Assessment of Households' Environmental Safety Knowledge and Attitudes in Oyo state, Nigeria

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Abstract： Environmental safety is one of the most crucial development agendas of many developing countries. In Nigeria, growth of cities is often associated with environmental problems that are difficult to address. This paper analysed environmental safety knowledge and attitudes. Data were collected with structured questionnaires and analysed using descriptive statistics. The results show that 59.4% of the households discharged their kitchen waste water in open space, Only 5% of the respondents rated the level of environmental safety as good, 53.6% rated it as fair, 33.6% rated it as poor and 7.9% rated it as very poor. Reported environmental problems were rodent pest (59.3%), insect pest (60%), bushy/untidy environment (79.3) and improper disposal of refuse/faeces (67.9%). It was concluded that government's efforts to addressing non-compliance of households with existing environmental policies and programmes will go a long way in addressing environmental problems in the town.

Introduction

The environment consists of everything that surrounds us, including the physical, meta-physical and biological. Economists have viewed the environment as a composite asset that provides a variety of life-support services for sustainingman's existence. Therefore, prevention of its depreciation is an economic development goal which many countries have pursued with legislative procedures and practices (Federal Military Government [FMG], 1988; Federal Environmental Protection Agency [FEPA], 1989; Federal Republic of Nigeria [FRN], 1991). This is to ensure non-distortion of the flow of aesthetic and life-sustaining services derived from those environmental resources (Tietenberg, 1988). However, due to several institutional and legislative constraints, it is often difficult to have a development process that is completely void of environmental degradation. Recent concerns about urbanization, rural-urban migration, rapid population growth and difficulties in solid waste management are testimonial to this fact.

In Nigeria, several environmental issues have recently drawn the attention of government and other relevant stakeholders. It had been noted that the policy environment is the first major anchor that safeguards a nation from exceeding some criticalenvironmental thresholds. In the interest of having a development process that is sustainable by being environmentally benign, Nigeria's environmental policy framework had identified the relevance of every economic unit. This begins with the households which are independent economic agents that simultaneously act as producers and consumers of commodities and services. However, despite available environmental protection policies, Nigeria's cities are among the dirtiest in the world (Oyeniyi, 2011).

Specifically, generation of waste from households' economic activities often portends stereotypic environmental degradation process which may be difficult to stop once initiated. This is often aggravated by other peculiar socioeconomic problems like poverty, illiteracy, value system and individual's disposition to the need for environmental conservation. It therefore behoves the government to ensure adequate orientation for the citizens on the need for having a proactive attitude towards environmental conservation and deploy adequate resources for assisting them in doing so. This is particularly fundamental, given recent urbanization and associated environmental problems in Nigeria (Ogwueleka, 2009; Uwadiegwu and Chukwu, 2013).

It had been noted that urbanization is a serious problem propelling several environmental pollution. Also, while the annual rate of population growth is about 2.8 percent, urban cities grow at an average annual rate of 5.5 percent (UDBN, 1998). Urbanization brings serious constraints on land use by reducing available land for waste disposal, increasing population density, promoting urban poverty with attendant slum occupancy and delineating sequestrated land for purposes other than what had been approved by assigned urban planning authorities. One of the major concerns among policy makers is the

tenacity with which solid waste management is becoming a major environmental problem.

In its outright prescriptive tone, waste management policies in Nigeria are fundamentally flawed with implementation deficiency. Over the years, exertion of participatory force on households had resulted in state level mandatory sanitation exercises, some lasting for about three hours. The intention of government is to build in the people a cleanliness habit by making them participate in environmental sanitation. However, while cleanlinessattitude is often internally imbibed from some cultural expositions, monthly or weekly participation in environmental sanitation is often seen as a burden that impedes economic activities of households by encroaching on their usual work hours. This paper therefore qualitatively explores environmental safety knowledge and attitudes among households in Oyo state. It identified the mode of environmental safety and sanitation practices, knowledge of environmental safety and specific environmental problems facing the people.

