

ANALYSIS OF SOLID WASTE MANAGEMENT IN KOSOFE LOCAL GOVERNMENT AREA OF LAGOS STATE

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ABSTRACT

Solid waste is a significant and growing problem in many urban areas of the Developing world. Current systems of waste management in most developing country cities are very rudimentary at best and are grossly inefficient and effective. Uncontrolled landfill disposal of solid waste is a pervasive problem which causes a range of external costs, including human health hazards. This research analyzes the solid waste management and its problems in Lagos. The research makes use of both structured questionnaire survey to the state of solid waste management activities as well as the challenges while published data from Lagos state waste management Agency as well as other published documents were used to supplement the primary data sources. It is concluded that the most fundamental requirement is an integrated regulatory framework and supporting institutions. Once this framework is established then the problems of waste management will be reduced to the minimal level.

Keywords: solid waste, systems of waste management

INTRODUCTION

The management of the solid waste is one of the challenges facing any urban area in the world. An aggregation of human settlement has the potential of producing large amounts of solid waste; the collection, transfer and disposal of such waste has been generally assumed by municipal governments in the developed world. The format varies, however in most urban areas garbage is collected either by a government agency or private contractor, and this constitutes a basic and expected government function in the developed world. Municipal solid waste (MSW) management has become a major issue of concern for many under-developed nations, especially as populations increase. The problem compounded as many nations continue to urbanize rapidly with 30-50% of populations in many developing countries now live in urban areas [Thomas Hope, 1989] and in many African countries the growth rate of urban areas now exceeds 4%. [Senkoro, 2003].

Although developing nations do spend between 20 and 40% of municipal revenues on waste management [Thomas Hope, 1998; Schubeler, 1996; Bartone, 2000], this has often been unable to keep pace with scope of the problem. In fact, when the governments of African countries were asked by the World Health Organization to prioritize their environmental health concerns, the result revealed that while solid waste was identified as the second most important problem (after water quality), less than 30% of urban populations have access to "propel and regular garbage removal" [Senkoro, 2003].

THE METHODS

The management of solid wastes in Nigeria cities particularly Lagos State, has occupied the attention of the federal, state and local government authorities for many years. Public perceptions on this issue are also expressed through the media, such as newspaper, radio and television.

The attention of policy makers has been constantly called to the effect of solid wastes, such as health hazards and potential dangers to natural resources that is, the air we breathe, water resources and land use, improper collection and disposal of refuse including toxic industrial wastes.

Since independence, Lagos has witness gradual process in growth of nation's economy through industrialization, which has made exploitation of mineral resources possible. The volume of industrial, commercial and constructional activities was further stimulated by the increase in earnings from petroleum resources. As a result, urban eaters like Ikeja metropolitan expand in size and population due to the natural increase and rural-urban migration.

Urbanization has brought about some environmental problems amongst which the solid waste management is very much significant. "A cursory of impression of fifth, squalor un-kept environment, up swept streets, accumulation of uncollected garbage at public depot of open lot all of which constitute public nuisance and eyesore and a clear manifestation of highly degraded environment" [Babatunde, 1995].

The deteriorating state of environmental sanitation in Nigeria cities and urban areas has attracted the attention of all and sundry and erratic efforts have been -made to control the situation. Some of such efforts have been the setting up of Task Forces, the Waste Management Boards, Environmental Protection Agencies, all with the motive to clear the major urban centers of fifths and squalors.

Despite all efforts mentioned above concerning solid waste management/problems, it could be concluded that not much improvement has been made towards effective control and management of waste problems in all cities and towns in the country, especially Lagos which is the commercial nerve centre with very high population density.

The primary aim of this study is to evaluate the existing solid waste management procedures so as to identify problems and find the appropriate and lasting solution to them.

On the 27th of November, the birth of the entity called Kosofe Local Government was announced with four other new Local Governments in Lagos State. Although first created in 1980 and was abolished in 1984, Kosofe Local Government was recreated along with other new councils all over the nation in line with the Federal Government's policy of bringing the new government closer to the people and as a result of the yearnings and aspirations of inhabitants. There is no doubting the fact that the birth of Kosofe is a step towards an improved welfare package for the citizens of the area. It is also a means of fostering unity among the indigenes and residents of the area.

