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# Building Health Parameters and Willingness to Pay of Residents In Jakande Estate, Lagos, Nigeria

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**Abstract:** It is against the background of the intricate relationship between condition of housing, health and affordability of residents that this study investigates housing health conditions and willingness to pay of residents on Jakande Estate, Lagos, Nigeria. This is with view of proffering recommendations that will aid the achievement of affordable healthy buildings in the area. To achieve this, 340 housing units were sampled using a random systematic sampling technique at an interval of every third house in all the streets in the estate. Questionnaire was then administered to the household head of each sampled building. Obtained information such as income, annual rent, willingness to pay (WTP) and perceived satisfaction with housing parameters were subjected to descriptive statistics such as percentages. Also, Likert rating of WTP was done to assess the willingness of residents to pay for building health parameters. It was observed that about 87% of the residents of the estate are civil servants, while about 45% of them earn a monthly income between 50,000 - 100,00. Also, 62% of the residents pay a moderate rental value of 100,000 -150,000. Residents are willing to pay as high as 30,000 annually for good water (3.5), cross ventilation (2.91) and good ceiling (2.81). However, about 60% of the residents are not satisfied with the level of noise in the estate. Also, about 65% are not satisfied with water and sanitation. The study therefore recommends provision of central boreholes, employment of sanitation workers and community participation for the achievement of affordable healthy buildings in the estate.

Keywords: Housing, Building Health, Willingness to pay, Rental value, Community Participation

### I. Introduction

Residential property is a multi-dimensional commodity, characterized by durability, structural inflexibility and spatial fixity. However, every residential unit has its unique bundle of attribute such as proximity, transport, amenities, structural efficiency, neighbourhood, and environmental quality [1, 2 and 3]. These attributes for any housing units within any neighbourhood should be such that satisfies

minimum health standards and good living, and be affordable to all categories of households [4]. By implication, a healthy building is a built environment that encourages positive well-being of its occupants [5,6].

As suggested in the literature, the exact relationship between housing and health is complex and difficult to assess [7]. Despite this, [8] reported that poor housing is associated with risk of cardiovascular diseases, while housing features such as structure of shelter, water supplies, sanitation and waste disposal have both direct and indirect effects on its users [9,10]. Also, studies in developed countries reveals that people spend more than 90% of their time in their various homesbecause of its psychological importance as an object of

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attachment, a source of identity, and a refuge from stress [11]. However, very few people can afford the kind of housing quality that meets their health needs; therefore, economic situation may force people to accept poor quality housing, even if it is detrimental to their health [12].

After the outbreak of cholera and Tuberculosis in different parts of Africa, SARS in Asia, which claimed about 300 lives in Hong Kong alone in 2003 and Ebola virus in some parts of Africa, healthy living environment became a major concern that called for focused studies in many countries. However, since this period, in-depth studies particularly investigating the nexus between housing and health have placed emphasis on developed countries like Australia, Britain, United States of America and so on [10]. It is against this background that this study aims to evaluate building parameters and willingness

to pay for healthy housing by residents in Jakande Estate of Lagos State, Nigeria. This is with a view to proffering recommendations that will aid in the achievement of affordable healthy housing in the area and others with similar physical and socioeconomic characteristics.

# II. The Study Area (Jakande Estate Ipaja)

Jakande Estate Abesan, is a Low-Income Housing Estatelocated along Ipaja road, off Lagos-Abeokuta express way (Figure 1). It is an estate built primarily for public servants, and has been in existence for over 30 years. The estate has a total of 4,272 housing units, comprising two and three-bedroom apartments. The designof the housing units is quite simple, and factored by the low-costpurpose of the estate.

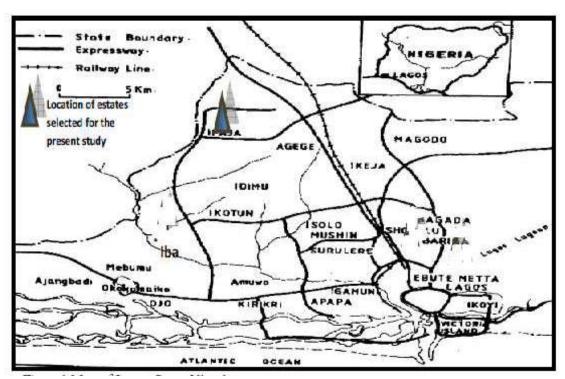


Figure 1: Map of Lagos state showing the study area Source: Adapted from Adebayo and Iweka, 2013

### III. Methodology

For this study, both primary and secondary data were employed. Primary data, such as income of respondents, annual rent and type of residential property were obtained with the aid of questionnaire while focused interviewwas also utilised. Secondary data on housing and Lagos state were obtained from relevant texts, journals, official documents and gazette. Using a random systematic sampling technique, 340 housing units, 10% of the entire residential buildings in the estate, were sampled at an interval of every 10th house in a street, where the first house was selected randomly. In each sampled building, administered questionnaire was (a household head). representative Data obtained were subjected to descriptive statistics. Descriptive statistics utilised for the study include measure of averages and dispersion. Charts were also used to summarise data set.

