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Effect of Physical Development Control Measures on Housing Quality in Gwagwalada Area Council, Abuja, Nigeria

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Abstract

Housing development in Nigeria faces several challenges, including poor quality, particularly in the country's major cities. This study examines the impact of physical development control activities on housing quality in Gwagwalada, a prominent satellite town in the Federal Capital Territory, Abuja, Nigeria. The study relied mainly on primary data, including those related to the activities of the Development Control Department of the Federal Capital Development Authority. Data on the nature of housing development were sourced from housing developers and owners in the study area, while the study assessed housing condition and quality using an evaluation checklist. The checklist included 12 indicators used to assess the Development Control Department's physical development control activities, and 366 copies of a structured questionnaire were administered to randomly selected housing developers and owners in the study area. The study found that development control activities in the study area were largely ineffective, and that housing quality in high-density neighbourhoods falls short of expectations and needs improvement. The study concludes that development control measures in the study area were generally weak and had no significant impact on the quality of housing in the study area, particularly in the high-density neighbourhoods. The study recommends, among others, the need to revitalise the DCD of the FCDA such that development control measures would have significant impact on housing quality within its areas of jurisdiction, and rejigging development control measures to improve enforcement of spatial standards and planning regulations.

Keywords: Physical Development, Control Measures, Housing Quality, Impact, Urban Growth

1.0 Introduction

The significance of housing to humanity has been stressed in the literature (Kehinde, 2010; Ajayi, 2019). It is one single investment or consumption that takes a large chunk of the income of many households the world over (Grimes, 1976; Okafor; 2016). However, despite its central role in individuals' and households' lives and its contribution to national economic development, many families and households across the country remain insufficiently sheltered and live in poor-quality housing (Ajayi, 2019). As is discernible in many other developing countries, Nigeria's housing sector is characterised by several inadequacies, challenges and problems (Gilbert, 2000; Oladapo, 2006), chiefs among which are high price/rent of housing units, poor facilities and housing environment and inadequate units (Emankhu & Ubangari, 2015; Igwe *et al.*, 2017).

Physical development control is the principal instrument physical planning authorities use to ensure housing quality by enforcing building regulations, such as observance of requisite building lines, plot coverage, setbacks, materials, and approval procedures. These planning regulations and standards, along with other aspects of building development approval processes, were designed to ensure orderly,

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safe, and habitable residential environments across Nigeria, including Abuja and its satellite towns like Gwagwalada, Kubwa, and Lugbe. In spite of the extensive provision regarding physical development control in the 1992 Urban and Regional Planning Law, the pattern of physical development control in the country is still regarded as poor, thereby rubbing off on the quality of housing development, particularly in the urban and peri-urban areas of the country (Ogbonna *et al.*, 2017; Okongwu & Imoisi, 2021; Sani, 2022).

2.0 The Study Area

The study area is Gwagwalada, a prominent satellite town within the Federal Capital Territory of Abuja, Nigeria. It is located within Longitudes 7° 4' 36.2532" and 7° 24' 29.596" East and Latitudes 8° 55' and 9°13' 35.928" North of the Equator (see Figure 1). Over the last two decades, satellite towns like Kubwa, Lugbe, and Gwagwalada have gained prominence because many residents live there; although most work in the city centre, they can hardly afford the exorbitant housing costs and rent. Gwagwalada and other satellite towns are therefore positioned as alternative settlements for low- and medium-income earners seeking affordable housing. However, to meet the housing demand of low- and sometimes medium-income earners, houses of various types, qualities, and designs are rapidly springing up in these satellite towns and suburbs, including Gwagwalada, and are sometimes built or developed without recourse to requisite physical planning provisions and development control regulations.

Gwagwalada has experienced rapid, largely unplanned housing growth as residents priced out of the city centre seek cheaper accommodation in satellite towns (Abeku *et al.*, 2016; Olokesusi *et al.*, 2018). This surge in physical development in satellite towns, including Gwagwalada, has outpaced the capacity of the development control machinery to guide it, raising concerns that much of the housing being produced may not comply with approved standards.

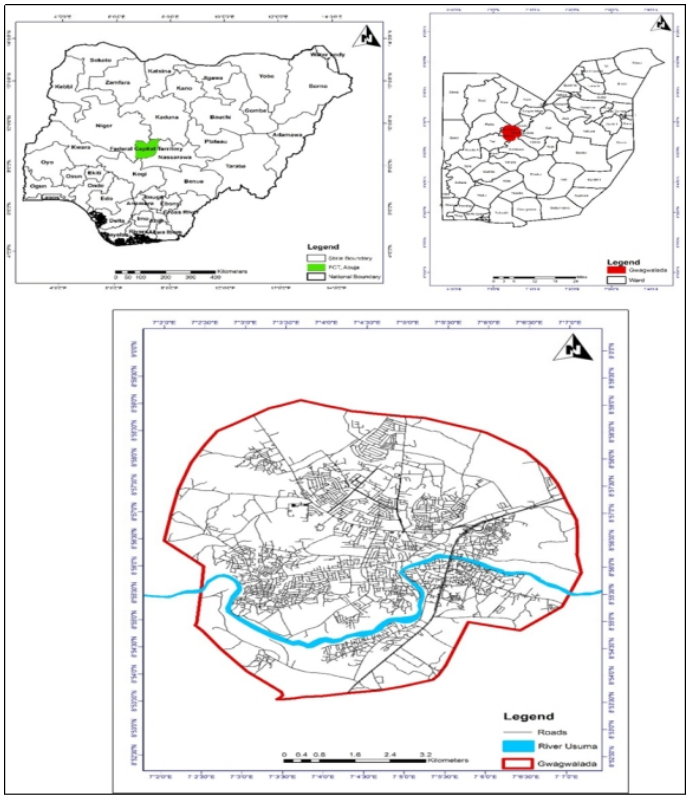


Figure 1: Gwagwalada Area in the Context of Abuja, and Nigeria

Source: As Digitised by the Authors (2023)

