



EFFECTS OF INDISCRIMINATE SOLID WASTE DISPOSAL IN LAFIA METROPOLIS, NASARAWA STATE, NIGERIA

Y. A UBANGARI¹, A. T. OGAH², ALKALI MOH'D³

^{1,&2} Department of Geography, Faculty of Environmental Science, Nasarawa State University, Keffi ³Department of Environmental Management, Faculty of Environmental Sciences, Nasarawa State University, Keffi

Abstract

The improper management of solid waste is one of the challenging environmental problems facing urban centres worldwide, particularly in developing countries. Little attention is given to waste management practices. This is why it is common to see heaps of waste in littering the streets, dumped indiscriminately in drainages, vacant plots and open spaces especially in the urban areas of the developing world. Despite the establishment of Nasarawa Urban Development Board as a waste management agency, the problem of solid waste management in Lafia town remains intractable. The study examined the current state of waste management being employed by Nasarawa Urban Development Board in Lafia town, Nasarawa state. The study population was contacted through stratified systematic sampling technique. Data for this study were generated through questionnaires, in depth interviews, direct and personal observation. The data generated from the questionnaires were subjected to descriptive analysis using frequencies and percentages. The study revealed that majority (58.5%) of the respondents were not provided with waste collection facilities by Nasarawa Urban Development Board and so disposed their wastes indiscriminately. Majority (65.5%) of the respondents knew nothing about procurement of dustbins, dumpsites and the agency of government that is responsible for refuse/ waste management in, the study area. The agency responsible for waste management in the study area (NUDB) were faced with numerous challenges militating against effective and efficient performance. These challenges were lack of political will, paucity of fund or poor funding, shortage of man power, shortage of functional vehicles (trucks) etc. The study recommended that public awareness or education should be

carried out by Nasarawa Urban Development Board in collaboration with the National Orientation Agency and the mass media on waste management issues. It also recommended that Nasarawa state government should support the Board financially among other needs to enable the Board perform her functions effectively and efficiently.

Keywords: Indiscriminate, Waste, management, Solid, Disposal,

Introduction

The improper management of municipal solid waste is one of the challenging environmental problems facing urban centres worldwide, particularly in developing countries (APO., 2007; Bruce, 1998). Little attention is given to waste management practices as it is common to see heaps of waste in the major cities littering the streets, dumped indiscriminately in drainages, vacant plots and open spaces especially in the developing world. This has contributed not only to the spread of communicable diseases in the affected areas. but has also influenced on flooding and other environmental problems (Babalola *et al.*, 2010, Wilson *et al.*, 2009). A typical solid waste management system in developing countries displays an array of problems among which include low collection coverage and irregular collection services (Nwoke, 2005, Omran *et al.*, 2007). It is fast becoming a difficult task which must be surmounted by developing countries especially Nigeria and Nasarawa state in particular, if they are to realize the reduction of solid waste in the cities by 75% as proposed by Millennium Development Goals (MDGs) in 2015 (Nwoke, 2005).

The growth of human population couple with increased economic activities has resulted into high rate of solid waste generation, this calls for careful planning and adequate resource allocation to bridge the gap between the rate of waste generation and that of collection and disposal. The ways to handle and dispose waste varies considerably within and between cities, regions and nations; therefore, waste is a matter of place and time (Ojemudia and Ojigi,2006).The practice of indiscriminate and improper dumping of Municipal Solid Waste (MSW) is on the increase in Lafia in particular and Nigeria in general and it is compounded by a cycle of poverty, population explosion, decreasing standard of living, poor governance and low level of environmental awareness, and the

end product of it all is the dumping of these waste in any available open space (Rachel, *et al.*, 2009). It has been observed that because of poor or improper land use planning in some part of many organically developed cities has resulted into the creation of informal settlements with narrow streets, which makes it difficult for waste collection trucks to access such areas (Nabegu, 2010, Swapan, 2008).

