

# SUSTAINABLE REFUSE MANAGEMENT SYSTEM FOR NIGERIAN TOWNS AND CITIES

*Ohiaegbunem Emmanuel Ifeanyi.*

## **Abstract**

This paper deplors and condemns the inefficiency characteristic of refuse management in Nigerian towns and cities which it tries to substantiate by conducting refuse heap counts in three towns in Edo State. It reviews the woeful experiences of some states within the country, predicting that even the latest arrangements for refuse management in these states will suffer the same fate with the previous ones as they have started with the same mistakes that characterized the previous ones. It notes that the absence of clear-cut policy specifying how refuse management agencies across the country should be financed has led to their collapse after few years of their emergence. Previous refuse management projects across the country were isolated projects as they were not based on any comprehensive planning. There were no plans on how to meet the personnel cost, capital expansion and depreciation costs, so that the projects were not sustainable. The paper concludes that what is needed is a sustainable refuse management system and rounds up by suggesting ways by which refuse management programme in Nigeria can be made sustainable.

## **Introduction**

Current medical practice in accordance with the adage which says that prevention is better than cure places emphasis on prevention of diseases. It takes curative measures only as the last resort. In line with this principle is the prevention of environmental degradation through proper refuse management. This is because one of the greatest pollutants of man's environment today is refuse. It is therefore the contention of this paper that one of the ways of preventing pollution-related diseases is through proper management of pollutants such as sewage, dust, carbon, heat emission from both industrial and residential chimneys, emission of poisonous gases from various factories, etc. But the focus of this paper is refuse management. It is felt that the time has come to find a lasting solution to the problem of refuse management which had defied various attempts to solve it by successive governments.

It is the belief of this paper that something important is missing from various approaches hitherto adopted for tackling this problem and that missing thing is the sustainability concept. This concept, which in the nutshell, means ability to satisfy today's need without jeopardizing that of the future had never been considered in the conception of the previous refuse management projects in this country and that explains why they collapsed shortly after their commencement. It is hoped that the solution to this problem lies within the sustainable development concept from where the title was fashioned out.

The paper will briefly examine the meaning of refuse, X-ray refuse management problems in Nigeria using three towns in Edo State as examples and thereafter consider the current refuse management approaches in Nigeria. It will later highlight what is entailed in the sustainability of any project before it finally attempts what sustainable refuse management for Nigeria should be.

## **Refuse**

Refuse simply refers to solid wastes. It is solid wastes resulting from normal community activities. Viewed from the refuse origins perspective, it includes solid wastes generated from residences (domestic wastes), industrial wastes, wastes generated from commercial areas, wastes generated from institutions such as schools, hospitals, etc, street refuse and demolition or construction wastes. Another way of classifying refuse is that based on the nature of the materials contained in the refuse. Here, refuse could be classified as organic or inorganic, combustible or noncombustible and putrescible and nonputrescible materials. Yet another way of classifying refuse is on the basis of the kind of materials found within it. Such classification distinguishes between garbages, rubbish, ashes, street refuse, dead animals, abandoned automobiles, industrial wastes, demolition wastes, construction wastes, sewage solid wastes and hazardous special wastes such as nuclear wastes (Dechiara and Kopelman, 1994).

There is however no better method of classification of refuse as any classification method chosen depends on what the classifier wants to achieve through the classification.

That there are refuse management problems in Nigeria is an obvious fact. Whereas it cuts across the rural and urban landscapes, it looks more of an urban problem than rural. The reason for this is that whereas within the rural setting, refuse dumping site can be easily afforded as the land value is low, the urban land is tightly built and the value is very high. The urban dwellers can hardly afford sites for refuse dumps except for transfer stations wherein the refuse must be removed and regularly top. The refuse dumping sites are designated in the rural areas which easily blend harmoniously with the rural land uses. On the contrary, in the urban centres, such refuse heaps left by the sides of other land uses (residential, industrial, commercial, circulation, etc) constitute a nuisance. Around the market places within the urban centres, the ugly sights of these refuse heaps menacingly provide the breeding places for vermins, apart from the nauseating odour emanating from within them. Even cases abound where the refuse heap covers the street right of way.

Alarmed at this phenomenon, refuse heap counts were conducted by the author in 1998, for three towns, Ekpoma, Uromi and Auchi in Edo North, The number of refuse heaps counted is shown in Table 1.

Table 1 (Distribution of refuse heaps across Ekpoma, Uromi and Auchi)

TOWN	No of refuse Heaps
Ekpoma	228
Uromi	155
Auchi	222

Source: Field survey conducted by the Author, September 1998.

