

Effect of Development Control Compliance on Residents' Satisfaction with Peri-Urban Settlements in Gombe Metropolis

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Abstract: *The increase in human population brought about urbanisation, which has led to the exploitation of land and land resources in all parts of the globe. This reason also resulted in the greater land requirement for various uses, bringing about the spatial distribution of continuing residential properties. The aimed of this paper is to investigate the effect of development control compliance on residents' satisfaction with peri-urban settlements in Gombe metropolis, Nigeria with a view to recommend strategies for improving neighbourhood quality. The study adopted a quantitative design, and a questionnaire survey was used for data collection. The study adopted stratified random sampling technique and SPSS software version 22 was used for data analysis. The results were presented in tables. Household heads in the peri-urban settlements of Tumfure, Mallam inna, Arawa and Bye-Pass in the Gombe metropolis served as the population for this study. The study revealed that the major areas of development control compliance are environmental impact assessment, density control, and solid waste management. The development control compliances with the lowest mean values are road infrastructure and building code compliance. The level of development control compliance has a moderate mean, indicating moderate compliance. The study also revealed that major levels of residents' satisfaction include green spaces, quality of housing, and traffic congestion. The minor levels of residents' satisfaction are access to parks and recreation and community engagement. The average level of residents' satisfaction has a low mean, indicating dissatisfaction. The independent variable, the level of development control compliance, explained 0.7% insignificance and small effect size in the residents' satisfaction with peri-urban settlements. The findings suggest that development control compliance has a small and insignificant effect on residents' satisfaction with peri-urban settlements in the Gombe metropolis. This implies that while development control compliance is important, it may not be the sole factor influencing residents' satisfaction. Other factors, such as the availability of infrastructure and services, community engagement, and social cohesion, may also play a role in shaping residents' satisfaction with their living environment. Strengthen enforcement mechanisms and penalties for non-compliance with development control regulations. Enhance public awareness and education about development control regulations. Streamline the development control approval process to make it more efficient and responsive to development needs. Promote community engagement in the development control process to ensure that community needs are considered.*

Keywords: *Development, Control, Compliance, Residents' Satisfaction, Peri-Urban, Settlement*

Introduction

The increase in human population brought about urbanisation, which has led to the exploitation of land and land resources in all parts of the globe. This reason also resulted in the greater land requirement for various uses, bringing about the spatial distribution of continuing residential properties. Residents' satisfaction with property value should be based on convenient comfort, safety, and economic uses. This question brought about the need to critically monitor the

development compliance on every land and property to ensure that the subject development conforms to global standards (Hall & Klitgaard, 2018). In African countries, residents subdivide their properties to maximise economic gain, regardless of the consequences (externality) of noise, smell or extra traffic that such activities might generate. Third parties in the form of adjoining properties not part of the original transaction may have to contend with the externalities (Entelis & Naylor, 2019). Related to the concept of externalities are two qualities characteristic of many environmental goods: non-excludability and non-rivalrous consumption. Non-excludability occurs when the producer of a good cannot keep non-payers from its consumption, and non-rivalrous consumption occurs when the marginal cost to a seller of providing a good to an additional consumer is zero (Dekker, 2017). Development control as a potential tool for city management ensures that a country's continual growth and management can be such that it makes for orderliness, improved city image, healthy and aesthetics. It also ensures that the environmental challenges resulting from Nigeria's growth can be reduced to an acceptable level. In addition, development control requires special skill due to the daily problems the authorities are confronted with, which is attributed to the share size and rate of increase of settlements and the complexities of the tasks involved within Nigeria's environs. The problem ranges from changes in the use of property, non-compliance with space standards and approved design, and unguided and ineffective enforcement of building regulations (Parlower, 2017).

For any system to work as expected, there is always the need for control and balance, which is a form of regulation for necessary operation (Shapiro & Willig, 2019). Development control regulations provide for these controls and balance in the built environment. The development control regulations are provided by the various development control tools ranging from development plans to development legislation (Thornley, 2018). These development control tools are intended to provide the strategic framework and policy context for all local planning decisions (Thornley, 2018). The rationale for introducing development control on both public and private development is to achieve objectives of safety and better health to create an improved environment for the benefit of the community (Porter & Kramer, 2019). Different countries have employed different typologies of planning instruments and approaches in concerted efforts to address some of the shortcomings experienced in the compliance process. The instruments have been derived from different sectoral experiences in developed and developing countries (Janicke & Jörgens, 2020). Numerous other laws guide physical planning and are mostly related to land (Briassoulis, 2019). These laws are set to ensure sustainable development and compliance in the country, especially in urban areas where the rate of development is very high due to high urban population growth due to rural-urban migration and natural population growth. This increase in the urban population has not been adequately planned for. Hardly 30 per cent of the urban centres are planned, and even where plans are available, they are rarely enforced (Jänicke & Jörgens, 2020). The legal structure under which development control and compliance are enforced has been identified as either too weak or inappropriate in addressing the myriad of physical development problems. The growth in unplanned settlements in urban areas, urban sprawl, congestion and property development above the carrying capacity of available infrastructure are the most apparent evidence of a failure of unplanned settlement patterns and enforcement of the designated laws and standards (Dadi, 2018). In Nigeria, Governments have supported private land ownership systems, and high costs reinforced by inappropriate regulatory frameworks have forced many lower-income households into unauthorised settlements (Baken, 2018). Against this background, this paper seeks to evaluate the effect of development control compliance on residential satisfaction in some peripheral urban settlements such as Tumfure and Mallam Inna.

Statement of the Problem

In cities and urban areas of developing countries, development control issues have permanent challenges such that beautiful settings could be distorted. Proper development control helps check architectural disorder and poor environmental planning. Development control forms an integral part of planning practice. It is the basic means by which the planner intervenes to regulate the use and development of land in order to implement local and national housing planning policies. The housing planning process in most parts of the country is highly constrained due to a lack of strict adherence to development control mechanisms, which seriously threatens land use values (Jones, 2017).

Rural-urban migration has caused congestion in the urban areas and left the towns and cities sprawling endlessly into the countryside, with dire consequences for the provision of essential urban infrastructure. That is, the rate of expansion of each of the old and newly emerging towns led to the emergence of uncoordinated land uses, winding road networks, traffic congestion, uncoordinated provision and distribution of socio-physical infrastructure, uncollected waste and the like, amongst others, with great impact on the socio-economic wellbeing of the inhabitants. All these are resultant effects of uncontrolled development in both rural and urban settlements in Nigeria (Olayonwa, 2017).

