

## **Promoting Environmental Sanitation through Incorporation of Urban Planners in Solid Waste Management in Enugu**

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### ARTICLE INFORMATION

Article history

Received 10 April 2010

Revised 2 June 2010

Accepted 30 September 2010

Available online 28 January 2011

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### Abstract

Waste management is a problem in Nigerian cities. Many of these cities are now characterized by uncontrolled roadside dumping of waste, thus resulting in health hazards and degraded aesthetic quality of the living environment. The paper discussed the relevance of urban planners in the management of uncontrolled dumping of solid waste on roadsides in Enugu urban. It discusses how the incorporation of urban planners in the solid waste management team of ESWAMA will make a difference in the control of indiscriminate solid waste dumping on roadsides in Enugu urban.

**Key words:** Incorporation, Enugu, Urban Planner, Solid Waste Management.

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## **Introduction**

Waste management is a problem in Nigerian cities. Many cities like Lagos, Ibadan, Kano and Enugu are largely characterized by poorly controlled and illegal roadside dumping of wastes. Such dumping degrades aesthetic quality, pollutes soil and water resources and is a potential health hazard to the urban dwellers. The Nigerian Environment and Study/Action Team (1991) observe that:

...in many Nigerian cities, the volume of solid wastes has overwhelmed urban administrators' capacity to plan for their collection and disposal. Thus, it is not uncommon to find urban streets and roads practically blocked by solid wastes.

Most of the city waste management authorities in Nigeria manage solid waste without adequate manpower and infrastructure. Besides, their waste management systems lack the ability to forecast the quantity of waste generated based on accurate data. As a consequence, the authorities appear to be incapable of coping with the mountain load of waste generated and heaped on land.

In order to address the environmental problems, the Federal Government of Nigeria introduced the following measures: the monthly national sanitation exercise in 1984, the creation of the Federal Environmental Protection Agency (FEPA) under Decree No. 59 of 1988, formulation of the National Guidelines and Standards for Environmental Pollution Control in 1992, and the creation of the Federal Ministry of Environment in 2000. For instance, FEPA established a nation-wide system of environmental management and monitoring based on State Environmental Protection Agencies. This gave birth to the Enugu State Environmental Protection Agency which later metamorphosed into the present Enugu State Waste Management Agency (ESWAMA) through the enactment of law No. 8 of 2004. ESWAMA serves as a regulatory body charged with the responsibility of managing solid and liquid waste in Enugu.

With the growing production of solid waste in the city, a scheme was designed to involve the public – private sector partnership to enhance efficiency in service delivery. As a result of inadequacies encountered by the public – private sector participation arrangement, ESWAMA has taken up the task of direct service delivery in solid waste management in Enugu.

Despite these efforts, the performance of ESWAMA leaves much to be desired. Illegal refuse dumps are still noticed at road junctions and near undeveloped land in Enugu (Ezerah, 2006). To date, attempts to address solid waste management in the city have failed to incorporate urban planners. According to Mabogunje (1988), it points up to the poor attention to planning in most of our cities.

The paper argues that any attempt towards an environmentally sound waste management must be rooted in incorporation of urban planners who play a key role in making “the urban environment in Nigeria generally safe, clean, healthy and aesthetically pleasing for all the urban residents” (National Urban Development Policy, 2006)

## **Input of urban planners in solid waste management**

Solid waste management has been variously defined. UN (1997) defines solid waste management as the handling process of solid waste materials from generation at the source to its disposal. Similarly, the World Bank (2000) defines it as effective control of production, storage, collection, transportation, processing and disposal of wastes in a sanitary and aesthetically acceptable manner. Solid waste management is a planned system of effectively controlling all the stages in a sanitary, economic, and aesthetically acceptable manner. The National urban Development Policy (2006), also defines it as the generation, separation, collection, transportation and disposal of waste in a way that takes into account public health and aesthetic quality of the environment.

Ogu (2000) observes that despite the importance of adequate solid waste management to the urban environment, it remains a daunting challenge to developing countries of which Nigeria is one. According to UNESCO (1997), between one-third and one-half of the solid waste generated within most cities in developing countries are not collected. For instance, the proportion of solid wastes collected and disposed of is less than 25 percent in Dar es salam (Tazania) and about 40 per cent and 60 per cent

respectively for Karachi (Pakistan) and Jakarta (Indonesia). NEST (1991), estimates that the annual per capita solid waste generated in Nigeria is 20 kilos, which amounts to about 2 million tones a year if we use an approximate annual population figure of 100 million in 1996. However, 80 to 90 percent of the waste generated is not collected for safe disposal.