Wastes are dumped into the drainages that block the free flow of runoff water and this practice gives rise to flooding and the communities are adversely affected, some people dumped their waste to the road side, thereby reducing the width of the road and aesthetics of the cities especially in Lafia. This is evident across the nooks and the crannies of Lafia. There are heaps of refuse littering the entire landscape, road sides, parks, gardens, commercial centres and other land use (Danbuzu, 2011, Imam *et al.*, 2007). Okpala (2000). The uncollected or illegally dumped wastes constitute a starting point for disaster of human health and the environmental degradation. Apart from the increasing quantities, the waste composition and characterization evolve, incomes and changing consumption habits have also been affected by globalization (EPA, 2011). Globalization is seen as an economic transformation, a breakthrough to poverty alleviation and inflation reduction, it is thus expected to help narrow the gap between and within nation or individuals (Pett, 2000, Swift, 2008).

Globalization has been identified as playing a negative role in solid waste management; impacts include the transfer of globalized or international waste management methods and ideologies together with an increased volume and variety of waste, resulting from increased flows of goods and services, and changing lifestyle and consumption pattern (Abd'razack *et al.*, 2013, Eisenberg and Schmidt, 2009, Mukhtar, 2011, Okewole & Afon, 2007). Many parts of Nasarawa state in general and Lafia in particular especially high activity areas do not benefit from any organized waste management services, wastes are unattended to, waste are either buried, burnt without taking into consideration the consequences thereof, (UN-Habitat, 2010, Nilson-Djef and Me. Douglass, 2000, Sanchez *et al.*, 2003). Adefemi and Awokunmi (2006) emphasized that the reason for the burning of solid waste is economic and affordability on the part of households, but the act is environmentally unfriendly for the ecosystem. Another reason for solid waste burning is to lower critical hygienic problems, but its implication is more than mere burning, it causes the emission of toxic

substances to the air such as dioxins and furans a cancer inducing compound is released into the atmosphere and other ozone depleting and greenhouse gases (Hassan *et al.*, 2010, Sakawi, 2011). In some areas where the authority does the collection, it is often not regular. The method used for collection, transportation and final disposal is unsatisfactory.

Waste when left unattended to for a long time constitute some serious health hazards, causes offensive odour, pollute underground water sources and decreases environmental aesthetics and quality. Majority of the waste collected are dumped in open spaces (open dump) and is mostly transferred from one location to the other rather than being treated and disposed of in a sanitary manner (Mabogunje, 1980). There has been steady increase in the population of Lafia town after it was made a state capital in 1996 mainly due to influx of people from the villages and other parts of the state. The rate of waste generation in the city is more than what the Nasarawa State Urban Development Board can manage leading to a decline in the handling and management of solid waste in the city. The mode of solid waste collection in the city shows disparity in collection system, in the low-density areas provision of waste bins and drums are done whereas in the highdensity areas there are no such provisions. Furthermore, the Nasarawa State Urban Development Board often failed as waste bins are not evacuated as at when due leading to overflowing with wastes and some of which are found directly in front of most houses thereby constituting environmental hazards, the case of the high-density areas is pathetic as no collection and disposal is done and the residents found the open spaces as necessity to dump their solid wastes, whether designated as dumpsite or not. This implies that the city presents paradox in waste collection as low-density areas are cleaned and provided with waste bins whereas in high density areas wastes are not collected and no waste bins provided.

Materials and Methods

Data Analysis

Cooper and Schindler (2014), defined data preparation or analysis as the processes that ensure the accuracy of data and their conversion from raw form into classified forms appropriate for analysis. The analysis and interpretation of data used in this study was based on the research questions and objectives of the study. As earlier pointed out, the study elicits both quantitative and

qualitative data. Hence, these data were processed and analysed both quantitatively and qualitatively. In analysing the quantitative data used in the study, the researcher employed the use of Microsoft Excel, and IBM SPSS Statistical package version 26, to organize the data collected from the participants of the study via the survey questionnaires into manageable information that was understood. These data were edited by inspecting the data pieces before coding them. The process helped in identifying those items on the survey questionnaires that were wrongly responded to, spelling mistakes, and blank spaces left by the respondents. The data was then coded to facilitate data entry into the computer to allow for statistical analysis.

