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Effectiveness Of Development Control Strategies In Residential Layouts Of Bauchi Urban Area

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ABSTRACT

Improper monitoring of physical developmental activities in Bauchi metropolis has led to disorderly and uncontrolled physical development, with associated challenges such as housing problems and environmental degradation. This study assessed the effectiveness of development control strategies in DP21 and DP23 residential layouts of Bauchi Urban Area, focusing on the level of compliance by developers. A mixed-method research design combining field observation and a structured questionnaire was adopted. The sample frame comprised all plots (developed and undeveloped) in the two layouts and staff of the Bauchi State Physical Planning and Development Control Board (BSPPDCB), yielding a total sample size of 553 respondents/units, of which 551 were developed plots. Data were analyzed descriptively using percentages, mean ranking and mode/frequency distribution. Findings show that while a high proportion of developers possess land title (77.4% in DP21 and 76.5% in DP23), compliance with building plan submission, development permit acquisition, plot coverage, and building height regulations remained low, with an overall mean effectiveness score of 2.58, indicating that development control strategies in the study area are largely ineffective. The most critical challenge identified was non-adherence to plot coverage regulation (82.2%), followed by non-compliance with building height regulation (77.3%), lack of development permit (67.3%) and non-submission of building plans (65.5%). These shortcomings were attributed to inadequate monitoring, weak enforcement, insufficient human resources at the Board, and low public awareness among developers. The study recommends the adoption of modern information techniques (e.g., a computerized planning portal) for development control, increased public participation and awareness campaigns, strict enforcement of existing regulations, adequate mobility and staffing support for the planning authority, and stronger political will to sustain development control activities in the study area.

Keywords: Development control; Compliance; Residential layout; Bauchi Urban Area; Planning enforcement; Physical development

1.0 INTRODUCTION

1.1 Background of the Study

Physical planning is a prerequisite for sustainable urban development. Urban areas globally face mounting pressure from rapid population growth against a backdrop of scarce resources for effective management. The world population stood at over eight billion people in 2022, with urban areas

accounting for nearly 4.45 billion, or over half of the global population (UN-DESA, 2022). This proportion is projected to rise to 68% by 2050, with the fastest growth expected in Asia and Africa.

In much of the developing world, land users often carry out development activities without planning approval or adherence to planning standards, thereby contravening existing planning laws relating to development control (Aluko, 2011). Problems associated with weak development control range from non-compliance with planning laws and building approval procedures to the non-acquisition of development permits and the proliferation of substandard housing. Development control is therefore essential to ensure that the urban environment is organized and developed in an orderly manner that supports robust and sustainable development (Arimah and Adeagbo, 2010), while also curbing excessive or incompatible land-use activities (Ibrahim and Emmanuel, 2014).

Several scholars (Olotuah, 2010; Kawu, Ahmed and Usman, 2012; Vivian, Kyom and Balasom, 2013) have advocated for strengthening the effectiveness of development control through better legal enforcement, while noting that this requires the combined efforts of government and citizens (Efobi and Anierobi, 2013). Since development activities are ultimately planned for the welfare of the people, public awareness and involvement are fundamental to securing compliance with development control regulations.

1.2 Statement of the Problem

A visual survey of major areas within Bauchi urban area reveals numerous buildings erected without planning permission, a trend that has become a major source of concern for the built-environment authorities. In an era that emphasizes participatory approaches to urban planning, the concerns of the public regarding development control cannot be ignored.

Previous studies on development control (e.g., Ikpahwore, Galadima and Bello, 2023; Abdullahi, Sinniah and Siong, 2019; Odekunle, Akindele and Adebayo, 2019) have examined regulatory implementation, procedural and compliance challenges, and institutional capacity issues, but most were conducted outside Bauchi, and where Bauchi has been studied, none has specifically focused on the DP21 and DP23 residential layouts. DP21 and DP23 exhibit numerous development control contraventions, including construction without development permits and disregard for stop-work notices (Bani, 2017), despite evidence that the Physical Planning Board has attempted to intervene, as seen from contravention markings on some structures. This study therefore addresses the gap created by the scarcity of research specifically targeting development control effectiveness in DP21 and DP23.

1.3 Research Questions

i. What are the development control strategies applied in the study area?
ii. How effective are these development control strategies in the study area?
iii. What are the challenges confronting development control strategies in the study area?

1.4 Aim

The aim of this study is to assess the effectiveness of development control strategies in DP21 and DP23 residential layouts of Bauchi urban area, with a view to proffering solutions for sustainable physical development in the study area.

1.5 Objectives

i. To identify the strategies used for development control in Bauchi metropolis.
ii. To assess the effectiveness of development control strategies used in the study area.
iii. To examine the challenges of development control strategies used in the study area.
iv. To propose effective ways of addressing the development control challenges identified in the study area.

