https://doi.org/10.52968/15068808
ISSN: 2805-3346

RESEARCH ARTICLE

Socio-Economic Determinants of Housing and Environmental Quality: Evidence from Kubwa, Abuja

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Received: 24 February 2026

Revised: 17 April 2026

Accepted: 18 May 2026

Published: 28 July 2026

Cite article as: Kuranga, R. A., Ahmed, A. A., Moshood, B. B. & Abutu, O. M. (2026). Socio-economic determinants of housing and environmental quality: Evidence from Kubwa, Abuja. *African Journal of Housing and Sustainable Development, 8*(1), 116-131. https://doi.org/10.52968/15068808

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ABSTRACT

Socio-economic determinants of housing and environmental quality are critical, serving as indicators of urban liveability and residents' well-being. However, they face significant challenges in the rapidly urbanising cities of the Global South. Accordingly, this study assessed the socio-economic determinants of housing and environmental quality in Kubwa, Bwari Area Council of Abuja, Nigeria. It adopted a mixed-methods approach, with primary data collected through the systematic administration of 392 copies of a questionnaire to residents across six neighbourhoods. Descriptive techniques, chi-square (X^2) and multiple correlation were used to analyse the data and examine the relationships among housing and environmental quality, income and the educational status of residents. The results show moderately fair housing conditions with deteriorating environmental quality and deplorable infrastructure, indexed at 1.77. Building elements were rated fair at an index of 3.01 on a 5-point scale. Inferential analysis demonstrates a strong negative correlation ($r = -0.676$, $p < 0.001$) between socio-economic status (income and education) and residential quality. The regression model ($R^2 = 0.774$) confirms that income, education, accessibility and waste management are significant predictors of housing quality. The study concludes that residential conditions in Kubwa are fundamentally shaped by socio-economic inequalities. Consequently, it recommends prioritisation of infrastructural upgrades in deprived neighbourhoods, designing inclusive housing policies that support affordable materials and initiation of socio-economic empowerment programmes to enhance residents' capacity for property maintenance.

Keywords: Socio-economic determinants, Environmental quality, Housing, Sustainable management

1.0 Introduction

Housing plays a central role in human well-being as it provides shelter, security, privacy and access to the basic facilities necessary for healthy living (Junaid, 2017). Beyond physical structure, housing quality reflects the overall standard of living and serves as a key indicator of national development (Kehinde, 2010). However, in many urban areas of developing countries, the available housing stock is inadequate both quantitatively and qualitatively (World Bank, 2023; Mobolaji et al., 2023). Poor construction materials, overcrowding and lack of basic amenities have resulted in deteriorating housing conditions, particularly in low-income communities (Babalola, 2016; Mbazor, 2018).

To be sure, there is a critical link between people's socio-economic conditions and their housing and environmental quality. Housing quality is not just about the physical structure of

a building but also encompasses other socio-economic determinants such as access to basic services like clean water, sanitation, electricity, and a safe, healthy environment. In many Nigerian cities, disparities in income and social status play a significant role in shaping where people live and the conditions they experience. Poor households are often pushed to live in overcrowded neighbourhoods with poor housing and inadequate facilities, a situation that negatively affects their overall well-being (Orire et al., 2025).

Nigeria has the fastest rate of urban growth in Africa (Raji, 2008), resulting in severe housing shortages and poor-quality residential environments. The national housing deficit is estimated at 16 to 17 million units and requires over ₦65 trillion to address (Mbazor, 2018). Beyond scarcity, the quality of existing housing is declining due to ageing, informal developments and inadequate provision of infrastructure and public services. Many core urban areas such as Lagos, Kano, Ibadan and Port Harcourt exhibit deteriorated housing stock, congestion and environmental neglect (Agbor et al., 2016).

Located in Bwari Area Council, Kubwa is the largest satellite town in the Federal Capital City (FCT) and is experiencing rapid population influx due to immigration and urban expansion from the city centre. This growth has led to rising land values, poor planning, informal developments and increasing pressure on infrastructure. Consequently, residents face challenges related to substandard housing, inadequate basic services and declining environmental quality.

While several studies in Nigeria have examined housing conditions or environmental quality separately (Agbor et al., 2016; Mbazor, 2018; Mobolaji et al., 2022), few have investigated how socio-economic features such as income and education influence both housing and environmental quality simultaneously, particularly in rapidly growing peri-urban settlements (Adewole et al., 2023; Oluwadare et al., 2024). This study examines the socio-economic determinants of housing and environmental quality in Kubwa, Abuja, with the aim of demystifying how income, education and related factors shape residential conditions across different neighbourhoods in the area. The findings are expected to provide an evidence-based guide for urban planning, policy interventions and sustainable housing development.

2.0 Literature Review

Housing is a fundamental human necessity that plays a pivotal role in sustaining quality of life. Beyond its physical function, it embodies the cultural values and socio-economic realities of its occupants (Junaid, 2017). As observed by Adegoke (2022), housing shapes interactions between individuals and the broader socio-spatial environment within communities. Consequently, indicators such as housing location, neighbourhood characteristics, dwelling attributes (including size, number of rooms and facilities) and environmental conditions (such as pollution and degradation) are widely employed to evaluate levels of social inclusion and exclusion (Owoeye & Ogundiran, 2015).

Housing and environmental conditions represent critical exposure pathways that directly influence human well-being (Novick et al., 2020). Poor housing quality, inadequate maintenance and structural deficiencies have been consistently associated with adverse health outcomes (Anyanwu & Beyer, 2024). Nevertheless, housing environments also contribute positively by fostering a sense of identity, belonging and place attachment (Rolfe et al., 2020).

Despite their importance, quality housing and environmental amenities have not been accessible to all. Evidence suggests that housing and environmental inequalities are spatially patterned, disproportionately affecting low-income populations who are often confined to substandard living conditions (Mobolaji et al., 2022). Individuals with lower socio-economic status are therefore more vulnerable to poor housing and degraded environments (Agbola et al., 2016). This intersection of inadequate housing and environmental deprivation exacerbates broader patterns of social inequality and economic marginalisation, particularly in

segregated urban areas (Anyanwu & Beyer, 2024).