3.0 Review of Related Literature

The literature has given considerable attention to the meaning and nature of physical development control. The concept is generally viewed as a compendium of interrelated legal and administrative frameworks, techniques, and instruments designed to safeguard, regulate, conserve, or control land development, or part thereof, for the overriding public interest (Odekunle *et al.*, 2019). While stressing that development control aims to enhance environmental quality, improved housing conditions, free flow of traffic and privacy of occupants of housing structures, amongst others, Oduwaye (2011) asserted that development control is one of the measures applied by physical planning agencies, particularly local planning authorities, to ensure that developers do not deviate from approved building plans in the course of building operations. Similarly, development control is conceptualised as a system that regulates the use of land and buildings to prevent misuse or abuse of use and nonconforming uses (Olujimi & Fashuyi, 2004; Ogundele *et al.*, 2011; Bello *et al.*, 2016).

According to Akingbade *et al.* (2022), development control activities have been described as the functions, operations and actions carried out by professional urban planners or physical planning

agencies to regulate the physical development of human settlements in accordance with prepared and approved plans or schemes in order to ensure functional, harmonious, aesthetically pleasing, and accessible layouts. Liman (2020) contended that development control ensures the urban environment is organised and developed in an orderly manner to support robust health and sustainable development. Central to development control is the enforcement of specified building development standards meant to regulate, in an orderly manner, the planning, growth, and development of human settlements (Olujimi & Fashuyi, 2004; Adeyemi *et al.*, 2023).

The relevance of effective physical development control in cities and other settlement types cannot be overemphasised. This is particularly important for ensuring the functionality and efficiency of physical development activities in promoting public comfort, convenience, and safety, as well as the aesthetic quality of the immediate environment (Efobi & Anierobi, 2013). Physical development controls have been used with some success to ensure harmonious spatial distribution of activities in many developed countries, although their application has faced several challenges in developing countries (Tang *et al.*, 2000).

Many studies (Ifediora & Efobi, 2020; Okafor, 2020; Adeyemi *et al.*, 2023) have assessed compliance with development control regulations and standards in Nigeria. The consensus is that the haphazard nature of physical development in most cities and other urban settlements in the country reflects the failure or ineffectiveness of physical development activities. For instance, Odekunle *et al.* (2019), while assessing the nature and challenges of development control in Abeokuta, Ogun State, concluded that many housing developers either refused to submit their layout and development plans for approval or disregarded extant planning regulations while carrying out building development operations, thereby leading to mostly disjointed layouts and poorly developed neighbourhoods. Similarly, Raimi (2025) opined that development control in Akungba-Akoko, Ondo State, as in many parts of the State, was largely ineffective because the physical planning authorities responsible for development control lacked enough qualified site inspectors and sufficient tools and instruments to monitor physical development. As a result, quite a substantial proportion did not comply with building regulations and development standards.

Several authors, including Ifediora and Efobi (2020), Okafor (2020), and Adeyemi *et al.* (2023), have documented the specific challenges confronting physical development control activities in Nigeria. These include the ineffective and haphazard nature of physical development, collusion between planning authority officials and property developers that fosters non-compliance with spatial standards and planning regulations, and poor structural conditions of housing structures in the country (Yoade *et al.*, 2018; Afolabi *et al.*, 2025).

4.0 Methodology

4.1 Types and Sources of Data

The study relied mainly on primary data from housing developers and residents, particularly owner-occupiers in selected neighbourhoods in the study area. The data collected for this study include housing type, ownership status, number of rooms per housing unit, possession of a certificate of occupancy (C of O), and possession of approved building plans. These were gathered through a structured questionnaire administered to developers and owner-occupiers. Additionally, data on the condition of housing components (walls, floors, roofs, doors, and windows) and the level of compliance with physical planning standards and regulations were collected through physical observation using a development control measures assessment checklist. This checklist comprises 12 assessment indicators (see Table 1). Finally, data on housing density within the study area were gathered through discreet field observation.

4.2 Target Population and Sample Size Determination

In carrying out the study, three neighbourhoods in the study area were randomly selected for sampling, each representing a density type (low-, medium-, and high-density neighbourhoods). These neighbourhoods were Kontagora Housing Estate, Gwagwalada Extension Layout and Old Kutunku Layout. Because no official records existed on the number and types of housing in these neighbourhoods, we obtained a Google Earth map of the study area and counted the housing structures in each neighbourhood. A total of 390 housing structures were identified in Kontogora Housing Estate, 785 in Gwagwalada Extension Layout and 879 in Old Kuntunku, totalling 2054. To determine the sample size, the Krejcie & Morgan (1970) sample size tabulation procedure was adopted. Using the said Table a sample size of 333 for the study was obtained at a 95% confidence level and a margin of error of 5. However, to account for a likely low response rate, 10% (33) of the estimated sample size was added, thereby totalling 366.

4.3 Sampling Procedure

A multi-stage sampling procedure was adopted in selecting the sample for the study. First, the study area was divided into three clusters of low-, medium-,

and high-density neighbourhoods using cluster sampling. Then, one neighbourhood was randomly selected from each cluster. After randomly selecting three neighbourhoods from the study area, the systematic random sampling technique was adopted to select housing, from which owners or developers in the neighbourhoods were selected for sampling. The study assessed the Development Control Department's physical development control activities and performance in the study area using 12 performance-indicator checklists. The development control measures indicators are listed in Table 1.

