UTILIZATION OF SOLID WASTE COLLECTION FACILITIES IN URBAN KATSINA, KATSINA STATE, NIGERIA

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ABSTRACT

This paper examined the utilization and management practices of solid waste facilities in Katsina Metropolis. 200 copies of a questionnaire were administered for household heads in the study area using a stratified sampling technique. The data were analyzed using Statistical Package for Social Sciences (SPSS). The result shows that more than half of the respondents (65.6%) use Dust Bins. 47.5% of the respondents disposes their household solid waste on daily basis, while only 4.1% dispose theirs occasionally. And more than half of the respondents (54.1%) admitted that they dispose their waste at legal collection points. And many respondents admitted that the refuse collection centers in their areas are evacuated weekly while only few insisted that it is occasionally. Majority of the respondents (60.66%) in the area were of the opinion that the system used in managing waste in the study area is appropriate. The study recommended for proper waste management planning and also the need to educate people on the danger of littering the environment from state to local level.

Keywords: Solid Waste, Dustbin, Collection Points, Urban Katsina

INTRODUCTION

In an attempt to satisfy his daily needs, man engages in the production of goods and services. In the process waste is generated (Beede and Bloom, 1995). Virtually all aspects of man's productive activities involve the generation of waste (Muhammad, 2007). The way these wastes are handled, stored, collected and disposed can pose risk to the environment and to public health. Solid Waste consists of everyday items that is used and then thrown away such as product packaging, grass clippings, furniture, clothing, bottles, food scraps, newspapers, appliances, paint, and batteries. Wastes come from homes, schools, hospitals, and businesses (EPA, 2011). Solid waste generation is experiencing a rapid increase all over the world as a result of continuous economic growth, urbanization and industrialization (Global Waste Management Market Report 2007). It is estimated that in 2006 the total amount of municipal solid waste (MSW) generated globally reached 2.02 billion tones, representing a 7% annual increase since 2003 (Global Waste Management Market Report 2007). Fifty-two percent (52%) of urban households in Nigeria do not have access to an authorized dumping ground but indiscriminate dumping of wastes by the road side, gutters and other unauthorized dumping grounds by residents of the city (Federal Office of Statistics, 1978). According to Solomon (2009) an average Nigerian generates about 0.49kg of solid waste per day. Almost 90% of the total urban waste burden is generated from households and commercial centers. A study by Onibokun *et al.* (2000) revealed that as a result of improper management strategies, solid waste is disposed in a way that creates heaps of refuse littering the

entire landscape, road sides and commercial centres, even on the premises of primary, secondary and tertiary institutions.

Proper management of solid waste is critical to the health and well being of urban residents (World Bank, 2003). In urban areas, especially in the rapidly urbanizing cities of the developing world, problems and issues of municipal solid waste management are immediate importance. There is phenomenal increase in the volume and diversity of solid wastes generated daily in Nigeria; heaps of refuse and garbage are common sights in most urban areas of the country. The waste problem has, today, become one of the country's major environmental problems (Zurbrugg, 2003). 80% of waste generation in Katsina Metropolis is from household, commercial, institutional, construction and demolition wastes account for only 15% (Katsina Waste Management and Pollution Control, 2004). The Katsina State Environmental Protection Agency (SEPA) has created designated refuse collection centers for community storage and evacuation. Despite this, refuse litters the entire landscape. This made the Katsina State Department of Waste Management and Pollution Control (2004) to confess that there was improper allocation and distribution of solid waste collection points in urban Katsina, leading to negative setbacks which should be addressed. These were:

a. A lot of undesignated refuse dumps have been created especially on our main roads, making the area clumsy and create an eyesore. And improper waste disposal is another issue of concern and should be addressed.

b. Our drainages, gutters and other water passages were turn to be refuse collection centers thus causing flood during the rainy season and a vectors breading places sometimes lead to unpleasant odor due to stagnant of the water.

Another problem of solid waste has been highlighted by Barau (1998) that repulsive stench coming from the dumps due to the decomposition of organic matter in the heaps of waste accumulated and pollute the surrounding air so that it becomes a nuisance to the public. He also added that improper town planning in most of the towns are responsible for free flow of air, leading to ill–ventilation and much friction, thus, making the natural mechanisms of cleaning the air defective and concentration pollutants increased. In view of these, this paper attempts to report the results of an investigation into the utilization of solid waste collection facilities in Urban Katsina.

STUDY AREA

Location

Urban Katsina, the state capital of Katsina state is located between latitude 12^0 45^1N and 13^0 15^1N, and Longitude 7^0 30^1 and 8^0 00E. It is positioned at the extreme part of Northern Nigeria, some 30Km from the Nigeria-Niger border. Urban Katsina comprises of two LGAs, i.e. Katsina and some parts of Batagarawa LGAs (Ibrahim, 2010).