Sule (1981) ascribes the main cause of poor environmental condition in Nigerian cities to improper solid waste management and lack of seriousness in enforcing solid waste disposal code. Mabogunje (1988) observes that ineffective solid waste management is caused by the poor attention being paid to physical planning in most Nigerian cities. As a consequence, the relics of pre-industrial urbanization in these cities such as narrow, irregular and unploughed lanes and alleys hamper the efficient collection and disposal of solid wastes in the cities.

According to Nze (1978) several factors like inadequate infrastructure, weak environmental administration lop-sided planning structure, among others, are responsible for ineffective waste management services in Nigerian urban areas. For instance, about 83 per cent of population in Nigerian cities dump refuse illegally in their neighborhoods due to inadequate street or compound wastes bins, thereby creating unsanitary condition (Benneh, et al, 1993).

Karanja (2005) asserts that land use patterns in most cities of developing countries have remained a major bottleneck to effective solid waste management. In other words, space development was unplanned and had with time, grown into slums, with inaccessible roads and streets. With the example of Ibadan, Abumere and Filani (1986) reckons that solid waste management is not handled in a comprehensive manner because vital issues such as health and aesthetic character, culture of hygiene and cleanliness and environmental awareness are relegated to the background.

The above reviewed literature underscores the inputs of urban planners in solid waste management system. The inputs of urban planners include proper location of waste management facilities, population projections, and land use and density patterns which influence the volume of wastes generated in an urban area.

### **Efforts at Solid Waste Management in Enugu:**

Enugu is located in the South-eastern part of Nigeria. It is one of Nigerian urban centers that serve both as a local government headquarters and a state capital. Enugu has experienced rapid population and spatial growth in the last three decades. For instance, the population of Enugu increased from about 138,457 in 1963 to 722,664 in 2006, and increased to an estimated population of 794, 283 in 2009 (Eze, 2010). The spatial growth increased from less than 5 km<sup>2</sup> in 1924 to about 72 km<sup>2</sup> in 2005 due to urbanization.

The impact of solid waste on the living environment in Enugu was very minimal prior to the end of Nigeria Biafra Civil War in 1970. This was as a result of conscious awareness of sanitation, availability of bio-degradable waste and low population in the city. However, the increasing menace of waste led to the establishment of Enugu State Task Force in 1984. The task force was headed by a military officer who was to deal decisively with sanitation problem in Enugu.

In 1985, the taskforce metamorphosed into a more permanent body, namely: Enugu State Environmental Sanitation Authority (ESESA), which was charged with the responsibility of managing waste in Enugu. The hosting of the under 17 World Youth Soccer Championship, tagged "Nigeria 99" and the need to beautify Enugu Metropolis led to the establishment of Enugu State Environmental Protection Agency (ENSEPA) in 1995. ENSEPA was to maintain a healthy environment throughout the period of the championship and beyond in Enugu. It is pertinent to note that ESEPA and ENSEPA employed neighborhood depot method to collect and dispose waste in the city.

By early 2000, it became necessary in the light of poor performance of ENSEPA to adopt a new approach to solid waste management in Enugu. In 2004, therefore, the Enugu State Government collaborated with the United Kingdom Department for International Development (DFID) to evolve a new strategy for efficient and effective waste management in the city. The strategy was designed to

involve the Enugu State Waste Management Authority (ESWAMA) and private sector participators (PSPs) in solid waste collection and disposal in Enugu. While the private sector participators collected solid wastes from households on zonal basis, ESWAMA played both complementary and supervisory roles in order to ensure efficient service delivery.

Consequent upon the inadequacies of the public-private sector participation arrangement, ESWAMA took up the task of direct service delivery in solid waste management in Enugu. At present, ESWAMA is more technologically and financially equipped with waste disposal compactors and dumpsters to intensify its efforts in achieving sustainable solid waste management in the city. For instance, 15 waste disposal compactors and 1000 dumpsters were procured by ESWAMA and the latter kept in close proximity to neighbourhoods along the streets for refuse collection. Under its present arrangement, waste generators ( Enugu residents) are provided with cellophane bags to package their waste and dump in nearby dumpsters. The choice of bagging refuse in cellophane bags was borne out of hygienic reasons, particularly for easier evaluation of refuse into the compactors for final disposal at the sanitary landfill site. Coupled with this effort, ESWAMA supervises the monthly environmental sanitation exercise to ensure quick intervention in the evacuation of waste from the streets and the clearing of many illegal dumpsites in Enugu.

Despite these efforts by ESWAMA, Enugu still experiences inadequate solid waste management. Illegal roadside dumping and uncollected refuse dumps remain a problem in the city. The problem of solid waste is likely to persist for some time unless urban planners (environment therapists) are incorporated to make their inputs in waste management in our urban areas.

