

WASTE MANAGEMENT IN NIGERIA: PROBLEMS AND PROSPECTS

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Abstract

Through the years, the inventions of man have created new causes of pollution in his environment. Today, the more subtle and insidious pollutants in man's environment are by products of his technological achievements. Industrial expansion, poverty and ignorance have resulted in extensive pollution of the soil, air and water in the third world nations. This paper looks at the waste management in the country and the problems that emanate from poor handling of wastes by the society and the prospect.

Introduction

Students of social sciences suggest that population explosion leading to food shortages, famine, and armed struggle for space is the world's most serious problem. Closely related to it in reducing the habitability of the earth, and caused by population explosion, urbanization, and industrialization, are the growing problems of air and water-pollution and the management of domestic and industrial wastes, including the startling accumulation of solid wastes. The health of the citizens of this our great nation is being threatened by air and water pollution, and we are in danger of being engulfed in the trash.

Today, human activities are changing the environment at an alarming rate. The atmospheric concentrations of green house gases continue to rise, forests are deforested, savannah grasslands are being threatened by the desert encroachment, coral reefs continue to be lost, and fertile soil and water are rapidly degrading. Now we Nigerians are fast approaching the point where the earth physical and biological systems will no longer be able to meet the demands for the environmental materials and services on which we depend. Most nations are already facing threats to their teeming population's most basic human developmental needs such as access to adequate food, clean water to drink, and energy services, safe shelters and a healthy environment (Odumu, 2004).

These conditions are new in human history, and the governments and the general public are slow in accepting their reality and still slower in taking the necessary corrective steps. It is at last being impressed on people that water, land and resources are fixed, whereas population size is not. The population is growing at an increasing rate (Brooks and Brooks 1979). The continuing processes of urbanization and industrialization are increasing the amount of waste products produced, resulting in an increasingly polluted environment that will demand governmental action and the citizens' cooperation.

As Nigeria begins to benefit from the economic and technological growth, the society also continues to suffer from increasing waste management resulting from intensive industrialization and the breakdown of ecological balances caused by destruction of flora and fauna resources due to over consumption. This is the prevailing pattern in Nigeria today (Egbehenyo, 2004).

Refuse Disposal

Refuse includes all the solid waste materials from human Habitation except sewage. Refuse includes primarily ashes, rubbish, and garbage. Refuse also accumulates from industrial establishments. Ashes are now of minor importance in household wastes of many cities due to the use of fuel, gas, and electricity for cooking. Garbage is the refuse (vegetable, animal and food waste) resulting from the preparation, cooking and serving of food. Rubbish includes all household and business refuse not classified as garbage or ashes (rags, paper, and other packing materials, wood, glass, crockery, metals plastics and solid waste) (Turner, 1979).

This is a major problem that affects Nigerian cities today, "as large quantities of solid wastes that accumulate are not disposed. These are by - products of modernization. Until recent time, the general populace has not been concerned with solid waste disposal. The concern has not exceeded the physical removal of the wastes from the streets. It is a common practice in Nigeria to dispose of refuse by open burning or use of open dump. As a result of increasing population and rapid urbanization, our solid wastes pile up faster than one finds satisfactory place to put them (Okofor, 1982).

The disposal of solid waste without proper planning and management poses danger to our health and environment. For example, if people dump faeces in the stream, rivers and lagoons, it

encourages the spread of diseases especially as these waters are used along their courses downstream by other Nigerians for the daily needs (Oyoigbevwen, 1985).

Most towns collect refuse at regular intervals when things are properly planned and executed. The urban councils provide refuse raw which collect the refuse from street to street and they are taken to their disposal points on the outskirts of the towns. In some towns, all types of refuse are mixed and collected together. In other towns, garbage and rubbish are kept in separate containers and collected separately in the developed countries of the world. In some cases there is separation of the non-combustible from the combustible rubbish. The type of collection depends primarily on the final disposal of the refuse.

Cities use various methods for the disposal of refuse. The most acceptable methods are incineration (destruction by fire). This is an excellent method of refuse disposal from the sanitary standpoint. Rubbish and garbage are burned together. By heating the flue gas above 1250°f, odor is avoided. The solids remaining after incineration are used to till land (Brooks, 1979).

