



Improving refuse management in urban Nigeria

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NIGERIA HAS A land area of 928,000 square kilometers harbouring a population of 88.5 million people (1991) out of which 64% live in the rural areas while 36% reside in Urban areas. The country has two main climatic seasons, the rainy season which occurs between April to September and the dry season which occurs between October and March every year. The rainfall ranges between 500mm in the far North to 3000mm in the extreme South. The major drainage systems are the rivers Niger, Benue and their tributaries. The country is underlain by about 50% basement complex and 50% sedimentary deposits. Water Supply in the country is however up to 70% from groundwater because of the little treatment required.

Administratively Nigeria is governed at the centre by a Federal Government and 36 State Governments. The country is also further subdivided into 758 Local Governments and there are about 200 Urban settlements each inhabited by 20,000 persons and above.

Status of refuse handling

Refuse anywhere in Nigeria constitutes about 70% putrescible content and 30% non-putrescible content and should therefore be easier to handle. However owing to inadequate planning heaps of these refuse are commonly found decomposing on streets or at designated communal collection points e.g during the survey in 1995/96, there were heaps of refuse everywhere but the most disturbing is the one in the centre of a market in Uyo in Akwa- Ibom state (see picture).

Institutional arrangement

One of the major problems of refuse management in Nigeria is the institutional framework. This is due mainly to lack of understanding of the magnitude of refuse job and the inability to appreciate the dangers posed by refuse mismanagement. By the existing administrative arrangement in the country, refuse management which is regarded as part of sanitation is under the 36 State Governments plus the Federal Capital Territory Abuja. The efforts of the State Governments to handle refuse particularly in Urban Areas has not improved significantly, basically because of their inability to appreciate that refuse management requires a separate organization and have therefore failed to appoint appropriate body to handle refuse. Meanwhile the Municipal Authorities (LGAS), the Urban Development Authorities (UDA) and the Environmental Sanitation Task Forces (ESTF) all take part in handling sanitation which includes refuse. In order to try to harmonize Sanitation Manage-

ment, most State Governments have established what they now regard as a more permanent institution, the Environmental Protection Agency (SEPA) whose primary responsibility is pollution control. The conflicts arising from this multiplicity of agencies has equally hampered improvement in refuse management.

Collection, transportation and disposal techniques

From the survey it was discovered, that house to house collection is uncommon. Individuals are expected to deposit their refuse at designated points where they exist, from where the vehicles can collect them for final disposal. However there is no regular routine collection and as a result, the communal points commonly called dumps and are generally at open spaces along street ends or junctions, usually becomes nuisance points to Urban dwellers. Because they are sometimes left for months they decompose, create unpalatable ordours, provide breeding places for rodents, flies, scorpions, snakes, ants and then papers and polythenes are blown around by wind. Consequently most of the refuse end up in the drains and thereby contribute to the pollution of rivers.

Different types of vehicles are used for refuse evacuation but the most common are open tippers. In a few States like Anambra, Lagos, Abuja etc they have some compressing vehicles whose problems are constant breakdown due to inadequate funding and lack of spares. Collection of the refuse is done manually with shovels and rakes from communal points by the men who accompany the vehicles. In a few cases earth moving vehicles like bulldozers are used but they also breakdown frequently. The vehicles take the refuse to final dumping or landfilling sites without sorting and they dispose their contents unguarded at any place of their convenience.

Final landfilling site

The final disposal is generally on land into excavated pits made purposely for it, or are made for road construction and ditches created by erosion. In a few cases refuse are incinerated. However in all the cases no precaution is taken to protect the groundwater which is the major source of potable water. Refuse is dumped on bare unprotected soil without planning, hence both the surface and the groundwater suffers as well as the general environment. The most worrisome of this type of indiscriminate landfilling is that both industrial and domestic refuse (including in some cases excreta from septic tanks) are dumped on the same site and the leachate constituent would definitely be hazardous to the water sources.

Since these landfill sites are not properly planned accessibility becomes difficult especially during the rainy seasons thereby making it impossible to actually achieve the aim of reclaiming the sites. Sometimes the pits would be empty while the adjoining lands are littered with refuse (Photo of a dump site in Minna is attached).

Personnel and funding

One of the major problems of refuse management is unavailability of adequately trained and experienced manpower. Most of the people have degrees in other fields but their relevance to refuse management is questionable. As a result of their experience in well planned refuse disposal systems, their operations resulted in ineffective refuse management. As it is with several other sectors in developing countries, refuse management is grossly under funded. Funds budgeted and approved for refuse management per annum in some of the States can barely cater for the services for one month.

Suggested new approaches

The problems hampering development of properly planned refuse management in Nigeria have been identified as lack of proper legislation, institutional arrangement, inadequate trained and experienced manpower, constant breakdown of available vehicles, inadequate financing, non appreciation of the magnitude of the job in refuse management and unappreciation of the dangers posed by mismanagement.

Legislation and institutional arrangement

In an effort to coordinate and harmonize the activities in the water supply and sanitation sector, the Federal Government of Nigeria has fully adopted the United Nation's proposal for the establishment of Country Level Collaboration on Water Supply and Sanitation. Arising from the various meetings of this forum which involves sector operators, planners, implementors, Donor Agencies, equipment manufacturers and policy formulators, is the need for a sanitation policy as it exists for water supply.

A workshop was therefore held in Abuja in December 1998 to begin the process of developing a National Sanitation Policy which would address issues concerning Institutional Arrangement, implementation approaches, guidelines for collection, transportation and final disposal as well as the specification for preparing landfill sites among other things.