Materials and Methods

Description of Study Area

According to the master plan of Ogbomoso (1978), the town lies between latitudes 8^07`N and $8^030$`N, longitude 4^004` and $4^015$`E. It is one of the most important towns in Oyo state..It is located in the Northern part of Oyo state which is divided into five local government areas, namely Ogbomoso south, Ogbomoso North, Orire, Surulere and Ogo-Oluwa. This study was carried out in Ogbomoso town which comprises of Ogbomoso North and South Local Government Areas.

The town lies within the derived Savannah region and it is a gateway to the Northern part of Nigeria from the south. It is 57km southwest of Ilorin (capital city of Kwara state) 53km Northeast of Oyo town, 58km northwest of Oshogbo (capital city of Osun state) and 104 km northeast of Ibadan which is the capital of Oyo state. Ogbomoso areas form part of the western uplands. The larger part of this plateau leas between 300 and 600 metres above the sea level. The relief of the area is moderate with low forest hills, but occasionally very steep sided ridges rise abruptly from the surrounding areas. The town is however well drained by important streams such as Oba, Ora, Laka, Oloko, Nana, Kinnira to mention a few.

Climate of Ogbomoso region of tropical pattern is like any other part of Oyo state. Ogbomoso is affected by two district climate seasons as influenced by the trade winds. These are the southwest trade wind (S/wtw) that causes harmattan and dry season. The climate of the area is characterised by fairly high uniform temperature and moderate to heavy seasonal rainfall and high relative humidity.

The mean annual temperature in the area is 26^0C. The lowest temperature is experience in August which has a mean temperature of 24.3^0C and the highest is in March which has a mean temperature of 28.7^0C. The mean annual rainfall is 124.7mm. The relative humidity is high in the early morning throughout the year with a marked decrease in the afternoons. The highest relative humidity occurs from July to September and the lowest from December to February.

Ogbomoso is located in the transitional zone between the rain forest of Ibadan geographical region and the northern savannah zone. The area is therefore regarded as the derived savannah vegetation zone. The vegetation is characterised by long tufted grasses which are scattered for agriculture. The ease in clearing, coupled with the sandy loam soil make the growing of root crops such as cassava, yam, cocoyam and fruits especially mango and orange very popular in the area.

People from all works of life, colour and creed populate Ogbomoso. The predominant ethnic group is Yoruba and the 1991 census puts the figure of Ogbomoso Township which comprises Ogbomoso North and South Local Government Areas at 157,222. Ogbomoso is blessed with abundant human and natural resources. Also, a number of public facilities available in the town are health facilities which consist of state hospital, Baptist Hospital (popularly known throughout Nigeria) provided by the Nigerian Baptist Convention, Leper Colony, 246 primary schools, 150 secondary schools, nursing and midwifery school, Baptist College of Theology, Ladoke Akintola University of Technology (LAUTECH) 75 public toilets, two post offices with several agencies and a telephone exchange.

Sources *of Data and methods of analysis*

Data for this study were collected by administering structured questionnaires to households in Ogbomoso North and South of Oyo state. According to the National Population Commission (1991), the population figures for Ogbomoso North and South was 38,909. In the 2006 population census release, Ogbomoso North and Ogbomoso South had 198,720 and 100,815 people respectively. The data for this study were collected from 140 randomly selected respondents. The sampling was done using multi-stage sampling method. At the first stage, each of the 20 wards in the LGAs were selected. At the second stage, households in the wards were interviewed. Since cost and time constraints limited the amount of questionnaires to be administered to 140, they were roughly proportionately distributed to the two LGAs based on the population at ratio 90:50. Therefore, 10 respondents were interviewed from each of the wards in Ogbomoso North except the last two wards where

five households were interviewed from each of the wards. In Ogbomoso South Local Government area, 5 households were interviewed in each of the wards.The data were subjected to descriptive analysis using frequency distribution, percentages, means and standard deviation. The results were presented using cross tabulation.