The analytical method used in analysing the data was the univariate. The univariate method of analysis used was the descriptive statistics such as; frequency distribution, mean, standard deviation, coefficient of variation, and simple percentage. Qualitative data used in the study were transcribed verbatim into English, together with observational notes. Furthermore, the data were shifted and sorted. The qualitative data were analysed using content analysis

Results and Methods

Reasons of indiscriminate dumping of refuse in the study area

Table 1: Reasons for indiscriminate dumping of refuse:

Variables	Frequency	Percentage
Inadequate waste collection facilities	117	58.5
Lack of enforcement of environmental and sanitation laws	18	9
Absence of timely information on sustainable disposal options	14	7
Distance to dump site	51	25.5
Total	200	100

Source: Field Survey, 2019

Respondents were asked to indicate reasons for the indiscriminate dumping of refuse (Table 1) slightly more than half (58.5%) of the respondents were of the view that the main reason for indiscriminate dumping of refuse (waste) in their area was the inadequate or lack of waste collection facilities that were not provided by government. Only 9% of the total sample population reported lack of enforcement of environmental and sanitation laws, 7% attributed it to

absence of timely information on sustainable disposal options, 25.5% attributed it to distance to dump sites from their houses which was far. The reasons given by the respondents again affirmed that enough waste bins were not provided by the Board at specific locations as well as ineffectiveness and lack of creation of awareness campaign against the indiscriminate dumping of solid wastes in collaboration with other agencies such as the National Orientation Agency (NOA), the mass media (both printed and electronic media). The findings of this study agrees with work of Umaru (2010).

Activities of Nasarawa Urban Development Board (NUDB)

Table 2. Activities of Nasarawa Urban Development Board (NUDB)

Characteristics	Variables	Frequency	Percentage
Awareness of NUDB activities	Yes	69	34.5
	No	131	65.5
	Total	200	100
Collection of Refuse by NUDB	Yes	43	21.5
	No	157	78.5
	Total	200	100
Frequency Of Solid Waste Collected By NUDB	Weekly	0	0
	Monthly	29	14.5
	Yearly	6	3
	Never	165	82.5
	Total	200	100
Provision of Bins	Yes	40	20
	No	160	80
	Total	200	100
Who Provided the Bins	Yes	31	15.5
	No	169	84.5
	Total	200	100
Collection Points Provided by NUDB	Yes	31	15.5
	No	169	84.5
	Total	200	100
Number of Collection Points Recorded	6-12	34	17
	13-17	0	0
	18-23	3	1.5
	24 & above and none	163	81.5
	Total	200	100

Source: Field Survey, 2019

Table 2. shows respondents knowledge of the activities of Nasarawa State Urban Development Board (NUDB). The table shows that 65.5% of the total sample population indicated that they were not aware of NUDB's activities. This is an indication that some settlements visited namely Shabu, Tudun Gwandara, the market areas have not really felt the impact of NUDB except the city centres such as Akwanga road, Shendam road, Makurdi road where some activities of NUDB were noticeable. This can be attributed to poor accessibility due to improper town planning of Lafia which made it impossible for the officials of NUDB to move into all nooks and crannies of the town with their trucks to evacuate wastes. It is also due to the inability of the Board to carry out enlightenment programs on indiscriminate dumping of wastes for members of the public. 34.5% of the respondents who were aware of NUDB's activities could be probably due to their high level of education and they might be residing around or along the city centers which were mostly located along the major roads in Lafia that leads to Shendam in Plateau state and Markurdi in Benue state. These were the areas where activities of NUDB were noticeable. This result is consistent with the work of Ngumah, Ogbulie, Orji, and Amadi, (2013) and OkoroShekwaga and Horan (2015).

Close to four-fifth (78.5%) of the respondents admitted that disposed refuse were not collected regularly as expected. This is why heaps of refuse were noticed in many parts of the city. Forty-three respondents representing 21.5% of the total sample admitted that refuse were over collected by NUDB.



Plate 1: Heaps of solid waste dumped indiscriminately within Lafia Modern (New market) awaiting evacuation.

Source: Field Survey, 2019.

