ASSESSMENT OF HOUSEHOLD SANITARY PRACTICES IN URBAN ZARIA, KADUNA STATE, NIGERIA

BY

Dabo, Y.[1*], Akpu, B.[1], Yusuf, R.O.[1] and Abubakar, M.[2]

[1]Department of Geography and Environmental Management, Faculty of Physical Sciences, Ahmadu Bello University, Zaria-Nigeria
[2]Division of Agricultural Colleges, Samaru-Campus, Ahmadu Bello University, Zaria-Nigeria
*Corresponding Author's Email: daboyusuf19@gmail.com

ABSTRACT

This study assessed the household sanitation practices in urban Zaria, Kaduna State, Nigeria. The study evaluated the sanitation practices adopted in the area and also examined the level of people's awareness and compliance to sanitation strategies in the area. Systematic sampling technique was adopted to select 400 respondents for administration of questionnaire. Data was analysed descriptively using the Statistical Package for Social Science (SPSS). The study showed that setting a day for general cleaning (68.5%), and open pit waste dumping (66.3%), were the most adopted sanitation practices in the area. More than half (54.2%) of the people in the area were aware of sanitation strategies such as monthly sanitation, inspection of houses, premises and dumpsite intervention amongst others. The study also revealed that challenges such as poor enforcement of sanitation bye-laws (81.5%) and public negligence (73.3%) mostly influenced the present sanitation condition in the area. The study therefore recommends the enforcement of environmental sanitation regulations and bye-laws by the Local Government Authority (LGA) and provision of sanitation facilities/infrastructure by the Kaduna state government.

Key words: Environment, Sanitation, Urban, Waste

INTRODUCTION

For centuries, humans have depended on the earth's ecosystem for sustenance; i.e air, food, water and other resources to improve their quality of life (Adedayo, 2006). In the same vein, maintaining the environment to reduce pollution and improve sanitation is significant to human survival. Attempts by humans to satisfy their needs have significantly modified the physical environment such as waste generation which has resulted to risks on human health (Chokor, 2005; Adedayo, 2006; Adeniji and Afolabi, 2010).

Environmental sanitation is concerned with the cleanliness of the surrounding, homes, sources of food and water supply, which are intimately related to health, productivity and national development (Blackburn et al., 2004). Environmental sanitation therefore seeks to maintain the standard of basic environmental conditions affecting the well-being of people in a natural setting. Strong healthy people build a strong and healthy nation; therefore the health condition of any nation determines the progress of that nation (Blackburn et al., 2004; Blackburn, Pysek and

Richardson, 2011). Environmental sanitation is still a front line task in many developing countries including Nigeria (Bichi, Adamu, Bichi and Gadanya, 2012).

As the global economy grows, developing countries are urbanizing at an alarming rate. Although urbanization is one of the driving forces of modernization, economic growth and development, there is increasing concern about the effects of expanding cities, principally on human health, livelihoods and the environment. The implications of rapid population increase in urban areas on water supply, shelter and sanitation, especially the disposal of wastes (solid and liquid) produced by the cities are increasing (United Nations Conference on Environment and Development (UNCED), 2012).

The high rate of population growth in Zaria, Kaduna State, coupled with the high migrant numbers has outstripped the rate of infrastructure development and service provision (Kaduna State Government, 2010). The high population with its accompanying waste generation and indiscriminate waste disposal practices have impacted negatively on the beauty of the environment (Musa, Shehu and Lukman, 2009; Bichi et al., 2012). In an effort to manage the waste generation accrued by the increased population in Zaria, LGAs (Sabon Gari and Zaria) provided public waste collection containers and sanitary inspection officers to monitor sanitary habits of the people. Cursory observations revealed that Zaria is still not having the expected sanitary and aesthetic essence. Despite all these efforts, Zaria still faces the challenges of poor environmental sanitation resulting from poor or unhygienic habits and practices. Zaria at present is characterized by unacceptable conditions, where open spaces are littered with garbage. This in most cases clogs drains thereby creating thriving conditions for disease vectors and posing health risks to inhabitants. There seems to be a lack of institutional capacity to formulate, adopt and enforce strategies to ensure proper environmental sanitation in Zaria due to several factors (Ikwuje, 2010). Hence there is a need for this research to assess the present household sanitation practices in the area.