Various researches have been conducted in African countries on development control and compliance towards the satisfaction of residents and how they perceive the idea of complying with the regulation of development control (Abubakari, Richter & Zevenbergen, 2018) investigated land titling in Ghana, Mozambique and Ethiopia. They found that development control regulations differ between and within the countries. In Ethiopia and Mozambique, variants of the land development control model are adopted, while in Ghana, they are governed and enforced by an assigned body empowered by the government. Regarding land development control and compliance, the findings indicated that low-income groups find it difficult to comply with these regulations in all the case studies due to low income and the financial strength to build to plan. In other developing countries beyond Africa, land development control and compliance have also gained importance. Lawry, Samii, Hall, Leopold, Hornby and Mtero (2017) carried out a systematic review on the effect of land rights recognition interventions on land development control, investment and income in Africa, Asia and Latin America through a synthesis of 20 quantitative studies and nine qualitative studies. The study found substantial productivity and income gains from land tenure recognition but with marked regional variations. It noted that the database for Africa was minimal. The payments were more significant in Asia and Latin America and much weaker in Africa (Lawry *et al.*, 2017). Offei, Lengoiboni and Koeva (2018) examined compliance with residential building standards in the context of Ghana's customary land tenure system. The result of the study discredited the hypothesis that non-compliance with development control regulations was found generally to be intentional in the study area. It revealed the high level of compliance among the elites because the approval documents can serve as collateral for obtaining loans. Moreover, the research proved that development regulations and policies should entail effective strategies to actualise a high level of compliance.

Onaiwu (2020) worked on infringing development control measures in Auchi. The study established that developers contravened development control regulations in areas such as the construction of buildings without approval, exceeding plot coverage, and violation of setback regulations. The absence of planning schemes and inadequate planning staff in the Auchi office accounted for these infringements. Uhl *et al.* (2019) address the advantages and shortcomings of the different information sources used in mapping settlements and analyse the spatial extent from

the largest to the smallest settlements along a rural-urban continuum. Their research integrates EO-derived built-up measures, census data and cadastral data. It aims to shed light on the new definitions of urban and rural areas and improve the underlying methods for generating this data.

Florczyk *et al.* (2019) combine the built-up information from eight different global built-up maps to generate a 'generalised settlement area' to maximise the likelihood of capturing all built-up at the global level. Their research also compares the eight built-up information datasets and generates indicators of agreement of settlement space. The findings show that the products generated from medium-resolution satellite imagery are better able to capture the global built-up when compared to the first-generation products from coarse-resolution imagery. The study by Corbane *et al.* (2018) presents a systematic measurement of green areas over the period 1990–2014 across 13,000 urban centres globally, using the Landsat image archives. No global data set on cities has measured their 'greenness'. The study highlights that core urban centres contain a substantial amount of vegetated areas that are often neglected in the analysis of urban regions. Their work shows that the average levels of greenness in many cities have increased. However, patterns of greenness exhibit considerable spatial and temporal variability between and within cities and between cities and their hinterlands.

Roy Chowdhury *et al.* (2019) correlate settlement patterns from selected cities to VIIRS satellite nightlight imagery to analyse energy consumption associated with specific settlement structures. While the paper is limited to a few cities, the methodology and procedure shed new light on future attribution of settlements related to energy consumption, possibly inferred also by satellite nightlight emissions. Despite all the efforts made by researchers on the issues related to development control compliance, it is obvious that there is insufficient research work that investigates the compliance of the already set regulation and the monitoring of the compliance level for residents' satisfaction with property values, especially in the study area been Tumfure and Mallam Inna. Therefore it is against this backdrop this paper seeks to investigate the effects of development control compliance on resident satisfaction in Tumfure and Mallam.

Objectives of the Paper

- i. To identify the development control compliance level in peri-urban settlements of the Gombe metropolis.
- ii. To determine the factors affecting development control compliance in Gombe metropolis.
- iii. To determine the level of residents' satisfaction with peri-urban settlements in Gombe metropolis.
- iv. To assess the effect of development control compliance on residents' satisfaction with peri-urban settlements in Gombe metropolis.

Scope of the Paper

The scope of this study was restricted to the effects of development control compliance on residents' satisfaction in Gombe peri-urban settlements. The study area was limited to peri-urban settlements of Tumfure, Mallam inna, Arawa and Bye-Pass. In this regard, the target population for the study shall be the household Heads in the study areas.

Significance of the Paper

Household: This study reveal people's settlement conditions and the need for sustainable urban development, the capacity of planning departments in development control, and the main factors hampering the effectiveness of development control.

Government: It reveal the formulation of policy proposals which can be adopted to ensure orderly physical development, optimal land use, proper execution and implementation of approved physical development plans and protection and conservation of the environment.

Future Researchers: The study also benefit academia with relevant information that is crucial in beefing knowledge banks regarding development control issues. And thereby serve as reference materials for future research and bridge the gap left by past researchers.

Literature Review

The Concept of Development

Jones (2014) states that development means the process of carrying out construction work, which is associated with a change in land or land use or the re-establishment of an existing use. Also, development is defined as the carrying out of building, engineering, mining or other operations in, on, over or under land, or the making of any materials changes in the use of the land or buildings (Wekwete, 2014). The development gave the following forms of development:

Modification of existing building

This is the remodelling of facilities to suit present use and taste. For instance, buildings are changed from residential to commercial uses, with high demand for commercial properties.

Redevelopment

This is the demolition of existing old structures to erect new ones due to changes in supply and taste. New buildings are usually erected for greater densities and profit.

New development

This refers to the carrying out of new projects on virgin land where no development existed before. It takes the form of outland expansion of underdeveloped land. Usually, the outward movement is a result of happening in the centre of the town, where houses and factories cannot afford to pay the high rents offered by shops and offices, and traffic congestion becomes alarming. People prefer the garden spaces of some urban houses for development.

Development control is the process by which government agencies exercise their statutory duty to control the use of land and its development for various uses per the provisions of the development plan (Abubakari, 2018).

This is aimed at regulating standards for all aspects of physical planning. It ensures that the over-exploitation of land by developers is reduced or prevented and that non-conforming uses are separated from compatible ones so that pollution and overcrowding from other uses do not affect the residential dwellings. The regulatory control measures which the control departments provide are usually designed and identified with the general public interest. These measures are associated with control of the area's inhabitants' safety, convenience, economy, beauty and comfort (Agbola, 2016).

Development Control

The word development needs to be understood before defining development control. Development, under section 109, Lagos State Urban and Regional Planning Law, 2005 (repealed) and section 102 of 2010 law, means "the carrying out of any building, mining or other operation in, on, over or under any land; the making of any material change in the use of any land building structure, or conversion of land, building structure from its established or approved use, or including the placing or display of advertisement and urban furniture on the land, building or structure; the making of any environmentally significant change in use of any or demolition of building including felling of trees. Development control, also known as planning, is seen as a mechanism to maintain standards. It is a process laid down by legislation that regulates land and building development. It is the professional activity carried out by town planners to ensure compliance with the approved master plan, thereby ensuring orderliness.

The 1946 Ordinance empowered the government to establish local planning authorities and made development control the main activities of the rules. Under sections 27-63 of the Planning Law,

provisions were made for the establishment of sections 27-63 of the Planning Law, and conditions were made for the establishment of the development control department (DCD) by the commission, the board, and the authority to be established. Development control processes include using land use zoning and land planning standards.

Zoning

One of the ways physical development is guided in any particular community through indirect government policy is Zoning (Oduwaye, 2009). Zoning, a land use regulation, allows the government to exercise more vital control over land use in a particular community through the local planning agencies and council. It is somewhat of a legal exercise as well as a political process. It uses restrictions and development standards in guiding physical development but guarantees equal protection and due process and ensures public health, safety and welfare.

