Original Research Article

SOCIO ECONOMIC CHARACTERISTICS OF THE HOUSEHOLDS THAT GENERATE WASTE IN ZURU TOWN, KEBBI STATE

ABSTRACT

The investigation was conducted on socio economic characteristics of the households that generate waste in Zuru town, kebbi state. Data was derived from two sources, primary and secondary. Primary data was collected through questionnaire administration, in-depth interviews and Focus Group Discussion from the respondents. Secondary data on population and household sampling was derived from the recent (2015) house listing exercise by the National Primary Health Care Agency for the Polio Immunization exercise. List of settlement was sourced from the NPC (2006) Census and housing data. 312 households were given one basket each by the researchers to ensure unbiased determination of the types of waste generated by the three residential categories in the study area. The data was analyzed using frequency, percentage, Chi-square, and ANOVA. The result shows that 58.3% of the respondents are female, 32.1% fall between the ages 30 and 39 years, while only 3.8% are above 60 years. Majority, (70.2%) possessed primary education; many (36.2%) are business personnel and only 9.6 of the respondents earn above ₦100,000 per month. Result further shows that majority (80%) of the waste are non-biodegradable. Result also revealed that many (42.3%) of the households burns their waste. The Chi-square of association test revealed a statistically significant relationship only between the occupation of the respondents and waste generation (χ (3) =8.782, p=.032). The three-way ANOVA also revealed no significant difference in waste generation among the residential categories in Zuru town (F (1, 90) = 2.215, p= .140). The study concludes that government should adequately sensitize households on menace of burning waste anyhow, since majority of the respondents are not aware of the health hazards associated with the burning of waste.

KEYWORDS: Socio-economic, Households, Waste, Zuru town, Kebbi state.

1.INTRODUCTION

Zuru town is endowed with various socio-economic activities such as farming; schooling, marketing etc. people come from different places come to buy food stuffs and take them to nearby and far places such as Niger republic, Cotonou etc. and states like Zamfara, Sokoto and Katsina. Also people come from far and near to pursue academic excellence in the state college of Agriculture, and secondary schools as well. Marketing activities too takes place in Zuru town from neighboring states, towns and villages, purchasing of consumable products such as fruits and vegetables. Zuru Township comprises residential, commercial, and urban agricultural activates. The land use pattern takes shape both in season and out of season such as the dry season farming and the normal raining season farming; the land use pattern in the town is contributing to the household waste generation in different categories and the entire town in general.

The growth of human population coupled with increased economic activities has resulted into high rate of solid waste generation. The day- to- day activities of man generally draw inputs from the natural base in his environment. This may be by way of raw materials for industrial production or by direct utilization of the resources from the reserve in land, water and air. However, the use of these resources in turn results in the generation of various classes of

unwanted, useless, damaged and discarded materials termed Waste. Therefore, waste is any unavoidable material resulting from industrial, household, and or commercial activity for which there is no economic demand by the owner and which must be disposed of [1].

Household wastes are those unwanted materials (which must be discarded), produced in the kitchens or by any other activities of households or homes. In relation to this view, Attah [2] stated that waste generated from homes/ households' premises are termed household waste. They include food and packaging materials, leathers, metals, bottles (glasses), plastics, polythene (sachet water and polythene bags), clothes, researchs, ceramics, and vegetables/leaves and construction materials among others [3]. Waste generation is an unavoidable by-product of many aspects and types of human activities and households. Indeed, waste generation is a common feature in urban and rural households. According to Ekweozor [4], all aspects of human endeavours are associated with waste generation. In addition, population pressure on the available living areas, people's poor attitude to waste disposal, the shift from agriculture to manufacturing, resulting in the use of more plastics, glasses, metals, polythene and others, make waste disposal practices an important topic of discourse if man has to live in harmony with his environment.

Inappropriate waste disposal practice has been a major problem facing Zuru town in Kebbi State, which takes the form of dumping of waste in unauthorized places and in uncompromising manner. Nwachukwu [5] notes that residents of urban cities in Nigeria dump refuse indiscriminately along the streets, roads, open spaces, market places, frontage of residential buildings, and drainage systems. Chukwu [6] reports the alarming rate the volume of waste resulting from household's activities, which littered the open spaces and public premises. According to Chukwu [6], these wastes are discarded without due regard to environmental sanitation. Hence, poor waste disposal practice is the major factor influencing high volumes of waste in Nigerian cities. This study was therefore carried out to examine the socio economic characteristics of the households and their relationship with waste generation.

