JHER Vol. 24, No. 1, September, 2017, pp. 118 - 130

Towards Enhancing Environmental Awareness of Urban Slum Households in Lagos State

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Abstract

The study determined how environmental awareness can be enhanced among urban slum households in Lagos State. Descriptive survey design was adopted. The study was carried out on two slum areas in Mainland Local Government, Lagos State. The population for this study was 9,675 slum household members. The sample size was 450 slum household members in Ijora-Badiya and Makoko. Multi-staged sampling technique was used to select the households for the study. Questionnaire and focus group discussion guide were used for data collection. Data were analyzed using mean and standard deviation. Findings revealed 6 sources of information on environmental awareness and 12 methods of waste disposal adopted by the slum households. Findings also showed 11 challenges of waste disposal and 12 ways of enhancing environmental awareness among urban slum households. Conclusions were made. Among recommendations proffered was that environmental awareness should be carried out through varying sources for the slum households and there should be strict enforcement of environmental laws.

Keywords: Sustainability, Environmental Awareness, Slum, Urban, Households,

Introduction

Lagos is one of the fastest growing cities in the world and it has witnessed rapid population explosion and its consequences (Adewusi, 2012). Its current patterns of urban development and human activities have led to environmental degradation, and have

created serious threat to continued human existence, and to the sustainability of life on earth. Adewusi (2012) mentioned that urban growth and land conversion involving human activities are major threats to the ecosystems. Lagos state has become legendary for its congestion and environmental problems resulting into slum development (Alagbe, 2005). According to United Nations Centre for Human Settlement (UNCHS, 2006), slum development is closely linked to general economic development as it relates to employment and wages. Slums play a useful role in providing cheap (though not necessarily cheerful) housing for those who cannot or as likely will not want to spend money on housing than they possibly can especially in such areas like Makoko, Bariga, Ijora-badiya, Ajegunle, Iwaya, Okokomaiko and the erstwhile Maroko in Lagos State. The lack of basic services, good drainage system and infrastructures that makes for decent living condition in these areas makes it a concern.

United Nation (UN, 2007) defined slum as a heavily populated urban area characterized by substandard housing and squalor. This definition reflects the essential physical and social features of slums. The term "slum" has however come to include also the vast informal settlements that are quickly becoming the most visual expression of urban poverty. The quality of dwellings in such settlements varies from simple shack to permanent structures, while access to water, electricity, drainage system and other basic services and infrastructure tends to be limited. According to Funsho, Adegoke and Adewale (2013), basic household utilities are mostly non-existent in slums and there are often pools of stagnant dirty fluids along with refuse dumps. Alagbe (2005) opined that the drainage system in most slums is open and poorly maintained and that often mixes with drinking water due to leakages in pipes which exposes the residents of slums to various ailments and diseases.

Nigeria is ranked as one of the countries with high slum prevalence. The proliferation of shanty dwellings, squatter settlements and slums in Nigeria and other less developed nations of the world attributed to a chain of factors such as low level socio-economic status and cultural lifestyles of the inhabitants (Omole, 2010). As a result of the population of Lagos and the high concentration of industrial and commercial activities, the level of wastes generated is very high. Method of handling waste such as its storage, collection and disposal determines risk to environment and public health.

The common methods of waste disposals are dumping garbage and refuse to a designated dumping site, burning, composting, dumping in incinerators and using solid wastes as land refills to reclaim swampy areas (Amaoko, 2015). While the entire urban population suffers from poor environmental quality, the urban poor living in slums tend to be the most vulnerable as they are often living in marginalized part of the city, contiguous with waste sites and well

beyond the reach of water and other environmental services. Their condition is further amplified because they do not have sufficient resources to invest in infrastructure (Arimanh, 2015). Healthy cities require safe, easily accessible and affordable water; sanitation; safe home and work environments; uncontaminated air and reduced exposure to disease pathogens. Poor housing conditions, exposure to contaminated air, excessive heat or cold, diseases, soil and water pollution along with industrial and commercial occupational risks, which are inherent features of the urban settlements and their dwellers, worsen the already high environmental health risks for the urban poor. These might have resulted through the fact that humans are unconscious of their environment.