### IV. Discussion of Findings

# A. Socioeconomic Characteristics of the Respondents

The socioeconomic attributes of an individual are factors in decision making of such an individual. Authors such as [11, 12] in their different studies maintained that there is a relationship between socioeconomic characteristics of individuals and respondents such as income and age and their choice and perception. Thrusting on this position, the socioeconomic characteristics considered in this paper, among others, include age, income occupation, and the number of years spent in the present location.

Table 1: Socioeconomic Characteristics of Respondents

60.3% 39.7% 100.0% 15.0% 26.0% 23.5%
100.0% 15.0% 26.0% 23.5%
15.0% 26.0% 23.5%
26.0% 23.5%
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15.3%
100%
20.0%
71.0%
7.2%
2.3%
100%
4.5%
86.5%
5.0%
5.0%
100%
5.3%
6.4%
19.2%
45.0%
00 20.0%
10.2%
100%
00 10.2%
00 62.0%
00 2.0%
00 12.3%
13.5%
100%
5.2%
29.0%
31.0%
35.3%
10.5%
100%
84.6%
12.0%
12.0% 3.4%

As revealed in Table 1,about 60.3% of the respondents are males while 39.7% are females. This statistic reveals the male dominating nature of issues bothering on housing. The cultural belief in Nigeria that men are the head of the family is reflected on their catering of housing for family members. As a government quarters with this statistics there is likelihood that the estates would have been acquired by men, who in-turn bring in their family members. Also evident in the table is the youthful characteristics of the respondents, where about 26% are

between the age range of 26-35 years, 21.2% are between the age ranges of 46 - 55 years.

Though there are relatively aged individuals in the estate, but it can be concluded that the estate is characterised with youthful population. A youthful adult for the purpose of this paper, are those within the age range of 25 years to 40 years. This category of individuals is not only agile and highly mobile; they have high housing requirements for taste and class. Hence, their demand for healthy accommodation cannot be under estimated. This need is more than necessary as about 71% of the respondents are married thus will be keen at raising children in healthy buildings. The environmental condition, drainage facilities, toilet and sewerage system need of married individuals, especially those at child bearing stage are high.

The residential estate is a civil servant estate, as about 87% of its residents are civil servants. Thus, these set of individuals will not be fully available during weekdays but at weekends and will require a healthy living environment to compensate for their week-long stress and disturbances. Although there are traders (5.0%) and students (4.5%) in the estate but their proportion is extremely low (Table 1). From the foregoing, one may posit that the estate fulfils one of its purposes of housing civil servants in Lagos, who are considered to be low and middle income earners. This is further testified in Table 1, as about 45% of the respondents earn between #50,000 - #100,000 monthly, while only 10.2%earn above # 150,000 monthly. Such a low monthly income could have influenced the decision of the residents to opt for low income housing such as housing estates.

The rental value of housing units in the estate is observed to be relatively moderate compared to rental value of housing units in other locations. For instance, the rental value of a 2-bedroom apartment in Ipaja is about #250,000 per annum, while thesame goes for about #300,000 in Egbeda. However, majority (62%) of the housing units, which are basically three-bedroom and two-bedroom apartments cost between #100,000 to #150,000 per annum. Although various factors such as condition of building, environmental factors and speculation would have accounted for variation in price in the estate [13], yet 10.2% of the respondents pay less than #100,000 as annual rent.

As evident in Table 1, about 84% of the respondents are landlords whilealow percentage of 12% are tenants. Also, about 45% of respondents have been staying in the estate for over 9 yearswhile about 5.2% of the residents are relatively new. This indicates a low level of

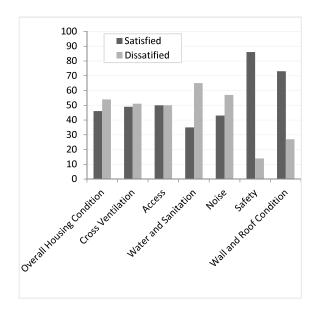


Figure 1: Level of Satisfaction with Housing Parameters in Jakande Estate

immigration in the estate, and suggesting that residents in the study area are either comfortable with the structural characteristics of the housing units in the estate, or unable to change their choice of accommodation for reasons which