2.0 LITERATURE REVIEW

2.1 Concept of Development Control

Land use, or physical development, embraces all human activities in relation to land, including agricultural, forestry, residential, industrial, and commercial uses (Adrill, 1974). McLoughlin (1973) defined development control as a legislated process that regulates physical development, serves as a

vehicle for implementing planning policies, and prohibits unauthorized development and incompatible land uses. The United Nations (2008) similarly describes development control as the process of managing structural changes to land use and intensity in a manner that does not adversely affect the environment.

2.2 Purpose and Relevance of Development Control

According to James (2007), the purpose of development control is to promote good health and general welfare by ensuring the harmonious location of land uses, protecting the natural environment from encroachment into ecologically sensitive zones, and ensuring physical efficiency through organised circulatory systems. Leonard (1987) further notes that development control facilitates appropriate development, protects public interest from inappropriate development, and ensures compliance with building codes and approved plans, thereby underscoring its centrality to sound planning practice.

2.3 Effectiveness of Development Control

The Scottish Government (2001) observes that effective, efficient and consistent development control decisions are contingent on the availability of a relevant and up-to-date development plan; without this, development control services are frustrated. Abugtane (2015) affirms that the development plan is the basic tool for controlling physical development, since applicants, investors, decision-makers and the public require certainty about permissible development types, locations and standards. Where such plans are absent or outdated, the effectiveness of development control is adversely affected.

2.4 Development Control Strategies

Development control strategies are the plans, rules and tools used by planning authorities to manage land use, building size and construction, and typically include land-use planning, zoning, building codes and density/coverage limits intended to ensure safety, orderliness and a clean environment. Key strategies reviewed for this study are summarized in Table 1 below.

Table 1: Summary of Development Control Concepts Reviewed

Strategy	Summary of Concept
Land-use Planning	Scientific and orderly disposition of land resources and infrastructure to secure physical, economic and social efficiency and community well-being (Agbola, 2004).
Urban Master Plan	A city-wide planning system guiding growth; found to have limited impact in fast-growing developing-country cities due to dynamic population growth (Awogbemi, 1997; Koenigsberger, 1982).
Development Control Tools	Instruments (zoning, subdivision, building control) that implement land-use policy and protect public interest measures such as health, safety and environmental quality.
Zoning	Regulatory tool restricting permitted land use (residential, commercial, industrial, mixed) and controlling density, height and land coverage within designated zones.
Land Subdivision	Regulation governing the conversion of raw land into building plots, controlling density, configuration and layout of new development (Sarki, 2013).
Building Control / Codes	Regulations governing design, construction, alteration and maintenance of structures to safeguard health, safety and welfare of occupants.
Planning Standards	Prescriptive and regulatory benchmarks (mandatory and discretionary) used to guide site and spatial development decisions (Aluko, 2011).
Building Plan	Technical drawings and documents depicting proposed design and construction features, used by authorities to verify conformity with standards (Carmona et al., 2010).
Building Permit	Official approval authorizing construction, allowing government review of proposed developments against planning, safety and land-use standards.
Land Coverage	Proportion of a plot occupied by building footprint, expressed as a percentage of total plot area; regulates space left for setbacks, drainage and landscaping.
Building Lines	Minimum distance a building must be set back from a road or boundary, ensuring uniformity in the spatial organization of structures along streets.

Source: Synthesized by the author from reviewed literature (2026).

Collectively, the reviewed literature establishes that while the conceptual and legal foundations of development control are well developed, its practical effectiveness in Nigerian cities including Bauchi is frequently undermined by weak enforcement capacity, inadequate up-to-date development plans, and low levels of public compliance, which together constitute the empirical gap this study addresses.

3.0 RESEARCH METHODOLOGY

3.1 Study Area

The study covers DP21 and DP23 residential layouts of Bauchi Urban Area, Bauchi State, Nigeria. DP21 is located within latitude 10°17'30" N and longitude 9°49'30" E, approximately 1 km south of the Central Business District (CBD) of Bauchi metropolis, covering a land area of about 0.510 km². The layout hosts social amenities including Blue Bird Elementary/High School, Sure Nursery and Primary School, and Hajiya Hafsat Matori Memorial School. DP23 residential layout lies in the eastern part of Bauchi Urban Area, within latitude 10°20'30" N and longitude 9°51'30" E, along Maiduguri Road, approximately 5 km from the CBD, and occupies a land area of about 1.895 km². Amenities in DP23 include Rehoborth Nursery and Primary School and Easy Science Academy.