Theoretically, the demand for adequate and healthy housing far exceeds supply, making it practically unattainable to fully satisfy (UN-Habitat, 2018). This imbalance is intensified by the proliferation of informal settlements, insecure land tenure and inefficient land-use systems, especially in developing countries. Such conditions often exclude low-income communities from access to infrastructure and essential services (Anyanwu & Beyer, 2024). In Africa, rapid urbanisation — driven largely by rural-urban migration in search of economic opportunities — has significantly increased pressure on housing systems in both primary and secondary cities (Kasim et al., 2024). As a result, investigating the determinants and characteristics of adequate housing has become a critical research priority for sustainable urban development. This need is underscored by projections indicating that approximately 59% of Africa's population would be residing in urban areas by 2050, with a substantial proportion living in slum-like conditions characterised by inadequate housing and poor environmental quality (Adewole et al., 2023).

Empirical studies further reveal that a significant share of the urban population in developing countries lacks access to adequate housing, potable water and sanitation facilities (Mobolaji et al., 2022; Saleh et al., 2023). The housing environment itself is shaped by a complex interaction of socio-demographic, economic and structural factors. Housing choices at the household level are influenced by variables such as income, education and physical housing attributes (Kasim et al., 2024). For instance, Charles (2024) found that income and educational attainment significantly determine residential location decisions among low-income households. Households with limited education often prioritise affordability and proximity to workplaces over housing quality. Additionally, residential mobility tends to be constrained among low-income groups due to the financial burden associated with relocation processes (Olatubara et al., 2022).

Several structural and institutional factors also influence housing outcomes in developing contexts. Also contributing to the persistence of poor housing conditions are ineffective housing policies, obsolete regulatory frameworks and weak enforcement of housing standards (Daramola, Adeyinka & Bello, 2022). Furthermore, the spatial distribution of housing quality is shaped by a range of factors, including socio-economic status, homeownership patterns, access to utilities, cultural norms and societal values (Junaid, 2017). In particular, cultural and social systems play a significant role in determining housing layouts and the organisation of living spaces, thereby reflecting broader societal structures (Olatubara et al., 2022).

Globally, inadequate housing remains a persistent challenge, especially in developing countries where a substantial proportion of the population lacks access to quality housing and infrastructure. The implications of this deficit extend beyond shelter, potentially constraining economic productivity and overall development. In many cases, the housing crisis is not only a matter of insufficient supply but also about the poor quality of existing housing and environmental conditions (Kasim et al., 2024). Rapid population growth, coupled with limited individual capacity to secure adequate housing, necessitates active government intervention. However, despite various policy efforts, housing challenges persist and a growing number of urban residents continue to inhabit substandard environments.

Adequate housing is widely recognised as a critical foundation for human development and well-being (Anyanwu & Beyer, 2024). Access to essential housing services, e.g., safe shelter, electricity, clean water and sanitation, enhances health outcomes, productivity and educational performance. Conversely, poor housing conditions perpetuate cycles of ill health, social exclusion and reduced quality of life. Challenges such as overcrowding, lack of affordability, inadequate basic services and poor transportation networks further limit access to economic and social opportunities. These interconnected issues pose significant challenges for policymakers and underscore the need for integrated housing and urban development strategies.

In response to these challenges, international organisations such as UN-Habitat have documented and promoted best practices aimed at improving human settlements. Key interventions in developing countries include slum-upgrading initiatives, support for community-based organisations, adoption of appropriate building codes and planning standards, improved waste management systems, promotion of informal sector activities, provision of microfinance, and integration of transport and land-use planning (Olatubara et al., 2022; Saleh et al., 2023). Collectively, these strategies highlight the importance of comprehensive and inclusive approaches to addressing housing and environmental challenges in rapidly urbanising regions.

3.0 Methodology

3.1 Study Area

Kubwa, Bwari area council is situated in the north-eastern part of the Federal Capital, Abuja (Figure 2). It is about 15km north of Abuja and 25km north-east of Suleja, Niger State. Its geographical coordinates are latitudes $8^{o}6^{I}29^{II}$N and $9^{o}09^{I}47^{II}$N and longitudes $6^{o}44^{I}47^{II}$E and $7^{o}20^{I}87^{II}$E. Situated along the Murtala Mohammed Expressway, Kubwa is a residential settlement and one of the major suburbs within Abuja's metropolitan area.