Several efforts have been made by researchers to investigate issues on environmental sanitation within and outside Zaria such as Affiong (1999) who assessed the monthly sanitation exercise in Samaru area of Sabon Gari LGA, Kaduna state. Also, Bichi et al., (2012) carried out a study on environmental sanitation and national development in Sabon Gari LGA of Kaduna state.

Furthermore, Anyasoro (2010) studied the perception of environmental health workers on the implementation of environmental sanitation components in Anambra state. Though, many studies have been carried out to examine environmental sanitation, its effect as well as its impact on development, yet none of these studies have attempted to assess sanitation practices adopted by households and authorities in urban Zaria. Even Affiong (1999) and Ikwuje (2010) who carried out their studies in Samaru which is part of urban Zaria critically considered the compliance and effectiveness of the monthly sanitation only. The aim of this study therefore, is to assess the household sanitation practices in urban Zaria with a view to determining their efficacy and the way forward. The objectives to achieve this aim are to; identify the sanitation practices adopted by households, examine the level of people's awareness and compliance to government sanitation strategies and practices and examine the challenges of sanitation in the study area.

THE STUDY AREA

Urban Zaria lies between Latitudes 10° 58' 30" N and 11° 16' 0" N, of the Equator and between Longitudes 07° 36' 0" E and 07° 46' 30" E of the Greenwich meridian (see Figure 1). It encompasses two LGAs (Sabon gari and Zaria). Zaria lies at about 700 metres above sea level within the high plains of the northern Nigeria. It is located at a distance of about 962 kilometres from the Atlantic Ocean, and 80 kilometres from Kaduna metropolis (Ndubele, Douglas, Munalula and Masiye, 2012). Over the last century, Zaria has undergone structural changes in its physical form, population, economic and social composition due to urban growth (Bichi et al., 2012).

The study area falls within the tropical wet-dry climate and experiences two distinct seasons (wet and dry seasons) which are caused by the movement of the Inter-Tropical Discontinuity (ITD) under the influence of two major air masses namely the tropical continental (cT) and the tropical maritime (mT). It has a mean annual rainfall of about 800mm and mean monthly temperature of 27^0C with its highest in April (Yusuf, 2006). The study area falls within the basement complex of central northern Nigeria, and the soil types are derived from the weathering of rocks both within the area and nearby (Ali, 2008).

The population of urban Zaria has shown rapid increase from 19,434 in 1953 to 389,858 in 1991 and 408,198 by 2006 with the male having a population of about 214,057 and female a population of about 194,141 (NPC, 2009). Adopting the exponential population projection formula, at 3% growth rate, the population of urban Zaria is estimated at 717,093 in 2018. The people of Zaria are basically into civil service, farming activities and trading in various capacities.

