



Implications of Dumping Human Waste in Lagos Rivers

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ABSTRACT

About 80 percent of the world's wastewater returns to the ecosystem devoid of proper treatment (Internet geography, 2021) and directly or indirectly, great number of the world's populations consumes this untreated waters leading to deadly diseases such as polio, dysentery, cholera and typhoid (United Nations Water, n.d). Lagos state is not exception, and as a result, this study investigated the implications of dumping human waste in Lagos rives. The study was guided by three research questions and objectives. Questionnaire was adopted for data collections and analysis was done by mean and standard deviation. The result of the study which was carried out among 203 Makokoarea of Lagos state indicated that dumping human waste in Lagos rivers has negative impacts on human lives as attracts several bacterial and viral disease. It makes the environment unsafe and unhealthy for both domestic and wild life as well as human. Based on the outcome of this study, several recommendations and conclusions were made.

Keywords: Dumping Waste, Human Waste, Lagos.

1 Introduction

Water, a precious natural resource is important to human existence and activities. The availability of quality water enables a balance in the ecology system, as well as promotes economic development. According to Olalekan, Oladipupo, Habeeb and Oluwaseun (2012), as central as the river is to human activities, it is also a major site for waste deposits of all kinds, hence serving as a source of pollution and inaccessibility to safe water to dwellers in most developing countries.

The city of Lagos like many cities in developing countries is faced with challenges owing to its rapid population growth. In addition to this, the city is geographically positioned close to a lagoon with lakes and rivers around it. Around these rivers and lakes are squatter settlements also known as slums, which are characterized by poor health facilities, inadequate educational system, inaccessible clean water, unemployment, ineffective sanitation systems and high rate of crime. River serves domestic, commercial and agricultural purposes to humans, yet the water is unsafe due to disposal of various types of waste, which pose a threat to not only the slum areas positioned around its course but to the entire city as well (Abiodun&Akinola, 2014). Waste is described as worthless and unpleasant products emanating from the domestic and industrial activities of humans released into the environment (Ezechi, Nwabuko, Enyinnaya& Babington, 2017). The classification of waste is liquid, solid, semi-solid and gaseous. Waste generally leads to flooding which can be a threat to lives and properties. However, the focus of this study is on the implication of dumping a category of waste which is the human waste in Lagos Rivers.

2 Problem of study

It is estimated that almost 80 percent of the world's wastewater returns to the ecosystem devoid of proper treatment (Internet geography, 2021). The implication of this is that nearly a quarter of earth's human population utilizes this water which is contaminated with human waste, thus breeding deadly diseases such as polio, dysentery, cholera and typhoid (United Nations Water). In Lagos state, the number of people diagnosed with diseases such as cholera and dysentery is ever increasing. The cause of this is attributed to the presence of bacterial and chemical pollution, which is made possible by the unavailability of effective sewage systems. Rainwater washes sewage into open drains, from which the pollutants are transported to the rivers. Pollutants in turn infect well waters and borehole water, from which street vendors derive drinking water to be sold

to the public (Internet geography, 2021). This implies that the problem of human waste disposal extends beyond the slums positioned along the coastal region to the populace. Based on this, the study seeks to determine the implications of dumping human waste in Lagos Rivers

3 Research objectives

The study generally seeks to determine the implications of dumping human waste in Lagos Rivers. Specifically, the study seeks:

1. To determine the impact of dumping human waste in Lagos Rivers on human lives
2. To determine the effect of dumping human waste in Lagos Rivers on the environment
3. To explore the means of eradicating the dumping of human waste on Lagos Rivers.

4 Research questions

1. What is the impact of dumping human waste in Lagos Rivers on human lives?
2. What is the effect of dumping human waste in Lagos Rivers on the environment?
3. What are the means of eradicating the dumping of human waste on Lagos Rivers?

5 LITERATURE REVIEW

The world health organization (WHO) describes waste as a thing no longer desired by the owner at a specific time and having no perceived market value (Ezechi, et al, 2017). It should be noted that not everything regarded as waste is entirely useless, as there is a possibility of recycling it to produce new items. Most Nigerian cities have their share of indiscriminate waste dumping, and the usual dump sites are creeks, farms, markets, and road-sides amongst others. The composition of these wastes ranges from industrial derived from inorganic materials, chemicals, pesticides, to domestic waste derived from household inclusive of sewage, human and animal remains (Ezechi, et al, 2017).

