

EVALUATING HEALTH HAZARD POTENTIALS OF INDISCRIMINATE REFUSE DUMPING IN SOKOTO METROPOLIS

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ABSTRACT

Refuse means an unwanted product that humans consumes in which we are no more in need of. Dangers of indiscriminate refuse dump is all around the nooks and crannies of this country. In this paper, effort has been made to inspect some selected areas within Sokoto metropolis (Arkillia, Kanwuri, Mabera, Gidadawa, Alkammawa, Makera, Assada, Helele, gwiwaLowcost, and RunjinSambo areas) to ascertain how the residents of these areas are exposed to health hazards as a result of indiscriminate dumping of refuse. Personal observations and one-on-one interview of some residents were employed as sources of data from the study areas. It was observed by the residents that there is no proper waste management in these areas, which means that they are exposed to health related issues due to the menace of indiscriminate refuse dumping. Several recommendations were then made for the purpose of eliminating or reducing the risks.

1. INTRODUCTION

The word environment entails all the external factors, both living and non-living materials which surround man. It does not only comprise water, air and soil but also social and economic conditions under which man lives. The strategic aspect to man's health lies largely in the environment he lives. A great deal of man's ill health can be traced to adverse environmental risk-factors such as water pollution, air pollution, soil pollution, poor housing conditions, presence of animal reservoirs and insect vectors of diseases which pose a constant threat to man's health (Okafor, 2002). Often man is responsible for the environmental risk-factors in his environment through indiscriminate disposal of refuse.

A healthy man is a wealthy man. If the nation is healthy, the nation will be wealthy. A healthy man brings about a wealthy man, which brings the expression "health is wealth"(Ojasanya, 2002). One of the greatest environmental problems that pose a great challenge to the residence of many cities in Nigeria, is indiscriminate waste disposal. Sokoto metropolitan is not safe from this menace, as many areas are messed up with indiscriminate solid waste disposal.

Sokoto has been existing for long by its geographical location and known for its victory in wars during the olden days of Shehu Usman Danfodio's jihad expedition. Sokoto, though a developing city, was the capital of the then North Western state, which was later split into various states of the north. The city has been witnessing economic growth through various constructional activities, establishment of commercial centers and small-scale industries, urbanization, increase in population and improvement in structural facilities for social services. The inflow of people to the city resulted in its fast growth, development and expansion, to a large extent. There has also been daily increase in the heaps of refuse generated, littering the whole city. This has led to increase in environmental risk-factors and rates of ill-health.

Refuse are rubbish and materials that are not needed and are economically unusable without further processing (Waste Management Information Link 2006). Olanipekun, Oyeniya and Konwea (2007) asserted that refuse are unwanted, discarded, non-liquid materials emanating from various human activities at home, workshop, in the community and farms. Refuse and solid wastes include materials from house (paper, wood, dust, garbage) the street (paper, animal droppings, carcass, cellophane bags and leaves), market (empty sachets, bottles cartons etc) abandoned automobiles from industries, toxic industrial wastes, agricultural wastes and so on. Indiscriminate disposal of refuse is a situation where refuse are dumped in any convenient place whether at home, school, street or market place not minding the environmental risk-factors that are likely to follow. The problem of indiscriminate disposal of refuse and unsanitary environment should be given urgent attention because of the risk-factors on human health. Such risk-factors range from ill-health to severe health calamities, such as outbreak of epidemic diseases with adverse effects in some cases (Olorok, 2001). The high rate of refuse generation by people both in rural and urban areas is a direct reflection of the inefficient ways materials and energy resources are being used. Nearly every human activity creates refuse, which may be difficult to get rid of, especially with the careless attitude of many people to refuse disposal (Ekpu and Archibong, 2007). Lucas and Gilles (2006) asserted that indiscriminate habit of refuse disposal has significantly affected environmental cleanliness and in turn bred environmental risk-factors affecting the health and well-being of people.

Environmental Hazard is one of the dangers of indiscriminate refuse dump in human dwellings. It gives off an offensive odor which chokes our lungs, thereby affecting ones breathing. If one cannot breathe very well it can lead to death. There is an offensive odor because of what is on our roads. For example; when we pass through a filthy area, what we should do is to block our nostrils so as to prevent us from smelling it. The offensive odor chokes our lungs, therefore affecting our breathing. If ones breathing is not steady, one's life is worthless, which leads to death and effects the population size of the nation (Ojasanya, 2002).