It is hoped that when all is set refuse would become the responsibility of a separate agency such as the Municipal Authority with involvement of private participation especially in the area of landfilling. The concentration of all sanitation activities to one agency ignores the magnitude of work required in refuse management. The Municipal Authorities should be empowered to handle refuse as part of their responsibilities.

Improvement of landfill arrangement

When the survey was conducted in 1995/96 it was observed that everything comes to the landfill site including household refuse, in some cases excreta from septic tanks evacuated by private contractors, industrial wastes (both solids and liquids), materials from construction sites etc. Meanwhile these sites are usually not prepared prior to landfilling, neither are they properly planned. The purpose sometimes is to reclaim the ditches caused by natural phenomenon or by artificial means. The process of reclaiming is good but the consequence of no planning harms the environment even more especially groundwater.

In order to improve on the situation there is need for demarcations, provision of access roads especially during the rainy season, laying certain depths of clay or other naturally occurring sealants before landfilling, systematic landfilling and covering of refuse at the end of each day with laterites or debris from construction sites, all of which improves protection for the surface and groundwater sources.

Since the refuse is highly decomposable and to avoid indiscriminate disposal of septic tank excreta on the site, a process of natural composting could be organized in one part of the site as it is being done in Akwuke in Enugu. This way the management could generate funds by selling the composts to maintain the as practiced in many parts of the world septicallly.

Financing and localizing vehicles

Refuse management is a serious business and therefore requires a more serious attention. However at the moment all arrangement are ad-hoc and no consistent budgetary arrangement is in place for financing refuse. When a separate agency is in place it can then make a concerted plan to attract more consistent budgetary allocations. In the same vain if the refuse management is working well, with improved revenue drive, fallout from sell of compost, and other sources financing of the refuse management outfits would be improved. Resource mobilization would as a result be encouraged if the management approach improves and thereby financing bodies would be attracted.

Tipppers, and small trailers could be provided to serve as refuse vehicles. The tricycle being introduced in some urban areas for commercial transportation are vehicles that can also adapted for refuse disposal.

Conclusion

Refuse management requires a more serious attention. However, in Nigeria, inadequate attention is paid to refuse management thereby resulting in littering of refuse everywhere. The nation needs environment free of extensive damage which in future would require huge sums of money to improve. Water is precious but one of the factors that can destroy its usability is extensive contamination from leachates from wrongly disposed refuse. We need to plan well today so that we can save cost of keeping tomorrow clean.

S SOLID WASTE MANAGEMENT: OSUOCHA

Table 1. Refuse Management Arrangement in Parts of Nigeria.

STATE	TOWN IN FOCUS	AGENCIES RESPONSIBLE FOR REFUSE	FUNDS EXPENDED ON REFUSE MANAGEMENT PER ANNUM	NO. OF STAFF INVOLVED	RATES COLLECTED	PRIVATE SECTOR INVOLVEMENT	REMARKS
Akwa Ibom	Uyo	- Environmental Sanitation Task Force - LGA/Municipal Govt.	2.8m (US\$31,111)	-	-	15 contractors employed to collect and disposal	
Rivers	Port Harcourt	- Sanitation Task Force LGA/Municipal Govt Parks and gardeners committee - Environmental Protection Agency	30m (US\$333,333)	190	-	Edict No.2 of 1991 asked that it shall be mainly done by contractors	
Abia	Aba	Municipal Govt.	2.0m (US\$22,222)	-	-	3 contractors were engaged for collection and disposal as at 1996	
	Umuahia	- Municipal Govt. - Environmental Sanitation Authority	7.2m (US\$80,000)	310	50- 60/room/year for residential 60/ stall/year in the market		
Imo	Owerri	- Env. Protection Agency - Environmental Sanitation Board - LGA/Municipal Govt.	6.0m (US\$66,666.70)	30	-	-	
Benue	Makurdi	- Urban Dev. - LGA/Municipal Govt.	5.0m (US\$55,555.60)	185	-	-	
Enugu	Enugu	- Environmental Protection Agency - LGAs/Municipal Govt.	9.6m (US\$106,666.70) Proposed	15+	-	-	
Cross River	Calabar	- Environmental Sanitation Task Force - Environmental Protection Agency - LGA/Municipal Govt.	1.8m (US\$20,000)	52	-	-	
Anambra	Awka	- Environmental Sanitation Authority - LGAs/Municipal Govts.	3.0m (US\$33,333)	400	-	8 contractors were engaged for collection and disposal	1.8m accrues from revenue every year.
Oyo	Ibadan	State Env. Protection Commission	2.0m (US\$22,222)	100	-	Contractors engaged for collection and disposal	
Lagos	Lagos	Waste Management Authority	38m (US\$422,222.20)	-	-	-	
Kano	Kano	Refuse Disposal Authority	38.4m (US\$426,666.60)	50	-	-	
Kaduna	Kaduna	- LGAs/Municipal Govts. - Env. Protection Agency	3.0 (US\$33,333)	180	150/house/month	Contractors engaged for collection and disposal as well as revenue collection	
Katsina	Katsina	- Environmental Protection Agency - LGA/Municipal Govt.	1.7m (US\$18,888.90)	119	-	-	
Sokoto	Sokoto	- Urban Dev. Authority - LGA/Municipal Govt.	8.0m	300	-	Consultant involved to assess effectiveness of the management approaches	
Kebbi	Birin Kebbi	- Urban Dev. Authority - LGA/Municipal Govt.	6.0m (US\$66,666.70)	151	-	-	-