KIU Journal of Social Sciences Copyright©2020
Kampala International University ISSN: *2413-9580*; 6(2): 109- 113

Environmental Impact of Solid Waste Treatment and Disposal Facilities on Residents of Ijebu Ode Local Government

JOHN A. FAYEMI
Tai Solarin University of Education, Ijagun, Ijebu-Ode, Nigeria

Abstract. This study examined environmental impact of solid waste treatment and disposal facilities on residents of Ijebu-Ode Local Government Area. Descriptive research design was adopted for the study and a simple random sampling techniques was used to select 100 respondents for the study. A self-developed questionnaire was used to obtain information from the respondents. Data obtained through two research hypotheses formulated were analyzed and tested with chi-square statistical tool. The findings at the end of the study revealed that there is significant impact of solid waste disposal on the health status of Ijebu –Ode people. It further revealed there is significant impact of indiscriminate disposal of waste on environment problems in Ijebu Ode Local Government. The study recommended that government increased the per-capital income of the people in the study area, this will enable them to manage and dispose their waste properly and effectively, and that urgent attention should be given to environmental education for the people in the study are. This will create public enlightenment and awareness on proper management of solid waste and development of environment friendly attitudes. It further recommends that the existing environmental laws and regulation be reviewed and effectively mechanism for the enforcement of the laws and regulations be put in place.

Keywords: Waste Treatment, Solid Waste, Disposal Facilities, Environmental Education, Recycle, Refuse Dump Site.

1. Introduction

According to Fayemi (2017) we need clean environment at the same time we cannot but have wastage's. Waste management problems as it affects water, land and air in Nigeria cities and Ijebu-Ode In particular calls for serious concern. The study of problems associated with the efficient management of waste in Ijebu-Ode as a commercial town in Ijebu province is critical, necessary and essential to the sustainability of the human environment.

Ayotamuno and Gobo (2014), assert that the continuous indiscriminate disposal of municipal solid waste is accelerating and is linked to poverty, poor governance, urbanization, population growth, poor standard of living and low level of environmental awareness and inadequate management of environmental knowledge. Most of these wastes are generated from domestic sources and are mostly characteristics of household waste.

Corroborating the above statement Akinola & Salami (2011), argues that some of the factors influencing solid waste generation in Ijebu Ode and Nigeria at large include inadequate technology facilities for separation at the source, strength of solid waste management policy and enforcement of environmental education and awareness laws together with income status of individuals among others. Over the years, various waste collection methods have been adopted in different part of Nigeria including Ijebu-Ode.

Lasisi (2007) identified six methods including house to house, communal depots, curbside, block systems, commercial and industrial collection and bulk loading. Abel (2009), reported that in Ijebu Ode, waste collection was initiated by both public and private sectors, although the effectiveness of this is largely a function of location and where the collection is done or been carried out is a function of income of the owner of the waste to be able to pay for the service rendered.

Indiscriminate solid waste disposal is actually a menace and embarrassment to Ijebu Ode and its

environs where heaps of refuse litter most part of the city. Considerably percentage of solid wastes generated in Ijebu-Ode are either deposited on the roads or road sides, unapproved dump sites, in water way's (drainage system), or in ope sites which adversely affect flora and fauna as well as the environment especially when it is not appropriately collected and disposed.

Many studies in the last twenty years or more on social-demographic variables and environmental perception have helped in understanding people's views, and thinking about the environment. They have attempted to predict environmental awareness and attitudes of people based on their social-demographic characteristics. However, this study focused on investigating the impact of solid waste treatment and disposal facilities on the environmental problems in Ijebu-Ode and the health of the people in particular.

2. Literature Review

Abila & kantola (2013) defines waste as a substances and materials which are disposed of according to the provision of the national law. Urban wastes are those materials that are generated, used and have no further value and are thrown away in the environment, these materials can be valuable raw materials located at a wrong place (Sharma, 2010) Miller (2004) argues that municipal solid waste are regarded as discarded materials arising from operational activities taken place in different land use such as residential, commercial and industrial. Domestic or residential wastes are those that are collected from dwelling places on a regular basis, such waste include organic matter resulting from preparation and consumption of food, rags, nylon and ashes which remains after various cooking and heating processes. The industrial wastes are those generated by the industries, these could be solid, liquid, sludge. (Omole and Alakinde 2013).