**Enugu State Waste Management Authority (ESWAMA):**

Law No.8 of 2004 established ESWAMA as a regulatory body responsible for solid and liquid waste management in Enugu State. The aim is to achieve environmental sanitation in the State. With regards to solid waste management, ESWAMA collects waste from the dumpsters located along the streets and disposes them through sanitary land filling.

ESWAMA has Solid Waste Department that is responsible for collection, removal, treatment and safe disposal of all classes of waste in Enugu urban. The department is staffed with 38 professionals as shown in Table 1. It is pertinent to mention that there are no urban planners in the employ of the Authority.

**Table 1: Categories of Professionals in Solid Waste Department, ESWAMA.**

Category	Staff Strength
Civil Engineers	5
Accountants	18
Public Administrators	15
Total	38

**Source:** Solid Waste Department, ESWAMA (2010)

It has been observed that the number of vehicles at the disposal of ESWAMA is not able to cope with the volume of waste generated in Enugu. Besides, ESWAMA lacks the technological capability to calculate or forecast the quantity of solid waste generated daily in residential and non residential land use areas of the city. The result is that solid waste cannot be disposed off as fast it is generated, hence rising volume of uncollected waste in the city. Enugu is now notorious for its uncollected solid waste dumps at road junctions and incidental open spaces. Typical examples are found along Kenyatta Street (beside UBA) in Ogui Layout and Uzwozo Park in Abakpa. Needless to mention the abattoir located at the ‘Naira Triangle’ where waste generated from the slaughter market is deposited in a stream behind the market,

resulting in water contamination and ready vehicle for the rapid spread of diseases since the water is used by people for their daily needs.

### **The Role of Urban Planning in Solid Waste Management:**

In order to appreciate the role of urban planning in solid waste management, it may be necessary to understand what Urban and Regional Planning is all about. Urban and Regional Planning is concerned with the spatial ordering or management of land uses both in the urban and rural settings for the purpose of creating functionally efficient and aesthetically pleasing physical environment for living, working, movement and recreation. Through urban planning, the physical space is organized and managed in such a way that investment, conveniences, functionality, beauty, living and working within the environment are maximized. As Muoghalu (1984) puts it, the quality of the environment depends on the extent of planning and control of city development, the quality of buildings, infrastructural development and the standard of public health services and facilities. In this way, planning serves as a strong control measure to environmental problems.

A planned physical environment tends to induce in residents of urban or rural area a feeling of sound, mental, emotional and physical well being. Therefore, it concerns the health and aesthetic character of the society, which is ultimately associated with solid waste management. If an efficient refuse collection system, predicated on a planning process that begins with the calculation of the amount of refuse generated by a given population is in place, the disposal becomes a little simpler to deal with. Some of the preparatory works Urban and Regional Planning performs in the design of waste management system are: examining the city's development pattern, estimating the quantity of refuse generated, classifying types of wastes generated, evaluating the existing refuse management system participatory planning effort and land use policy. An understanding of these will help us to appreciate how urban planners can play an important role in waste management and preserve the quality of the environment in urban areas.

Examining the city's development pattern such as layouts, streets, house numbering and ease of vehicular access to and from houses and streets in the city is usually done with the aid of a base-map of a city, updated with intensive inspection tour and study of the city. The purpose is to identify and assess possible constraints to be encountered in the collection of waste and to evaluate waste as well as devise ways of mitigating such constraints.

Estimating the approximate quantity of waste being generated in a given area and possibly estimating the rate of generation of such waste is to determine the relative volume or magnitude of waste to be collected and finally disposed off . This will help the waste management agencies to put in place more efficient and effective service delivery.

Analyzing and classifying samples of the main types of waste generated in a city. This means types of material which constitute the bulk of these volumes of waste, their proportions and distribution within the city. This will help to determine the most appropriate disposal method and the feasibility of possible recycling of waste, which is a major player in the reduction of the urban waste stream. Therefore, ESWAMA should take a study tour of how solid waste is managed in United States and South Africa over there, people are encouraged to purchase small home appliances that crush bottles and aluminum cans, to thereby reduce their volume and facilitate recycling.

Participatory planning and advocacy enable people to participate and make input into planning decision. This is done through public hearing, seminars, workshops and stakeholders consultations. In these fora, citizens are well informed so that they shape important decisions affecting what, how and where any development can take place in the communities or neighbourhoods (Agukonroye, 2005). For instance, citizens can object to illegal and uncontrolled open dump if they are fully aware of the benefits accruable from a decent and healthy environment.