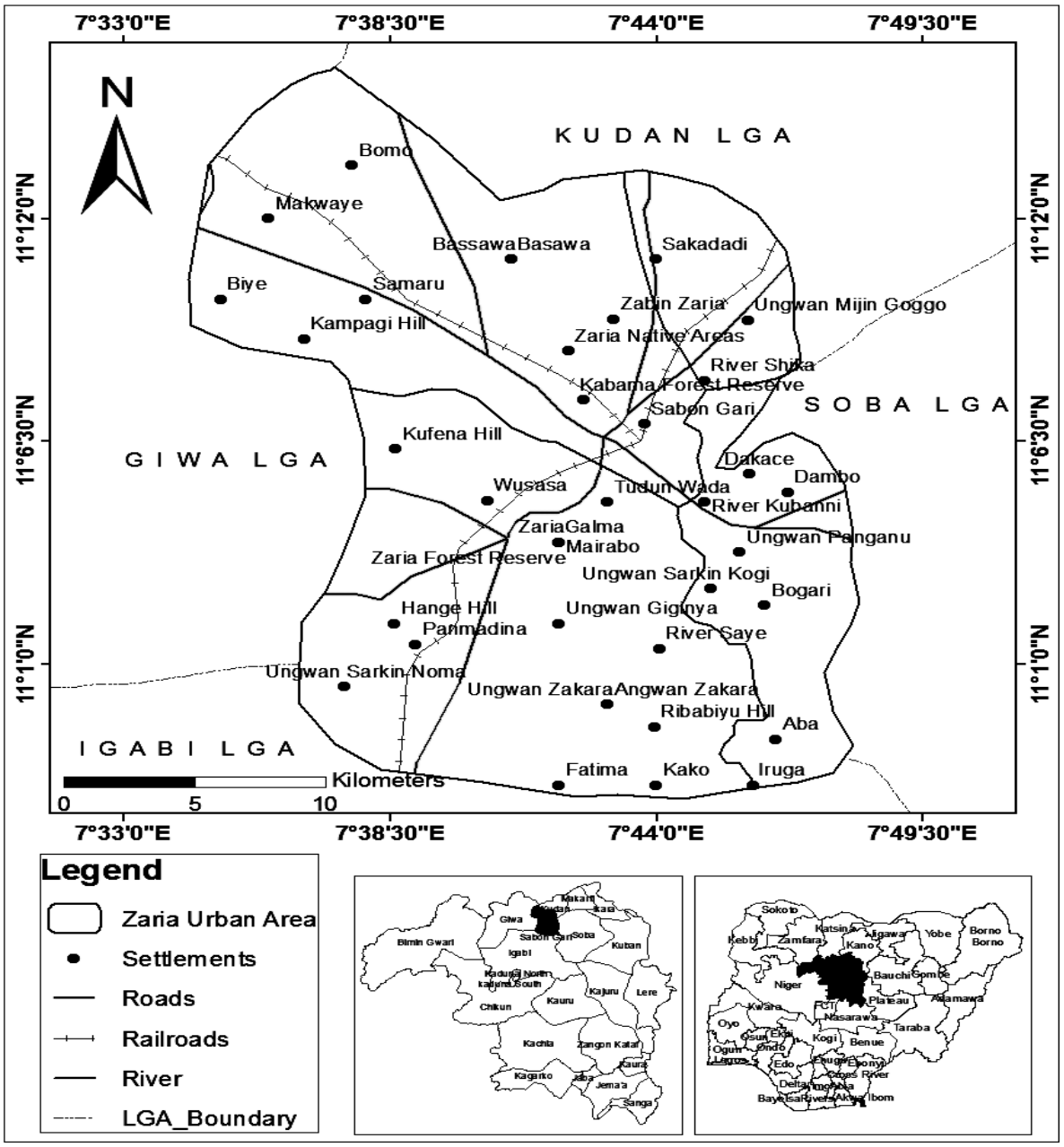

Figure 1: Urban Zaria
Source: Adapted from administrative map of Kaduna state (2019)

MATERIALS AND METHOD

The study was carried out in urban Zaria (Sabon gari and Zaria LGAs) Kaduna state, Nigeria. The sample for the research was drawn from the urban wards of the two Local Government Areas. A sample size of 400 was arrived at using the Yamane (1967) sample size formula with a population of 717,093 (NPC, 2009) people. Systematic sampling technique was used to select four urban wards from each of the LGA making up a total of 8 selected wards for the study. All the urban wards were arranged alphabetically, numbered and every ward with an even number was picked. Selection of respondents at the ward level was carried out randomly so as to give

every resident an equal chance of being selected. Data was collected using structured questionnaire and in-depth interviews were conducted and used to support the questionnaire data. Analysis of data was done descriptively using SPSS version 20 and Microsoft excel version 2013. Frequency and percentages were used to present results in tables and charts.

RESULTS AND DISCUSSION

Sex, Age and Marital Status of Respondents

Sex, age and marital status as shown in Table1 reveal that majority (73.2%) of the respondents were males. The result could be a function of questionnaire administration in which the head of households were considered and majority of them were males. This consideration was because most married women are not permitted to talk to visitors without the consent or permission of their husbands, therefore the husbands in most cases answer for their wives.

Table 1: Sex, Age and Marital Status of Respondents

Sex	**Frequency**	**Percentage (%)**
Male	293	73.2
Female	107	26.8
Total	**400**	**100**
Age		
15-24	59	14.8
25-34	80	20.0
35-44	151	37.8
45-54	77	19.2
55 and above	33	8.2
Total	**400**	**100**
Marital status		
Single	57	14.2
Married	287	71.8
Divorced	18	4.5
Widowed	19	4.8
Separated	19	4.8
Total	**400**	**100**

Source: Field Survey, 2019

The age group, 15-44 years constituted the highest proportion of respondents, with 72.6% as indicated in Table 1. This implies that majority of the responses are from adults who should know about good sanitation practices to ensure a clean and healthy environment. The results also indicates that about 71.8% of the respondents were married, while the rest were either widowed, separated, divorced or had never been married. This result is not surprising as culture still influences marital activities in the area and going by that, there is the prevalence of early marriage in the northern part of Nigeria as a whole as found by Nigeria demographic and health survey [NDHS] (2013) in which the area of study is found in the region.