Waste is ever increasing and made even more complex by factors such as poor living standard, growing population, bad governance, low awareness level and poverty. These problems coupled with poor waste disposal system have led to increased urban population, increased waste generation and rapid industrialization. A lot of areas are reported to generate more waste than they can handle, which increases as income level and development rises (Yan, Sankoh& Tran, 2013). Regarding waste disposal services, the slums appear to receive the least attention.

The indiscriminate dumping of waste has been an issue to both humans and the environment as well. It has created health challenges to people who reside around dump sites. Reportedly, residents around such dumpsites seem to be unaware of the implications and harmful effects of indiscriminate waste dumping, apart from the offensive odour it emits in the environment. Furthermore, the exposure of humans to waste poses health risks to the population affecting livelihoods and the environment. Environmentally, flood increases due to drainage obstruction; while health wise infectious diseases such as cholera, typhoid fever, diarrhea, malaria amongst others plague the populace.

Olalekan, Oladipupo, Habeeb and Oluwaseun (2012) carried out a field survey investigating the quality of Ogun River in south-west, Nigeria during the rainy and dry seasons. To carry out the study, the authors collected sample of water from seven various locations such as market, brewery, and residential areas. The physico-chemical parameters of these samples were analyzed to determine their effects on the environment and the river. The study went on to compare the value of phosphate, temperature, COD, dissolved oxygen, Ph, BOD, and hardness from these sites during the various seasons, using the World Health Organization (WHO) standards for domestic and commercial water. There were traces of dangerous chemical and physical impurities found present in the river which was beyond accepted limits; which constitutes a health risk to communities who depend on the river as their source of water. The study emphasized the necessity of having in place a program that enables the monitoring of pollution as well as water management in Nigeria.

Olabode, Olabode, and Lawrence (2014) examined the environmental impact of waste disposal on river waterways in Akoko, Ondo State, Nigeria. Using questionnaires distributed to sixty respondents as the source of data and twenty two random samples collected from various settlements; and simple percentages used for data analysis, it was found that people often dispose their waste by flushing it into streams, which affects the quality, taste, colour and odour of the water. The study identified the causes of flood to be mainly obstructed water drainages and careless waste disposal. In view of this, the study recommended the establishment of an effective waste management strategy and disposal system to inspire neatness and prevent water pollution

Nwaneri, Nwachukwu, Ihua and Nwankwo (2018) examined the effect of waste disposal on the Nworie River by determining the bacteriological and physicochemical parameters from the sample of water collected from the river at three different times. The study used cross-sectional descriptive while conventional microbiological methods of culture were used in examining the samples collected. An APHA standard analytical method for the physicochemical assay was further adopted in the analysis of the water sample. The study found a high level of bacteria such as Coliform, Shigella and Vibrio in the water. This evidenced the fact that the river's physical and chemical attributes had deviated from acceptable limits established for potable water. The effect of this was from the wastes often dumped the Nworie River which resulted in reducing and negatively affecting the water quality. The water portability was further compromised by the presence of pathogenic bacteria, which makes it unsuitable for human consumption.

6 METHODOLOGY

Descriptive survey was adopted for the present study. The population comprised of residents in the Makoko area located in the coastal mainland of Lagos state. The population of Makoko is unknown because it is formally unrecognized and considered illegal, but referred to as a slum (the Guardian, 2016). Random sampling technique was used in selecting 250 respondents for the study. Data was collected by means of structured questionnaire which was distributed to the respondents. The questionnaire was divided into two Section: section A which elicited demographic information and section B which elicited answers in relation to the questions formulated for the study. The questionnaire was structured on a five point Likert scale ranging from 'strongly agree', 'agree', disagree' to 'strongly disagree'. The collected data was analyzed using mean and standard deviation.

The decision rule which determine whether or not an item is accepted as true was based on the fact that the means of the item must be 2.5 and above, if otherwise, then reject.

7 RESULTS AND FINDINGS

In this study, 250 questionnaires were distributed but only 203 were retrieved. The data analysis was based on the actual sample collected. The result is as presented below.

Table 1: Demographic data of the respondents

| Demographics | Perimeter | Sample size(n=203) | |
|-----------------------------------|------------------------------|--------------------|------------|
| | | Frequency | Percentage |
| Gender | Male | 100 | 49.3 |
| | Female | 103 | 50.7 |
| Age | 21-30 years | 117 | 57.6 |
| | 31-40 years | 64 | 31.5 |
| | 41-50 years | 22 | 10.8 |
| | 51 years and above | - | - |
| Highest educational qualification | OND/Technical/NCE | 45 | 22.2 |
| | B.Sc/ B.A./HND or Equivalent | 119 | 58.6 |
| | Master's Degree | 38 | 18.7 |
| | Others | 1 | 0.49 |

Field survey (2021)

The table above presents the demographic information of the population studied. Based on the data collected both male and female respondents were well represented in the study. In the study also, the ages of the participants varies indicating that the participants came from different age group, with diverse level of educational qualification. This shows that sample represented different categories of respondents in order to gain information from the different group of people in our society.

