



## ABSTRACT

*This study assessed environmental sanitation status and its effect on residential property value in Birnin Kebbi, Kebbi State, Nigeria. The primary data collected included environmental sanitation attributes and annual rental values of properties in the different neighbourhoods in Birnin Kebbi. Methods of data analysis included, descriptive*

# EFFECTS OF ENVIRONMENTAL SANITATION STATUS AND ITS EFFECT ON RESIDENTIAL PROPERTY VALUE IN BIRNIN KEBBI, KEBBI STATE, NIGERIA

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## Introduction

The residence offers not only shelter to the occupier but also comfort and convenience. Housing and neighbourhoods are believed to be endowed with a variety of benefits to the residents in form of opportunity to share space and establish contact with nearby others (Kearns & Parkinson 2001; Forrest, 2012). However, the residential neighbourhoods of cities and towns particularly in developing worlds are being troubled by increase imposed on them by demand for more residences by the increasing population occasioned by urbanization (Ademiluyi & Odugbesan, 2008). Consequently, it is becoming increasingly difficult for individuals to get access to decent residences. That is, a residence that is comfortable, convenient and offers the needed facilities and services such as good access roads, \



water supply, power supply, security and good environmental sanitation conditions. But in reality, particularly in Africa, people dwell in neighbourhoods that are deplorable in terms of quality of structures, facilities and a huge inadequate environmental sanitation issues (Oyeleye, 2013; Jelili, Adedibu & Ayinla, 2006). The scariest is the level of pollution owing to residents' poor culture of indiscriminate littering, inappropriate domestic wastewater discharge and poor sewage disposal (Daramola & Olowoporoku, 2016). These practices encourage unhygienic living conditions which result in the breeding of communicable diseases (Adimekwe, 2013). Previous studies established facts that

*statistics to determine the environmental sanitation status index at all neighbourhoods and regression analysis to determine the effect of average environmental sanitation status on average property value at all neighbourhoods. Assessment of environmental sanitation status of each neighbourhood revealed that all neighbourhoods were rated to possess average or moderate environmental sanitation status. Assessment of property values revealed that property values measured as average rent differ across all five neighbourhoods sampled and as the environmental sanitation attributes improved, the rent in such neighbourhoods witnessed increases. The regression analysis provided evidence that statistical significant effect of environmental sanitation on residential property value in Birnin Kebbi is obvious since the regression analysis figure gives 0.767 and the significant rate is 0.573 while the R. Square is 0.587. This indicates that as the environmental sanitation in the Birnin Kebbi improves, it has a catalytic effect on the residential property value in a positive manner and vice versa. The study recommends that residents should be synthesized on the impotence of imbibing good hygiene culture in homes, proper use and maintenance of the available environmental sanitation facilities such as drainages in areas where they are deteriorating.*

**Keywords:** Environmental Sanitation, Neighbourhood, Property Value, Residential Property, Status



poor housing conditions could, in time, lead to major health problems for residents (Arik & Arik 2009; Adetunji & Isah, 2015; Mohammed, 2018; Lukkumanul, 2019). However, Houses in neighbourhoods where all these factors that could impinge on the environmental sanitation status are being controlled, would without any doubt, be more desired by people. After all no one wants to suffer economic losses associated with the direct costs of treating environmental sanitation-related illnesses and lost income through reduced or lost productivity (Hoan & Nguyen, 2011). Not only this, the distinctive attribute of cleanliness of the environment might be a factor that could enhance property values in a given district or area. However, this may not be so in all cases.

There are enough literature to support the fact that residential property value is determined by a host of factors, notably among them are accessibility, structural attributes and availabilities of public facilities among others. However, the relative effect of environmental sanitation as a determinant of value of residential property is found to be inadequate in those studies. Environmental sanitation has an enormous effect on occupants of buildings with respect to their health and quality of life (Owolabi, 2017). Thus, if household preference would be influenced by the desire to stay healthy, as an unhygienic environment poses threat to health, would people in Birnin Kebbi be willing to pay more rent for residential accommodation in a neighbourhood that offers good environmental sanitation attributes? The aim of this study is to contribute to the investigation by assessing environmental sanitation status and its effects on residential property values in Birnin Kebbi Town.

