

# Environmental Sustainable Development: Focusing on Solid Waste Reduction in Nyanya and Environ of Abuja, Nigeria

**Ojelade, I.A. (Ph.D)**

Department of Science & Environmental Education  
University of Abuja, Nigeria

**Aregbesola, B.G.**

Department of Science & Environmental Education  
University of Abuja, Nigeria  
[busayo.aregbesola@gmail.com](mailto:busayo.aregbesola@gmail.com)

## ABSTRACT

The study focused on solid waste reduction in Nyanya and environ in Abuja Nigeria. A survey design was employed in this study. The population of the study constituted Nyanya residents and the businessmen in the major market. Three hundred and twenty men and women were selected from the sample using Bartlett, Kotrik and Higgins, (2001). Questionnaire was used to gather information from the respondents. The methods of data analysis technique used herein are percentage, means, standard deviation and t-test. The finding of the study revealed that the knowledge of the people about solid waste management had caused havoc on the way both the residents of Nyanya and the businessmen of the major market in Nyanya disposed their refuse within the community. The respondents opined that solid waste has become a predicament that they come to face as a way of life and their ability to resolve it needs external intervention as noted by 64.3% respondents who agree and 16.7% of the respondents who strongly disagree with. Government should make adequate provision for publicity on different media on the importance of proper solid waste disposal. Registered bodies on solid waste disposal should pay regular visit to Nyanya environment in order to stop inappropriate disposal of solid waste around the community. Also, there should be distribution of solid waste tanks within the community where the residents and the market people can dispose their refuse.

**Keywords:** Environment, Sustainable Development and Solid Waste

## BACKGROUND

The rates of solid waste in our environment these days have become a thing of alarming despite the awareness from different environmental agencies oversee to the issue. Many times people complain of no proper site to dispose their refuse while in other cases the agencies due accuses the people of improper disposal. This has been the case lingering all over and no one is to hold responsible for the eyes sore even in the developed areas in most state including the Federal Capital Territory (FCT). A United Nations Report (August 2004) noted with regret that while developing countries are improving access to clean drinking water they are falling behind on sanitation goals. At one of its summit in 2000 (Uwaegbelun 2004) revealed that The World Health Organization- (WHO 2004) and United Nations International Children Education Fund- (UNICEF 2004) joint report in August 2004 that: "about 2.4 billion people will likely face the risk of needless disease and death by the target of 2015 because of bad sanitation".

The report also noted that bad sanitation – decaying or non-existent sewage system and toilets- fuels the spread of diseases like cholera and basic illness like diarrhea, which kills a child every 21 seconds. The hardest hit by bad sanitation is rural poor and residents of slum areas in fast-growing cities, mostly in Africa and Asia. Nigeria's major urban centers are today fighting to clear mounting heaps of solid waste from their environments. These strategic centres of beauty, peace and security are being overtaken by the messy nature of overflowing dumps unattended heaps of solid wastes emanating from household or domestic or kitchen sources, markets, shopping and business centers. City officials appear unable to combat unlawful and haphazard dumping of hazardous commercial and industrial wastes which are a clear violation of the clean Air and Health Edicts in our environmental sanitation laws, rules and regulation.

Solid waste is a common problem in all Nigeria urban cities, the bigger cities face more severe problems of waste generation and management than the smaller ones (Nest 2007, FMHE 2006, Onibokun 1999, & Adedibu, 1985). Emerging sub-urban in developing economies like Nigeria exhibit features of unplanned growth, population explosion and informal settlement leading to an irregular build-up of solid waste begging for timely clearance or disposal and treatment in order to reduce their hazardous effect on residents and enhance rather demean the quality of our environment needs to be tackled frontally, systematically, in an all-embracing manner. The UNEPA (2006), state that wastes that are not properly managed, especially excreta and other liquids and solid wastes from households and the community, are a serious health hazard and could lead to the spreading of diseases.

The report further states that unattended wastes lying around attract flies, rats, and other creatures that, in turn, spread diseases. Normally, it is the solid waste that decomposes and releases bad odour. The bad odor affects the people settled next to the dumpsite, which clearly shows that the dumpsites have serious effects to people settled around or next to them. There is therefore considerable public health concern over the possible effects of dumpsites on the health of people living nearby, particularly those where hazardous waste is dumped. Most solid wastes are disposed on the land in open dumps. Disposal of solid waste on the land without careful planning and management can present a danger to the environment and the human health. The environment should be clean and less polluted by all means. This means that waste should be managed at all costs to limit its effects to the environment (US Environmental Protection Agency, 2006).

