Equity and Affordability of Sustainable Housing and Building Materials in Coastal Slum Settlements of Lagos Metropolis

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Abstract

The study assesses the housing characteristics, specifically focusing on the availability and fairness of sustainable and cheap building materials in coastal slum settlements of Lagos Metropolis. A structured questionnaire was distributed to a total of 200 participants. We randomly selected 50 individuals from each of the areas: Bariga, Oworonshoki, Makoko, and Iwaya. And the obtained data underwent descriptive statistical analyses using SPSS Version 20.0. The results of the housing element and profiling indicate that most of the occupied buildings were constructed between 1981 and 1995, accounting for 48.0% in Oworonshoki, 38.0% in Makoko, and 32.0% in Iwaya. Tenancy status of respondents reveals that tenants were predominantly renters across the slums, which consist of 90.0%, 84.0% and 78.0%, respectively. The building types occupied by the slum dwellers across the study area included uncommented block surfaces, concrete surfaces, and mud and cemented surfaces. Duration of occupancy shows that 5-7 yrs and 8-10 yrs recorded a high percentage in the slum settlements. Building characteristics and materials reveal that respondents' household sizes ranged from 5 to 8, which account for 48.0% (Bariga), 40.0% (Makoko), and 36.0% (Oworonshoki and Iwaya), respectively. Accommodation unit occupancy indicates that self-contained units record a high percentage across the slums, accounting for 96.0% in Makoko, followed by 90.0%, 64.0%, and 42.0% in Iwaya, Oworonshoki, and Bariga. The number of rooms occupied by the respondent shows that two rooms recorded the highest percentage in Iwaya (60.0%), Oworonshoki and Makoko (56.0%), and Bariga (52.0%), respectively. Cheap rent, employment opportunities, proximity to family and friends, and community growth influence housing preference. Conclusively, sustainable housing delivery for the urban poor is challenged by factors such as incessant and unmatched urbanisation, a lack of socio-cultural considerations, economic realities, neglect of urban cores, and inappropriate housing policies, among others.

Keywords: Affordable housing, Informal Settlements, Housing density, Housing preference, Sustainable building materials

1.0 Introduction

Housing is a fundamental human necessity that provides shelter, comfort, security, and dignity to its inhabitants (Ademiluyi, 2010). It determines urban infrastructure systems and affects access to services, economic prospects, and general welfare (Culwick and Patel, 2020). Insufficient housing exacerbates poverty, deteriorates health, and increases susceptibility to disasters (Zerbo et al. 2020). Housing and infrastructure are major contributors to environmental deterioration and carbon emissions, establishing route dependency and confining cities to resource-consumption trajectories (Pineo, 2020; IRP, 2018). Government-led housing can enhance the living conditions of the urban impoverished (Culwick and Patel, 2020; Adegun, 2019), facilitate interventions in urban development trends, and foster equity and sustainability (Truck et al., 2021).

Housing projects often overlook sustainability considerations (Adegun 2017), particularly in Africa (Adegun 2019). Enhancing access to housing and services may entail reblocking, in-situ informal settlement upgrading, relocation to

serviced sites, or the construction of complete houses (Adegun, 2019). However, in the context of this study, sustainable housing", "affordable housing", and "cheap housing" will be used interchangeably. Firstly, sustainable housing can be defined as the provision of a gradual, continual and replicable process of meeting the housing needs of the populace, of the vast majority of those who are poor and are incapable of providing adequately for themselves. It ensures housing strategies that are stable and are not subject to vagaries in the political circumstances of the country (Adedeji, 2011; Adedeji, 2023).

In this context, economical housing, also known as affordable housing, refers to housing that is within the reach of low- to moderate-income households (Vanek and Vogel, 2007). Affordable housing is typically defined as housing that costs no more than 30% of a household's gross income (Hilber and Schöni, 2022). It is housing that a household can afford to pay for while still having enough money left over for other essential needs like food, transportation, and healthcare. This means that what's considered "affordable" depends on a household's income. While the term "cheap housing" can be used to describe housing that is relatively inexpensive, it often carries a negative connotation, suggesting lower quality, older structures, or subpar living conditions. (Christian et al., 2022).