Educational Attainment, Occupation and Income of Respondents

The educational attainment, occupation and income of respondents are presented in Table 2. Educational attainment sometimes reflects the nature of occupation and in turn may influence the level of income of an individual. All these can influence an individual's perception and ideology on sanitation. The findings show that as high as 80% of the respondents had acquired one form of formal education or the other.

Table 2: Highest Educational Attainment, Occupation and Income of Respondents

Highest level of education	Frequency	Percentage (%)
No formal education	59	14.8
Primary	53	13.2
Secondary	94	23.5
Vocational	59	14.8
Tertiary	110	27.5
Others	25	6.2
Total	**400**	**100**
Occupation		
Farming	90	22.5
Trading	99	24.8
Civil Service	115	28.8
Artisan	65	16.2
Others	31	7.8
Total	**400**	**100**
Income level (₦)		
Less than 5000	41	10.2
5000-10000	67	16.8
11000-15000	122	30.5
16000-20000	53	13.2
21000 and above	117	29.2
Total	**400**	**100**

Source: Field Survey, 2019

This implies that educative programmes such as environmental sanitation education, effort to promote hygienic urban environment both through public education and enforcement of sanitation laws may easily be comprehended better. The high level of education may be connected to the fact that the study area is the educational nerve centre of Kaduna state, with many institutions like Ahmadu Bello University, College of Aviation Technology, National Institute of Transport Technology, Nigerian Institute of Leather and Science Technology and Federal College of Education amongst others. It is therefore assumed that the people in the area have attained some form of formal education (particularly secondary and tertiary).

The analysis further revealed that 28.8% of the respondents were civil servants. The high proportion of civil servants in the area can be attributed to the high level of educational attainment of the respondents as earlier indicated. With the larger proportion of respondents being civil servants which means majority of the respondents are learned, it is expected that the populace should have an understanding of the effect of poor sanitation. It was also indicated that

the area is most likely full of both formal and informal economic activities because as 24.8% of the respondents were traders while farmers constituted also 22.5%. The tendency of increased economic activities in the area is expected to multiply/amplify waste generation and if not properly managed will result to unhealthy environment.

The income of the respondents' shows that a larger proportion (73.1%) of the respondents earn more than ₦10, 000 monthly. Considering the present economic situation of the country, ₦10, 000-16,000, income maybe seen as low but then it still falls within the poverty line of 137,400 naira annually per individual in Nigeria. This as such may explain the low income status of the people as a result may not give priority to the desired sanitary services they need for their wellbeing since it has to be paid for. This also implies that most of the respondents are not poor according to the Nigerian poverty line. This could be a resultant effect of the increase in the Nigeria minimum wage for workers.

Sanitation Practices Adopted in Zaria

Authorities in different cities adopt different strategies for managing the environmental sanitation. In Zaria, there are some sanitation strategies adopted by public agencies in order to manage the sanitary condition of the area under their jurisdiction. Notwithstanding, households also make efforts on their own to keep their houses and surroundings clean. Table 3 shows the sanitation strategies and practices adopted by the residents.

Table 3: Adopted Household Sanitation Practices

	Agree		Disagree		Undecided	
Practice	**Freq**	**%**	**Freq**	**%**	**Freq**	**%**
Use of cleaning roaster in multiple tenant house	204	51	156	39	40	10
Contribution to pay cleaners	209	52.3	141	35.3	50	12.5
A day set aside for general cleaning	274	68.5	83	20.8	43	10.8
Wastes are disposed in vacant plots nearby	232	58.0	121	30.3	47	11.8
Wastes are disposed in waste bins	187	46.8	167	41.8	46	11.5
Wastes are disposed by the road side	127	31.8	239	59.8	34	8.5
Wastes are dumped in open pits	265	66.3	72	18.0	63	15.8
Wastes are burnt openly	221	55.3	148	37.0	31	7.8
Wastes are disposed by private waste collectors	148	37.0	186	46.5	66	16.5
Wastes are dumped in drainages	210	52.5	144	36.0	46	11.5
Wastes are dumped in government approved dump sites	110	27.5	238	59.5	52	13.0
Waste is disposed daily	150	37.5	204	51.0	46	11.5
Waste is disposed once in three days	191	47.8	171	42.8	38	9.5
Waste water is disposed in pits	178	44.5	199	49.8	23	5.8
Waste water is disposed in drainages	223	55.8	117	29.3	60	15.0