Table 1: Development Control Measures Appraisal Indicators

Indicators
Enforcement of building control regulations
Regulation and inspection of building works
Certification of various stages of building construction as well as keeping such records
Removal of illegal and non-conforming buildings
Identification and removal of distressed buildings to prevent collapse
Issuance of certificate of completion and fitness for habitation
Processing and scrutinising of building plans for approval
Public enlightenment on building control and regulations
No tolerance for illegal development and building collapse
Providing advice in support of emergency services
Keeping records in relation to building and related approvals
Co-ordination with other statutory bodies to meet their requirements e.g., roads, fire safety and environmental requirements

Source: Authors' Compilation (2022)

4.4 Methods of Data Analyses

The data generated from the questionnaires and development control measurement indicators were subjected to both descriptive and inferential analytical tools such as frequency tables, percentages, standard deviation, and weighted mean, from which a relative housing quality index was derived.

5.0 Results and Discussion

5.1 Nature of Housing Development

To assess the nature of housing development in the study area, the study examined the types of housing developed, the construction materials used (particularly for walls and floors), and the number of rooms in the dwellings.

5.1.1 Types of Housing

The study revealed that 27% of housing in Old Kutunku was rooming apartments (Table 2). Gwagwalada Extension had 10% of this housing, while Kontagora Housing Estate had none. Multiple-household bungalows of 2- to 3-bedroom each represented 36% of housing in Old Kutunku neighbourhood, 23% in Gwagwalada Extension, and none in Kontagora Housing Estate. Semi-detached storey buildings of flats, also 2- or 3-bedroom, represented 13% of housing structures in Old Kutunku, 34% in Gwagwalada Extension, and 39% in Kontagora

Housing Estate. A single-family or household detached apartment constitutes 24% of housing types in Old Kutunku, 36% in Gwagwalada Extension and 61% in Kontagora Housing Estate. This pattern was more prevalent in Kontagora Housing Estate because it is a low-density neighbourhood.

Generally, across the three sampled neighbourhoods in the study area, 15% of housing developed were rooming apartments, 24% multiple-household bungalow structures, and 26% semi-detached apartments. The remaining 35% of housing developed in the study area were single-household detached apartments. It is instructive to note that the housing types developed in the sampled neighbourhoods mostly conform to those built in most Nigerian cities.

The findings on housing types align with those of Odunjo *et al*. (2025), Oladimeji (2023), and Mbazor (2018), which reported a preponderance of rooming houses and flats in many urban areas of Nigeria.

Table 2: Types of Housing in Gwagwalada

Dwelling Type	Old Kutunku	G/Extension	K/Housing Estate	Total
Rooming Housing	43 (27%)	10 (7%)	0 (0%)	53 (15%)
Multiple-households Bungalow	56 (36%)	32 (23%)	0 (0%)	88 (24%)
Semi-detached	21 (13%)	48 (34%)	27 (39%)	96 (26%)
Detached Apartment	37 (24%)	50 (36%)	42 (61%)	129 (35%)
Total	**157 (100%)**	**140 (100%)**	**69 (100%)**	**366 (100%)**

Source: Authors' Fieldwork, 2022

5.1.2 Types of Construction Materials Used

The study examined the types of materials used to construct two housing elements in the study area. These are the walls and floors. For Old Kutunku neighbourhood, 30% of the housing was constructed with either mud or mud bricks; almost all the housing in the other two neighbourhoods was built of cement blocks.

Table 3: Floor Materials Used in the Study Area

Floor Materials	K/Housing Estate	G/Expan-sion	Old Kutunku	Total
Mud	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Cement	0 (0%)	41 (29%)	93 (59%)	134 (37%)
PVC/Ceramic Tiles	69 (100%)	99 (71%)	64 (41%)	232 (63%)
Total	**69 (100%)**	**140 (100%)**	**157 (100%)**	**366 (100%)**

Source: Authors' Fieldwork, 2022

As shown in Table 3, 59% of housing in Old Kutunku had cement floors, 29% in Gwagwalada Extension, and none of the housing assessed in Kontagora Housing Estate had cement floors. The Table also shows that 41%, 71%, and 100% of housing in Old Kutunku, Gwagwalada Extension, and Kontagora Housing Estate, respectively, had floors of either PVC or ceramic tiles. This trend is not surprising, as PVC and ceramic tiles are currently in vogue as flooring materials among medium- and high-income homeowners in the country.

5.2 Housing Condition

5.2.1 Structural Soundness of Walls of Housing Structures

The study assessed the structural soundness of walls of housing structures across the three selected neighbourhoods, and the results are presented in Table 4. The Table shows that wall structures in Kontagora Housing Estate and Gwagwalada Extension were judged very good at 95.65% and 92.14%, respectively. However, the walls of housing structures in Old Kutunku, although relatively good at 66.88%, were not as good as those of the other two neighbourhoods.

Table 4 also shows that only 4.35% and 3.57% of housing structures in Kontagora Housing Estate and Gwagwalada Extension, respectively, had less than 5% cracked walls, while 18.47% of housing structures in Old Kutunku had similar walls. Another 14.65% of housing structures in Old Kutunku had between 6-10% cracked walls, while no building structures in Kontagora Housing Estate and Gwagwalada Extension had this level of cracking.

This difference between the conditions of walls of housing structures in low- and medium-density neighbourhoods and those of Old Kutunku, a high-density neighbourhood, is understandable given that house owners in the two previous neighbourhoods were relatively more affluent.