In Nigeria, a substantial disparity exists between urban expansion and housing availability. Housing delivery encounters challenges, including unavailability, unaffordability, and inflexibility (Ayoola and Amole, 2014). The worldwide need for sustainable and economical housing has intensified due to the growth of urban populations and rising environmental issues (Ogedengbe et al., 2024; Ezeafulukwe et al., 2024; Udeh et al., 2024). Accelerated urbanisation and population expansion heighten the demand for housing, frequently resulting in the emergence of informal settlements and augmented pressure on current infrastructure (UNHABITAT, 2020). The proliferation of slums and squatter settlements has increased due to inadequate housing supply and heightened competition for urban real estate (Fourchard, 2003; Jiboye, 2011; Opoko et al., 2015).

As a result, the urban impoverished, comprising approximately 50% of Nigeria's urban populace, are compelled to exist in conditions that undermine human dignity (UNFPA, 2007; Aribigbola, 2008; United Nations, 2018; Adesoji and Iyanda, 2019). Bras et al. (2020) indicate that the demand for inexpensive and sustainable housing has risen due to the requirements of the urban impoverished population. Chan and Adabre (2019) and Yeganeh et al. (2021) assert that "not all that is affordable is sustainable,"

highlighting the necessity of reconciling sustainable and cheap housing. These obstacles may lead to diminished possibilities and a worse overall quality of life (Balular et al., 2018). In this regard, researchers have promoted the implementation of advanced construction technologies in the design and building of affordable housing to lower production expenses (Saidu and Yeom, 2020).

Notwithstanding, the notion of housing affordability has evolved to encompass not only initial purchase or rental costs but also long-term expenses, including utilities and maintenance (Adabre and Chan, 2020; Friedman and Rosen, 2019). They also indicated that monthly salary may be inadequate to secure desired housing, highlighting a discrepancy between buyer desires and market affordability (Soon and Tan, 2020). Behr et al. (2021) contended that integrating sustainable elements in residential design can yield long-term financial savings for occupants, hence enhancing the economic viability and accessibility of sustainable housing. Sustainable development in affordable housing is increasingly acknowledged as essential for tackling the global housing problem while reducing environmental effects and promoting resilient communities (Bello et al., 2024; Esiri et al., 2024; Joseph et al., 2022). The use of sustainable and locally appropriate building materials, including bamboo, wood, compressed earth blocks, and adobe blocks, offers potential for sustainability (Bredenoord, 2016). Local construction practices ought to incorporate innovative, low-tech, and cost-effective technology. The relevance of these materials in urban environments, where the majority of the global population lives, demands additional scrutiny (Bredenoord, 2016).

However, engaging households in sustainable construction entails the dissemination of knowledge and the implementation of innovative technologies (Bredenoord, 2016). Historically, initiatives to provide cheap housing in developing nations have prioritised production costs and affordability, frequently overlooking environmental factors (Gan et al., 2017). Integrating sustainability measures derived from economic (cost-efficiency, peaceful habitation, and resale value), environmental (water, waste, and energy efficiency), and social (safety, security, and universal design) dimensions (Susilawati and Miller, 2013) can enhance the quality of life for occupants of affordable housing while minimising adverse environmental effects and providing potential cost savings throughout the housing lifecycle (Adabre et al., 2021).

Notwithstanding, It is clear that low-income families need affordable housing to address the existing housing deficit. This study seeks to evaluate sustainable housing, affordability, and preferences in light of focusing on housing crises and sustainable housing provision for slum residents. This research investigates

housing affordability and construction materials in the informal settlements of Lagos, Nigeria. The importance lies in addressing city housing problems like shortages, poor quality, inequality, and informal settlements, while also filling the research gap noted by Fang et al. (2020) regarding how housing affects fairness and justice in communities. These findings are anticipated to deepen comprehension of housing challenges and guide the formulation of inclusive public policies and programs designed to mitigate inequality and improve housing conditions for slum inhabitants in Lagos.