Source: Field Survey, 2019

Table 3 reveals that all the outlined household sanitation practices were adopted by households in the area, although 51.0% of the respondents adopt the cleaning roaster, contribution to pay

cleaners (52.3%) and a day set aside for general cleaning of the house (68.5%). The adoption of these strategies especially setting a day for general cleaning could be related to those respondents who live in compound house as revealed by Musa, Shehu and Lukman (2009) in Zaria. This could be because compound houses face the problem of poor cooperation when it comes to issues of money and therefore prefer to collectively do the job than pay for it. Also the level of education in urban Zaria area could have helped in creating awareness on the need for good sanitation condition of houses and therefore the need for household sanitation practices. The findings further show that respondents dispose their wastes in vacant plots, road sides, gullies, and drains and by burning, but majorly (66.3%) in open pits. This is in consonance with Olajide (2014) who stated that households deposit their wastes in vacant or unused plots in Katsina metropolis.

The poor usage of government approved dumpsites by respondents may be because of lack of adequate/sufficient number of dumpsites. This finding is similar to that of Olajide (2014) who found that in Katsina metropolis, most households were not using government approved dumpsites due to its inadequacy. The findings also supports the document by Federal Government of Nigeria (1998) which assumed that most of the households do not use government dump site facilities because of their inability to access the dumpsite. Despite this constraint, dumping of waste by the roadside is not actually a common practice by respondents in the area. They thus resort to such disposal practices as dumping wastes on vacant lands.

The daily disposal of waste, waste collection by private collectors and disposal of waste water in pits were not too common in the area. Going by the expected high volume of waste generation in the area, failure to dispose waste daily may lead to waste accumulation in houses. Also, waste accumulation can cause infections such as tetanus and hepatitis especially to scavengers and refuse collectors depending on the type of waste and its constituents as outlined by Sridhar (2002). Furthermore, the result in Table 3 could mean Zaria may be deficient in adequate drainage and good quality water due to indiscriminate dumping of waste which could bring about foul smell, sippage into nearby water sources and blockage of drainages (See Plate 1).

Plate 1: Waste dumped in drainage channel in Sabon gari
Source: Field Survey, 2019

The sanitary practices adopted in Zaria also means that the germ theory of disease could come into play since the disposed waste were still within the reach of children (See Plate 2). The germ theory of disease is the currently accepted scientific theory for many diseases. It states that microorganisms known as pathogens or "germs" can lead to disease (Folarin, 2005). These small organisms, too small to see without magnification, invade humans, other animals, and other living hosts.

Plate 2: Open space dumping in Kwarbai B
Source: Field Survey, 2019

The fact that not all the wastes were collected by private waste collectors may be a function of level of income as many may find it difficult to pay for such services.

Perception of Respondents on Challenges of Environmental Sanitation in Zaria

The challenges of environmental sanitation in Zaria as perceived by residents in Zaria as found during the survey are shown in Table 4. The results reveal that respondents perceived all the outlined challenges to be responsible for the present sanitation situation in the area. However, some of the variations observed reflects that some challenges were more considered as against other challenges. Poor compliance and cooperation as well as over reliance of the public on government for sanitation services were the most common challenges in the area accounting for 81.5% agreement by the respondents. This fact is corroborated by the response of some of the officials interviewed from the local government authorities;

> *"Residents most times tell us to our face that it is the responsibility of the government to serve the people in all phases of life and as such even in*

sanitation. Therefore government should be able to clean the surrounding for the public". (12/08/2019)

"People in Zaria LG show no concern for sanitation because they hardly even comply to monthly sanitation exercise and in the case of house inspection, they will tell you that government did not supply them with waste bins in their house and as such have the right to dump waste anywhere they deem suitable and easier for them." (14/08/2019)