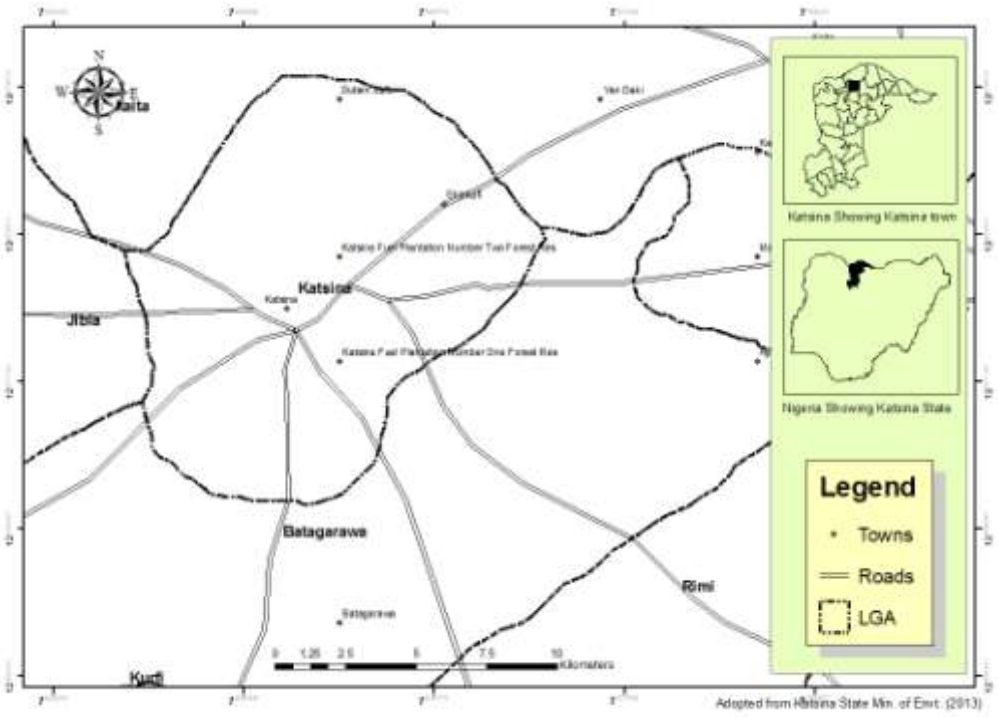

Figure 1: Showing Katsina Metropolis

POPULATION, SETTLEMENTS AND LANDUSES

Urban Katsina has a fairly large population, enjoys Sub-Sahara African rate of population increase with average birth and death rates of 4.2% and 1.6% respectively (Zango, 2010). As of 1952 census, the population figure was 52,672 and rose to 223,644 in 1991, by then it had already acquired the status of a state capital. The population figure after the 2006 census was recorded as 327,376 (National Population Commission, 2006). The settlement pattern can be categorised into two based on population density. The first category is the high to medium density settlements which include the *Cikin Birni* (Old City) with their peripheral areas respectively. While the second category is the low density settlements of Government Reservation Areas (GRA), Kofar Marusa Low Cost and the New Layout among others. The old city which is the most densely populated area in the metropolis has a unique cultural setting. Most buildings are made up of mud and clay, closely packed together and surrounded with walls (Hassan, 2008). Land use in the area is dominated by urban activities, such as residential, institutional, commercial, industrial land uses, and livestock production with small area mostly undeveloped for farming. Residential area cover most part of the study area, different land uses such as commercial, institutional, and educational are all located within the residential areas. *Sabuwar Unguwa* extension is the major area functioning as industrial layout. Industries such as steel rolling, packaging, beverages processing etc are found in this area. Commercial activities happened to be growing very fast in the area. There are many smalls and one major central market. The popular markets here are Katsina central market, *Kofar Marusa* market and old market. Also there are many departmental stores, shopping centers and supermarkets, where local, national and foreign commodities are sold. Institutional land uses can also be found at various

locations within urban Katsina both managed public and private sectors (Ibrahim, 2010).

MATERIALS AND METHODS

Method of Data Collection

Data used in this study were collected through questionnaire administration as well as from relevant previous studies. The study area was sub-categorized into 78 areas as adopted from Danbuzu *et al.* (2014), thus, 10 areas were sampled in a stratified manner.

Method of Data Analysis

The results were analyzed using SPSS software. Frequency distribution of parameters was carried out, and the result was presented using charts.

RESULTS AND DISCUSSIONS

People's Attitude on the Usage of Solid Waste Collection Points

Refuse Storage Facilities

Most of the households in Urban Katsina store their refuse in Refuse Bins (65.6%), while very few (5.7%) use means that are other than Refuse Bag, Drum or Refuse Bin as shown in figure 2.