2.0 Methodology

2.1 Study area description

The research was conducted in four designated slums within the Lagos Metropolis, Nigeria, situated at longitudes 3° 24.9' E and latitudes 6° 27.9' N, including a shoreline of roughly 180 kilometres (Odunuga et al., 2012). The state encompasses a total land area of 3,577.28 km², with 22 percent designated as wetland, and a population density of around 5,926 individuals per km² (Oshodi, 2013). The population of Lagos State was estimated at 24.5 million in 2015 (UNHSP, 2003) and projected to reach 29 million by 2020 (Lagos Water Corporation, 2011), with a growth rate ranging from 3.2 to 8 percent (World Bank, 2013). The state's geology comprises coastal plain sands and tidal flats with alluvium (BRNCC, 2012), while its vegetation typifies a tropical rainforest zone, encompassing mangrove swamps, freshwater swamps, lagoons, and creeks.

The terrain exhibits low-lying topography with a gradient of 1–4% and an elevation ranging from 0–2 m above sea level (Awosika et al., 2000), characterised by the dendritic drainage system of the Ogun, Adiyan, and Ossa Rivers (Idowu and Martins, 2007). Lagos State is positioned 15th worldwide regarding population susceptibility to coastal flooding, with over 70 percent of its inhabitants residing in informal settlements such as slums (Adelekan, 2010). This is unsurprising, considering that about 45.2 percent of its developed areas are linked to drainage systems (Nwigwe and Emberga, 2014), and fewer than 30 percent of the current drains are maintained (Aderogba, 2012). This state experiences two distinct climatic seasons: dry and wet (rainy). It also encounters elevated air temperatures between 30.0°C to 38.0°C (Adejuwon, 2004). Figure 1 illustrates a map of the study area, highlighting the sample locations.

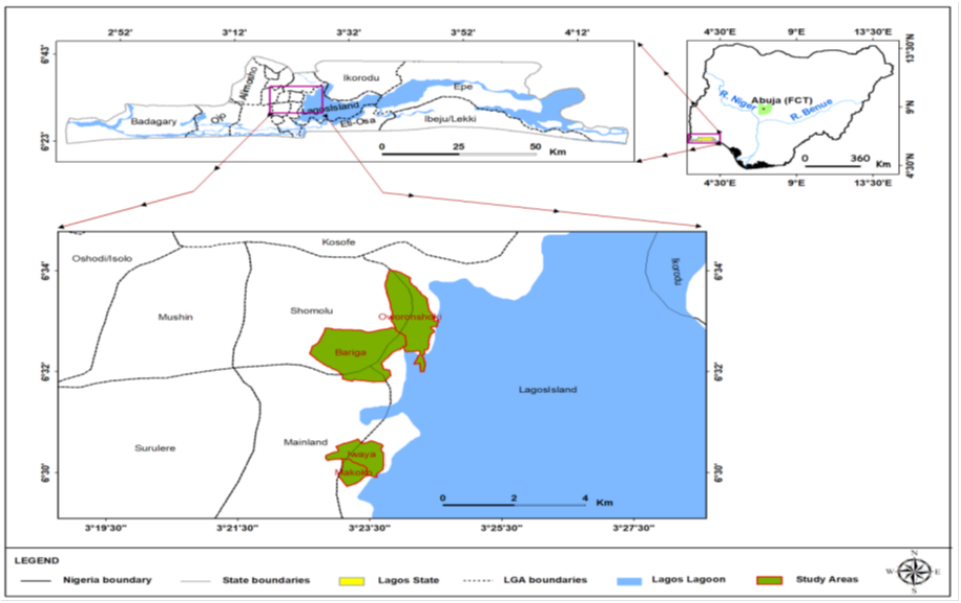


Figure 1. Location map of the study area.

