

**DOMESTIC AND MUNICIPAL SOLID WASTES GENERATION AND MANAGEMENT
IN LAGOS STATE
(A CASE STUDY OF OJO LOCAL GOVERNMENT AREA)**

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ABSTRACT

Increased generation of Domestic and Municipal solid wastes has been linked to an increase in population as well as unhygienic ways of living by the citizenry. This has invariably resulted to indiscriminate methods of wastes disposal. And for a developing country such as Nigeria it is very important to effectively manage these generated solid wastes on a daily basis to avoid impending environmental catastrophe. Apart from the fact that Ojo Local Government has highest population in Lagos state (1,011,808), other factors like Market locations (both international and local), conversion of residential buildings for commercial purposes and methods of wastes disposal and storage devices adopted by the people of Ojo have been identified as responsible for poor wastes management in the area. This work discusses Historical and legal perspective of waste management in Nigeria, Law dealing with the Environment in Nigeria, techniques involved in solid waste management as well as various activities of Government (State and Local) toward effective solid waste management. Recommendations are made which, when adequately implemented would go a long way in creating a safe, healthy and friendly environment.

INTRODUCTION

All human activities give rise to residual materials, which are not of immediate use where they arise. These residuals may be recycled, reclaimed or reused; otherwise they constitute waste, which will ultimately be released to the environment. In this wise, as we become urbanized, we generate larger amount of wastes than ever before. As a result of this, our towns and cities are faced with solid waste problems (Osuji, 1994; Akpati, 1999).

During the past two decades Nigeria Urban Centres have continued to grow in terms of population and to expand in size. Despite this growth, there has been no effort until recently to control and manage the largest cities. Increasing population combined with the impact of the increase in earning capacity of individuals has led to rising levels of consumption. The consequent increase in the generation of waste have etched visible trail of blight that has left few corners of Nigeria untouched and have resulted in a degradation of the cityscape and unhealthy living conditions. The scenery of garbage and refuse is repeated across the entire nation: on streets and major newly constructed highways, in gutters and on thousands of dumps scarring Nigeria cityscapes and solid wastes openly has been a constant cause of visual and environmental pollution. This resembles the environmental condition defined by Falomo (1995), as a counter-balance in nature.

Wilson (1981), defined solid waste as a residual which has negative effect on man and the environment if not properly disposed, while W.H.O Expert Committee (1971) and American Public Works Association (APWA, 1970) defined solid waste as the useless, unwanted or discarded material that arises from man's activities and are not free-flowing and should therefore be taken away from his environment. Solid waste, also called refuse comprises rags, garbage, and leaves, plastics, metal etc (Nwachukwu, 1998).

Due to peoples' attitudes to cleanliness, refuse could be seen around towns, littering everywhere a source of environmental pollution. Improper solid waste disposal has serious effect on the health of individuals. The outbreaks of waterborne diseases and the threat of flood are some of the implications (Adamson, 1971).

Dangerous garbage dumps surround Lagos, Nigeria's most crowded city with about 10 million people. Like the scenario in Ibadan, polychlorinated Biphenyls (PCBs) was found in the massive dumpsite along Oshodi-Oworonshoki expressway where the Lagos State Waste Disposal Board by 1991 commercialized the generation of a mountain of refuse already reaching the sky. PCBs that destroy people's organs were also found at the Isale-Eko/Adeniji Adele dumpsite around where Lagosians are now building edifices with satellite dishes a symbol of affluence in Nigeria.

Moreover, efforts by Federal, state and Local authorities have not yielded much result in combating the menace of waste generation, as refuse has remain a permanent feature along city roads. On many occasions, some streets are taken over by refuse especially Lagos metropolis. It is against this background that the study examines Domestic and Municipals solid waste Generation and Movement in Lagos state using Ojo local Government as a case study.

Lagos State and Its Resources

Lagos State which lies predominantly within the Coastal state stretches from the Nigerian-Benin boarder (L2^o 34' 00E) to east of the Village of Agwerige (L4^o 19'00)) where the Nigerian coastline starts its southward inflection. Lagos State covers an area of three thousand, five hundred and Seventy seven (3,577) square kilometers which represent 0.4% of Nigeria's land mass (Sridhar, 1999).