The sanitary fill can be used in the disposal of mixed refuse. Each day, as collections are made, they are spread over strips of land or in trenches and packed down by bulldozers or other heavy equipment. The layer of refuse is covered with soil and rolled again. The packed surface keeps the garbage from being dug up by animals and also provides a solid till, eventually making new land available for parks and the construction of buildings as it is done by Lagos city council and other town councils in the country.

The 'throw away age' has been with us for some time now. In the villages in Nigeria, this method of disposal of refuse is in vogue. Each married woman in a compound has a place where she disposes her household wastes behind her house (refuse dump). The list of disposables has come to include products of chemically heated textile fibres or wood fibres held together by some means other than weaving or knitting, in the form of dresses, coveralls, smocks, sheets, pillowcases, diapers-hospital supplies, and other countless items.

The future calls for and will demand the reuse - recycling- of refuse in the context of both health and economics. The simplest method of recovery is to separate waste materials prior to collection, and many communities now have deposition centers for cans, glasses and paper (Turner, 1979).

In developed countries garbage is sometimes disposed separately by grinding it and discharging it into sewers. Some cities in United States of America have encouraged the use of home mechanical garbage grinders to cut down city disposal costs. One of the cities bought and installed the grinders and charged the householders rental in place of the garbage collection fee. Before general disposal of garbage can be made through the sewerage system, tests need to be run to ascertain whether the extra load of sewage can be safely handled by treatment plants and disposal areas.

Some towns in the developed countries employ the principle of composting in the disposal of refuse. Non-combustible components are removed. The remaining materials are ground or shredded and placed in stocks, piles or bins, where decomposition takes place. Some operators have added digested - sewage sludge to increase the nitrogen content. Various enclosed units have been developed with agitation devices, vents to allow aerobic action, and devices for regulating moisture and temperature. When decomposition is complete, regrinding, screening, drying and bogging make the product ready for sale as organic fertilizer to farmers.

These methods of refuse disposal have largely supplanted the older methods of hauling rubbish or a mixture of rubbish and garbage to an open dump. Such dumps, like scattered or uncovered garbage in yards or alleys between collection periods, are not only malodorous public nuisance but also supply food for rats and breeding places for flies. If the refuse on dumps is burned, it adds to the pollution of the atmosphere.

Studies in Nigeria have shown that Lagos ground wastes have been contaminated to the second aquifer level principally from two main sources - industrial leaches and dumpsites. The problems with the dumpsites in Nigeria are that they are indiscriminately located and also serve as sites for garbage. When the rain falls, it goes through the toxic substances such as aerosols, hydrocarbons, bacterial and other toxic and hazardous substances and form leakages. Which go down to ground water and contaminate it. These conditions are mainly responsible for the increasing incident of water - borne disease, cancer and liver problems in this country Nigeria (Odumu, 2004).

Sewage Disposal

Some areas of the world even today are without sanitary methods for the disposal of human and animal wastes. They have neither rural septic systems nor city sewage systems. In some parts of Nigeria, there exists a related prevalence of hookworm disease, typhoid fever, and dysentery. Experience has shown that the control of these diseases requires the sanitary disposal of human excreta. Scientific methods of disposal have been developed in all technologically advanced countries.

Although sewage is about 99% water, it represents a galaxy of microbial forms and chemical compounds. Its sources include fecal wastes, industrial wastes, ground garbage, and swathing compounds. (Sewage should not be confused with the word sewer, which is the pipe, or with sewage, which refers to the collection system plus the treatment works) (Brooks, 1979).

Efficient design and installation of the sewage system and installation of the sewage system and efficient plumbing in buildings are both important. Many epidemics have been traced to cross-connection. In such cases, faulty plumbing has resulted in back pressure or back siphonage within a building and has forced sewage or wastewater into the Water supply.