Environmental awareness encompasses incorporating knowledge of contemporary issues affecting nature locally and beyond, discovering which actions can make a difference in the surroundings; and self awareness concerning personal environmental philosophies (Bocher, 2015). It is not just a question of air and water pollution but also includes elimination of diseases, hunger, malnutrition and poverty, destruction of forests, extermination of wildlife, erosion of soil and accumulation of waste and many more. Raising environmental awareness involves translating the technical language of a natural science or related field into terms and ideas that a non-scientist can readily understand. Effective environmental education programs and materials need to present information and ideas in a way that is relevant to the people (Schmidt, 2009). According to Pandian (2011), achieving sustainable development outcomes requires an understanding of the complexities of relationships of issues and interests of state. It involves establishing mutually beneficial trade-offs and reinforcing social, economic and environmental linkages. The environmental quality of urban areas has a serious effect on the health status of all urban residents. Failure to recognize the linkages between human activities, the society and the environment at large and the impact of one on other, may lead to distant consequences and endangering all the components in the total eco-system (Pandian, Nair and Rajeswari, 2011). Being sustainable requires one to be prudent in the use of resources; mindful of quality and quantity of wastes generated; more accommodation and engaging with others; proactive in recognizing the dynamism of the changing patterns of lives, environment and productive systems and responding with responsible, creative, innovative and practical solutions to restore hope and promise to present and future generations (Diamond, 2006). Hill (2006), opined that environmental sustainability entails conserving, recycling and establishing priorities for the use of non-renewable resources.

One of the Sustainable Development Goals is to make cities and human settlements safe, resilient and sustainable (Goal 11). This can only be achieved when people are aware of their environment and perceive

environmental issues as the concern of everyone. It therefore needs to be clearly understood that environment and development are not contradictory to each other. There is a need for holistic development which has to do with taking the process of development and environment as a unit. Every home should be persuaded to adopt environment friendly lifestyle. Information should be properly passed on to the grass root level for real action to occur. Environmental education should lead for gathering mass awareness which should bring environmentally wiser policies (Schmidt, 2009). Thus, in order to protect and conserve the environment and for people to live quality life, due emphasis needs to be given to environmental awareness in all areas of the state to prevent the consequences of environmental disorderliness. It is against this background that the study determined environmental awareness among urban slum households in Lagos State.

Purpose of the Study

The major purpose of the study was to investigate environmental awareness among urban slum households and issues relating to household refuse disposal. Specifically, the study determined;

1. the sources of information on environmental awareness for slum households;
2. ways slum households dispose their waste;
3. the challenges faced by slum households in waste disposal;
4. ways of enhancing environmental awareness among slum households.

Research Questions

The following research questions were raised to guide the study:

1. What are the households' sources of information on environmental awareness?
2. How do the households dispose their waste?
3. What are the challenges faced by slum households in waste disposal?
4. In what ways can environmental awareness be enhanced among slum households?

Methodology

***Research Design*:** The study adopted descriptive survey design.

***Area of the Study*:** The study was carried out on two slum areas in Mainland Local Government, Lagos State. This is an urban area situated in Lagos Central Senatorial District. Lagos State is located within the South-Western part of Nigeria. It is bounded to the north and east by Ogun State and the Republic of Benin to the west. The state was chosen due to its high level of congestion and environmental pollution problems. Lagos State was also chosen because it has the highest population that is over 5% of the national estimate. Furthermore, Lagos state population growth rate is 8%, which has resulted in capturing about 37% of Nigeria's urban population (Odebiyi, 2010).

***Population for the Study*:** The population for this study was 9, 675

members of urban slum households (Source: National Bureau of Statistics, 2014). The slum areas are Ijora-Badiya and Makoko.