Table 4: Challenges of Environmental Sanitation According to Respondents

	Agree		Disagree		Undecided	
Identified challenges	**Freq**	**%**	**Freq**	**%**	**Freq**	**%**
Lack of awareness on the importance of sanitation practice	195	48.8	182	45.5	23	5.8
High charges of private service providers	198	49.5	154	38.5	48	12
Lack of environmental health education	244	61.0	133	33.3	23	5.8
Increase in population	293	73.3	70	17.5	37	9.3
Poor public cooperation and reliance on authority for sanitation services	326	81.5	53	13.3	21	5.3
Stigmatization of sanitation workers	276	69.0	102	25.5	22	5.5
Inadequate sanitation facilities/infrastructure	277	69.3	101	25.3	22	5.5
Poor knowledge of wastes disposal practices	202	50.5	155	38.8	43	10.8
Insufficient sanitation officials	262	65.5	97	24.3	41	10.3
Lack of environmental sanitation law enforcement	283	70.8	78	19.5	39	9.8
Poor government support for private service providers	203	50.7	154	38.5	43	10.8

Source: Field Survey, 2019

Another outstanding challenge is the rapid increase in population of the study area. Increase in population is actually a problem with regards to sanitation in Zaria because the higher the population, the more waste is being generated as outlined also by Uzor (2012). Also an increase in population can lead to overstretch in the already existing sanitation infrastructure such as waste bins, toilets among others. This is supported by the statement of an official in an interview at the Sabon Gari LG secretariat which states that;

"The local government authority doesn't have enough toilet facilities at public places and even the available ones are over used due to influx of people into the area over time." (12/08/2019)

Poor enforcement of environmental sanitation laws in the study area is agreed by about more than 70.0% respondents as persistent challenge. This is not surprising as an excerpt with a KEPA official reveals that;

"There are environmental sanitation laws which are known by the people but you know Nigerians, unless a sanitation police officer is to one person

> *before those laws are followed and obeyed. So therefore proper enforcement of such laws is close to impossible at present because there are no sanitation police, and even the staff we have at present cannot enforce such laws in even a single ward. With this I mean we lack sufficient staff to enforce sanitation laws."* (13/08/2019)

Other key challenges of environmental sanitation in the study area are inadequate sanitation facilities/infrastructures (69.3%) and stigmatization of sanitation workers in the community (69%). These two key challenges are buttressed by officials of the private service providers as well as the authorities in the study area who outlined that;

> *"The organization lacks sufficient staff and have inadequate trucks all as a result of insufficient funds as government has not been supportive to us with loans to acquire more trucks."* (05/08/2019)

> *"…most young graduates don't find it attracting to work with us because of community stigmatization of those that collect waste from house to house and as such we have difficulty in employing qualified workers whose field of study is environmentally or waste inclined."* (07/08/2019)

The findings of this study on challenges of sanitation is in line with Folarin (2005) and Ezeoguine (2002) who attributed the problems influencing poor sanitation condition of an area to increase in population, urbanization, poor attitude towards waste disposal, lack and inadequate sanitary facilities.

Awareness of Sanitation Practices and Strategies among Respondents

There exist proper sanitation programmes and strategies in Kaduna state that are meant to improve sanitary levels (KEPA, 2010). These programmes define the responsibilities of households, authority and individuals on environmental sanitation. Therefore awareness of these sanitation programmes and practices is indicated in Table 5.

Table 5 reveals that 86.5% respondents were aware of the monthly sanitation exercise. Among those that knew about the exercise, 98.0% of respondents from Samaru are aware while in Dogarawa only about 64.0% of respondents were aware. This implies that the level of awareness of the monthly sanitation exercise is high across all the eight selected wards. The daily main road cleaning exercise is known to more than half of the respondents which were from Samaru and Angwan Fatika. There is also the use of dumpsites provided by government in which 52.7% of the respondents were not aware of. The knowledge of these dumpsites is more in Chikaji (54.0%) than other areas.

House inspection by sanitation officers is yet another strategy by government to improve and encourage sanitation in the area. It is obvious that 46.3% of the respondents were aware of it, nonetheless, residents of Muchia were more aware of the strategy than the others. The inspection of eateries, hotels, filing station and so on was only known to 13.5% of the respondents especially from Samaru. Finally, 75.5% of the people were aware that cleaning of their front yard and surrounding is their sole responsibility though the respondents from Chikaji and Kwarbai B had more awareness of this responsibility (90.0%).

