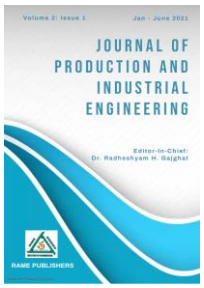

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Examining the environmental facilities on residents' gratification in government estates - *A Case Study of Borno State, Nigeria*

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Abstract **- Globally, housing deficit has been a major concern to humanity. The United Nations Development program have been working closely with government sectors to enhance access to adequate housing, especially to the most vulnerable communities affected in natural disasters or being caught in armed conflict. It is evident that most housing units owned by government is do not meet the gratification of the occupants. This research is conducted and inspired following multiple cases of reports and global issues. Thus, it was decided to examine the government estates housing scheme developers' commitment to design and construct estates in environments with proper modern facilities. This research aims to assess the gratification level conveyed by the residents of government owned houses in Borno State, Nigeria, in the anticipation that the final output would enhance proper decision making in designing housing projects. The results of the test hypothesis demonstrate that environmental installations have a significant impact on the gratification of residents. Spearman Rho's analysis model showed a correlation coefficient value of 0.085 with a probability of significance of 0.023. This implies that there is a weak relationship between the environment and the satisfaction of residents. The probability points of relevance of 0.023 also shows that it is important. This research has shown that these environmental variables are the method of waste disposal, the state of roads within the farm, the health of the land and the availability of desert trees. In this research document, the laxities that lead to unpleasant behavior are annihilated, integrating the subjective evaluations of residents with the objectives and criteria of developers. The gratification of residents in state properties in the research area and future government housing projects can be strengthened by providing environmental facilities which also work well in government housing properties.**

Index Terms: Environment, Estates, Facilities, Government Estate, Residents Gratification

I. INTRODUCTION

For every housing estate to be fully convenient and gratified by the occupants, it must have a very conducive environment, equipped with modern facilities with very clean environment that supports good mental healthcare [16]. Measuring residents' gratification has gone past the confines of common norms which are limited to physical and structural adequacy of housing units to include the environment [14]. Previous research [1], [11] indicated that

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residents are more concerned with his residential environment than with the housing unit per se. This could possibly be linked because the environment determines the accessibility or availability of some communal services and facilities many of which affect the mental health. Asserted that the housing environment over the years has been considered as a medium for meeting the fundamental needs of family life of the residents [12].

The nature of environment changes the human interaction and activity patterns which generate either gratification or problems. The environment remains the most basic unit in which social lives occur; it affects the quality of life of residents and as such, the environment should be given more attention than it is given [17]. Poor planning, non-functional or non-existence of these environmental facilities in government housing estates is leads to discomfort of residents in government housing estates [5], [13]. The nature of the residential area affects the form of interactions and movement in the area, reflecting in turn the nature of function, social behavior and psychological stresses. The social dimension of the environment evaluates the social ties and relationship among residents in an estate which include; friendship and communal activities in an estate for the interest of the residents. A study assessed the housing gratification in medium income estate in Lagos found that the residents express discomfort with the level of communal interactions and recreational facilities within the estate [18].

Fitzgerald and Durant argued it is a communication forum among citizens, planners and urban managers[6],[12]. It is because formulations of administrative policy and subsequent evaluations of performance do not completely rely on objective criteria. Evaluations based on objective criteria often only restate an understanding of public policy and are distant from user preferences[7]. Enrolling subjective evaluations will allow planners to refocus limited resources to take user priorities into consideration and will provide useful tools for social evaluation of the political process. Objective criteria cannot be invariant in the definition of housing policies and will have no meaning if it is a combination of objective and subjective criteria [8]. It was based on this argument that pioneered this paper research.

There have been series of government housing estate developments in Borno State since the state was created, but evaluation of residents' satisfaction in the estates has not been done. Indications are that housing efforts in Borno State and Nigeria are often directed more to the housing units than the environment, yet the environment itself cannot be isolated from the housing unit. This motivated my research. The aim of this paper is to examine the influence of environmental facilities on level of residents' gratification in government housing estates in Borno State, Nigeria with a view to provide a feedback criterion for government decision makers on housing estates to improve the provision of environmentally friendly government housing estate. To further guide the research, the null hypothesis is put forward: there is no significant relationship between the performance of environmental facilities in the neighborhood and residents' gratification in the government housing estates in Borno State.

