

THE RELEVANCE OF GEOGRAPHY IN ENVIRONMENTAL SANITATION IN NIGERIAN URBAN CENTRES

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Abstract: Waste management constitutes one of the major problems of Nigerian urban centers. Today, heaps of wastes have become a common thing as public buildings, market places, industrial estate and even homes are not left out in this issue of waste management. After waste generation from public buildings, market places and homes, the urban dwellers try to clear and evacuate them through various means. One problem with the evacuation of this waste is the fact that during evacuation, some of these wastes litter the cities thereby polluting the cities and also reduce the aesthetic beauty of the cities. Apart from this is the problem of health hazards posed by these wastes in our cities. In view of the inability of urban dwellers to manage their wastes, the governments both at the state and local levels now set up their environmental units to clear and dispose these wastes. Since environmental sanitation takes place in space, it is a geographical phenomenon. In this paper therefore, an overview of the environmental sanitation with reference to sources of waste generation, clearance and disposal in Nigerian urban centers is undertaken. This is followed by the relevance of geography in environmental sanitation. In conclusion, recommendations are made on how environmental sanitation can be organized taking the geographical perspective into consideration.

I. INTRODUCTION

One major problem of urban centres in Nigeria today is that of waste management. Waste is often generated in most homes, market places and industrial estates. After generation, the next thing is that of clearance and disposal.

All the home level, the households collect their wastes into polythene bags, cartons e.t.c and gather them at the back of their homes or the front of their houses from where they are carted away to designated refuse sites themselves or employ the services of private companies that manage wastes after registering with these companies with a certain amount on a monthly basis. For some households, they provide their own open spaces for refuse dumping at the back of their homes.

As for the market places, the wastes generated are often dumped in the open usually by the side of the major roads passing by the markets where they form mountain of wastes. From here, they are removed to designated refuse sites by the waste managers. As for the industrial estates, while the effluent is made to flow into the gutters/streams, the gases are released directly into the atmosphere.

The problem with the generation of these wastes is in the way of handling their clearance and disposal. Often times, during clearance and disposal, wastes litter the urban centres and pollute the environment. Apart from this is the health hazards posed by these wastes as well as the depreciation in the aesthetic beauty of the urban centres.

In order to reduce these health hazards, raise the beauty of our urban centres and reduce pollution in our surrounding, most governments-states and local governments now set up their own environmental units to carry out environmental sanitation in their own domains. For example, in Edo state, every last

Saturday of the month is declared for environmental sanitation from 7.00 am to 10.00am with movement restricted. During this period, the people in all parts of the state clear their surrounding and dispose off the wastes. While this goes on, the environmental units of the state and local governments also roll out their equipment like graders, trucks, rakes, cutlasses, diggers to participate in this monthly environmental sanitation.

From the above, it can be seen that environmental sanitation takes place in space which makes it a geographical phenomenon.

Thus, in this article, an overview of environmental sanitation in Nigerian cities is undertaken with reference to sources of waste generation, methods of clearance and disposal. This is followed by the relevance of geography in environmental sanitation which is the main thrust of this article. In conclusion, recommendations are given on how environmental sanitation can be organized taking the geographical perspective into consideration.

With this introduction, the focus of this article will now shift to an overview of environment sanitation in Nigerian urban centres with reference to sources of waste generation, clearance and disposal.

Environmental sanitation in Nigerian urban centre

In giving consideration to environmental sanitation in Nigerian urban centres, it is proper to examine the sources of waste generation, means of waste clearance and methods of disposal.

Sources of waste generation

Wastes are often generated from the following places

Homes:

These are one of those sources of waste generation. These wastes which are mostly domestic in nature are

generated during cooking. Other waste could come from consumables and non consumables which are packaged and brought home by households.

In a study carried out by Binbol, Ogboji and Lahor (2013) on the performance of Plateau Environmental Protection and Sanitation Agency (PEPSA) as a waste management agency on the Jos Plateau covering the four wards of Naraguta B, Jenta Adamu, Jenta Apata and Tudun Wada Kabone as sampling points, they found out that in one of their findings that 88% of wastes generated were domestic in nature. The volume of wastes generated here usually varies depending on the size of the household.

Markets:

These are another source of waste generation. The wastes generated here are usually made up of wastes from food items, empty bottles, plastic cans, cartons, nylon or polytene bags e.t.c.

The volume of wastes from market places is usually much and can vary from one market to the other depending on whether it is a minor or major market.

Industrial estates

These also generate wastes which can be in the form of solid or liquid or gaseous. While the gases are emitted into the atmosphere with little or no check on it, the liquid which is usually effluent flows directly into gutters/drains which eventually empty it into our streams/streams. This effluent apart from its pollution of our streams/streams, may find its way underground where it pollutes the underground water.

