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STATE: ENVIRONMENTAL EDUCATION TO THE RESCUE**

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**TRADERS ATTITUDE TOWARDS SOLID WASTE MANAGEMENT IN LAGOS
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Abstract

Solid wastes management in Lagos markets has posed challenges to the government and the citizens because of the hazard involved. Therefore, the study examined how environmental education can be of help in changing the attitude of traders towards solid waste management in Lagos markets. Attitude scale questionnaire which was the instrument used in this study was designed by the researchers. Four (4) markets were chosen within the metropolis due to their characteristics of being large and serve as depot for perishable farm produce. The sample size comprised 120 registered market traders trading in raw farm produce out of a population of 1,000 registered traders in the selected markets. The strata include fruits, pepper, and tomatoes which are highly perishable farm produce. Descriptive statistics such as the simple percentages and frequency counts were used in analyzing the bio-data of the respondents and the research questions while Chi-square (X^2) statistical tool was used to test the formulated hypotheses at 0.05 level of significance. The findings of the study revealed amongst others that the provision of waste infrastructures will affect the usage by the traders/market women.

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Introduction

A market is a place where two or more parties can meet to engage in an economic transaction. A market transaction may involve goods, services, information, currency, or any combination of these that pass from one party to another. It is a place where most citizens get their consumable goods and majority of these goods are perishable within days if not properly kept. Invariably, it is

a place that generates lots of solid wastes that need to be managed. The management of solid wastes becomes imperative because wastes are agents of diseases which can be hazardous to the health of sellers, buyers, and community members around the markets if not properly managed. Ekoru, Olanrewaju, Ugbe, Inyang-Ogim and Okoi noted that solid wastes are societal problem faced by government all over the world because of the various diseases that emanated from indiscriminate dumping of wastes. Adewole (2009) reported that the negative waste disposal habit of most people especially in Lagos is fueled by ignorance and poverty.

Solid waste is the unwanted or useless solid materials generated from combined residential, industrial and commercial activities in a given area. It may be categorised according to its origin (domestic, industrial, commercial, construction or institutional); according to its contents (organic material, glass, metal, plastic paper and so on); or according to hazard potential (toxic, non-toxin, flammable, radioactive, infectious etc). Management of solid waste reduces or eliminates adverse impacts on the environment and human health and supports economic development and improved quality of life. A number of processes are involved in effectively managing waste for a municipality. These include monitoring, collection, transport, processing, recycling and disposal.

Waste generation could be defined as any unavoidable material resulting from domestic or industrial operation for which there is no economic demand which must be disposed of. Waste are materials which though may no longer be needed here, may become a feed stock or raw material elsewhere. Wastes according to Odocha (1994) are those materials which are generated as a result of normal operations over which we have control in terms of their production disposal or discharge. Waste is any substance, solid liquid or gaseous that remain as residue or an incidental by-product of the processing of a substance and for which no use can be found by the system that produces it, waste therefore do not apply or means worthless substance. Solid wastes are any useless, unwanted or discarded material that is not liquid or gaseous. Solid wastes include house hold garbage or rubbish, commercial refuse, industrial waste, street sweeping, construction and demolition debris, sanitation residue, abandoned automobile and dead bodies, Anijah-Obi (2001). Lawal, Aniah, Uche, Animashaim and Anijaobi-Idem (2010) see perishable goods as unwanted or discarded waste materials from markets and agricultural operations. They are made up of countless different materials such as pepper, vegetables, onions, fruits and tomatoes.

Solid wastes are generated from households, offices, shops, markets, restaurants, public institutions, industrial installations, water works and sewage facilities, construction and demolition sites, and agricultural activities (emissions from manure management as well as on-site burning of agricultural residues are treated in the Agriculture, Forestry and Other Land Use (AFOLU) Volume). It is good practice to account for all types of solid waste when estimating waste-related emissions in the greenhouse gas inventory. Solid wastes management practices include: collection, recycling, solid waste disposal on land, biological and other treatments as well as incineration and open burning of waste. Although recycling (material recovery) activities will affect the amounts of waste entering into other management and treatment systems.

Management of perishable goods in the market could be described as the appropriate method of disposing wastes safely in such a way that makes it less harmful. It could come in form of treatment and energy conservation. It refers to the process of collecting and treating solid waste. It also offers solutions for the recycling items that do not belong to garbage or trash. Solid waste management consists of all the activities required to manage waste from its inception to its final disposal. The concept of sustainable solid waste management describes the basic principles and recent advances for handling solid waste in an environmentally sustainable way. It refers to efficient, safe, treatment and disposal of hazardous and other waste. It is a strategy for achieving environmental quality in both the developing and developed world.