Waste can be categorized into five according to Gordon(2010):

The biodegradable: which includes things like food, and kitchen waste such as meat trimmings or vegetable peelings, yard or green waste and paper.
Recyclable Materials: this includes non-biodegradable items like glass, plastic bottles, other plastics, metals and aluminium cans.
Inert Waste: inert materials which include construction and demolition waste are not necessarily toxic to all species but can be harmful to humans.
Composite Waste: items composed or more than one materials such as clothing, plastics as well as children toys.
Households Hazardous: this includes medicines, paints, batteries, light bulbs, fertilizers and pesticides containers and electronic waste (e-waste) like computers, printers and cellular phones.

3. Environmental Impacts and Management of Solid Waste Disposal

Solid waste has been a major environmental issue everywhere since industrial revolution. Besides the waste we generate at home, school, market and other public places there are also those from the hospitals, pharmaceuticals, industries, farms and other sources (Fantola and Oluwade, 2010). Humans rely so much on material things and these materials almost end up as waste. Thus, Matejicek and Benesova (2002), considered solid waste as something which the owner discards or intends to discard because they have become useless and unwanted. These include papers, plastics, containers, bottles , can, food , car tyres, old refrigerators, scraps of electronics, broken furniture, hospitals waste and other packaging materials. Some of these materials are biodegradable, that is, materials that can decay after been discarded while others are non-biodegradable which do not easily decay or cannot even decay. They pile up in refuse dumps and landfills, these bring great harm to the land, water and people around. Sango-doyin (2011), notes that apart from these wastes there are other groups of hazardous and harmful solid waste which can potentially threaten public health or cause environment problem generally, such waste could be inflammable or difficult to treat, keep, or dispose off. They may contain substances which are reactive (can easily explode), corrosive (can easily eat through metals) or toxic, infectious, carcinogenic (poisonous to human and animals).

However, human being ought not to neglect environmental sanitation, since they know that their health and well- being is connected and dependent on the quality of the environment, this is unfortunate. Studies have revealed that household account for about half of the solid wastes generated, that is, by weight in the cities such as Ijebu-Ode (Omole & Alakinde 2013, Lasis, 2007). It has been observed that Ogun State and Nigeria in general paid more attention to solid waste management, despite this attention, collection, disposal, processing treatment, recycling and utilization have defied solution as a result of the attitude of some Nigerian. Onokerhorayae (2007), in

his study related the issue of the decomposing un-cleared solid wastes in urban centers to lack of comprehensive land use system. He assert that poorly maintained winding street and roads do not give room for the efficient evacuation of solid wastes to the incineration centers at the outskirts of the cities.

In their study, Akinola and Salami (2011) noticed that management of solid waste generated within the urban centers has become one of the most obstinate problems of development. Their study revealed that in the last two decades, there had been a phenomenal increase in the volume and range of waste generated in many developing countries of the world, Nigeria inclusive. The rapidly growing metropolis in developing countries has been identified as one of the major factors responsible for solid waste problems or treatments.

4. Study Area

Ijebu-Ode is a local government area and city located in south - western part of Nigeria. The city is located 110km by road north-east of Lagos, it is within 100km of the Atlantic ocean in the eastern part of Ogun State and possesses a warm tropical climate Ijebu-Ode became the seat of Ijebu-Division council when created as Ijebu-Division.

Several tones of municipal solid waste is left uncollected on the street of Ijebu-Ode each day like most cities in the developing world. These waste block drainages, creating breeding ground for vectors and spreading diseases and creating a myriad of related health and environmental problems. A substantial part of the town has little or no access to solid waste collection services. This is due to lack of proper land use planning which is making it difficult for collecting trucks to reach many areas. This result is that a large portion of the population is left without access to solid waste management making them particularly vulnerable (Nabegu, 2008).

5. Research Methodology

This study adopted descriptive research design to obtain first-hand information from the studied population. Two hypotheses were formulated and analyzed in this study. There are:

Ho_1 There is no significant impact of solid waste disposal on the health states of Ijebu-Ode.
Ho_2 There is no significant impact of solid waste disposal on the environment problems in Ijebu-Ode.

The target population for the study consisted of all residents of Ijebu-Ode local government area of Ogun state. Simple random sampling technique was used to sample one hundred respondent for the study. The main instrument used for data collection was a self-developed questionnaire which was divided into two sections. The instrument was validated by researcher to ensure face and content validity, the reliability was also done through test-retest test method. The researcher personally visited the respondents to administer the instrument for data collection.