It is the smallest of the 36 states in the country and yet, it is the heavily industrialized. It has Twenty Local Government Areas and an estimated population of Five million, six hundred and Eighty-five thousand, seven hundred and eighty one (5,685781) even though the real population is believed to be Ten million. Compared to the National average of population density of one hundred person per square kilometers, Lagos has about Two thousand, four Hundred persons per square kilometers. At least Four Local government Area (Lagos mainland. Mushn, Oshodi/Isolo and Surulere) has Fifteen thousand persons per square kilometers.

There is no dispute in sayings that Lagos state is Nigeria's most Industrialized state (Smith, 1985). It accounts for over 60% of the Federation's total industrial investment. The latest edition of Nigeria Industrial Directory published by the Manufacturing Association of Nigeria in 1994 classified the various industries into 10 sectoral groups. They are: Food, Beverages and Tobacco Chemical and Pharmaceutical, Domestic and Industrial plastics and rubbers, Basic metals Iron and Steel and Fabricated metal products, pulp paper printing and publishing, Electrical and Electronics Textile wearing apparel and Leather, wood and wood products motor vehicle and Miscellaneous assembly. There are about Two thousand and two industries in the state distributed by about Eight Zones (AIM Consultant, 1997). Of these zones zone one (Ikeja Ogba, Ojodu, Ketu, Gbagada, Oworonshoki has the largest number (508 or 25%) of industries , zone two (Agege, Alimosho Ipapja, Akowonjo, Idimu) has 16% an zone four (Oshodi ,Ojo, Shogunle, Ejigbo, Isolo,Ilasamaja, Festac) has 15%. Lagos, like any major urban center is plagued with problems of wastes from human, trade and industrial activities. Going through the areas of ojo Township, both the core areas such as Ajangbadi, ojo Ijanikin, Sabo-oniba, Iba; and nearby developing areas such as Ishasi, Iba new town Igbo-elerin, Ije-dodo; it was observed that refuse has over spilled from their dump sites on to the street.

HISTORICAL AND LEGAL PERSPECTIVES OF WASTE MANAGEMENT IN NIGERIA

One natural thing in the scheme of things is the consumption and discardment of waste products. Thus when human beings consume food or drink water, the unused portion leaves the body through the natural outlets in the human body. In the course of production, industries use the needed portion of raw materials the unnecessary portion is discarded as such is regarded as waste materials. Unless such waste material is properly managed, it may constitute menace. It may constitute health hazard. The consequences may be catastrophic (Yakubu, 1988).

Historically, prior to the advent of western civilization, waste management was basically unknown, waste disposal was the basic idea. There were no industries to emit pollutants, dumps were provided in various places in the villages and towns cities such as Ibadan, calabar and Port Harcourt were cleans and beautiful (Falomo, 1995). With the advent of western civilization and the establishment of local government system, Health Inspectors were employed for the purpose of ensuring cleanliness. It should be pointed out that most Nigerian Villages cultivated the habits of sweeping their environment on daily basis. The common dump according to Yakubu (1998) was used as "safe" areas or "safe" method of disposing wastes. One problem with this approach was that such places were open and since most of these dumpsites were not far from the inhabited areas, diseases were commonplace.

Nigeria moved from beings a federation of three regions (1963), to Twelve state (1967), then to Nineteen states (1976), thirty states (1992) and to thirty-six states (1996). The capital of each of the new states becomes "variable

urban magnet" attracts thousands of people from rural areas and the small town. With increase in generation of solid waste there is no corresponding increase or improvement in the effective management of solid waste. The issue of waste management generally is thus very important. This is because unless concerted efforts are made to tackle this problem frontally, it may result in grave consequences on human beings. The Koko incident of 1988 is a sour reminder in this regard (Yakubu, (1998).

