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SOCIO-ECONOMIC IMPACT OF SOLID WASTE ON ENVIRONMENT (A CASE STUDY OF IDO LOCAL GOVERNMENT AREA, IBADAN)

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ABSTRACT: Solid wastes are non-liquid and non-gaseous products of human activities, regarded as being useless and which are disposed of or are intended to be disposed of or are required to be disposed of. Its management which involves control, storage, transfer, collection, transport, processing, recycling,recovering or disposal, and monitoring of waste materials is generally undertaken to reduce their effect on health, the environment or aesthetics.
The concurrent effects of a fast national growth rate, rapid urbanization and a pressing demand for urban environmental protection create a challenging framework for waste management in Nigeria andthe complexity of context and procedures is indeed a primary concern of local municipal authorities due to problems related to the management of it. However, Improper handling of solid waste and indiscriminate disposal in open spaces, road margins, and tank bedsgive rise to numerous potential risks to the environment and to human health.
Inaddition, infrequent collection of waste provides an attractive breeding ground for flies and rats and the most obvious environmental damage caused by solid waste is aesthetic, i.e. waste that litter public areas is ugly and smelly.
Hence, this has made us to realize that the environmental policies related to the collection, storage and disposal of solid wastes in the local government area are not effectively enforced and had contributed immensely to the degradation of the environment.It was discovered that yearly increase in population and socio-economic activities have been influencing the generation of solid waste of the area. Lastly, studied shown that Ido Local Government Area of Oyo State were not being visited on a regular basis for collection which has being contributing to overflow of refuse at their dumping station resulting to social economic impact of the area.
Keywords: Solid waste, management, environmental, health, municipal, urbanization.

INTRODUCTION

Solid waste means any garbage, refuse, sludge, from a waste water treatment plant, water supply treatment plant or air pollution control facility and other discarded gaseous material, resulting from industrial, commercial, mining and agricultural operations and from operations and from community activities.

Examples of solid wastes include the following materials which discarded; waste tires, seepages, scrap metal, latex paints, furniture and toys, garbage, appliances and vehicles, paint cans, construction and demolition debris, asbestos.
In an average person: solid waste is usually being said as the following terms:

1. Garbage: The term given principally to food waste but may include other degradable organic wastes.
2. Rubbish: Consists of combustible and non – combustible solid waste, excluding food wastes.
3. Refuse: The collective term for solid wastes, include both garbage and rubbish.
4. Litter: Odd and ends, bits of paper, discarded wrappings, bottles etc. left lying around in public places.

The types of waste that is commonly generated by human activities are as follows:

5. Municipal Solid Waste:
6. Domestic Waste
7. Commercial waste
8. Community waste
9. Construction waste
10. Institutional waste.

11. Hazardous waste.
12. Industrial waste.

Problems associated with solid waste in Nigerian Cities are numerous as a result of buoyant economy; most contemporary waste management efforts are focused at local government level and based on high technology/high energy waste disposal by methods such as land fill and incineration.However, these methods are becoming increasingly expensive and energy inefficient. The financial costs of managing the long-term environmental impacts of waste disposal are many times which is actually charged for this service and in many cases corrective action is not remotely feasible. A purely environmental cost such as negative effects on habitat, wild life and biodiversity are also recognised. In other words, waste disposal is not in stainable and will have negative implications for future generation.

Objectives

13. To identify the direct socio-economic impact of solid waste on the immediate environment.
14. To access thedeterioration in levels of sanitation and the general quality of urban life caused by solid waste.
15. To consider the control and other measure that will promote waste management.
16. To identify various ways that the policy makers could help in changing human behaviour and responses to environment.
17. To provide suggestion so as to have a sustainable environment with references so as to create a conducive and functional environment fit for living.
18.

Justification of the Study

It has been in history that the amount of waste generated by humans was significant owing to low population density and low societal levels of the exploitation of natural resources.Common wastes produced during pre-modern times were mainly ashes and human biodegradable waste and these were released back into the ground locally.Following the onset of industrialisation and the sustained urban growth, the build-up of waste in the cities caused a rapid deterioration in levels of sanitation and the general quality of urban life. Hence, the problem associate with waste management in urban centres in general and in Ibadan metropolis in particular is in need of greater attention.The scope is limited to solid waste impact in the environment and various forms, by which the waste could be managed, avoided and collected by the inhabitants with the support of the policy makers.

