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Factors Influencing Compliance with Physical Planning Regulations in Gated Communities of Ibadan Municipality, Nigeria

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Abstract

Recently, there has been an upsurge in problems of non-compliances with physical planning regulations in gated communities in Ibadan. This study examines factors influencing compliance with physical planning regulations in gated communities of Ibadan Municipality, Nigeria. Multistage sampling technique was employed in selecting 268 buildings from 23 gated communities in the five (5) local government areas (LGAs) of Ibadan Municipality. Findings revealed that effectiveness of administrative practice was the highest predictor of residents' compliance with physical planning regulations in the study area. Next to this is the residents' socioeconomic characteristics as a significant relationship was established between marital status ($\chi^2 = 0.630$; $p \leq 0.05$), residents' income ($F = 2.286$; $p = 0.104 < 0.05$) and level of awareness of development control regulations. The study concluded that different factors influence residents' compliance with development control regulations at varying degrees. Therefore, there is the need to enhance these factors to positively improve residents' level of awareness of development control regulations and further influence their compliance with planning regulations in the study area.

Keywords: Compliance, Physical planning regulations, Gated communities, Ibadan, Nigeria

1.0 INTRODUCTION

Urbanization has favoured many countries of the world in terms of concentration of economic activities, capital and people. However, it has come with challenges such congestion, overcrowding, overutilization of amenities among others. These problems could be resolved through urban planning (Memunatu, 2015). Keeble (1969) defined urban planning is the art and science of ordering the use of land and character so as to secure an environment that is sufficient, efficient for people, working, living and recreational activities. Among several mechanisms of achieving urban planning is development control. Development control which is a legal instrument to regulate the orderly planning and the growth of the country. It is also intended to create a safe and decent physical and socio-economic environment for living, working and leisure, to achieve a healthy sustainable land-use pattern, to provide easy access to the area of operation, to provide a sufficient and suitable place for various land-use applications and to ensure the efficient and reliable use of multiple resources (Bogoro and Samson, 2014).

The continuous and unguided development as documented by UN-Habitat (2009), constitutes a challenge to effective growth due to fact that the needed amenities are not driven to ascertain that the advantages of the urban areas are distributed adequately. As a result of this, several contraventions to planning standards in urban centres in Nigeria was revealed (Aluko, 2011). There are rampant and a lot of uncovered violation of planning rules, illegal temporary and permanent and temporary structures, blockage of drainage, mindless shifting of building line, and encroachment on government acquired land among others. As a result of this, the compliance with development control in urban areas and most especially in gated communities need to be checked.

The development control which is to regulate the orderly planning and the growth of the country through the enforcement, monitoring and guiding the development and land usage (Kawu, et al., 2012). It is the desire of urban planners to create Paradise on earth through guiding the activities of people on space (Afolabi, 2021). In developing countries, this idea of development control is not mostly welcome or appreciated by higher percentage of the population of people living in urban areas. It is the wish of urban planners to ensure that people identified with an environment that is aesthetic, functional, conducive and convenient for people, working, living and recreational activities. But development control .is less effective in the developing countries like Nigeria due to its nature that hits the right of the residents (Osita, 2019). The inability of government to house the increase in population, search for a better lifestyle, safety, privacy,

and social homogeneity among others by the upper-class people is the emergence of gated communities (Ilesanmi, 2012). Gated communities in the developing country like Nigerian, it is a form of fenced societies as described by Wang and Lau (2013); Despite this, it is expected that the residents of gated communities should maintain their former intension of pioneering such community, but the reverse is the case.

2.0 LITERATURE REVIEW AND CONCEPTS

2.1 Concept of Physical Planning

Physical planning from the professional point of view refers to as spatial planning, land use planning, urban planning among others. It is the rationale decision for the use of land. Oyesiku (2002) conceived physical planning as orderliness between space and activities to ensure proper functioning of sectors of the environment such as land uses, transportation, and economic activities, recreational among others. According to Daramola (2021); Olowoporoku et al. (2017), it is the logical arrangement of developmental activities in space and the establishment of appropriate standards for developmental activities towards strategic aim are, therefore, the goal and objectives of physical planning. It is to ensure proper marriage between various land uses and to ensure accessibility to available services to all. Rural-urban relocation had already resulted into overcrowding in city centres and has serious penalties for the setting up of critical amenities. Therefore, the expansion rate of each of the existing and recently developed cities has resulted to the creation of unorganized land-uses, a convoluted road network, congestion, unorganized procurement and allocation of social economic-physical infrastructure, poor waste disposal and the like, with, among other things, a major impact on the socio-economic well-being of the population. These are all the consequences of uncontrolled rural and urban communities' development in Nigeria. Therefore, the need for orderliness necessitates development control.

Osita (2019) revealed that in order to check the unplanned conversion from one use to another; development control is the way. Study further opined that to ensure that various land uses are compatible to one another and to develop an engineering smart city; a city that works, there must be an effective and efficient development control. In addition, cities illegal occupation of land, non-compliance with design management criteria and regulations among others call for thorough effective development control monitoring. In another parlance, development control is necessary to reduce the negative impact on people in the context of development (Aluko, 2011). According to Olugbamila et al. (2023) revealed that to prevent disorderly and haphazard physical growth and development, which is definitely taking place in the absence of any development control measures in the gated communities, especially urban areas must be managed. Equally, Nwachukwu et al. (2015) affirmed that conflict prevention; promotion of harmonious inter-relationship between various land uses and interventionist approach to ensure orderliness between space and activities at various levels, development control is the answer. Osibanjo (2004) affirmed that physical development of land is regulated by development control.