2.2. Research Approach and Design

This study employed a questionnaire survey to evaluate dwelling characteristics and preferences concerning the equity of sustainable, affordable building materials. The questionnaire's application corresponds with analogous research that contributes to sustainability discourse about sustainable materials and construction within the built environment (Gounder et al., 2021). Furthermore, the questionnaire is extensively used in social research (Blaxter et al., 2001) due to its ease of administration and capacity to reach a broad audience in a short timeframe (Tan, 2011). This renders it appropriate for this investigation, which encompassed a substantial target group within slum areas.

A pilot survey was conducted in early July 2020 to ensure the questions were clear, providing useful information about the study methods, resource use, and data collection. Hill (1998) recommended employing 10–30 individuals for pilot projects in survey research. Consequently, this study employed 10 to 40 participants in accordance with Berenson et al. (2006) sampling formula for estimating population proportion with finite population size. The feedback from the chosen participants enhanced the questionnaire. The questionnaire comprised two sections: the first section collected information on house attributes and preferences, while the second section gathered data on sustainable affordability and building materials.

2.3. Sampling Location

This study focused on four designated slum settlements (Bariga, Oworoshoki, Makoko, and Iwaya) in the Lagos metropolitan area. The selected slums were randomly chosen from the inventory of slum communities identified by officials of the Lagos State Environmental Protection Agency (LSEPA), omitting those not situated near the seaside region. Furthermore,

the objective of the study was to focus on coastal slums.

2.4. Survey

A multi-stage sampling method was used to determine the study area. A descriptive survey design was employed to identify the distinct characteristics of the residents and to create a comprehensive understanding of the research area. The researcher conducted a reconnaissance survey of the research region. And a systematic selection technique was employed to choose the residences; the initial house was randomly chosen, and following houses were selected at intervals of five. The researcher used simple random sampling to select a household head; if the household head was absent, we selected the spouse or an adult child.

However, trained interviewers conducted visits to over 250 houses and gathered essential information from a responsible adult. Two hundred families from the initial 280 consented to participate in the survey, yielding a response percentage of 71.4%. We selected 70 homes from each slum area in the Lagos Metropolis among the 280 that consented to participate. The researcher administered questionnaires that comprehensively enquired about the socioeconomic attributes of individuals, the physical attributes of residential structures, and the accessibility of essential utilities. The sample size of 70 households from a total of 280 yields a 95% confidence level with a 5% margin of error, as per Cochran's formula (1963).

$$Sample\ Size = \frac{Distribution\ of\ 50\%}{\frac{((Margin\ of\ Error\ \%)\ Squared}{(Confidence\ Level\ Score)\ Squared}}$$

Finite Population Correction:

$$True\ Sample = \frac{Sample\ Size\ x\ Population}{Sample\ Size\ (Population - 1)\ Squared}$$

$$Population = 1{,}000$$

$$Sample\ Size = \frac{0.5\ x\ (1 - 0.5))}{\frac{((0.05)^2}{(1.96)^2}}$$

$$Sample\ Size = \frac{0.25}{((0.025512)^2}$$

$$Sample\ Size = \frac{0.25}{((0.00065077)^2}$$

$$Sample\ Size = 384.16$$

$$Sample\ Size = \frac{384.16\ x\ 1000}{384.16 + 1000 - 1}$$

$$Sample\ Size = \frac{384160.3024}{1383.1603}$$

True Sample = 278; the true sample size was approximated to the nearest integer. As a result, the actual sample size was approximated to 278. Seventy questionnaires were delivered to maintain an even distribution among locations. The poll was executed during a six-month period, spanning from October 2020 to March 2021. Coordinates were documented at each sampling location using a Garmin GPS unit (model: GPSMAP 76CSX). This methodological framework ensured representative, reliable data collection for assessing sustainable and affordable housing preferences in Lagos's coastal informal settlements.

2.5. Statistical Analysis

The collected data underwent descriptive analysis (frequency and percentage) utilising the Statistical Package for the Social Sciences (SPSS version 20.1).