## **LITERATURE REVIEW**

### **Environmental sanitation status in various Neighbourhoods in Nigeria**

Environmental Sanitation is defined as the principles and practice of effecting healthful and hygienic conditions in the environment to promote public health and welfare, improve quality of life and ensure a sustainable environment (Mohammed, 2018). Such activities as providing clean and safe water supply, clean and safe ambient air, management of water, solid waste, and industrial waste, as well as,



pollution and noise control all fall under the umbrella of environmental sanitation (Acheampong, 2010 ).

The problems of environmental sanitation in Nigeria are enormous and complex. The quality of housing environment in Nigeria is said to be falling due to lack of proper environmental sanitation practices by residents. For this reason, environmental sanitation status of many neighbourhoods is being compromised by improper management of garbage and water waste. According to Sagir & Safiyanu (2018), environmental sanitation status in the neighbourhoods has been worsened as a result of inadequate neighbourhood facilities like drainage, water supply and effective waste disposal system. It is a common feature in Nigeria to see residents littering the surroundings with domestic waste, garbage and many others.

### **Relationship between Environmental Sanitation Status of Neighbourhoods and Value of Properties.**

Studies have shown that quality of housing environment has a significant influence on rental value of residential property. No doubt that, households will favor houses in clean environment, clear of filth. In buttressing this fact, Adewusi and Onifade (2006) while comparing rent of properties adjoining waste dumpsites and those far away found out that, rents paid on properties adjoining waste dumpsites were lower compared to similar properties further away. According to Mundy (1995), a clean property has a value equal to full market value and a filthy property which poses health or financial threat will affect value significantly in several ways.

### **Concepts of Value**

Value is a word of many meaning. In real estate parlance, property value describes the worth of a piece of real estate based on the price that a buyer and seller agree upon. In order words, the value of a property at any given time is determined by what the market will bear. In order to create value, four criteria must be meet, utility, scarcity, capable of ownership, transferability and effective demand (Oyebamji, 2003; Oloke, Simon & Adesulu, 2013). Utility refers to quality of an object to provide



services or to meet a particular need. In the case of scarcity, a commodity will not be considered valuable, if it is not limited in supply. Capable of ownership translate the fact that for an object to be valuable it must be capable of being owned by person or persons. Transferability of product connotes ability to transfer ownership from one person to another. In this regard a good or commodity owned should be able to be used, sold, leased, let, offered as gift, mortgaged or exchanged for another commodity.

### **Factors Affecting Property Value**

Mockrealty (2005), postulated that two main groups of factors could influence property market value. The first was described as internal factors, which refer to the nature and condition of the property, including structural condition, quality of the finishes, building services, fixtures and fittings, and the level of major improvements needed.

Aside from factors that are inherent to the building, the other group of factors describes the varying components of the environment in which man dwells. These components are referred to by Afolayan (2006) as environmental externalities. They support man's built environment and they may have positive or negative impact on the environment depending on their nature and characteristics. Hence it is expected that property value does not only depend on the physical characteristics of a building but also on environmental attributes such as view from property, noise levels, pollution levels, storm water (Crompton, 2005). Bello (2007) and Wokekoro & Urueshey, (2014) opined that there is a difference in the rent of residential properties located close to the open waste dumps and those far away from the dumps.

Few studies have been carried out to include the environmental components in assessing property value in Nigeria, such studies as Bello & Yacim (2015), Popoola, Jinadu, Liman & Abd'Razack (2015), Bello (2007) and Bello (2008). The findings of these studies focused strictly on high-density neighborhoods in big cities unlike Birnin Kebbi an emerging but traditional town in North-Western Nigeria. Therefore, this study aimed to fill this gap.



