima Radio Area	Open Space	Unauthorized
<i>Lamido Adama Road</i>	Kano Market	Open Space	Unauthorized
<i>Minaanata Area</i>	Opp. Minaanata Nur Pri School	Open Space	Unauthorized
<i>Minaanata Area</i>	Minaanata Area	Open Space	Unauthorized
<i>Minaanata Area</i>	Minaanata Area	Open Space	Unauthorized
<i>Akalawa/Lokoja Road</i>	Lokoja Road	Open Space	Unauthorized
<i>Akalawa/Lokoja Road</i>	Shehu Well Area	Open Space	Unauthorized
<i>Mabera Area</i>	Behind Murtala Muh'd Hospital	Open Space	Unauthorized
<i>Mabera Area</i>	Behind Murtala Muh'd Hospital	Open Space	Unauthorized
<i>Mabera Area</i>	Behind Murtala Muh'd Hospital	Open Space	Unauthorized
<i>Mabera Area</i>	Transformer	Open Space	Unauthorized
<i>Mabera Area</i>	Mabera Area	Open Space	Unauthorized
<i>Mabera Area</i>	Mabera Area	Open Space	Unauthorized
<i>Kwannawa Area</i>	Behind Kwannawa Pri sch	Open Space	Unauthorized
<i>Kwannawa Area</i>	Madan Karo Hotel	Open Space	Unauthorized
<i>Kwannawa Area</i>	Kwannawa Area	Open Space	Unauthorized
<i>Kwannawa Area</i>	Kwannawa Area	Open Space	Unauthorized
<i>Kwannawa Area</i>	Kwannawa Mechanics	Open Space	Unauthorized
<i>Gawon Nama</i>	Moriki Road	Open Space	Unauthorized
<i>Gawon Nama</i>	Dan Chadi Road	Open Space	Unauthorized
<i>Gawon Nama</i>	Dan Chadi Road	Open Space	Unauthorized
<i>Gawon Nama</i>	Kware Road	Open Space	Unauthorized
<i>Gawon Nama</i>	Kware Road	Open Space	Unauthorized
<i>Assada Area</i>	Dutsen Assada Area	Open Space	Unauthorized
<i>Assada Area</i>	Dutsen Assada Area	Open Space	Unauthorized
<i>Tudun Wada Area</i>	Tudun Wada Slope	Open Space	Unauthorized
<i>Tudun Wada Area</i>	Tudun Wada Slope	Open Space	Unauthorized
<i>Tudun Wada Area</i>	Tudun Wada Slope	Open Space	Unauthorized
<i>Tudun Wada Area</i>	Tudun Wada Slope	Open Space	Unauthorized
<i>Sultan Abubakar Road</i>	London Market	Open Space	Unauthorized
<i>Sultan Abubakar Road</i>	Behind City Campus	Open Space	Unauthorized
<i>Sultan Abubakar Road</i>	Behind State Library	Open Space	Unauthorized
<i>Sultan Dasuki Road</i>	Sidi Mamman Quranic School	Open Space	Unauthorized
<i>Sultan Dasuki Road</i>	Nagwamatse Road	Open Space	Unauthorized
<i>Sultan Dasuki Road</i>	Dasuki Road	Open Space	Unauthorized
<i>Kwato Road</i>	Kwato Road	Open Space	Unauthorized