2. MATERIALS AND METHODS

2.1 Study Area

The study area is Zuru town in Kebbi State, Nigeria. Zuru is a town in Zuru Local Government area of Kebbi state, which is one of the twenty-one Local Government Area in the State. It is located in the Northern Guinea Savanna agro ecological zone of Nigeria. It lies between latitude 1 1°15'N and 11°27'N, longitude 5°13'E-5°15' E and an altitude of about 259 cm above the sea level covering an area of about 461,880 SqKm. (see Figure 1 for the study area) The area is situated at the extreme Southern part of Kebbi State. Zuru Local Government has six administrative districts namely Dabai, Rikoto, Rafinzuru, Manga, Senchi, and Ushe. Zuru Local Government bounded by Danko/Wasagi Local Government in the east, Sakaba Local Government in the South East, Fakai Local Government in the North west, and in the South with Rijau Local Government of Niger State.

2.2 Materials and Methods

The materials used for this study include the literatures and other publications consulted for the successful completion of the study. Other materials used in the study include the computer

software package for social sciences (SPSS version 20). Methods of data collection comprise the important components of research methodology, which include the source of data collection, methods of data collection, sampling techniques and sampling size and the methods of data analysis.

2.3 Sources of Data Collection

Data was derived from two sources, primary and secondary. Primary data was collected through questionnaire administration, in-depth interviews and Focus Group Discussion from the respondents. Secondary data on population and household sampling was derived from the recent (2015) house listing exercise by the National Primary Health Care Agency for the Polio Immunization exercise. List of settlement was sourced from the NPC (2006) Census and housing data.

2.4 Data Collection

The basic instrument used for data collection in this research was structured questionnaire. Structured questionnaire containing both open and closed ended questions were utilized to collect primary data from randomly selected households from the entire households of 1583 in the study area. The data collection was not through only the questionnaire and interview; rather the 312 households were given one basket each by the researcher to ensure unbiased determination of the types of waste generated by the three residential categories in the study area. See details of the sampling frame and sampling size in Table 1.

2.5 Sampling Techniques and Sample size

Zuru town is made up of two (2) administrative districts namely: Rafin Zuru and Rikoto Districts. The sampling frame of the households was drawn from the record of routine immunization conducted by community health workers. The sampling in this study involved three stages before arriving at the required sample size. The first stage involved a random selection five (5) areas from the two districts within the study area (Rafin Zuru and Rikoto) and using the concentric zone model, the five selected areas were divided into three residential categories: high, middle and low ranked (1, 2 and 3 areas respectively). The residential categories were selected purposely because of the concentration of respondents that are suspected to generate huge solid waste in these areas. The second stage involve the use of Yamane's (1967) formula n= where n = sample size, N= entire population size, e= 0.05 (95%) to determine the sampling size. The last stage involve allocation of sampled population proportionately to the selected areas based on the population/number of households as contained in Table 1.

Table 1: Distribution of Selected Districts, Area, Sample Frame and Sample Size

L.G.A Districts	Categories	Areas	Sample Frame (SF)	Sample Size (SS)
Zuru Rikoto	3	Rikoto	955	192
	2	Twins quarter	114	22

Rafin Zuru	1	GRA	260	51
	2	Jarkasa	119	26
	3	Mangorori	135	29
Total			1583	320

Source: Fieldwork, 2018

2.6 Data Analysis

The data collected was analyzed using the inferential and descriptive statistics, such as simple frequency and percentages, Chi-square and ANOVA. The data collected was coded for easy entering into the SPSS to process the needed results.

The hypothesis that "there is no significant relationship between the socio economic characteristics of household heads and waste generation for the different residential categories in the study area" was tested using Chi-square of association while that which says "there is no significant relationship in waste generated among different categories of households in Zuru town" was tested using three-way ANOVA.

3. RESULTS AND DISCUSSION

3.1 Socio-economic Characteristics of the Respondents

The result of socio-economic characteristics of the respondents is contained in Table 2. The socio-economic characteristics of the respondents involve their gender, age, educational background and occupation.