Most (82.5%) of the total sample population admitted that refuse were not cleared completely by NUDB. Only 3% reported shows that refuse were collected yearly. 14.5% admitted that refuse were collected monthly by NUDB. This seems to agree with the findings of Adegoke, 1989 and Singh, 1988 where they reported that waste collection is irregular and is only restricted to the major cities or parts of cities their areas of attraction.

Four-fifths (80%) of the respondents reported that they had no waste bins provided in their areas. This could be attributed to the inability of NUDB to procure waste bins for residents of the areas due to lack of political will. Only 20% of the respondents had waste bins provided in their areas. This result correlates with the work of Umaru (2010).

Most (80%) of the respondents admitted that they had waste bins in their areas provided by the community and through philanthropic gestures by public spirited individuals. Only 1.5% each were provided by company, NGO, while 17% admitted that they had waste bins in their areas provided by NUDB. The high percentage of waste bins provided by the communities and others could be attributed to government laxity on the issues of waste management.

About 84.5% of the respondents admitted that there were no collection points provided by NUDB. This can be attributed to lack of concerted efforts by NUDB and Lafia Local Government Council to designate areas to be used as collection points within Lafia metropolis. This has led to the formation of illegal waste dumpsites by the residents. Only 15.5% of the respondents admitted that there were collection points provided by NUDB. This suggests that not enough waste bins are provided by the government.

Observations during questionnaire administration revealed that collection points were grossly inadequate. The study sought to know and identify the number of collection points to be recorded, with the number 24 and above, one hundred and sixty-three respondents representing 81.5% admitted none, thirty-four respondents representing 17% of the total sample population indicted 6-12 collection points, while three respondents representing 1.5% indicated 18-23 collection points recorded. This situation is responsible for the indiscriminate

dumping of wastes by resident. This result is consistent with the work of Deublein and Steinhauser (2008), and Kofoworola (2007).

Effectiveness of NUDB awareness campaign against the indiscriminate dumping of solid wastes

Table 3: Effectiveness of NUDB awareness campaign against the indiscriminate dumping of solid wastes

Variables	Frequency	Percentage
Good	6	3
Fair	34	17
Poor	160	80
Others	0	0
Total	200	100

Source: Field Survey, 2019

Table shows respondents opinions on the assessment of NUDB by the public on awareness campaign against the indiscriminate dumping of solid wastes. Most respondents (80%) rated NUDB awareness campaign as poor. This could be attributed to the perception held by NUDB that the onus of public awareness campaign against the indiscriminate dumping of solid wastes lies with the National Orientation Agency, and the mass medias and not NUDB. This was a wrong perception as it requires collective or collaborative efforts, as one agency needs to complement the efforts of another agency. Only 3% rated NUDB as good while 17% assessed the agency as fair in creating awareness on indiscriminate dumping of solid waste. This result is consistent with the work of Okoro-Shekwaga and Horan (2015) and Otitoju (2014).

Table 3. Respondent's assessment of NUDB's performance on solid waste management

Performance	Frequency	Percentage
Satisfactory	0	0
Unsatisfactory	97	48.5
Improvement from what used to be five years ago	49	24.5
No improvement from what used to be five years ago	54	27
Total	200	100

Source: Field Survey, 2019

Respondents were asked to assess the performance of government and the waste management agency (NUDB) on waste management in Lafia town and by extension in Nasarawa state. Table 3. revealed that close to half 48.5% of the respondents expressed dissatisfaction with the system of waste management in the study area,

24.5% were of the opinion that there have been a significant improvement in the waste management system unlike what used to be the case before the last five(5) years, while 27% reported no improvement in the waste management system within the last five years Further investigation suggests that the above position was caused by the unavailability of a holistic approach towards waste management in the area. There are scanty refuse dump sites most of which were being centralized, making people to travel long distances to dump such wastes in the designated dump sites. This delays evacuation and poses nuisance and breeding ground for vectors such as rodents, flies, mosquitoes and cockroaches. On how this menace could be controlled, ail the respondents advocated the introduction of door-to-door waste collection system as the major solution to the waste management problem or challenge faced in the study area.

This result correlates with the work of Nzeadibe (2009) and Umaru (2010).