Solid waste management is a challenge for many countries especially developing countries like Nigeria (Ismail and Hanafiah, 2019a; Ismail and Hanafiah, 2019b; Okot and Nyenje, 2011). Solid waste encompassing the heterogeneous mass thrown away from the urban community and wastes generated from agricultural, industrial and domestic sectors (Otchere, 2015). Generally, solid waste differs in chemical and physical compositions (Aziz and Hanafiah, 2020). Solid wastes are usually dumped into municipal disposal sites and due to poor and ineffective management, the dump sites turn to sources of environmental and health hazards to people living in the vicinity of the dumping sites (Mukhtar, 2018). Stanley and Owhor (2018) reported that solid waste management practice was based on awareness, household income, educational level and gender. Oresanya (2014) also attested to the fact that one of the biggest challenges on Lagos roads is waste coming from the markets to the highways. Solid waste emanating from markets and commercial premises has been tipped as constituting the second-largest fraction of the total municipal solid waste generated in most developing/consumer countries (Nnaji, 2015). Despite the efforts being

made to ensure cleanliness within and around the markets by the government agency, these traders were still ignorant on how to dispose their refuse in a proper place, thereby creating health hazard for people such as cholera, Lassa fever, malaria, and infections when not properly managed. It is however noted that the people's attitude is regarded as a major barrier to the successful implementation of solid waste management. This attitude Chengula, Lucas and Mzula (2015), noted was due to the perception of traders that wastes disposal/management was the responsibility of the government though, Abejagah, Abah, Awunor, Duru, Eluromma and Aigbiremolen (2013) found that market traders have high knowledge of sanitation.

Enger and Smith (2000) opined that lack of space for dumping of solid waste has become a major problem for many large metropolitan areas throughout the world. They also added that increase population in urban towns and cities across the globe, lack of suitable land available for landfills as well as increase financial burden on communities are the major factors responsible for unsustainable solid waste management. Uchegbu (1998) identified tremendous urban growth as a result of the rural-urban draft as a major factor responsible for unsustainable solid waste management. According to him, the growth in population has given rise to the rising mountains of garbage which now characterize most of our towns and cities. He further stressed that in the case of refuse, its collection and disposal have become the most glaring problem in urban towns and cities. He further maintained that the problem of solid waste management in developing countries including Nigeria could be attributed to myriad of factors which include, inadequate funding, inappropriate technology, lack of or ineffective implementation of government policies, behavioural pattern of the populace and lack of awareness. Lawal, Aniah, Uche, Animashugh and Anijah-Obi (2010) stressed that large population which generate complementary high volumes of wastes that cannot be easily disposed is one of the major factors responsible for unsustainable solid waste disposal. Bakare (2021) and Sunday (2013) are of the opinion that the volume of solid wastes in Nigerian cities had become a big challenge as it had overwhelmed the infrastructure available for wastes disposal and collection. Bammeke and Sridhar (1989), agreed to the inadequate infrastructure by concluding in their research that one other major cause of indiscriminate dumping in the city is the inability of the authorities to provide adequate facilities for proper wastes management. The implication of this according to the United Nations Habitat (2022) is that "Municipal solid wastes make cities unattractive to investors as well as causing flooding, water and air pollution, and many health conditions." Other factors according to Lawal, et al (2010)

include; apathy on the side of urban dwellers; bureaucratic bottlenecks that don't give way for easy sourcing of funds, adequate manpower and functional tools required for managing waste; the role of waste management authorities and the huge amount of money involved in waste management. Uchendu, Anijahobi-Idem, Jaja, Obi and Inyang-Abia (2010) identified factors responsible for unsustainable solid waste management to include; Institutional problems, delay or unwillingness to enact new laws to bring environmental management as closely as possible as it is the practice in developed countries, lack of or inadequate staff training and man power development, poor strategies adopted to manage waste and financial support.

Lagos State no doubt has made tremendous improvement in the disposal and management of solid wastes. The establishment of a Refuse Disposal Board that is now known as Lagos Waste Management Authority (LAWMA) gave Lagos State an emblem of cleanliness. The authority with the partnership of the private sector, provided collection and disposal of wastes from house to house and from markets to the dump sites. Adewole (2009) however, noted that there is still a long way to go in making Lagos that clean city because despite attempts by LAWMA and the Private Sector to organise a collection system in Lagos, Kofoworola, (2007) lamented that there are still inadequate facilities for waste management in the state resulting in human and environment issues.