Results and Discussions

Socio-economic profile of households

Table 1 shows that 25.1% of the respondents were 30 years and below, 21.4% were between 31 and 40 years, 39.3% were between 41 and 50 years, 12.9% were between 51 and 60 years and 0.7% were above 60. This shows that coefficient of variation which is zero implying no variation or wide disparity in the ages of the respondents. The total means depicts that the ages were close. Majority of the respondents (between 41 and 50 years) are still active workers who are still in their active periods. The coefficient of variation which is 58.3% shows that there is a wide variable in the household size or wide disparity. The table shows that 37.9% of the respondents had their household size between 1 and 4, 45% had theirs

between 5 and 8 while 17.1% had theirs between 9 and 12. 45% who had their household size between 5 and 8 were the majority, and the average household size is 5.39. This means that they may not be willing to pay due to a relatively large household size.

Table 1 further shows that 10% of the respondents had their income from 10,000 and below, 13.6% were collecting between 10001 and 20000, 35.7% were collecting between 20001 and 30000, 40.7% were collecting between 30001 and 40000. This means that 76.4% of the respondents were collecting between 20001 and 40000 and that they might be willing to pay for the environmental safety measure and probably be free from diseases and environmental problems. The coefficient of variation which is 81.9% means that the dispersion in the distribution of respondents by their income level is wide. The table also shows that 10% of the respondents had no formal education, 13.6% had up to secondary education, 76.4% of the respondents went beyond secondary school levels. This shows that most of the respondents are literates and they should be willing to pay for environmental safety measures.

Table 1: Descriptive statistics of some respondents' socioeconomic characteristics

Socioeconomic characteristics	Frequency	Percentage	Mean	Standard Deviation	Coefficient of Variation
Household head age					
Up to 30	36	25.1	27.19	2.505	0.092
31-40	30	34.87	34.87	2.460	0.071
41-50	55	47.31	47.31	2.210	0.647
51-60	18	54.11	54.11	2.518	0.047
Above 60	1	62	62.00	0.00	0.00
Total	140	100	40.45	10.192	0.2519
Household Size					
Up to 4	53	37.9	2.19	1.415	0.646
5 – 8	63	45.0	6.21	1.109	0.179
9 – 12	24	17.1	10.33	0.917	0.089
Total	140	100	5.39	3.141	0.583
Income(₦) groups					
Up to 10000	14	10	4900.00	3096.54	0.632
10001-20000	19	13.6	1524.94	2512.87	1.648
20001-30000	50	35.7	27466.67	3204.16	0.117
30001-40000	57	40.7	35880.00	2420.74	0.068
Total	140	100	15140.00	12406.26	0.819
Education (yrs)					
No-formal	14	10.0	0.00	0.000	0.000
6-10	19	13.6	6.00	0.000	0.000
11-15	50	35.7	14.42	1.108	0.077
16-20	57	40.7	17.63	0.938	0.053
Total	140	100	13.14	5.832	0.444

Source: Field Survey, 2006

Mode of environmental safety and sanitation practices

Table 2 shows that 24.3% of the respondents were discharging their kitchen's waste water in the septic tank, 12.1% in the surrounding gutter, 2.9% in a nearby canal, 59.4% in an open space, others 1.4%. This shows that majority did not have drainage in their

house and this means that they will be facing a lot of environmental problems especially flooding. The table also shows that 37.9% of the respondents were discharging their bathing water in the septic tank, 12.9% in the surrounding gutter, 4.3% in nearby canal,