LITERATURE REVIEW

Historically, the amount of solid waste generated by humans was insignificant owing to low population density, coupled with insignificant exploitation of natural resources. Common waste produced during early human history was mainly ashes and human biodegradable waste, and these were released back into the ground locally, with minimum environmental impact. With the advent of industrial revolution, solid waste management became a critical issue. This was a result of the increase in population and the massive migration of people to industrial towns and cities from rural areas during the 18th century. There was a consequent increase in industrial and domestic wastes posing threat to human health and the environment. During this period, waste management was a problem as waste was regarded as useless (Michael-Agwuoke and Ekpete 2013).Solid waste management requires understanding generation, collection, treatment and disposal options; legal aspects, such as policy development, enforcement, regulation, and reporting; and the transportation of wastes. Boards of health around the nation have varying levels of authority for implementing, improving, or investigating solid waste management. The growing volume of solid waste generated by communities is a concern for public health officials. Some of the concerns include aesthetics (e.g., the visual appearance of many collection sites and odours associated with solid waste), the potential for groundwater contamination, an increase in vectors (rodents, insects, etc.) that may spread diseases, and other issues regarding sanitation.

Literature indicates that much attention has been given to the studies of solid waste management problems in Nigeria. These studies cover cities of various sizes and different ecological, climatic, cultural, religious and economic regions. These studies emphasize that solid waste problems have been intractable and appear to defy all policy options suggested for improvement (Uwadiegwu and Chukwu, 2013). The uncharted volume of wastes that are visible along almost all the roads and streets of our urban neighbourhoods is an indication that the adopted strategies to cope with the inevitable byproducts of development are ineffective. In

fact, the problem of solid waste management occupies a central place at both national and international conferences.

Environment and Man Since this study deals with the environmental impacts of solid waste, we will have to know the meaning of the environment for the purpose of this research.In the 6th edition of Oxford Advanced Learner's Dictionary,environment is defined as the natural world in which people, animals and plant live.

In 1940, Webster's dictionary, environment is an act of environing, state of being environed, that which the surroundings conditions, influences or forces, which influence or modify.

Form the above definition, Environment can be said to be constitute of the two major aspects:

19. The surrounding, which is the conditions that one live or work in and
20. The way they influence the other aspect which is nature known as the Air, Water and Land in or on which people, animal and plants live.

The natural environment is said to be a system. Which is composed of four parts or compound (i. e. atmosphere,lithosphere,biosphere, sociosphere) each with its own unique form, arrangement and characteristics.

Man's relationship or interaction with the environment cannot be readily overlooked because it forms the foundation base for every question caused concerning the impacts on the environment and vice versa. Infact, man cannotbe separated from his environment. His consciousness is inextricably linked with his environment, surroundings, physical and social and these have some noticeable effects on him, resulting to the gradual degradation of the environment.

Environmental Degradation

Environmental degradation is the process by which the environment is damaged or made worse. It is also the deterioration of the environment through depletion of resources such as air, water and soil. It is any change or disturbance to the environment perceived to be deleterious or undesirable. As indicated by the I=PAT equation, environmental impact (I) or degradation is caused by the combination of an already very large and increasing human population (P), continually increasing economic growth or per capital affluence (A) and the application of resource depleting and polluting technology (T).

Environmental Degradation increases the vulnerability of the societies it affects and contributes to the scarcity of resources.

The effects of the major environmental problems on both health and productivity are:

21. Water pollution and water scarcity b. Air Pollution
22. Solid and Hazardous waste d. Soil degradation
    e. Deforestation f. Loss of biodiversity
    g. Atmospheric changes

Waste Generation Pattern in Nigeria

Income and economic growth have impact on the composition of wastes. Rotich et al. (2006) established a positive relationship between income levels and waste generation at the household level as High-income earners consume more packaged products, which result in a higher percentage of inorganic materials – metals, plastics, glass, and textile. Waste characteristics vary according to season, income level, population, social behaviour, climate, and industrial production, the size of markets for waste materials and the extent of urbanization, effectiveness of recycling, and work reduction (Hoornweg et al., 1999).