Nonetheless, some of the rationales for successful development control are to maintain a safe, organized and well-developed environment; to ensure structural soundness and adequate provision of the requisite utilities, services and facilities for the proposed buildings; to protect and improve the environment in such a way that human activities do not even have detrimental effects on the environment. This unchecked growth has resulted to an environmental condition as presently experienced in some squatter settlements of Ibadan (Mapo, Foko, Oke Ado, Bere) and other urban settlements in Nigeria. Development control problems continue in the country despite the presence of these laws and policies. Planners and stakeholders forced to accept that development control has failed in Nigerian cities with persistence of uncontrolled expansion (Uyigue and Agho, 2007). Hence, there is need for effective thorough development control monitoring.

2.1 Factors influencing compliance with development control regulations

Many scholars have established the influencing factors of developers' compliance with development control regulations. According to Zegarac (1999) affirmed that nonconforming with development control regulations is attributed to inaccessibility to housing fund and poverty (uneven economic growth). Arimah and Adeagbo (2000) revealed that illiteracy, low income and lackadaisical attitude of the public were directly connected to noncompliance with development control regulations. In the same vein, Fekade (2000) identified demography factors as intervening variables determined the developer's level of compliance. This study a step further as it looked into factors influencing compliance with development control regulations in relation to gated communities**.** The variables to include rural-urban migration, uncontrolled birthrate and arrival of migrants into a country. In another parlance, Kuen-Tsing (2005) revealed that the influence of socioeconomic characteristics such as: education, monthly income, household size, age and occupation as determinant factors of development control regulations cannot be dispute. Alnsour and Meaton (2009) identified key factors determined compliance with development control regulations such as: low level of public awareness, inaccessibility to housing fund and household income. Equally, Offiong (2014) considered determinant factors for compliance with development control regulations on socioeconomic characteristics such as: educational status and income of the developers or owners of the property. Obabori et al. (2019) revealed that low level of residents' awareness of and compliance with physical planning regulations is attributed to socioeconomic characteristic of the developers. Olowoporoku et al. (2017) revealed that in evaluating residents‟ awareness and compliance with development control issues; socioeconomic characteristics of the people can be best used

The issue of adherence with the design control regulations is determined by certain factors which are majorly based on different stakeholders that may be residents (individual persons or the developers), workers in planning agencies and political class. For the purpose of this study, the factors will be discussed as outlined by UN-Habitat (2009). In assessing physical planning laws in African urban centres,

many factors that make a significant contribution to the noncompliance of urban development control regulations were discussed by UN-Habitat (2009).

First, growing socioeconomic disparities is a key concern for efficient land use activities. The World Bank estimates that around 30% of the world's poor live in urban areas (World Bank, 2002). The proportion of population in poverty has increased in most developing countries to as much as 50% of the population in some cases. With a large proportion of urban population in poverty struggling to make a living, compliance with urban development and regulations is not in their scheme of 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 high degree of non-compliance and urban development and planning regulations. Most of the urban poor live in slums and squatter settlements, without adequate access to clean water, sanitation and healthcare. Most urban poverty results not only from unemployment, but instead from lack of well-paying and steady jobs. It should be noted that even fewer people have been able to find a steady employment with decent pay in the organized sector. In informal sector, the urban poor do all sort of jobs to earn their living. These diverse activities share the common threat of low wages, long hours and often dangerous insecure conditions. As a direct consequence, almost all the housing units Designed and built / occupied by urban poor people do not comply with safety standards. The situation according to World Bank (2002) is worst in Sub-Saharan Africa, where about half of the buildings in the city do not conform to building regulations

Second, when assessing the degree of adherence with the necessary laws, the way in which people are aware of those regulations is essential because it partly defines the extent to which the public can comply with the laws. A significant number of people in urban areas are not aware of planning laws. In most developing countries, the sensitivity level of planning laws and activities to track growth is low among the public. This is evident in the large number of unapproved buildings and the haphazard manner in which developments have taken place.

Third, the various urban development laws seem to be out of date and not adhere with existing social countries, the economic and political situation. Planning laws are to be static and inflexible. Also, the existing standards, by-laws and codes pertaining to construction of buildings do not take into consideration the local materials obtainable which are cheaper. Adequate building technique has not been disseminated to small-income groups. It resulted to the ballooning of haphazard settlements and unlawful innovations.