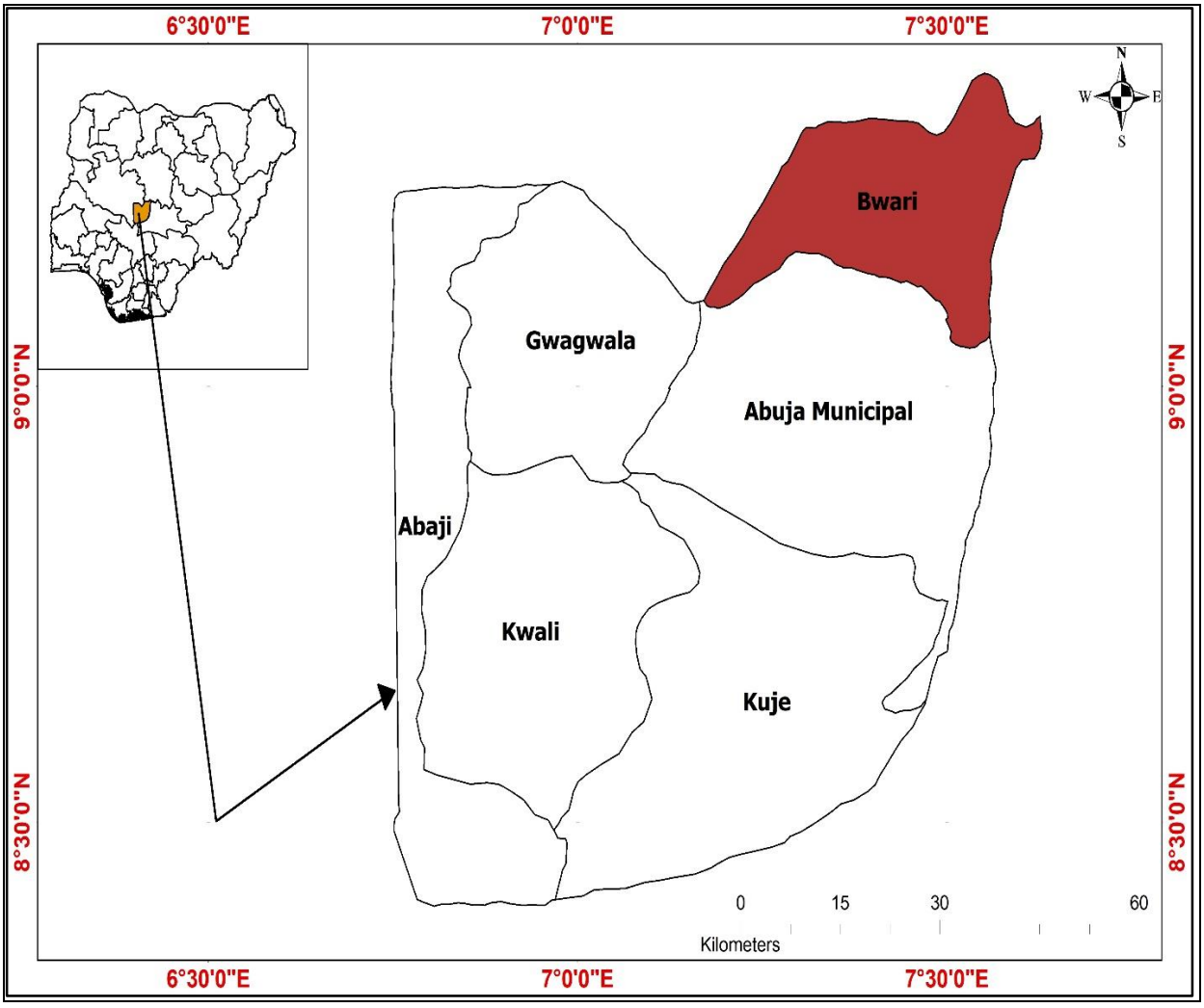


Figure 1: FCT within the Context of Nigeria and Bwari Area Council within FCT

Source: Authors' Design (2025)

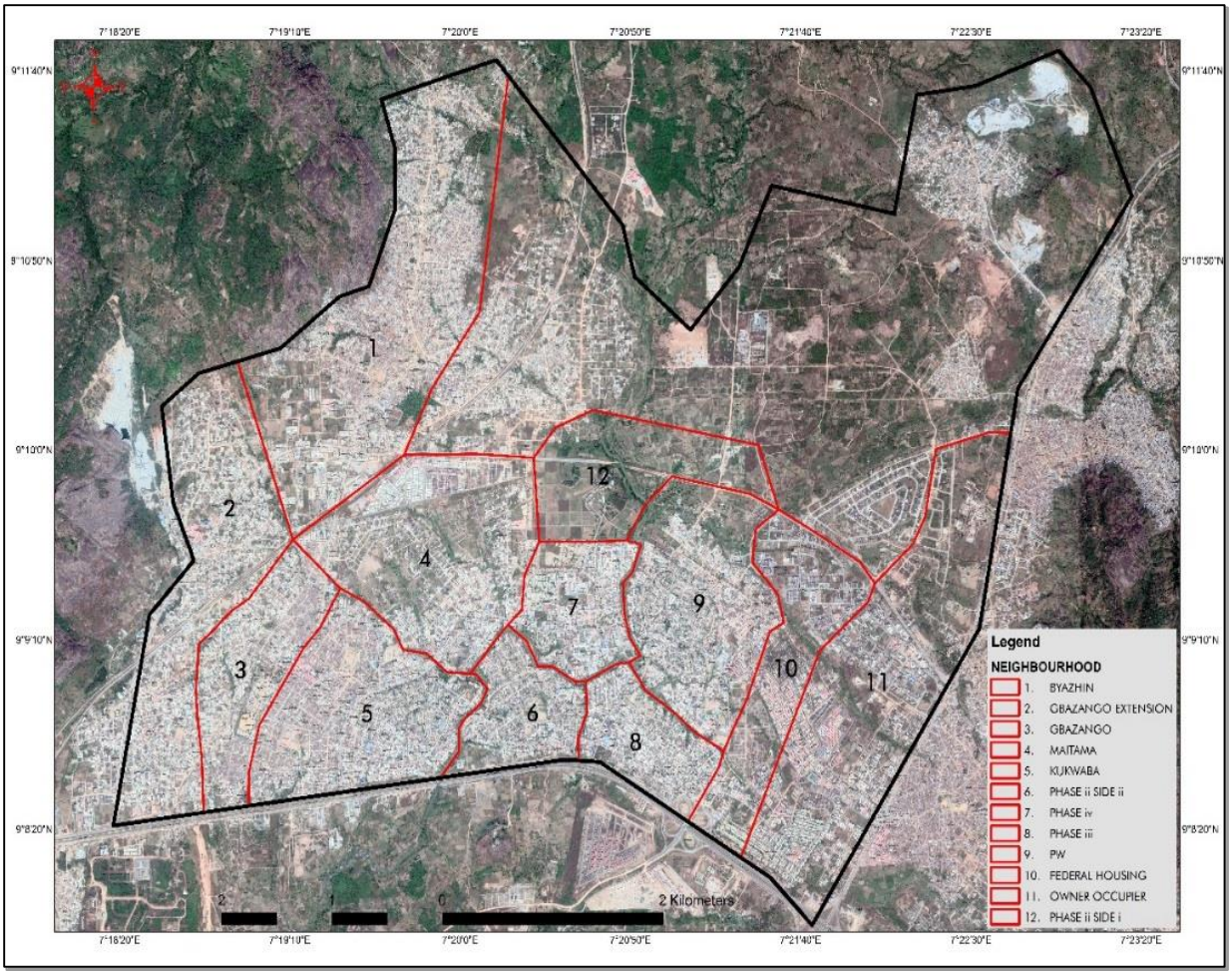


Figure 2: Kubwa in Bwari Area Council, FCT.