Socio-Economic and Environmental Impact of Solid Waste

The typical municipal solid waste stream will contain general wastes (organics and recyclables), special wastes (household hazardous, medical, and industrial waste), and construction and demolition debris. Most adverse environmental impacts from solid waste management are rooted in inadequate or incomplete collection and recovery of recyclable or reusable wastes, as well as codisposal of hazardous wastes. These impacts are also due to inappropriate sitting, design, operation, or maintenance of dumps and landfills. Improper waste management activities can:

• **Increase disease transmission or otherwise threaten public health.** Rotting organic materials pose great public health risks, including, as mentioned above, serving as breeding grounds for disease vectors. Waste handlers and waste pickers are especially vulnerable and may also become vectors, contracting and transmitting diseases when human or animal excreta or medical wastes are in the waste stream.Risks of poisoning, cancer, birth defects, and other ailments are also high (http://web. encapafrica.org).

• **Contaminate ground and surface water.** Municipal solid waste streams can bleed toxic materials and pathogenic organisms into the leachate of dumps and landfills. (Leachate is the liquid discharge of dumps and landfills; it is composed of rotted organic waste, liquid wastes, infiltrated rainwater and extracts of soluble material.) If the landfill is unlined, this runoff can contaminate ground or surface water, depending on the drainage system and the composition of the underlying soils. Many toxic materials, once placed in the general solid waste stream, can be treated or removed only with expensive advanced technologies. Currently, these are generally not feasible in Africa. Even after organic and biological elements are treated, the final product remains harmful (http://web. encapafrica.org).

• **Create greenhouse gas emissions and other air pollutants.** When organic wastes are disposed of in deep dumps or landfills, they undergo anaerobic degradation and become significant sources of methane, a gas with 21 times the effect of carbon dioxide in trapping heat in the atmosphere. Garbage is often burned in residential areas and in landfills to reduce volume and uncover metals. Burning creates thick smoke that contains carbon monoxide, soot and nitrogen oxide, all of which are hazardous to human health and degrade urban air quality. Combustion of polyvinyl chlorides (PVCs) generates highly carcinogenic dioxins (http://web. encapafrica.org).

• **Damage ecosystems.** When solid waste is dumped into rivers or streams it can alter aquatic habitats and harm native plants and animals. The high nutrient content in organic wastes can deplete dissolved oxygen in water bodies, denying oxygen to fish and other aquatic life form. Solids can cause sedimentation and change stream flow and bottom habitat. Sitting dumps or landfills in sensitive ecosystems may destroy or significantly damage these valuable natural resources and the services they provide (http://web. encapafrica.org).

• **Injure people and property.** In locations where shantytowns or slums exist near open dumps or near badly designed or operated landfills, landslides or fires can destroy homes and injure or kill residents. The accumulation of waste along streets may present physical hazards, clog drains and cause localized flooding (http://web. encapafrica.org).

• **Discourages tourism and other business.** The unpleasant odour and unattractive appearance of piles of uncollected solid waste along streets and in fields, forests and other natural areas can discourage tourism and the establishment and/or maintenance of businesses (http://web. encapafrica.org).

Stages in Solid Waste Management.

The primary steps are generation, collection, sorting and separation, transfer and disposal.

In managing wastes in most urban areas, waste is collected either by a government agency or private contractors, which is considered as a basic government function in the developed countries. Most cities do not collect the totality of wastes generated and only a fraction of the waste collected receives proper disposal. The insufficient collection and inappropriate disposal of solid wastes represent a source of water, land and air pollution, and pose risks to human health and the environment. African countries while prioritizing their environmental concerns has rated solid waste as the second most important problem after water quality since less than 30% of urban populations have some access to proper and regular garbage removal (Senkoro 2003).

Solid Waste Management (SWM) as a concept has evolved over a period of time. The earlier definitions gave importance to the operational aspects of solid waste management starting from the generation of waste to its final disposal. Gilpin (1976) defined solid waste management as a planned system of effectively controlling the production, storage collection, transportation, processing and disposal or utilization of solid waste in a sanitary, aesthetically acceptable and economic manner. It includes all the administrative, financial, legal and planning functions as well as the physical aspects of solid waste handling.