Table 2: Willingness to Pay (WTP) for Healthy Features in Jakande Estate							
	Frequency(percent)						
Factors	5,000-10,000 (1pt)	10,001-20,000 (2pts)	20,001-30,000 (3pts)	30,001 and above (4pts)	Mean Score	Rank	
Wide and multiple windows	3(1.0)	97(32.0)	178(58.7)	25(8.3)	2.74	4 <sup>th</sup>	
Property that has Balcony	3(1.0)	128(42.2)	162(53.5)	10(3.3)	2.59	$5^{th}$	
Property with large floor area	16(5.3)	144(47.5)	114(37.6)	29(9.6)	2.51	$6^{th}$	
Property with Good ceiling		65(21.5)	231(76.2)	7(2.3)	2.81	$3^{rd}$	
Property with cross Ventilation	3(1.0)	38(12.5)	240(79.2)	22(7.3)	2.93	$2^{nd}$	
Property with good water quality	5(1.7)	37(12.2)	40(13.2)	221(72.9)	3.57	1st	
Property with Good Waste Disposal	39(12.9)	149(49.2)	84(27.7)	31(10.2)	2.35	$7^{\rm th}$	

may include lack of finance, proximity to other activities and social inclination others. The next section will evaluate level of resident's satisfaction with the quality of housing units in the study area.

#### Residents Perceived Satisfaction with Housing Condition in the Study Area

As evident in Figure 1, there seems to be a close in the view of the respondents on their satisfaction with the overall housing condition of the study area. This is as about 46% of the respondents are not satisfied with the condition of their housing units while a contrary view was made by a close proportion of 54%. Meanwhile, an inquiry into each dimension of the housing condition reveals that except safety (86%) and wall and roof condition (73%) that respondents highly satisfied with, there is a near consensus on the satisfaction level of residents with other measured environmental parameters. For instance, 50% of the respondents are satisfied with access, while an equal proportion is dissatisfied. Similarly, 49% and 43% are satisfied with cross ventilation and noise level in the area respectively while a close percentage of 51% and 57% are dissatisfied. Meanwhile, a high proportion (65%) of respondents is dissatisfied with water and sanitation in the area. From the foregoing, it can be surmised that the wall and

roof of the housing units in the estate could have either been effectively done as well as properly managed. The almost even results observed for cross ventilation, access, and the evidently reported dissatisfaction of respondents with water and sanitation raised concern about the environmental variables. This reported environmental conditions could have influenced the rental value of the housing units.

## C. Willingness to pay for Healthy Building **Parameters**

In this section, the perception of respondents with reference to their willingness to pay for upgraded housing with healthy environmental features was evaluated. This was done using a four-point factor scale. Those willing to pay #5,000- #10,000 more per annum were rated 1point, in that order, up to 4-pointslikert for those willing to pay #30,000 and above more annually. The hierarchical order of the factors was now computed (ranking) in order in which they influence their willingness to pay (WTP). Seven features were considered, and they are; wide and multiple windows, large floor area, good ceiling, cross ventilation, good water quality and good waste disposal.

As evidenced in Table 2, the study ranked the response on the factors in hierarchical order of average score on the WTP. Observing the table critically, good water quality is highly ranked above all other attributes with a mean score of above 3.5. Hence, respondents are willing to pay for good water source than any other factor, and as such may imply that the first factor that respondents consider for their housing units is water source. Next to this is cross-ventilation, (2.93) good- ceiling (2.81), wide and multiple windows, balcony(2.59), large floor area (2.51) and the least importantfactor that residents are willing to pay for isa good waste disposal system (2.35).

### V. Conclusion and Recommendations

After examining the housing condition in Jakande Estate, Nigeria and the willingness of its residents to pay for healthy features, it was evident that the rental value of residential property could be determined by the presence or absence of good quality building parameters. These parameters in their order of importance are source of water, cross-ventilation and multiple windows, condition of property (ceiling and roofs),good environmental condition,and neighbourhood security.

It is therefore recommended that to improve the overall housing condition in the area as well asadd value to residential properties in the estate, developers are encouraged to rehabilitate the existing buildings through the provision of boreholes for portable watersupply. Such boreholes could be centralised to avoid unnecessary replication of boreholes which can stress the earth crust. Also, sanitation should be improved in the area through the designation of waste collection centre and employment of community sanitation workers.

Conclusively, management of housing estate, though owned by the government, is more tilted towards community participation, hence such should be encouraged in the estate.

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