A. Statement of Problem

A problem remains a burning issue until a final solution is provided to mitigate the risk or end challenges. The limitation and laxities encountered in government estates is alarming and it needs an urgent intervention. There are scare houses provided for humans and thus, with the establishment of government owned houses, it reduces the burden of acquiring a house for the middle-income man. Moreover, most residential houses do not enhance the health and well-being of the occupants. The unsafe environment, the unavoidability of street light, the poor refuse disposal and bad roads have caused government housing units to be unsafe and thus, this have caused a great havoc which needs an urgent intervention.

B. Scope and Importance of Study

The research analysis of 529 housing estates has scope in present and future. This research will eliminate all the problems of present situation of the government housing

estates. This research has low cost, less time consuming and will be an important government tool for their work towards housing maintenance.

C. Aims and Objective

Government housing estates is capable of reducing the high number of people with deficit housing. Aim of this research is to examine the level of gratification of residence in government housing estates with focus on friendly environments, street lights, good roads and sanity of the estates. The objective of this study is to investigate the performance of environmental facilities in the neighborhood of the government housing estates and its effect on residents' gratification in Borno State. Results from this research will be used to develop policies for government agencies that are responsible for ensuring adequate housing scheme and managing the housing estates.

II. Methodology

The research design adopted for this study was survey method which is a quantitative approach. The survey method was done through use of questionnaire to elicit data from respondents in the study area. The research population for this study focuses on completed government housing estates within Borno State built and inhabited not beyond year 2014, these are: Mala Kachala 202 housing estate, Ali Sheriff 707 housing estate, Mala Kachala 303 housing estate and Maiduguri 1000 housing unit.

Stratified sampling of the estates based on building type was adopted as sampling method for this study. The stratification of the estates is: 1-bedroom and 2-bedroom bungalows combined, 2-bedroom blocks of flats and 3-bedroom blocks of flats combined, 1-bedroom, 2-bedroom and 3-bedroom bungalows combined. Following the stratification, random sampling by balloting was carried out and the following estates were picked to represent the various building types:

1. 1bedroom and 2-bedroom bungalows combined: Ali Sheriff 707 housing estate
2. 1bedroom, 2bedroom and 3-bedroom bungalows combined: Mala Kachala 202 housing estate
3. 1 bedroom and 2-bedroom terrace flats: Maiduguri 1000 housing units
4. 2 bedroom and 3 bedroom flats combined: Mala Kachala 303 housing estate

TABLE 1
NUMBER OF HOUSING UNIT IN SAMPLED ESTATE

	Ali Sheriff 707 housing estate	Mala Kachala 202 housing estate	Maiduguri 1000 housing units	Mala Kachala 303 housing estate	Total
Number of Housing Unit	700	202	1000	303	2205

Source: Field Work

The data was then used to determine sample size.

To obtain the sampling size, this formula would be used from [16].

$$n = \frac{Z^2 \sigma^2 pN}{(N-1)e^2 + Z^2 \sigma^2 p} \quad (1)$$

Where:

n = size of sample for finite population

N = research population = 766 housing units

Σp = standard deviation of population assumed = 0.5

e = significance level (precision/acceptable error) chosen = 0.05

Z = standard variant at a given confidence level = 1.96 for a confidence level of 95% [10].

Sample size of 529 respondents was derived and distributed to the estates as shown in Table 2. The questionnaire is based on some indicators of environmental wellbeing that elicited responses about some aspects of the environment. The respondents also required to rate their level of gratification based on a five-point that relates to: 1. Very ungratified 2. Ungratified 3.Neutral 4. Gratified 5. Very gratified [16].

TABLE 2
RESPONDENTS POPULATION IN SAMPLED ESTATE

Number	Ali Sheriff 707 housing estate	Mala Kachala 202 housing estate	Maiduguri 1000 housing units	Mala Kachala 303 housing estates	Total
Existing	707	202	1000	303	2205
Sampled	117	75	251	86	529

Source: Field Work

The questionnaires were administered to randomly selected house heads, though women were preferably chosen [12]. It was noted that women are preferred as respondents because women criticize housing more than husbands, since women are householders, are at home and interact with the housing environment. This view is further supported by [14] that women are more affected and identified with the home by inappropriate environments.