Source: Author's Design, Digitised from Google Earth (2025)

3.2 Materials and Methods

The study adopted a mixed-methods approach involving qualitative and quantitative data. Through fieldwork, the researchers obtained primary data about residents' housing conditions, socio-economic characteristics, neighbourhood infrastructural conditions and environmental quality. Secondary data was also sourced to corroborate findings from the field survey.

The study sample frame consisted of the entire population of Kubwa, located in the Bwari Area Council. The population was estimated at 18,409 using a linear projection model and national growth rate of 2.8%, based on figures from the 2006 national census (National Population Commission, NPC). Using the Taro Yamane formula (1967), a sample size of 392 was obtained for the study at a confidence level of 95%.

$$n = \frac{N}{(1 + N(e)^2)}$$

where:
n = sample size
N = population under study
e = error margin (0.05)

$$n = \frac{18409}{(1 + 18409(0.05)^2)}$$

$$\boldsymbol{n = 392}$$

Systematic sampling was employed and 392 copies of the questionnaire were administered to the residents. Using the Statistical package for the Social Sciences (SPSS), the researchers deployed descriptive and inferential statistical techniques to analyse the data. Frequencies, percentages and charts were used to describe the socio-economic

characteristics of respondents and the conditions of housing and infrastructure in the study area. Mean Weighted Values (MWV) were calculated from Likert scale responses to determine the overall quality ratings of housing and infrastructure.

Pearson Product Moment Correlation was used to examine the relationship between socio-economic variables (income, education) and housing/environmental quality indicators. Multiple linear regression was also conducted to determine the extent to which socio-economic variables (income, education, accessibility, waste disposal, sewage, drainage, etc.) predict housing quality.

4.0 Results

4.1 Socio-economic Characteristics of Respondents

The socio-economic data presented in Table 1 shows that 38.0% of respondents were civil servants, 34.9% were self-employed, 17.3% were artisans and 4.3% were farmers. This indicates that most residents engage in formal or semi-formal employment. This finding has implications for income stability and the capacity to maintain housing quality.

Also presented in Table 1 is information on residents' educational status, which shows that the majority, i.e. 47.7%, possessed either the National Certificate in Education (NCE) or the National Diploma (ND). Respondents with postgraduate education (MSc and PhD) amounted to 3.3%, those with a first degree or HND amounted to 15.8%, while those with senior secondary school education and primary school education made up 27% and 6.1% respectively. This implies that the majority of residents are literate.

In terms of income of respondents, 17.3% of respondents earned below ₦30,000 monthly, while those who earned ₦31,000 to ₦60,000 were 26.5%. About 31.1% earned ₦61,000 to ₦120,000 and 13.5% earned ₦121,000 to ₦250,000, classified as medium-income earners. Only 11.5% of the respondents earned ₦251,000 and above, which is a small proportion of high-income households. Respondents with a household size of 1-3 amounted to 12.5%, while respondents with household sizes of 4-6, 7-10 and more than 11 amounted to 18.4%, 44.1% and 25% respectively. Consequently, since a majority of residents in the study area earned below the national minimum wage of ₦70,000, they tend to engage in poor housing and environmental maintenance practices, a situation that further depletes the quality of the environment.

Table 1: Socio-economic Characteristics of Respondents

Variable	Frequency	Percentage (%)
Occupation		
Civil servant	149	38.0
Self-employed	137	34.9
Artisan	68	17.3
Farmer	17	4.3
Others	21	5.5
Total	392	100
Educational Level		
Elementary/Primary	24	6.1
Secondary	106	27.0
College of Education/National Diploma	187	47.7
First Degree/HND	62	15.8
Postgraduate	13	3.3
Total	392	100

Monthly Income (₦)		
< 30,000	68	17.3
31,000 – 60,000	104	26.5
61,000 – 120,000	122	31.1
121,000 – 250,000	53	13.5
251,000 and above	45	11.5
Total	392	100
Household Size (persons)		
1 – 3	49	12.5
4 – 6	72	18.4
7 – 10	173	44.1
Above 10	98	25.0
Total	392	100

Source: Authors' Survey (2025)

4.2 Housing Quality in Kubwa

4.2.1 Housing Types and Age of Buildings

The most common housing types found in the study area are detached bungalows (48.2%); semi-detached bungalows, rooming houses and duplexes amounted to 17.6%, 7.9% and 26.3% respectively (see Figure 4). Majority (45.5%) of the buildings were between the ages of 11–20 years old, 23.5% were over 20 years old, 18.6% were 5–10 years old, while only 12.5% were less than 5 years old (see Figure 5). This indicates that a significant proportion of housing stock is ageing, which may contribute to structural deterioration. Buildings aged over 20 years, 5-10 years and less than 5 years were 23.5%, 18.6% and 12.5% respectively (see Figure 5). This shows that a larger part of the housing stock in the study area is ageing, with implications for structural deterioration.