<i>Kwato Road</i>	Kwato Road	Open Space	Unauthorized
<i>Arkilla low Cost Area</i>	Nasarawa	Open Space	Unauthorized
<i>Arkilla low Cost Area</i>	Arkilla Low Cost Area	Open Space	Unauthorized
<i>Arkilla low Cost Area</i>	Arkilla Low Cost Area	Open Space	Unauthorized
<i>Arkilla low Cost Area</i>	Arkilla Low Cost Area	Open Space	Unauthorized
<i>Arkilla low Cost Area</i>	Arkilla Low Cost Area	Open Space	Unauthorized
<i>Arkilla low Cost Area</i>	Arkilla Low Cost Area	Open Space	Unauthorized
<i>Arkilla low Cost Area</i>	Arkilla Low Cost Area	Open Space	Unauthorized
<i>Arkilla low Cost Area</i>	Arkilla Low Cost Area	Open Space	Unauthorized
<i>Arkilla low Cost Area</i>	Arkilla Low Cost Area	Open Space	Unauthorized
<i>Old Airport Housing Estate</i>	Housing Estate	Open Space	Unauthorized
<i>Old Airport Housing Estate</i>	Housing Estate	Open Space	Unauthorized
<i>Old Airport Housing Estate</i>	Housing Estate	Open Space	Unauthorized
<i>Old Airport Housing Estate</i>	Primary School Gate	Open Space	Unauthorized
<i>Old Airport Housing Estate</i>	Housing Estate	Open Space	Unauthorized
<i>Old Airport Housing Estate</i>	Housing Estate	Open Space	Unauthorized
<i>Offa Road</i>	Transformer	Open Space	Unauthorized
<i>Guiwa Area</i>	Guiwa Area	Open Space	Unauthorized
<i>Guiwa Area</i>	Guiwa Cementry	Open Space	Unauthorized
<i>Guiwa Area</i>	Guiwa Area	Open Space	Unauthorized
<i>Guiwa Area</i>	Guiwa Area	Open Space	Unauthorized
<i>Guiwa Area</i>	Guiwa Area	Open Space	Unauthorized
<i>Guiwa Area</i>	Guiwa Area	Open Space	Unauthorized
<i>Gidan Dare Area</i>	Gidan Dare Area	Open Space	Unauthorized
<i>Gidan Dare Area</i>	Gidan Dare Area	Open Space	Unauthorized
<i>Gidan Dare Area</i>	Gidan Dare Area	Open Space	Unauthorized
<i>Gidan Dare Area</i>	Gidan Dare Area	Open Space	Unauthorized
<i>Gidan Dare Area</i>	Gidan Dare Area	Open Space	Unauthorized
<i>Shehu kangiwa Square</i>	Shehu kangiwa Square	Open Space	Unauthorized
<i>Shehu kangiwa Square</i>	Shehu kangiwa Square	Open Space	Unauthorized
<i>Shehu kangiwa Square</i>	Shehu kangiwa Square	Open Space	Unauthorized
<i>Shehu kangiwa Square</i>	Shehu kangiwa Square	Open Space	Unauthorized
<i>Diori Hammani Road</i>	Takardawa Area	Open Space	Unauthorized
<i>Diori Hammani Road</i>	Kofar Marke Area	Open Space	Unauthorized
<i>Mudegel Road</i>	Kofar Rini	Open Space	Unauthorized
<i>Kanta Road</i>	Sch of Matriculation	Open Space	Unauthorized
<i>Kanta Road</i>	Kanta Road	Open Space	Unauthorized
<i>Kaduna Road</i>	Usman Farouq Secret.	Open Space	Unauthorized
<i>Kaduna Road</i>	Off Sama Road	Open Space	Unauthorized
<i>Kaduna Road</i>	Judges Housing	Open Space	Unauthorized
<i>Sama Road</i>	Sama Road	Open Space	Unauthorized
<i>Sama Road</i>	Sama Road	Open Space	Unauthorized
<i>Sama Road</i>	Sama Road	Open Space	Unauthorized
<i>Sama Road</i>	Sama Road	Open Space	Unauthorized
<i>Sama Road</i>	Sama Road	Open Space	Unauthorized
<i>Ubandoma Road</i>	Sabon Titi Area	Open Space	Unauthorized
<i>Ubandoma Road</i>	Ubandoma Road	Open Space	Unauthorized
<i>More Area</i>	New Way More	Open Space	Unauthorized
<i>More Area</i>	New Way More	Open Space	Unauthorized
<i>Dallatu Road</i>	Bridge Site	Open Space	Unauthorized
<i>Dallatu Road</i>	Dallatu Road	Open Space	Unauthorized
<i>Farfaru Area</i>	Farfaru Area	Open Space	Unauthorized
<i>Farfaru Area</i>	Farfaru Area	Open Space	Unauthorized
<i>Farfaru Area</i>	Farfaru Area	Open Space	Unauthorized
<i>Farfaru Area</i>	Farfaru Area	Open Space	Unauthorized
<i>Farfaru Area</i>	Bado Area	Open Space	Unauthorized
<i>Farfaru Area</i>	Bado Area	Open Space	Unauthorized
<i>Farfaru Area</i>	Bado Area	Open Space	Unauthorized
<i>Farfaru Area</i>	Bado Area	Open Space	Unauthorized
<i>Bado Area</i>	Bado Area	Open Space	Unauthorized
<i>Bado Area</i>	Bado Area	Open Space	Unauthorized
<i>Ahmadu Bello Way</i>	Alu Flyover	Uncompleted Building	Unauthorized

<i>Minaanata Area</i>	Minaanata Area	Uncompleted Building	Unauthorized
<i>Minaanata Area</i>	Minaanata Area	Uncompleted Building	Unauthorized
<i>Minaanata Area</i>	Minaanata Area	Uncompleted Building	Unauthorized
<i>Kwannawa Area</i>	Danbuwa Area	Uncompleted Building	Unauthorized
<i>Old Airport Housing Estate</i>	Housing Estate	Uncompleted Building	Unauthorized
<i>Offa Road</i>	Behind Yahaya Gusau Pri School	Uncompleted Building	Unauthorized
<i>Guiwa Area</i>	Guiwa Area	Uncompleted Building	Unauthorized

Source: Fieldwork, 2023