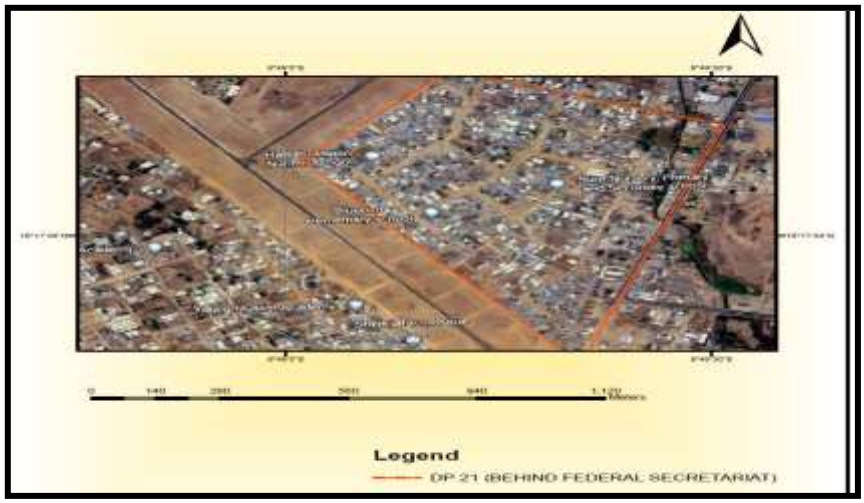

Figure 1: Satellite map of Bauchi Metropolis showing the two residential layout.

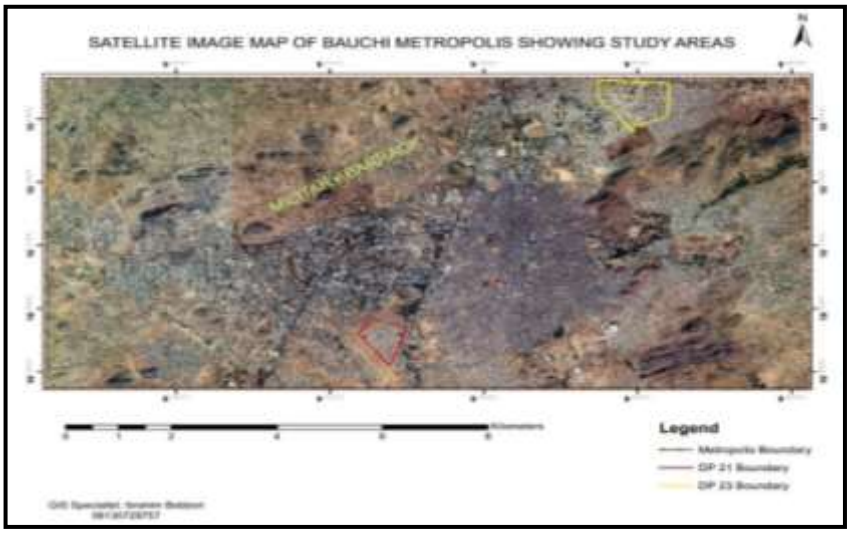

Figure 2: Google Earth Image of Behind Federal Secretariat of Bauchi Urban Area Source: Google Earth (2026)

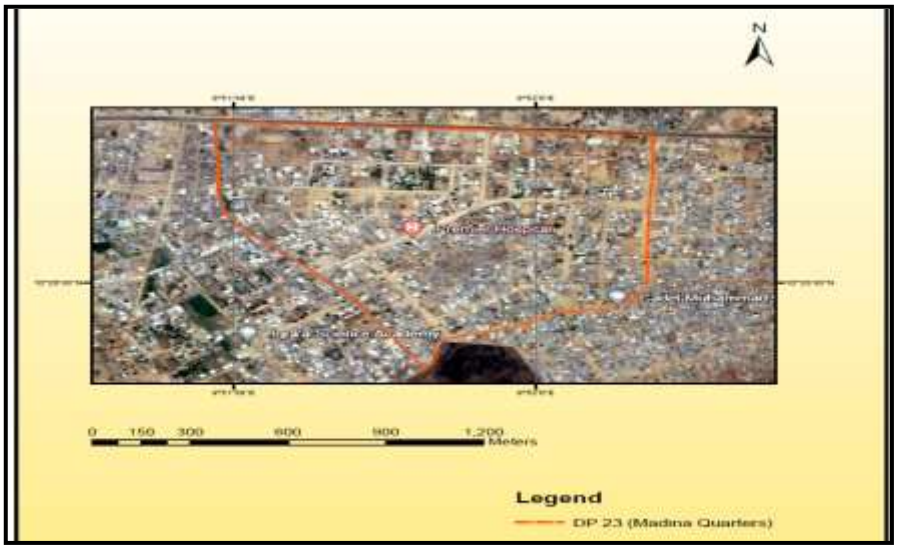

Figure 3: Google Earth Image of Madina Quarters of Bauchi Urban Area.

3.1.1 Population of the Study Area

Field survey estimates indicate that, as at 2026, DP21 residential layout has approximately 2,496 inhabitants, while DP23 (located along Maiduguri Road) has approximately 5,216 inhabitants, giving a combined population of 7,712 inhabitants across the two layouts. These figures were derived using the scientific method of counting the number of houses in the study area and multiplying by the average number of persons per house.