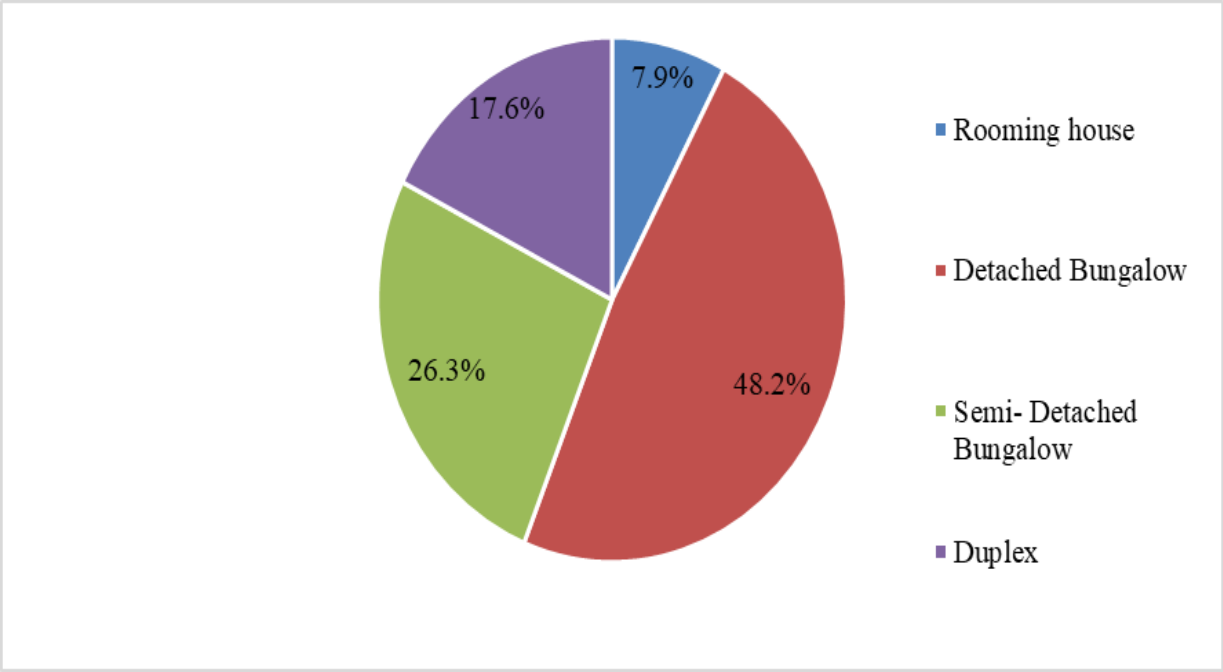


Figure 4: Housing Types

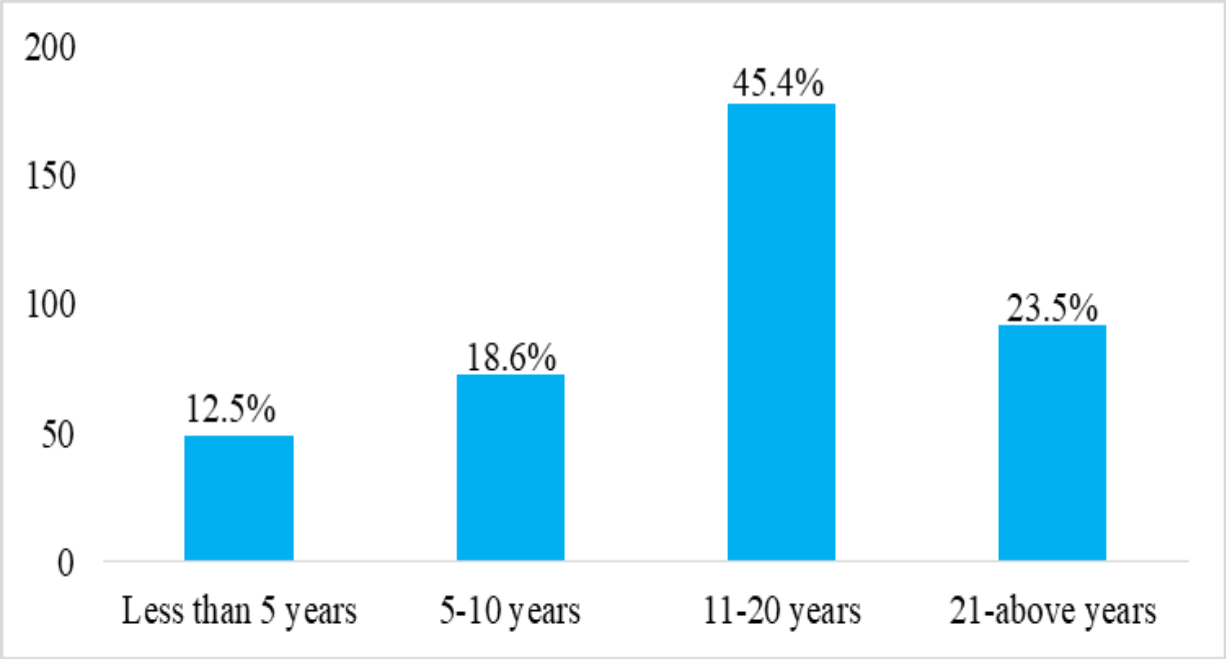


Figure 5: Age of Dwelling Units

4.2.2 Building Materials and Physical Condition

The findings show that the majority, i.e. 59.3%, of the buildings in the study area were built with cement blocks, while bricks and mud blocks accounted for 37.5% and 3.3% respectively. Buildings with their walls still intact accounted for 79.8%, while those with cracked walls and effects of dilapidation accounted for 15.6% and 4.6% respectively. Not unexpectedly, houses built with mud or poorly cemented houses showed more signs of cracks and deterioration.

The materials that were commonly used for floor finishes were tiles (46.2%), marble (24%), screed (16.8%) and terrazzo (13%). Buildings with their floor still intact accounted for 77.3%, while 9.4% were broken and 13.3% showed cracks. The high usage of tiles and marble suggests a preference for durable and easy-to-maintain finishes, and this contributed to better interior quality.

About 50% of the houses used zinc-corrugated roofs, 31.7% used long-span aluminium and 18.7% used asbestos. However, 31.8% of buildings have leaking roofs, while only 68.2% were in good shape. Zinc sheets were particularly associated with rusting and leakage, indicating ageing and lack of maintenance. Similarly, asbestos ceiling boards were the most commonly used (43.9%), followed by PVC (30.9%) and POP (23.2%), while 2.0% used low-grade materials such as carton or plywood. In terms of condition, 60.2% of the buildings had their ceilings intact, 24.7% were leaking and 5.6% were sagging.

Flush, panel or wooden doors were used by 55.6% of respondents, while 44.4% used steel or iron doors. Most doors (79.3%) were intact, with 18.5% broken and 2.2% falling off. For windows, 38.0% were wooden, 32.4% were aluminium and 29.6% were louvre blades. About 72.1% were intact, 24.6% were broken and 3.3% were falling off. Overall, doors and windows were in relatively good conditions compared to other building elements.

More than half of the respondents (54.3%) used water closet systems, 27.8% used pit latrine with slab, 14.8% used the bucket system and 3.1% had no toilets. The presence of unimproved toilets indicates sanitation challenges for a segment of residents, with obvious potential health risks.