TABLE 3
DEFINITION OF VARIABLES

	Variables for infrastructural facilities in the neighborhood	Measure	Values	Categories
V1	Mode of refuse disposal	Nominal	1-5	1. Refuse dumping, 2. Refuse burning, 3.Contractors, 4. Waste management board
V2	Frequency of refuse disposal	Ordinal	1-5	1. Every day, 2. Twice a week, 3. Three times, 4. Four times, 5. More than 5 times
V3	Sanitation of environment within the estate	Nominal	1-3	1. Estate supervisors, 2. Government contractors, 3. Residents
V4	Waste water evacuation	Nominal	1-3	1. No drains, 2. Drains, 3. Soak Away pit
V5	Play ground	Nominal	1-2	1.Yes 2.No
V6	Security guard post	Nominal	1-2	1.Yes 2.No
V7	Street light and Signage	Nominal	1-2	1.Yes 2.No
V8	Road Characteristics	Ordinal	1-5	1.Unttered but in good condition, 2.Unttered but dilapidated, 3.Tarred but in disrepair, 4.Tarred without drainage, 5.Tarred with drainage
V9	Gratification with mode of refuse disposal	Ordinal	1-5	1.Very Ungratified, 2.Ungratified, 3.Neutral, 4.Gratified, 5.Very Gratified
V10	Gratification with state of repair of play ground	Ordinal	1-5	1.Very Ungratified, 2.Ungratified, 3.Neutral, 4.Gratified, 5.Very Gratified
V11	Gratification with state of repair of road in estate	Ordinal	1-5	1.Very Ungratified, 2.Ungratified, 3.Neutral, 4.Gratified, 5.Very Gratified
V12	Gratification with sanitation level	Ordinal	1-5	1.Very Ungratified, 2.Ungratified, 3.Neutral, 4.Gratified, 5.Very Gratified
V13	Gratification with performance of street light	Ordinal	1-5	1.Very Ungratified, 2.Ungratified, 3.Neutral, 4.Gratified, 5.Very Gratified

III. RESULTS AND DISCUSSION

This section discusses the some of the results of analysis of the data derived from the fieldwork for the study.

A. *Analysis of mode of refuse disposal*

From the data gotten, it indicates that dumping of waste refuse is the most pervasive means of disposing refuse disposal in the area conducted the study. Residents dump refuse within the estate and it piled up to a very large quantity before it will be carted. This attitude of dumping refuse within the environment and accumulating it contributes to the spread of disease and it pollutes the environment, thereby making the environment unhealthy for the residents. This is shown in Table 4.

TABLE 4
DATA ON MODE OF REFUSE DISPOSAL

Value Label	Valid Percent	Cumulative Percent
Refuse dumping	56.2	56.2
Contractors	2.6	57.9
Waste management Board	40.4	97.3
Others	4.9	100.0
Total	100.0	

Source: Field Work

B. *Analysis of frequency of refuse disposal evacuation in a week*

From the result on the frequency of refuse disposal evacuation conducted within the estates, it shows that most of the residents asserts that refuse waste is being evacuated after every three weeks. With the number of housing units in the estates, the refuse accumulates very much before it will be evacuated. This is illustrated in Figure 1.

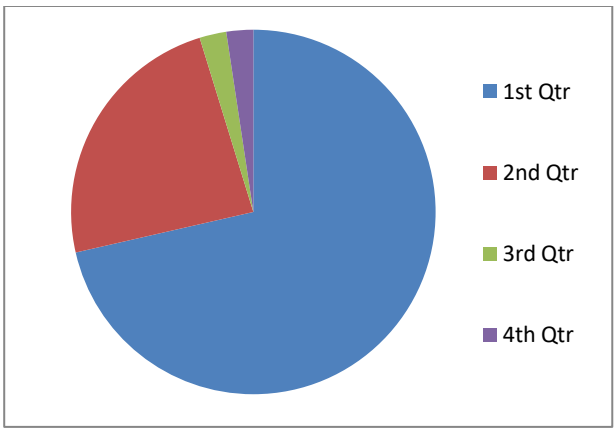

Figure1. Appraisal Frequency of refuse disposal evacuation

1st Qtr. = 3rd Week of the month
2nd Qtr. = 4th Week of the month
3rd Qtr. = 2nd Week of the month
4th Qtr. = 1st Week of the month

C. Analysis of sanitation of the environment

Looking from my analysis of data obtained, it shows that most all the respondents indicated that residents clean up the estate. They do this by organizing a sanitation exercise in the area without the involvement of the government. Table 5 below illustrates that.

TABLE 5
DATA ON SANITATION OF THE ENVIRONMENT WITHIN THE ESTATE

Value Label	Valid Percentage	Cumulative Percentage
Government Estate Supervisors	0.3	0.3
Residents	99.7	100.0
Total	100.0	

Source: Field Work

D. Mode of water evacuation analysis

From the data analyzed which is illustrated in Table 6, it clearly states that most of the waste water evacuation is done through drains. This implies that waste water from buildings is channeled to the drain which improper that leads to environmental pollution because the drains are opened. This causes diseases to man.