There is also the problem of high professional fees paid to different professionals such as the Internal Revenue Office, surveyors, architects / draughts men, engineers and planners, have been described as a serious obstacle to advancement within the legal structure. Then they could have hindered some builders from engaging experts in building plans, thereby leaving room for quacks to destroy the built environment. Furthermore, the law requires that all developers must submit their development proposals to local Authorities for approval. This has been reported to take unnecessarily long period of time thus delaying developments in most Local Authorities. Developers had in many cases been forced to commence their developments after experiencing unreasonable delays, and sometimes approvals or disapprovals are communicated long after development has taken place. Several studies have identified different factors influencing compliance with physical planning regulations in different parts of the city. However, several of the studies have identified and isolated factors with each focusing on its area of interest. For instance, many of the studies used socioeconomic characteristics as determinants of awareness and response of physical planning regulations in the core, transition and suburb parts of the city. (Offiong, 2014; Abubakar et al., 2013; Alnsour and Meaton, 2009; Kuen-Tsing, 2005) while some others have focused on administrative practices (Alnsour and Meaton, 2009). This present study however considered and examined both socioeconomic characteristics of respondents and the enforcement of physical planning regulations as factors influencing residents' compliances with physical planning regulations in Gated Communities of Ibadan Municipality.

This adopted model of spatial structure in order to explain characteristics of various residential zones in the city. This is important because the issue of compliance with physical planning regulation is a function of the availability of the regulations. In the theories, the variation in the socioeconomic background of residents and physical structure in cities is acknowledged. Various models and theories have been put forward in explaining growth and pattern of cities. Among these are concentric Zone model, (Burgess, 1925); Sector Analysis Model (Hoyt, 1939); and Multiple Nuclei Model (Harris and Ulman, 1945) have identified the variation in socioeconomic attributes of residents in terms of income. The identified theories were on cities' development and growth ranges from the core, transition and suburb. This study assessed factors influencing compliance with physical planning regulations in the gated communities in Ibadan Municipality, Nigeria based on the propositions of these theories.

■3.0 METHODOLOGY

3.1 Study Area

The study area is Gated Communities (GCs) in Ibadan Municipality, Oyo State, Nigeria. It comprises Ibadan -North, Ibadan Northeast, Ibadan Northwest, Ibadan Southeast, and Ibadan Southwest. It is located approximately between longitude 7°2' and 7°40'E and latitude 3°35' and 4°10'North of Greenwich Meridian. It covers a land area of 5,388.3km^2. The population estimated to be 3,160,200 and 3,565,108 for 2015 and 2018 with 4.14% growth rate; while Ibadan population projection for 2019 using the last growth rate (4.14%) is 3,717,405 (NPC, 2018).

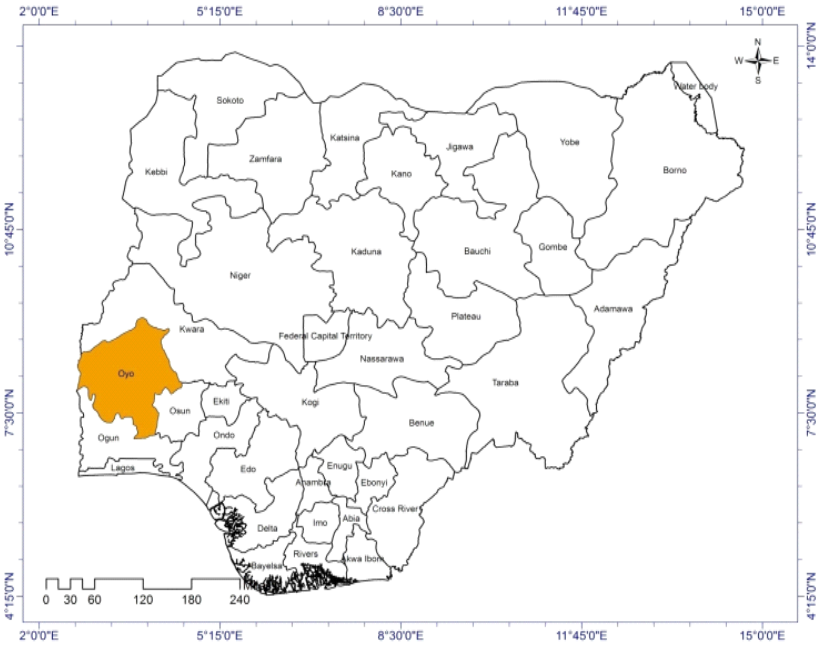

Figure 1 Map of Oyo State in the context of Nigeria
Source: National Aviation Research and Development Agency (NASRDA), 2023

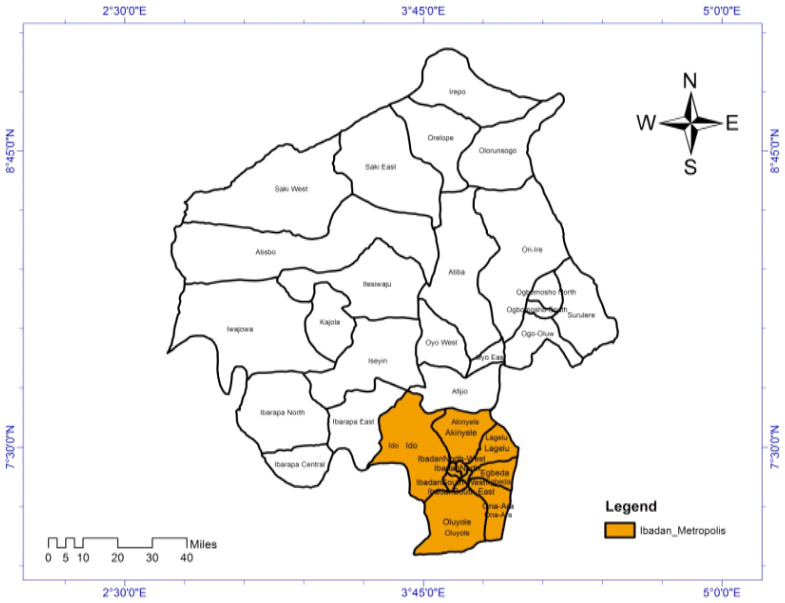

Figure 2 Ibadan Municipality in the context of Oyo State
Source: National Aviation Research and Development Agency (NASRDA), 2023