As if to check the current status of this problem, the same survey was repeated for Auchi' in April 2004 and 300 heaps were counted, which is a pointer to the fact that the problem is still there.

The same ugly scene of streets dotted with refuse heaps, streets littered with empty water sachets, garbages, etc., characterizes towns and cities in Edo state and the entire country. Going through the thirty-six states of the federation, what one finds is either the total absence of the refuse management agency or in some states where they exist one finds inefficiency. These states ascribe this inefficiency to lack of fund and technical capacity. Just recently, NDDC (Niger Delta Development Commission) acquired and distributed refuse bins and machineries to the oil producing states for proper refuse management in the major towns in these states. Whereas this is a gratifying gesture, one wonders how long they will last.

This state of affairs which runs across the entire country calls for a serious and sincere search for a sustainable refuse management system for this country. This paper will contribute its quota in this search for sustainable refuse management system.

#### Current Approaches To Refuse Management In Nigeria

Up till today, apart from the promulgation of the environmental sanitation Decree in 1983 by the then Federal Military Government of Nigeria, there is no uniform articulate organizational and administrative instrument for refuse management in Nigeria. The results of the absence of any clear-cut policy on refuse management is that the organizations responsible for refuse management in the major metropolises lack terms of references, strength, adequate financial resources and public acceptability. The emerging towns and cities, for examples, the state capitals and Local Government Headquarters have no enduring refuse collection and disposal agency that can stand the test of time.

To attest to this, up till the end of the year 2003 no town in Edo and Delta states had any refuse management agency comparable with Lagos Waste Management Authority (LAWMA) or Ibadan Waste Management Board. It was recently that Edo State Government pronounced the establishment of the Environmental and Waste Management Board. Just recently too, Niger Delta Development Commission (NDDC) acquired refuse bins and machineries for refuse management and distributed them among the states within its area of operation. Delta and Edo states benefited from this gesture. But the acquisition of such equipments is not new in this country as will soon be revealed from the cases of Lagos, Ibadan, etc, just about to be reviewed. The crucial issue is whether they can stand the test of time since they are isolated projects. They are not based on any comprehensive planning and as such are not going to be sustainable.

According to Okpala (1986), the much that exists in the nature of institutional or organizational framework for environmental (solid waste) management is still in a state of flux. According to him, even though refuse management is constitutionally a local government function, in several states in Nigeria, it is difficult to identify with certainty, any agency whose responsibility refuse, management is. The municipal governments recognize and accept as their responsibility, refuse management, but will always attribute their inefficiency to inadequate funding and shortage of technical facilities and expertise.

Some states however, tried the use of semi-autonomous and state-wide refuse management boards. Such states include Oyo, Lagos, Imo, Sokoto, Kaduna, Kano, and Gongola. The experiences of some of these

states are reviewed hereunder.

In Oyo state refuse management was initially the function of the metropolitan Government. This continued up till the end of 1972. In 1973, it was transferred to the state owned Waste Disposal Board which collapsed a short while after its birth because of lack of clear policy on how it should be financed. With its failure, this task was again returned to the municipality. In 1982, the state government created a new Ministry of Housing and Environment, which then took over the refuse management issue again from the Municipal Government. The Ministry then created the state-wide refuses disposal board, which has up till now not helped the matter much.

The state-wide refuse disposal board has not achieved much as the refuse problem still remains where it is. The best it has done is to license the private refuse collectors for designated areas. Even the entire Ibadan city is not covered as some areas have not got licensed collector and that apart, the disposal method leaves much to be desired as it does not meet the environmental management standard.

The experience of Lagos state is not without the woe that characterized that of Oyo state. In 1981, Lagos state government took over the solid waste management and storm water drainage of the metropolitan Lagos. These projects were financed by the World Bank. Out of the \$164 million (one-hundred and sixty four million dollars) received for these projects, \$63m was earmarked for solid waste management. The responsibility for refuse management was left with the Lagos State Waste Disposal Board. This Board was later succeeded by the Lagos Waste Management Authority (LAWMA). Initially, there was a noticeable improvement in solid waste management in Lagos as a result of the operations of this agency until wear and tear set in on her equipment. By 1991, LAWMA's equipment and facilities became unserviceable as there was no fund for depreciation. The fees collected by LAWMA and the contributions of the state and local governments were too small to save the situation. That apart, there was inefficiency in the financial management of LAWMA. By 1993, only 40% of her equipment was working and as such only one third of the city's waste could be collected {Okpala, 1986}. As for now, a new arrangement is on the ground for the effective refuse management in Lagos, following the failure of the former one.