Hypothesis 1: There is no significant impact of the solid waste disposal on health status of ijebu-ode people. The data used in testing this hypothesis is from the responses to question 5 in the instrument.

Table 1: Reponses of the people to impact of solid waste disposal on the health status of Ijebu-Ode people.

Attribute	O	E	O-E	$(O-E)^2$	$(O-E)^2/E$
Strongly Agreed	32	25	7	49	1.96
Agreed	58	25	33	1089	43.56
Disagreed	10	25	-15	225	9
Strongly Disagreed		25			
Total	**100**				**52.56**

Degree of freedom= (C-1)(R-1)
=(4-1)(4-1)
= 3 X 3
= 9
Decision Rule: X^2 tab at 5% level of significance = 9.49

Interpretation:

From the above table, it can be observed that the computed value was more than the critical value indicating that the observed frequencies differ significantly from the expected frequencies. The Null hypothesis was rejected since the calculated value of $X^2 = 52.56$ was greater than its critical value (9.49) at 5% level of significance. This means that there is significant impact of solid waste disposal on the health status of Ijebu-Ode people.

Hypothesis 2: There is no significant impact of indiscriminate disposal of waste on the environmental problems in Ijebu-Ode.

The data used in testing this hypothesis is from the responses to question 8

Table 2: Responses of people to impact of indiscriminate disposal of waste on the environmental problems in Ijebu-Ode.

Attribute	O	E	O-E	$(O-E)^2$	$(O-E)^2/_E$
Strongly Agreed	40	25	15	225	9
Agreed	58	25	33	1089	43.56
Disagreed	2	25	23	529	21.16
Strongly Disagreed		25			
Total	**100**				**73.72**

Interpretation:

From the above table, it can be observed that the computed value was more than the critical value, indicating that the observed frequencies differ significantly from the expected frequencies. The null hypothesis was rejected since the calculated value X^2 =73.72 was greater than its critical value (i.e 9.49) at 5% level of significance. This means that there is significance impact of indiscriminate disposal of waste on environmental problems in Ijebu-Ode.

6. Discussion

From research hypothesis one, it was revealed from the data collected that solid waste poses various threats to public health and adversely affects flora and fauna as well as environment especially when it is not appropriately collected and disposed.

More so, considerable percentage of solid wastes generated in Ijebu-Ode are either deposited on the road sides, unapproved dump sites, in water ways (drainage system), or in open sites which adversely affect environmental friendliness. The findings go in line with the study of Adewusi and Onifade (2006) which focused on the effects of urban solid waste on physical environment and property transactions in Surulere Local Government Area of Lagos State, Nigeria, which posited that if the solid wastes are not managed properly, decomposition and putrefaction may take place, causing land and water pollution when the waste products percolate down into the underground water resources.

Form the data collected and the analysis of hypothesis two, it was revealed that indiscriminate disposal of solid wastes generates in Ijebu Ode such as maize cobs, leaves, charcoal, ashes, papers, vegetable and fruit left over, polythene bags, metals, bottles, and electronics part. The findings corroborate the findings of Butu (2013) who argued that the huge heaps of refuse dumps that are commonly seen on open space and on the major street are been removed by rainstorm into drainage channels thereby preventing easy flow of water and finally lead to flooding of the highways and sometimes people's homes. These blocked drainage channels often contain a lot of materials including decomposable substances with offensive odour which welcomes different types of flies and other harmful bacteria carrying insects which are harmful to humans.

7. Conclusion

A critical examination of the waste disposal methods clearly show that the area under investigation was traditional and slums part of the town. These areas are not well planned thus it is not easy to evacuate waste by the government waste vehicles. The municipal solid waste is very high in Ijebu-Ode because of the recent increase in population couple with the fact that the town is a commercial centre of Ijebu division.

The municipal solid wastes noticed in Ijebu Ode include biodegradable wastes such as leaves, woods, animal dungs, human faeces and non-biodegradable waste such as plastics, bottles, glass, electronics wastes, polythene bags also called pure water sachet among others. These non-biodegradable wastes are very dangerous to human health and the sustainability of human environment.