***Sample for the Study*:** The sample size for the study was 450 members of urban slum households in Ijora-Badiya and Makoko who were 18 years of age and above. Taro Yamen" statistical method of determining sample size was used in calculating the sample size of the slum household's population. Multi-staged sampling technique was used to select the slum households for the study. At the first stage of the multi stage sampling technique, Mainland Local Government area was purposefully selected for the study because it is located in Central Lagos with slum areas. At the second stage, two slums were chosen from the Local Government area. At the third stage, 450 members of urban slum households who were 18 years and above were selected from the population size. Systematic random sampling technique was used to select the households. Hence; two people in every 10th house were selected for questionnaire administration.

***Instrument for Data Collection*:** Questionnaire and focus group discussion guide were used for data collection. The questionnaire was titled "Towards Enhancing Environmental Awareness of Slum Households (TEEASH). It was divided into two sections. Section A sought for demographic information while section B was based on the research questions. Section B was drawn on a four point scale rating: Strongly Agreed (SA), Agreed (A), Disagreed (D) and Strongly Disagreed (SD). Focus group discussion guide was also used for data collection from the respondents and their responses were recorded. Five Home Economics experts validated the instruments. Cronbach Alpha method was used in determining the internal consistency of the questionnaire and it yielded reliability co-efficient of 0.92.

***Method of Data Collection*:** Four hundred and fifty (450) copies of the questionnaires were distributed to the household members who were 18 years and above by the researchers. Efforts were made to ensure that the items were filled correctly without omitting any of the needed information. Four hundred and twenty-six (426) copies of the distributed questionnaires were returned showing 95% return rate. For the focus group discussion, the participants were grouped into twelve for each batch. Each of the slums had four batches for the group discussions. The discussions were guided with the purposes of the study. Town halls in the urban slums were utilized for the focus group discussion after seeking permission from the "Baale" (Community head). Three research assistants helped the researchers in taking notes, comments, recording and videoing while the researchers moderated the discussions.

***Method of Data Analysis*:** Data were analyzed using mean and standard deviations. Mean ratings from 2.5 and

above were considered as agreed upon while mean ratings of 2.49 and below were considered as disagreed upon. The responses of the participants were recorded, summarized and used to corroborate the findings of the study.

Results

Table 1: Mean and Standard Deviation on Sources of Information on Environmental Awareness of Slum Households

S/N	Sources of Information on Environmental Awareness	X	SD	Remark
1.	Television	3.59	0.91	Agreed
2.	Radio	3.65	0.75	Agreed
3.	Computer (Internet)	2.20	1.02	Disagreed
4.	Social Media	2.31	1.04	Disagreed
5.	Newspapers	2.30	1.04	Disagreed
6.	Magazines	2.41	0.89	Disagreed
7.	Fliers	2.22	1.02	Disagreed
8.	Charts	2.31	1.04	Disagreed
9.	Posters	3.27	1.06	Agreed
10.	Handbills	2.94	1.02	Agreed
11.	Bill boards	3.00	1.05	Agreed
12.	Health workers	3.57	1.02	Agreed
13.	Extension workers	2.36	1.03	Disagreed
14.	Family Members	2.38	1.03	Disagreed
15.	Friends	2.40	0.89	Disagreed
16.	Seminars	2.48	0.91	Disagreed

Table 1 shows that only 6 items out of the sixteen listed sources of environmental awareness were agreed upon. Item 2 (Radio) had the highest mean value (3.65, SD=0.75), followed by item 12 (Television, Mean=3.59, SD=0.91). This indicated that the respondents' major sources of environmental awareness were through the radio and television.

Findings from focus group discussion revealed the following sources of information on environmental awareness among urban slum households:

- Radio,
- Television,
- Handbills and
- Health workers.