Planning standards

According to Barker (2012) cited that the planning standards have two aim divisions: the prescriptive and the regulatory standards. The prescribed standards are the guides or specifications used in dimensioning to prepare a disaster risk reduction plan or any development plan. Planning standards are used in town planning as a recognised model for imitations. They are legislated standards which, in most cases, are mandatory and inflexible. Development control reduces the negative effects accompanying physical development; it is a compassionate exercise that must be done with precaution, firmness and a deep sense of responsibility by the authority concerned (Agbola, 2016).

Urban area

According to Jones (2014) stipulated that an urban area is a location characterised by high human population density and vast human-built features in comparison to the areas surrounding it. Urban areas may be cities, towns or conurbations, but the term is not commonly extended to rural settlements such as villages and hamlets. Realistically, the number of people living in urban areas surpasses the rural population, which could be in the millions. The pace of physical development in urban areas is expected to grow faster. Urban areas are created and further developed by the process of urbanisation. Measuring the extent of an urban area helps in analysing population density and urban sprawl and in determining urban and rural populations.

Town planning

According to Barker (2012), town planning is a future-oriented problem-solving strategy within a defined area. Town planning is tailored to goals based on the image of the desired future. Policies are designed, and plans are implemented to guide the system towards the goals or to change the existing system if it cannot achieve the goals in terms of complexities like continual increase in policy changes currently experienced in Lagos metropolis. The two key tools in town planning are development plans and development control mechanisms. While the first directs a city's growth and development, the latter guides and controls development (Baken 2018).

Statutory Process of Development Control Compliance

There are various measures for controlling residential property use. All are designed to achieve the objectives of development control. In providing an environment suitable for human living, working and recreation, these control measures are aimed at controlling the following:

Area of hazards, population and use density, Exposure to accidents, noise and atmosphere pollution, which, if not protected, will affect society's health, moral and physical well-being. Development control measures are grouped under three major headings: Zoning, building byelaws, subdivision regulations and restrictive covenants.

Zoning

Harwood (2002) refers to Zoning as the favourite device employed to maintain the exclusive and separate character of physical space or development by applying the zoning ordinance. The zoning ordinance divides the affected area into land and population density. Zoning is initiated by local planning authorities acting under the police power of the state. This is the power to act, promote and protect the public's health, safety and general welfare (Ellen, 2018).

Subdivision Regulation

These control measures guide and control the process of laying out the land into plots and developing them because of the arrangement of plot-taker physical features of the community, which the inhabitants are connected. They are used to prevent developments in areas regarded as unhealthful because of flood hazards, improper drainage or other conditions. They may require that a sub-divider conform to an overall street plan, provide right-angle intersections with through streets, or avoid jogging street connections. Minimum construction, and standards, maximum grade and definite width are usually specified for street and street right of way.

Lots of minimum size and depth are often required. Subdivision regulations play a vital role in promoting and protecting the interest of the community, the buyer and the sub divider (Berihe 2019).

Builder Bye-Law

They regulate the quality of residential, commercial and industrial buildings by setting minimum standards for the materials used and the construction method. Bye-law laid down specific roles as to the height and drainage, the height of rooms, the sitting of windows and doors and the portion of window opening for ventilation purposes.

The sole objective of the bye-law is to prevent the haphazard substandard building from emerging in towns and cities. Without the discipline of bylaws, the building would have been of power quality; such is the frailty of human nature if not subjected to the discipline of a minimum standard. The local planning authorities enforce building bye-law with due regard to the procedures laid by the state to ensure public health and safety as to structural stability, fire protection, damp prevention, ventilation and weather resistance (Berihe 2019).

Restrictive Covenants

When land is sold, long-term management control passes out the lands of the vendor, except in so far as the sale is made subject to a restrictive covenant. The covenant may be positive when the purchaser is required to do specific things on the land sold to him. It is a negative covenant when the purchaser is not required to perform some specified things on the land sold to him. Restrictive covenants are designed for the benefit of the land and the property which the vendor retains. In order to enforce a restrictive covenant against an assignee of the original covenant land, such covenant must be negative. An example is the covenant or pledge not to use the land for hotel development.

Before a developer is permitted to carry out any development, the planning authority must ensure that the proposed development confirms all the control measures necessary in the area. If development progresses without permission from the planning authority concerned, the developer is given a "stop work" order. For failing to apply for permission and meeting the required standards, the developer is given days to comply; where he fails to comply, he is issued a contravention notice to show that he has contravened the planning law. Here, the developer is required to draw and submit his building plan to carry out some alterations or to pull down the building. Finally, the planning authorities have the right, if the developer fails to comply with the contravention notice, to demolish the structure and the demolition fees demanded from the developer (Berihe, 2019).

Development Control in Nigeria

Jones (2014) stated that prior to 1917, forms of the controlling land uses and development in Nigeria were through the authorities of Emirs (in the North), Chiefs (in the East) and Obas (in the West) and heads of families or clans in a given community. They act as administrator and trustees to the land which belonged to the community. They granted land to the people in the community and ensured that every development must be carried on with their prior consent.

In 1928, this changed when the first Lagos town and the country planning ordinance came into effect for the improvement and development of Lagos by the Lagos Executive Development Board (LEDB). This led to the continued development of Lagos. But in 1946, the first Nigerian town and country planning was made to provide for the setting-up of planning authorities, charged with the effective implementation of development plans through planning schemes.

The planning authority exercises its statutory power in the overall planning and development of the areas to which it has been appointed. A chairman and 16 members head the authority. The functions of such authority include granting development permission, interim development order, preparation and execution of development plan, purchasing and disposing of land for public purposes and enforcing development control measures.

Subsequently, the Land Use Decree of (1978) came in with the objective of unifying land ownership under one control for easy monitoring of individual rights of occupancy and execution of development control Berihe, (2019).

Objectives of Development Control

According to Ahmed and Dinye (2016), development control facilitates appropriate development, recognising its significance in building and protecting a healthy economy and a sustainable environment. It also examines the potential impact of the proposed development, protects the public interest from inappropriate development and involves compliance with all procedures, building codes, and standards to ensure that physical plans conform to the approved plans. The Draft Physical Planning Bill 2015 states that the main purpose of development control is 'to ensure the orderly and rational development of land to create sustainable human settlements that accommodate a variety of land uses to meet the needs of the people who live in these settlements' In this regard, there are five main objectives of development control which include: To ensure orderly physical development, to ensure optimal land use, to ensure pro per execution and implementation of approved physical development plans, to protect and conserve the environment and, to promote public participation in physical development decision making.

The legitimacy of urban development control is derived from the police power which is exercised by the government (Opata, Mulongo, Omuterema, Ngetich, 2017). The Draft Physical Planning Bill 2015 and the Urban Areas and Cities Act 2011 provide for each planning authority in the area under the planning authority's jurisdiction to:

.Contut of the area. Control or prohibit the sub-division of land or existing parcels of property. Consider and approve all development applications. Protect preserve public land reserved for open spaces, parks, urban forests and green belts .Ensure compliance with the provisions of Draft Physical Planning Bill 2015 and the Urban Areas and Cities Act 2011 or any other relevant written law.