3.2 Research Method

This study employed the use of a survey research design to obtain information from residents in five gated communities in Ibadan Municipality. Data for the research were obtained from both primary and secondary sources. Primary data were sourced using field observation and the administration of questionnaire. The questionnaire was administered on residents and members of staff of agencies responsible for monitoring of development control regulations in the study area. The questionnaire sought information on determinant factors influencing the compliance with development control regulations through measuring the effectiveness of administrative practice and socioeconomic characteristics of residents to determine the compliance with development control regulations in gated communities. The first set of questionnaires was administered on the residents' socio-economic characteristics, level of awareness of planning regulations; authority concerned for the monitoring of development control regulations; affordability of planning approval; difficulties

encountered interns of plan processing; factors responsible for low level of compliance and non-compliance with development control regulation in the study area.

3.2.1 Secondary Data

The list of gated communities was obtained from Oyo State Housing Corporation. While data on the number of buildings were 2,634 sourced from Google earth. Other secondary data such as location maps were sourced from National Space Research and Development Agency (NASDRA).

3.2.2 The Study Population

The study population for this study includes (268) residents of the gated communities of Ibadan Municipality and (5) Heads of Zonal Planning Authority in the study area. One out of every ten residential buildings in the research area were chosen using systematic sampling technique. On this basis, a total of 268 residential buildings representing 10% of the buildings identified were selected. This comprised 35 buildings in OkeAremo Housing Scheme, 30 buildings in Sabo housing estate, 28 from Old Bodija Scheme, 32 from Jericho GRA, 28 from Iyaganku GRA, 25 from Liberty Layout, 32 from Owode Housing Scheme, 30 from Lagelu residential scheme and 28 from Idi-Ape GRA. In each of the selected houses, the target respondent was the household head. Thus, the sample size for the research was 268 respondents on which questionnaire was administered.

Table 1 Locations of Residential Areas with Gated Communities (GCs) in Ibadan Municipality

S/NO	Local Government Area	Government Reservation Area	Local Govt. Scheme	Property Dev. Corp Scheme	Total GCs Area
1	Ibadan North	Agodi GRA Mokola Low-Cost Housing Scheme Samonda Scheme (Old Airport) Oke-Aremo Housing Scheme (4)	Sabo Housing Scheme Mokola Layout (2)	Old Bodija Scheme New Bodija Scheme (2)	8
2	Ibadan Northwest	Jericho GRA Onireke Comm. And Links Reservation Onireke Housing Estate (3)	None	None	3
3	Ibadan Southwest	Iyaganku GRA Alesinloye GRA Alalubosa GRA Ring Road HOP. GRA (5)	Ring Road Layout Liberty Layout Oluyole Scheme Lagos Bye Pass Layout (Mixed Dev.) (4)	Owode Housing Scheme (1)	10
4	Ibadan Southeast	None	Lagelu Residential Scheme, Felele Express (1)	None	1
5	Ibadan Northeast	Idi-Ape GRA (1)	None	None	1
	Total	**13**	**7**	**3**	**23**

Source: Ibadan Housing Corporation, 2023

Table 2 Gated Communities where households were selected for survey

LGA	Gated Communities	Number of buildings	Number of buildings selected
IBNLGA	Oke-Aremo Housing Scheme	349	35
	Sabo Housing Scheme	291	30
	Old Bodija Scheme	278	28
IBNWLGA	Jericho GRA	314	32
IBSWLGA	Iyaganku GRA	277	28
	Liberty Layout	241	25
	Owode Housing Scheme	315	32
IBSELGA	Lagelu Residential	294	30

IBNELGA	Idi-Ape GRA	275	28
Total	Nine (9)	2634	268

Source: Ibadan Housing Corporation, 2023; Author's field survey, 2023; Google Earth 2023

Second parts of questionnaire were administered on the agencies responsible for the development control in either headquarters or zonal offices of Ibadan Municipality. The information obtained include granting of planning permit, development monitoring, supervision of constructions, creation of awareness of planning regulations, localisation of planning regulations, preparation of development plans, formulation of physical development policies, and preparation of residential layout among others. The subject of the interview was the head of the planning authority. Out of the headquarters of planning, agencies were identified zonal branch offices across the five Local Government Areas in Ibadan Municipality. In each of the Local Planning Authorities, one out of every 2 zonal branch offices were randomly selected. (Table 3). The data obtained was analysed using correlation and regression analyses.