8. Recommendations

- Poverty has been identified as the major problem of many developing countries such as Nigeria. Therefore, the government should increase the per-capital income of the people in the study area, this will enable them to manage and dispose their waste properly and effectively.
- Urgent attention should be given to environmental education for the people in the study area. This will create public

enlightenment and awareness on proper management of solid waste and development of environmental friendly attitudes.

- The existing environmental laws and regulations should be reviewed and effective mechanism for the enforcement of the laws and regulations be put in place.
- Environmental law enforcement officer should be recruited at the Local Government levels and be empowered to enforce environmental laws at the grassroots levels.
- Enough funds should be made available for the government agencies in-charge of the environment for the effective management of human environment.
- Government should establish recycling plants at various levels i.e. local, state, and federal to recycle the non- biodegradable solid wastes materials.

References

Abel, O.A. (2009). An Analysis of Solid Waste Generation in a Traditional African City: The Example of Ogbomoso, Nigeria. *Environmental and Urbanization SAGE Journal.* 19(2), 527-537.

Abila, B. & Kantola, J. (2013). Municipal Solid Waste Management Problems in Nigeria: and evolving knowledge management solutions. World Academy of Science, Engineering and Technology. 78: 313-318.

Adewusi, O.S & Onifade, O.A (2006). Waste Management within the Context of Susutainable Development. In Aina and Adedipe (eds). The Making of the Nigerian Environmental Policy FEPA Monograph. pp. 103-117

Akinola, S. & Salami, R. (2011). An Assessment of the Effectiveness of Private Sector Participation Initiative in Solid Waste Management in Mushin Local Government Area, Lagos State. *Nigerian Journal of Social and Educational Research*, University of Ado-Ekiti.

Ayatamuno, J.M & Gobo, A.E (2014). Municipal Solid Waste Management in Port Harcourt, Nigeria: Obstacles and prospects. *Journal of Management of Environmental Quality*. 15(4). 389-398.

Butu, A.W (2013). Spatial Variation in the Levels of Concentration of Metal Contaminants in River Kubani Zaria, Nigeria. Journal of Environmental and Earth Science 3(1), 183-191.

Fantola, A. & Oluwade, L. (2010). Solid Waste Management in University of Ibadan, *African Journal of Science and Technology*, 2 (2): 25-46.

Fayemi, J.A (2017).Values Clarification and Action Learning as Strategies for Enhancing Junior Secondary School Students' Learning Outcomes in Environmental Education Concepts of Social Studies. Unpublished Ph.D. Thesis, Department Of Arts And Social Sciences Education of Olabisi Onabanjo University, Ago Iwoye.

Fayemi, J.A & Odulaja, A.L (2018). Levels of knowledge and Attitude of Junior Secondary School Students in Environment Education Concepts in Ogun State. *Journal of Educational Foundations and Development*. 7, 111-143.

Gordon, H.S. (2010). The Economic Theory of Common Property Resource, in: RK Dorfman (ed) Economic of the Environment; London: Methuen. 221-239.

Lasisi, K.S (2007). An Appraisal of Municipal Solid Waste Management in Lagos State. Ibadan, Longman Press.

Matejicek, L. & Benesova, L. (2002a). Modelling of Environmental Pollution in Urban Areas with GIS: The 1st Biennial meeting of International Environmental Modelling and Software Society, Lugano, Switzerland, Pp 61-66.

Miller, G.T. (2004). Living in The Environment; Belmont, California-Wadsworth Publishing Company: 78-83.

Nagbegu, A.B. (2008). Muncipal Solid Waste Characteristics in Three Residential Zones of Kano Metropolis. *Maiduguri Journal of Arts and Social Sciences*, 6: 199-210.

Omole, F.K. & Alakinde, (2013). Managing the Unwanted Materials: The Agony of Solid Waste Management in Ibadan metropolis, Nigeria. *International Journal of Education and Research* 1(4): 1-12.

Onokerhoraye, A.G. (2007). Public Involvement in Urban Development Planning: The case of environmental development planning sanitation in Ibadan, Nigeria. *Journal of Administration Overseas*. 10: 171 - 177.

Sangodoyin, A. Y. (2011). Ground and Surface Water pollution by open Refuse Dumps in Ibadan, Nigeria. Journal of Discovery and Innovation 3(1): 37 - 43.

Sharma B.K. (2010). Environment Chemistry. GOEL Publishing House, Meerut. Pp 1-8.