Table 4: Structural Soundness of Wall Structure

Structural Soundness	Kontagora H. Estate	G/Expansion	Old Kutunku
Very Sound	66 (95.65%)	129 (92.14%)	105 (66.88%)
Less than 5% Wall Cracks	3 (4.35%)	5 (3.57%)	29 (18.47%)
6-10% Wall Cracks	0 (0.00%)	6 (4.29%)	23 (14.65%)
11-15% Wall Cracks	0 (0.0%)	0 (0.0%)	0 (0.0%)
Above 15% Wall Cracks	0 (0.0%)	0 (0%)	0 (0.0%)

Source: Authors' Fieldwork, 2022

5.2.2 Conditions of Roofs

The study also examined roof conditions in the study area. Table 5 shows that 77%, 29%, and 15% of housing in Kontagora Housing Estate, Gwagwalada Extension, and Old Kutunku, respectively, had intact roofs. The Table further shows that 23% of housing structures in Kontagora Housing Estate, 41% in Gwagwalada Extension, and 48% in Old Kutunku had signs of rusting roofs. However, while 23% of housing in Old Kutunku and 24% in Gwagwalada Extension had rusted or leaking roofs, none in Kontagora Housing Estate did. This revealed that, like the walls, housing in Kontagora Housing Estate had better roofs than those in other neighbourhoods of the study area.

The findings on housing conditions, particularly roofs and walls, contrasted with those of Yoade et al. (2018) and Afolabi et al. (2025), which rated such conditions in Ibadan, Oyo State, and Ede, Osun State, respectively, as fair and poor. This is understandable, however, given that Ibadan and Ede are ancient cities compared with Abuja and its satellite towns, which were planned. Findings on the relative structural soundness of housing, however, align with those of Bello & Egresi (2017), which reported a relative structural soundness of housing in Kano, Nigeria.

Table 5: Condition of Roofs in the Study Area

Roof Condition	Old Kutunku	G/Extension	Kontagora Es-tate	Total
Intact	24 (15%)	41 (29%)	53 (77%)	118 (32%)
Sign of rusting	75 (48%)	58 (41%)	16 (23%)	149 (41%)
Rusted/Leaking	36 (23%)	34 (24%)	0 (%)	70 (19%)
Loose/Open	18 (11%)	7 (5%)	0 (0%)	25 (7%)
Partly Blown off	4 (3%)	0 (0%)	0 (0%)	4 (1%)
Total	**157 (100%)**	**140 (100%)**	**69 (100%)**	**366 (100%)**

Source: Authors' Fieldwork, 2022

5.3 Compliance with Development Control Measures

The study assessed house owners' compliance with three development control measures in the study areas: possession of approved development plans (development permits), compliance with spatial standards, and compliance with planning regulations.

5.3.1 Possession of Approved Development Plans

Table 6 shows the possession of approved development permits by house owners in the study area. The Table shows that while all house owners in Kontagora Housing Estate possessed approved development permits, the proportions in Gwagwalada Extension and Old Kutunku were 94.29% and 88.41%, respectively.

Table 6: Possession of Approved Development Permit

Possession of Approval	Frequency	Percentage (%)
Kontagora Housing Estate	157	100.0
Gwagwalada Extension	132	94.29
Old Kutunku	61	88.41

Source: Authors' Fieldwork, 2022

5.3.2 Compliance with Spatial Standards in Building Operations

The approved plot coverage for low-, medium- and high-density neighbourhoods in the FCT, including Gwagwalada, is 40%, 50%, and 60%, respectively. Similarly, the approved standard setbacks of 6 metres for the front and 3 metres for both sides and the rear, respectively, are obtainable in the FCT. Therefore, the study assessed the levels of compliance with these spatial standards by homeowners and housing developers in the study area, and the results are shown in Table 7. The Table shows that 84.06% of housing in Kontagora Housing Estate fully complied with the required plot coverage standard, while 77.86% and 46.50% of housing in Gwagwalada Extension and Old Kutunku, respectively, complied with the same. This pattern shows higher compliance in both Kontagora Housing Estate and Gwagwalada Extension, but a below-average level of 46.50% in Old Kutunku.

For setback compliance, the Table shows that 92.76% of housing in Kontagora Housing Estate fully complied with the front setback, while the proportions that complied in Gwagwalada Extension and Old Kutunku were 87.86% and 56.05%, respectively. Similarly, while 86.96% of housing developed in Kontagora Housing Estate complied with the side setbacks, 77.86% and 50.32% complied in Gwagwalada Extension and Old Kutunku, respectively. A total of 88.41% of housing structures in Kontagora Estate complied with the 3 m rear setback, while 73.57% and 51.59% complied in Gwagwalada Extension and Old Kutunku, respectively.

The Table thus shows that while compliance with spatial standards was relatively good in both Kontagora Housing Estate and Gwagwalada Extension, it was relatively average in Old Kutunku. This pattern aligns with compliance with spatial standards in both relatively lower-density and high-density neighbourhoods across the country.

Table 7: Compliance with Spatial Standards

Wall Condition	K/Housing Estate	Gwagwalada Extension	Old Kutunku
Plot Coverage	58 (84.06%)	109 (77.86%)	73 (46.50%)
Front Setback	64 (92.76%)	123 (87.86%)	88 (56.05%)
Side Setbacks	60 (86.96%)	109 (77.86%)	79 (50.32%)
Rear Setback	61 (88.41%)	103 (73.57%)	81 (51.59%)

Source: Authors' Fieldwork, 2022

5.3.3 Compliance with Building Regulations

The study also assessed compliance with building regulations, including minimum building height, minimum room size, adequate cross-ventilation, adequate lighting, and appropriate thermal comfort, in selected neighbourhoods of the study area. Table 8 presents the results of the various assessments. The Table shows that all sampled houses in both Kontagora Housing Estate and Gwagwalada Extension fully complied with the approved minimum building height, and 91.09% in Old Kutunku. Similarly, all housing structures sampled in Kontagora Housing Estate and Gwagwalada Extension fully complied with the recommended minimum room size, while 81.53% complied in Old Kutunku. While significant proportions of housing structures in Kontagora Housing Estate, Gwagwalada Extension, and Old Kutunku met the required level of cross-ventilation (89.86%, 86.43%, and 79.62%, respectively), a small proportion did not. The same pattern of compliance levels was observed for adequate lighting and thermal comfort in all three sampled neighbourhoods, with Kontagora Housing Estate recording 95.65% and 100.00% compliance for adequate lighting and thermal comfort, respectively. In contrast, compliance was slightly lower in both Gwagwalada Extension and Old Kutunku, with 95.0% and 93.57% and 85.51% and 87.90%, respectively, for both planning regulations.