Table 5: Awareness on Sanitation Strategies by Respondents

Strategies and practices	Awareness	Ward of Respondents																Total (%)	
		Chikaji		Dogarawa		Muchia		Samaru		Tukur-Tukur		Angwan Fatika		Limanchin Kona		Kwarbai B			
		Frq	%	Frq	%	Frq	%	Frq	%	Frq	%	Frq	%	Frq	%	Frq	%	Frq	%
Monthly sanitation	AW	46	92.0	32	64.0	43	86.0	49	98.0	48	96.0	44	88.0	48	96.0	36	72.0	364	86.5
	UW	4	8.0	18	36.0	7	14.0	1	2.0	2	4.0	6	12.0	2	4.0	14	28.0	54	13.5
Daily main road cleaning	AW	17	34.0	18	36.0	27	54.0	42	84.0	39	78.0	42	84.0	11	22.0	26	52.0	222	55.5
	UW	33	66.0	32	64.0	23	46.0	8	16.0	11	22.0	8	16.0	39	78.0	24	48.0	178	44.5
Dumpsite intervention	AW	27	54.0	23	46.0	22	44.0	24	48.0	24	48.0	25	50.0	23	46.0	21	42.0	189	47.3
	UW	23	46.0	27	54.0	28	56.0	26	56.0	26	56.0	25	50.0	27	54.0	29	58.0	211	52.7
House inspection	AW	28	56.0	27	54.0	29	58.0	18	36.0	18	36.0	19	38.0	22	44.0	24	48.0	185	46.3
	UW	22	44.0	23	46.0	21	42.0	32	64.0	32	64.0	31	62.0	28	56.0	26	56.0	215	53.7
Eatery inspection	AW	4	8.0	2	4.0	7	14.0	18	36.0	2	4.0	6	12.0	1	2.0	14	28.0	54	13.5
	UW	46	92.0	48	96.0	43	86.0	32	64.0	48	96.0	44	88.0	49	98.0	36	72.0	346	86.5
Self cleaning of pavement	AW	45	90.0	43	86.0	31	62.0	42	84.0	27	54.0	28	56.0	41	82.0	45	90.0	302	75.5
	UW	5	10.0	7	14.0	19	38.0	8	16.0	23	46.0	22	44.0	9	18.0	5	10.0	98	24.5
Total	AW	167	55.7	145	48.3	159	53.0	192	64.0	158	52.7	164	54.7	147	49.0	166	55.3	**1300**	**54.2**
	UW	133	44.3	155	51.7	141	47.0	108	36.0	142	47.3	136	45.3	153	51.0	134	44.7	**1100**	**45.8**
Grand Total		**300**	**100**	**300**	**100**	**300**	**100**	**300**	**100**	**300**	**100**	**300**	**100**	**300**	**100**	**300**	**100**	**2400**	**100**

Source: Field Survey, 2019

NB: AW= Aware, UW= Unaware

In general, respondents from Samaru (64.0%) had the highest level of awareness of all sanitation strategies and practices adopted by government, while respondents from Dogarawa were not fully aware. This could be the resultant effect of students and academics of Ahmadu Bello University that make the larger composition of population of Samaru community that are conversant with good sanitation practices. The result of this study would bring to mind the strategies of the national environmental sanitation policy (FMoE, 2005). This could mean that the strategy of creating awareness on sanitation programmes as pointed by the policy (2005) has been in Zaria.

Among the sanitation strategies outlined, awareness seems to be high on the monthly sanitation exercise compared to other strategies such as inspection of eateries, hotels, filing stations. This might be attributed to poor enforcement of these strategies among others and the restriction of movement during the period of this exercise. What this implies is that, awareness of a particular sanitation strategy is more in areas where that strategy is put into practice most and also among those that it concerns. This corroborates the findings of Anyasoro (2010) which reveals that awareness on sanitation programmes is high among residents of Anambra state.

CONCLUSION

The study revealed that, the main driving force for the poor environmental sanitation conditions experienced in the study area was attitudinal and poor implementation of sanitation laws. It can therefore be concluded that despite the adoption of various sanitation practices by households, despite the awareness of sanitation activities, yet the area is still not attaining its aesthetics essence. These therefore could have result to poor sanitation with attendant consequences such as increase in prevalence of communicable disease, flood, stench and offensive odours in public places, litter of waste among others making the sanitation condition of Zaria to be poor. Based on the findings of the study, enforcement of environmental sanitation regulations and bye-Laws, provision of sanitation facilities in the city is recommended. The private sector should also be encouraged through incentives to provide such infrastructure, especially toilet facilities and urinals on Build Operate and Transfer (BOT) basis in public places in which private individuals can even own and manage them. Finally, public enlightenment should be carried out by environmental health officers regularly.

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