Analysis of Residents' Compliance with Development Control Regulations in The Different Residential Zones in Enugu Urban, South-East, Nigeria

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Abstract

In the recent past, most studies done on residents' compliance to development control regulations and laws has concentrated in the western region of Nigeria and this have been discussed on the aggregate perspective without considering the differential influence of the diverse residential zones in the city under review. The need to give different residential zone analysis of compliance to development control regulation by residents would give a more robust and acceptance analysis and this has been lacking in the body of literature in Nigeria and in African sub-sahara region at large. This study therefore determined the residents' compliance with development control regulations in the different residential zones in Enugu urban with a view to evolving policies for sustainable urban land use control and management in Enugu. The data were derived from a questionnaire survey of 400 developers and analyzed using descriptive and principal component analyses. Multi-stage sampling techniques was employed in the study. The study area was clustered into three residential zones (traditional/ core, sub- urban and planned area). Then simple random sample techniques was used to select the neighbourhoods from each of these zones: 2, 3 and 3 neighbourhoods were selected from traditional, sub urban and planned residential zones respectively. The results revealed that Four predominant factors influenced residents' compliance to development control regulation in the planned residential zones, five factors influenced residents' compliance to development control regulation in the sub urban residential zones while seven influenced residents' compliance to development control regulation in the traditional residential zones. This understanding of the factors that influence public participation in urban planning projects, urban planners can come up with remedial approaches which would ensure that their future planning activities are more inclusive, pro-poor and hence sustainable.

Key words: Traditional, Factors, Compliance, Participation, Residents

1. Introduction

Development control is one of the strategies adopted by government to pursue physical planning activities in an area so as to achieve the goal of orderly planning and growth of towns, cities and other settlements. According to Daramola, & Olowoporoku (2016), it helps in the way and manner in which physical development of land is regulated. Given the above presentation, it is instructive to point out that disagreement often arises between the officials of development control department and developers, as the officials of the control department pursue their statutory responsibility of enforcing and ensuring the orderly arrangement and control of land use activities in space. Development control activities lead to interface between the developers and the control officers. One major effect of the interface between the officials of the development control department and developers relates to the issue of non compliance by some private and public developers with development control regulations. This falls in line with the studies of Ahmed and Dinye, (2011); Jimoh, Al-Hassan, Imimole and Ahmed (2017).

The consequences of non-compliance with development control regulations by some private and public developers in most urban areas of developing countries lead to chaotic and disorderly growth of concerned cities; inadequate circulation systems; absence of community facilities; illegal development, development of incompatible uses; development of ecological unstable land; poor supply of urban land for various uses; problem of serviceability of urban land and all forms of contravention (Odekunle, Akindele and Adebajo 2019; Amanor et al, 2017)

Unplanned or illegal physical development is a menace to any settlement or society in the world, especially where the control of such human activities has been bastardized. This has been identified in many developing countries, Nigeria inclusive. The majority of people in these parts of the world fail to take cognizance of the effectiveness of development control measures and regulations (Adedibu, 1995). Despite the existence of good legal documents and the establishment of more physical planning agencies, Enugu Urban is still miles away from being a "world class city". Evidence of environmental decay, incompatible physical development, increasing status of slums and squatters still thrive in Enugu, thereby placing a serious question mark on the effectiveness of the development control mechanism available in the city. In Enugu urban, physical developments are springing up at an alarming rate as a result of rapid urbanization in the city-centers. People tend to reside on the outskirts of the city due to the tremendous increase in land value and landed property in the central areas of Enugu. However, these movements of people are characterized by: an unplanned development; lack of planning schemes; inadequate planning operational measures such as statutory setback and airspaces, access to the drainage system, accessibility to residences, ventilation, and lighting, safety, and privacy, amongst others.

In Enugu State, efforts of planning authorities at development control began during the colonial administration. This period was characterized by the enactment of several ordinances such as the 1917 Township Ordinance No 29, and the 1946 Town and Country Planning Ordinance, No 4, amongst others (Akinade, 1985, Onokorhoraye & Omuta, 1994)). During the post colonial era, the Urban and Regional Planning Law Cap 138 LFN 2004 (Act, 1992) was promulgated. There was the revised Town and Country Planning Law, of Enugu State 2004, Chapter 149. This Law

makes provision for the preplanning, improvement and development of different parts of Enugu State. It is within the enabling powers of this law that development control activities are pursued in Enugu urban over the years. This law is yielding little or no positive results in the physical urban landscape of Enugu. Enugu urban has different residential zones with attendant shades or diverse forms of haphazard development, incompatible land uses, illegal squatter developments and abuse of building use noticed in them. These signs shows great non-adherence to development control rules in the general sense. The need to understand the pull and push factors that had made this non adherence to development control rules persist despite the various regulations are worth exploring