### Research Methodology

This study utilized both secondary and primary sources of data. Primary information was collected through questionnaire administered to household heads. The secondary data were collected from journals, articles and research reports. Sampling was based on stratified and systematic selection method. First the study area was stratified into 5 neighbourhoods; these neighbourhoods comprises of Nasarawa I, Nasarawa II, Gwadangaji, Hajj camp and CBS Poly. Questionnaires were then systematically administered in the 5 neighbourhoods in the study area. One house was selected at random and after the count of every 7<sup>th</sup> house another house was selected for administration of questionnaire. A total of 496 houses were selected this way.

The information extracted from the questionnaire on environmental sanitation status in various neighbourhoods was rated using a 5 point Likert's scale which ranged from '1' for Very poor (VP); '2' for Poor (P); '3' for Fair (F); '4' for Good (G) and '5' for Very Good (VG). The weighted mean score was determined where the opinions of respondents were rated against the pre-defined scale which assisted in assessing the significance of each opinion. For these purposes, this study adopted a decision rule based on study by Morenikeji (2006) and presented in Table 1, as cut off points to determine the neighbourhood sanitation condition index.

**Table 1: Decision on Environmental Sanitation attributes in Birnin Kebbi**

S/N	Environmental Sanitation status Index	Condition Description
1.	1.00 – 1.49	Extremely Poor Condition attribute (undesirable)
2	1.50 - 2.49	Poor Condition Attribute
3	2.50 – 3.49	Average Condition Attribute
4	3.50 – 4.49	Good Condition Attribute (Desirable)
5	4.50 – 5.00	High Condition Attribute

Source: Adopted from Morenikeji (2006)



Regression analysis was used to test the hypothesis of the study which states that:

H<sub>0</sub>: There is no statistically significant relationship between environmental sanitation status and property value across the neighbourhoods in Birnin Kebbi.

## RESULTS AND DISCUSSIONS

### Assessment of Environmental Sanitation Status in Birnin Kebbi

Environmental sanitation status assessments across neighbourhoods revealed that environmental sanitation status differs across neighbourhoods. The result of the analysis indicated that mean weighted values (MWV) of environmental sanitation status in Nassarawa I, Nassarawa II, Gadangwaji, Hajj Camp and CBS Poly, are 3.31; 2.51; 2.28; 3.33; and 3.13 respectively. From the foregoing, it is clear that all neighbourhoods were rated to possess average or moderate environmental sanitation status except for Nasarawa II which was rated to possess poor.

**Table 2: Environmental Sanitation Status Assessment**

Neighbourhoods	Environmental Sanitation status Assessment						
	Parameters						
	WS	WDS	TD	CD	NC	Total	Mean
Nassarawa I	3.75	4.12	2.55	2.39	4.12	16.93	3.39
Nassarawa II	2.65	2.44	2.06	2.19	2.08	11.42	2.28
Gwandangaji	2.68	3.09	1.53	2.18	3.08	12.56	2.51
Hajj Camp	3.71	4.00	2.22	2.55	4.00	16.48	3.33
CBS Poly	3.73	3.36	2.26	2.40	3.89	15.64	3.13

Source: Author's Fieldwork (2021)

Note: SW (Source of Water), WDS (Waste Disposal System), TD (Types of Drainage), CD (Condition of Drainage), NC (Neighbourhood Cleanliness)  
The sampled neighbourhoods were ranked in order of decreasing status index as in Table 4.

### Environmental Sanitation Status Index in Decreasing Order



Source: Author's Fieldwork (2021)

Neighborhoods	Neighbourhood Sanitation status Index	Rank	Condition Description
Nassarawa I	3.39	1 <sup>st</sup>	Average
Hajj Camp	3.33	2 <sup>nd</sup>	Average
CBS Poly	3.13	3 <sup>rd</sup>	Average
Gwandangaji	2.51	4 <sup>th</sup>	Average
Nassarawa II	2.28	5 <sup>th</sup>	Poor

### Assessment of Property Value

Property values measured as average rent differed across all five neighbourhoods sampled. Arranged in order of decreasing property values, the neighbourhoods could be ranked as in Table 4.