and 45% in an open space. This shows that majority of the respondents did not have bathrooms and they just take their bats outside, which implies that the land is exposed to erosion. Also, 38.6% of the respondents discharge their laundry water in the septic tank, 17.1% in the surrounding gutter, 7.1% in nearby canals, 47.1 in an open space. This also shows that 47.1% (highest) of the respondents are either low income earners or they might have large household sizes. Also, 17.9% of the respondents indicated that refuse collectors are paid to collect their refuse, 11.4% dump their refuse on approved dumpsite, 32.9% dump their refuse on unapproved dumpsite, 36.4% burn their refuse, while others modes account for 14%. It could be seen that 67.3% will face a lot of problem especially the air pollution problem. The table also shows that 40% of the respondents were using the water closet toilets, 22% were using pit toilet, 6.4% were using public toilets, 31.4% were using nearby bush. The result shows that 31.4% of the respondents were very poor and that they might not be willing to pay for the environmental safety measures since they are living below standard.

Table 2: Mode of discharging waste waters and sanitation practices

Sanitation practices	Frequency	Percentage
Mode of discharging kitchen's waste water		
Septic tank	34	24.3
Surrounding water	17	12.1
Nearby canal	4	2.9
Open space	83	59.3
Others	2	1.4
Mode of discharging bathing water		
Septic tank	53	37.9
Surrounding gutter	18	12.9
Nearby canal	6	4.3
Open space	63	45.0
Mode of discharging laundry water		
Septic tank	40	28.6
Surrounding gutter	24	17.1
Nearby canal	10	7.1
Open space	66	47.1
Total	140	100
Mode of discharging refuse		
Collected	25	17.9
Public approved dumpsite	16	11.4
Unapproved dumpsite	46	32.9
Burnt by the household	51	36.4
Others	2	1.4
Type of toilet		
Water Closet (WC)	56	40.0
Pit	31	22.1
Public toilet	9	6.4
Nearby bush/field	44	31.4
Total	140	100

Source: Field Survey, 2006

Knowledge of problems caused by lack of environmental safety

Table 3: Respondents' knowledge problems caused by lack of environmental safety

Response categories	Frequency	Percentage
Awareness of problems caused by lack of environmental safety		
Yes	137	97.9
No	3	2.1
Importance of Environmental Safety		
Very important	92	65.7
Fairly important	38	27.1
Not important	2	1.4
Don't know	8	5.7
Rating the level of environmental safety		
Good	7	5
Fair	75	53.6
Poor	47	33.6
Very Poor	11	7.9
Total	140	100

Source: Field Survey, 2006

Table 3 shows that 97.9% of the respondents were aware that lack of environmental safety causes problems and 2.1% were not aware. Majority of the respondents were aware of the consequences of lack of environmental safety. Also, 65.7% of the respondents indicated that environmental safety is very important, 27.1% said that it is fairly important, 1.4% said it is not important and 5.7% did not know. This shows that majority of the respondents were aware of environmental safety and believed it is very important. The results also show that 5% of the respondents rated the level of environmental safety as good, 53.6% rated it as fair, 33.6% rated it as poor and 7.9% rated it as very poor.

Environmental problems experienced by the respondents

Table 4: Environmental problems experienced by the respondents

Problem	% (Yes)	% (No)
Household rodent pest	59.3	40.7
Household insect pest	60.0	40.0
Bushy/Untidy environment	79.3	20.7
Dusty air	55.7	44.3
Smoke from burnt refuse	66.4	33.6
Smoke from kitchens	43.6	56.4
Industrial smoke	20.7	79.3
Improper disposal of refuse/faeces	67.9	32.1
Flooding	72.1	27.9
Bad odour in the neighbourhood	17.9	82.1
Erosion	16.4	83.6
Industrial waste	13.6	86.4
Traffic congestion	46.4	53.6
Noise	59.3	40.7
Illegal structures/urban slums	72.9	27.1
Poor water drainage	62.1	37.9
Water pollution	13.6	86.4