In relation to Nigeria, the koko dump incident of 1988 opened the eyes of Nigerian to the menace of wastes. In consequence of this, the Federal Environmental Protection Act was put in place. The National policy for the protection of the environment was also formulated. Regulations were made for the purpose of giving effect to the provision of the Federal Environmental protection Act (FEPA). States and Local Government are enjoined to be partners in progress for the purpose of protecting the environment and the well being of Nigerians and foreigners alike.

Before independence, issues relating to the environment were treated under common law. Thus any complaint could sue for nuisance or negligence. The civic or tortuous action is basically privatized. The victim of the pollutions is rarely compensated mainly because of the paternalistic approach of the courts or the idea of public nuisance, since a private person cannot pursue a private action in respect of public nuisance unless he can prove that he has suffered special injury.

A pollutant can be liable in criminal law. For example, section 245 of the criminal code provides that "Any person who corrupts or foul the water or any spring, stream, well, tanks, reservoir, so as to render it less fit for the purpose for which it is ordinarily used, is guilty of a misdemeanor, and is liable to imprisonment for six months"

Item 3.6 of 1989 Edict on the National Policy on the Environment, which deals with sanitation and waste management states:

"environmentally sound management of waste requires an understanding of the range of treatment, disposal and re-use options available for sanitary and industries effluent, raw domestics waste and storms water. In order to ensure that improper handling and disposal of waste do not led to the spread of disease and the pollution of land air and water; priority shall be given to the environmental studies of industries effluents as well as the variety of solid and liquid wastes generated in the various ecological zones of Nigeria. Appropriate guidelines shall be introduced for their collection"

More so, in 1991 steps were taken to regulate environmental pollution control in Nigeria (Yakubu, 1998). This was done according to Yakubu (1998) through Government Notice. It is tagged "National Guidelines and Standards for Industrial Effluents, Gaseous Emissions and Hazardous Waste Management in Nigeria". The preamble states the objectives of the Governments. It states:

"Whereas, the Federal Government of Nigeria established in 1988 the Federal Environmental Protection Agency to protect restores and preserves the ecosystems of the Federal Republic of Nigeria:

NOW THEREFORE, the Agency, in consonance with its power under the Decree establishing it manufacturing industries in order to improve the quality of the environment and free it from pollutant and other environmental hazards, the national guidelines and standards for industrial effluents, gaseous emission and hazardous wastes, specified in the schedule hereto until regulations are made on related maters to replaces them"

Whatever has been the doubt with respect to power of the states and local governments in relations to environmental issues, such has been removed by the Federal Environmental protection Act. Section 24 of the Act provides:

“The minister shall as soon as possible after the commencement of this Act encourage states and local government councils to set up their own Environmental protection bodies for the purpose of maintaining good Environmental quality in the area of related pollutants under control subject to the provision of this Act”.

The National Policy on the Environment 1989, in item 6. 0(C) makes it a constitutional duty of governments-Federal, State and Local-to safeguard the environment and aspire to have a safe and healthy nation.

METHODOLOGY

In order to obtain the necessary data base, the following steps were taken

- I. **Primary source:** This involved the administration of questionnaire designed through direct interview. This first set of questionnaire was directed to the residents/ landlords and commercials / industrial establishment to determine among other things, the use of the building, number of household per building, number of persons per household / establishment. Others include types of solid waste generated storage of wastes and its location as well as the willingness of the people to pay for waste collection and disposal and preference for private/public sector participation.
- II. **Secondary source:** This is information or data gathered from the published and unpublished studies in recent time. These include information from journal; reports and seminar papers on various methods of refuse collection and disposal system.

The generation and management of solid wastes are both independent and dependent variables respectively; they were applied in the determination, as part of the objectives in this study for the primary data. Each respondent questionnaire was taken with its frequency and the levels of agreement were determined. The percentage points were used to determine the average levels of response to each question in respect of the primary data.

RESULTS

Data Analysis and interpretation

Table 1 Number of households per building

Building	Number of household	Percentage
i. Residential	460	40
ii. Residential / Commercial	255	23
iii. Commercial / Business	243	21
iv. Recreation	49	4
v. Circulation /motor pack	137	12
TOTAL	1144	100

Table 1 shows that a total number of one thousand one hundred and forty-four households were found in two hundred and twenty-five building sampled.

