THE INFLUENCE OF HOUSEHOLDS SIZE, LEVEL OF EDUCATION AND INCOME ON WASTE GENERATION RATES IN MARARRABA AREA OF KARU LOCAL GOVERNMENT AREA, NASARAWA STATE, NIGERIA.

[1]A.T. Ogah, [2]M.M. Alhassan, [3]D.U. Sangari and [4]J.I. Magaji
[1,3&4]*Department of Geography, Nasarawa State University, Keffi, Nigeria.*
[2]*Department of Geography and Environmental Management, University of Abuja, Nigeria.*
E-mail: tankogah@yahoo.com

ABSTRACT

This study examined the influence of household's size, level of education and income on waste generation in Mararraba area of Karu. The objectives of this study were achieved using questionnaire. One set of questionnaire was designed and administered to heads of sampled households, the socio-economic characteristics of households' particularly household size, level of education and income were taken and used. Data derived from field survey were subjected to statistical analysis using regression analysis to determine the rates of influence on waste generation. And the results revealed that the income of household head (71%) exerts the most influence on the amount of solid waste generated, followed by level of education (25.65%), while households size exerts the least influence (2.56%). Thus, the implication is that the larger the size of income of household heads, the greater will be the amount of waste generated and the higher the level of education more waste is generated, while the influence of household size is not significant based on percentage of influence exerted. Recommendations include Recycling and re-use of households waste has become imperative because waste generation has been on the increase with increase in population and economic development and resources have been scarce making recycling not only sensible practice but essential as a method of waste reduction at the source.

Keywords: Waste Generation, Household Size, Level of Education,

INTRODUCTION

Wastes is defined as "substances or objects discarded as worthless or unwanted, defective or of no further value from a manufacturing or production process "(Hickman, 1986; Schaper, 1986; Oyediran, 1994;). Wastes is also said to refer to discarded materials which include municipal garbage, industrial and commercial wastes, sewage sludge, waste of agricultural and animal husbandry, demolition waste and mining residues (Sandbank, 1980;OECD, 2000).

Furthermore, waste is defined as "any material in the material flow pattern that is discarded as useless or unwanted" (Olokesusi, 1996). Moreover, wastes is defined as the heterogeneous mass of throw-away from residences and commercial activities as well as the more homogenous accumulations of a single industrial activity (Musa and Ho, 1981; Beede and Bloom, 1995; Aribisala, 1997; Pachauri, 2000; Furgusen and MacLaren, 2002). Waste can also be defined as material that has been left over after use. Odocha (1994), defined waste as materials which though may no longer be

needed here, may become a feedstock or raw materials elsewhere; he further defined waste as those materials which are generated as a result of normal operations over which we have control in terms of their production, disposal or discharge. Okechukwu (1995) described waste as substances, materials or objects discarded as worthless or unwanted, defective or of no further value for human economic productive activities or process.

Study Area

The study area for this research is Mararaba area in Karu Local Government area of Nasarawa State. The study area lies between latitudes 8° 30′ and 9° 30' N and between longitudes 7° 30' and 8° 10' E of Greenwich meridian (Figure 3.1). Karu Local Government Area is situated at the eastern part of the Federal Capital Territory Abuja and occupies a land area of about 27,116.8 square kilometres. The area is located in the North-Central geo-political zone of Nigeria and bounded to the west by FCT Abuja, to the North by Kaduna State, to the East by Kokona Local Government Area and to the South by Nassarawa Local Government Area. Karu Urban Area is one of the fastest growing urban areas in the World, with growth rate of about 40 per cent recorded annually and consists of towns that developed as a result of the need to house middle income workers who could not afford accommodation in Abuja. The rapid growth of the Karu Urban Area attracted businesses such as banks, hospitals, and engineering firms, making it more popular than ever and further accelerating its population growth which merged into a conurbation of more than 24 km long, with a population projection of about 2 million.

MATERIAL AND METHOD

A total of 117 household heads were sampled and questionnaire administered to heads of sampled households, the questionnaire administered to heads of household covered a wide range of socio-economic and demographic variables from the households, such as income of household heads, household size, educational status of household head, methods and frequency of waste collection, sorting of waste, waste processing, the use of multiple waste bins by households and disposals facilities used were investigated and number of persons within the household recorded. This enables determination of household's size.

RESULTS AND DISCUSSION

Age of Respondents

Majority of household heads interviewed fall within the age group of between 30-49 years which represents about 89% of respondents. This is within the economically active population range. While only 10% are aged 50 and above, these are people who are almost at the point of retirement, and have larger families who generate more waste in the study area.

Those who are less than thirty years represent about 8% as shown on figure 1.