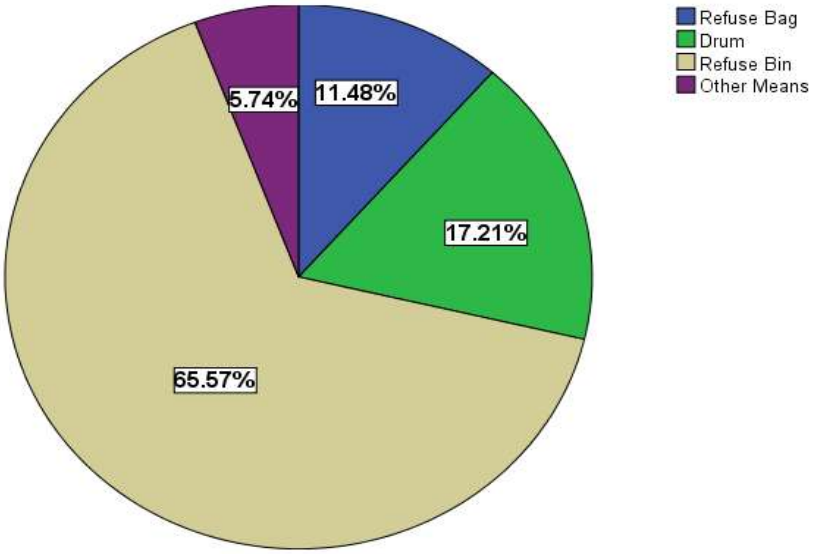

Fig 2: Household Refuse Storage Facilities

Time for Refuse Disposal

Most of the households on urban Katsina dispose their solid waste to the collection point every day (47.5%) followed by twice a week (24.59%) and then once a week (23.77%) while the fewest dispose theirs occasionally (4.1%) as shown in figure 3.

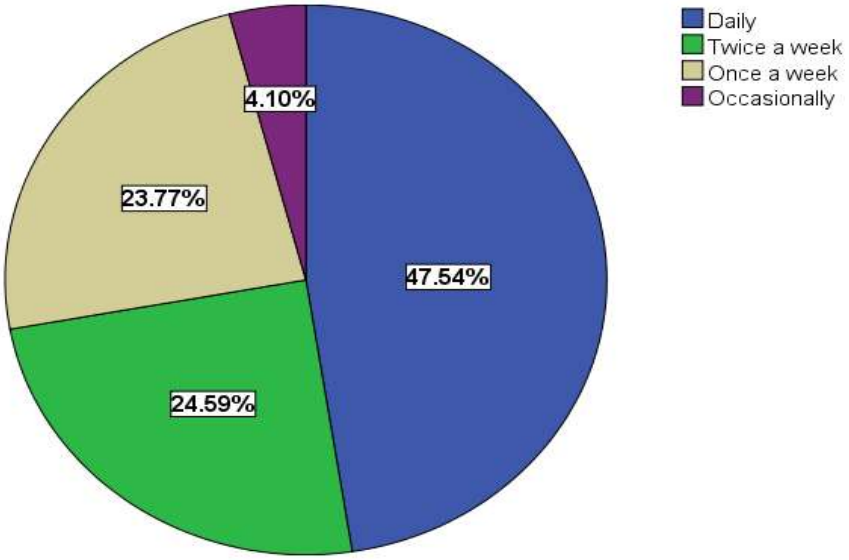

Fig. 3: Frequency of Household Refuse Disposal

Site for Refuse Disposal

Although most of the solid waste collection points in the area are unauthorized (87.3%) according to Danbuzu *et al.* (2014), yet the respondents insisted that most of them dispose their refuse at authorized (legal) collection points (54.1%), while the fewest (3.3%) use to dispose theirs at means other than Open Space, water channel and authorized collection point as shown in figure 4.