It could be inferred from Table 2 that majority (58.3%) of the respondents in the households of Zuru town are female while the remaining 41.7% are male. The result (Table 2) shows that 34% of the respondents are between ages of 40 and 59 years, 32.1% of them are between ages of 30 and 39, 18.3% are between ages 50 and 59, 11.9% of them are between ages 20 and 29 and only 3.8% are above 60 years of age. In terms of their educational background, majority (70.2%) of the respondents are primary school certificate holders, 18.9% of them possess post secondary school education while 10.9% claimed they have secondary school education. The result in Table 4 also indicates that 36.2% of the respondents are business persons, women, 27.9% of them are farmers by occupation, 26.6% are civil servants and 9.3% of them are students. The level of income of the households is also contained in Table 4.1a. it could be inferred that many (35.6%) of the households received between ₦20,000 and ₦50,000 per month, 29.9% of them received bellow ₦20,000 monthly, 27.9% received between ₦50,000 and ₦100,000 per month while 9.6% of the households in Zuru town received above ₦100,000 in a month. It is evident from Table 4 that majority of the households in Zuru town are low-income earner. The level of income of the households could be considered low probably because of the nature of their occupation,

which is majorly petty business. Those households earning between ₦50,000 and ₦100,000 and above ₦100,000 could be considered as medium and high incomes earner. This income group might be the civil servants among them. The finding on the socio-economic characteristics of Zuru residents in this study is in line with Jacinta and Veronica [7]. Babayemi and Dauda [8], examined the socio-economic characteristics of respondent like age, sex, marital status, educational level, income level, occupation, number of children etc.

Table 2: Socio-economic Characteristics of the Respondent

Variable	Frequency	Percent
Gender		
Male	130	41.7
Female	182	58.3
Total	312	100.0
Age of Mothers		
20-29	37	11.9
30-39	100	32.1
40-49	106	34.0
50-59	57	18.3
60 an above	12	3.8
Total	312	100.0
Educational Background of Respondents		
primary school	219	70.2
Secondary School	34	10.9
Post Secondary	59	18.9
Total	312	100.0
Occupation		
Civil servant	83	26.6
Business	113	36.2
Farming	87	27.9
Student	29	9.3
Total	312	100.0
Level of income		
bellow ₦20,000	84	26.9
₦20,000-₦50,000	111	35.6
₦50,000-₦100,000	87	27.9
above ₦100,000	30	9.6
Total	312	100.0

Source: Fieldwork, 2018

The chi-square result summary in Table 3 indicates that the result on the socio-economic characteristics of the respondents do not just occur by chance, rather it is statistically significant. Results are presented thus: gender (χ^2 (1, n = 312) 8.67, P= .000) likewise, the result on age distribution of the respondents has been tested to be true and statistically reliable (χ^2 (2, n = 312) 193.75, P=.000). In addition, occupation of the respondents (χ^2 (2, n = 312) 45.0, P =.000), and their level of income (χ^2 (3, n = 312) 47.85, P=.000). From the foregoing, the socio-economic attribute of the respondent are not basis. It means the outcomes are almost 100% correct.

Table 3: Chi-square Test Summary on the Socio-economic Characteristics of the Respondents

Variable	χ^2	df	P
Gender of Respondents	8.67	1	.003
Age of Respondents	104.64	4	.000
Educational Background of Respondents	193.75	2	.000
Level of income	45.00	3	.000

Source: Author's Computation, 2018

From the forgoing, it is obvious that majority of the respondent in the study area are female. This finding could be as a result of the fact that women are always left with domestic responsibility including the household sanitation. The females are more responsible for the waste being generated in the households and it is their responsibility most of the time to evacuate them to the dumping site unlike their male counterparts.

It is very important to note that the result in Table 2 has clearly showed that majority of the respondents fall between ages 30 and 49 which indicates that those people contacted in the different households are matured people whose information are expected to be reliable. It also signifies that they are married, divorced or separated but not single. The result shows that majority of the respondents possessed primary school education. This implies that many of the respondents might have poor orientation about the menace of waste generation and disposal due to their low level of education. The result equally shows that 18.9% of the respondents possessed post secondary education, which indicates low number of people with greater potential to understand the menace of waste generation and how it should be properly disposed in the area. The prominent occupation of the respondents is business and farming. Other occupation of the respondents in the area is civil service, especially the high-income area like the G.R.A as well as Students. It is good to understand that wherever there is business activities especially petty-petty trading, the generation of waste especially polythene bags will be enormous. It is also expected that those households where there are educated people especially those with post secondary education will be more exposed to the precautions of dumping refuse anyhow in the area.