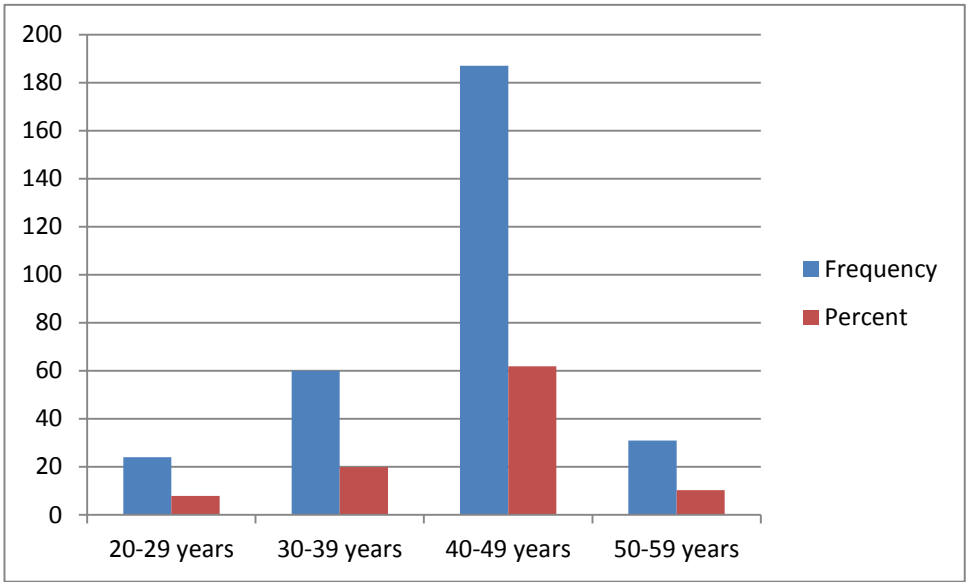

Figure 1: Age of Respondents

Source: Fieldwork, 2011

Household Size of Respondents

Household size of between 10 persons and above dominates the study area constituting about 60%. However, the percentage of the family size of 1 to 9 is also significant and this represents 40% of those interviewed. This is in accordance with the national average family size of between 8 to 10 persons per household. Thus, those households with more than 10 persons may be those household with low level of educational attainment with culture and religion also playing important roles in the life of people. Those that married more than one wives also have a larger family size. Given the differential family sizes, it is expected that the amount of waste generated in the study area will be high as shown on Figure 2.

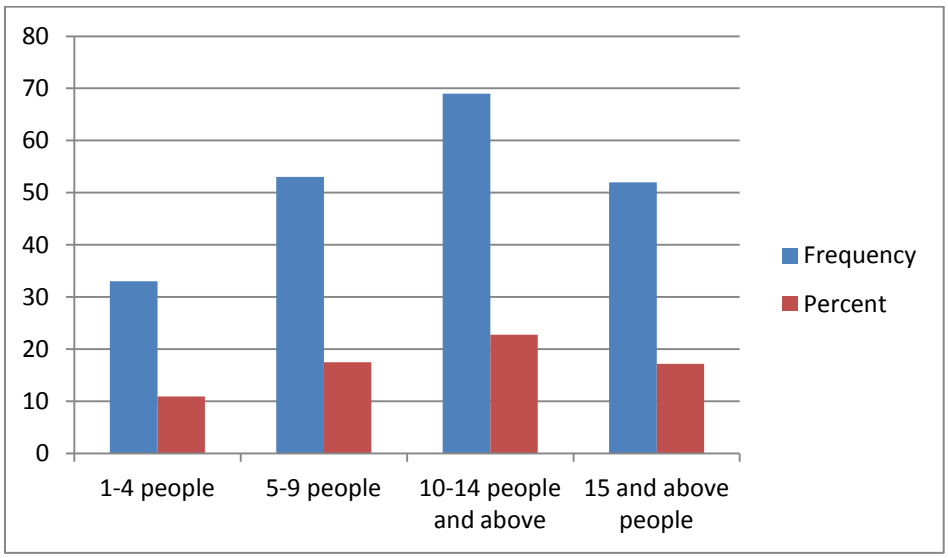

Figure 2: Household Size of Respondents

Source: Fieldwork, 2011

Educational Status of Respondents

The data on Figure 3 shows that 47% of household heads interviewed have tertiary education in the study area. While only about 20% did not attend school at all. However, about 12%, 15% and 5% have attended primary, secondary and vocational education in the study area respectively as shown on Figure 3. These household heads are civil servants or private sector employees who possessed varying certificates. The implication is that there should be high level of environmental awareness and consciousness in the study area and this has implications on waste management.