Factors affecting Compliance with Development Control

Despite the existence of various development control tools such as development plans (which provide the development control regulations), there are cases of total non-compliance or partial compliance in some areas. Kimani and Musungu (2016) highlighted lack of capacity to inspect and supervise developments and implement plans, lack of relevant supportive system for effective

enforcement and lack of resources for local authorities as the main the factors hampering the effectiveness of development control. In addition, UN Habitat (1990a) in their re-assessment of urban planning and development regulations in African cities. Ogundele, Odewumi and Aigbe (2011) on their paper on challenges and prospects of physical development control outlined the factors which contribute to non-compliance to development control;

Challenges of Physical Development Plans Approval

Ogundele, Odewumi and Aigbe (2018) noted that most developing counties lacked approved physical development plans which leads to absence of standards for development control despite the provision for County Spatial Plan, County Integrated Development Plans, Town Plans and Sectoral Plans by the County Governments Act of 2012. The lack of physical development plans being the main sources of planning standards and other development regulations resulted to lack of a framework for development control. In cases where the development plans are in existence, there arises the challenge of the plans being outdated due to lack of constant review. This makes the development control process difficulty and ineffective since the provisions or regulations of the development plans do not accommodate the changing development trends (Berihe, 2019).

Laxity in Processing Development Applications

The time taken for evaluation of development application and subsequent approval was deemed to be too long discouraging developers from submitting applications for development permission and corruption of responsible officers to speed up the process. The Draft Physical Planning Bill 2015 and the Urban Areas and Cities Act 2011 require that all developers must submit their development proposals to planning authorities for approval. In some cases, the development applications processing has been reported to take unnecessary long period of time (more than the thirty days as provided by the Physical Planning Bill 2015) thus delaying developments in many areas. Developers have had to go ahead with their developments with no regard for submitted development proposals. This has resulted to non-compliance or partial compliance of the set development control regulations due to lack of compliance to the conditions which are normally provided when granting the development permission (Berlant 2016).

High Professional Fees

It is expected that any documents, plans and particulars that are provided to the planning authority while applying for development permission have been prepared by qualified, registered and validly registered professions (Enemark, Bell, Lemmen, & McLaren, 2014). This is done to ensure that development proposals are prepared by the relevant professionals with adequate knowledge on the requirements of the law concerning the development proposal. However, the professional fees charged by various professionals like Planners, Architects, land Surveyors and Engineers have been identified as a serious hindrance to development within the legal framework in Nigeria. To many developers, these professional fees have been unaffordable hence discouraging developers in engaging these professionals in making development proposals, Thus leaving room for the quacks to ruin the built environment (Opata, Mulongo, Omuterema, Ngetich, 2018).

High Poverty level

The proportion of the population living in poverty has increased in most developing countries to as much as 50% of the population in Nigeria's urban areas. With a large proportion of urban population in poverty struggling to make a living, compliance to urban development regulations is not among their key priorities. Lack of comprehensive urban development policy that would guide regulations that are in line with the needs of the people and the current social -economic realities such as urban poverty has contributed to the high degree of non-compliance to urban Development and planning regulations (Ngetich, Opata & Mulongo, 2018).

Development Control Regulations Awareness

The extent to which people are aware of the existence of development control regulations is important because it partly determines the extent to which people comply with the standards/regulations. A large portion of people in the urban areas are not aware of the development standards/ regulations (UNCHS Habitat, 1999). This results to non-compliance of the set development control regulations negatively affecting the implementation of development plans and policies. The lack of awareness to these planning regulations has been partial attributed to lacks of guidelines in policy procedures such as current development plans, comprehensive zoning plans and planning standards (Ngetich, 2018). A relatively high number of developers get to know of the existence of the development control regulations during the submission of the development proposals as majority of the members of the public are "illiterate" on physical planning programmes (Ogundele, Odewumi & Aigbe, 2016). In view of this, urban developers have come to view the development control process as a hindrance rather than a means to achieving sustainable developments.

Poor Enforcement Machinery on Compliance

The technical capacities in most counties did not meet the required establishment requirement in terms of experience and expertise. Approximately 82 percent of developing countries do not have adequate development control staff, while 6 per cent had no technical staff and support from related agencies (AAK, 2015). The planning officers in charge of development control have been unable to implement development plans and inspect and supervise all developments within their area of jurisdiction. This has been attributed to inadequacy of resources and lack of relevant supportive system for effective enforcement as (Kimani & Musungu, 2017)

Political Interference and Political Will

Political interference in the urban development control systems has limited the local Authorities ability to fully regulate and control development. Powerful government officials have been known in the past to enforce approvals which do not meet the stipulated requirements (Opata, Mulongo, Omuterema & Ngetich, 2018). This has resulted to high rates of violation of the development control regulations which negatively affects the implementation of development plans resulting to uncoordinated development patterns, lack of neighbourhood character and inadequacy in infrastructure provision. In addition, there is lack of political will and public support for planning. Planning is viewed as unnecessary interference in private property rights. Obudho (2017) notes that implementation of development plans depends on very much on the good will of Local Authority. Where spatial planning receives public support, development control takes place smoothly with effective implementation of the development plans and policies unlike in areas without public support.

Restrictive Planning Regulations

Explicit urban development and planning regulations have been adopted in Developing countries. The various Acts regulating urban development seem to be outdated and not conforming to the countries current social, economic and political circumstances (e.g. Physical Planning Act Cap 286). Planning regulations and standards have been considered to be too static and inflexible such as the developments control code, the building and Zoning regulations (Ngetich, 2018). Some of the issues that have been considered unrealistic include the space requirements for various developments such as educational facilities especially in urban areas where land/space is limited and spacing of specific developments such as petrol service stations and provision of acceleration and deceleration lanes.

Effects of Market Forces

The aims and aspirations of developers (profit motivated) have greatly affected development plans implementation. As developers seek to maximise returns from land, they tend to violate some of the building and planning standards/regulations such as plot coverage and plot ratio. Developers seek to attain as many units as possible within their land as a way of maximising profits from their land and developments. The high demand for commercial spaces and housing units as evident in the high rate of housing deficit in the country has motivated developers to adopt the beacon to beacon type of developments (AAK, 2011).

The Effects of Development Control on Residents Satisfaction

To strengthen the economic base of urban areas, optimum use of natural resources will be stressed and inhabitants, emanates from the need for better land use planning, good quality environment viable urban economy, it facilitates the creation and sustenance of good living urban environment for sustainable human development, it entails the acquisition of large tracks by the public authority, i.e. planning the area and then selling or leasing the land not required for public uses to private developers for rebuilding or rehabilitation, it enhances urban economy by strengthen the economic base of the urban poor through job creation.

Concept of Settlement Pattern

Settlements worldwide are located on the earth's surface with people living in them. Each settlement has a site and location, site refers to the land on which settlement is built (Datta, 2016). for example, Gulfport, Mississippi is sited on the marshy area of the Gulf coast which borders the Gulf of Mexico. While, location refers to the position of settlement in relation to other places in the region. For example, Egypt is located on the focal point of the River Nile. Settlements are known to change spatially with time, but the pattern of such change varies according to certain factors such as transportation and socio-economic activities; political fragmentation; population density; infrastructural distribution and social amenities; economic development; industrialisation and urbanisation; social networks; topographical conditions; religious and cultural factors (Delmelle, & Casas, 2018).