In this new arrangement, some private companies were licensed to collect refuse from households in return for their fees. These licensed companies are supposed to deposit same at the designated disposal sites for LAWMA to dispose of. The issue now at stake is that if no measure is taken to avoid the mistake of the past, the new arrangement will suffer the same fate with the former ones. The reason for the fear of this apparent collapse of the new arrangement is that within it, no mention has been made of capital depreciation and expansion.

Yet another case examined here is that of the defunct Gongola State (the current Gongola and Adamawa States). Refuse management in this state in the early 1980's was the responsibility of Gongola State Urban Planning and Development Authority (GSUPDA). GSUPDA had very meager finance and as such depended on the state budgetary allocation. That apart, she had no adequate staff to cover the sixteen local government headquarters. Refuse management was as a result of this transferred to a special Task Force on Sanitation in 1985. The staff and equipment of GSUPDA were therefore handed over to this task force. In May 1994, refuse management was again transferred from the Task Force to the Environmental Protection Agency (EPA). The staff seriously objected to this incessant transfer. In reaction to this objection, the two states, Gongola and Adamawa which were created out of the former Gongola State shared the equipment already procured for solid waste management to the Local Governments and handed refuse management in their area of jurisdiction over to them (Okpala, 1986). Refuse management is the responsibility of Local Governments as is generally accepted. This was also enunciated by the Local Government reform of the Federal Republic of Nigeria in 1976. It is in the area of translation of this enunciation into practical reality that problem arises.

The local governments, whose responsibility refuse management is, are not alive to it as they are too financially incapacitated. In fact, refuse management throughout the 36 states of the federation leaves much to be desired. The streets are littered with empty water sachets, empty food sachets, wrappers, yams and cassava peelings, etc and in some places, particularly around the market squares, the sight of refuse heaps is fearful. The search for a sustainable refuse management system for Nigeria can never be more necessary at any other time than it is now.

### **Sustainable Refuse Management For Nigeria**

The experiences of LAWMA, Ibadan City, and Gongola State, earlier reviewed have shown that lack of explicit policy specifying the responsibilities of the three tiers of the government (Federal, States and Local) has in no small measure crippled the solid waste management in the country. Such institutional problem had often led to a situation where it was not clear who out of the three levels of government should finance refuse management. It had also, on the other hand, led to a situation where refuse management was left with the

local governments who in most cases are too financially incapacitated to carry out this function. Very often too, in the bid to resolve this stalemate, the state governments had often moved the manpower and equipments for this responsibility incessantly from one agency to the other, a phenomenon bitterly resented by the people moved. Even younger states whose cases were briefly discussed leave much to be desired as they did not learn any lesson from the experiences of the older states.

The first and right step in the search for a sustainable refuse management system is the formulation of explicit policy which should spell out the shares of responsibility of refuse management among the federal, States and local governments, and even the private concerns, where necessary. To remove this institutional bottleneck, federal government's involvement should be limited to the promulgation of the enabling law specifying not only the powers and limitations of the three tiers of the government and the areas where the private sectors should participate, but also the rights, privileges and responsibilities of individual property owners and that of the households dwelling in them. Federal government has to leave out the implementation of refuse management except, through certain agencies such as her housing and property authority, etc, to the state and local governments. This is in line with the World Bank Report (1996) which states thus:

.. The Federal Government not only formulates policy, but also executes infrastructure projects through various agencies. State government often implements medium size works including roads, drainage and water supply. Legally Local Governments are responsible for all types of urban infrastructure and services within their areas of jurisdiction .....

According to the same report, those infrastructure with economies of scale, wider geographical scope or technical complexity require state involvement while services that are relatively simple and can be provided economically in decentralized units, such as drainage, sanitation and solid waste management are best handled by the local government.

In this regard, therefore, the local government should be responsible for refuse collection and disposal. Both federal and state governments should join hands together to find ways of building into the local governments, adequate capacities to enable them handle this responsibility effectively. The state governments should, apart from strengthening the local governments both financially and technically, leave refuse management responsibility for the local governments because the state is too wide and too populous for the state government to be involved in refuse management. That apart, the technology required for solid waste management is simple enough for the local governments to acquire if adequately empowered.