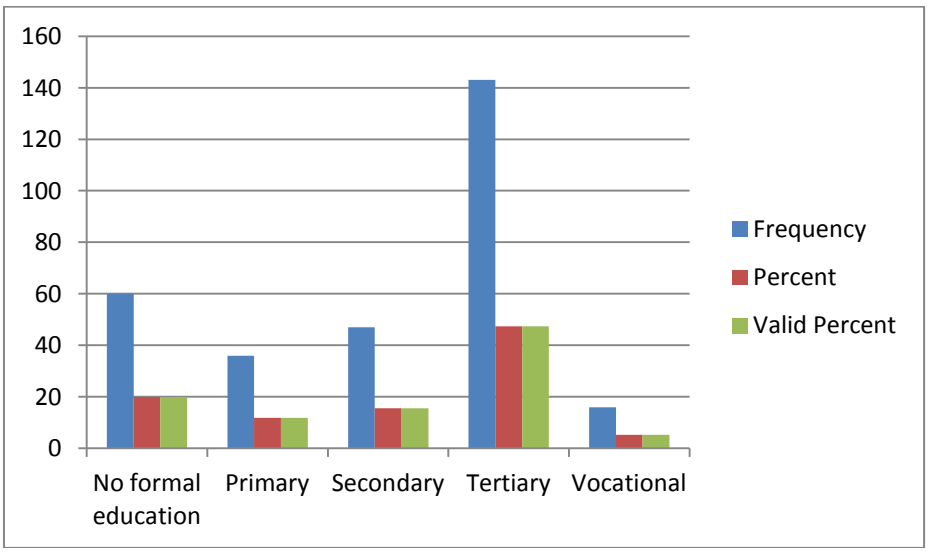

Figure 3: Educational Status of Respondents

Source: Fieldwork, 2011

Income Rates of Respondents

Based on the data on Figure 4, most residents in the study area fall within the income rate of ₦20, 000 per month before the current minimum wage of ₦18, 000 per month was introduced. While only 32% fall within the income range of ₦20, 000 – ₦100, 000. However, there are also people within the income range of ₦100, 000 and above who are residents in the area.

Furthermore, 60% of residents of Mararraba are low income earners, and about 40% are medium income earners. Thus, there may be high income earners residents in the study area. This is clearly shown on the Figure 4. The implication is that the rate of waste generation is significant in the study area. According to Zhu *et al* (2008), income level, economic growth and lifestyle have strong influence on waste generation.

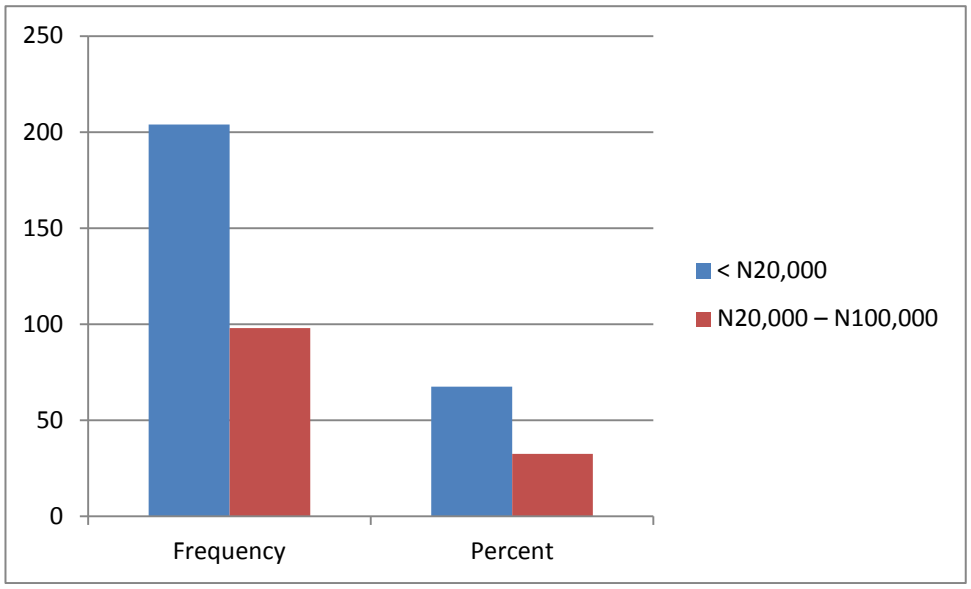

Figure 4: Income Rates of Respondents

Source: Fieldwork, 2011

Income Level of Respondents

From the data gathered on the income rates of respondents in the three study sites, those within the income rate of low and medium dominate the area with 59.6% and 40.4% respectively. However, higher income earners are also found in some locations. The implication is that as a stat elite town to Abuja the Federal Capital and because of the cost of living these categories of people would prefer to stay in these areas as shown on Figure 5, which would results to generation of more waste in the area.