The results of this study regarding the relatively good level of compliance with spatial standards and planning regulations contrasted with the findings of several others, including Ifediora and Efobi (2020), Okafor (2020), and Adeyemi *et al.* 2023), which all reported the widespread haphazard nature of physical development in many cities in the country.

Table 8: Level of Compliance with Planning Regulations

Floor Condition	Kontagora Housing Estate	Gwagwalada Expansion	Old Kutunku
Minimum Building Height	69 (100.0%)	140 (100.0%)	143 (91.09%)
Minimum Room Size	69 (100.0%)	140 (100.0%)	128 (81.53%)
Adequate Cross-Ventilation	62 (89.86%)	121 (86.43%)	125 (79.62%)
Adequate Lighting	66 (95.65%)	133 (95.0%)	59 (85.51%)
Thermal Comfort	157 (100.0%)	131 (93.57%)	138 (87.90%)

Source: Authors' Fieldwork, 2022

5.4 Appraisal of Physical Development Measures

The study appraised physical development control measures by housing developers in each sampled neighbourhood. Table 9 shows the results for Kontagora Housing Estate. The Table shows that the Development Control Department performed poorly in carrying out development control. However, this poor performance was not across all 12 assessment indicators. The DCD performed fairly (moderately) in 4 of the 12 assessment indicators, and between poor and very poor in others.

Table 9: Development Control Measures in Kontagora Housing Estate

Development Control Measures	Mean Weight	Mean	Remark
Enforcement of building control regulations	424	2.70	Moderate
Regulation and inspection of building works	460	2.93	Moderate
Certification of various stages of building construction as well as keeping of such records	187	1.19	Very Poor
Removal of illegal and non-conforming buildings	363	2.31	Poor
Identification and removal of distressed buildings to prevent collapse	215	1.37	Very Poor
Issuance of certificate of completion and fitness for habitation	173	1.10	Very Poor
Processing and scrutinising building plans for approval	473	3.01	Moderate
Public enlightenment on building control and regulations	192	1.22	Very Poor
Lack of tolerance to illegal development and building collapse	275	1.75	Poor
Providing advice in support of emergency services	160	1.02	Very Poor
Keeping records in relation to building and related approvals	413	2.63	Moderate
Co-ordination with other statutory bodies to meet their requirements, e.g., roads, fire safety, and environmental requirements	154	1.00	Very Poor
	3567	**1.89**	**Poor**

Note: 0.00-1.49 = Very Poor (VP); 1.50-2.49 =Poor (P); 2.50-3.49=Moderate; 3.50-4.49= Good;

4.50-5.00= Excellent

Source: Authors' Fieldwork (2022).

Table 10 presents the results of the assessment of development control measures for Gwagwalada Extension Layout. The Table indicates a development control measures performance index of 2.13, which implies poor performance. However, the performance varied noticeably across the indicators. As shown in the Table, the measures performed averagely (moderately) in 6 of the 12 indicators, with performance indices of between 2.63 and 3.47. However, the remaining 6 development control measure indicators performed very poorly, with performance indices between 1.05 and 1.44 across the neighbourhood.

Table 10: Development Control Measures in Gwagwalada Extension Layout

Development Control Measures	Mean Weight	Mean	Remark
Enforcement of building control regulations	448	3.20	Moderate
Regulation and inspection of building works	368	2.63	Moderate
Certification of various stages of building construction as well as keeping of such records	186	1.33	Very Poor
Removal of illegal and non-conforming buildings	468	3.34	Moderate
Identification and removal of distressed buildings to prevent collapse	202	1.44	Very Poor
Issuance of certificate of completion and fitness for habitation	147	1.05	Very Poor
Processing and scrutinising building plans for approval	486	3.47	Moderate
Public enlightenment on building control and regulations	178	1.27	Very Poor
Lack of tolerance for illegal development and building collapse	351	2.51	Moderate
Providing advice in support of emergency services	195	1.39	Very Poor
Keeping records in relation to building and related approvals	368	2.63	Moderate
Co-ordination with other statutory bodies to meet their requirements, e.g., roads, fire safety and environmental requirements	183	1.31	Very Poor
	3580	**2.13**	**Poor**

Note: 0.00-1.49 = Very Poor (VP); 1.50-2.49 =Poor (P); 2.50-3.49=Moderate; 3.50-4.49= Good; 4.50-5.00= Excellent

Source: Authors' Fieldwork (2022).

Table 11 presents the assessment results for Old Kutunku, a high-density neighbourhood. The Table shows that the Development Control Department's performance in Old Kutunku was judged generally poor (2.32), although there was discernible variation across indicators, from very poor to good. The indicators were rated good in 2, moderate in 4, and poor and very poor in 3 each.

This study's findings on the relatively poor state of

development control activities in the study area align with several others, including Ogbonna *et al.* (2017), Okongwu and Imiosi (2021), Sani (2022), and Ozioma and Imbufe (2023).