Accidents in Our Environment is also one of the dangers of indiscriminate refuse dump in a metropolis. If an environment or an area is polluted or bombarded with filthy things, one seems to be affected by it and if not carefully prevented, it may cause an accident. It affects the metropolis in the sense that it brings the nation down. If a nation is filthy or polluted then when ranking the nation, the nation will be ranked as a filthy country. If a Foreigner comes to a place that looks polluted, they look at it as a Low country, therefore downgrading the nation (Ojasanya, 2002)

1.1 Sources of Refuse

This includes;

1. Refuse collected by the street cleansing service or scavenging called street refuse which consists of leaves, straw paper, animal droppings and litter of all kinds.
2. Market refuse collected from markets which contains a large proportion of putrid vegetables and animal matters.
3. Stable litter collected from stables which contain mainly animal droppings and left-over animal feeds.
4. Industrial refuse comprises a wide variety of waste, ranging from completely inert materials, such as calcium carbonate, to highly toxic and explosive compounds.
5. Domestic refuse consists of ash, rubbish and garbage. Ash is the residue from fire used for cooking and heating. Rubbish comprises of paper, clothing, bits of wood, metal, glass, dust and dirt. Garbage is the waste material arising from the preparation, cooking and consumption of food. It consists of waste food, vegetable peelings and other organic matter.

The correct disposal of waste is very important and many options are available depending on the types of wastes being produced, the volume of wastes being produced and the best disposal method to use. The principal disposal methods of refuse are:-

Controlled tipping or sanitary land-fill, Incineration or burning, Compositing, Dumping, Manure pits, and Burial. These methods are discussed below.

1.2 Controlled tipping or sanitary land-fill

Sanitary land fill is the most satisfactory method of domestic waste disposal. It consists of four steps:

- (i) Depositing waste in a planned controlled manner
- (ii) Spreading and compacting it in layers to reduce its volume
- (iii) Covering the material with a layer of earth
- (iv) Compacting the earth cover

Land fill areas should be located on the periphery of the town. Care is needed in the selection of land fill sites as domestic waste could be highly polluting. (Lucas and Gilles 2006).

Incineration or burning: burning is carried out where waste content is low and always at a localized level where there is no adequate collection services. Burning has a lot of disadvantages because of its close proximity to domestic dwelling. It could create fire risk in addition to producing atmospheric pollution.

Composting: it is best suited in situations where waste high in organic matter content is produced. Composting is a method of combined disposal of refuse and night soil or sludge.

Open Dumping or Indiscriminate Dumping: refuse is dumped in low lying areas as an easy method of disposal of dry refuse. The risk-factors of open dumping are: the refuse is exposed to flies and rodents; it serves as nuisance from the smell and unsightly appearance; the loose refuse is dispersed by wind; and drainage from dumps contributes to the pollution of surface

and ground water; This method is considered as a most unsanitary method that creates public health hazards, a nuisance and severe pollution of the environment (Park, 2007).

Manure pits: this method of refuse disposal is effective and simple in rural communities. The problem of refuse disposal in rural areas can be solved by digging 'manure pits' by individual householders. The garbage, cattle dung, straw and leaves could be dumped into the manure pits and covered with earth after each day's dumping.

Burial: Nwankwo (2004) discovered that burial of refuse is a method suitable for small camps. A trench 1.5m wide and 2m deep is evacuated and after each day use, the refuse is covered with 20 to 30cm of earth.

For the purpose of this paper, indiscriminate dumping of refuse would be considered, which is the throwing of refuse around resulting in gross pollution and the attendant risk-factors to human existence.

2. RESEARCH PROBLEM

In many cities including Sokoto, the volume of solid waste generated (a total of 107.3 tons, of waste per capita daily), has overwhelmed the urban administrator's capacity to plan for their collection and disposal. Thus, it is very common to find waste being littered on the streets, scattered in gutters and road sides. This practice has resulted in flooding of the streets and health related issues, as refuse is left to decay without being evacuated. The provision of waste disposal bin by the Sokoto Urban Development Authority (SUDA) is really inadequate and the removal of waste from the bins is ineffective because of lack of sufficient evacuation trucks and man-power.

