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Household Participation in Domestic Waste Disposal and Recycling: An Environmental Education Implication

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Abstract

This study examined the factors influencing household participation in waste disposal and recycling focusing educational level, location of residence and income. The study was carried out in four Local Governments Areas in Oyo Metropolitan Area, namely Atiba, Oyo East, Oyo West and Afijio. Three research questions were formulated to provide data for this study. 192 household were sampled for this study. The data collected were analyzed using frequency counts and simple percentages. The findings revealed that there is low level of participation of household in waste disposal and recycling as a result of low level of household awareness on environmental implication of proper waste management. Also, revealed low household participation in waste sorting, disposal and recycling across educational level, income and location of residence. The findings have environmental implications. Therefore, it was recommended that teaching of environmental education should be promoted not only in school but also in informal ways of educating citizens.

Introduction

Progress towards bringing about cleaner environment has relied on a philosophy of pollution control. This is exemplified by the number of international conferences and workshops which were held on the environment. These include the Rio de Janeiro Earth Summit in 1992, which marked the beginning of relentless environmental campaigns across the world from developed to developing nations followed by the world summit on Sustainable Development which was held in Johannesburg, South Africa in 2002 which has defined critical targets for sustainable development, including the Millennium Development Goals (MDGs). These campaigns are largely in response to the

alarming rate at which human activities are affecting ecological balance.

Human activities generate many by-products which are generally seen as useless and discarded as waste (Kamara, 2006).

Waste is an inevitable by-product of anthropogenic activities. Most developing countries including Nigeria, practice waste disposal which is environmentally unsustainable, rather than waste management (collection, sorting, recycling) (Osibanjo, 2008).

Nigeria generates over 50million tons of solid wastes annually with less than 10% waste management capacity (Osibanjo, 2008). Waste management problems in Nigeria are varied and complex with infrastructural, political, technical, socio-economic, organizational, management, regulatory and legal issues and challenges to be addressed (Osibanjo, 2008).

Okebukola, (2001) and Osibanjo (2008) reported that municipal solid waste management has therefore continually been intractable problem beyond the capacity of the local governments and most state governments due to inefficient garbage collection (less than 40% collection), poor public compliance to waste segregation, uncontrolled open burning, and tolerated open dump sites (e.g. Ibadan and Oyo cities), inadequate resources, dismal law enforcement and lack of coordination among the various units of government.

Furthermore, the rapid growth of urban centres in Nigeria, coupled with development of unstructured infrastructural and social services, has created an environmental situation in many parts of the country which is inimical to healthy living (World Bank, 2006). Studies have also shown that improper disposal of human, domestic, agricultural and industrial wastes could lead to contamination of both surface and underground water (Osibanjo, 2008; Adelegan, 2008).

Another adverse effect is the poor aesthetic value of the environment coupled with odour and smoke problems. Of all costs of urban environmental degradation, damage to human health is by far the highest. There is a direct link between urban environmental degradation and public health in terms of water related diseases such as diarrhoea, cholera, dysentery, and typhoid.

However, many institutions, laws and regulatory measures have been put in place to promote sustainable environmental management in many sectors of the economy. Also, there is integration of

environmental education into the mainstream of educational system in Nigeria (Kola-Olusanya, 2006). As laudable the efforts of Government and Non Governmental Organisations may be in the country, the problem of poor waste management techniques and negative waste disposal practices still persist. Nigeria is characterized with huge debt burdens, low public awareness of environmental issues, as well as lack of or weak environmental laws (Osibanjo, 2008).

Some studies have shown that criterion variables such as education level, income and location of residence are capable of influencing environmental knowledge and practices of an individual.

While some studies attributed the causes of environmental problems in Nigeria to those in the high education level (Okeke, 2004; Noibi, 1993), other reports contradicted this or showed no significant difference in the environmental outcomes of the high and low education levels (Ncharam and Bisong, 2007; Eguabor , 2001).

Also, the Nigerian Conservation Foundation (2009) pinpointed poverty as a major cause and effect of degraded environment while Anya (2000) claimed that those who are poor and hungry will often destroy their immediate environment in order to survive. They will cut down grassland, over-use marginal lands, and in growing numbers, crowd into congested cities, this study will therefore investigate the claim on the effect of income on environment.