RQ1: How does dumping human waste in Lagos rivers affects human lives?

Table 1: Respondents opinions on the impact of dumping human waste in Lagos rivers affects human lives

| | Mean* | Stdev | Decision To accept ≥ 2.5 |
|---|-------------|-------------|----------------------------------|
| Spread of bacterial and viral disease | 3.86 | 0.79 | Accepted |
| Negative health consequences for people who depend on the river as a source of food | 3.84 | 0.99 | Accepted |
| Increased rate of low birth weight as a result of women exposed to waste pollutants | 3.43 | 0.92 | Accepted |
| High rate of mortality | 3.57 | 0.73 | Accepted |
| Overall Means and standard deviation | 3.68 | 0.86 | |

* 1= strongly disagree, 2= disagree, 3= agree, 4= strongly agree

Source: Research Data computation (2021)

The first research question was formulated to investigate the respondents' opinions on the impact of dumping human waste in Lagos river on human lives. The analysis was carried out using mean and standard deviation; and the decision rule to accept any statement whose mean score is between 2.5, and above; otherwise reject. The table above shows an overall average means of 3.68 and a standard deviation of 0.86 which indicate that all the items in the statement were accepted. As such, the result revealed that dumping human waste in Lagos Rivers affect human lives by spreading bacterial and viral disease ($\bar{x}=3.86$); has negative health consequences for people who depend on the river as a source of food ($\bar{x}=3.84$); Increased rate of low birth weight as a result of women exposed to waste pollutants ($\bar{x}=3.43$); and High rate of mortality($\bar{x}=3.57$).

RQ2: What is the effect of dumping human waste in Lagos Rivers on the environment?

Table 2: The opinion of the respondents on the effect of dumping human waste in Lagos Rivers on the environment

| | Mean* | Stdev. | Decision To accept ≥ 2.5 |
|--|-------------|-------------|----------------------------------|
| Reduced food production | 3.64 | 0.63 | Accepted |
| Deteriorate water quality which stalls economic growth, | 3.50 | 0.55 | Accepted |
| Generates gas which is explosive and contributes to the greenhouse effect. | 3.71 | 0.57 | Accepted |
| Attraction of vermin | 3.63 | 0.31 | Accepted |
| Overall Means and standard deviation | 3.62 | 0.52 | |

* 1= strongly disagree, 2= disagree, 3= agree, 4= strongly agree

Source: Research Data computation (2021)

Table 2 above presents the opinion of the respondents on the effect of dumping human waste in Lagos Rivers on the environment. The result as presented in the table indicated that all the items exceeded the benchmark 2.5 and as such is accepted. The sectional mean is 3.62 which further justified the acceptance of the items. As a result, this paper concludes that dumping of human waste in Lagos rivers reduces food production, deteriorate water quality which stalls economic growth, generates gas which is explosive and contributes to the greenhouse effect, and attracts vermin. This result shows that dumping of human waste results has devastating effects on human's health.

RQ3: What are the means of eradicating the dumping of human waste on Lagos Rivers?

Table 3: The respondents' opinions on the means of eradicating the dumping of human waste on Lagos Rivers

| | Mean* | Stdev | Decision To accept ≥ 2.5 |
|---|-------|-------|----------------------------------|
| Educational and awareness programs aimed at controlling pollution | 3.31 | 1.04 | Accepted |
| Provision of proper waste disposal system | 3.18 | 0.78 | Accepted |
| Waste management strategy | 3.30 | 1.03 | Accepted |

| | | | |
|---|-------------|-------------|----------|
| Demolition of increasing encroachment | 3.22 | 0.68 | Accepted |
| Overall Means and standard deviation | 3.25 | 0.88 | |

* 1= strongly disagree, 2= disagree, 3= agree, 4= strongly agree

Source: Research Data computation (2021)

The final objective of this study was formulated to investigate the opinion of the respondents on the means of eradicating the dumping of human waste on Lagos Rivers. The outcome of the analysis indicated a sectional average mean of 3.25 which is above the benchmarked set for this study. The individual items also exceeded the benchmark ≥ 2.5 . This shows that all the items were accepted as measures that could be taken to eradicate the dumping of human waste on Lagos Rivers. Among these are: organizing proper educational and awareness programs aimed at controlling pollution, provision of proper waste disposal system, adopting adequate waste management strategy, as well as demolition of increasing encroachment.