Source: Field Survey, 2006

Table 4 shows that all the listed environmental problems are being experienced by the people living in Ogbomoso Township. Here, household rodent pest took (59.3%) 60% of respondents were facing the problem of insect pest, bushy/untidy environment (79.3) dusty air (55.7), smoke from burnt refuse (66.4%) smoke from kitchen (43.6), industrial smoke (20.7%), improper disposal of refuse/faeces (67.9%), flooding (72.1%), bad odour in the neighbourhood (17.9%), erosion (16.4%), industrial waster (13.6%), traffic congestion (46.4%), noise (59.3), illegal structures/urban slums (72.9%), poor water drainage (13.6%).It could be seen here that household rodent pest, household insect pest, bushy/untidy environment, dusty air, smoke from burnt refuse, improper disposal of refuse/faeces, flooding, noise, illegal structures/urban slums need serious attention because percentages of people experiencing them were higher than percentages not experiencing them.

Ranking of Seventeen Environmental Problem

Table 5 shows that the problem with the least rank is the most serious problem encountered by the people in the study area which needs serious attention. Poor water arrange (6.46), water pollution (6.96), Household insect pest (7.61) were the first three problems that should be addressed as a matter of urgency. While flooding (11.58), industrial smoke (11.89), industrial waste (12.00) were the least problems that do not need serious attention.

Table 5: Ranking of Seventeen Environmental Problems

Problems	Average Score	Rank
Poor water drainage	6.5	1
Water pollution	7.0	2
Household insect pest	7.6	3
Bushy/untidy environment	7.6	4
Noise	7.7	5
Smoke from burnt refuse	7.7	6
Bad odour in the neighbourhood	7.9	7
Household rodent pest	8.0	8
Dusty air	8.5	9
Erosion	8.5	10
Improper disposal of refuse	8.7	11
Smoke from kitchen	9.1	12
Illegal structures/urban slums	10.9	13
Traffic congestion	10.9	14
Flooding	11.6	15
Industrial smoke	11.9	16
Industrial waste	12.0	17

Conclusion

Environmental safety issues are of paramount importance as a city grows in leap and bound. Nigerian cities are no exceptions although this is sometimes a big tussle for policy makers to address. This study assessed the depth of environmental problem and attitudes of households in Ogbomosho. It was found that majority of the households were discharging their waste water in open space. However, majority of them were aware that lack of environmental safety constitutes several economic constraints. Those environmental issues that were brought to fore in the course of the interview were rodent and pest invasion, bushy surroundings, and indiscriminate refuse/faeces disposal. Also, poor water drainage, water pollution and household insect pest were the highest ranked environmental problems. It can be concluded that provision of safe environment that is devoid of significant pollution is still a pressing need in Ogbomosho. There is the need for ensuring workable policies to address deficiencies in urban planning and inability of households to comply with safety requirements. Integration of hygienic culture through dogged efforts by environmental sanitation officers would go a long way is ensuring safer environment and proactive attitudes by households. It therefore behoves the government to channel definite efforts into addressing non-compliance of households with existing environmental policies and programmes.

References
1. FEPA (Federal Environmental Protection Agency). 1989. National policy on the environment, 22 pp.
2. Federal Military Government. 1988. Federal Environmental Protection Agency Decree No. 58:A911–A932.
3. FRN (Federal Republic of Nigeria). 1991. *Official Gazette* 78(42):B15–B37.
4. Oyeniyi, BA (2011). Waste Management in Contemporary Nigeria: The Abuja Example International *Journal of Politics and Good Governance*, 2 (2.2):1-18.
5. Ogwueleka T. Ch. (2009). Municipal Solid Waste Characteristics and Management in Nigeria**,** *Iran. J. Environ. Health. Sci. Eng., 2009, Vol. 6, No. 3, pp. 173-180.*
6. UDBN (Urban Development Bank of Nigeria), 1998.Solid Waste Sector Appraisal Report.
7. Uwadiegwu, B. O. and K. E. Chukwu (2013). Strategies for Effective Urban Solid Waste Management in Nigeria, *European Scientific Journal*, 9: 296-308.

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