Table 2: Mean and Standard Deviation on Waste Disposal Methods of Slum Households

S/N	Methods of Waste Disposal	X	SD	Remark
1.	Household refuse are deposited in:			
	i. dust bins provided in homes	3.89	0.90	Agreed
	ii. government bins	2.94	1.02	Agreed
	iii. incinerators	2.31	1.02	Disagreed
	iv. dump sites	2.55	0.90	Agreed
	v. gutters during the raining season	3.24	1.06	Agreed
2.	Household waste waters are channeled to:			
	• drains	3.92	0.98	Agreed
	• canals	3.89	0.99	Agreed
	• septic tanks	2.53	0.89	Agreed
3.	Household refuse are:			
	• used as land refills	3.58	0.95	Agreed
	• burnt	3.96	0.98	Agreed
4.	Household refuse are collected from homes by:			
	• government officials (LAWMA)	2.62	0.91	Agreed
	• private agencies	2.87	0.72	Agreed
	• Hausa waste collectors	2.53	0.87	Agreed
5.	Household wastes are disposed through compost	2.46	1.00	Disagreed

Table 2 shows that all the listed items were agreed upon as waste disposal methods of the slum households. They had mean values ranging from 2.53 to 3.96. Though, items 4 (refuse are deposited on incinerators) and 14 (household waste are disposed through compost) were disagreed upon as methods of waste disposal. Their mean ratings were between 2.31 and 2.46 respectively.

Findings from focus group discussion revealed that the waste disposal methods adopted by the slum households included:

- Channeling waste water to gutters, drains and canals;
- Household refuse are collected by LAWMA officials but not on regular basis hence the unsightly nature of the environment.
- Burning of dry refuse
- Composting but they complained of unavailability of spaces for composting.

Table 3: Mean and Standard Deviation on Challenges Faced by Slum Households in Disposing Waste

S/N	Challenges Faced by Slum Households in Waste Disposal	X	SD	Remark
1.	Inadequate waste collection agencies	2.84	1.57	Agreed
2.	Irregular collection of refuse by government	3.77	1.03	Agreed
3.	Poor drainage system in the slum area	3.89	0.98	Agreed
4.	Lack of dump sites in the slum areas	2.87	0.92	Agreed
5.	High cost of patronizing waste disposal agencies	3.24	1.06	Agreed
6.	Inadequate waste collection sites for recycling	3.06	0.82	Agreed
7.	Inadequate incinerators	3.10	0.97	Agreed
8.	Poor utility services provision.	3.40	1.05	Agreed
9.	Indiscriminate defecation especially in open spaces	3.29	1.02	Agreed
10.	Inadequate public places of convenience.	3.40	1.05	Agreed
11.	Use of solid waste for the reclamation of land for the swampy areas	2.70	1.00	Agreed

Table 3 shows that all the listed items were agreed upon as challenges faced by the slum households in disposing waste. Their mean values ranged from 2.70 to 3.89. Standard deviation of the responses were within ranges of 0.82 to 1.57. Findings from focus group discussion revealed that the challenges faced in disposing household wastes included:

- Irregular collection of refuse by LAWMA officials,
- Lack of government designated dumpsites,
- Unavailability of incinerators and
- Inadequate collection sites for recyclable wastes.

Table 4: Mean and Standard Deviation on Ways of Enhancing Environmental Awareness among Urban Slum Households in Lagos State

S/N	Ways of Enhancing Environmental Awareness	X	SD	Remark
1.	Provision of adequate waste management system	3.08	1.02	Agreed
2.	Enforcement of environmental laws	3.40	1.09	Agreed
3.	Provision of adequate drainage systems	3.77	1.08	Agreed
4.	Provision of refuse bins in strategic places	3.65	1.02	Agreed
5.	Establishment of waste sorting and collection centers for recyclable wastes.	2.86	0.64	Agreed
6.	More effective laws banning indiscriminate dumping of refuse and litter have to be promulgated and vigorously enforced.	3.65	0.75	Agreed
7.	Market places and shopping centers should have designated and properly managed waste disposal areas	3.24	1.06	Agreed
8.	Avoiding open burning of refuse	3.57	1.02	Agreed
9.	Enlightenment campaign to educate the masses on environmental education	3.9 2	0.98	Agreed
10.	Establishment of Neighborhoods Project Partnerships Revital-ization aimed at managing wastes in a given neighborhood	3.29	1.02	Agreed
11.	Avoid pouring refuse in gutters	2.84	0.88	Agreed
12.	Prevention of all types of pollution	3.56	0.69	Agreed