Kosofe is located at the Northern part of Lagos State. It is bounded by three other local governments namely: Ikeja, Ikorodu and Somolu. It also shares a boundary with Ogun State. Its jurisdiction comprises of ten wards and encompasses an area of about 178.85sq/km. Its headquarters is at Ogudu road.

The significance of this study has been largely motivated by the fact that barely all the states in Nigeria, especially Lagos often lack adequate transportation and proper sanitation as well as solid waste management, all of which impede economic activities and growth.

Solid waste management is seen to be only the challenges of government that is at the federal, state and local levels. Also, it is the concern of domestic municipal, organized private sectors, non-governmental organizations and individuals etc. The outcome of this study will assist industries, municipal and domestic set-up to seek, adopt and use a more integrated, holistic and environment-friendly approach to the management of solid wastes. This will positively impact disposal cost, *reduce* environmental degradation and improve the general health of populace among other benefits.

The research method is expository and it will dwell into the practical exposition and review of the current practices of the solid waste management. In the course of conducting the research, interviews were conducted with personnel concerned in the execution of waste management laws at Kosofe local government.

Information was exhausted from the inhabitants on the effects of the solid waste management/disposal in their environment.

Information was exhausted from the inhabitant around the Ojota dumping site. The information exhausted was from people who live in the environment as residents and those who are using the environment as offices as well as people who are working around the place.

The study samples were randomly selected among the inhabitants of this environment which include the residents, Office users, and passer-bys. The population of the study covers all the ten (10) political wards of the Kosofe Local Government Area of Lagos State.

The sampling frame was based on the types of building in the area and the location of the dumping site: the high income earners who live in duplex and bungalows, and middle classes who live in flats as well as the low income earners who live in face-to-face rooming apartment.

The respondents, or responses, or information gathered from the selected people at different locations, were carefully sorted using tables and figures .To avoid ambiguity in the analysis of this data, simple percentage is used for the sake of simplicity and clear analysis of the data.

RESULTS AND DISCUSSION

Here, attempt was made to examine the physical, social characteristics of the respondents in terms of their educational status, age distribution, sex, marital status etc. and cultural environmental condition as well as the solid waste generation and disposal pattern and management practice in Kosofe Local Government Area.

Table 1. Showing the sex composition of respondents

Sex	No. of respondent	Percentage
Male	68	68
Female	32	32
Total	100	100

Source: Author's Fieldwork March (2009)

From table 1 above, males' responses are far more than females, because males are more approachable than females due to their level of understanding. Also, the demographic composition of the study area indicate that there are more males than females, out of about 100 total number of the respondents, it shows that 68% are males while 32% are females. This is in line with the National population commission result of the last census carried out in Lagos State, which shows that there are 9,115,041 males and 8,437,901 females in Lagos State.

Table 2. Showing the age distribution of the respondents

Age	No. of Respondent	Percentage
20-30	34	34
31-40	48	48
Above 40	28	28
Total	100	100

Source: Author's Fieldwork March (2009)

The table above shows that the highest number of the respondents was from ages 31-40 ranging from 20-30 with 34%, 31-40 with 48% and 40 above with 28% as the least of all.

It is obvious that, the highest percentage of respondents is of younger age group while those of the ages of 40 and above constitute just about 28%.

The major problem here is the high dependency ratio, which affect the development of the society, because much pressure will be on some basic facilities e.g. electricity, water supply and housing.

Table 3. Showing the marital status of the respondents

Status	No. of Respondent	Percentage
Single	36	36
Married	48	48
Divorced	12	12
Widower	4	4
Total	100	100

Source: Author's Fieldwork March (2009)

The above table shows that married people are the highest respondents with 48%, and then singles with 30% followed by divorcee with 12% and widowers with 4% respectively. It is obvious that most of the respondents are married men or women, some were previously married but due to some circumstance, they were either widowed or divorced.

The effect of the demography variable on the environment in terms of waste generation is that more than enough waste would be generated, because most of the respondents are from one house hold or the other and they generate different types of solid waste, which litter the surroundings, contaminate ground water, and also affect the health of the citizenry in general.

Table 4. Showing the types of environmental problems

Types of environmental problems	No. of Respondent	Percentage
Flooding	53	53
Fire	0	0
Sewage	27	27
Health problem	20	20
Total	100	100

Source: Author's Fieldwork March (2009)

From the above table, it is obvious that flooding is the most common environmental problem in the study area with 53 respondents due to the blocked and unconnected drainage channel, followed by sewage problem with 27 respondents and general health to women with 20 respondents. The implication of this is that the solid waste generated has blocked the entire drainage channel which ultimately leads to flooding.