Table 2: Population and Spatial Characteristics of the Study Area

Layout	Estimated Population (2026)	Land Area (km²)	Approx. Distance from CBD
DP21	2,496	0.510	~1 km (South)
DP23	5,216	1.895	~5 km (East, along Maiduguri Rd)
Total	7,712	2.405	-

Source: Field Survey, 2026.

3.1.2 Topography of the Area

The topography of Bauchi urban area is characterized by gentle slopes and isolated hills, including Galambi and Warinje hills to the north-east, Kofar Idi and Dumi hills to the south-east, Jahun and Gudun hills to the south, and Kobi hill, which dominates the center of the old city.

3.2 Research Design and Approach

The study adopted a mixed (qualitative and quantitative) research design. The qualitative component enabled the researcher to engage directly with the field of study through observation and document analysis, while the quantitative component generated statistical data through a structured questionnaire administered to staff of the Bauchi State Physical Planning and Development Control Board (BSPPDCB) (Bryman, 2002). A descriptive research approach was adopted throughout, being well suited to collecting and presenting primary data in the form of text, tables and figures (Creswell, 2013).

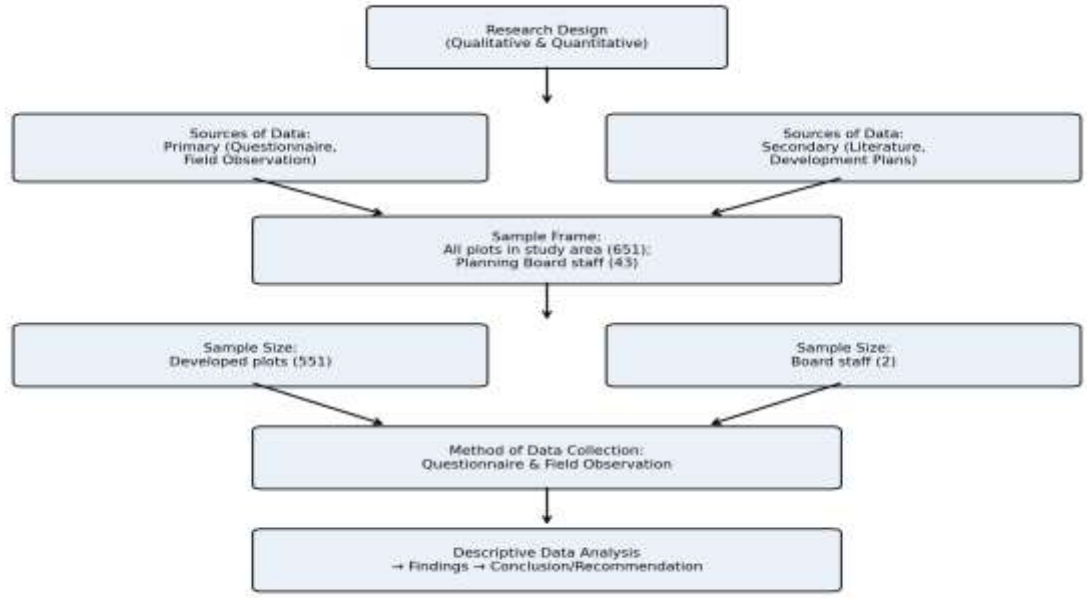

Figure 4: Framework of the Study (adapted from Bani, 2017)

3.3 Sources of Data

Primary data were obtained through field observation of DP21 and DP23 and through a structured questionnaire administered to staff of the BSPPDCB, who are direct stakeholders in the implementation of development control. Secondary data were retrieved from books, journals, publications, the internet, development plans and other relevant materials.

3.4 Method and Instrument for Data Collection

Table 3: Method of Data Collection

S/N	Objective of the Study	Method of Data Collection
1	To identify the strategies used for development control in Bauchi metropolis.	Questionnaire
2	To assess the effectiveness of development control strategies in the study area.	Field observation
3	To examine the challenges of development control in the study area.	Questionnaire

Source: Field Work, 2026.

3.5 Sample Frame, Sample Size and Sampling Method

The sample frame comprised staff of the Planning Board and all developed and undeveloped plots in DP21 and DP23. DP21 contains 124 developed and 42 undeveloped plots, while DP23 contains 427 developed and 58 undeveloped plots, giving a combined total of 551 developed plots and 100 undeveloped plots (Field Work, 2026). Purposive sampling was used to select two respondents from the Planning Board (one management staff and one technical staff) on account of their relevant experience, while the 551 developed plots constituted the sample size for the field-observation component, giving an overall sample size of 553.

3.6 Questionnaire Instrument and Validity

The questionnaire was divided into two sections: Section A identified the development control strategies used in the study area, while Section B addressed the challenges confronting development control. Content validity was established through rational analysis by a professional reviewer, who assessed all items for readability, clarity and comprehensiveness (Guthrine, 2010).