3. OBJECTIVES OF THE RESEARCH

The major aim of this study is to evaluate the health hazard that the Sokoto dwellers are exposed to as a result of indiscriminate waste disposal within the metropolis. To achieve the aim, the following specific objectives would be considered;

1. To evaluate the categories of waste generated across the selected areas
2. To evaluate people's attitude towards waste management
3. To find out past measures that were taken in order to ascertain proper waste management
4. To suggest possible ways of addressing problems associated with waste management.
5. To assess the health issues that are likely possible as a result of indiscriminate refuse dumping

4. MATERIALS AND METHODS

The method used for data collection involves both primary and secondary sources. Reconnaissance survey was also carried out in the process of data collection. The primary source was limited to only personal observation and selective interview, in which ten (10) areas (Arkilli, Kanwuri, Mabera, Gidadawa, Alkammawa, Makera, Assada, Helele, gwiwaLowcost, and RunjinSambo) was taken into consideration. Houses were also inspected alongside streets to ascertain whether they employ the use of dust bins or not. Some of the residents of the area were also contacted via one on one interview on the frequency of evacuation of refuse from the areas by the Sokoto Environmental Management Agency.

5. RESULTS AND ANALYSIS

From the field study, the following were considered during the observation;

1. Category of waste generated in the areas
2. Houses with waste dumping facilities (waste bins)
3. Manners of waste disposal
4. Health issues that may like occur

While from the interview, the following were considered

1. Factors leading to indiscriminate waste dumping
2. Frequency of waste evacuation from the areas

It was observed that around the study areas there exists municipal waste, domestic waste, commercial waste and miscellaneous waste. But due to lack of industries within the areas, there are no industrial waste. Table 3.1 reveals the categories of waste observed in each of the areas visited;

Table 3.1: Category of waste generated

Areas	Municipal Waste (%)	Domestic Waste (%)	Commercial Waste (%)	Miscellaneous Waste (%)	Industrial Waste (%)
Arkillia	15	60	20	5	0
Kanwuri	10	55	30	5	0
Mabera	15	65	15	5	0
Gidadawa	10	70	10	10	0
Alkammawa	10	65	25	10	0
Makera	5	40	50	5	0
Assada	15	60	20	5	0
Helele	10	65	25	10	0
GwiwaLowcost	5	70	20	5	0
RunjinSambo	15	70	10	5	0

Source: Field survey, 2016

From the table, it could be seen that domestic waste carries the largest percentage of the waste generated across the ten areas visited.

On the availability of waste bins around the areas and streets, it was observed that few or none of the households care about the use of waste bins for proper collection of waste, and rather choose to use open lands around the areas for their disposal. Most of the areas visited do not employ the proper manners of waste disposal as it was observed that open lands very close to houses are used for dumping of refuse and in most cases they are left there for months before they are partially evacuated. In some areas, it was also observed that drainages were their dumping sites, which results to blockage of these drainages and often cause flooding of the areas during rainy season.

Some residents interviewed lamented that lack of organized waste evacuation network within the metropolis and proper evacuation of the refuse by the Environmental Agency are some of the factors that lead to indiscriminate dumping of refuse around their areas. Also that the agency is not frequent with evacuation exercise around the area. On the health issues, there are the possibilities of outbreak of diseases such as cholera, polio, malaria etc, as filthy environment result in health issues. Figure 1.0 is the chart of health issues that is likely to occur in the metropolis.