METHODOLOGY

The method employ here is the simple random sampling .This is the sampling method that gives equal chances of being selected to every itemin the population that is every item in the sampling frame is given every opportunity of selected and possible inclusion in the sample.
In this study,quantitative design's adopted an inferential statistics of chi-square used to analyse the data collected for the research work

Description of Population
In research, population referred to people, events, animal and objects who or which are within the area of study.However, this population of study could be could be small or large.
The population of the studied area going by National Population Commission (NPC) was put at 156,392.

Instrument
The major instrument used for the study is the questionnaire administered for the respondents which were drawn on the basis of the problem of the study, oral interview was also conducted as well as direct observations in places likeAjadi Community, Awoyemi and Unity streets in the studied area within Ido Local Government Area of Oyo State.

Chi Square (x^2)
A measure of discrepancy existing between the observed and expected frequencies is supplied by the statistics.
$X^2 = (0_i - e_i)^2 + (0_2 - e_2)^2 + \text{----------} + (0_k - e_k)^2$
$e_i \qquad e_2 \qquad e_k \qquad e_i$
$X^2 = \sum_{i=1}^{k} (0_i - e_i)$
$X^2 = \sum_{i=1}^{k} \frac{(0i-ei)2}{e_i}$
If the total frequency is N
$N = \sum 0_i - \sum e_i$
Where 0_i is the observed frequency and e_i is the expected frequency.
$X^2 = 0$, the observed and the theoretical frequencies agree exactly while if $x^2 > 0$, they do not agree exactly the larger the value of X^2, the greater the discrepancy between observed and expected frequencies.

Probability Density Function of Chi-Square Distribution
If $X^2$is a random variablefollowing chi – square distribution with j degree of freedom (d.f), then its probability functions as given by
$P(X^2) = 1 \frac{1}{2v/2r(\frac{v}{2})} \ell^{-x2} / 2(x2)^{v}/_{2-1}$

Where r(v) is the gamma function read as gamma v and is given by the relation.
μ (v) = (v-1)! If v is a positive integer
μ (v) = v - η(v-1), v > 1 ingeneral.
Constant of X^2 with V degree of freedom (d.F).
Mean = V
Mode = V-2
Variance = 2v
Standard Deviation = √2v

Conditions for Validity of Chi-Square Test
The chi-square test statistics can be used only if the following conditions are satisfied.
23. N,the total frequency, should be reasonably large say greater than 50.
24. The sample observation should be independent. This implies no individual item be included twice or more in the sample.
25. The constraints on the cell frequencies let any should be linear that is they should not involve square and higher power of the frequencies.
26. No theoretical frequency should be smallthat iseach theoretical frequency should be larger than 10 and not less than.

27. The given distribution should not be replaced or relatives frequencies or proportions but the data be given in original units.

Contingency Table

Under the null hypothesis of independent of attributed the value of X^2 for the 2*2 contingency table.

		TOTAL
A	B	a+b
C	D	c+d
a+c	b+d	N = a+b+c+d

Where N=a+b+c+d is the total frequency.
These frequencies which occupy the cells of a contingency table are called frequencies. The total frequencies in each row or each column are called the Marginal Frequencies.

Co-efficient of Contingency

Co-efficient of contingency is the measure of the degree of relationship, association or dependence of the classification in a contingency table.

$C = \sqrt{\frac{x2}{x2+N}}$

Therefore, the larger the value of C, the greater the disagree of association.

Hypothesis Test

It is necessary to state null and alternatives hypothesis i.e H_0 and H_1 to conclude if there is difference on if there is no difference in the observed and expected frequencies.

$H_0 = \mu 1 = \mu 2 = 0$

$H_1 = \mu 1 + \mu 2 \neq 0$

H_0 represent null hypothesis (that isno significant difference)

H_1 represent alternative hypothesis (that isthere is significant differences).

DATAPRESENTATION AND ANALYSIS

DataPresentation

The responses extracted from the questionnaire administered to the people under study are covered wing numerical data. The coded information are presented on tabular form.

There are refuse collection centre close to the respondent residential houses.