3.7 Method of Data Analysis and Presentation

Both qualitative (field observation) and quantitative (questionnaire) data were analyzed using descriptive statistics. Objective one (identification of strategies) and objective three (challenges) were analyzed using percentages and mode/frequency distribution respectively, while objective two (effectiveness) was analyzed using mean ranking.

4.0 RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the results of the analysis conducted on data collected through the validated questionnaire and field observation. Data are presented on the development control strategies used in the study area, their effectiveness (via mean ranking), and the challenges confronting development control (via mode/frequency distribution).

4.2 Development Control Strategies Used in the Study Area

Table 4: Development Control Strategies Used in DP21 (N = 124 developed plots)

S/N	Strategy	Frequency	Percentage (%)
1	Possession of land title	96	77.4
2	Submission of building plan	42	33.8
3	Possession of development permit	42	33.8
4	Adherence to plot coverage regulation	22	17.7
5	Compliance to building line regulation	89	71.7
6	Adherence to set-back regulation	73	58.8
7	Building height standard	28	22.5

Source: Field Work, 2026.

Table 4 shows that of the 124 developed plots in DP21, 96 developers (77.4%) possess land title, while only 42 (33.8%) submitted building plans and 42 (33.8%) possess development permits. Adherence to plot coverage regulation was lowest at 17.7% (22 developers), while compliance with building line and set-back regulations stood at 71.7% and 58.8% respectively; only 22.5% complied with building height standards.

Table 5: Development Control Strategies Used in DP23 (N = 427 developed plots)

S/N	Strategy	Frequency	Percentage (%)
1	Possession of land title	327	76.5
2	Submission of building plan	140	32.7
3	Possession of development permit	138	32.3
4	Adherence to plot coverage regulation	76	17.7
5	Compliance to building line regulation	284	66.5
6	Adherence to set-back regulation	239	55.9
7	Building height standard	97	22.7

Source: Field Work, 2026.

Table 5 shows a similar pattern in DP23: land title possession is high at 76.5% (327 developers), while building plan submission (32.7%), development permit possession (32.3%), plot coverage compliance (17.7%) and building height compliance (22.7%) remain low. Compliance with building line and set-back regulations stood at 66.5% and 55.9% respectively.

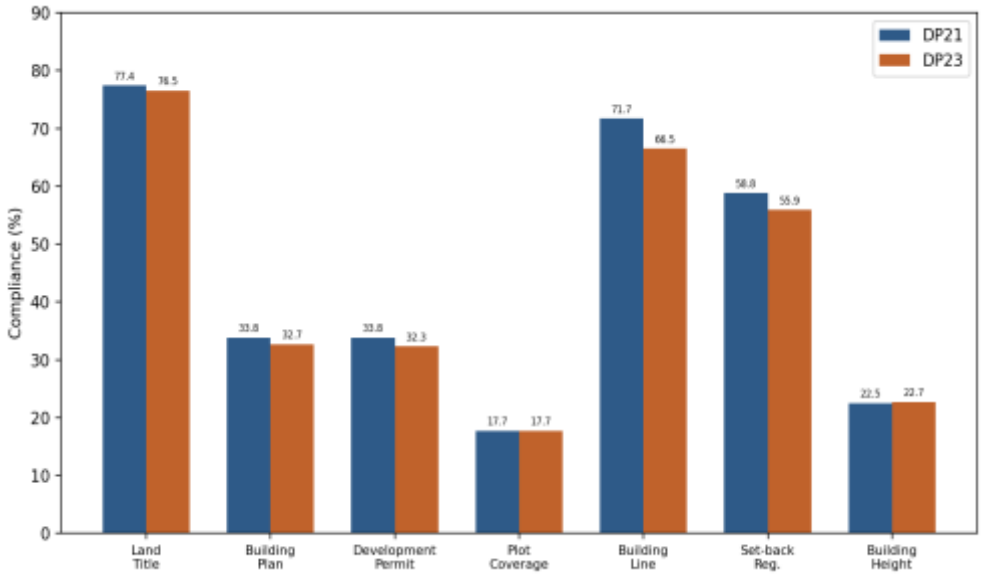

Figure 5: Compliance with Development Control Strategies in DP21 and DP23

Figure 7 shows that the compliance pattern is remarkably consistent between the two layouts: land title acquisition is consistently the most complied-with strategy (>76% in both layouts), while plot coverage and building height regulations are consistently the least complied-with (<23% in both layouts). This consistency suggests that the weaknesses in development control are systemic rather than peculiar to a single layout.

4.2.1 Respondents' Years of Working Experience

All Planning Board staff who responded to the questionnaire had more than ten (10) years of working experience, indicating that the results reflect the views of experienced personnel with substantial institutional knowledge of development control practice in the study area.