Solid waste levies a heavy tax on the environment and human health; it is man's ignorance that he considers certain things as waste and other thing as useful. Just as types of wastes are changing, so must the attitude of people towards waste must change. People must realize that the solution lies in using waste as a resource rather than to be destroyed. Only due to hazardous to human health, some of these undesirable substances cannot be directly reused. However, solid waste is undesirable substances which are left after they are used once. It can also be said as the useless and unwanted products in the solid state derived from the activities of and discarded by society. Actually, waste can be considered as useful material. There is no material in this world, which is not useful in one way or the other. Meanwhile, solid waste has become a global issue which must be managed in a comprehensive and integrated way from upstream to downstream in order to provide economic benefits, community's health, safe for the environment, and change people's attitude. One of the components that traders are involved mostly in, is the aspect of disposal. If traders are therefore not knowledgeable to properly disposal of their refuse, this may show in their attitude of dumping refuse anywhere they like. Thereby resulting in environmental hazard. There are ways to manage solid waste and if it is properly followed, it will be of help to the economy

system of the nation and to the individuals' health as well. Rahji and Oloruntoba, (2009) argued that there is need for government to engage in environmental adult education to make people aware of best environmental practice. They further suggested that increasing the awareness of the people through this type of education, may have a positive impact on their attitude towards the environment.

This attested to the definition of Anthony (2014) who said “environmental adult education is a type of education that aimed at developing a world population that is aware and is concerned about the environment and its associated problems and which has the knowledge, skills, attitudes, motivations and commitment to work individually and collectively toward solution of current environmental problems and the prevention of new ones. According to Clover (2003), environmental adult education refers to the effort of teaching environmental issues and how individual and groups can manage or change their life styles and ecosystems to live sustainable. It is a type of education which takes place in both-formal, non-formal and informal education setting. It is an educational typology in which the educator listens and respects the views, opinions and inputs of the learners and all participants concerning environmental issues.

Statement of the Problem

Solid waste management is a challenge in many of our markets in Lagos State. It is most challenging in markets where perishable goods are sold. The hazardous nature of the waste generated by these perishables' goods to both human and the environment has been an issue of concern to the government of Lagos State. Thus, an agency of government the Lagos State Waste Management Agency (LAWMA) is saddle with the responsibilities of making sure that markets are free of waste by providing awareness, basic infrastructure for waste management, and training to markets women on the management of wastes. A curious look at our markets however, shows that the efforts of the agency is not yielding great results as our markets are still filled with littered wastes. One then wonders what can be responsible for this? It is on this premise that the researchers looked at the attitude of traders towards solid waste management and how environmental adult education can be of help.

Purpose of the Study

The purpose of this study is to examine traders' attitude towards solid waste management, in order to enlighten them through environmental adult education. Specifically, the objectives of the study are to:

1. Determine the level of awareness of market women towards solid waste management in Lagos State;
2. Investigate the attitude of market women towards solid waste management.
3. Examine the attitude of market women towards the use of the available infrastructure for solid waste management in Lagos State.

Research Questions

The following research questions were raised for the study.

1. To what extent is the awareness of women towards management of solid waste in Lagos markets?
2. What is the attitude of women towards solid waste management in Lagos State markets?
3. What is the attitude of women to the use of the available waste infrastructure for the management of waste in Lagos State markets?

Research Hypotheses

The following hypotheses were formulated for the study.

1. The level of awareness of women will not significantly affect their attitude toward solid waste management in Lagos markets.
2. The attitude of women will not significantly affect the management of solid waste in Lagos State markets.
3. Availability of waste management infrastructure will not significantly affect the use of these infrastructure for waste management by market women.

Methodology

The research design for the study is survey research design. It is appropriate for this study because respondents are not randomly assigned to the selected markets but are assigned to the selected group of farm produce women. The population of the study comprised 1000 registered market

women that trade in perishable farm produce in Shomolu, ketu, Oyingbo, and Yaba. By Stratified sampling techniques, one thousand (1,000) traders were recognised as fruits, onions, peppers, tomatoes and vegetables sellers in these selected market areas but one hundred and twenty (120) traders were selected: selection was done randomly from each stratum, having sure that they are registered traders in perishable farm produce such as fruits, pepper, tomatoes, onions and vegetables. The instrument used for the study for the collection of data from the respondents was a self- designed questionnaire by the researchers titled “Environmental Adult Education and Solid Waste management Questionnaire (EAESWMQ)”. Experts in environmental adult education and test and measurement validated the content and face validities of the questionnaire. Descriptive statistics such as the simple percentages and frequency counts were used in analyzing the bio-data of the respondents and the research questions while Chi-square (X^2) statistical tool was used to test the formulated hypotheses at 0.05 level of significance.

Results

Testing of Hypotheses

Hypothesis One: The level of awareness of women will not significantly affect their attitude toward solid waste management in Lagos markets.

Table 5: Influence of the level of awareness of market women on solid waste management in Lagos markets.