Table 4 reveals that all the listed ways of enhancing environmental awareness among urban slum households were agreed upon. They all had mean values above 2.50. The mean values ranged from 2.84 to 3.79. The standard deviations of the respondents ranged from 0.64 to 1.09 implying that there mean values were not far from each other. Findings from focus group discussion showed that the ways of enhancing environmental awareness among slum households included provision of varying sources of environmental awareness such as handbills, workshops, seminars and radio programs in local dialects.

From focus group discussion, respondents also agreed that the environment can be enhanced through:

- Provision of adequate incinerators,
- Placing refuse bins in strategic places,
- Regular collection of household refuse by LAWMA officials and
- Establishment of waste sorting and collection centers for recyclable wastes.

Discussion of Findings

Findings revealed that the respondents' sources of environmental awareness are through the radio, television, health workers, handbills, posters, bill boards and handbills. This showed that viable information about the environment can easily reach the masses through the media such as radio, television and the health workers. Effective dissemination of environmental problems can promote awareness of slum residents. In support of the finding, Bocher (2015) asserted that awareness encompasses incorporating knowledge of contemporary issues affecting nature locally and beyond, discovering which actions can make a difference in one's surroundings, and self awareness concerning personal environmental philosophies. This corroborates WHO (2014) report that using mass media has been effective in raising community awareness of problems or issues.

Findings from focus group discussion revealed that the major source of information on environmental awareness among urban slum households was radio. Other sources included television, handbills and health workers. In line with the findings, Contento, Balch and Bronneer (2015) reported that the source of information can reinforce the message and persuade the receiver/learner to accept it. Olusanya (2016) also mentioned that the mass media can be effectively used for disseminating nutrition information and other relevant information to the community. Peter (2015) affirmed that appropriate dissemination of environmental awareness in the language the population understands will enhance environmental health and will in-turn reduce the mortality rate of children. This is in agreement with World Health Organization (WHO, 2014) report that between 25% and 33% of the global burden of disease can be attributed to environmental risk factors.

Results of findings on table 2 showed that all the items listed were agreed upon as waste disposal methods

adopted by the slum households. Item 12 (Household refuse are burnt) had the highest mean value (M= 3.96). This indicated that the respondents' easiest method of managing waste is through burning. Open burning of refuse degrades the environment through pollution. The results of this findings is in line with the assertions of Department of Environmental Quality (2006) that open burning has been practiced by a number of urban centres because it reduces the volume of refuse received at the dump and therefore extends the life of their dumpsite. Item 4 (Refuse are deposited on incinerators) and 14 (Household waste are disposed through compost) were disagreed upon as waste disposal methods adopted by the respondents. This implied that appropriate waste management sites and facilities were not available for slum house-holds to utilize. They have to manage household waste through any convenient and available method. However, findings from focus group discussion revealed that the waste disposal methods adopted by the slum households included channeling waste water to gutters, drains and canals; household refuses collected by LAWMA officials but not on regular basis hence the unsightly nature of the environment. The respondents also reiterated that dry refuse are often burnt and that the burning was usually done at night or early morning. The respondents were aware that vegetable and other degradable wastes can be disposed by compost but there were no available spaces for composting. In line with the finding, Smith (2011) mentioned that open burning has many negative effects on both human health and the environment. This uncontrolled burning of garbage releases many pollutants into the atmosphere. These include dioxins, particulate matter, polycyclic aromatic compounds, volatile organic compounds, carbon monoxide, hexachlorobenzene and ash. According to Smith (2011), all of the afore-mentioned chemicals pose serious risks to human health. The dioxins are capable of producing a multitude of health problems; they can have adverse effects on reproduction, development, disrupt the hormonal systems or even cause cancer. Agboola and Agunbiade (2009) mentioned that particulate matter creates smoke and haze which contribute to air pollution and environmental degradation.