Gender	Agreed	Strongly Agree	Disagreed	Strongly Disagreed	total
Male	8	2	6	9	25
Female	6	4	14	1	25
Total	14	6	20	10	50

There are standard vehicles for transporting solid waste generated to the final disposal sites by health agencies.

Gender	Stronger Agreed	Agreed	Disagreed	Strongly Disagreed	Total
Male	7	6	6	6	25
Female	1	12	10	2	25
Total	8	18	16	8	50

Modern equipment and facilities are readily available for the activities of solid waste management in Ido local government area.

Gender	Strongly Agreed	Agreed	Disagree	Strongly Disagree	Total
Male	4	10	6	5	25
Female	1	10	13	1	25
Total	5	20	19	6	50

Do they often experience overflow of refuse at the dumping station at your area.

Gender	Strongly Agreed	Agreed	Disagreed	Strongly Disagree	Column Total
Male	5	13	6	1	25
Female	4	15	3	3	25
Total	9	28	9	4	50

Improper Management of solid waste can discourage economic activities in the society.

Gender	Strongly Agreed	Agreed	Disagreed	Strongly Disagreed	Column Total
Male	12	13	0	0	25
Female	10	15	0	0	25
Total	22	28	0	0	50

Analysis of Data

The inferential statistics of chi –square distribution earlier reviewed is used to analysis the data collected for the study.

28. There are Refuse Collection Centres Close To the Respondent Residential House:

Gender	Strongly Agreed	Agreed	Disagreed	Strongly Disagreed	Column Total
Male	2a	8b	6c	9d	25
Female	4e	6f	14g	1h	25
Total	6	14	20	10	50

$E_1 = \frac{Rowtotalxcolumntotal}{N}$

$E_a = \frac{6\ x\ 25}{50} = 3$, $E_b = \frac{14\ x\ 25}{50} = 7$, $E_c = \frac{20\ x\ 25}{50} = 10$, $E_d = \frac{10\ x\ 25}{50} = 5$, $E_e = \frac{10\ x\ 25}{50} = 3$

$E_f = \frac{14\ x\ 25}{50} = 7$, $E_g = \frac{20\ x\ 25}{50} = 10$, $E_h = \frac{10\ x\ 25}{50} = 5$

Level	0	E	0-e	$(0\text{-}e)^2$	$\frac{(0-e)2}{e}$
A	2	3	-1	1	0.333
B	8	7	1	1	0.142
C	8	10	-4	16	1.6
D	9	5	4	16	3.2
E	4	3	1	1	0.333
F	6	7	-1	1	0.142
G	14	10	4	16	1.6
H	1	5	-4	16	3.2
					10.55

X^2 Cal = $\Sigma \frac{(0-e)2}{e} = 10.55$, X^2_{tab} at 95% level of significant

$X^2_{0.95}(c\text{-}1)\ (r\text{-}1)$, $X^2_{tab\ 0.95}\ (4\text{-}1)\ (2\text{-}1)$, $X^2_{tab\ 0.95}\ (3)\ (1)$, $X^2_{tab} = 7.815$

Statement of Hypothesis

H_0: There are no refuse collection centres close to the respondents' residential houses.

H_1: There are refuse collection centres close to the respondents' residential houses.

Decision Rule
Reject H_0 if and only if X^2 Cal $> X^2_{tab} = 7.813$
We therefore reject and conclude that *"there are refuse collection centres close to the residential houses".*

29. There are Standard Vehicles for Transporting Solid Waste Generated To the Final Disposal Sited by Health Agencies:

Gender	Strongly Agreed	Agreed	Disagreed	Strongly Disagreed	Column Total
Male	7	6b	6c	6d	25
Female	1e	12f	10g	2h	25
Total	8	18	16	8	50

$E_1 = \frac{Rowtotalxcolumntotal}{N}$
$E_a = \frac{8\ x\ 25}{50} = 4$, $E_b = \frac{18\ x\ 25}{50} = 9$, $E_c = \frac{16\ x\ 25}{50} = 8$, $E_d = \frac{8\ x\ 25}{50} = 4$, $E_e = \frac{8\ x\ 25}{50} = 4$, $E_f = \frac{18\ x\ 25}{50} = 9$
$E_g = \frac{16\ x\ 25}{50} = 8$, $E_h = \frac{8\ x\ 25}{50} = 4$