The location of dumpsites has proved to be a problem to nearby residents in most parts of the world, particularly in Africa. Nigeria is no exception in the problems associated with waste disposal. These include the development of unofficial dumpsites and littering. In cases where there is a dumpsite, it is either unmonitored or creates an unsightly surrounding. For example, a dumpsite in Nyanya is poorly managed, yet it is too close to the residential community of environment and other nearby communities. There are homes which are hardly 200 meters away from the dumpsite. According to Marc (2006), the location of the dumpsites should be properly planned and managed to avoid risks to human health and the environment, at large. Corrective and management measures are likely to be expensive, complex, and pose serious threats to the environment and its habitants. Therefore, this study was design to investigate into solid waste reduction in Nyanya and environs.

### **Statement of Problem**

In the last two decades, the issue of mounting solid waste within Nyanya in Federal Capital Territory (FCT) Abuja Nigeria and the suburb has been become a thing of paramount concern.

This has ranges from various forms of solid wastes, which has brought out all manner of sickness within the community. Moreover, the level of solid waste within the community if not adequately take care of can result to breakout of endermic within and also affect neighboring community. If people are to enjoy good health the prerequisite is that they should live in a clean, safe and healthy environment that is conducive for the state (Pasquini 2006). Bernard (2005), thus human activities may adversely affect the environment which many factors in the environment may also have negative or positive impact on man health and welfare. Thus, the Federal Capital Territory (FCT-Abuja: 8° 49' 23" N; 7° 04' 10" E) of Nigeria is one of the fastest growing urban settlements in the world (Encyclopaedia of Nations, 2012) that needs adequate environmental sanitation to keep residents healthy and safe.

### Purpose of the Study

The purpose of the study is to investigate the impact of environmental sustainable development, focusing on solid waste reduction in Nyanya and environ of Abuja.

### METHODOLOGY

A survey design was employed in this study. Respondents completed the questionnaire assessing their view on solid waste reduction in Nyanya and environ. Part I consisted of items on participant's demographic information such as age, sex, occupation, etc. Participants were drawn from residents of Nyanya and businessmen in Nyanya major market. In determining the appropriate sample size, a table of sample size determination developed by Bartlett, Kotrik and Higgins (2001) was used. According to Barlett et al. (2001), the recommended sample size for a study involving participants drawn from a population size of between 2000 is 499. Thus, the sample size for this study was set at 499. The instrument used employed a five point Likert type scale containing options which vary from Strong Agree (SA), Agree (A), Disagree (D), Undecided (U), Strongly Disagree (SD) and scored as follows 5, 4, 3, 2 and 1 respectively. The method of analysis focused on two variables: the independent variable and independent variable while it was analyzed using descriptive statistics (frequency counts, simple percentage, mean and standard deviation) and inferential statistics of t-test.

### Respondents Demographic Data

**Table 1: Demographic Data**

Demographic	Area A (N=120 )	Area B (N=45)	Area C (N=68)	Area D (N=55)	Federal Housing (N=32)	Overall (N=320)
<b>Age</b>						
<30	12.2	4.7	4.7	3.1	1.6	26.3
30-40	12.8	4.7	5.7	7.8	3.8	34.7
41-50	20.8	3.1	4.7	4.7	2.5	22.8
>=50	4.7	1.6	6.3	1.6	2.2	16.2
<b>Sex</b>						
Male	14.1	6.6	5.6	7.8	3.8	37.8
Female	23.4	7.5	15.6	9.4	6.3	62.2

<b>Occupation</b>						
Businessmen	12.2	6.7	6.7	6.9	3.2	34.7
Civil Servants	11.6	5.3	4.1	3.8	1.6	26.3
Consultant	4.7	5.3	4.1	5.3	2.2	21.6
Artisan	3.8	2.5	5.6	0.6	3.1	16.4
<b>Work Experience</b>						
< 5 years	4.7	5.3	4.1	5.3	2.2	21.6
5-9 years	3.8	2.5	5.6	0.6	3.1	16.4
10-14 years	11.6	5.3	4.1	3.8	1.6	26.3
>15 years	12.2	6.7	6.7	6.9	3.2	34.7
<b>Employment Mode</b>						
Full Time	22.2	7.2	15.0	14.1	6.3	64.9
Part Time	15.3	6.9	6.3	3.1	3.8	35.1