Variables	N	df	X^2_{cal}	X^2_{tab}	Remark	Decision
Awareness of market women and solid waste management	120	18	52.14	28.87	Significant	H_{01} Rejected

* Significant at 0.05

The result of X^2 calculated value of 52.14 was greater than X^2 table value of 28.87 at 0.05 level of significance given 18 degrees of freedom. Therefore, the hypothesis was rejected. This means that there is a significant influence of the level of awareness of market women on solid waste management in Lagos markets.

Hypothesis Two: The attitude of women will not significantly affect the management of solid waste in Lagos State markets.

Table 6: The attitude of women and management of solid waste in Lagos state markets.

Variables	N	Df	X ² cal	X ² tab	Remark	Decision
Attitude of market women on solid waste management	120	27	74.19	40.11	Significant	H ₀₃ Rejected

* Significant at 0.05

The result of X² calculated value of 79.19 was greater than X² table value of 40.11 at 0.05 level of significance given 27 degrees of freedom. Therefore, the hypothesis was rejected. This means that the attitude of women in the markets used in this study, significantly influenced the way they managed their solid wastes.

Hypothesis Three: Availability of waste management infrastructure will not significantly affect the use of these infrastructure for waste management by market women.

Table 7: Influence of the availability of waste management infrastructure on the use by market women.

Variables	N	Df	X ² cal	X ² tab	Remark	Decision
Waste management infrastructure availability and their use by market women.	120	18	49.84	28.87	Significant	H ₀₂ Rejected

* Significant at 0.05

The result of X² calculated value of 49.84 was greater than X² table value of 28.87 at 0.05 level of significance given 18 degrees of freedom. Therefore, the hypothesis was rejected. This means that availability of waste management infrastructure significantly influenced how market women used them to manage wastes.

Discussion of Findings

The study revealed that there is a high degree of awareness on solid waste management. This finding is expected since women, in particular, with the knowledge of their diverse roles and responsibilities, have a deep knowledge of the need to keep the environment clean thus, are aware of managing solid waste in the markets. Ismail and Hanafiah (2019) stressed that women generally know the need of cleanliness but they only need to be brought to limelight through proper and relevant education on the issue hence the environmental adult education which Anthony (2014)

said is that type of adult education that aimed at developing a world population that is aware and is concerned about the environment and its associated problems. Visvanathan (2004) also summed it up by stating that ‘people practiced solid waste management if they are aware’. Waste has serious detrimental effect on man’s health as well as the environment but environmental adult education is engaging adults to properly dispose of the wastes.

The second finding indicated that the attitude of market women significantly influenced the way solid waste are managed in Lagos markets. This attitude may be due to the fact that people think it is the responsibility of government to clear the market since there is an agency responsible for that and the fact that traders pay for sure service in the markets. This is unfortunate and this finding showed that periodic sensitization and education on the management of solid wastes are not given to market women to change their disposition and attitude towards managing wastes in the market. This education will allow them to see management of solid waste as part of their responsibility in making the environment clean for not only sellers but also buyers.

The third finding showed that the availability of waste management infrastructure significantly influenced the use of these infrastructure to manage waste. The implication of this finding is that since wastes are still finding their way to places and roads around the markets, the available infrastructure for the disposal of waste in markets used for this study, are not adequate. This corroborated Oresanya (2014) who attested that Lagos roads are faced with waste coming from markets to the highways. The provision of adequate waste disposal infrastructure is pertinent if markets are to be rid of scattered wastes, rodents and the inherent unhealthy environment. This study is also agreed with Bammeke and Sridhar (1989), when they concluded in their research that one of the major causes of indiscriminate dumping in the city is the inability of the authorities to provide adequate facilities for proper wastes management.

Conclusion

There is no doubt that huge amount of solid waste is generated daily in our markets especially markets where perishables farm products are sold daily. This waste can better be managed if traders who are highly aware of wastes disposal according to this study but needed proper environmental adult education to help change their conceived opinion that is affecting their attitude to management of wastes in our markets. The generation of waste cannot be contained because of the nature of the products sold in our markets but the hazard they generated to both human and the

environment can be minimized if traders display the right attitude to the use of the infrastructures available for the management of waste at their disposal. Waste has serious detrimental effect on human's health as well as the environment if it is not properly disposed. Since waste disposal is every man's business we should therefore not seat on the fence and wait for only the government agencies. We must all put our hands on deck to ensure that solid wastes within our markets in Lagos State are properly disposed.

Recommendations

1. Market women should be given proper sensitization and education periodically on environmental education. This will help in changing their attitude towards waste management.
2. LAWMA should provide adequate waste management infrastructure in Lagos markets. This will help market women to be able to dispose their waste after daily sales.
3. Government should enforce the pollutant's pay principles on markets that are dirty after government must have done the two above recommendations and also play their role in evacuating the waste on time.

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