

**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 ( $\chi^2(3) = 8.782, p = .032$ ). 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

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

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

58 Population pressure on the available living areas, people's poor attitude to waste disposal, the  
59 shift from agriculture to manufacturing, resulting in the use of more plastics, glasses, metals,  
60 polythene and others, make waste disposal practices an important topic of discourse if man has to  
61 live in harmony with his environment. Inappropriate waste disposal practice has been a major  
62 problem facing Zuru town in Kebbi State, which takes the form of dumping of waste in  
63 unauthorized places and in uncompromising manner. Nwachukwu [5] notes that residents of  
64 urban cities in Nigeria dump refuse indiscriminately along the streets, roads, open spaces, market  
65 places, frontage of residential buildings, and drainage systems. Chukwu [6] reports the alarming  
66 rate the volume of waste resulting from household's activities, which littered the open spaces and  
67 public premises. According to Chukwu [6], these wastes are discarded without due regard to  
68 environmental sanitation. Hence, poor waste disposal practice is the major factor influencing  
69 high volumes of waste in Nigerian cities. This study was therefore carried out to examine the socio  
70 economic characteristics of the households and their relationship with waste generation.

## 71 **2. MATERIALS AND METHODS**

### 72 **2.1 Study Area**

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

### 83 **2.2 Materials and Methods**

84 The materials used for this study include the literatures and other publications consulted for the  
85 successful completion of the study. Other materials used in the study include the computer  
86 software package for social sciences (SPSS version 20). Methods of data collection comprise the  
87 important components of research methodology, which include the source of data collection,  
88 methods of data collection, sampling techniques and sampling size and the methods of data  
89 analysis.

### 90 **2.3 Sources of Data Collection**

91 Data was derived from two sources, primary and secondary. Primary data was collected through  
92 questionnaire administration, in-depth interviews and Focus Group Discussion from the  
93 respondents. Secondary data on population and household sampling was derived from the recent  
94 (2015) house listing exercise by the National Primary Health Care Agency for the Polio  
95 Immunization exercise. List of settlement was sourced from the NPC (2006) Census and housing  
96 data.

### 97 **2.4 Data Collection**

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

### 105 **2.5 Sampling Techniques and Sample size**

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

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

L.G.A Districts	Categories	Areas	Sample (SF)	Frame	Sample (SS)	Size
--------------------	------------	-------	----------------	-------	----------------	------

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

120 **Source:** Fieldwork, 2018

## 121 **2.6 Data Analysis**

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

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

## 130 **3. RESULTS AND DISCUSSION**

### 131 **3.1 Socio-economic Characteristics of the Respondents**

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

135 It could be inferred from Table 2 that majority (58.3%) of the respondents in the households of  
 136 Zuru town are female while the remaining 41.7% are male. The result (Table 2) shows that 34%  
 137 of the respondents are between ages of 40 and 59 years, 32.1% of them are between ages of 30  
 138 and 39, 18.3% are between ages 50 and 59, 11.9% of them are between ages 20 and 29 and only  
 139 3.8% are above 60 years of age. In terms of their educational background, majority (70.2%) of  
 140 the respondents are primary school certificate holders, 18.9% of them possess post secondary  
 141 school education while 10.9% claimed they have secondary school education. The result in Table  
 142 4 also indicates that 36.2% of the respondents are business persons, women, 27.9% of them are  
 143 farmers by occupation, 26.6% are civil servants and 9.3% of them are students. The level of  
 144 income of the households is also contained in Table 4.1a. it could be inferred that many (35.6%)  
 145 of the households received between ₦20,000 and ₦50,000 per month, 29.9% of them received  
 146 bellow ₦20,000 monthly, 27.9% received between ₦50,000 and ₦100,000 per month while

147 9.6% of the households in Zuru town received above ₦100,000 in a month. It is evident from  
 148 Table 4 that majority of the households in Zuru town are low-income earner. The level of income  
 149 of the households could be considered low probably because of the nature of their occupation,  
 150 which is majorly petty business. Those households earning between ₦50,000 and ₦100,000 and  
 151 above ₦100,000 could be considered as medium and high incomes earner. This income group  
 152 might be the civil servants among them. The finding on the socio-economic characteristics of  
 153 Zuru residents in this study is in line with Jacinta and Veronica [7]. Babayemi and Dauda [8],  
 154 examined the socio-economic characteristics of respondent like age, sex, marital status,  
 155 educational level, income level, occupation, number of children etc.

156 **Table 2: Socio-economic Characteristics of the Respondent**

<b>Variable</b>	<b>Frequency</b>	<b>Percent</b>
<b>Gender</b>		
Male	130	41.7
Female	182	58.3
Total	312	100.0
<b>Age of Mothers</b>		
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
<b>Educational Background of Respondents</b>		
primary school	219	70.2
Secondary School	34	10.9
Post Secondary	59	18.9
Total	312	100.0
<b>Occupation</b>		
Civil servant	83	26.6
Business	113	36.2
Farming	87	27.9
Student	29	9.3
Total	312	100.0
<b>Level of income</b>		
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

157 Source: Fieldwork, 2018

158 The chi-square result summary in Table 3 indicates that the result on the socio-economic  
 159 characteristics of the respondents do not just occur by chance, rather it is statistically significant.  
 160 Results are presented thus: gender ( $\chi^2$  (1, n = 312) 8.67, P= .000) likewise, the result on age  
 161 distribution of the respondents has been tested to be true and statistically reliable ( $\chi^2$  (2, n = 312)  
 162 193.75, P=.000). In addition, occupation of the respondents ( $\chi^2$  (2, n = 312) 45.0, P =.000), and

163 their level of income ( $\chi^2$  (3, n = 312) 47.85, P=.000). From the foregoing, the socio-economic  
164 attribute of the respondent are not basis. It means the outcomes are almost 100% correct.