In Nigeria for example, towns/cities have common features of a dual urban pattern (the traditional and colonial towns). The traditional/walled towns existed in Nigeria before the arrival of the British colonial masters, characterised by religion dominated and socio-cultural uniqueness (Delmelle, & Casas, 2016). These characteristics of the traditional/walled Nigerian towns/cities played a dominant role in her pattern of settlements. specifically, built with locally sourced building materials such as mud, thatch, wood, stone, etc and possessed a unique pattern from the first settlers .These traditional/walled settlements are presently, existing in most of the ancient towns/cities of Nigeria and are known to encourage compact form of arrangement with settlements built round containing dwellings of multiple apartments that accommodates tenants and the extended family members (Obongha, & Ukam, 2020).

Nigeria's pattern of settlement is characteristically different from the planned developed cities of the world. Most cities in Nigeria were developed before planning and have been compact areas with high population densities (Obongha, & Ukam, 2020). They contain buildings built close to one another, some of which without appropriate setbacks, height and coverage. As settlements develop and grow, they form identifiable settlement patterns which we have explained in detail below. You can see the different settlement patterns complete with illustrations and defintions. Best identified from the air, we look at: linear settlements, nucleated settlements and dispersed settlements Early settlers forming villages would often live together for

safety, for friendship, and to share services. These early settlements would take on distinctive patterns based on the shape of the land around them. Here we can see some examples of different settlement patterns.

Settlement pattern refers to the shape of the settlement as seen from above. The shapes of early settlements were influenced by the surrounding landscape. They were also shaped by other factors such as who owned the land and whether the land was good for building on or not. Some examples of settlement patterns include, nucleated settlements, linear settlements and dispersed settlements (Berlant, 2016).

Nucleated Settlements

Nucleated settlements are ones where the houses are grouped closely together, often around a central feature like a church, pub or village green. New settlements that are planned often have a nucleated pattern other names for nucleated settlement is clustered settlement Berlant, (2016).

Linear Settlement

Linear settlements are settlements where the buildings are constructed in lines, often next to a geographical feature like a lake shore, a river or following a road. Where linear settlements follow a road, the road often predates the settlement other names for linear settlement Boone, (2019).

Dispersed settlements

Dispersed settlements are ones where the houses are spread out over a wide area. They are often the homes of farmers and can be found in rural areas.

Empirical Studies on Development control compliance

Olajuyigbe & Rotowa (2016) identified some challenges in controlling development, including an unavailable urban development policy, ineffective control of development, unavailable spatial data and information, and lack of a master plan to regulate settlements growth. The study advocated for the dire evolvement of urban development policy coupled with a series of legislations and regulations to facilitate development control. The study on the problems of development control in urban centers in Kenya by Koech (2020) established that laxity in approving plans, poor policy implementation, inadequate council capacities (finances, technical and human), political interference, inadequate enforcement machinery and lack of public awareness of the existence of planning and development control regulations were among the factors militating against development control. Osinbajo (2016) stated three significant ways the problems of development control non-compliance could arise. First, it could be a consequence of insufficient laws or inadequate development control regulations, which leaves landowners some room to do with the land as they wish. The second possibility is for two different authorities attempting to regulate the physical development of land within the same territory. The two may be working at cross-purposes, enabling individual landowners to play one against the other. The third cause of development control problems could arise from the non-enforcement of relevant laws. Maleki, Hakimpour & Masoumi (2017) stated that development control operates in two levels, the macro and micro levels. At the macro level, its primary goal is to control the subdivision of land as new sites are brought under the urban influence and use; they form an essential part of the present overall urban setting and fit into the future setting. At the micro-level, its primary goal is to regulate the development of the individual plot and structure within the subdivision (Okosun, 2020). Land subdivision regulations are used to plan at the micro level to secure socially desirable minimum development standards for the community.

Eapen (2017) stressed that the primary aim of development control is to promote community development by avoiding defects in land subdivisions such as awkward shape and size of plots, narrow streets, and insufficient community services and facilities. He

further claimed that development control became more important in the present context due to advancements in technology and science and increasing urbanisation. The growth of urban centers has made it vital to convert more rural land into urban uses and intensify existing urban sites. It is worthy of note that cities are more shaped by the enforcement of regulations that control development instead of implementing development plans within their framework. Onaiwu, (2020) identified reasons why there is always resistance in development control exercise. According to Onaiwu (2020) human beings are homocentric, ethnocentric, egocentric and anthropocentric. He asserted that as a result of these features, developers are often self-centered rather than public-centered.

In other words, the tendency for people to carry out developments to satisfy their present personal needs and ego is more likely than those that will satisfy the public interest. Non-compliance with development control regulations is a common phenomenon in Nigerian towns and cities. Fekade (2017) examined the demographical factors and measure the growth rate in the number of people that live in a particular area concerning the pattern and capacity of the habitable settlement. Fekade (2016) asserted that the primary cause of non-compliance with development control exercise is unplanned demographic factors. It involves in-migration, rural-urban drift, and high birth rate, which are signs of population growth. He explained that the challenges had been worsened by environmental degradation, social and political instability, and poor economic performance in many world developing nations. These made people move from rural to urban areas for greener pasture, social facilities, and employment. He stated that hoarding and land speculations can lead to illegal subdivisions and land fragmentation, making it difficult for the developer to comply with plot area standards.

Rakodi (2018) stated that for compliance with development control, such factors as personnel training, public awareness and commitment are needed. He also claimed that good governance is an essential factor that ensures compliance with development control standards. The work of Kombe (2015) showed that people's low standards of living and continuous increase in penury promote the increase of informal developments. According to him, penury is the leading cause of non-compliance with development control standards in most third-world nations.

Alnsour & Meaton (2019) asserted that compliance with development control standards varies due to the socio-economic attributes of the housing developers. They classified the factors that affect compliance with development control standards into socio-economic features, including awareness of the public, household size and household income. Sarkheyli, Sharifi, Rafieian, Bemanian, & Murayama (2017) established the root causes or factors that affect compliance and then developed a model using awareness level, level of income, and economic reasons and as significant factors of non-compliance. The study revealed that the most crucial factors for non-compliance with control regulations are level of awareness, income level and economic reasons.

Theoretical Framework

A theoretical framework guides the research, it determines what things the researcher will measure, and what statistical relationships to look for (Creswell, & Creswell, 2017) and it provides a general framework which can guide the analysis of data. Using a theoretical framework for a research can help the researcher to analyse existing knowledge by providing a particular set of questions to ask, and a particular perspective to use when examining the research topic (Labaree, 2016). The theoretical framework in this thesis is expected to aid the reader to appreciate the relationships of the variables that have been considered relevant to the research problem.