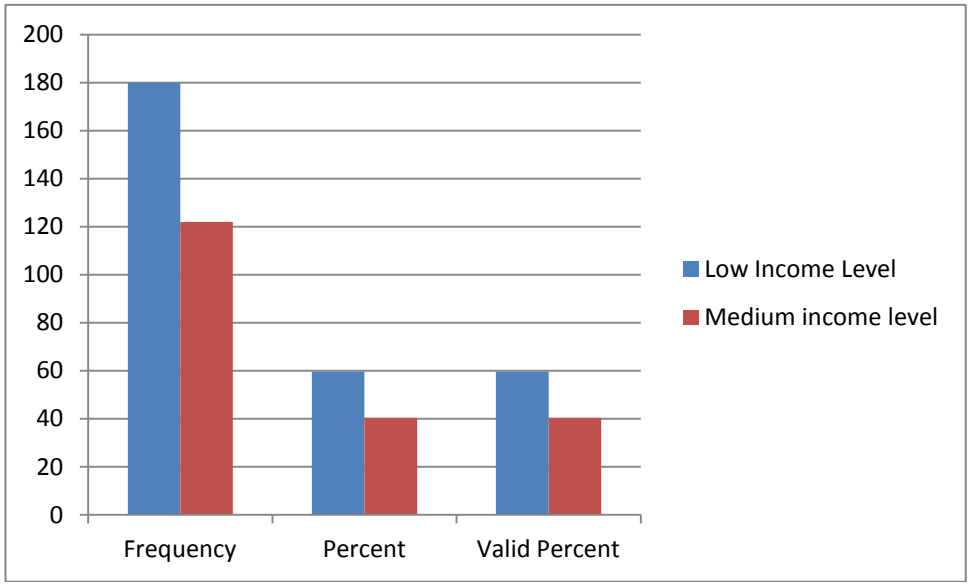

Figure 5: Income Level of Respondents

Source: Fieldwork, 2011

THE INFLUENCE OF HOUSEHOLDS SIZE, LEVEL OF EDUCATION AND INCOME ON WASTE GENERATION RATES

Table 1 shows the influence of households size, level of education and monthly income of heads of household exerts on solid waste generation rates in Mararraba. The essence of selecting them is to analyze which of them exerts the greatest and the least influence on the rate of waste generated in the study area. Looking at Table 1 household's income exerts the greatest influence on the rate of waste generated in the area, followed by level of education and the least is the size of household.

Thus, the implication is that the larger the size of income of households heads, the greater will be the amount of waste generated and the higher the level of education more waste is generated, while the influence of household size is not significant based on percentage of influence exerted. However, the rate of influence of household's size is greater while those of level of education and income are almost the same. This discussion is in line with the work of Visvanathan and Trankler (2006), that economic growth and waste generation have not been decoupled in both the developing and industrialized World. Medina (2002) also reported that a positive correlation tends to exist between a community's income and the amount of solid waste generated. Wealthier individuals consume more than lower-income ones, which result in higher waste generation rate from the former. Income and household size are the most significant factors affecting the quantity of solid wastes from household consumption (Richardson and Havlicek, 1974).

Table 1: Regression Analysis

Table.1: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Percentage of influence
		B	Std. Error	Beta			
1	(Constant)	1.899	.061		30.879	.000	
	Household Size	-.008	.008	-.055	-1.023	.307	**2.56**
	Level of Education	-.080	.013	-.358	-5.980	.000	**25.65**
	Monthly Income	.224	.036	.373	6.236	.000	**71.79**

Source: Field work 2012

CONCLUSIONS

The study conclude as follows, that the level of income of household heads exerts the most influence and the level of education of household head exerts the least influence on the amount of solid waste generated by households.

RECOMMENDATIONS

Based on the research findings and the conclusions arrived at, the following recommendations are considered appropriate here:

- Recycling and re-use of households waste has become imperative because waste generation has been on the increase with increase in population and economic development and resources have been scarce making recycling not only sensible practice but essential as a method of waste reduction at the source;

- Policies should be formulated to raise awareness, promote knowledge and motivate households with regards to environment and waste management practices in the areas. It is also important to investigate what motivates people to reduce and recycle their waste and what discourages them from participating.

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Reference to this paper should be made as follows: A.T. Ogah *et al.* (2014), The Influence of Households Size, Level of Education and Income on Waste Generation Rates in Mararraba Area of Karu Local Government Area, Nasarawa State, Nigeria. *J. of Environmental Sciences and Resource Management,* Vol. 6, No. 2, Pp. 51 – 58.