When the legal power to carry out the refuse management is the exclusive reservation of the local government, the institutional ambiguity surrounding this responsibility must have been removed. The next issues in this question of sustainable refuse management include the promotion of efficiency, adequate coverage of the area of jurisdiction and the longevity and growth of the refuse management agency. What is important here is that whatever agency or arrangement is put in place by the local government for her refuse management continues to live as long as the local government and grows by size and strength at the same rate with the respective local government. This is necessary to enable them cope with their increasing responsibilities following the spatial expansion of the towns and metropolises. It should be energetic enough to be able to carry out this responsibility efficiently. Growth here means capacity expansion to cope with the expansion of the area of jurisdiction. Also to be energetic means to possess all the resources, including finance, human or material, needed to cope effectively with its task. The issue of finance here is paramount for obvious reasons. Equipment procurement and maintenance, staff remuneration and capacity expansion as the area of jurisdiction grows all need large financial outlay. A sustainable refuse management should after the initial take off grant, have adequate source of revenue for the aforementioned necessities. Whereas the founding government should not leave it to die away, it should not constitute itself into a waste pipe draining away fund. Once the government has financed the successful takeoff of the project, it should be capable of self sustenance from then. It should at least be responsible for capital expansion and depreciation and fifty percent of staff salaries, training and retraining (personnel cost).

According to the World Bank Report (1996:43), for any urban infrastructure project to succeed, it must possess the following qualities: *Autonomy* (the ability of the provider to operate professionally, free from undue political interference); *Commercial orientation* (This means the

willingness of users to pay and the provider to charge for services); *Accountability* (This implies the ability of the public and government to sanction the provider if services are inadequate) and *the existence of a supportive framework of laws and regulations and the capacities to implement them*. These conditions strongly suggest active participation of the private sector in the provision of urban infrastructures. A sustainable refuse management should therefore possess the aforementioned qualities. The private sector should be involved in refuse management and users have to pay for their service. Sustainability could be achieved if private companies are licensed to collect refuse from properly delineated areas in return for adequate fees from users. Such fees which should be properly accounted for should consist of two parts, viz-collection fee and capital expansion and depreciation fee. Through this method, revenue could be generated for Sustainability particularly, if there is proper financial accountability.

In this direction, there are varieties of framework for private involvement in the sustainable refuse management project as well as other infrastructures. These frameworks, according to World Bank Report (1996:45), include service contract, management contract, lease, concession, Build Operate Own/Transfer and Partial/Full divestiture. Two of these frameworks are favoured for sustainable refuse management in Nigeria and they are the lease and the concession. The reason for the choice of these two options is that they embody initial government investment to the tune of which private investors at least in the Nigeria context cannot afford. The initial capital investment needed for the take-off of effective and enduring refuse management may be too great for the private investors. These options are therefore preferred because they entail the initial government investment followed by private investors' takeover of the operation and collection of fees. The two options are explained hereunder. The lease is a situation where the Government owns and finances major capital expenditures while private party finances operations, maintenance, short lived assets and working capital. The private party bears most/all commercial risks and collects fees. Such lease spans a period ranging between 5 - 12 years. Concession is a situation where the government owns fixed assets while the private party finances operations, maintenance and major capital investments; private party bears commercial risk and this transaction spans 15-50 years.

Working within any of these two frameworks, the franchised private investors, licensed to collect refuse over properly delineated areas after the initial government investment, will collect fees within their areas of operation. After collection, the private investor will pay a certain percentage stipulated by the terms/articles of the contract into a special account meant for capital expansion and depreciation and personnel cost, and take the remaining part for the refuse collection. After collection, the disposal either through landfill system or incineration or composting has to be jointly financed by the various private parties collecting refuse from their licensed areas and the government, but under the strict supervision of the government so as to ensure that none of the parties defaults and also to ensure that the disposal method is according to environmental management standard.

This arrangement has to be given adequate legal backing to make sure that all the parties in it comply with the terms of their agreement. Also the personnel and depreciation pool of fund has to be properly accounted for so as to avoid a situation where there is no fund for personnel cost, capital expansion and replacement of parts or totality of machines. The enabling law should spell out the punishment for any mismanagement of fund for the operation of this refuse management. Through this arrangement, sustainability can be guaranteed.

The enabling law for sustainable refuse management in Nigeria should spell out vividly the role of the franchised private companies, the government, the property owners and the households occupying the properties. It should also spell out the penalty for non-compliance with the provisions of this law. Lastly it should set up the monitoring outfit to monitor compliance with the provision of this law. Here it is gratifying to note that the environmental sanitary inspectors are already in place. The enabling law will strengthen them to be able to bring to book all non-comforming property owners and households.