Table 5. Showing the types of sickness common in the study area

Types of sickness	No. of Respondent	Percentage
Malaria	58	58
Typhoid	29	29
Cholera	10	10
Dysentery	3	3
Total	100	100

Source: Author's Fieldwork March (2009)

The table above shows that malaria fever is the most common sickness in the study area as a result of polluted environment with 58 responses, followed by the Typhoid fever with 29 respondents, cholera 10 respondents and Dysentery with 3 respondents which happened to be the least of all the sickness.

Residential Types and Waste Management Practice

Based on the level of this research work, focus would also be given on residential types of the study area and how the state and local government carry out solid waste generation and disposal pattern.

Type of building/dwelling design

More often, the type of housing construction is the reflection of the owners' wealth, including their architectural design. For instance, table 6 confirms this reflection in ward 8 and 9, with 65% and 68% of the total housing types which are duplex. Also, in ward 3 and 7, with 65% and 85% of the housing types are flats. Moreover, ward 7, 8 and 9 are newly developed areas lack of rooming housing types.

Table 6. Types of building/dwelling design political wards

Category	1		2		3		4		5	
	No	%	No	%	No	%	No	%	No	%
Duplex	1	4	2	8	3	12	13	12	3	12
Bungalow	4	16	4	16	6	24	15	20	3	12
Flat	5	20	5	20	15	60	15	60	6	24
Rooming	15	60	14	56	1	4	2	8	12	52
Others	-	-	-	-	-	-	-	-	-	-
No of respondents	-	-	-	-	-	-	-	-	-	-
Total	25	100	25	100	25	100	25	100	25	100
Category	6		7		8		9		10	
	No	%	No	%	No	%	No	%	No	%
Duplex	1	4	3	12	15	60	16	64	-	-
Bungalow	2	8	2	8	-	-	-	-	1	4
Flat	1	4	1	8	10	40	9	36	2	8
Rooming	21	84	-	-	-	-	-	-	21	84
Others	-	-	-	-	-	-	-	-	-	-
No of respondents	-	-	18	12	-	-	-	-	1	4
Total	25	100	25	100	25	100	25	100	25	100

Source: Author's Fieldwork March (2009)

Hypothesis Testing on the Relationship between Dumping Sites and Health of Residents

The hypothesis is to show whether or not, the location of the dumping site contributed to the type of sickness of the respondents.

The hypothesis also carried out using the chi-square i.e. $X^2 = (O-E)^2/E$

Where O = observed frequency

E = Expected frequency

Df = Degree of freedom (N-k)

Therefore, Ho: That the location of the dumping site does not contribute to the type of sickness affecting the respondents.

Ha: That the location of the dumping site contributes to the type of sickness affecting the respondents.

Table 7. Showing the present health condition of the respondents

Ratings	0	E	(0-E)	(0-E) ²	(0-E) ^{2/E}
Malaria	58	25	33	1084	43.56
Typhoid	29	25	4	16	0.64
Cholera	10	25	-15	225	9
Dysentery	3	25	-22	484	19.36
Total	100	100	0	1814	72.56

Source: Author's fieldwork March, 2008

$$\text{Mean} = 100/4 = 25$$

$$\text{Df} = (N-K) = 5-1 = 4$$

$$X^2 = (0-E)^{2/E} = 72.56$$

At 4 degree of freedom (df) using 0.05 level of significance chi-square (X^2) table = 9.49.

In the analysis from table 4.6, the hypothesis was tested at 0.05 level of significance with a 4 degrees of freedom, hereby making us to reject the null hypothesis that location of the dumping site does not contribute to the type of sickness affecting the respondents.

Which implies that residents of the study area will suffer from various ailments ranging from malaria, typhoid fever, cholera, to Dysentery?

Agencies Responsible For Solid Waste Management

LAWMA is the main solid waste disposal agent that is responsible for the effective management of the solid waste in the study area, though the Local Government helps in the coordination of the PSP programmed.

From the responses of the overall interview conducted and findings from the local government officials, one of the responsibilities of their establishment is to collect and dispose off the solid wastes generated by the public and to keep the environment clean.

Section 7 of the fourth schedule of 1999, Nigeria constitution stipulates; "that one of the main function of local governments in Nigeria is the provision and maintenance of public convenience and refuse disposal". The guidelines identified a number of functions which should be carried out by the local government council, some of these functions are:

- Sanitary inspection
- Refuse and solid disposal.