Respondent's assessment of NUDB activities

Table 4: Respondent's assessment of NUDB activities

Variables	Frequency	Percent (%)
Ineffective	140	70
Effective	40	20
Fairly effective	3	1.5
Very effective	17	8.5
Total	200	100

Source: Field Survey, 2019

Most respondents (70%) assessed their activities generally to be ineffective. This low level of grading by the highest number of respondents could be attributed to the poor level of performance by the government and waste management agency (NUDB) in Lafia town and Nasarawa state as a whole as

affirmed by the public in Table 4. above as 97 respondents (48.5%) expressed dissatisfaction with the system of waste management in the study area. 20% of the respondents gave their general assessment of NUDB activities to be put at effective, 1.5% of the respondents assessed NUDB activities as fairly effective while 8.5% of the respondents assessed the general assessment of NUDB activities as very effective. This result is consistent with the findings of Araba (2010), Nabegu (2010), and Aderemi and Otitoloju (2012). Interviews were also held with to management staff that had the requisite information concerning the organization. This was done to assess their views on the performance of their organization. All the staff interviewed stated that they had no enough workforces in the Board. This affirms the fact that there is shortage of manpower in the Board. They reported that the aim and objectives of the Board were achieved through partial release of funds by the government to carry out their activities, provision of few vehicles and equipment and the engagement of casual staff. All staff interviewed stated that NUDB has good policies/laws for preventing people from indiscriminate dumping of wastes. But the policies were not effective. This can be attributed to lack of proper enforcement and blatant disregard for the laws.

All the staff interviewed stated that the policies/ laws of preventing people from indiscriminate dumping of wastes were not effective. This can be attributed to lack of proper enforcement and blatant disregard for the laws by people. All the staff stated that the Board does not carry out enlightenment programmes on waste management. This explains why there was disregard for the environment as people littered the surrounding indiscriminately due to lack of sensitization by the Board. They stated that the enlightenment programs were not effective. All the staff interviewed stated that the Board does partner the local government authority and private organizations in solid waste management in Lafia town. This explains why the Board alone could not cope with the challenges of solid waste collection and disposal in the area. This resulted in laxity on solid waste management, as there was no clear definition of responsibilities, hence duplication or over lapping of functions. This result is consistent with the findings of Remigios (2010), Ogwueleka (2009), and Ojo (2014).

There was policy to standardize the vehicles and equipment used by the department. The department does not have its own workshop to maintain and repair its vehicles and equipment. All staff stated that they supported the

principle of waste minimization, that council should introduce waste collection initiative, designed to reduce the amount of wastes residents throw away. All staff stated that they were of the view that the community sector has a role to play in assisting the council to manage waste in Nasarawa state, they also stated that they would like to collect bulky wastes for reuse and recycling. They also stated that they would like to collect kitchen and garden wastes for composting. They further stated that they would collect all their recyclable materials, and were prepared to pay for community sector service.

Respondents stated that the number of staff in their department (Environmental Health) both skilled and unskilled was 75. The respondents stated that the aim and objectives of the agency (NUDB) were to maintain a clean environment, ensure proper planning of the physical environment and ensure proper waste management in general. They reported that the aim and objectives of the agency were not achieved. They gave various reasons why it was not achieved. The reasons were:

Bad and in consistencies in government policies and lack of continuity, unnecessary interference by politicians, inadequate refuse collection vehicles(trucks), lack of funds (finance) or poor funding, shortage of manpower (especially trained personnel), lack of equipment, lack of political will, lack of adequate collection points and waste transfer station as well as absence of government approved layouts. The staff further gave reasons why the policies and laws were not effective. The reasons were: Inability of the Board to carryout enforcement on law breakers and defaulters on sanitation related cases, unnecessary interference by politicians, shortage of refuse collection points, poor funding, inadequate staff in the department, absence of mobile courts on sanitation days to enforce the laws and penalize defaulters, blatant disregard for the laws by people, especially politicians and some of the laws were obsolete and un implementable.