A total 320 respondents completed the questionnaires (a response rate of 64%). The respondents' age ranged between 23 and 59 years, with a mean age of 41.0 years (STD=10.8). The majority of the respondents aged 30-40 (40.8%) years and 41-50 (34.5%) years. More than two thirds (68.7%) of the respondents were female, and the majority of the respondents (52.4%) were businessmen (who also reside in Nyanya). The respondents' profile is summarized in Table 1 above.

**Table 2: Result of Findings**

<b>Opinion</b>	<b>Undecided (%)</b>	<b>Strong Disagree (%)</b>	<b>Disagree (%)</b>	<b>Agree (%)</b>	<b>Strongly Agree (%)</b>	<b>Mean</b>	<b>Standard deviation</b>
<b>Satisfaction Level of Solid Waste Effect on the Environment of Nyanya</b>							
i. Solid waste management practice is properly observed in my community	3.8	16.6	2.7	51.5	25.4	3.40	.58
ii. Burning of refuse in un-authorized place has no penalty in my community	6.2	2.7	14.4	42.1	34.6	3.07	.97
iii. Burying of solid waste is not that popular in my community	2.0	5.8	17.3	48.6	26.4	3.36	.50
iv gutter is another route of solid waste management methods in my community	-	2.4	16.2	62.5	18.4	3.48	.64
v. Recycling and reuse of solid waste is being practiced in my community.	-	49.9	50.1	-	-	3.29	.74
<b>Impacts of solid Waste on the Health of Nyanya Residents</b>							
i. There are several diseases ravaging in Nyanya as a result of solid waste management	10.1	19.5	14.0	35.5	20.9	2.83	1.03
ii. Building structures have great effect on the way solid waste is being managed in my community	0.2	11.8	9.5	38.9	39.1	3.28	.79
iii. Radioactive substances are being mismanaged in my community	-	9.1	11.7	44.8	34.4	2.93	.10
iv. The town clinic and other hospitals have experience higher population due to ailment related to solid waste	-	7.7	14.0	45.7	32.6	3.31	.75
v. Health workers normally educate my community on solid waste management and health status.	-	6.0	13.3	45.2	34.1	3.06	.47

### Factors Affecting the Apposite Disposal of Solid Waste in Nyanya

i. There is a permanent waste disposal site in my community	-	31.5	45.2	13.3	7.3	2.79	1.04
ii. Local Government Area Council has concrete preparation for clearing waste	4.9	41.5	35.0	13.7	4.9	3.24	.78
iii. My community is aware of solid waste management	-	31.5	40.1	19.5	8.9	3.42	.62
iv. There are registered bodies in charge of waste management in my community	1.3	6.0	13.3	45.2	34.1	2.93	.83
v. There are special dumping site for solid waste in my community	2.4	8.4	18.4	44.6	26.2	3.15	.64
vi. There are Shortage of man-power or personnel to supervise the clearing of solid waste into the appropriate site	-	9.9	11.5	46.6	31.9	3.40	.58

### DISCUSSION OF FINDINGS

The finding of the study revealed that the knowledge of the people about solid waste management had caused havoc on the way both the residents of Nyanya and the businessmen of the major market in Nyanya disposed their refuse within the community. The respondents opined that solid waste has become a predicament that they come to face as a way of life and their ability to resolve it needs external intervention as noted by 64.3% respondents who agree and 16.7% of the respondents who strongly disagree with.

The impact of solid waste on the health of Nyanya residents is yet to be fully verified as opined by the residents and the businessmen in the community. 61.7% agree that they are exposing to endemic with the site of the solid waste they co-habit with, which indicated that they are aware of the effect of solid waste in their community. The result also indicated that there are factors affecting the precise disposal of solid waste in Nyanya as 60.4% and 17.2% of the respondents who agreed and strongly disagree to this notion.