Means of waste clearance

To clear wastes in the urban centres in Nigeria, various equipment are used. While plastic parkers, brooms, cutlasses, shovels and rakes are used at homes, Uwagie-Ero (1999) listed graders, scrapers, trucks (tippers), loaders, shovels, rakes, forks and diggers as the items used at Oredo local government area of Edo State of Nigeria.

In the industrial estates, the gases are released through chimney into the environment. As for the effluent, it is made to flow through drains into streams/streams.

Methods of disposal of wastes

Various methods are used to dispose off wastes in Nigerian urban centres. While open spaces, backyards and incineration are used at homes, Uwagie – Ero (1999) gave open dumping, semi-sanitary land – filling, incineration and bye-laws as the methods of solid waste disposal in Oredo local government area of Edo state, Nigeria.

Also Binbol, Ogboji and Lahor (2013) in their study on the Jos Plateau found out too that the commonest methods of refuse disposal, were open space (33%) and backyard (28.5%).

Having considered the environmental sanitation in Nigerian urban centres with reference to sources of waste generation, clearance and methods of disposal,

an attempt will now be made to examine the relevance of geography in environmental sanitation.

The Relevance of Geography in Environmental Sanitation

Level and effects of Environmental sanitation on health and productivity:

This is one of the ways geography can be of relevance in environmental sanitation. Environmental sanitation takes place in space.

During its organization, waste is cleared and dumped in the environment. Since it is a geographical phenomenon, the generation, clearance and disposal of waste do have impact on the environment. Thus, geography can be used to determine the level of environmental sanitation and its effects on productivity. Adamu, Bichi and Gadanya (2012) in a study conducted by them in Sabon gari Local Government Area of Kaduna state determined the level of environmental sanitation and its effects on productivity as measured by school absenteeism and work days lost. They found out that environmental sanitation had significant effect on health and productivity of people, as measured by school absenteeism by students, and days of works lost.

Production of environmental sanitation map

This is another area where geography can also be of relevance in environmental sanitation to prevent repeated occurrence or mitigate the impact of incidents on vegetation, water and soil. In a study entitled Environmental Sanitation Mapping. Record and geographical analysis of environmental incidents in Sierra Barrosa-Aguada Toledo Neuquen, Argentina by Iparraguirre and Catalini (2002), they focused on the incidents which particularly impacted on vegetation, water and soil. After analyzing the geographical distribution of environmental incidents and their relationship with production facilities, protected areas or area of environmental interest and surface areas owners, they provided a general framework that dealt with incidents occurring in a given geographical setting and established programs designed to prevent their repeated occurrence or mitigate the impact of their occurrence, if any. The result of this study was an environmental map which may provide a significant assistance to production management.

Production of predictive maps

Geography can be relevant to environmental sanitation in the production of predictive maps to predict the risks of infection spatially. In 2011, Magalhaes, Barnett and Clements carried out a study on the geographical analysis of the role of water supply and sanitation in the risk of helminth infections of children in West Africa.

Among the aims of their study were:

- The quantification of the role of inadequate water supply, sanitation and hygiene (WASH)

in the risk of schistosoma hematobium, Schistosoma mansoni and hookworm infection in school aged children

- The estimation of the population attributable fraction (PAF) of helminth infection due to WASH and
- The prediction of the risk of infection spatially.

They were able to generate predictive maps of areas in West Africa without piped water, toilet facilities and improved household floor types using spatial risk models. The maps identified areas in West Africa where the millennium development goal for water and sanitation was lagging behind. Generally, there was a better geographical coverage for toilets and improved household floor types compared with water supply.

As a new approach in Waste Management study

Of relevance too is geography as a new approach in waste management study. According to Mihai (2015), there are various issues of waste management. These issues include territorial and temporal variability, spatial analysis of treatment or disposal facilities, systemic implications on the environment, and the harmonization of international policy of the national, regional and local levels. As a result, these issues provide solid arguments for studying this field-geography of waste.

After he gave an overview of the various approaches in the current literature on waste management issue on the one hand, he analyzed the geographical contributions of geography of waste on the other hand. The conclusions from his study led to the idea that the management of waste must be performed according to the geographical features of the territory concerned.

CONCLUSION AND RECOMMENDATION

From the above, it can be concluded that geography is of relevance to environmental sanitation. Given this assertion, the following recommendations are worth

taking into consideration when environmental sanitation is being carried out in the Nigerian urban centres.

- a. The splitting of large urban areas into manageable units for proper management of waste disposal. There is no doubt that this has become necessary in view of the fact most of our local government areas are too large to be managed by private waste managers and even the state and local managed environmental units.
- b. Geographical studies on waste management should be carried out from time to time by geography departments in our tertiary institutions to monitor the impact of wastes on the environment, predictive maps of infections drawn as well as mapping of environmental incidents. The findings from these kinds of studies will provide data bank for government on issues that border on waste management.
- c. Waste management could also be carried out by governments whether state or local according to the geographical features of the area concerned.

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