Another area where the government's role is crucial is in the area of formulation of refuse master plan. This master plan will contain the designation of the transfer stations within the metropolises/towns. Prior to that, the conduct of household census for facilitating the collection of fees, and determining the number of refuse bins to be emptied by the franchised companies must have been done. In fact the government should formulate the refuse master-plan, showing the catchment areas for the franchised companies, the transfer stations, the landfill sites, fees to be paid by the households, the type, size, shape and colour(s) of refuse-bin to be acquired by the households and points where these refuse bins should be kept by every household for easy access. Lastly the government should do enlightenment campaign to sensitize the public on the need for compliance with the provision of the enabling law.

On their own part, the households and the property owners should pay user charge to the franchised companies without grudges and deposit the stipulated refuse bin at the appropriate point.

## Conclusion

That there is refuse management problem in Nigerian town and cities is an obvious fact. This has been substantiated through refuse heap counts in Ekpoma, Uromi and Auchu all in Edo North and the review of the woeful experiences of some states in the country. It has been noted that refuse management projects in most states in Nigeria are not sustainable as the agencies responsible for them collapse shortly after their inception due to lack of explicit policy on who should finance them. There is therefore the need for sustainable refuse management system in the country. Such management system should have solid legal backing specifying the responsibilities of the three tiers of the government and private concerns who should of necessity be involved. This apart, there should be refuse master-plan for these town and cities. Private companies should be registered to collect refuse from households who should in return pay for such services. The proceeds from the service charge should be shared according to the ratio specified in the refuse management law, with a part going to the private companies, while the remainder will be left for personnel cost, capital expansion and depreciation costs.

## References

- Abduli, M. A. (1997). Solid Waste Management in Guilan Province, Iran. *Journal of Environmental Health* Vol. 59, pp 23 - 26.
- Adekoya, Nelson. (1997). User Fees and Solid Waste Management. *Journal of Environmental Health* Vol. 59, pp51 -54,
- Adeniyi, J. O.; Adedapo, S. O. and Williams, E. (1983). Health Education Strategies for Community Participation in Urban Waste Disposal Project. The Success and Failure of Ibadan Waste Disposal Programme. Paper Presented at the National Conference on Development and the Environment, N.L.S.E.R. Ibadan, June 17-19.
- Ashby, Eric (1977). *Reconciling Man with the Environment*. California, Standford University Press.
- Dechiara, J. and Koppelman, L., *Urban Planning and Design Criteria*. New York: Pergamon Press, Federal
- Republic of Nigeria (1977). Guidelines for Local Government Reform.
- Filani, M. O. and Abumere, S. I. (1983). Forecasting Solid Waste Magnitude for Nigerian Cities. Paper Presented at the National Conference on Development and the Environment, N.I.S.E.R. Ibadan, January 17 - 19.
- Geoffrey Godbey, Reid Lifset and John Robinson. (1998). No Time to Waste: An Exploration of Time Use, Attitude Toward Waste. *Social Research*, Vol. 65, , pp 12-16.
- Janice, Parlman (1990). Innovations for Sustainable Cities of the 21st Century. Speech Delivered at the International Summit on the Environment, Los Angeles, April 18-20.
- James, C. McDavid. (2000). Alternative Service Delivery in Canadian Local Governments: The Cost of Producing Solid Waste Management Services. *Canadian Journal of Regional Science*, Vol. 23, ,pp 58 -62.
- Harvey Alter. (1993). Cost of Recycling Municipal Solid Waste with or without a Concurrent Beverage Container Deposit Law. *Journal of Consumer Affairs*, Vol. 27, pp 23 - 28.
- Maurice, B. Ballabon (1972). The Self Service Group in the Urban Economy. *Journal of the American Institute of Planners* Vol. XXXVIII Nov, pp 124 - 128.
- Mwanthi, M. W. Nyabola, L. O. and Tenambergen, E. (1997). Solid Waste Management in Nairobi City. *Journal of Environmental Health* Vol. 60,, pp 12 - 15.
- Okpala, D. C. I. (1986). Institutional Problems in the Management of Nigerian Urban Environment.. N.I.S.E.R Monograph Series, No. 15.

United Nations Centre for Human Settlement (HABITAT) (1990). *The Sustainable Cities Programme*.

United Nations Centre for Human Settlement (HABITAT) (1990): *Management, Sustainable Urban Development in Mega-Cities (MSUD)*, Project Design, Nairobi, February 1990.

World Bank with Nigerian Collaboration (1996). *Restoring Urban Nigeria*. Washington D. C. World Bank Headquarters