Table 2. Solid waste generated by respondents

Composition	Volume (kg/wk)	Percentage
i. Food waste	144	22.4
ii. Paper/Packing material	88	13.7
iii. Plastic/Rubber product	86	13.4
iv. Wood paper	81	12.6
v. Broken glass	73	11.4
vi. Tin cans	110	17.0
vii. Textile	61	9.5
Total	643	100

Table 2 shows that two hundred and twenty-five respondents showing an average of 2.86kg /wk /respondent generate average of six hundred and forty-three kilograms of solid waste per week.

Table 3 Solid waste storage devices

Type	Number available	Percentage
i. Drum/Metal containers	18	3.9
ii. Plastic buckets	125	27.2
iii. Polythene bags/Cardboard cartons	168	36.5
iv. Woven/ Raffia basket	77	16.7
v. Skip container	72	15.7
Total	460	100

Table 3 shows that six types of solid waste storage devices were identified the sum of which is four hundred and sixty. In approximation, it implies that a building contain at most two storage devices which to the standard is very small compare to the amount of waste generated.

Table 4 Adopted waste management methods

Method	Respondent	Percentage
I. Open dump ground	45	20
ii. Vacant land	57	25.3
iii. Bush nearby	72	32
iv. River and stream	18	8
v. Public drain	21	9.33
vi. Burning inside bins	7	3.11
vii. Refuse depot / transfer station	5	2.22
viii. Incineration	-	-
ix. Landfill	-	-
TOTAL	225	100

Table 4 shows that Non of the respondents uses neither incineration nor landfill site. It was observed that wastes are just dumped indiscriminately without considering the health implication.

SUMMARY OF FINDINGS AND CONCLUSION

In the course of this study the following discoveries were made

1. Ojo Local Government has the highest population in Lagos state
According to census (1991), Ojo has population of one Million, eleven thousand, eight hundred and eight, confirmed by Odumosu, 1999.
2. Markets are located everywhere in Ojo local Government. Among these are Alaba international market Alaba rago ojo market and Ijanikin market these markets especially Alaba international market attracts both foreign and indigenou customers.
3. As a result of various transactions wastes especially solid waste are generated in the market place at home and various motor parks.
4. Wastes generated are either dumped at night, early in the morning or in the evening.
5. Wastes generated are either dumped at vacant land or bush nearby or dumped in the Rivers, stream or public drain

6. Most of the Buildings in Ojo Local Government is either used for residential purposes or for both Residential land commercial purposes thus increase the chances of generating more wastes.
7. It was established that in residential buildings, more that enough people reside in a room. In some places about four to five people are found of have occupied a room.
8. Food wastes, Tin cans wood waste and broken glasses are among the solid wastes mostly generated in Ojo local government.
9. The storage devices mostly adopted are polythene bags / Cardboard's and plastics buckets.

CONCLUSION

Matters on effective waste management issues in Nigeria have not been helped by lack of necessary facilities, fund and commitment. There is need for a comprehensive national policy regards this to be closely monitored by ministry of Environment. Implementation of such a policy will involved the government at all levels working closely with the private sectors, all for the sakes of healthy environment i.e. a common vision.

Effective management is therefore, essential for sustainable development as it serves an essential tool for development and sustenance of a healthy future. Government should also step up action areas that could enhance early appreciation of waste management ideas in primary, secondary and post secondary schools by including "basic environmental management" in the school curriculum. By this the Government will be creating a field of common experienthat will on the long run make environmental management a familiar practice.

The environment is too complex and large to be left in the hands of the Governments, private sectors or individual alone. The successful management of our common heritage, the environment, is totally dependent on the co-operation and participation of all and sundry. Therefore, we must evolve waste management options that will include waste reduction, recycling, composting, storage, collection, transfer stations, incinerators and finally landfills. Should we fail to come up with and operate a waste management policy for sustainable development of our nation, we would be faced with self- destruction.

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