Table 11: Development Control Measures in Old Kutunku

Development Control Measures	Mean Weight	Mean	Remark
Enforcement of building control regulations	199	2.89	Moderate
Regulation and inspection of building works	201	2.91	Moderate
Certification of various stages of building construction as well as keeping of such records	101	1.47	Very Poor
Removal of illegal and non-conforming buildings	242	3.51	Good
Identification and removal of distressed buildings to prevent collapse	122	1.77	Poor
Issuance of certificate of completion and fitness for habitation	89	1.29	Very Poor
Processing and scrutinising of building plans for approval	254	3.68	Good
Public enlightenment on building control and regulations	83	1.20	Very Poor
Lack of tolerance to illegal development and building collapse	222	3.22	Moderate
Providing advice in support of emergency services	104	1.51	Poor
Keeping of records in relation to building and related approval	235	3.41	Moderate
Co-ordination with other statutory bodies to meet their requirements e.g., roads, fire safety and environmental requirements	115	1.66	Poor
	1968	**2.38**	**Poor**

Note: 0.00-1.49 = Very Poor (VP); 1.50-2.49 =Poor (P); 2.50-3.49=Moderate; 3.50-4.49= Good; 4.50-5.00= Excellent

Source: Authors' Fieldwork (2022).

5.5 Impact of the Physical Development Control Measures on Housing Quality

Having examined the types and conditions of housing, including its structural conditions, the level of compliance with spatial standards and planning regulations, as well as the physical development control measures, it became necessary to first develop a housing quality index to enable the assessment of development control impact on housing quality in the study area.

5.5.1 Housing Quality Index by Sub-Indicator, Dimension and Composite

A Housing Quality Index (HQI) was constructed in three stages, on a 0 to 1 scale, from the level of compliance data reported in Tables 6, 7, 8 and 4. Each sub-indicator index is the compliance proportion

recorded for that item (its compliance percentage divided by 100). Each dimension index is the simple average of the sub-indicator indices within it, and the composite index is the equal-weight average of the four-dimension indices. A value of 1.00 denotes full compliance, and 0.00 denotes no compliance.

Kontagora Housing Estate recorded the highest composite index (0.9533), indicating the highest level of compliance with spatial standards and planning regulations, followed by Gwagwalada Extension (0.9018) and Old Kutunku (0.7319). These indices mirror the pattern observed for the individual compliance measures in Tables 6, 7 and 8, and reflect Kontagora Housing Estate's lower housing density and generally better-resourced building stock relative to the older, high-density Old Kutunku neighbourhood. Across all three neighbourhoods, spatial standards compliance is the weakest dimension, driven mainly by plot coverage and rear setback violations, while planning regulations (building height, room size, ventilation, lighting, and thermal comfort) are the strongest. Structural soundness is markedly lower in Old Kutunku (0.6812) than in the other two neighbourhoods, consistent with the wall-condition results reported in Table 4.

Table 12: Composite Housing Quality Index from the Four Equally Weighted Compliance Dimensions

Dimension (weight 25% each)	Kontagora Estate	G/Extension	Old Kutunku
Permit Possession	1.0000	0.9429	0.8841
Spatial Standards	0.8805	0.7929	0.5112
Planning Regulations	0.9710	0.9500	0.8513
Structural Soundness	0.9618	0.9214	0.6812
COMPOSITE HQI	**0.9533**	**0.9018**	**0.7319**
Rank	**1**	**2**	**3**

Source: Authors' Analysis (2023).

5.5.2 Development Control Activities Index (DCAI) by Sub-indicator and Composite

To allow direct comparison with the Housing Quality Index, a Development Control Activities Index (DCAI) was constructed on the same 0 to 1 scale, using the twelve development control performance indicators assessed by housing developers in each neighbourhood on a 1 to 5 scale (Tables 9, 10 and 11). Each sub-indicator index is the mean score for that item divided by 5, its maximum possible value. The composite DCAI for each neighbourhood is the simple average of the twelve sub-indicator indices. A value of 1.00 denotes excellent performance across all measures, and 0.00 denotes a complete absence of development control activity.

Old Kutunku recorded the highest composite DCAI (0.4753), followed by Gwagwalada Extension (0.4262) and Kontagora Housing Estate (0.3705). All three composite values remain below 0.50, confirming the study's earlier finding that development control activities in Gwagwalada Area Council were largely ineffective. Even so, the intensity of development control activity is not uniform: it is markedly higher in Old Kutunku, the high-density neighbourhood with the weakest housing quality, than in Kontagora Housing Estate, the low-density neighbourhood with the strongest housing quality. Sub-indicators such as removal of illegal and non-conforming buildings,

tolerance to illegal development and building collapse, and processing of building plans accounted for most of this gap, while indicators such as public enlightenment, issuance of completion certificates and advice in support of emergency services remain weak in all three neighbourhoods.

Table 13: Sub-indicator Development Control Measures Index (DCAI) by Neighbourhood

Sub-indicator	Kontagora Estate	Gwagwalada Extension	Old Kutunku
Enforcement of building control regulations	0.54	0.64	0.578
Regulation and inspection of building works	0.586	0.526	0.582
Certification of building stages/record keeping	0.238	0.266	0.294
Removal of illegal and non-conforming buildings	0.462	0.668	0.702
Identification/removal of distressed buildings	0.274	0.288	0.354
Issuance of certificate of completion & fitness	0.22	0.21	0.258
Processing and scrutinising of building plans	0.602	0.694	0.736
Public enlightenment on building control	0.244	0.254	0.24
Tolerance to illegal development & building collapse	0.35	0.502	0.644
Advice in support of emergency services	0.204	0.278	0.302
Keeping of records on building/related approval	0.526	0.526	0.682
Co-ordination with other statutory bodies	0.2	0.262	0.332
COMPOSITE DCAI	**0.3705**	**0.4262**	**0.4753**
Rank (performance)	**3**	**2**	**1**

Source: Authors' Analysis (2023).