Table 3 Selected Zonal Planning Authorities in the Study Area

Local Government Areas	Number of Zonal Offices	Number of selected Zonal Offices
Ibadan North	2	1
Ibadan Northwest	1	1
Ibadan Southwest	2	1
Ibadan Southeast	2	1
Ibadan Northeast	1	1
Total	8	5

Source: Author's field survey, 2023

■4.0 RESULTS AND DISCUSSION

4.1 Factors Influencing Residents' Opinion of Physical Planning Regulations

This section comprises the results and interpretation of data collected on factors influencing residents' compliance with physical planning regulations in the study area. In this section, the relationships between these variables earlier identified using correlation and regression analyses. The findings are as presented in tables 4 - 6 and discussed accordingly.

4.1.1 Correlation Analysis of Residents' Compliance with Physical Planning Regulations and Socioeconomic Characteristics

Two types of correlation analysis are used in data analysis. These are the Kendal and Pearson's correlation. The Kendall (τ) correlation was used in analysing categorical data such as gender and level of education while Pearson's correlations (r) were used in analysing continuous data such as age and income. Presented in Table 4 are the results of the correlation analyses carried out on residents' compliance with physical planning regulations and socioeconomic variables such as gender, age, level of education, monthly income and household size.

It was found out that residents' opinion of physical planning regulations had a significant relationship with age of respondents ($r = 0.153$, $p = 0.003 < 0.01$), household size ($r = -0.136$, $p = 0.018 < 0.01$) and length of stay ($r = -0.312$, $p = 0.000 < 0.01$). This implies that age, household size and length of stay could be predictors of residents' compliance with physical planning regulations in the study area. These significant factors established relationships with residents' compliance with physical planning regulations in the study area. These relationships have been earlier identified in the study as determinants of opinion as opined by several authors (Arimah & Adeagbo, 2000; Kuen-Tsing, 2005; Offiong, 2014; Olowoporoku et al., 2017; Alonge, 2019). Thus, these findings compliment the earlier studies that socioeconomic characteristics relate significantly with the way residents comply with physical planning regulations.

Table 4 Correlation Analysis of Residents' Compliance with Physical Planning Regulations and Socioeconomic Characteristics

Correlated Variables		Compliance	Gender	Age	Level of Education	Income	House-hold size	Length of Stay
Compliance	R	1	0.057	0.153**	-0.077	-0.031	0.136**	0.312**
	Sig.		0.123	0.003	0.621	0.407	0.018	0.000
Gender	T		1	0.070	-0.232	-0.155*	0.107	0.033
	Sig.			0.212	0.000	0.029	0.163	0.646
Age	R			1	0.128*	0.357**	-0.104	0.089

	Sig.				0.039	0.001	0.102	0.188
Level of Education	T				1	0.211**	-0.311**	-0.372**
	Sig.					0.001	0.001	0.000
Monthly Income	R					1	0.015	0.051
	Sig.						0.637	0.431
Household size	R						1	0.193**
	Sig.							0.017
Length of Stay	T							1
	Sig.							

*Correlation is significant at the 0.05 level (2-tailed).; **Correlation is significant at the 0.01 level (2-tailed).

4.1.2 Correlation Analysis of Residents' Compliance with Physical Planning Regulations and Effectiveness of Administrative Practices

Contained in Table 5 are the results of the correlation analysis of residents' compliance with physical planning regulations and administrative practices of physical planning agencies such as granting planning permit, development monitoring, preparation of development plans, formulation of physical development policies, and preparation of residential layout. It was found out that residents' compliance with physical planning regulations had a significant relationship with effectiveness of granting planning permit ($\tau = 0.463$, $p = 0.002 < 0.01$), development monitoring ($\tau = 0.411$, $p = 0.001 < 0.01$), formulation of physical development policies ($\tau = 0.316$, $p = 0.002 < 0.01$) and preparation of residential layout ($\tau = 0.0381$, $p = 0.000 < 0.01$). This implies that compliance with physical planning regulations could be influenced by effectiveness of granting planning permit, development monitoring, formulation of physical development policies, and preparation of residential layout in the study area.

Table 5 Correlation Analysis of Residents' Compliance with Physical Planning Regulations and Effectiveness of Administrative Practices

Correlated Variables		Compliance	Granting planning permit	Development monitoring	Preparation of devpt plans	Formulation of physical devpt policies	Preparation of residential layout
Compliance	T	1	0.463**	0.411**	0.256**	0.147	0.356
	Sig.		0.002	0.001	0.000	0.009	0.008
Granting planning permit	T		1	0.103	0.043	-0.356	0.012
	Sig.			0.077	0.644	0.008	0.720
Development monitoring	T			1	-0.015	0.013	-0.567
	Sig.				0.211	0.603	0.163
Preparation of devpt plans	T				1	0.316**	0.162
	Sig.					0.002	0.503
Formulation of physical devpt policies	T					1	0.381**
	Sig.						0.001
Preparation of residential layout	T						1
	Sig.						