Theory of multi-nucleic model and the polycentric urban model

The two modern theories that are related to this study are the multi-nucleic model and the polycentric urban models both of which advocates the creation or existence of two or more hubs of convergence or multiple districts (MD) in a bid to decongest or decentralise the core of the city laying more emphasis on the settlement pattern and the level of development control within the vicinity. The assumptions of these theories are that the even distribution of population across the city space, even distribution of resources, similar purchasing power of consumers and equal transportation cost in all directions. The concept of the MD however provides some direction in appreciating the underlying determinant of cities in classical and contemporary times. This was further retained in the concentric core of Burgess (1925), and the sector or wedge model of Hoyt (1939). The principle of centrality is almost universally valid, while the ideas of sector or concentric core and the corresponding expansions that radiate from them lack the element of universality. Particularly when considering drivers such as topographies, history, land tenure system, land availability, culture, governmental actions and policies, including infrastructural adequacy etc. Taking the study metropolis (Gombe) as a references, settlement growth followed traditional patterns in the early years and later the colonial 'grid pattern' and Islamic patterns in the North. It did not really follow those forms propounded by Christaller (2017).

It is worthy of note however, that although these models lack universal applicability, the study found some relevance in their core principles, processes and ideas. Some of which find expression in the outlook of the Gombe Metropolis under study. Such processes as invasion and succession process (where other land users are overtaken by others that were 'stronger') in land use, the idea of the locality which is a common thread that runs through the three theories and indeed the principle of market, transportation network and administrative functions of the city remains a constant. This is very applicable in the study area where land uses are constantly experiencing daily conversions (especially where rural land use is overtaken by new urban developments).

Methodology

The Study Area

Gombe was founded in 1804 by Buba Yero (Abubakar), a follower of the Muslim Fulani leader Usman dan Fodio. The emirate headquarters of Gambe was established about 1824 and renamed Gombe Aba ("Old Gombe") in 1841. The emirate prospered until the 1880s when religious warfare and the encroachment of British colonial rule brought severe disruption to the area. The emirate capital was moved in 1913 to Nafada and in 1919 to Doma, which was then renamed Gombe. The state's slogan is the Jewel in the Savannah. The state was formed in October 1996 from part of the old Bauchi State by the Abacha military government. Its location in the north eastern zone, right within the expansive savannah, allows the state to share common borders with the states of Borno, Yobe, Taraba, Adamawa and Bauchi. Gombe has two distinct climates, the dry season (November–March) and the rainy season (April–October), with an average rainfall of 850mm.

Lying in the wooded savanna lands of the Gongola River basin, the area is mainly inhabited by the Fulani, Bolewa, Tera (Terawa), Tangale, Hausa, Kanuri, Waja (Wajawa), and Tula peoples. Important market centres in addition to Gombe town include Kumo, Deba Habe, Pindiga, Dukku, and Nafada. The multipurpose Dadin Kowa Dam is on the nearby Gongola River.

Gombe town is a major collecting point, especially since the opening of the railroad in 1963, for peanuts (groundnuts) and cotton and is a local trade centre in sorghum, millet, cowpeas, cassava (manioc), beans, onions, and tobacco. The people keep cattle, goats, sheep, horses, and

donkeys and practice the traditional crafts of weaving and dyeing cotton. The presence of limestone deposits led to the building of a cement factory in nearby Ashaka in the early 1970s. Gombe is located just south of the railway from Bauchi to Maiduguri and on the secondary highway between Bauchi and Kumo.

Research design

A quantitative research design, which involves the use of a field survey in the collection of data, was adopted in this research due to the nature of the research problem, which involves the effect of development control compliance on residents' satisfaction with peri-urban settlements. According to Creswell (2014), the quantitative research approach is the best research approach when the problem is deterministic and reflects the fact that causes determine the outcome. Thus, the use of a quantitative approach in the research was justifiable. Creswell (2014) opined that the quantitative approach is an approach that shows the relationship between variables aimed at testing theories. These variables are usually measured in numerical instruments so that the outcome can be analysed using statistical procedures. Thus, the quantitative methods involve collecting data numerically analysing and interpreting the data.

Descriptive and exploratory survey design was adopted for this research because it uses the question of "what"? Survey design seeks to obtain information that describes existing phenomena by asking individuals about their perceptions, attitudes, behaviour or values (Nardi, 2018). It is referred to as the conceptual structure within which research is conducted and constitutes the blueprint for the collection, measurement and analysis of data (Yin, 2017).

Population of the study

Agbola, Egunjobi, Olatubara, Yusuf and Alabi (2003) defined population as the entire group, units or elements that fit a certain specification to be studied. The target population for this study was household heads in the peri-urban settlements of Tumfure, Mallam inna, Arawa and Bye-Pass in the Gombe metropolis.

Sample frame

The sample frame is the subset of the population from which data is collected that gives an adequate representation of the population in terms of the characteristics of the population (Fowler, 2013). The total sample frame is 6295, as collected from Gombe Local Government record (2023) and presented in Table 3.

Table 1. Sample Frame

SN	Neighbourhood	Sample Frame
1	Tumfure	1206
2	Mallam inna	1819
3	Arawa	1052
4	Bye-Pass	2218
	TOTAL	6295

Sampling technique

According to Agbola *et al.* (2003) sampling technique is the process which the researcher adopts in selecting a representative part of the population for the purpose of determining the whole population through probabilistic or non-probabilistic sampling. For this research, the stratified random sampling was adopted. Stratified random sampling is a method of sampling that involves the division of a population into smaller groups known as strata. In stratified random sampling or stratification, the strata are formed based on members' shared attributes or characteristics. Stratified random sampling is also called proportional random sampling or quota random sampling. The sampling procedure was also guided by the records available of the

household heads in the peri-urban settlements of Tumfure, Mallam inna, Arawa and Bye-Pass in Gombe metropolis.

Sample size

For the purpose of conducting this research, was sampled from the population in the study area by using Krejcie and Morgan (1975) sample table. The sample size of 361 from a population of 6000 household heads using the Krejcie and Morgan Table 1975. However, a 400 sample size was adopted to avoid collecting inadequate data.

Table 2. Sample size

SN	Neighbourhood	Sample Frame	Sample size
1	Tumfure	1206	77
2	Mallam inna	1819	116
3	Arawa	1052	67
4	Bye-Pass	2218	140
	TOTAL	6295	400

Instrument of Data Collections

The survey instrument used in this research was a self-administered questionnaire. This type of questionnaire reduces the cost of postage and travel, and interviewer bias (Gorard, 2001). The questionnaire contained open and close-ended questions measured on a 5-point Likert scale. Open and Close-ended questions have been described by Gorard (2001) to be preferable in questionnaire designs. The use of scale is adopted because, according to Mathers, Fox, and Hunn (2009), it ensures that questions or statements are posed in a fair and balanced way especially in measuring the strength of attitude and perception. John (2010) opined that where the response scale is below 5 points, the response becomes significantly inaccurate because it measures only direction instead of magnitude. The questionnaire for this research was administered on-site using research assistants. Administration of the questionnaire on-site ensures immediate retrieval of information and enables respondents to ask questions about the survey when the need arises. This method yields a higher response rate (Mathers *et al.* 2009).