3.0 Results and Discussion

3.1 Housing element profiling of the slum settlement

The housing profile of slum areas shown in Table 2 reveals that 18.0% of the buildings where respondents live were built between 1960 and 1976 in Iwaya, followed by 14.0% in Makoko, 6.0% in Oworonshoki, and 2.0% in Bariga. From 1977 to 1980, the occupancy rates of buildings increased, reaching around 36.0% in Makoko, 26.0% in Iwaya, 24.0% in Bariga, and 10.0% in Oworonshoki. Between 1981 and 1995, Oworonshoki achieved an average percentage of 48.0%, whereas Makoko, Iwaya, and Bariga had averages of 38.0%, 32.0%, and 2.0%, respectively. From 1996 to 2010, Bariga maintained an average percentage of 34.0%. From 2011 to the present, Bariga's average percentage increased to 38.0%, followed by Oworonshoki at 36.0%, Iwaya at 24.0%, and Makoko at 12.0% (Table 2). This proportion signifies that housing elements pertain to the tangible components of the housing unit, and the findings imply that they utilise a substantial percentage of the housing project's budget and resources. Consequently, the ultimate cost and quality of these components substantially influence the affordability and sustainability of housing units (Moghayedi and Windapo, 2019).

The survey showed that fewer people owned homes in the slum areas: Bariga (22.0%), Iwaya (16.0%), and Oworonshoki (10.0%), while more people were renting in those areas, with Oworonshoki at 90.0%, Iwaya at 84.0%, Bariga at 78.0%, and Makoko at 78.0%. Oworonshoki achieved 90.0%, succeeded by Iwaya at 84.0%, Bariga at 78.0%, and Makoko also at 78.0% (Table 2). The result indicates that inexpensive housing, when examined through the prism of sustainability and innovation, necessitates the development of resilient housing for this economic bracket, which suffers losses and neglect due to inadequate building and construction, particularly in the developing world. In this context, ensuring housing accessibility and promoting sustainability contribute to the adequate provision of affordable housing, thereby fostering social justice and cohesion (Haase et al., 2017) and facilitating proper planning of social infrastructure.

Data on building types indicate that 36.0% and 18.0% of respondents in Makoko and Iwaya reside in non-cemented surface houses, whereas cemented and concrete surface houses are more prevalent in Iwaya (74.0%), followed by Bariga (72.0%). Furthermore, participants indicated residing in mud and cemented surface dwellings, comprising roughly 30.0%

(Makoko), 28.0% (Bariga and Oworonshoki), and 8.0% (Iwaya). Only 18.0% of respondents in Makoko indicated residing in residences with wooden and steel board surfaces. This result indicates that prior to employing any technology in affordable housing scenarios, the expenses associated with the technology (initial, operating, and maintenance) must be meticulously evaluated (Adabre et al., 2021; Prochorskaite et al., 2016). The results of this study align with the findings of Shama and Motlak (2019) and Hamid et al. (2018), which indicate that the effective utilisation of virgin and recycled resources, along with local materials in housing development and construction, as well as the incorporation of waste-efficient elements, markedly enhances the sustainability and affordability of housing. Additionally, Saidu and Yeom (2020) and Gan et al. (2017) show that housing units become more affordable and economically sustainable when designers and builders consider how long materials will last and their overall costs, along with the costs of materials and construction.

The duration of occupancy reported by respondents shows that 18.0% (Makoko and Iwaya), 16.0% (Bariga), and 12.0% (Oworonshoki) have lived in the slum for 1-4 years. The survey recorded the following percentages for the age group of 5-7 years: 36.0% for Makoko, 28.0% for Oworonshoki, 22.0% for Iwaya, and 6.0% for Bariga. Furthermore, the age group of 8-10 years constituted 42.0% of Makoko, followed by 32.0%, 28.0%, and 20.0% for Iwaya, Bariga, and Oworonshoki, respectively. In this context, the age group of 11-15 years accounted for 22.0% in Bariga and Oworonshoki and 14.0% in Iwaya. Additionally, individuals resident for 16 years or longer accounted for 28.0% in Bariga, 20.0% in Makoko, and 8.0% in Oworonshoki and Iwaya (Table 2). The study's findings indicate a significant shortfall in housing availability, estimated at 28 million units, in contrast to the reported 17 million units (Paul, 2023). As Nigeria's population expands and urban migration increases, the demand for adequate housing escalates.