4.3 Effectiveness of Development Control Strategies (Mean Ranking)

To assess effectiveness, mean score ranks were assigned from level 1 (lowest/very ineffective) to level 5 (highest/very effective), following the decision interval adapted from Kawu, Ahmed and Usman (2012), Vivian, Kyom and Balasom (2013) and Olotuah (2010): 001–200 = Very Ineffective (1.00); 201–300 = Ineffective (2.00); 301–400 = Neutral (3.00); 401–500 = Effective (4.00); 501–551 = Very Effective (5.00). A high compliance percentage from the survey data is interpreted as reflecting a high effectiveness score for that strategy.

Table 6: Effectiveness Score for Each Strategy in the Combined Study Area

Strategy	Rating	Frequency	Weighted Score (Rating × Frequency)
Land Title	4.00	423	1,692
Building Plan	1.00	182	182
Development Permit	1.00	180	180
Plot Coverage	1.00	98	98

Building Line	3.00	373	1,119
Building Set-backs	3.00	312	936
Building Heights	1.00	95	95
Total	-	1,663	4,302

Source: Field Survey, 2026.

The overall mean effectiveness score was computed as: Mean Score = Σ(Rating × Frequency) ÷ Total Frequency = 4,302 ÷ 1,663 = 2.58, which falls within the "Ineffective" interval (201–300).

Table 7: Mean Ranking of Development Control Strategies' Effectiveness

Rank	Development Control Strategy	Mean Score	Interpretation
1	Land Title	4.00	Effective
2	Building Line	3.00	Neutral
3	Building Set-backs	3.00	Neutral
4	Building Plan	1.00	Very Ineffective
5	Development Permit	1.00	Very Ineffective
6	Plot Coverage	1.00	Very Ineffective
7	Building Heights Regulation	1.00	Very Ineffective

Source: Field Survey, 2026.

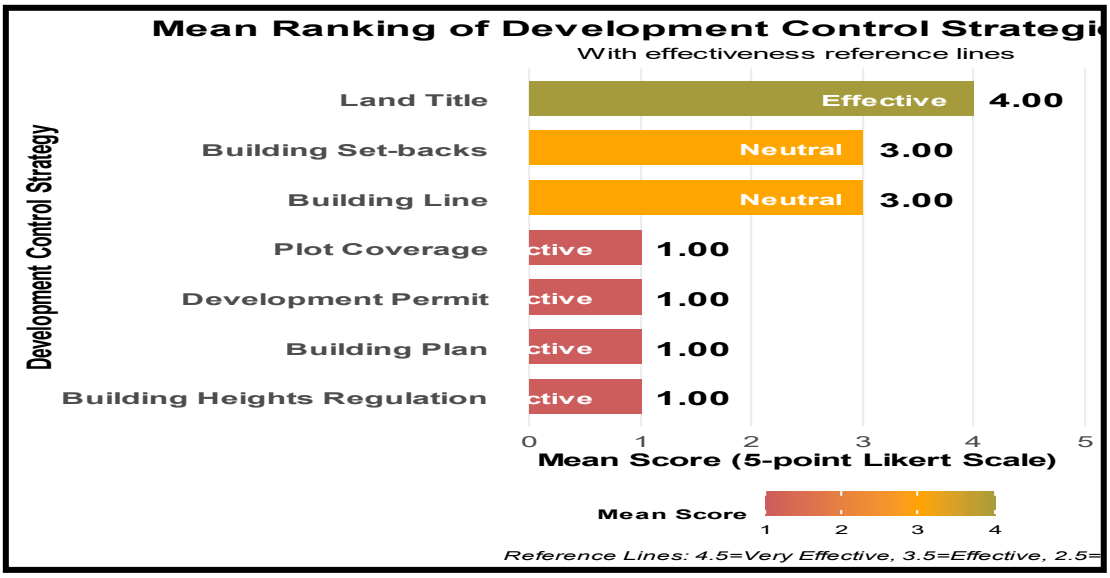

Figure 6: Mean Ranking of Development Control Strategies' Effectiveness

Results show that land title acquisition (4.00), and building line and set-back compliance (3.00 each) recorded the highest mean scores, consistent with the high percentage of developers who acquired land title in both layouts. Building plan submission, development permit acquisition, plot coverage and building height regulation each scored 1.00, indicating very ineffective enforcement and revealing significant weaknesses in monitoring. The overall mean score of 2.58 confirms that development control strategies in the study area are, on balance, ineffective: while the initial stage of land ownership documentation is relatively well complied with, the subsequent monitoring and enforcement phases of development control are critically weak.

4.4 Enforcement of Development Control in the Two Study Areas

The BSPPDCB issues enforcement notices as its principal means of ensuring development control, backed by the Development Control Board Edict Cap 163 of 1989 (amended 2012), which spells out sanctions against contravening developers. Despite these provisions, many developers in the study area treat enforcement notices with limited seriousness. Board staff reported that developers frequently ignored stop-work markings and orders to produce permits, continuing construction regardless. In 2026, only 41% of developers in DP21 and DP23 who were ordered to stop work subsequently followed up to obtain the required permit, a finding that illustrates the considerable frustration facing the Board in its enforcement efforts.