8 Discussion

One of the findings of this study indicated that dumping human waste in Lagos rivers has negative impacts on human lives as it results in spreading bacterial and viral disease; has negative health consequences for people who depend on the river as a source of food; Increased rate of low birth weight as a result of women exposed to waste pollutants; and High rate of mortality with sectional average mean of 3.25. This result is consistent with study by Ezechiet *al* (2017) who also found careless dumping of refuse in waters to be detrimental to both human and animal including aquatic life.

The second result of the study indicated that dumping human waste in Lagos rivers affects the environment. With the sectional average mean of 3.62, the study concludes that dumping of human waste in Lagos rivers reduces food production, deteriorates water quality which stalls economic growth, generates gas which is explosive and contributes to the greenhouse effect, and attracts vermin. Put differently, it makes the environment unsafe and unhealthy for both domestic and wild life as well as human. The result of this study is consistent with Nwaneri, Nwachukwu, Ihua and Nwankwo (2018) whose study indicated that dumping waste in waters affects the environment, especially those wastes that float and are thus swept to the environment making it dirty and unhealthy to its habitat.

Finally, the study revealed certain measures that could be adopted to eradicate the dumping of human waste on Lagos Rivers. Among these are: organizing proper educational and awareness programs aimed at controlling pollution, provision of proper waste disposal system, adopting adequate waste management strategy, as well as demolition of increasing encroachment. The result of this study is consistent with that carried out by Olalekan, Oladipupo, Habeeb and Oluwaseun (2012) who made several recommendations including adequate waste management, establishing policies against dumping waste in the waters, among others.

9 Conclusion and recommendations

Dumping wastes in waters is not just a Lagos problem as it remains a global issue. Dumping waste naturally results in water pollution which does not only affect the immediate environment but floats to other parts of the world causing water-borne diseases which endanger not just human but also human and animal lives. This study has indicated that dumping waste is unhealthy and based on the result, recommends proper waste disposal system to control the incessant dumping of waste in rivers. The study also recommends creation of awareness and educational programs that will enlighten the people on the dangers of dumping waste in the rivers. Regulations should be made to prevent people from dumping waste into the rivers as well as task forces should be instituted to ensure proper waste disposal.

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Appendix**REQUEST FOR INFORMATION**

Dear Respondent,

I am carrying out a study on “Implications of dumping human waste in Lagos Rivers”, and you have been chosen to be part of the study. This questionnaire is only for academic purposes. Kindly select the response which applies to you and all information will be kept confidential

SECTION A**Gender:**Male Female **Age**21-30 years 31-40 years 41-50 years 51 years and above **Education qualification**OND/NCE B.Sc./ HND M. Sc./MBA Others Specify.....**SECTION B:**

Instructions: Please tick (√) as appropriate where

SA = Strongly Agree (SA), A = Agree, D = Disagree (D), SD = Strongly Disagree (SD)

Key: Strongly agree (4), Agree (3), Disagree (2), and strongly disagree (1).

| S/N | ITEMS | SA | A | D | SD |
|------------|---|----|---|---|----|
| RQ1 | What is the impact of dumping human waste in Lagos Rivers affects human lives? | | | | |
| 1 | Spread of bacterial and viral disease | | | | |
| 2 | Negative health consequences for people who depend on the river as a source of food | | | | |
| 3 | Increased rate of low birth weight as a result of women exposed to waste pollutants | | | | |
| 4 | High rate of mortality | | | | |
| | What is the effect of dumping human waste in Lagos Rivers on the environment? | | | | |
| 5 | Reduced food production | | | | |
| 6 | Deteriorate water quality which stalls economic growth, | | | | |
| 7 | Generates gas which is explosive and contributes to the greenhouse effect. | | | | |
| 8 | Attraction of vermin | | | | |
| | What are the means of eradicating the dumping of human waste on Lagos Rivers? | | | | |
| 9 | Educational and awareness programs aimed at controlling pollution | | | | |
| 10 | Provision of proper waste disposal system | | | | |
| 11 | Waste management strategy | | | | “ |
| 12 | Demolition of increasing encroachment | | | | |