Table 2. Housing element profiling across the coastal slum settlements

Variables	Bariga		Oworonshoki		Makoko		Iwaya	
	Freq	Percent (%)	Freq	Percent (%)	Freq	Percent (%)	Freq	Percent (%)
Age of Building Occupied								
1960-1976	1	2.0	3	6.0	7	14.0	9	18.0
1977-1980	12	24.0	5	10.0	18	36.0	13	26.0
1981-1995	1	2.0	24	48.0	19	38.0	16	32.0
1996-2010	17	34.0	-	-	-	-	-	-
2011 till date	19	38.0	18	36.0	6	12.0	12	24.0
Tenancy Status								
Owner Occupier	11	22.0	5	10.0	11	22.0	8	16.0
Rental Tenant	39	78.0	45	90.0	39	78.0	42	84.0
Type of Building Occupied								

Blocks not Cemented Surface	-	-	-	-	18	36.0	9	18.0
Concrete Surface	36	72.0	36	72.0	8	16.0	37	74.0
Mud and Cemented Surface	14	28.0	14	28.0	15	30.0	4	8.0
Wooden and Board Steel Surface	-	-	-	-	9	18.0	-	-
Duration of Occupancy								
1-4yrs	8	16.0	6	12.0	9	18.0	9	18.0
5-7yrs	3	6.0	14	28.0	18	36.0	11	22.0
8-10yrs	14	28.0	10	20.0	21	42.0	16	32.0
11-15yrs	11	22.0	11	22.0	-	-	7	14.0
16yrs and above	14	28.0	4	8.0	10	20.0	4	8.0

Source: Author's Field Computation

3.2 Building topology and materials of low-income housing across the study area

The construction topology and traditional building materials, like iron, cement, and concrete, are not manufactured sustainably. Table 3 indicates that household size is a critical determinant of affordability and construction materials for buildings, with 34.0% in Iwaya, 32.0% in Oworonshoki, 26.0% in Bariga, and 4.0% in Makoko for households comprising 1–2 individuals. Furthermore, the 3-4 household size comprises 14.0% in both Oworonshoki and Iwaya, succeeded by 6.0% in Bariga and 2.0% in Makoko. The 5-8 household size exhibits modest percentages: 48.0% in Bariga, 40.0% in Makoko, and 36.0% in both Oworonshoki and Iwaya (Table 3). The data substantiate the claim that low-income housing in Nigeria typically exhibits high occupancy rates, averaging from 5 to 15 individuals per room, leading to overcrowding, congestion, and inadequate ventilation (Makinde, 2015). Bredenoord and Van Lindert (2010) calculated a significant correlation between house densities and plot sizes. This source indicates that minimal plot sizes (50 square meters or less) do not result in increased densities.

Accommodation units occupied by respondents reveal that a portion of the slum inhabitants are squatters, comprising approximately 10.0% in Oworonshoki, 6.0% in Bariga, 4.0% in Iwaya, and 2.0% in Makoko, respectively. In Makoko, self-contained accommodation units comprise 96.0%, followed by 90.0% in Iwaya, 64.0% in Oworonshoki, and 42.0% in Bariga (Table 3). Additionally, single-storey lodging units account for 30.0% in Bariga, 12.0% in Oworonshoki, 4.0% in Iwaya, and 2.0% in Makoko. Moreover, only a limited number of respondents in Bariga and Oworonshoki indicated residing in two-storey accommodation units, with 6.0% and 4.0% reported for three-storey accommodation units, respectively (Table 3). This evidence indicates that the rising population and unemployment rates require attention to both the housing deficit and housing affordability. The results of this study substantiate the assertion that a significant segment of Nigeria's populace faces challenges in obtaining adequate housing, predominantly due to financial limitations (Timothy, 2019).