** Correlation is significant at the 0.01 level (2-tailed).

4.1.3 Determinant Factors for Compliance with Development Control

The determinant factors refer to the basic factors propelled residents to comply with planning standards. As identified in the literature, the factors are categorized into two under the stakeholders in building industry to include town planning officers and developers. According to UN Habitat (2009) identified determinant factors for compliance with development control regulations as socioeconomic characteristics of

the developers and the administrative practices of the government agencies. The socioeconomic variables investigated in this study include age, occupation, education level, marital status, and gender and income level. While administrative variables investigated include amount paid for assessment, time taken in plan approval, location of buildings, and knowledge of development control regulation, among others.

4.1.4 Determinant of Residents' Compliance with Physical Planning Regulations

Presented in this section are the results of the analysis on the determinants of residents' compliance with physical planning regulations in the study area. It revealed that variables that serve as determinants of residents' compliance with physical planning regulations are many and they embedded in socioeconomic characteristics and administrative practice. Furthermore, many of these variables are covariates. Thus, there is a need to reduce them to a manageable size while retaining the characteristics of the variables. Hence, Factor Analysis was used to reduce the data set to a more manageable size while retaining as much of the original information as possible. Factor Analysis was also employed to measure variables that cannot directly be measured (latent variables) The factor analysis is a statistical technique used to determine the number of underlying dimensions contained in a set of observed variables. The underlying dimensions referred to as factors. These factors explained most of the variability among a large number of observed variables. In factor analysis, the first factor explains most of the variance in the data, and each successive factor explains less of the variance. Factor Analysis was also employed to measure variables that cannot directly be measured (latent variables). Furthermore, it helped to solve the problem of collinearity of variables. Using Factor Analysis, two components were generated namely, administrative practices and socioeconomic characteristics.

4.1.5 Enforcement of Administrative Practices for Physical Planning Regulations

Presented in this section are findings on the ratings of the administrative practices employed for the enforcement of physical planning regulations in the gated communities in Ibadan Municipality. The ratings on the administrative practices were measured through an index tagged Administrative Practice Index (API). Mean indexes was used to decide the enforcement of Administrative Practice Index. The opinions of the residents with these variables were expressed using a five-point Likert scale. Residents were provided with a list of administrative practices used in controlling physical planning in the gated communities. The analysis of the responses evolved Administrative Practice Indexes (APIs) and mean Administrative Practice Index ($\overline{API}$). To obtain API, a weighted value of 5,4,3,2 and 1 were respectively attached to rate each response of Very Effective (VE), Effective (E), Just Effective (JE), Not Effective (NE) and Not at All Effective (NAE) on any functions of the exercise. The SWV for each item was attained through the sum of the product of number of responses of each item and the respective weighted value attached to each rating. This is expressed mathematically as:

$$SWV = \sum_{I=1}^{5} X_i Y_i \quad \text{----------(i)}$$

Where:

SWV = summation of weight value,

X_i = number of respondents to rating i;

Y_i = the weight assigned a value (i = 1, 2, 3, 4, 5).

The API for each item on the scale was arrived at by dividing the Summation of Weighted Value (SWV) by the total number of respondents in each gated community, mathematically expressed as:

$$API = \frac{SWV = \sum_{I=1}^{5} X_i Y_i}{N} \quad \text{----------(ii)}$$

The $\overline{API}$ was later computed by summing residents' opinion of enforcement of regulations and dividing by the list of identified regulations used by planning agencies (n = 22), mathematically expressed as:

$$\overline{API} = \frac{API}{n} \quad \text{----------(iii)}$$

Functions of enforcement of physical planning regulations with the actual values with the computed $\overline{API}$ indicate a moderate level of enforcement. Values with positive deviations indicated high level of enforcement, while those with negative deviations indicated low level of enforcement of the identified functions (physical planning regulations).

From the analysis presented in Table 6, the calculated mean $\overline{API}$ in the Government Reservation Area was 3.11, in the Local Government Scheme, the mean $\overline{API}$ was 3.68 and the calculated mean $\overline{API}$ in the Property Development Corporation Scheme was 3.47. This implies that administrative practices were most enforced in the Local Government Scheme (LGS), followed by the Property Development Corporation (PDCS) and least enforced in the Government Reservation Area (GRA).

Based on the $\overline{API}$ for the Government Residential Area, the seven highest rated effective administrative practices employed for the enforcement of physical planning regulations are; planning permit (3.92), development monitoring (3.68), physical development policies

(3.53), settlement of dispute on land use development (3.49), fence permit (3.47), opening up of roads (3.30) and residential layout (3.30). In the Local Government Scheme, there was a contrast as the seven highest rated effective administrative practices employed for the enforcement of physical planning regulations were laws for settlement of dispute on land use development (4.75), location of bus stops (4.61), street naming (4.57), physical development policies (4.54), supervision of constructions (4.25), development monitoring (4.25) and planning permit (4.17). Information from the Property Development Corporation Scheme revealed the seven highest rated effective administrative practices used for the enforcement of physical planning regulations were street naming (4.41), settlement of disputes (4.29), supervision of constructions (4.21), development monitoring (4.13), plan approval (3.96), designing of open spaces (3.93) and planning permit (3.95).