Method of Data Analysis

Based on the objectives of this study, the methods of data analysis to be employed vary relatively since it is quantitative data from respondents to be generated from the structured questionnaire as indicated in the first objective of this study, which described the development control compliance level in the Gombe state was analysed using descriptive statistics (mean ranking), the second objective of this study which dwells on factors affecting development control compliance in the study area was analysed using descriptive statistics (mean ranking), the third objective described the residents' satisfaction with peri-urban settlements was analysed using descriptive statistics (mean ranking). Objective four inquired into analysing the effect of development control compliance on residents' satisfaction with peri-urban settlements in the study area was analysed using linear regression. The data was analysed using Statistical Package for Social Sciences (SPSS) Version 22.

Results Analysis and Presentation

Questionnaire administration

After restructuring the questions as required by the pilot survey results, the field survey questionnaire (Appendix C) was administered. The questionnaire was administered and retrieved in two weeks, as in Chacón (2009). The 400 sets of questionnaires were administered to 4 areas within the Gombe metropolis (Table 4). A total number of four hundred (400) questionnaires with 95.0% response rate were retrieved. A total number of 371 were used in the analyses after removing incomplete ones and data screening for outliers. The overall response rate after data screening was 92.75%.

Table 3: Questionnaire Administration

Questionnaire	Number	Response Rate
Administered	400	-
Collected	380	95.0%
Screened	371	92.75%

Coding, Entering and Editing

After collecting the data, the questionnaires were coded and posted into SPSS accordingly. Analysis was carried out using frequency to identify missing data and wrong postings. Five wrong posting was identified, where twenty-seven (27) was posted instead of four (4), and this was corrected by reviewing the particular questionnaire, identifying the place of the wrong posting and correcting it. There are also missing values in which the data mean method in SPSS was used to fill in the missing values, as Coakes (2006) suggested as the accepted method. The data outliers were identified using a box plot in SPSS. Therefore, the extreme values in the box plot were removed.

The reliability of the field Data

The reliability of the field data was analysed by finding Cronbach's alpha, as Pallant (2011) suggested. The table below shows Cronbach's alpha obtained from Challenges with land registration and the benefits of land registration.

Table 4: Reliability result

Constructs	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
Development Control Measures	.887	.887	14
Factors affecting development control compliance	.795	.795	15
Residents' satisfaction with peri-urban settlements	.951	.951	15

Table 4 shows Cronbach's Alpha values of all constructs, which are .887, .795 and .951, respectively. However, all the results were above the acceptable range of 0.70.

Demographic characteristics of respondents

Demographic Four (4) demographic characteristics information of the respondents were collected. These comprise Gender, Professionals, Educational Qualifications, and Years of experience. The frequency and percentage analysis was carried out, and the results were presented in Table 5 to explore the respondents' profiles.

Table 5: Demographic characteristics

S/N	Questions	Options	Frequency	Per cent
1.	Gender	Male	310	83.6
		Female	61	16.4
2.	Age	Under 30 years	57	15.4
		30 to 60 years	270	72.8
		Above 60 years	44	11.9
3.	Educational Qualification	SSCE	41	11.1
		Diploma	217	58.5
		HND/Degree	113	30.5
		Master degree and above	41	11.1
4.	Occupation	Civil Servant	68	18.3
		Business	142	38.3
		Others	161	43.4
5.	Years of House Occupancy	Less than 5years	69	18.6
		5-10 years	67	18.1
		Above 10years	235	63.3

Demographic Table 5 revealed that males have the highest percentage of 83.6% and females' respondents have the least percentage of 16.4% in the study area. Regarding the age of the correspondents, 30 to 60 years constitute the highest percentage of 72.8%, under 30 years constitute 15.4%, and above 60 years constitute the lowest percentage of 11.9%. With regard to qualification, a diploma constitutes the highest percentage of 58.5%, followed by an HND or degree, which constitutes a percentage of 30.5%, and an SSCE or master's degree, which each constitutes a percentage of 11.1%, respectively. Regarding the occupation of the correspondents, others constitute the highest percentage of 43.4%, business constitutes the highest percentage of 38.3%, and civil servants constitute the lowest percentage of 18.3%. Lastly, the list provides the result of years of house occupation, where above 10 years constitute the highest percentage of 63.3% and less than 5 years constitute the percentage of 18.6%. The least was 5–10 years, which constituted the percentage of 18.1%.

The development control compliance level in peri-urban settlements of the Gombe metropolis

Descriptive statistics based on mean ranking were carried out to identify the development control compliance level in peri-urban settlements in the Gombe metropolis. This determines how well the peri-urban settlements in the Gombe metropolis complied with development control regulations.

Table 6: Development control compliance

Items	Mean	Std. Deviation	Rank	Remark
Environmental Impact Assessment	3.7547	.81652	1	High
Density Controls	3.6334	.83528	2	High
Solid Waste Management	3.4636	1.04527	3	High
Drainage and Storm Water Management	3.3962	.95118	4	Moderate
Water Supply and Sanitation	3.2588	1.01763	5	Moderate
Regular Monitoring and Evaluation	3.2399	1.05734	6	Moderate
Setback and Open Space Requirements	2.5445	1.01876	7	Low
Zoning Regulations	2.4879	.96239	8	Low
Cultural Heritage Preservation	2.3423	.92346	9	Low
Sustainable Development Principles	2.3073	.95715	10	Low
Enforcement of Development Control Measures	2.2749	.96975	11	Low
Community Engagement and Participation	1.9461	1.00394	12	Low
Road Infrastructure	1.7332	.88315	13	Very low
Building Code Compliance	1.7332	.88315	14	Very low
Development control compliance level	2.7226	.95178		Moderate

Table 6 presents the development control compliance. The major areas of development control compliance are environmental impact assessment, density control, and solid waste management; the highest mean is 3.7547, 3.6334, and 3.4636, respectively. The development control compliances with the lowest mean values are road infrastructure and building code compliance, with a mean of 1.733 each. Therefore, the development control compliance has a moderate mean of 2.7226. Hence, development control compliance has a moderate influence in the study area. The development control compliance in the study area is moderate, with an average score of 2.7226. This suggests that there is a need for stricter enforcement of development controls in order to ensure that new developments comply with regulations. In particular, there is a need to improve compliance with road infrastructure and building code standards.

The factors affecting development control compliance in the Gombe metropolis.

Development control compliance in the Gombe metropolis was analyzed using descriptive statistics based on mean ranking, identifying the most and least impactful factors.