TABLE 6
DATA ON MODE OF WASTE WATER EVACUATION

Value Label	Valid Percent	Cumulative Percent
No Drains	12.7	22.0
Drains	60.0	70.3
Soak Away Pit	27.3	100.0
Total	100.0	

Source: Field Work

E. Road analysis within the estate

My analysis of the data on roads and its state within the estate showed that majority of the roads are in disrepair. A small percentage (11.0%) of roads are not tarred but in good condition. During the rainy season, some of the roads become difficult for residents as the places are covered with mud and gallops. Especially during raining season, the roads are terrible and motorist finds it difficult to pass. The Table 7 below illustrates it clearly.

TABLE 7
DATA ON CHARACTERISTICS OF ROADS WITHIN ESTATES

Value Label	Valid Percent	Cumulative Percent
Untarred and Failed	20.7	29.7
Untarred but in good condition	11.0	11.0
Tarred but in disrepair	48.3	78.0
Tarred without drainage	10.6	88.6
Tarred with drainage	9.4	100.0
Total	100.0	

Source: Field Work

F. Analysis of level of resident's gratification with mode of refuse disposal

Majority of the respondents in the sampled housing estates sampled proves that they were ungratified with the mode of refuse disposal facilities. Illustration in Table 8 below shows the details

TABLE 8
DATA ON LEVEL OF RESIDENTS' GRATIFICATION WITH MODE OF REFUSE DISPOSAL

Value Label	Valid Percent	Cumulative Percent
Very ungratified	19.5	19.5
Ungratified	57.3	67.8
Neutral	9.3	80.1
Gratified	10.1	96.2
Very gratified	3.8	100.0
Total	100.0	

Source: Field Work

G. Analysis from the gratification of street light operation

The results of feedbacks had the greatest portion of residents, with 54.2% ungratified in this variable. 24.1% of the respondents were undecided and 19.3% very ungratified. Table 9 shows the illustration.

TABLE 9
DATA SHOWCASING LEVEL OF RESIDENTS' GRATIFICATION WITH STREET LIGHT OPERATION IN THE ESTATE

Value Label	Valid Percent	Cumulative Percent
Very ungratified	19.3	21.3
Ungratified	54.2	71.6
Neutral	24.1	97.6
Gratified	1.4	99.1
Very gratified	9	100.0
Total	100.0	

Source: Field Work

IV. Test of Hypothesis

In this research, put forward a null hypothesis so as to establish the correlation within several research variables. As to that, there is no significant relationship between the performance of environmental facilities and residents' gratification in the government housing estates in Borno State.

The objective is 'to examine the performance of environmental facilities of the government housing estates and its effect on residents' gratification level. The relationship between 'Frequency of refuse disposal' (performance of environmental facilities) and 'Gratification with Sanitation level' was examined. This was of importance because it relates sanity of the environment within the estate. The two focus variables were ordinal variables; thus, the Rho analysis tool of Spearman was employed to test the relationship's nature. In the analysis, the coefficient value for correlation was 0.085 with a probability of significance point 0.023. This means that the two variables have a weak correlation with the significant probability of 0,023. Consequently, it means that the relationship is weak but significant. The null hypothesis is therefore rejected and alternate hypothesis accepted. This is that 'there is significant relationship between the performances of environmental facilities in the neighborhood and residents' gratification in the government housing estates in Borno State'. The results are shown in Table 10.

Table 10
Spearman's Rho correlation analysis result of relationship between frequency of refuse disposal and residents gratification with sanitation level

		Gratification with sanitation level
Frequency of disposal	Correlation Coefficient	.085
	Sig. (2-Tailed)	.023
	N	.228

V. Conclusion

The aim of this paper is to establish a logical framework for government designers on housing schemes and should derive information from people using the environment. This study has shown that most of the residents in government housing estates were ungratified with the performance of environmental facilities. Government housing developers should be aware of every aspect of housing that take charge qualitative social assessments, value decisions about resident's preferences. The defects causing satisfaction should be eliminated by incorporated into the subjective evaluations of residents with the objective criteria of the planner. The policy effects of the study show the satisfaction of residents and, moreover, the quality of life for residents of governmental housing estate within the study area, and indeed future housing projects, can be strengthened by the provision of eco-friendly facilities. To accomplish this, it is important to underscore that future government housing projects should be designed to have functional facilities and public infrastructure (such as quality roads, refuse disposal facilities, street lights) to enable the residents enjoy these vital services, which are necessary for decent living and hygienic environment which is free from potential diseases.

VI. Declaration of Competing Interest

Authors declare that they have no known competing financial interests that could have appeared to influence the work reported in this paper.

VII. Acknowledgments

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