Land use policy requires that development should be patterned in accordance with compatible uses to avoid conflict. It includes guidelines and standards to separate non-complementary use; for

example the segregation of disposal site from residential neighbourhood. The main purpose is to regulate development and minimize environmental nuisance like air pollution.

Waste management requires a multi-disciplinary approach involving economics, public health, law, engineering, urban planning and a host of other matters. These must be fused together by government policy at federal, state and local levels which are working within the framework of a comprehensive policy design. Thus, the quest for an effective holistic and coordinated national policy, which combines with adequate planning legislations, adequate fiscal allocation, public awareness and involvement could be expected to promote environmental sanitation in Nigerian urban environment.

## Conclusion

Public utilities, especially solid waste management can be powerful tools in influencing the type of land development and significantly affect the community landscape and aesthetics. The location of waste management facilities can influence the standards and pattern of development. When these facilities are properly located and functional in accordance with an adopted plan, a city's development pattern can be effectively controlled. Thus, a strong relationship exists between solid waste management and urban landuse planning. This relationship underscores the need to incorporate urban planners in solid waste management system in Enugu and indeed other Nigerian cities.

## References

- Abumere, S.I. and Filani, M.O. (1986) *Economic Analysis of Waste Management in Nigeria*, University Press Ltd, Ibadan.
- Agukonroye, O.C. (2005) "The Roles of Town Planning in the Location of Telecommunication Masts and Towers in Nigeria", in Ugwu, I.C. (ed.), *Global Satellite Mobile Telecommunication (GSM) and the Environment*, pp. 30-47.
- Benneh, Songsore, Nabila, Amuzu, Tutua and Yaugyuorn (1993) Problems of Solid Waste Management in Nima, Accra, <http://www.kon.org/urc/v6/george.html-83k>.
- Ezerah, C.C. (2006) "The Need to Improve on Existing Solid Waste Management Strategy in Enugu Urban", BURP Dissertation, Department of Urban and Regional Planning, Faculty of Environmental Studies, University of Nigeria, Enugu Campus.
- Eze, P.U. (2010) "An Assessment of the Performance of Enugu State Waste Management Authority in Solid Waste Disposal in Enugu Metropolis", BURP Dissertation, Department of Urban and Regional Planning, Faculty of Environmental Studies, University of Nigeria, Enugu Campus.
- Federal Republic of Nigeria (2006) *National Urban Development Policy*, Lagos: Government Press.
- Filani, M.O. and Abumere, S.I. (1986) "Forecasting Solid Waste Management for Nigerian Cities", in Nduka, E.C. and Kalu, I.E. (eds.), *Economic Analysis of Waste Management in Nigeria*, *Journal of Applied Science and Environmental Management*, Vol. 6, No.1, June, 2002, pp.64 – 68
- Karanja, A.M. (2005) *Solid Waste Management in Nairobi: Actors Institutional Arrangement and Contribution to Sustainable Development*, Kupan Press, Nairobi.
- Mabogunje, A.L. (1988) "The Debt to Posterity: Reflections on a National Policy on Environment Management", in Sada, P.O. and Odemarho, F.O. (eds.) *Environmental Issues and Management in Nigerian Development*. Evans Brothers Nigeria Publishing Limited.
- Muoghalu, L.N. (1984) "The Urban Poor and Accessibility to Public Housing in Nigeria", in Makinwa-Adebusoye, P.K. et al, *Proceedings of the National Conference: The Urban Poor in Nigeria*, University of Benin.
- Nigerian Environment and Study/Action Team (1991) *Nigerian's Threatened Environment: National Profile*, Ibadan, P. 229.
- Nze, C.T. (1978) "Trends in Solid Waste Management in Nima, Accra", <http://www.scrit.com>

- Ogu, I.O. (2000) "Private Sector Participation and Municipal: Waste Management in Benin City, Nigeria", in Aina, T.A. et al (eds.), *Environment and Urbanization: Sustainable Cities Revisited III*, Vol.12, No.2, October, pp.103 – 117.
- Sule, R.A. (1981) "Environmental Population in an Urban Centre: Waste Disposal in Calabar", *Third World Review*, Vol. 3, pp.4 – 7.
- United Nations (1997) "Solid Waste Management in Developing Countries," in Sher B.D. (ed.), *Solid Waste – The Major Environmental Problem, A Paper Presented in a Seminar on Solid Waste Management, Nepal*.
- United Nations Environment Study Committee (1997) *Environmentally Sound Management of Solid Waste and Sewage Related Issues*, <http://www.gora21.org/edd5/eon17142htm>, 3/2000, P.I of 9.
- World Bank (2006) "Waste Recovery and Income Generation", *World Bank*, Washington D.C., U.S.A.