Level	0	E	0-e	$(0\text{-}e)^2$	$\frac{(0-e)2}{e}$
A	7	4	3	9	2.25
B	6	9	-3	9	1
C	6	8	-2	4	0.5
D	6	4	2	4	1
E	1	4	-3	9	2.25
F	12	9	3	9	1
G	10	8	2	4	0.5
H	2	4	-2	4	1
					9.5

X^2 Cal $= \Sigma \frac{(0-e)2}{e} = 9.5$
X^2_{tab} remains 7.815

Statement of Hypothesis
H_0: - There is no standard vehicles for transporting solid waste generated to the final disposal site by health agencies.
$H_{1:}$ - There are standard vehicles for transporting solid waste generated to the final disposal site by health agencies.

Decision Rule
Reject H_0 if and only if X^2 Cal $> X^2_{tab}$ otherwise accepts H_0 since X^2 Cal $= 9.5 > X^2_{tab} = 7.815$
We therefore reject and conclude that ***"there are standard vehicles for transporting solid waste generated in the area to final disposal site by health agencies".***

30. Modern Equipment and Facilities are Ready Available for The Activities of Solid Waste Management in The Local Government Area:

Gender	Strongly Agreed	Agreed	Disagreed	Strongly Disagree	Column Total
Male	4a	10c	6c	5d	25
Female	1e	10f	13g	1h	25
Total	5	20	19	6	50

$E_1 = \frac{Rowtotalxcolumntotal}{N}$

$E_a = \frac{5x\ 25}{50} = 2.5$, Eb = $\frac{20\ x\ 25}{50} = 10$, $E_c = \frac{25\ x\ 19}{50} = 9.5$, $E_d = \frac{25\ x\ 6}{50} = 3$, $E_e = \frac{5\ x\ 25}{50} = 2.5$,

$E_f = \frac{20\ x\ 25}{50} = 10$, $E_g = \frac{19\ x\ 25}{50} = 9.5$, $E_h = \frac{6\ x\ 25}{50} = 3$

Level	0	E	0-e	$(0\text{-}e)^2$	$\frac{(0-e)2}{e}$
A	4	2.5	1.5	2.25	0.9
B	10	10	0	0	0
C	6	9.5	-3.5	12.25	1.29
D	5	3	2	4	1.33
E	5	2.5	-1.5	2.25	0.9
F	10	10	0	0	0
G	13	9.5	3.5	12.25	1.29
H	1	3	-2	4	1.33
					7.04

X^2 Cal = $\Sigma \frac{(0-e)2}{e} = 7.04$

X^2_{tab} remains 7.815

Statement of Hypothesis

H_0: Modern equipment and facilities are not available for the activities of solid waste management in the local government area.

H_1: - Modern equipment and facilities are available for the activities of solid waste management in the local government area.

Decision Rule

Reject H_0 if and only if X^2 Cal > X^2_{tab} otherwise accepts H_0 since X^2 Cal = 7.04 > X^2_{tab} = 7. 813

We therefore accept and conclude that ***''modern equipment and facilities are not available for the activities of solid waste management in the local government area''***.

31. The People of the Environment often Experience Overflow of Refuse at their Dumping Stations.

Gender	Strongly Agreed	Agreed	Disagreed	Strongly Disagree	Column Total
Male	5a	13b	6c	1d	25
Female	4e	15f	3g	3h	25
Total	9	28	9	4	50

$E_1 = \frac{Rowtotalxcolumntotal}{N}$

$E_a = \frac{25\ x\ 9}{50} = 4.5$, $E_b = \frac{28\ x\ 25}{50} = 14$, $E_c = \frac{9x\ 25}{50} = 4.5$, $E_d = \frac{4x\ 25}{50} = 2$, $E_e = \frac{9x\ 25}{50} = 4.5$

$E_f = \frac{28\ x\ 25}{50} = 14$, $E_g = \frac{9\ x\ 25}{50} = 4$, $E_h = \frac{4\ x\ 25}{50} = 2$

Level	0	E	0-e	$(0\text{-}e)^2$	$\frac{(0-e)2}{e}$
A	5	4.5	0.5	0.25	0.6
B	13	14	-1	1	0.07
C	6	4.5	1.5	2.25	0.5
D	1	2	-1	1	0.5
E	4	4.5	-0.5	0.25	0.06
F	15	14	1	1	0.07
G	3	4.5	-1.5	2.25	0.5
H	3	2	1	1	0.5
					2.26

X^2 Cal = $\Sigma \frac{(0-e)2}{e}$ = 2.26
X^2_{tab} at 95% level of significant
X^2_{tab} remains 7.815

H_0: - The people of the environment don't experience overflow of refuse at their dumping station.
H_1: - The people of the environment often experience overflow of refuse at their dumping station.