4.5 Challenges of Development Control Strategies in the Study Area

Development control in DP21 and DP23 faces diverse challenges originating from both the regulatory authority and the developers themselves. The Board reported inadequate human resources for effective monitoring of physical development, while on the part of developers, widespread disregard for building regulations was observed during developmental activities.

4.5.1 Examining Challenges Using Mode/Frequency Distribution

Table 8: Challenges Identified in the Study (Response Frequencies from Survey Data)

Challenge	Frequency	Percentage (%)
Non-submission of building plan	361	65.5
Lack of development permit	371	67.3
Non-adherence to plot coverage	453	82.2
Inadequate human resource	43	7.8
Ignoring stop-work notice	74	13.4
Non-compliance with building lines	178	32.3
Non-adherence to set-back regulation	239	43.3
Non-compliance to building height	426	77.3
Total	551	100

Source: Field Survey, 2026.

The mode the most frequently cited challenge is non-adherence to plot coverage regulation, with a frequency of 453 (82.2%), the highest of all identified challenges.

Table 9: Frequency Distribution of Challenges to Development Control Strategies

S/N	Identified Challenge	Frequency	Percentage (%)	Remark
1	Plot size coverage	453	82.2	Most Critical (Mode)
2	Building height regulation	426	77.3	Critical
3	Development permit	371	67.3	Critical
4	Building plan	361	65.5	Critical
5	Building set-back	239	43.3	Notable
6	Building line	178	32.3	Notable
7	Ignoring stop-work notice	74	13.4	Moderate
8	Inadequate human resource	43	7.8	Minor

Source: Field Survey, 2026.

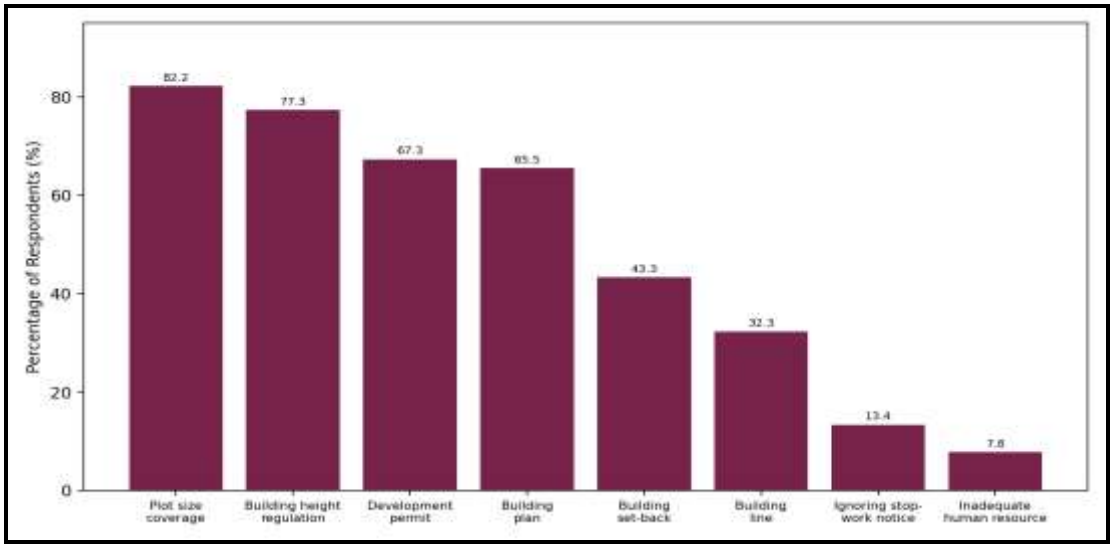

Figure 7: Frequency Distribution of Challenges to Development Control

The result shows that non-adherence to plot size coverage is the most frequent challenge, indicating that the primary obstacle to effective development control is inadequate monitoring and site visitation by the planning authority. Non-compliance with building height regulation (77.3%), lack of development permit (67.3%), and non-submission of building plans for approval (65.5%) are also major and critical challenges. In conclusion, the analysis identifies inadequate monitoring as the most pervasive challenge hampering development control in the study area, a finding that directly supports the recommendation for increased and regular monitoring of physical development activities.

4.6 Discussion of Findings by Objective

4.6.1 Development Control Strategies in the Study Area (Objective One)

The strategies used by the Development Control Board in the study area are land title verification, building plan approval, development permit issuance, plot coverage regulation, building line regulation, set-back regulation and building height standards (Tables 5 and 6). These strategies form the guiding principles for managing the physical growth of DP21 and DP23.

4.6.2 Effectiveness of Development Control Strategies (Objective Two)

Development control activities under the Nigeria Urban and Regional Planning Law (Decree No. 80 of 1992) are intended to improve the quality of the development control process, with enforcement being the statutory responsibility of the planning authority. However, irregular enforcement has been a major problem in DP21 and DP23, with some buildings constructed without permit because developers perceive the planning board as unable to enforce compliance. Ensuring effective public engagement therefore requires developers to hold a realistic and informed opinion about the planning process, which in turn requires planners to understand public perceptions of planning.