Table 6 Enforcement of Administrative Practices for Physical Planning Regulations

Administrative Practices	GRA		LGS		PDCS	
	API	API - $\overline{API}$	API	API - $\overline{API}$	API	API - $\overline{API}$
Granting of planning permit	3.92	0.80	4.17	0.49	3.82	0.35
Development monitoring	3.68	0.56	4.25	0.57	4.13	0.66
Supervision of constructions	3.21	0.09	4.25	0.57	4.21	0.74
Creation of awareness of planning regulations	2.87	-0.25	2.68	-1.00	2.79	-0.68
Localisation of planning regulations	2.44	-0.68	1.81	-1.87	3.05	-0.42
Preparation of development plans	3.02	-0.10	2.96	-0.72	2.36	-1.11
Formulation of physical development policies	3.53	0.41	4.54	0.86	3.20	-0.27
Preparation of residential layout	3.30	0.18	3.13	-0.55	3.48	0.01
Designing of open spaces	2.66	-0.46	3.70	0.02	3.93	0.46
Opening of roads	3.30	0.18	4.19	0.51	3.29	-0.18
Granting of fence permit	3.47	0.35	3.95	0.27	2.99	-0.48
Settlement of disputes	3.13	0.01	4.75	1.07	4.29	0.82
Taking part in street naming	2.86	-0.26	4.57	0.89	4.41	0.94
Settlement of dispute on land use development	3.49	0.37	4.75	1.07	3.11	-0.36
Location of bus stops	3.23	0.11	4.61	0.93	3.78	0.31
Declare city section special planning areas	2.65	-0.47	2.99	-0.69	3.19	-0.28
Declaring some roads as one way traffic	2.55	-0.57	2.46	-1.22	3.35	-0.12
Timely detection of illegal development	3.10	-0.02	3.52	-0.16	2.99	-0.48
Dissemination of planning information	3.11	-0.01	3.88	0.20	3.80	0.33
Period of granting approval to proposed plans	3.23	0.11	3.85	0.17	3.96	0.49
Public involvement in planning decision making	3.17	0.05	3.87	0.19	3.44	-0.03
Politeness of town planners to developers	2.70	-0.42	2.11	-1.57	2.86	-0.61
Calculated $\overline{API}$	3.11		3.68		3.47	
Standard Deviation	0.36		0.80		0.50	
Co-efficient of Variation	11.6%		22.2%		14.1%	

Source: Author's Field Survey (2023)

Based on the $\overline{API}$ computed the least rated effective administrative practices and enforcement of physical planning regulations indicated by the respondents were discussed across the three gated communities. In the Government Reserved Areas, administrative practices and enforcement of physical planning regulations that respondents attach least effectiveness to were localisation of planning regulations, declaration of some roads as one way traffic, declaring city section special planning areas, designing of open spaces and politeness of town planners to developers as they weighted 2.44, 2.55, 2.65, 2.66 and 2.71 respectively. In the Local Government Scheme, the administrative practices and enforcement of physical planning regulations that were least rated were localisation of planning regulations (1.81), politeness of town planners to developers (2.11), some roads declared as one way traffic (2.46), creation of awareness of planning regulations (2.68), and preparation of development plans (2.96). From the Property Development Corporation Scheme, the least rated administrative practices and enforcement of physical planning regulations by the respondents were preparation of development plans (2.36), creation of awareness of planning regulations (2.79), politeness of town planners to developers (2.86), timely detection of illegal development (2.99) and granting of fence permit which also weighted (2.99).

The computed standard deviation (SD) for the Government Reserved Area, Local Government Scheme and Property Development Corporation Scheme were 0.36, 0.81 and 0.50 respectively. The Standard Deviation provided the insight for computing the co-efficient of

variation (CV) for each of the gated communities which was 11.6%, 22.2% and 14.1% respectively. This implied that 88.4%, 77.8% and 85.6% of the administrative practices and enforcement of physical planning regulations indexes for the Government Reserved Area, Local Government Scheme and Property Development Corporation Scheme clustered around the mean administrative practices and enforcement of physical planning regulations indexes computed for each of the gated community. With the proportions of CVs of the dataset obtained from these gated communities, it could be inferred that the computed APIs were reliable.

Table 7 Rotated Component Matrix on Determinants of Residents' Compliance with Physical Planning Regulations

Initial Variable	Component	
	1	2
Gender		-0.530
Length of stay		0.509
Age		0.820
Educational level		0.787
Monthly income		0.714
Household Size		
Granting of planning permit	0.942	
Development monitoring	0.986	
Supervision of constructions	0.986	
Creation of awareness of planning regulations	-0.894	
Localisation of planning regulations	0.983	
Preparation of development plans	0.372	
Formulation of physical development policies	-0.248	
Preparation of residential layout	-0.134	
Designing of open spaces	0.763	
Opening up of roads	0.693	
Settlement of disputes	-0.545	

Extraction method: Principal Component Analysis
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 5 iterations
Key: 1 = Administrative Practices (Eigen Value = 5.831; 21.59%)
2 = Socioeconomic Characteristics (Eigen Value = 3.326; 17.22%)

Presented in Table 7. are the results of factor analysis performed in the study. Findings revealed that the first factor (component 1) with Eigen Value of 5.831 accounted for the highest proportion (21.59%) of variance of the data set. This component loaded highly on variables such as development monitoring (0.986), supervision of constructions (0.986), localization of planning regulations (0.983), and granting of planning permit (0.942), among others. Hence it was named effectiveness of administrative practices. The second factor (Component 2) which had an Eigen value of 3.326 accounted for (17.22%) of the variance of the data set. It loaded highly on variables such as age (0.820), educational level (0.787), monthly income (0.714), gender (-0.530), among others. It is named socioeconomic characteristics. These factors accounted for 38.81% of the analysis of factors that influence residents' compliance with physical planning regulations. The two factors were used for further analysis using multiple regression analysis in a sequential order of two models. The regression model summary of these components in relation with residents' compliance with physical planning regulations is presented in Table 8a.