This type of central sewage systems are only found in places like Lagos and Abuja where estates are established and the sewage system is planned and they are centrally treated and recyclable. The same is applicable to some of the University campuses where sewage is treated and channelled into a dam where the water is treated and pumped back to the University Community as water supply. In most towns in Nigeria where the sewage system is in use, each household has its own septic tank where this sewage is stored in the tank which has two chambers.

Human beings have learned to adapt the methods nature uses in the disposal of nitrogenous waste. Animal manures have been used back into humus soil, and plants use the nitrates which are the end products of the nitrogen cycle carried out by bacteria. Those changes take place in the presence of abundant oxygen and are called aerobic.

When nitrogenous substances are broken down by bacteria in the absence of oxygen, a quite different process takes place - the anaerobic process. The available oxygen is soon used up by the aerobic or free oxygen breathing bacteria. Such bacteria die for need of oxygen, and there remains only the anaerobic bacteria - those that are able to arrest their oxygen from the organic compounds undergoing septic action. Nitrogen gas, ammonia, hydrogen sulfide, carbon dioxide and methane are produced.

According to Udoh, C.O. (1987), there are many options available to man today for the proper disposal of human wastes. The choice of which methods to adopt is usually a function of many factors which include cost of construction and maintenance, as well as acceptability to the consumers. In Nigeria, the commonly used methods of human waste disposal are the following:- the use of such once system, the intrauterine, and the water system. The first three are commonly used in the rural areas why the last one is commonly used in the urban settlements in the country.

Problems of Waste Management

In Nigeria, the surroundings of most houses are littered with domestic refuse, and the soil is contaminated by indiscriminate defecation and urination. These conditions lead to such diseases as dysentery, typhoid fever, cholera, malaria and schistosomiasis. They give rise to high mortality and morbidity rate, with a great loss in productivity. There is an urgent need in the field of environmental sanitation to train people in habits of cleanliness both at the personal and community level. The standard of sanitation to be aimed at should be one that is attainable by most community members. Today, the more subtle and insidious pollutants in man's environment are by-products of his technological achievements. Industrial expansion, poverty and ignorance have resulted in extensive pollution of the soil, air and water in the third world nations. In Nigeria, the industrial effect does not come in a direct form, but more in an indirect form. Although, many industries are physically located in Nigeria, we still find our streets littered with empty cans, papers, polythene bags and scraps-metals from abandoned vehicles. We suffer from noise pollution as a result of motor vehicles' horns and stereo-speakers at full blast; all these pollutions have negative effects on health (Udoh, 1987). Although the federal government has a laudable national policy on environment, there is ineffective coordination efforts and this hampers complete success of the set objectives. Since our environmental degradation is a factor of poverty, underdevelopment and economic activities whereby the society must continue to exploit the resources for economic growth, there is need to have sectional development for the general well being of the people.

After completion of researches on the environment before implementation of the policy, sometimes it is politicized, there by delaying prompt attention to the environmental problems.

Prospects of Waste Management in Nigeria

In Nigeria, in the early 1990's the Federal Government of Nigeria, established Environmental Protecting Agency (EPA). With establishment of this agency at the federal level, it became imperative for the states to establish their own Environmental Protecting Agencies, which now take care of environmental problems within these states. It was also established at the local government level to enable the people at the grass roots to feel the impact of this agency for effective administrative purposes. And ministry for water and environment also were established both at the federal and state governments. With these agencies at federal and states levels, environmental problems facing the states can be easily addressed within the shortest time and they have raised the hope of all Nigerians who are faced with the problems of wastes management in-the society.

Recommendations

It is not enough for the government to enact laws to enforce people to carry out their duties, it is man's moral responsibility and obligation to stop or minimize the threat of careless waste disposal. The government should institute policies that will consolidate and strengthen, provide and extend legislation on waste management. It should make waste management a priority issue and provide incentives and equipment for individuals and industries to finance research on modern waste management in the country.

Education and persuasion are important in bringing about changes especially in young people, therefore any meaningful change must involve education in broader sense than it is defined since the survival of man is at stake. Waste management should be introduced within our educational curriculum. And enlightenment campaign should be carried out by the environmental protection agency (EPA) or ministry for environment and water resources to educate the communities.

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