Decision Rule
Reject H_0 if and only if X^2 Cal > X^2_{tab} otherwise accepts H_0
Since X^2 Cal = 2.26 <X^2_{tab} = 7. 815
We therefore accept and conclude that ***''they often experience overflow of refuse at dumping station in the area''.***

32. Improper Management of Solid Waste Can Discourage Economic Activities in the Society.

Gender	Strongly Agreed	Agreed	Disagreed	Strongly Disagree	Column Total
Male	12a	13b	0c	0d	25
Female	10e	15f	3g	0h	25
Total	22	28	0	0	50

$E_1 = \frac{Rowtotalxcolumntotal}{N}$
$E_a = \frac{22\ x\ 9}{50}$ = 11, $E_b = \frac{28\ x\ 25}{50}$ = 14, $E_c = \frac{0\ x25}{50}$ = 0, $E_d = \frac{0\ x25}{50}$ = 0, $E_e = \frac{22\ x\ 25}{50}$ =11
$E_f = \frac{28\ x\ 25}{50}$ =14, $E_g = \frac{0\ x\ 25}{50}$ = 0, $E_h = \frac{0\ x\ 25}{50}$ = 0

Level	0	E	0-e	$(0\text{-}e)^2$	$\frac{(0-e)2}{e}$
A	12	11	1	1	0.09
B	13	14	-1	1	0.07
C	0	0	0	0	0
D	0	0	0	0	0
E	10	11	1	1	0.09
F	15	14	1	1	0.07
G	0	0	0	0	0
H	0	0	0	0	0
					0.32

X^2 Cal = $\Sigma \frac{(0-e)2}{e}$ = 0.32
X^2_{tab} at 95% level of significant
X^2_{tab} remains 7.815

Statement of Hypothesis
H_0: - Improper management of solid waste cannot discourage economic activities in the society.
H_1: - Improper management of solid waste can discourage economic activities in the society.

Decision Rule
Reject H_0 if and only if X^2 Cal > X^2_{tab} otherwise accepts H_0
Since X^2 Cal = 0.32<X^2_{tab} = 7. 815
We therefore accept and conclude that improper management of solid waste can discourage economic activities in the society

CONCLUSION

It was observed that continuous growth in population and socio-economic activities have beenmajor factors influencing increase in generation of solid waste of the studied area. However, aside the insufficient facilities

and equipment to manage the solid waste generated, environmental policies related to the collection, storage and disposal of solid wastes in the local government area are not effectively enforced. It was shown that communities in Ido LGA area were not being visited on a regular basis for collection of waste which had been contributing to overflow of refuse at their dumping station.

Conclusively, the impact of improper handling of solid waste disaster can be devastating on the social, economic and environment systems of a country or region as well as the global ecosystem. To lessen the risks associated with environmental degradation and its contributing factors such as climate change and ensure that vulnerable people are prepared to survive and adapt. Solid waste should be properly managed by the stakeholders.
Environmental disaster does not recognise man-made borders and also threaten the legacy left to future generation of a clean and supportive environment. Hence, companies, organisation and individuals must ensure their work is environmentally friendly and sustainable.

RECOMMENDATIONS

Based on the findings from statistical analysis and data collected for this study, the researchers recommends as follows:

33. Government at all levels should facilitate and encourage public awareness and participations by ensuringthat people were well informed of solid waste management, most especially the hazardous wastes.
34. Provision of more modern facilities for prompt collectionof solid waste generated by the various households.
35. Recycling of waste for economic usage should be encouraged to reduce the health implication through air pollution caused by burning of wastes.
36. Solid Waste Management laws should be enforced by the government to discourage indiscriminate solid waste disposal.

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