The data indicates that the prevalence of one-room units among respondents is minimal, with 22.0% in Iwaya, 18.0% in Bariga, and 2.0% in both Oworonshoki and Makoko, respectively. Two-room apartments exhibited elevated percentages in Iwaya (60.0%), Oworonshoki and Makoko (56.0%), and Bariga (52.0%). In a similar manner, three-room apartments represented 32.0% in Makoko, 22.0% in Bariga, 14.0% in Oworonshoki, and Iwaya (Table 3). Four-room units include 8.0% in Makoko, 6.0% in Bariga, and 4.0% in Oworonshoki and Iwaya. Ultimately, five-room apartments exhibited the lowest percentage, documented at 2.0% in both Bariga and Makoko (Table 3). The findings of this study correspond with those of Oshodi (2010), who indicated that living conditions are worse among impoverished households residing in informal settlements, characterised by a population density of roughly 20,000 individuals per square kilometre in developed areas, an occupancy ratio of 8 to 10 individuals per room, and 72.5% of households inhabiting one-room apartments in Lagos State, Nigeria. The results support the idea that low-income housing in Nigeria often has poor quality, lasts less long, and doesn't work well because of the use of bad materials, construction methods, and upkeep practices.

Table 3. Building typology and materials of low-income housing in the slums

Variables	Bariga		Oworonshoki		Makoko		Iwaya	
	Freq	Percent (%)	Freq	Percent (%)	Freq	Percent (%)	Freq	Percent (%)
Household Size								
1-2	13	26.0	16	32.0	2	4.0	17	34.0
3-4	3	6.0	7	14.0	1	2.0	7	14.0
5-8	24	48.0	18	36.0	20	40.0	18	36.0
9 and above	10	20.0	9	18.0	27	54.0	8	16.0
Accommodation Unit Occupied								
Squatting	3	6.0	5	10.0	1	2.0	2	4.0
Self-contain	21	42.0	32	64.0	48	96.0	45	90.0
One Storey	15	30.0	6	12.0	1	2.0	2	4.0
Two Storey's	8	16.0	5	10.0	-	-	1	2.0
Three Storey's	3	6.0	2	4.0	-	-	-	-
No of Rooms Occupied								
1	9	18.0	9	18.0	1	2.0	11	22.0
2	26	52.0	28	56.0	28	56.0	30	60.0
3	11	22.0	11	22.0	16	32.0	7	14.0
4	3	6.0	2	4.0	4	8.0	2	4.0
5	1	2.0	-	-	1	2.0	-	-

Source: Author's Field Computation

3.3 Preference and equity of sustainable affordable housing

The results in Table 4 show that the main reason people in Makoko and Iwaya choose affordable housing is because of low rent, which is about 100.0% for them, followed by 70.0% in Bariga and 60.0% in Oworonshoki. According to the respondents, employment prospects were associated with inexpensive and

sustainable housing units, comprising 52.0% (Makoko), 46.0% (Oworonshoki), 42.0% (Iwaya), and 40.0% (Bariga) (Table 4). The results of this study align with the features of informal settlement inhabitants in various locations, as proposed by Li and Li (2022), Fang et al. (2020), Grant (2006), UN-Habitat (2010), Opoko and Ibem (2019), and the World Bank (2013). The majority of inhabitants in the informal settlements are migrants, reflecting discrimination and neglect in the region.

The respondents indicated that proximity to family and friends accounts for around 50.0% in Makoko, 40.0% in Iwaya, 38.0% in Oworonshoki, and 32.0% in Bariga, as shown in Table 4. Nonetheless, the predominant number of respondents indicated community expansion, comprising 100.0% in Oworonshoki, Makoko, and Iwaya, and 96.0% in Bariga. The respondents claimed that the reasons for community expansion include 22.0% in Iwaya, 16.0% in Oworonshoki, 14.0% in Bariga, and 8.0% in Makoko, citing improved employment opportunities. Improving quality of life accounted for 28.0% of respondents in Bariga, while it represented 26.0%, 22.0%, and 16.0% of respondents in Makoko, Oworonshoki, and Iwaya, respectively.