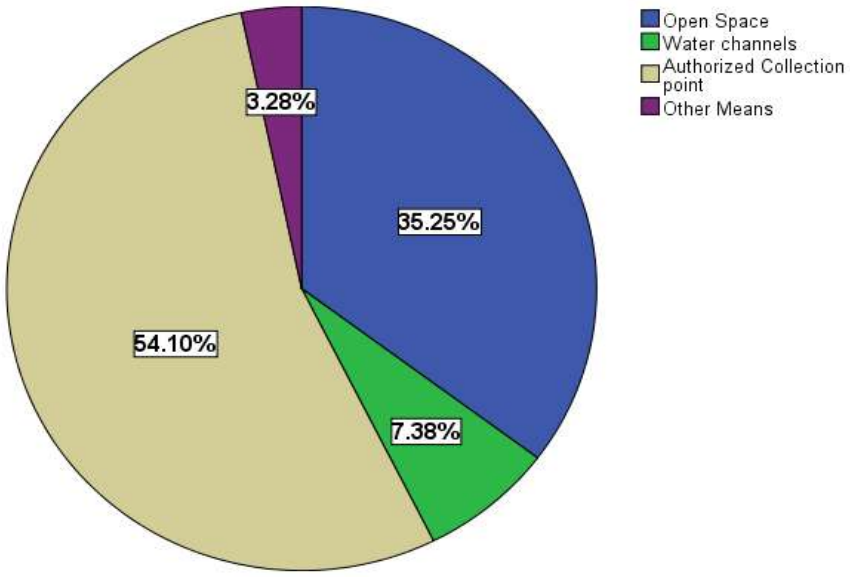

Fig. 4: Site for Refuse Disposal

Refuse Evacuation from the Collection Point

A greater percent of the respondent (34.4%) admitted that evacuation of refuse from their areas is carried out weekly. And only 5.7% insisted that there is no evacuation at all (see figure 5).

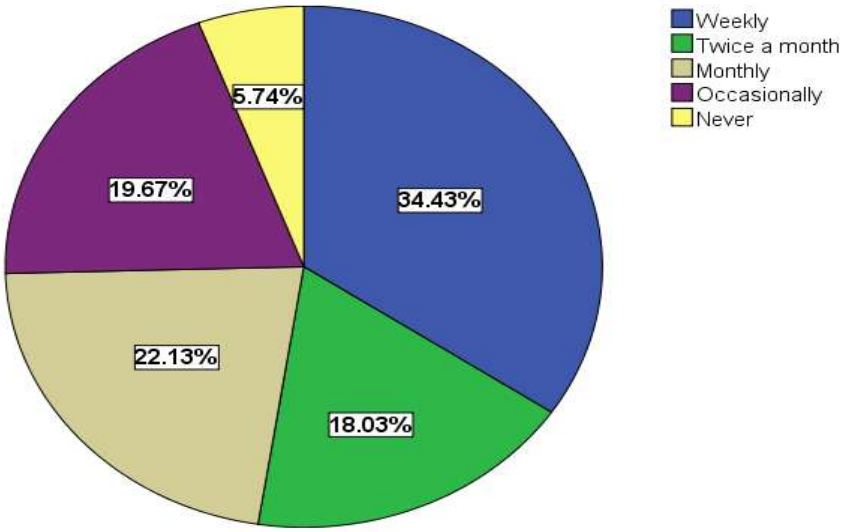

Fig. 5: Refuse Evacuation from the Collection Point

Appropriateness of the Refuse Management System of Areas

Although most of the solid waste collection point are unauthorized (87.3%) as stated by Danbuzu *et al.* (2014), yet most of the respondents (60.7%) insisted that the management system is appropriate, 13.1% insisted that the system is very appropriate, while fewest of the respondents (8.2%) admitted that the system is very inappropriate (see figure 6).

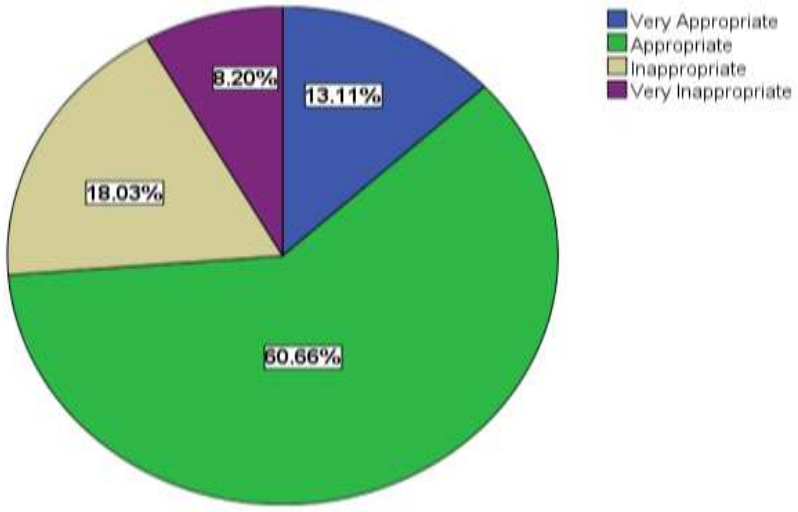

Fig. 6: Appropriateness of the Refuse Management System

CONCLUSION AND RECOMMENDATION

From the findings of this research, most of the household head in the area collect their waste in a dust bins and disposed every day at an authorized places. Evacuation of solid waste is weekly while very few respondents insisted that the evacuation is occasionally. Even with about 87.3% of the illegal dumpsites in the area yet the respondents insisted that the refuse management system is appropriate. The study recommended for a more proper waste management planning and also the need to educate people on the danger of littering the environment.

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