Factors affecting the clear-cut disposal of solid waste includes: no permanent waste disposal site in the community, lack of Local Government Area Council concrete preparation for clearing waste, lack of provision of registered bodies in charge of waste management in the community. More importantly shortage of man-power or personnel to supervise the clearing of solid waste into the appropriate site in the community needs to be corrected.

### Test of Hypothesis

**H<sub>0</sub>:** There is no significant difference between the adequate knowledge of solid waste management and the proper disposal of solid waste in Nyanya environ.

**Table 3: Two-tailed t-test Analysis on the Mean Scores Knowledge of Solid Waste and Adequate Disposal of Solid Waste**

Knowledge of Solid Waste Management and Adequate Disposal of Solid Waste						t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence				
				Lower	Upper			
Knowledge of solid waste management and adequate disposal of solid waste	.33	.59	.03	3.34	3.46	9.97	319	.00

The t-test value 9.97 was significant at 0.05 level of significance. The null hypothesis was therefore rejected and the alternative hypothesis accepted.

## CONCLUSION

Since the alternative hypothesis is accepted and null hypothesis was rejected, conclusion is made that there is a significant difference between the knowledge of solid waste management and adequate disposal of solid waste.

## RECOMMENDATIONS

The research has identified problems that are associated with solid waste reduction in Nyanya and environs of Abuja. These problems emanate from the knowledge of solid waste management, registered bodies in charge of solid waste management in the community, special dumping site and shortage of manpower/personnel to supervise proper clearing of solid waste to the designated place. In view of this, the government should make adequate provision for publicity on different media on the importance of proper solid waste disposal. Registered bodies on solid waste disposal should pay regular visit to Nyanya environment in order to stop inappropriate disposal of solid waste around the community. Also, there should be distribution of solid waste tanks within the community where the residents and the market people can dispose their refuse. Health workers should join hands with the environmental protection agencies to sensitize the residents on the importance of their health and the reason to stay in a clean environment.

## References

- Adedibu, A.A. (1985). A Comparative Analysis of Solid Waste Composition Generation in Two Cities of a Developing Nation. *The Environmentalist*, 5(12): 89 – 103.
- A United Nations Report, (2004). Waste Management: Including the UNON Sustainable Procurement Policy on the United Nations Compounds. Garigi, Kenya.
- Bartlett, J., Joe, K and Chadwick, H. (2001). Organizational Research Determining Appropriate Sample Size in Survey Research. *Information Technology Learning and Performance Journal*, 19 (1): 43-50.
- Encyclopedia of Nation, (2012). [http://en.wikipedia.org/wiki/Municipal\\_solid\\_waste](http://en.wikipedia.org/wiki/Municipal_solid_waste). Retrieved 12/3/2014.
- Federal Ministry of Housing and Environment. (2006) Nigeria, Monograph Series No 2. p.3.
- Marc, J.R. (2006). Collection and Disposal Rate Studies are a Valuable Tools. *Public Works Magazine*. [www.scsengineer.com/papers/Rogoff%20](http://www.scsengineer.com/papers/Rogoff%20). Retrieve 10/04/2014.
- NEST: Nigerian Environment Study Action Team (NEST, Ibadan 2001) (2007). *Sunday Vanguard*, January 14, 2007, P 15.
- Onibokun, A. (1999). *Managing the Monster: Urban Waste and Governance in Africa*: International Development Research Centre.
- Pasquini, M,W & Harris, F, 2005. Efficient Use of Resources: Urban Waste Ash and Soil Fertility on the Jos Plateau, Nigeria. *Area*, Vol. 37, No. 1 pp. 17-29. JSTOR Archive.
- United Nations Environment Programme, UNEPA (2006). State of Waste Management in South East Asia. Division of Technology, Industry & Economics: ASEAN.
- Uwaegbulam, C. (2004). World is Meeting Goals of Safe Drinking Water but Falling behind on Sanitation, says UN. *The Guardian*, Monday, August 30, 2004. pg. 50.
- WHO/UNICEF (2004a). Meeting the MDG Drinking Water and Sanitation: A Mid-Term Assessment of Progress. Geneva: WHO/UNICEF. ISBN 92 4 156278 1.
- WHO, (2004b). Rolling Revision of the WHO Guidelines for Drinking-Water Quality, Draft for Review and Comments. Nitrates and Nitrites in Drinking-Water, World Health Organization (WHO/SDE/WSH/04/03/14)