4.2.3 Provision and Quality of Infrastructure

Most residents (73.2%) accessed their homes through motorable roads, while 20.2% used

footpaths and 6.6% lacked access. In the neighbourhood 52.6% of the roads were unpaved, with poorly maintained roads being common in areas such as Kukwaba, Gbazango and Byazhin. The absence of proper road networks contributes to poor mobility, erosion and low environmental quality. Pipe-borne water was the main water source for 43.1% of respondents, while 33.4%, 14.0% and 9.4% sourced water from boreholes, well and water vendors respectively. Despite this, the pipe-borne supply was irregular and limited to a few hours daily. In areas such as Kukwaba and Byazhin, many houses were not connected to public water lines, posing a major challenge to hygiene in the area.

While electricity was the primary source of power for 50.5% of respondents, owing to frequent outages and load shedding, many residents relied on generators (34.4%), solar power (6.6%) and lanterns/candles (8.4%). Many residents expressed dissatisfaction with the unstable supply, with some reporting receiving only six hours of power daily. This indicates that energy infrastructure is unreliable and forces households to seek private alternatives, which raises living costs.

Most households (62.0%) disposed of waste through private refuse vendors, while 16.1% used refuse dumps, 14.4% practised incineration and 7.4% used public collection points. Indiscriminate dumping was observed in several neighbourhoods, blocking drainage channels and creating health hazards. This reliance on informal waste systems indicates the failure of public waste management services.

Only 33.9% of respondents had access to open drainage systems, while 66.1% reported having no drainage at all. There were no covered drainage systems in the entire study area. Even where open drains existed, many were blocked by solid waste. Thus, poor or absent drainage contributes to flooding, stagnant water and disease vectors, significantly lowering environmental quality.

In all, during the conduct of this study, the provision of infrastructure in Kubwa was inadequate, with existing infrastructure being poorly maintained. While some households had access to basic services, the quality was low and uneven across neighbourhoods. Over 40% of the sampled household lacked access to paved roads, potable water supply, and waste-management as well as drainage facilities. These significant deficiencies forced many residents to rely on private or informal alternatives.

4.3 Quality Rating of Housing and Infrastructure

4.3.1 Rating of Housing Quality

Housing quality was assessed using seven building components: roof, walls, painting, floors, doors, windows, and ceiling. Ratings were based on a 5-point Likert scale (1 = very bad, 5 = very good).

The results in Table 2 show mixed conditions across components. Walls (3.41), doors (3.26), roofs (3.08) and windows (2.96) were mostly rated from fair to bad, while floors (2.98) and painting (2.99) were also in the bad range. Ceilings recorded the lowest score (2.36), indicating significant deterioration in internal finishes.

Generally, housing quality received an index of 3.01, meaning that housing conditions in Kubwa were generally fair but declining, with specific elements showing signs of poor maintenance and ageing.

Table 2: Respondents Rating Condition of Building Components

		Rating and weighted value						
S/N	**Infrastructure**	**1**	**2**	**3**	**4**	**5**	**SWV**	**MWV**
1	Roof	125	84	0	0	2183	1208	3.08
2	Wall	11	72	182	0	127	1336	3.41
3	Painting	91	78	94	0	129	1174	2.99
4	Floor	61	104	89	0	119	1169	2.98
5	Doors	89	123	0	0	388	1277	3.26

6	Windows	111	119	0	0	162	1159	2.96
7	Ceilings	111	197	0	0	84	925	2.36
Total							21.04	
Mean of ΣMWV = 3.01								

Notes: Very Bad = 1, Bad = 2, Fair = 3, Good = 4 and Very Good = 5. SWV: Summation of Weighted Value; MWV: Mean Weighted Value

4.3.2 Rating of infrastructure quality

Fifteen infrastructure variables were assessed using the same 5-point scale. The results in Table 3 show that only private schools (3.04) were rated 'fair', with others rated 'bad' or 'very bad'. Private health facilities (2.78) and public health facilities (2.18) were inadequate, while public schools (1.92) performed poorly. Critical infrastructure such as water supply (1.28), electricity supply (1.35), sewage management (1.50), drainage (1.54), waste disposal (1.57), public transportation (1.57) and roads (1.66) were all rated 'very bad'. Public toilets ranked the lowest with an index of 1.04, indicating near absence of functional sanitation facilities. The overall infrastructure quality index was 1.77 ('very bad'), highlighting severe infrastructural deficits in the study area.

Table 3: Respondents' Rating Condition of Infrastructure

		Rating and weighted value						
S/N	**Infrastructure**	**1**	**2**	**3**	**4**	**5**	**SWV**	**MWV**
1	Roads	197	142	44	7	2	651	1.66
2	Drainages	229	121	29	9	2	604	1.54
3	Waste disposal/management	232	103	51	6	0	615	1.57
4	Sewage management	249	96	41	6	0	588	1.50
5	Security	255	91	29	17	0	592	1.51
6	Water supply	301	72	19	0	0	502	1.28
7	Electricity supply	277	94	21	0	0	528	1.35
8	Recreational facilities	193	106	91	2	0	686	1.75
9	Public schools	157	122	102	11	0	751	1.92
10	Private schools	21	121	107	109	34	1190	3.04
11	Public health facilities	109	124	137	22	0	856	2.18
12	Private health facilities	55	72	188	59	18	1089	2.78
13	Public toilet	375	17	0	0	0	409	1.04
14	Public transportation	229	101	62	0	0	617	1.57
15	Parking space/lots	173	127	86	6	0	709	1.81
Total			26.50					
Mean of ΣMWV = 1.77								

Notes: Very Bad = 1, Bad = 2, Fair = 3, Good = 4 and Very Good = 5. SWV: Summation of Weighted Value; MWV: Mean Weighted Value

4.4 Spatial Variation in Housing and Environmental Quality

Spatial differences in housing and environmental quality were examined across six neighbourhoods in Kubwa, using mean weighted values based on a 5-point Likert scale. The results (Table 4) revealed clear disparities in quality across locations. Byazhin recorded the lowest index (1.89), indicating very bad housing and environmental conditions. Field observations confirmed that buildings in this area lacked modern facilities, used substandard materials and showed signs of structural deterioration. The neighbourhood also suffered from poor accessibility, absence of drainage systems, overcrowding, indiscriminate waste disposal and inadequate maintenance.