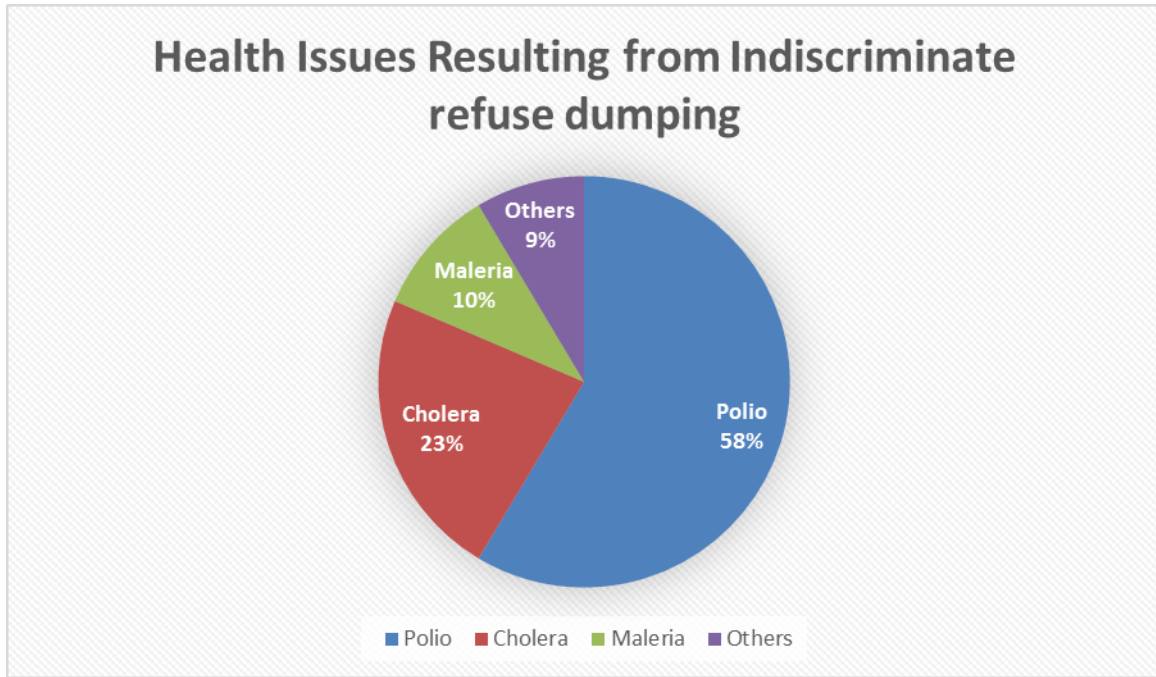


Figure 1.0: Health Issues

From the chart, it can be observed that Polio takes the largest percentage followed by cholera. These are deadly diseases troubles the attention of authorities worldwide.

6. CONCLUSION

It is quite obvious that residence of Sokoto usually dump their refuse indiscriminately along most of the streets and in the drainages. Indiscriminate dumping of refuse is a common phenomenon and the state of environmental health seems to be poor in Sokoto, though the government is making some efforts, but much could still be done to reduce the risk-factors of indiscriminate disposal of refuse. This conclusion has been arrived at because open lands are almost everywhere with offensive odor, and little effort is being made to address the issue. Air pollution and water borne-diseases are also very common. Also as a result of the observed dumping of refuse indiscriminately, a number of threat factors or health hazards had been identified.

7. RECOMMENDATIONS

Based on the conclusion made on this study, the following suggestions are to be considered for both individual households and Government: Every household should:

- obtain waste disposal baskets for refuse collection and dump inside strategically placed waste disposal containers provided by the government that would be emptied regularly.
- employ environmental-friendly refuse disposal methods such as burying or incineration in case they are using open place for dumping of refuse

The government should ensure:

- that toilet facilities are provided everywhere especially in the market places and well supervised by sanitary health inspectors to ensure effective use.
- that monthly environmental sanitation being observed between 7.00-10.00am of the last Saturday of the month should be enforced both in the offices as it normally occurs every last Thursday of the month, in the market places and in every local government area to ensure compliance while defaulters should be severely dealt with.
- that there is adequate provision of refuse vans and heavy machines for transportation of wastes for land filling purposes.
- that there is effective public health education campaigns in the metropolis on how to keep the environment free from indiscriminate disposal of refuse and its effects.
- that there is an intervention strategy to help people cultivate environmental-friendly behavior, through mass media campaigns, seminars, market approach, community groups and so on.

- As a result of the problem of contamination by sewage effluent, regular and continuous bacteriological testing of public water supply must be carried out to determine the type and number of bacteria present and ensure the water is safe for use.
- There is the need for the Federal government of Nigeria to address the problem of water pollution as this is the first step in reversing environmental degradation.

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