Table 8a Regression Coefficient Summary on Physical Planning Regulations

Model		Unstandardized Coefficients		Standardized Coefficients (β)
		B	Std. Error	Beta
1	(Constant)	3.066	.027	
	Effectiveness of administrative practices	.364	.027	.599
2	(Constant)	3.066	.020	
	Effectiveness of administrative practices	.364	.020	.599
	Socioeconomic characteristics	.327	.020	.538

a. Dependent variable: Residents' compliance with physical planning regulations

Table 8b Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.599[a]	.359	.357	.48758	.359	180.755	1	323	.000
2	.805[b]	.468	.646	.36178	.111	264.667	1	322	.000

a. Predictors: (Constant), Effectiveness of administrative practices
b. Predictors: (Constant), Effectiveness of administrative practices, Socioeconomic characteristics

Regression analysis was also employed in this study to understand the predictive factors influencing residents' compliance with physical planning regulations across the study area. For the regression model, effectiveness of administrative practices was the entry level variable. Evident in this regard, the effect of effectiveness of administrative practices on residents' compliance with physical planning regulations was determined. Effectiveness of administrative practices had a coefficient of multiple determination ($R^2 = 0.359$) which made a good predictor of residents' compliance with physical planning regulations. This implies that 35.9% of the residents' compliance with physical planning regulations was predicted by effectiveness of administrative practices.

The next model showed the impact constituted by effectiveness of administrative practices and socioeconomic attributes on residents' compliance with physical planning regulations. The two components were known to have a coefficient of multiple determination (R^2 =0.468). This implies that 46.8% of the residents' compliance with physical planning regulations was predicted by effectiveness of administrative practices and residents' socioeconomic characteristics. In furtherance, the coefficient of determination for the socioeconomic characteristics was determined as change in coefficient of multiple determination (ΔR^2= 0.111). This was done to ascertain the actual percentage contribution of socio-economic characteristics to the model. Hence, 11.1% of residents' compliance with physical planning regulations was predicted by residents' socio-economic characteristics.

Based on this regression analysis, the regression equations that were built using the standardized and unstandardized regression coefficient are:

For the unstandardized coefficients (B) as:

Model 1 $y = 3.066 + 0.364x_1 + 0.027$ …….....(i)

Model 2 $y = 3.066 + 0.364x_1 + 0.327x_2 + 0.020$ ……..(ii)

For the standardized coefficients (β), the regression equation is:

Model 1 $y = 0.599x_1$ …….....(iii)

Model 2 $y = 0.599x_1 + 0.538x_2$ ……..…..(iv)

Where:

a = Constant

y = Residents' Compliance with physical planning regulations
x_1 = Effectiveness of administrative practices
x_2 = Socioeconomic characteristics
ε = Error term

The equation (i) and (ii) are the models built for predicting residents' compliance with physical planning regulations from effectiveness of administrative practices and residents' socio-economic characteristics. The equation (i) was built based on the unstandardized regression coefficient of the predictors while existing on different units of measurement. To better explain, the predictor with the highest regression coefficient, equation (ii) was computed using the standardized coefficient with the error term eliminated. Thus, the predictors could be compared directly.

From equation (i), the first predictor which is effectiveness of administrative practices (β_1= -0.359) was the highest predictor of residents' compliance with physical planning regulations in the study area. That means the higher the level of effectiveness of administrative practices, the higher the level of compliance with physical planning regulations in the study area. The next component was the factor of residents' socioeconomic characteristics (β_3= 0.111). It indicates that socioeconomic characteristics of residents had a positive influence on their compliance. A unit increase in socioeconomic characteristics factor will lead to an increase in the level of compliance with physical planning regulations in the study area.

■5.0 CONCLUSION

Based on the findings from the research, the unguided development that are rampant in the core area of the city are now visible in the gated communities. It is resolved that the higher the level of effectiveness of administrative practices, the higher the level of compliance with physical planning regulations in the study area. It further revealed that the socioeconomic characteristics of residents had a positive influence on their compliance. Factors influencing residents' compliance with physical planning regulations revealed that the level of compliance have significant relationship with socioeconomic characteristics such as household size, age, and duration of stay. Also, variables indicating the level of effectiveness of administrative practices such as granting planning permit development monitoring, preparation of physical development plan and formulation of physical development policies. Further findings revealed that effectiveness of administrative practice was the highest predictor of residents‟ compliance with physical planning regulations in the study area followed by residents‟ socioeconomic characteristics. This showed that in order to explain the determinants of compliance with physical planning regulations in the study area, there is need to consider the administrative practices of the physical planning agencies and residents' socioeconomic characteristics in the study area.

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