3.2 Information on Different Types of Waste Generated by Households

The result of different types of waste generated by households is contained in Table 4. The result revealed that 88.3% of the respondents agreed that they use polythene bags in their household while 11.5% of them denied the use of polythene bags in their households. It was also observed that 82.1% of the households accepted the use of food-packaging items in their households while 17.9% of them denied the usage of packaging item for food. It is obvious that 38.5% of the households generate plastic rubber for drinks in their houses, 37.2% claimed they generated

takeaway plastics, 15.1% of them use plastic for food ingredients and 9.3% of the household use and generate canned food items in their houses. The result in Table 4 reveal that they generate waste such as ceramics, metals, leaders, cloths and vegetables leaves. Among all these waste, many of the mothers (34.6%) claimed that cloths and vegetable leaves are the highly generated wastes followed by leaders (31.4%), ceramic (23.1%) and metals (10.9%). Still from Table 4, 69.9% of the households in Zuru town indicated that leftover food constitutes some other domestic waste in their houses while 26.6% of the households claimed that peel from yam tubers, onions potatoes are also part of their domestic waste and other waste. The remaining 3.3% of the respondents identified animal dung as part of their domestic waste.

Table 4: Information on Different Wastes Generated by Household

Variable	Frequency	Percent
Use of polythene bags		
Yes	276	88.5
No	36	11.5
Total	312	100.0
Use of Food Packaging Items		
Yes	256	82.1
No	56	17.9
Total	312	100.0
Type of Packaging Items		
Takeaway plastic	116	37.2
plastic Rubber for Drinks	120	38.5
Canned food items	29	9.3
plastic for food ingredients	47	15.1
Total	312	100.0
Type of wastes generated		
Ceramics	72	23.1
Metals	34	10.9
Ceramics	98	31.4
vegetable leaves	108	34.6
Total	312	100.0
Other domestic waste in generate in the house		
Leftover food	218	69.9
Peel from yam tuber	83	26.6
Animal waste	11	3.5
Total	312	100.0

Source: Field Work, 2018

The chi-square summary on the different waste generated by the household in Table 5 reveal that the results are truly reliable. In fact, they are almost 100% true. For instance, the use of polythene bags (χ^2 (1, n = 312) 184.62, p =.000); use of food packaging items (χ^2 (1, n=312)128.21; p =.000); type of packaging items use (χ^2 (3, n = 312) 84.23, p=.000); whether

they have waste items such as canned food waste and bottles as part of their waste (χ^2 (1, n =312) 113.28, p=.000); other domestic waste generated in the house (χ^2 (1, n = 312) 113.28, p=.000). The result of chi-square as presented in Table 5 indicates that the result is not bias and the information could be use for any proper decision as regard the waste generation in Zuru town.

Table 5: Chi-square Test Summary on Different Waste Generated by Households in Zuru Town

Variable	χ^2	Df	p
Whether they use polythene bags	184.62	1	.000
Use of food-packaging items	128.21	1	.000
What type of packaging items	84.23	3	.000
Whether they have waste items such as canned food waste and bottle as part of their waste	113.28	1	.000
other domestic waste generated in the house	212.37	2	.000
Whether all these are part of waste generated in their house	113.28	1	.000

Source: Field Work, 2018

Figure 2: Pollution in form of Smoke from Burning of Waste in Zuru Town

Source: Field Work, 2019

4.1 Conclusion

After detail analysis of result, the study concludes that the waste generated by the three residential categories in Zuru town is both biodegradable (leftover foods, vegetable leaves, agricultural residues, animal dung etc.) and non-biodegradable (polythene bags, metals, glass, ceramics, plastic rubbers etc.).

4.2 Recommendations

The study recommends the followings:

I. Instead of burning the waste, which is the common method of disposing off waste by households in Zuru town, government should provide adequate incinerators to reduce the menace of air pollution in the area.

II. Since majority of the respondents are not aware of the health hazards associated with the burning of waste, government should adequately sensitize households on menace of burning waste anyhow.

III. The residents of Zuru town should be properly educated on the benefit of separating the hazardous wastes from other Municipal waste with a view to reducing the danger associated with combining the wastes.

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