All the staff further stated some of the major policies and laws to include:

- a) Laws on environmental sanitation of 2004, policy on Environmental sanitation observed in the state every last week of the month and laws on pollution control.
- b) They also gave reasons why the Board could not carryout enlightenment programmes on waste management effectively. These reasons were:

- c) Lack of proper funding or poor funding, lack of proper coordination in the Board, lack of synergy between government agencies, poor perception of the Board, that only the National Orientation Agency is saddled with the responsibility, shortage of manpower, hence lack of interest on sensitization exercise as the few staff would not be encouraged to organize the exercise.
- d) All the staff interviewed gave reasons why the Board was not partnering or collaborating with the local government authority and private organizations in solid waste management in Lafia town to include:
- e) Lack of synergy between the agencies because of supremacy. No agency wants to be looked down upon, (i.e. every organs of the government exhibiting superiority complex), lack of clear government policy on waste management and inadequate or poor funding. The staff enumerated the challenges inhibiting effective and efficient performance of the Board (NUDB) on solid waste management to include:
- f) Lack of finance or poor funding, lack of waste collection and disposal facilities and equipment, lack of final refuse disposal sites, lack of political will, obsolete equipment shortage of man power, inadequate logistics and lack of cooperation from the general public (negative attitude of the people towards waste management)

The department's storage bin standardization policy was that each office has been provided with a refuse bin where every discarded materials will be put into to avoid the littering of the office premises. These were the responses of 5 staff. The staff stated that there was no any policy to standardize the vehicles and equipment used by the department. The department does not have its own workshop to maintain and repair its vehicles and equipment. The average time taken for the purchase of the spare parts was (5-years) and no policy on stock maintenance. The amount of equipment for the collection of solid wastes from household to commercial bin or deport for subsequent collection by collection vehicles [i.e., equipment for primary collection] were: 70wheel barrows, 50 push carts wheels and 150 shovels.

Vehicles types, number, average capacity, condition of vehicle, age of vehicle was reported as follows:

- Compactor vehicle [2] 10, tons good condition more than 10 years

- Tipping truck with sliding cover [4] 4 tons, fair, 5-10 years.
- Pail loader [4] good, 5-10 years,
- Open truck with tipping mechanism [1] good condition, 5-10 years.
- Open truck with crane (2) good condition, 3-10 years,
- Toilet drainer [3] good condition, 2 fair condition, 5-10 years,
- Water tanker [1] fair, less than 5 years.
- Vehicle for Administration (5) and in good condition
- Bulldozer [1], good condition, more than 10 years.

These were the responses of the 5 staff. This equipment are not adequate for the agency. 30 respondents were males, while 15 respondents were females. All the staff interviewed acquired tertiary education. The Board does not have enough staff. This affirmed that the Board has shortage of manpower. Some of the respondents stated that the Board carried out enlightenment programmes on waste management, while majority stated that NUDB's enlightenment programs were not effective. Some of the respondents stated that NUDB's enlightenment programmes against the indiscriminate dumping of wastes were effective, while majority stated that NUDB's enlightenment programmes against the indiscriminate dumping of wastes were not effective. Some of the respondents stated that the Board was partnering the local government authority and the private organizations in solid waste management in Lafia town, while some stated that NUDB was not partnering the local government authority and the private organizations in solid waste management in Lafia town. The above explanation shows that all respondents stated that the challenges facing NUDB which is inhibiting the optimal performance were all the challenges enumerated in the questionnaire. It also explained that the method of solid waste collection by NUDB was the central neighbourhood waste collection point.

The only method of solid waste disposal by NUDB was the open dump/landfill. All parts of Lafia metropolis were not accessible to NUDB's refuse collection van. Respondents were also asked whether NUDB has good policies/laws for preventing people from indiscriminate dumping of wastes. All the respondents reported that the agency has good policies/laws for preventing indiscriminate dumping of waste. They were further asked if the laws were effective. Few of the respondents stated that the laws for preventing people from indiscriminate

dumping of wastes were effective, while majority of the respondents stated that the laws were not effective. Furthermore, some of the respondents stated that the National Environmental Sanitation Day in Lafia town were observed and handled effectively by NUDB, while some stated that the exercise were not observed regularly and handled effectively by NUDB. Most of the respondents stated that NUDB does not have waste collection, storage and disposal facilities for the public., On the reasons why the Board does not carry out enlightenment programmes on waste management, 35 staff out of 45 stated that: lack of political will and poor or inadequate funding were responsible, while the remaining 10 staff gave no reason why the Board does not carry out enlightenment programs on waste management.