Table 7: Development control compliance

Items	Mean	Std. Deviation	Rank	Remark
Lack of infrastructure and services	3.9865	.79003	1	High
Cultural norms and practices	3.9191	.59633	2	High
Rapid urbanization and population growth	3.7709	.84394	3	High
Lack of access to affordable housing	3.7197	.77955	4	High
Land tenure issues	3.6226	.95460	5	High
Political interference	3.5660	.90514	6	High
Weak enforcement of development control regulations	3.4933	.87106	7	High
Lack of political will to address development control issues	3.4879	1.03021	8	High
Corruption and bribery	3.4016	1.02028	9	Moderate
Limited access to justice and legal remedies	3.4016	.93745	10	Moderate
Inadequate communication and outreach	3.2776	1.00593	11	Moderate
Lack of awareness of development control regulations	2.3558	.87152	12	Low
High cost of formal development control processes	2.3558	.91686	13	Low
Lack of community participation	1.9515	1.00152	14	Low
Lack of coordination between different agencies	1.7385	.87246	15	Very low

Table 7 shows the factors affecting development control compliance. The major factors include Lack of infrastructure and services, Cultural norms and Rapid urbanization and population growth constitute the highest mean of 3.9865, 3.9191, and 3.7709, respectively. The minor factors are lack of community participation and lack of coordination between different agencies, which constitute the least mean of 1.9515 and 1.7385. The major factors hindering development control compliance are lack of infrastructure and services, cultural norms, and rapid urbanization and population growth. Addressing these factors through targeted interventions is crucial for enhancing compliance and ensuring that new developments align with regulations. Implementing initiatives to improve infrastructure, address cultural sensitivities, and manage urban growth effectively can contribute to improved development control compliance and sustainable urban development.

The level of residents' satisfaction with peri-urban settlements in the Gombe metropolis.

Descriptive statistics based on mean ranking were carried out to identify the level of residents' satisfaction with peri-urban settlements in the Gombe metropolis.

Table 8: level of residents' satisfaction

	Mean	Std. Deviation	Rank	Remark
Green spaces	2.8275	.97670	1	Moderate
Quality of housing	2.7547	1.04063	2	Moderate
Noise pollution	2.7305	.98234	3	Moderate
Traffic congestion	2.6685	.91566	4	Moderate
Air pollution	2.6604	.94327	5	Moderate
Access to Business (markets)	2.6065	1.04305	6	Low
8. Environmental quality	2.5687	.96001	7	Low
2. Affordable housing	2.5148	1.04580	8	Low
6. Healthcare	2.5067	.93683	9	Low
3. Transportation	2.5013	1.06638	10	Low
4. Employment opportunities	2.4771	1.02740	11	Low
Safety and security	2.4636	.94763	12	Low
5. Education	2.4555	1.00272	13	Low
Access to parks and recreation	2.4340	.90514	14	Low
9. Community engagement	2.4313	.96282	15	Low
Level of residents' satisfaction	2.57341	.98376		Low

Table 8 shows the level of residents' satisfaction. The major levels of residents' satisfaction include green spaces, quality of housing, and traffic congestion, which constitute the highest mean of 2.8275, 2.7547, and 2.6685, respectively. The minor levels of residents' satisfaction are access to parks and recreation and community engagement, which constitute the lowest mean of 2.4340 and 2.4313. Therefore, the level of residents' satisfaction has a low mean of 2.57341. Hence, the level of residents' satisfaction with peri-urban settlements is low in the study area. The study area exhibits a very low mean for the level of residents' satisfaction. Residents are generally not satisfied with their living conditions in the area. The major levels of residents' satisfaction are green spaces, quality of housing, and traffic congestion. The minor levels of residents' satisfaction are access to parks and recreation and community engagement.

The effect of development control compliance on residents' satisfaction with peri-urban settlements in the Gombe metropolis.

Regression analysis was carried out to assess the effect of development control compliance on residents' satisfaction with peri-urban settlements in the Gombe metropolis. The effect size was calculated based on Pearson's R² (Coefficient of Determination), which is a proportion of shared variability between two or more variables. It has a range from 0 to 1, usually expressed in percentage (Sullivan & Feinn, 2012). The effect sizes were categorized as "small = 1%," "medium = 10%," and "large = 25%" (Nandy, 2012).

The R² value in Table 10 shows how much of the variance in the dependent variable of development control compliance is explained by the independent variable of residents' satisfaction with peri-urban settlements.

Table 9: Effect of development control compliance on residents' satisfaction

Model Summary							
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	df	F	Sig.
1	.224 ^a	.050	.007	.34846	369	1.167	.233 ^b

a. Dependent variable: RSPS

In this case, the value was $R^2 = .050$, $f(369) = 1.167$, $p < .233$. This means that the independent variable, development control compliance, explained 0.7% of the minimum effect size in the residents' satisfaction with peri-urban settlements, with significance at $p < 0.233$.

The results indicated that development control compliance had a very weak association with residents' satisfaction. The independent variable, development control compliance, only accounted for 0.7% of the minimum effect size in explaining the variation in residents' satisfaction with peri-urban settlements. Additionally, this relationship was not statistically significant, with a p-value of less than 0.233. These findings suggest that development control compliance plays a minimal role in determining residents' satisfaction with peri-urban settlements in the study area.

Conclusion of Recommendations

The findings indicate that the overall level of development control compliance in peri-urban settlements of the Gombe metropolis is moderate. This suggests that there is room for improvement in ensuring that development adheres to the established regulations. Among the specific areas of development control compliance, environmental impact assessment, density control, and solid waste management were found to have the lowest mean values, suggesting that these areas require more attention. On the other hand, road infrastructure and building code compliance were found to have higher mean values, indicating a better level of compliance in these areas.

The findings highlight several factors that affect development control compliance in the Gombe metropolis. The major factors include a lack of infrastructure and services, cultural norms, rapid urbanization, and population growth. These factors can contribute to challenges in enforcing development regulations and ensuring that development adheres to the established standards. For instance, a lack of infrastructure and services can make it difficult to implement certain development regulations, while cultural norms may influence the way people construct their homes and use their land. Rapid urbanization and population growth can also put pressure on the existing infrastructure and services, making it more difficult to ensure compliance with development regulations. The findings reveal that residents' satisfaction with peri-urban settlements in the Gombe metropolis is generally low. The major areas of satisfaction include green spaces, quality of housing, and traffic congestion. While residents are somewhat satisfied with these aspects of their living environment, there is room for improvement. The minor areas of satisfaction include access to parks and recreation and community engagement, indicating that these aspects need to be addressed to enhance residents' overall satisfaction.

The findings suggest that development control compliance has a small and insignificant effect on residents' satisfaction with peri-urban settlements in the Gombe metropolis. This implies that while development control compliance is important, it may not be the sole factor influencing residents' satisfaction. Other factors, such as the availability of infrastructure and services, community engagement, and social cohesion, may also play a role in shaping residents' satisfaction with their living environment.

The findings of this study point to the need for a comprehensive approach to improving development control compliance and enhancing residents' satisfaction in peri-urban settlements of

the Gombe metropolis. Addressing the infrastructure and service deficiencies, engaging with communities, promoting cultural sensitivity, and managing rapid urbanization and population growth are crucial aspects of this approach. Additionally, efforts should be made to improve residents' satisfaction with aspects such as access to parks and recreation, community engagement, and traffic congestion. By addressing these challenges holistically, the Gombe metropolis can foster more sustainable and livable peri-urban settlements for its residents.

Strengthen enforcement mechanisms and penalties for non-compliance with development control regulations. Enhance public awareness and education about development control regulations. Streamline the development control approval process to make it more efficient and responsive to development needs. Promote community engagement in the development control process to ensure that community needs are considered. Implement infrastructure and service provision plans to address the lack of basic infrastructure and services in peri-urban settlements. Address cultural norms that may impede development control compliance. Manage rapid urbanization and population growth by developing integrated urban planning strategies.

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