Also results of the studies on effects of location of residence on waste generation and management awareness is controversial. While Laurent (2004); Ibadan Solid Waste Management Agency (1995) reported that attitude and awareness of people in indigenous areas towards waste management is poor due to illiteracy, poverty and inability of traditional communities to catch up with the fast urbanization but better in the planned areas.

Other such as Olatundun, 2008 reported that there was no significant effect of location of residence on environmental knowledge and attitude. However, in the face of contradicting reports, there is the need to further investigate role of the education, income and location of residence in determining household participation in domestic waste disposal and recycling

Statement of the Problem

The problem of this study is the growing trend of city pollution in Oyo State, Nigeria through inappropriate waste management which is becoming evident in the major cities especially in the State. Oyo Metropolitan Area is the focus of this research being one of the ancient cities that is becoming untidy due to improper domestic waste disposal.

This situation is obvious in the heart and outskirts of the Oyo Metropolitan Area, which poses various environmental hazards. The study investigated the role of environmental education, location of residence and income in determining household participation in domestic waste disposal and recycling in Oyo Metropolitan Area.

Research Questions

The following research questions guided the study;

1. What are the methods of waste disposal and recycling among people in the Oyo Metropolitan Area?
2. What is the relevance of education, incomes and location of residence in influencing people's attitudes towards proper domestic waste disposal?
3. What are possible intervention mechanisms that could facilitate household participation in proper domestic waste disposal and recycling in the Oyo Metropolitan Area?

Methodology

The research design adopted for the study is the descriptive survey of the *ex-post facto* type with education, incomes and location of residence of the participants as the independent variables are while the dependent variable is household participation in proper domestic waste disposal and recycling.

The populations for the study are entire household in Oyo metropolitan area. A total of 192 households were randomly selected as sampled for the study. They were drawn from 4 Local Government Areas of Oyo Metropolitan Area (Atiba, Oyo East, Oyo West and Afijio) using stratified sampling technique. Each local government was stratified into two zones i.e indigenous (these include traditional communities such as Sabo, Akesan, Ilora, agunpopo e.tc) and planned (these include environmentally designed residence areas such as Ladigbolu, Winner, Cele, Agodogbo Estate e.t.c.) areas, after which

simple random sampling was used to select 48 households in each local government (24 from indigenous and 24 from planned areas).

An instrument known as Public Participation on Waste Management Interview Guide (PPWIG) was adapted from Kamara (2006) by the researchers. The questionnaire consisted mainly of close-ended questions that served to gather information on basic socio-economic characteristics of the household such as education, level of income, location of residence, environmental awareness, awareness of waste management issues, as well as questions relating to participation in domestic waste disposal and recycling. Some open-ended questions were also included to facilitate oral discussions. The draft was pre-tested in a pilot survey using 10 households not included in the main study using test-retest method. Some items were reviewed after the pilot survey. Its reliability coefficient was calculated using Cronbach Alpha, 0.78 was obtained. Data collection entailed intensive interviews with the household heads or their closest deputies using a structured questionnaire designed for the study. The conversations between interviewers and interviewees were flexible and responses were written down. A total of 176 (91.7%) households could be reached and interviewed because of the difficulty of accessibility of the respondents in terms of their attitude and availability. The data were analyzed using descriptive statistics of frequency counts and percentages.

Results

Research Question 1: What are the methods of waste disposal and recycling among people in the Oyo Metropolitan Area?

To provide answers to research question 1, participants were asked to state what they do to ensure proper disposal of domestic waste. Their responses are summarized in table 1.

Table 1: Respondents' Methods of Waste Disposal and Recycling

No	Responses category	Frequency	Percentage
1.	Burning	75	42.6
2.	Through refuse collectors/ Agents	37	21.0
3.	Open dump site	22	12.5
4.	Nearby bush/ uncompleted building	21	11.9
5.	Outskirt of Town	8	4.6

6.	Burying	7	4.0
7.	Dump river	4	2.3
8.	No response	2	1.1
	Total	176	100

Source: Authors Field Data, 2010

Table 1 shows that only 25% of the respondents practice proper disposal of waste by burying and via refuse collectors while 75% engaged in improper methods of waste disposal such as burning of refuse; use of open dump site, dumping of refuse along river bank; dumping of refuse in nearby bush/ uncompleted building and out skirt of the Town that are inimical to the sustainability of the environment. These are in consonance with Amosun (1999) that solid waste from variety of sources and of all classes are found in both rural and urban centres in Nigeria. Generally, it appears that the samples have low knowledge of proper disposal of waste and recycling. The responses from table 1 create important need to investigate how household participation varies across education, incomes and location of residence of the respondents.