**Table 4: Ranking of Property Value in Decreasing Order**

Neighbourhoods	Average Rental value	Rank
Nassarawa I	293,7190	1
Hajj Camp	241,666.66	2
Gwandangaji	172,068.96	3
CBS Poly	168,676.47	4
Nassarawa II	131,436.17	5

Source: Author's Fieldwork (2021) discrepancy

Table 4 provided evidence that there are disparities between the property values observed in the five neighbourhoods. The implication of this is that as the attributes under consideration (source of water, waste disposal system, type of drainage, condition of drainage and neighbourhood cleanliness) improved, the rental value in such neighbourhoods witnessed increases. The fact that rental value of residential properties located close to unhygienic environment such as open waste dumps is lower than those in a hygienic environment has been acknowledged in literature by Wokekoro & Urueshey, (2014).

### Examination of the Effect of Environmental Sanitation Status on Property Value across the Neighbourhoods



The hypothesis of the research looked at the relationship between environmental sanitation status and property value across the neighbourhoods. Regression analysis was employed to determine the level of relationship that existed between environmental sanitation status and property value across the neighbourhoods. The result of the analysis is as presented in Tables 5.

**Table 5: Relationship between Environmental Sanitation Status and Property Value across Neighbourhoods**

Analysis No.	Variables		Type of Model	Observations				Inferences			
	X	Y		Regression Equation	R/R <sup>2</sup>	F <sub>cal</sub>	F <sub>tab</sub>	P <sub>value</sub>	Strength of Relationship	Remark	Action On Hypothesis
4	Environmental Sanitation Status	Average Rental Value	Linear (Simple)	$Y = -89639.392 + 99437.310x$	0.767/0.589	4.295	10.130	0.130	Strong	NS	Accept H <sub>0</sub>

Researcher's Field Survey (2021)

**Key:**

NS = Not Significant

It was observed from Table 5 that there exists a strong, positive and non-significant relationship between Environmental Sanitation Status and Average Rental Value across the Neighbourhoods in Birnin Kebbi. The coefficient of determination (R<sup>2</sup>) value observed was 0.589 (58.9%) implying a strong relationship and the correlation coefficient (R) observed was 0.767 (76.7%) indicating a very strong degree of association between the variables. The positive correlation observed between the variables indicates a tendency that an increase in the Environmental Sanitation Status will be followed by an increase in the Average Rental Value across the Neighbourhoods and vice versa. The value of F calculated of 4.295 observed was less than the value of F tabulated of 10.130 while the probability (P or sig) value of 0.130 observed was greater than 0.05. This led to the acceptance of the null hypothesis.



This led to the rejection of the null hypothesis and acceptance of the alternative hypothesis which states that there is a significant relationship between environmental sanitation status and property value across the neighbourhoods in Birnin Kebbi.

### **Summary of Findings, Conclusion and Recommendations**

The paper examined the effect of environmental sanitation status on rental values in of residential properties in Birnin Kebbi. Results of analysis revealed that there is slight difference in the environmental sanitation status as depicted in the different environmental sanitation indexes value. Analysis of environmental sanitation status and mean rents revealed a positive correlation between environmental Sanitation Status and average rental value across the neighbourhoods. The implication of this is that the higher the sanitation status of the environment, the higher the rental value of residential accommodation. Conclusively, this research has shown that people will be willing to pay more rent in neighbourhoods with better environmental sanitation attributes. Likewise, developers will prefer location that will enable them to recoup return on their investment over a period of time.

It was recommended that residents should be synthesized on the impotence of imbibing good hygiene culture in homes, proper use and maintenance of the available environmental sanitation facilities such as drainages in areas where they are deteriorating. In order to forestall indiscriminate littering, there should be improvement in waste management procedures in such a way that the whole town would be given attention and not selected neighbourhoods.

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