The reasons why there was no collaboration between the Board, local government authority and the private organizations in solid waste management in Lafia town were due to rivalry and poor communication gap between the Board, local government authority and the private organizations as affirmed by the 45 staff. The staff gave reasons why all parts of Lafia were not accessible to NUDB's refuse collection van to include:

Bad nature of the roads, congestion and over population and lack of proper or poor town planning in Lafia town.

The reasons why the laws for preventing people from indiscriminate dumping of wastes were not effective were due to: shortage of manpower [personnel] to enforce the laws, absence of mobile courts on sanitation to arrest and prosecute defaulters, poor funding and lack of proper enforcement. These reasons were given by 35 staff out of 45, while the remaining 10 staff stated that the laws were effective. The reasons why the National Environmental day in Lafia town was not observed regularly and handled effectively by NUDB were: lack of political will, poor funding, lack of synergy between government agencies, shortage of man power to effectively monitor and lack of planning and coordination to handle the exercise. These reasons were given by 40 staff out of 45. The remaining 5 staff stated that the National Environmental day in Lafia town was observed regularly and handled effectively by NUDB. The reasons why the agency [NUDB] does not have waste collection storage and disposal facilities for the public were: lack of political will and poor funding or lack of fund. These reasons were given by 40 staff out of 45. The remaining 5 staff stated that the agency had waste collection storage and disposal facilities for the

public. The total number of waste collection vehicle [van] and equipment allocated to Lafia town was 4 as affirmed by the 45 staff.

The solid waste management employed by people and the waste Management Agency in Lafia town does not help matter as wastes were being indiscriminately dumped everywhere in the city, whether designated or not. In fact, the research shows that there were 12 legal dump collection points and about 50 illegal dump sites as people dumped their wastes on any available open space and stream channels. The agency or the authority responsible for the waste management in the state capital (Nasarawa State Urban Development Board (NUDB) has not fared well, they have not collected the wastes at the appropriate time and there was poor management.

Furthermore, it can be deduced that the waste management strategy practiced by the government approved waste management agency in the area was poor and inefficient, that huge

waste dumps are found in most available dump sites at every time and much volume of refuse are constantly found littered all around the streets within the study area, with the gutters/drainages blocked with wastes causing flooding during the rainy season. It was discovered that the offensive odor emanating from such sites or the rubbish dumps in most cases resulted to depletion in the atmospheric condition and health challenges on residents of such areas. Consequently, several reasons could be attributed to the poor performance of the Board in terms of solid waste management. These include the use of simple method of waste collection and dumping it in the dump site. They had not also treated the wastes and no sorting of the waste to reduce its size. The equipment used were obsolete and inadequate. The employment of crude technology in the management does not help also.

The available manpower in the Board does not have the capacity to cope with the rate of the wastes generated in the state capital, Lafia. There were about 75-line staff for the collection of the wastes which were grossly inadequate compared to the population of the study area. The number of functional vehicles available also proved to be inadequate for the management of the waste generated in the state capital. There were about 4 vehicles (waste collection vans/trucks) which had the capacity of 7 tons per trip and can only make 2 trips per day. They were often grounded and out of service for days. These results

correlates with the works of Agaji and Wajiga (2012), Efe (2013), Igbinomwanhia (2011), and Akoni, (2007).

Conclusion

Waste management practiced in Lafia town was unsatisfactory and NUDB has not completely met its stated goal and objectives in providing services to the residents of Lafia town. This was as a result of some challenges militating against their effective and efficient performance in solid waste management. The methods, mode of waste collection and manpower responsible for evacuation of waste in the town have not performed optimally due to some factors militating against their effective and efficient performance. The agency responsible for the management of waste has been deteriorating in the discharge of their duties especially in terms of public awareness and involvement in waste management programs. Therefore, good strategies/measures need to be employed to salvage the situation.

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