Research question 2: What is the relevance of education, incomes and location of residence in influencing people's attitudes towards proper domestic waste disposal?

Table 2a: Household Participation in Domestic Waste Management by Education

Area of Participation /Responses		Education Categories									
		No Education		Primary		Secondary		Tertiary		Sample	
Area	Response	No	%	No	%	No	%	No	%	No	%
1.	Yes	0	0	4	2.3	7	3.9	37	21.1	47	26.7
	No	5	2.8	8	4.5	36	20.5	80	45.5	129	73.3
2.	Yes	1	0.6	3	1.7	13	7.4	41	23.3	60	34.1
	No	4	2.3	9	5.1	30	17.0	76	43.2	116	65.9
3.	Yes	1	0.6	4	2.3	17	9.7	52	29.6	74	42.1
	No	4	2.3	8	4.5	26	14.8	65	36.9	102	57.9
		N=5		N=12		N= 43		N= 116		N=176	
Definitions											
1. Are you currently paying for your garbage disposal system?											
2. Does your household sort garbage?											
3. Will you continue to sort garbage or do you intend to start sorting?											

Source: *Authors Field Data, 2010*

The education categories were summarized into four main classes for this analysis. The study hypothesizes an existence of a relationship between level of education and knowledge of an environmental issues and hence knowledge of environmental education. No one among those with no education is currently participating in payment of fees for domestic disposal services while the figure increases among those with tertiary education with 21.1%. The result shows that level of participation in payment for garbage disposal system directly improve with increasing level of education categories, though it is generally low in all the categories. That is, there are some correlation between level of education and environmental education. Domestic waste sorting among households with no education is about 0.6% and increase to 23.3% with respondents with tertiary education. This trend conforms to the above observations and alludes to the need for more emphasis to raise environmental awareness among the populace, especially those with little access to education. The result also shows that about 0.6% of those with no education intend to continue with garbage sorting or take up the practice while the figure increase to 29.6% of those with tertiary education.

Table 2b: Household Participation in Domestic Waste Management by Income

Area of Participation /Responses		Income Categories ₦											
		0-<10,000		10,000-<20,000		20,000 - <30,000		30,000 - <40,000		40,000 & above		Sample	
Area	Response	No	%	N	%	N	%	N	%	N	%	No	%
1.	Yes	5	2.8	7	3.9	5	2.8	15	8.5	21	11.9	47	26.7
	No	36	87.8	27	79.4	33	18.8	12	6.8	15	8.5	129	73.3
2.	Yes	22	12.5	11	6.3	17	9.7	5	2.8	5	2.8	60	34.1
	No	19	10.8	23	13.1	21	11.9	22	12.5	31	17.6	116	65.9
3.	Yes	10	5.7	12	6.8	17	9.7	10	5.7	14	7.9	63	35.8
	No	31	17.6	22	12.5	21	11.9	17	9.7	22	12.5	113	64.2
		N=41		N=34		N=38		N=27		N=36		N=176	

Definitions

1. Are you currently paying for your garbage disposal system?
2. Does your household sort garbage?
3. Will you continue to sort garbage or do you intend to start sorting?

Source: *Authors Field Data, 2010*

Participation in domestic waste disposal and recycling also varies across the income classes. Based on these categories the results indicate that the trend of participation in payment of domestic waste disposal varies across the income classes. Only about 11.9% of respondents that fall into ₦40, 000 & above income class pay for disposal services while 2.8% of the lowest income earners with 0- ₦10, 000 pay for waste disposal.

The trends of participation in the sorting of domestic wastes also varies across the income classes. About 2.8% of the ₦40, 000 & above income class households are sorting their domestic waste while 6.3% of respondents in income class 0-< ₦10, 000 are sorting their waste.

While the figures are very disappointing, despite the various means that household in ₦40, 000 & above income class has access to environmental education through media such as radio, television but failed to sort their waste. The result shows that the future does not seem to hold promise for significant changes. Few numbers of respondents intend to continue sorting in the future or take up to sorting in the future before disposal.