Additionally, 12.0%, 6.0%, and 4.0% of respondents in Oworonshoki, Bariga, Iwaya, and Makoko indicated a need for additional affordable land for housing construction. In Makoko, Bariga, Oworonshoki, and Iwaya, 46.0%, 38.0%, and 36.0% of respondents, respectively, indicated that the cost of living is lower and more inexpensive (Table 4). The findings of this study corroborate Nwanna's (2012) observations that the proliferation of slums is due to governmental neglect and relentless population expansion. This study's findings validate the claim that low-income housing in Nigeria accommodates various social groups, including migrants, ethnic minorities, women, children, the elderly, the disabled, and the unemployed, each with distinct needs, preferences, and aspirations (Mukthar et al., 2016).

Table 4. Preference and equity of sustainable affordable housing

Variables	Bariga		Oworonshoki		Makoko		Iwaya	
	Freq	Percent (%)	Freq	Percent (%)	Freq	Percent (%)	Freq	Percent (%)
Cheap Rent								
No	15	30.0	20	40.0	-	-	-	-
Yes	35	70.0	30	60.0	50	100.0	50	100.0
Employment Opportunities								
No	30	60.0	27	54.0	24	48.0	29	58.0
Yes	20	40.0	23	46.0	26	52.0	21	42.0
Proximity to Family and Friends								

No	34	68.0	31	62.0	25	50.0	30	60.0
Yes	16	32.0	19	38.0	25	50.0	20	40.0
Community Growth								
No	2	4.0	-	-	-	-	-	-
Yes	48	96.0	50	100.0	50	100.0	50	100.0
Reason for Community Growth								
To Find Better Job	7	14.0	8	16.0	4	8.0	11	22.0
To Get Better Quality of Life	14	28.0	11	22.0	13	26.0	8	16.0
Need Less Expensive Land for Building	3	6.0	6	12.0	2	4.0	3	6.0
Livelihood is Cheaper and Affordable	19	38.0	19	38.0	23	46.0	18	36.0

Source: Author's Field Computation

4.0 Conclusion

This study assesses housing attributes and preferences, concentrating on the accessibility and equity of sustainable and cheap construction materials in the coastal slum areas of the Lagos Metropolis. The housing element profile of slum communities indicated that the majority of occupied buildings were constructed between 1981 and 1995, comprising 48.0% in Oworonshoki, 38.0% in Makoko, and 32.0% in Iwaya. The tenancy status of respondents indicated that rental tenants constituted 90.0%, 84.0%, and 78.0% across the slums, respectively. The slum inhabitants in the research region occupied buildings with non-cemented surfaces, concrete surfaces, and mud-cemented surfaces. The occupation length indicates that 5-7 years and 8-10 years exhibited elevated percentages in the slum communities. Analysis of building characteristics and materials indicated that household sizes among respondents varied from 5 to 8, comprising 48.0% in Bariga, 40.0% in Makoko, and 36.0% in Oworonshoki and Iwaya, respectively.

The occupancy of accommodation units indicates that self-contained apartments constituted a significant proportion in the slums, with Makoko at 96.0%, Iwaya at 90.0%, Oworonshoki at 64.0%, and Bariga at 42.0%. The occupancy data indicates that two-room apartments in Iwaya have the greatest percentage at 60.0%, followed by Oworonshoki and Makoko at 56.0% and Bariga at 52.0%, respectively, thus implying that low-income families require affordable housing across the study area. This study therefore enhances the existing information on sustainable housing provision from the viewpoint of the urban impoverished in Nigeria's metropolitan areas. A future study is recommended to ascertain the magnitude of housing requirements for the urban poor and to investigate the impact of urban physical transformations on their housing conditions. This work involves investigating a suitable policy framework and efficient implementation mechanisms for equitable housing and infrastructure initiatives.

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