5.5.3 Relationship between Housing Quality Index and Development Control Activities Index

To examine the relationship between the two indices, the composite Housing Quality Index for each neighbourhood (Table 12) was paired with its composite Development Control Measures Index (Table 13). Both indices are expressed on the same 0 to 1 scale, so the relationship can be assessed directly without further transformation. Table 14 presents the two parameters.

Table 14: Housing Quality Index and Development Control Activities Index by Neighbourhood

Area	Housing Quality Index, HQI (0-1)	Development Control Measures Index, DCAI (0-1)
Kontagora Housing Estate	0.9533	0.3705
Gwagwalada Extension	0.9018	0.4262
Old Kutunku	0.7319	0.4753

Source: Authors' Analysis (2023).

A Pearson correlation of r = -0.944 (r^2 = 0.892) indicates a very strong negative association between HQI and DCAI, and the Spearman coefficient of ρ = -1.000 confirms a perfectly inverse ranking: the neighbourhood with the highest housing quality (Kontagora Housing Estate) recorded the lowest DCAI, while the neighbourhood with the lowest housing quality (Old Kutunku) recorded the highest DCAI. With only three neighbourhoods (n = 3), the Pearson coefficient is not statistically significant at the conventional 5% level (two-tailed p = 0.213), so the strength of the association, though large, should be treated as indicative rather than conclusive.

As with the earlier DCD composite comparison, this negative sign should not be read as evidence that development control activity lowers housing quality, which would be implausible. The more credible explanation is that development control effort is directed towards the neighbourhoods that already exhibit the greatest housing problems. Old Kutunku, with the weakest housing quality, attracted the most intensive control activity precisely because its deficiencies demanded attention, whereas Kontagora Housing Estate, already substantially compliant, required comparatively less active intervention. The relationship therefore reflects where enforcement effort was deployed rather than the effect of that effort on quality and is consistent with the broader finding that development control measures in the study area were largely ineffective.

Table 15: Correlation and Regression Statistics for HQI Against DCAI (n = 3)

Statistic	Value
Pearson correlation coefficient (r)	-0.944
Coefficient of determination (r^2)	0.892
Significance (p-value, two-tailed)	0.213
Spearman rank correlation (ρ)	-1.000
Regression: HQI = 1.747 – 2.086 × DCAI	R^2 = 0.892

Source: Authors' Analysis (2023).

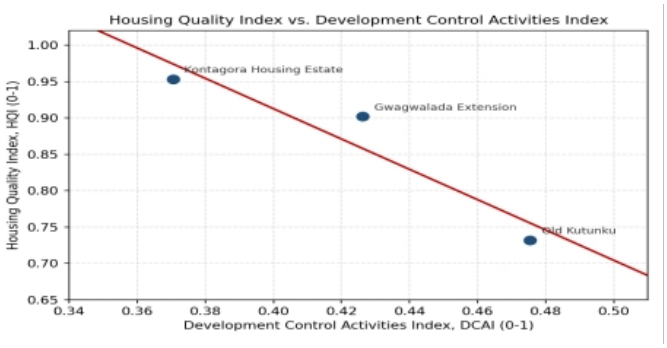


Figure 2: Scatter Plot of Housing Quality Index against Development Control Measures Index, with Fitted Line

Source: Authors' Analysis (2023).

Tables 12 to 15 show that housing quality in Gwagwalada Area Council varied systematically with neighbourhood characteristics, and that the intensity of development control activity, as captured by the DCAI, is highest precisely where housing quality is weakest. This pattern is consistent with a reactive, complaint- and problem-driven model of development control enforcement, rather than one in which proactive, preventive control activity is sustained uniformly across neighbourhoods regardless of the compliance level already achieved.

6.0 Conclusion and Recommendations

Having examined and assessed the types of and conditions of housing components, level of compliance with spatial standards and planning regulations and the development control measures of the DCD of the FCDA and the conditions of the housing components in Gwagwalada Area Council of Abuja, Nigeria, this study concludes that the development control measures in the study area were generally weak and had no significant impact on the quality of housing in the study area, particularly in the high-density neighbourhood. Although housing quality in the low- and medium-density neighbourhoods was regarded as relatively good, this quality cannot be attributed to the development control measures in the study area. The study, therefore, concludes that other factors not considered in the study may be responsible for the quality of housing in the Gwagwalada Area Council of Abuja, Nigeria.

This study therefore recommends that the DCD of the FCDA be revitalised to have a significant impact on housing quality within its jurisdiction. Development control measures that need to be particularly re-jigged include enforcement of spatial standards and planning regulations. Also requiring improved attention are development control measures such as certification at various stages of the building construction process, public enlightenment on building control and regulations, and intolerance of illegal development.

References

Abeku, D. M., Salihu, C., & Kure, M. A. (2016). Housing deficit, urban migration and slum development in Abuja, Nigeria. *International Journal of Economic Development Research and Investment,* 7(1), 39-50.

Adeyemi, S. A., Popoola, A. S., Onifade, V. A., & Jimoh, H. (2023). Residents' compliance with physical planning standards and regulations across residential zones of Osogbo, Osun State. *Federal University Oye Ekiti Planning Journal*, 1(1), 84-104.

Afolabi, O. T., Adeleke, F. G., Ogunbiyi, J. O., & Alabi, A. M. (2025). Housing conditions assessment and the critical implications for poor urban neighbourhoods in Ibadan, Nigeria. *Journal of Nigerian Institution of Estate Surveyors and Valuers,* 46 (1), 128-140.

Ajayi, S. I. (2019). Addressing housing deficit in Nigeria: Issues, challenges and prospects. Central Bank of Nigeria's *Economic and Financial Review,* 57(4), 223-237.

Akingbade, A. O., Olaiya, R. O., & Olabamiji, A. E. (2022). Building Compliance to Road Setback in Urban Area of Ile-Ife, Osun State, Nigeria: from Remotely Sensed Data. *Journal of Geospatial Science and Technology*, *3*(1), 13-22.