In this wise, the department of health of the local government (i.e. health environmental service section of the department) is saddled with the responsibility of collecting and disposing solid wastes in the areas of jurisdiction.

Table 8. Showing the number of personnel available for solid waste management in Kosofe Local Government Health Environmental Services Section of the Health Department.

Staff	Permanent staff	Grade level	Casual/probation
Chief health environmental officer (C.H.E.O)	1	14	-
Asst. Chief Health Environmental Officer (A.C.H.E.O)	2	13	-
Principal Health Environmental Officer (P.H.E.O) I	5	12	-
Senior Health Environmental Officer (S.H.E.O)II	7	10	-
Higher Health Environmental Officers (H.H.E.O)	15	9	-
Health Environmental Officers	18	8	-
Health attendants	157	-	Some were yet to be confirmed as a result of that, they are yet to serve for 2 yrs (Figure not ascertained_
Total	205	66	

Source: Author's Fieldwork March (2009)

The entire above mentioned are far from being effectively accomplished by the local government. It is evident from the presence of solid wastes in the city especially at the water transferred depots which serve as disease formatting spots, home to infections, mosquitoes and emanating offensive and unhealthy stench.

The Local Governments do not have facilities to manage particular wastes generated by the industries and hospitals but nevertheless, LAWMA handles it.

In the meantime, the public were enjoined by the same administration to the middle of the road again as it was obvious that it was not effective. So, private sector participation (PSP) operators were registered by local governments and the public were forced to patronize and failure to do so would attract fine. In order to enhance the efficiency of the new Policy, Kick Against Indiscipline (KAI) Brigade was launched, who are to police the public to comply with the existence of environmental health free control zone in the state.

Problems Faced By Local Government in Managing Waste

The council officials lamented about the inadequate provision of equipment facilities and needed welfare support for staff members in order to have smooth operations and the expected target for the better environment could be achieved.

Invariably, there cannot be any meaningful solution to solid wastes disposal problem being faced by Kosofe local government and Lagos metropolitan in general unless the problems of manpower shortage, equipment are firmly addressed.

Further enquiries revealed that in order to address the issue, environmental sanitation protection should be re-introduced under higher level of seriousness. Governor Ahmed Tinubu civilian Administration has re-launched the environmental sanitation day in Lagos during his tenure with the aim of alleviating disposal hazard in the state.

Some of the problems being faced are listed as follows:

- a. Inadequate disposal vehicles and implements
- b. Shortage of staff
- c. Poor funding.
- d. Unavailability of heavy machines/plants such as bulldozer, caterpillars, excavators, pays loaders etc.
- e. Incorporation attitude of the public toward the sanitation exercise.
- f. Self-unconsciousness or non-chalet attitude of the public towards environmental cleanliness.
- g. In fact, the available heavy plants are functioning below capacity due to lack of maintenance syndrome of the concern authority. This also applies to all others factors of the problems mentioned and not mentioned here by the author.

CONCLUSION

For decades, man has regarded solid wastes as more of a nuisance and personal problem rather than a major public problem requiring critical solution. With the on-going strengthening of local governments in terms of manpower and financial allocations, it is hoped that the problem could be re-examined and given proper attention. This study is merely an effort to encourage policy makers and the public for possible construction of larger-scale waste disposal sites, so as to help them in the search for permanent solution to the solid waste problem. Solid waste has both positive and negative implications and some effects have been identified while others have not.

The way to take the advantage of both sides is to think and plan and then act in a holistic manner. A wide gap already exists between the fiscal and ecological cost of supporting urban development in its present context and resources required to sustain it. Urban planners and policy makers need a broad analytical framework in assessing urban investment such as:-Large-scale land disposal facility, a broad socio-cost benefit analysis, integrated principals of ecological and economic sustainability and the principle of financial viability.

Conclusively, while it is realized that there are many legal, social, economic, administrative, technical and financial constraints, which have to be overcome before all of these recommendations and proposal could be put into effect, it is believed that our government (Local, state and federal) and even the entire public could realize the endeavor. "No price is too great for obtaining a clean and healthy environment".

Genuine efforts should be made to overcome these constraints or else the dangers of environmental degradation via solid wastes generation will not be averted in this country, particularly in a metropolitan city like Lagos.

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