Gbazango (2.61) and Kukwaba (2.52) were both rated 'bad'. Although slightly better than Byazhin, they exhibited untarred roads, blocked or insufficient drainage systems, limited social amenities, and overcrowding. Certainly, infrastructural neglect and poor waste management were common in these areas.

By contrast, Phase II Side I (3.15), Phase II Side II (3.24) and PW (3.24) were rated fair. These neighbourhoods had relatively better building quality and slightly improved infrastructure; however, they still faced issues such as inadequate drainage, insufficient amenities and poor maintenance. Their better performance suggests that certain parts of Kubwa have benefited more from development and investment than others.

Table 4: Spatial Variation of Housing and Environmental Quality

Variables	Byazhin		Gbazango		Kukwaba		Phase II side I		Phase II side II		PW	
	Rating and weighted value											
	SWV	MWV	SWV	MWV	SWV	MWV	SWV	MWV	SWV	MWV	SWV	MWV
Roads	1	0.09	3	0.27	3	0.27	4	0.36	4	0.36	4	0.36
Drainages	1	0.09	3	0.27	3	0.27	3	0.27	3	0.27	4	0.36
Waste disposal	1	0.09	3	0.27	2	0.18	3	0.27	4	0.36	4	0.36
Water supply	3	0.27	3	0.27	3	0.27	3	0.27	4	0.36	3	0.27
Parking space/lots	1	0.09	2	0.18	2	0.18	2	0.18	2	0.18	2	0.18
Public toilet	1	0.09	1	0.09	1	0.09	1	0.09	1	0.09	1	0.09
Recreational facilities	2	0.18	2	0.18	2	0.18	4	0.36	4	0.36	4	0.36
Roof	3	0.27	3	0.27	3	0.27	4	0.36	4	0.36	4	0.36
Wall	3	0.27	3	0.27	3	0.27	4	0.36	4	0.36	4	0.36
Painting(s)	2	0.18	3	0.27	3	0.27	4	0.36	3	0.27	3	0.27
Commercial facilities	3	0.27	3	0.27	3	0.27	3	0.27	3	0.27	3	0.27
ΣMWV =		1.89		2.61		2.52		3.15		3.24		3.24

Notes: SWV: Summation of Weighted Value; MWV: Mean Weighted Value

***Source**:* Authors' computation (2025)

4.5 Relationship among Housing/ Environmental Quality, Income and Education

Correlation analysis was conducted to determine the relationship between the socio-economic characteristics of residents (income and education) and housing/environmental quality indicators. The results in Table 5 show that income and education both correlated negatively with housing and environmental quality ($r = -0.676$, $p < 0.001$). This indicates that lower-income and less-educated residents were more likely to experience poor-quality housing and degraded environmental conditions. Thus, socio-economic status is a significant determinant of residential quality in Kubwa.

The multiple regression analysis model produced a coefficient (R) of 0.880 and an R^2 of 0.774, implying that income, education and related environmental variables explained 77.4% of the variation in housing quality. Predictors such as education ($p = 0.000$), accessibility ($p = 0.000$), waste disposal ($p = 0.000$) and sewage ($p = 0.016$) were statistically significant (see Table 6). Income is the strongest determinant, indicating that higher-income households are more likely to live in housing environments of higher quality.

The regression model provided strong statistical evidence to affirm that socio-economic factors (especially income and education) significantly influence housing and environmental quality in Kubwa.

Table 5: Multiple Correlations of Relationship among Housing/Environmental Quality, Income and Education in the Study Area

		Roof materials	Wall materials	Drainage	Waste disposal	Income	Education	Roof materials
Roof materials	Pearson Correlation	1						
	Sig. (2-tailed)							
Wall materials	Pearson Correlation	.618**	1					
	Sig. (2-tailed)	.000						
Drainage	Pearson Correlation	.866**	.730**	1				
	Sig. (2-tailed)	.000	.000					
Waste disposal	Pearson Correlation	.174**	.239**	.233**	1			
	Sig. (2-tailed)	.001	.000	.000				
Income	Pearson Correlation	.843**	.562**	.761**	.269**	1		
	Sig. (2-tailed)	.000	.000	.000	.000			
Education	Pearson Correlation	-.605**	-.611**	-.649**	-.119*	-.676**	1	
	Sig. (2-tailed)	.000	.000	.000	.018	.000		
**. Correlation is significant at the 0.01 level (2-tailed).								
*. Correlation is significant at the 0.05 level (2-tailed).								
Listwise N = 392								

Source: Authors' Computation (2025)

Table 6: Coefficients and Model Summary

		Unstandardised Coefficients		Standardised Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.280	.251		9.086	.000
	Education	-.439	.050	-.297	-8.828	.000
	Wall materials	-.137	.078	-.065	-1.743	.082
	Accessibility	.758	.053	.696	14.244	.000
	Waste disposal	.153	.030	.129	5.122	.000
	Sewage	-.142	.059	-.092	-2.412	.016
	Drainage	.056	.066	.053	.856	.393
R Square = 0.774 (77.4%)						

Source: Authors' Computation (2025)

5.0 Discussion of Findings

The foregoing findings provide insightful thoughts about the interplay of socio-economic characteristics, housing and environmental quality in Kubwa, Abuja. The socio-economic features of residents in Kubwa suggest that a large proportion of households falls within the low-to-middle income categories, with the majority earning below the Nigerian national minimum wage of ₦70,000 per month. Also, a substantial number of respondents had only a basic education. These socio-economic patterns directly influence the ability of residents to afford quality housing and basic services. Similar studies in Nigerian urban areas have shown that income and education shape residential opportunities and quality of life, as households with limited financial resources often settle in poorly serviced neighbourhoods and live in structurally

deficient housing (Owoeye & Ogundiran, 2015; Akindele et al., 2025). Thus, the socio-economic context of Kubwa sets the stage for understanding disparities in housing and environmental quality across the study area.