The differences among the income classes in terms of payment of fees and sorting may be related to affordability and accessibility to garbage disposal services. It could also result from differential access to the public enlightenment programmes through radio, television and other means that raise environmental awareness and hence increase participation in waste management.

Table 2c: Household Participation in Domestic Waste Management by Location of Residence

Area of participation/responses		Household location					
Area	Response	Indigenous		Planned area		Sample	
		No	%	No	%	No	%
1.	Yes	19	10.8	28	15.9	47	26.7
	No	62	35.2	67	38.1	129	73.3
2.	Yes	29	16.5	42	23.8	60	40.3
	No	52	29.5	53	30.1	116	
3.	Yes	28	15.9	36	20.5	64	36.4
	No	53	30.1	59	33.5	112	63.6
		N=81		N=95		N=176	
Definitions							
1. Are you currently paying for your garbage disposal system?							
2. Does your household sort garbage?							

3. Will you continue to sort garbage or do you intend to start sorting?

Source: *Authors Field Data, 2010*

As highlighted in table 2a, the level of participation observed in the various parts of Oyo Metropolitan Area is reflected in the current level of payment for the waste disposal system. In the indigenous areas, 10.8% claimed to be paying for waste disposal services, a figure that increases to 15.9% in the planned areas.

Overall, only about 26.7% of the entire sample households in Oyo Metropolitan Area are currently paying for waste management services, which is a low figure. The low participation could imply that either the areas are not well covered by waste management services, or that people are not prepared to pay for the services due to lack of finance resources, or lack of adequate environmental education to make them realize the need to participate in the services. The level of participation in garbage sorting is low in the entire Oyo Metropolitan Area.

The highest level of participation in sorting (23.8%) is observed among the residents in planned areas, while the figures drops to 16.5% in indigenous areas where some households engaged in sorting out plastic, paper and organic matters. Overall, 60 out of 176 respondents (40.3%) in the entire sample sort their garbage.

This low participation in garbage sorting in the Oyo Metropolitan Area could allude to a low level of awareness of environmental issues and low environmental education, which may culminate into apathy towards waste sorting. Under the prevailing situations only about 36.4% of households in Oyo Metropolitan Area intend to continue sorting in the future or take up to sorting. 20.5% of respondents in the planned areas while 15.9% in the indigenous areas.

Research Question 3: What are possible intervention mechanisms that could facilitate household participation in proper domestic waste disposal and recycling in the Oyo Metropolitan Area?

The respondents were asked to suggest possible intervention mechanisms that could facilitate Household participation in proper domestic waste disposal and recycling. They are summarized in Table 3.

Table 3: Possible Intervention Mechanisms that could facilitate Household Participation in proper Domestic Waste Disposal and Recycling

No	Response category	frequency	Percentage
1.	Provision of environmental education/public campaigns on waste management	109	61.9
2.	Effective waste collection system	44	25.0
3.	Provision of garbage container in street	16	9.1
4.	Provision of monitoring officers	3	1.7
5.	Enforcement of environmental laws	1	0.6
6.	Government should provide incinerator	2	1.1
7.	No response	1	0.6
	Total	176	100

Source: *Authors Field Data, 2010*

Tables 1, 2a, 2b and 2c revealed that households' participation in waste management is low. These imply the need for mechanisms to facilitate household participation in proper domestic waste management. From above, table 3 reveals some of the solutions provided by the participants. 61.9% of the respondents recommended that there should be more public enlightment in terms of environmental education to create awareness and educate public on waste management. This finding is in line with the finding of Gbadamosi (2010) who found that citizenship participation in environmental education was effective in solving environmental problems in the community. They also recommended provision of effective waste collection system by the government with 25% while 0.6% of the respondents recommended that there should be enforcement of environmental laws in all levels of government.

Conclusion and Recommendations

Important factor affecting low participation in proper waste disposal and recycling is low level of environmental awareness. This low level of awareness also translates into a low level of participation in waste management, since many households are not informed of the environmental implications of waste management efforts they are expected to make.

For such households, one can conclude that low participation in waste management and recycling is a direct consequence of ignorance, lack of awareness and failure of government to provide effective waste disposal system.

Moreover, these findings revealed that almost across every strata of the research, the category with least participation in domestic waste sorting and disposal was the category with the least level of environmental education. In the analysis by location of residence, the low participation of households in indigenous areas in domestic waste management was due to low level of environmental education.