4.6.3 Development Control Challenges (Objective Three)

Land Title: The level of compliance with land title acquisition is effective, reflecting the value developers place on securing formal tenure documentation.

Development Permit: A total of 371 developers (67.3%) across both layouts built without a development permit, though there is evidence of a rising trend in permit applications compared to previous years, attributed to modest gains in developer awareness.

Building Plan: A total of 361 developers (65.5%) commenced construction at various stages without submitting building plans for approval.

Plot Coverage: Planning authority requires that development should not exceed 60% of total plot coverage; 453 developers (82.2%) in the two study areas did not comply with this regulation.

Building Line: A total of 178 developers (32.3%) did not adhere to building line regulation, which legally restricts development beyond a set boundary from the road or property edge.

Building Set-back: A total of 239 developers (43.3%) did not adhere to the mandatory minimum open space required between a structure and the property line, road or adjoining infrastructure.

Building Height: A total of 426 developers (77.3%) did not comply with building height regulation, which governs the vertical distance from ground level to the highest point of a structure.

5.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of Findings

The findings of the study lead to the conclusion that development control strategies in DP21 and DP23 have not been effective, on account of the following shortcomings:

- The BSPPDCB has not adequately followed up with developers in the area to ensure that development control strategies are applied effectively and efficiently.
- There is a shortage of Town Planning Officers and inadequate mobility for inspection of development activities.
- Considerable attention is given to approving land title and building plans (activities that generate government revenue), while proper monitoring of physical development remains inadequate.
- Developers exhibit a poor attitude towards compliance, commencing development without building permits and disregarding stop-work notices.

5.2 Brief Proposal for Improved Development Control

Building on the diagnosed weaknesses, this study proposes a short, actionable improvement package for BSPPDCB, summarized as follows: (i) establishment of a computerized planning portal for paperless application, approval and monitoring of development activities; (ii) a scheduled quarterly site-inspection regime for DP21 and DP23, prioritizing plots flagged for plot-coverage and building-height contraventions; (iii) a public awareness and sensitization campaign (using community meetings and local media) targeted at developers, explaining the rationale and procedure for obtaining development permits; (iv) a graduated enforcement protocol that escalates from a first written notice, to a stop-work order with a defined compliance window, to statutory sanction under the Development Control Board Edict Cap 163 of 1989 (amended 2012); and (v) capacity strengthening for the Board through additional Town Planning Officers and dedicated inspection vehicles. This proposal is intended as a practical starting point rather than an exhaustive policy document, and would benefit from piloting in one layout (e.g., DP21) before wider roll-out to DP23 and other layouts in Bauchi metropolis.

5.3 Conclusion

Development control is fundamentally aimed at ensuring the coordinated and harmonious development of an area, so as to create an environment that is healthy, convenient and aesthetically pleasing. Development control strategies cannot be overlooked in managing housing development in DP21 and DP23. While much of the existing literature and public discourse tends to place the blame for ineffective development control squarely on the planning authorities, this study has shown that ineffectiveness stems from shortcomings on both sides: the Board is not discharging its monitoring and enforcement functions adequately, while developers are, in turn, disregarding regulatory requirements. The overall mean effectiveness score of 2.58 substantiates this dual diagnosis, showing that although the entry-point requirement of land title acquisition is relatively well complied with, the substantive planning-control requirements building plan approval, development permits, plot coverage, set-backs and building height remain critically under-enforced.

5.4 Recommendations

- Modern information techniques should be introduced, including computerization of urban data and establishment of a planning portal for paperless application, approval and monitoring of development control activities.
- Planning authorities require adequate mobility, human capacity and sustained support from political leadership to succeed in development control enforcement.
- Greater emphasis should be placed on other facets of development control building standards, enforcement and monitoring to ensure comprehensive compliance, not only revenue-generating approval processes.
- The Development Control Board should cultivate a friendly and cordial relationship with residents to motivate voluntary compliance with government regulations, making it easier for developers to obtain permits and approvals before commencing development.

5.5 Contribution to Knowledge

This research determined the effectiveness of development control strategies in DP21 and DP23 residential layouts of Bauchi Urban Area. Whereas most existing Nigerian literature considers the factors responsible for the effectiveness or ineffectiveness of development control descriptively, this study quantifies effectiveness through a mean-ranking framework and specifically situates the analysis within DP21 and DP23 layouts previously unstudied in this respect. Given the differing geographical and socio-economic profile of Bauchi relative to other Nigerian cities previously studied (e.g., Ikpahawore, Galadima and Bello's 2023 study of Kaduna metropolis), this research contributes to the literature by filling that empirical gap for Bauchi Urban Area.

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