Housing quality analysis indicated that many residents live in buildings constructed with substandard materials or buildings that were in deterioration, particularly in the low-income areas. Issues such as poor roofing, cracked walls and a lack of maintenance were prevalent. These findings are consistent with Amao (2012) and Oluwadare et al. (2024), who reported that poor housing conditions in Nigerian urban settlements mainly result from financial constraints, poor enforcement of planning regulations and limited technical knowledge among builders. Charles (2024) further linked poor housing quality to adverse health outcomes, demonstrating that inadequate housing is not only a physical problem but also a public health concern. The persistence of low-quality housing in Kubwa suggests that urban growth has not been matched by adequate enforcement of housing standards or support for low-income households to access better housing (Babalola et al., 2022).

Environmental and infrastructural quality was also found to be inadequate in several parts of Kubwa. Many areas suffer from unreliable water supply, poor drainage and inadequate waste-disposal systems, as well as limited access to electricity, health facilities, schools and recreational spaces. These conditions directly affect neighbourhood liveability and heighten exposure to environmental risks such as flooding, pollution and disease. Previous studies have similarly noted that urban residents in Nigeria frequently experience environmental degradation due to infrastructure deficits, weak urban planning and increasing population pressure (Mobolaji et al., 2022; Adewole et al., 2023). Daramola et al. (2022) argued that environmental quality is a crucial dimension of urban well-being despite being often neglected in informal or rapidly developing settlements. The findings from Kubwa reinforce the view that housing quality cannot be assessed in isolation from environmental conditions, since both are intertwined components of overall residential quality.

Spatial analysis revealed significant differences in housing and environmental quality across neighbourhoods in Kubwa. Byazhin recorded the lowest overall quality, while Phase II Side I, Phase II Side II and PW performed relatively better. These spatial disparities indicate that residential environments in Kubwa are unequally developed, with low-income neighbourhoods experiencing the poorest conditions. This pattern mirrors findings from studies in Ibadan, Lagos and the Greater Karu Area, where spatial segregation and socio-economic inequality were found to have resulted in distinct residential environments within the same city (Owoeye & Ogundiran, 2015; Oluwadare et al., 2024). The spatial variation observed in Kubwa suggests that urban planning and service delivery have been uneven, favouring certain areas while neglecting others. This reinforces concerns about socio-spatial inequality in urban development and highlights the need for equitable infrastructure provision.

The inferential analysis further demonstrated that socio-economic factors significantly influence housing and environmental quality in Kubwa. Correlation results showed a strong negative relationship between income, education and quality indices, indicating that lower-income and less-educated residents live in poorer housing and environmental conditions. Multiple regression analysis confirmed that income and education were statistically significant predictors of housing quality, alongside environmental factors such as accessibility, waste disposal and sewage management. This aligns with the findings of Akindele et al. (2025), Ilechukwu et al. (2022) and Ozabor et al. (2024), who argued that income and education are key determinants of housing satisfaction and neighbourhood quality in Nigerian cities. To be sure, the strong explanatory power of the regression model in this study demonstrates that socio-economic determinants are central to understanding residential inequalities in Kubwa.

The results also confirmed significant spatial variation in housing and environmental quality, as evidenced by the chi-square tests. Neighbourhoods with lower socio-economic status had significantly poorer infrastructure and housing conditions compared to those with higher-income residents. This finding supports the hypothesis that residential

quality in Kubwa is not evenly distributed and is shaped by socio-economic disparities. The confirmation of both hypotheses indicates that improving housing and environmental quality in Kubwa requires targeted interventions that address the socio-economic barriers faced by residents and the spatial inequalities in service provision.

6.0 Conclusion

This study investigated the socio-economic determinants of housing and environmental quality in Kubwa, Abuja. The findings showed that many residents live in low to middle-income conditions, which limits access to quality housing and basic infrastructure. Housing quality was generally fair to poor in several neighbourhoods, and environmental conditions such as drainage, waste disposal and water supply were inadequate.

There were clear spatial disparities, as low-income areas like Byazhin had the poorest housing and environmental quality, while neighbourhoods such as Phase II and PW performed better. Statistical results confirmed that socio-economic factors, particularly income and education, significantly influence housing and environmental quality. This indicates that residential conditions in Kubwa are shaped by socio-economic inequality rather than occurring by chance.

7.0 Recommendations

Based on the findings, a number of recommendations are proposed for improving housing and environmental quality in the study area.

(i) Government and planning authorities should prioritise infrastructural upgrades in low-income neighbourhoods, e.g., Byazhin, where housing and environmental conditions are most deficient. This should include the provision and maintenance of basic services like drainage, potable water, waste disposal and access roads to enhance liveability and prevent environmental hazards.

(ii) Housing policies should be more inclusive by supporting affordable housing schemes and enforcing building standards to discourage the use of substandard materials. Public-private partnerships can be encouraged to develop low-cost but durable housing, while strict monitoring should ensure compliance with planning regulations.

(iii) Socio-economic empowerment programmes are necessary to improve the income and education levels of residents, as these were found to be significant determinants of housing quality. Skills training, employment opportunities and community awareness on housing maintenance and environmental hygiene will strengthen residents' capacity to improve their living conditions.

(iv) Urban planning authorities should adopt an equity-based approach that ensures balanced development across all neighbourhoods. Regular environmental audits and targeted interventions should be implemented to reduce spatial disparities and promote inclusive urban growth.

(v) Community participation should be integrated into housing and environmental management. Engaging residents in decision-making processes will enhance local ownership, improve compliance with environmental practices and ensure that interventions meet community needs.

The recommendations directly support the United Nations SDGs, especially Goal 11 (Sustainable Cities and Communities), Goal 6 (Clean Water and Sanitation) and Goal 1 (No Poverty). Kubwa and Nigeria as a whole will be able to move towards a more inclusive, safe, resilient and sustainable urban environment, in line with the SDGs, if housing quality is enhanced and housing access is expanded, thereby mitigating the challenges of housing inequality and absence of basic amenities.

Declaration of Conflict of Interest:

The authors declare no conflict of interest.

AI Disclosure Statement: The authors declare that Artificial Intelligent (AI) was not used in creating the contents of this article.

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