This is applicable to other factor (income levels and education) hypothesized in this study. Thus, higher knowledge in environmental education of individual is the major factor that influences household participation in waste management. Hence there is the need for suggestions on how to increase public participation in waste management.

To start with, there should be adequate provision of effective waste management services such as supplying of garbage containers for households and house to house waste collection by private or public are recommended by respondents. This will encourage people to participate in waste management.

Moreover, environmental education should be promoted to enhance participation in waste management. Majority of the respondents are of the opinion that low participation in waste management is a direct consequence of low environmental education.

Further still, adequate environmental education should be used as a means of raising people's awareness about relationship between domestic waste management and quality of the environment.

Furthermore, it is recommended that teaching of environmental education should not only be strengthened in schools but also informal ways (through postal, electronic media, stage drama e.t.c) to give opportunity for everybody to be educated , especially less educated urban communities on waste management and other environmental issues and problems.

Lastly, it is recommended that there should be enforcement of existing environmental laws and proper monitoring of environmental officers to combat the menace of waste management and other environmental problems in Oyo Metropolitan Area.

References

Adelegan, M.O.(2008). *The history of environmental policy and pollution of water sources in Nigeria (1960-2004): The way forward*. Retrieved 4th august, 2009 from http://www.naee.org/conference/2008.

Akpan, A.B.(2009). A survey of market women's environmental knowledge, attitudes and practices in Ibadan Oyo State Nigeria. M.ED project. Department of Teacher Education. University of Ibadan, Ibadan, Nigeria.

Anya, O.A.(2000). Poverty and the environment. *The Sunday Guardian*, October
1: 35-37).

Eguabor, V.O.(2001).Women Cultural Issues and the Environment in FCT: A Survey. *Science Teachers Association of Nigeria.164-167.*

Gbadamosi, T.V.(2010). Enhancing Environmental security through lower basic Social studies: Community-based approach. A paper presented at International Conference on Transformative Education, Institute of Education, Obafemi Awolowo University, Ile Ife, Nigeria, June 10th – 13th, 2010.

ISWMA. (1995). Sustainable Management of waste in Ibadan: *A publication of Ibadan Waste Management Authority,* Agodi Gate, Ibadan.

Kamara, (2006). Household participation in domestic waste disposal and recycling in the Tshwane Metropolitan Area: An Environmental Education perspective. A dissertation in Master of Education, Environmental Education, University of South Africa.

Kola-Olusanyan, A. (2006). Environmental Education in Nigeria: A Look beyond the Infusion Problem. Retrieved on 20th October, 2006 from http://www.naee.org/conference/2006.

Laurent, F.(2004). *The case of Ibadan.* Nigeria Institute Francais de Recherche en Afrique (IFRA) University of of Ibadan. Retrieved 23rd February 2008 from E-mail forchard-spiesse@skannet.com.ifraaskannet.com.

Ncharam, S.E and Bisong, C.K.(2007). Sustaining Environmental Sanitation through adequate waste disposal methods to eradicate land pollution menace in Calabar South Local Government of Cross River State. *Proceedings of the 50th*

Anniversary Conference of the Science Teachers Association of Nigeria.

Nigerian Conservation Foundation (2009). *Report on World Environment Day, 2009.* Retrieved on 25th December, 2009 from ncfnigeria.org/education.

Noibi, A.S.(1993). Environmental Education for Sustainable Development. *Environmental Education Workshop and Seminar proceedings vol.2.*

Okebukola, P.A.O.(2001). Advancing a pragmatic approach towards environment protection in Nigeria. *Research Studies on Environment,* Vol.1 No.1 July, 2001, Lagos State University, Lagos.

Okeke, E.A.(2004). Environment and Development in Coastal Regions and in small Islands: Education and Sustainable Coastal Development. University of Nigeria, Unsukka.

Olatundun,A.O.(2008). Impact of outdoor educational activities on pupils' knowledge and attitude in selected primary schools in Ibadan, Nigeria. Unpublished Ph.D.Thesis. Department of Teacher Education, University of Ibadan, Ibadan.

Osibanjo,O. (2008). Giving the earth a future: chemicals, wastes and pollution risk factors. *An inaugural lecture, 2008.* University of Ibadan.

World Bank.(2006). *Development and the Environment: World development indicators.* Oxford: Oxford University Press.