Bello, A., & Egresi, I. (2017). Housing conditions in Kano, Nigeria: A qualitative assessment of adequacy. *Analele Universităţiii din Oradea, Seriaa Geografie*, 2, 205-229.

Bello, I. K., Sodiya, A. K., & Solanke, P. A. (2016). Public land acquisition and land use change problems in Ogun State. *International Journal of Management Science and Business Administration*, 2(8), 34-41.

Efobi, K., & Anierobi, C. (2013). Public participation in development control activities in Awka city, Anambra State, Nigeria. *European Journal of Business and Management*, 5(29), 116-120.

Emankhu, S. E., & Ubangari, A. Y. (2015). The nature of peri-urban development in Lafia, Nasarawa State. *International Journal of Geography and Regional Planning Research*, 1(3), 1-8.

Gilbert, A. (2000). Housing in third world cities:

Critical issues. *Geography,* 85(2), 145-155.

Grimes, O. F. (1976). *Housing for low-income urban families economics and policy in the developing world*. Baltimore, London: The Johns Hopkins University Press.

Ifediora, C., & Efobi, D. (2020). The built environment and urban development issues: an assessment of development control challenges of private real estate projects in Ajegunle Oyo, Oyo State. *African Journal of Environmental Research*, *2*(1), 195-209.

Igwe, P. U., Okeke, C. A., Onwurah, K. O., Nwafor, D. C., & Umeh, C. N (2017). A review of housing problems. *International Journal of Environment, Agriculture and Biotechnology,* 2(6), 3092-3099.

Kehinde, F. (2010). Housing policy and development in Nigeria. In Omotoso, F., Agagu, A. A. and Abegunde, O. (eds.) *Governance, Politics and Policies in Nigeria*. Port Novo, Editions Sonoud' Afrique.

Krejcie, R. V., & Morgan, D.W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30, 607-610.

Liman, A. (2020). Assessment of development control enforcement in Girei township, Adamaw State, Nigeria, *FUTY Journal of the Environment,* 14(3), 9-19.

Mbazor, D. N. (2018). Assessment of housing quality and environmental conditions in selected areas of Akure, Nigeria. *International Journal of Development and Sustainability*, 7(3), 1049-1061.

Odekunle J. F., Akindele, D. B., & Adebayo G. O. (2019). The problems and challenges of development control in Abeokuta-West zonal planning area, Ogun State, Nigeria. *Africa Journal of Economics and Sustainable Development,* 2(1), 9-27.

Odunjo, O. O., Okanlawon, S. A., Onigbogi, O. O., Akangbe, O. O., & Idowu-Owosekun, O. A (2025). Assessment of housing typologies and factors influencing provider choice of typology in urban Abuja. *Global Journal of Arts, Humanities and Social Sciences*, 13(7),72-87.

Oduwaye, L. (2011). Development control in Lagos State: An assessment of public compliance to space standards for urban development. *International Multidisciplinary Journal*, 5(5), 169-184.

Ogbonna C. G., Obinka, A. N., & Aguguo, G. U. (2017). Property development and land use planning regulations in Nigeria. *International Journal of Environment, Agriculture and Biotechnology,* 2(4), 1694-1707.

Ogundele, F. O., Ayo, O., Odewumi, S. G., & Aigbe, G. O. (2011). Challenges and prospects of physical development control: A case study of Festac Town, Lagos, Nigeria. *African Journal of Political Science and International Relations,* 5(4), 174-178.

Okafor, B. N. (2016). The residential housing problem in Anambra State: A case study of Onitsha metropolis. *International Journal of Civil Engineering, Construction and Estate Management*, 4 (2), 1-18.

Okafor, B. N. (2020). Environmental implications of non-compliance with road setbacks standards in the Awka capital territory. *International Journal for Innovative Research in Multidisciplinary Field*, *6*(9), 33-38.

Okongwu, C. J., & Imoisi, E. S. (2021). Planning law as a tool for sustainable development in Nigeria. *African Journal of Law and Human Rights*, 5(2), 107-122.

Oladapo, A. A. (2006). A study of tenants' maintenance awareness, responsibility and satisfaction in institutional housing in Nigeria. *International Journal of Strategic Property Management*, 10(4), 217-231.

Olokesusi, F., Aiyegbajeje, F. O., & Arije, I. M. (2018). Smart metropolitan regional development of Abuja and its region. In *Smart Metropolitan Regional Development: Economic and Spatial Design Strategies* (pp. 797-825). Singapore: Springer Singapore.

Olujimi, J. A. B., & Fashuyi, O. S. (2004). Anatomy of illegal structures in Akure metropolis, Ondo State. *Journal of Nigerian Institute of Town Planners,* 17, 79–96.

Ozioma, A. N., & Imbufe, I. F. (2023). Assessment of development control enforcement in Uyo Urban, Nigeria. *Port Harcourt Journal of Society and Environment*, 1(1), 152-163.

Raimi, F. A. (2025). Development control practice and its implications on urban physical environmental quality of Akungba-Akoko, Ondo State, Nigeria. *FUOYE Planning Journal,* 3(2), 22-44.

Sani, M. (2022). A review of the Nigerian urban and regional planning law, cap. 138 LFN of 2004. *Town and Regional Planning,* 80, 77-87.

Tang, B. S., Choy, L. H., & Wat, J. K. (2000). Certainty and discretion in planning control: a case study of office development in Hong Kong. *Urban Studies*, 37(13), 2465-2483.

Yoade, A., Adeyemi, O., & Yoade, O. (2018). Assessment of housing quality in Ede, Nigeria. *Asian Themes in Social Sciences*, 1(2), 76–83.