165

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

Variable	$\chi^2$	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

168 Source: Author's Computation, 2018

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

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

### 189 **3.2 Information on Different Types of Waste Generated by Households**

190 The result of different types of waste generated by households is contained in Table 4. The result  
191 revealed that 88.3% of the respondents agreed that they use polythene bags in their household

192 while 11.5% of them denied the use of polythene bags in their households. It was also observed  
193 that 82.1% of the households accepted the use of food-packaging items in their households while  
194 17.9% of them denied the usage of packaging item for food. It is obvious that 38.5% of the  
195 households generate plastic rubber for drinks in their houses, 37.2% claimed they generated  
196 takeaway plastics, 15.1% of them use plastic for food ingredients and 9.3% of the household use  
197 and generate canned food items in their houses. The result in Table 4 reveal that they generate  
198 waste such as ceramics, metals, leaders, cloths and vegetables leaves. Among all these waste,  
199 many of the mothers (34.6%) claimed that cloths and vegetable leaves are the highly generated  
200 wastes followed by leaders (31.4%), ceramic (23.1%) and metals (10.9%). Still from Table 4,  
201 69.9% of the households in Zuru town indicated that leftover food constitutes some other  
202 domestic waste in their houses while 26.6% of the households claimed that peel from yam  
203 tubers, onions potatoes are also part of their domestic waste and other waste. The remaining  
204 3.3% of the respondents identified animal dung as part of their domestic waste.

205

206

207

208

209

210 **Table 4: Information on Different Wastes Generated by Household**

Variable	Frequency	Percent
<b>Use of polythene bags</b>		
Yes	276	88.5
No	36	11.5
Total	312	100.0
<b>Use of Food Packaging Items</b>		
Yes	256	82.1
No	56	17.9
Total	312	100.0
<b>Type of Packaging Items</b>		
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
<b>Type of wastes generated</b>		
Ceramics	72	23.1
Metals	34	10.9
Ceramics	98	31.4
vegetable leaves	108	34.6
Total	312	100.0
<b>Other domestic waste in generate in the house</b>		
Leftover food	218	69.9
Peel from yam tuber	83	26.6
Animal waste	11	3.5
Total	312	100.0

211 **Source:** Field Work, 2018

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



216 they have waste items such as canned food waste and bottles as part of their waste ( $\chi^2$  (1, n =312)  
 217 113.28, p=.000); other domestic waste generated in the house ( $\chi^2$  (1, n = 312) 113.28, p=.000).  
 218 The result of chi-square as presented in Table 5 indicates that the result is not bias and the  
 219 information could be use for any proper decision as regard the waste generation in Zuru town.

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

<b>Variable</b>	$\chi^2$	<b>Df</b>	<b>p</b>
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

222 **Source:** Field Work, 2018



223

224 Figure 1: Study area



LAT 11°25'53" N TUESDAY 04.17.2018  
LONG 5°13'51" E LOCAL TIME 10:14:29

Zuru-Mahuta Road, Zuru, Nigeria, Kebbi,  
Zuru, Nigeria



LAT 11°26'15" N TUESDAY 04.17.2018  
LONG 5°13'56" E LOCAL TIME 09:58:01

Zuru, Nigeria, Kebbi, Zuru, Nigeria

225

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

227 Source: Field Work, 2019

228

#### 229 **4.1 Conclusion**

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

#### 234 **4.2 Recommendations**

235 The study recommends the followings:

236

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

240

241 II. All the parties' (i.e. Civil servant, Business people, farmers and students etc.)  
242 spontaneous participation and involvement should be ensured to manage and  
243 dispose of solid wastes properly in order to maintain clean and healthy  
244 environment.

245

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

249

## REFERENCES

- 251 1. Ofodile, S. E. Solid Waste Management: A Case Study of Port-Harcourt. A  
252 Research Presented at the National Conference of Nigerian Environment  
253 Society (NES) Rivers State on 6th June. 2002
- 254 2. Atta, M. Problems of Domestic Waste Management in Nigeria: Ant  
255 Repressor? www.nigerialawguru.com. 2003
- 256 3. Egun, N. K. The Waste to Wealth Concept: Waste Market Operation in Delta  
257 state Nigeria. *Journal of International Environmental Application and*  
258 *science*. 2012:2(6):206-212.
- 259 4. Ekweozor, I. Our Environment- The Need to Protect it. An Overview of One Day  
260 Workshop on Solid Waste Management in Niger Delta Organized by Nigeria  
261 Environmental Society (NES) Rivers State Branch on 6<sup>th</sup> June. 2002
- 262 5. Nwachukwu, M. U. Solid Waste Generation and Disposal in Nigeria city: An  
263 empirical analysis in Onistha Metropolis. *Journal of Environmental and*  
264 *Safety (JES)*, 2010:1 (1):180-191.
- 265 6. Chukwu, A. O. The Effect of Indiscriminate Disposal of Plastic Waste in the  
266 Environment: A case study of Enugu. An Unpublished Dissertation BURP  
267 Department of Urban and Regional Planning. University of Nigeria, Enugu Campus.  
268 2002
- 269 7. Jacinta, A. O. and Veronica, O. C. Management of Biodegradable Waste among  
270 Rural Residents in Southern Nigeria: implication for Environmental Public  
271 Health. *Mediterranean Journal of Social Sciences*, 2017:8 (3): 321-326.
- 272 8. Babayemi, J. O., Dauda, K. T. J. Evaluation of Solid Waste Generation,  
273 Categories and Disposal Options in Developing Countries: A Case Study  
274 of Nigeria. *J. Appl. Sci. Environ. Manage.* 2009:13(3): 83 – 88

275

276

277

278

279

280

281

282

283