Inferring from table 3, results of findings revealed that all the listed items were agreed upon as challenges faced by slum households in waste disposal. Item 3 (Poor drainage system) had the highest mean rating (M=3.89). This problem is peculiar to slum communities making the dwellers more vulnerable to infectious diseases. This supports Amaoko (2015) that the urban poor living in slums tend to be the most vulnerable as they are often living in marginalized part of the city, contiguous with waste sites and well beyond the reach of water and other environmental services. The negative consequence according to Arimanh (2015), impacts every aspect of their lives as well as the livability and health of the community at large. Item 3(Irregular collection of refuse by

government M=3.77) was among the major challenges encountered by the respondents in waste disposal. This might have resulted from poor monitoring of the waste management officials. Irregular collection of refuse leads to land surface pollution. Findings from focus group discussion revealed that the challenges faced in disposing household wastes included irregular collection of refuse by LAWMA officials, lack of government designated dumpsites, incinerators and collection sites for recyclable wastes. Land surface pollution is the occurrence of unwanted materials or waste on land. The commonest pollutant on land is the waste products that are often scattered on land area in the cities (Omofunwa and Osa-Edoh, 2008).

Results of findings on table 4 revealed that all the listed items were agreed upon as ways of enhancing environmental awareness among urban slum households. Item 9 (Enlightenment campaign to educate the masses on environmental education) had the highest mean (M=3.92). This indicated that environmental awareness can be achieved through environmental education. In line with the finding, Warwick (2011), mentioned that learning to play an active role in the creation of an ecologically compatible and economically efficient world in which social equality prevails is not an automatic process. Item 12 (Preventing all types of pollution M=3.79) was also accepted as a way of achieving environmental awareness. Pollutants reduce the quality of the environment as well as the well-being of the household members. This supports Dubos (2016) that due to the activities of housing and construction, mining, agriculture, industry, fishing, and the likes, man has inevitably produced thousands of pollutants discharged from factories, vehicles, incinerators, and engines which have adverse effects on man and his environment.

From focus group discussion, respondents also agreed that the environment can be enhanced through provision of incinerators, adequate refuse bins in strategic places, regular collection of household refuse by LAWMA officials and establishment of waste sorting and collection centres for recyclable wastes. This corroborates WHO (2012), that at least 3.0 million people die every year from illness caused by air pollution. Also, pollutants of domestic waste, chemical waste, and animal droppings all cause environmental degradation.

Conclusion

The study determined ways of enhancing environmental awareness among slum households. Findings revealed that the respondents' sources of environmental awareness were through the radio, television, handbills, posters, and bill boards. Results indicated that the ways of disposing wastes in slum households included refuse used as land refills, waste water channeled to canals, gutters and drains. This can be attributed to the poor drainage stem in the slum area. Results also revealed among others that the challenges households face in waste disposal among others include

inadequate waste collection agencies and irregular collection of refuse by LAWMA which could be attributed to the filthy nature of slum areas. Findings also showed that some of the ways of enhancing environmental awareness among slum households included adequate waste management system and establishment of waste sorting and collection centers for recyclable wastes.

Recommendations

Based on the findings of the study, the following recommendations were made:

1. Environmental awareness programmes should be organized periodically for the slum households.
2. Environmental awareness can be carried out through varying sources for the slum households.
3. Adequate method of waste disposal should be adopted by the slum households in order to make the environment sustainable.
4. Environmental sustainability can be effectively achieved through collective efforts of household members, society and government.
5. There should be strict enforcement of environmental laws.

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