Most studies done on this subject matter which has concentrated in the western region of Nigeria have discussed the compliance of residents to development control regulations on the aggregate perspective without considering the differential influence of the diverse residential zones in the city under review. These studies which include those done in Ado Ekiti (Agbonta & Olowoporoku, 2017)), Ile ife – (Daramola and Idowu, 2022), Auchi, (Jimoh et al.,2017) and Ogbomoso (Olowoporoku, 2017) all considered these cities as an entity without separating the different residential zones of the study areas. As a result, the findings of these studies do not have valid implications for urban areas in south East Nigeria more especially when it was considered at an aggregate setting. Hence, there is a need for more research to provide insight into compliance to development control regulation from the angle of the different residential zones of an urban area, since there is a lack of comprehensive research on this area particularly in the African context. Thus the aim of this study is to examine the dimensions of the residents' compliance with development control regulations in the different residential zones in Enugu urban with a view to evolving policies for sustainable urban land use control and management in Enugu. This study hypothesized that the factors that influence residents' compliance to development control regulation in the various different residential zones in Enugu urban cannot be significantly determined. The need to give different residential zone analysis of compliance to development control regulation by residents would give a more robust and acceptance analysis (Daramola and Iduwu, 2020) and this has been lacking in the body of literature in Nigeria and in African sub-sahara region at large. Moreso, studies by Ayogo et al [2018] and Afon 2011 has proved that using residential zones in providing data collection give more reliable data because of the associated advantage of having each residential zone, internally, containing residents that have homogenous social and economic characteristics as well as each zone representing permanent geographical features in terms of locations, structures and housing type. This research contributes to knowledge by providing fresh insight into the key factors responsible for non-compliance to development control regulations by residents at this increasing trend, which studies have not yet explored. The study is valuable in revealing this in an emerging African city and makes a contribution to the growing and burgeoning international literature on settlement and city planning from the perspective of a developing country in sub-Saharan Africa and the global South

2,. Case study area

The selected case study is Enugu, the capital of Enugu State and is located in the South-Eastern geopolitical region of the Federal Republic of Nigeria as shown in Figure 1. Enugu City is located between $06^0 21^0$N and $06^0 30^0$ latitude and between longitude $07^0 26^0$ E and $07^0 37^0$ E. The land area of the city is estimated at about 72.8 square kilometers. Enugu Urban consists of three local

government areas, namely: Enugu North, Enugu South and Enugu East as shown in Figure 2. Enugu is the foremost headquarter of the former south east region of Nigeria. It has 24 prominent residential neighbourhoods. Enugu urban registered a population of 62,764 in 1952; the 1991 Census shows the population count of Enugu to be 462, 514, accommodated in 28 residential patterns. This increased to 722,664 in 2006 and is estimated to be 1,414,785 in 2022. The spatial scope of this study is limited to the neighbourhood in the Enugu metropolis, Enugu south, Enugu north and Enugu East Local government areas.
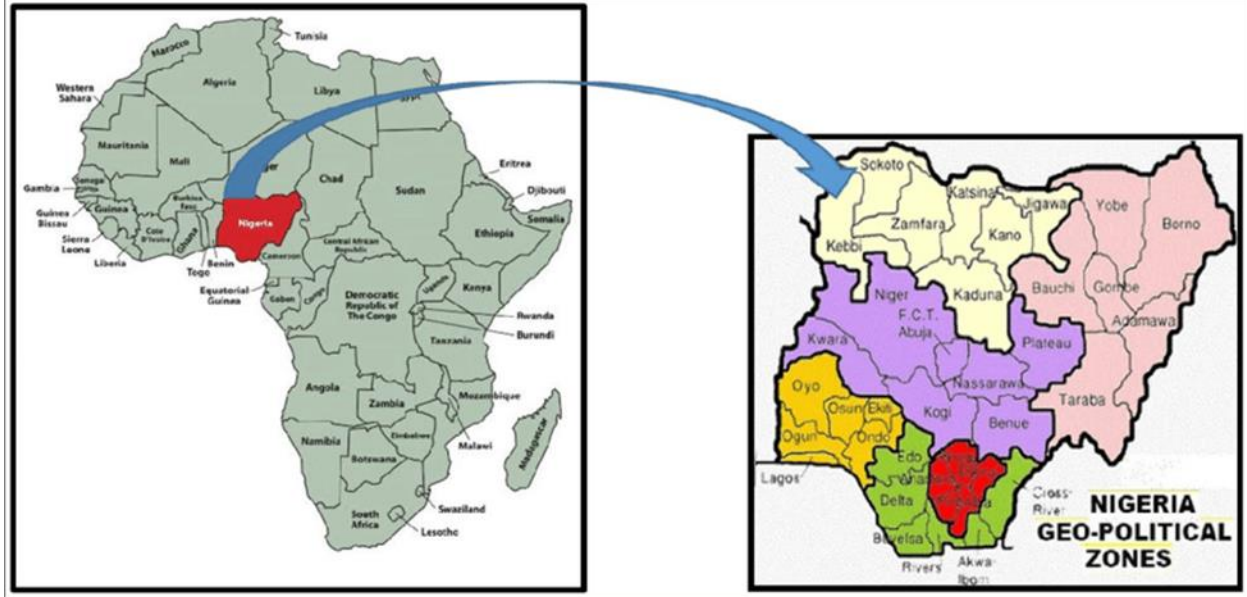

Figure 1: Map of Africa showing Nigeria

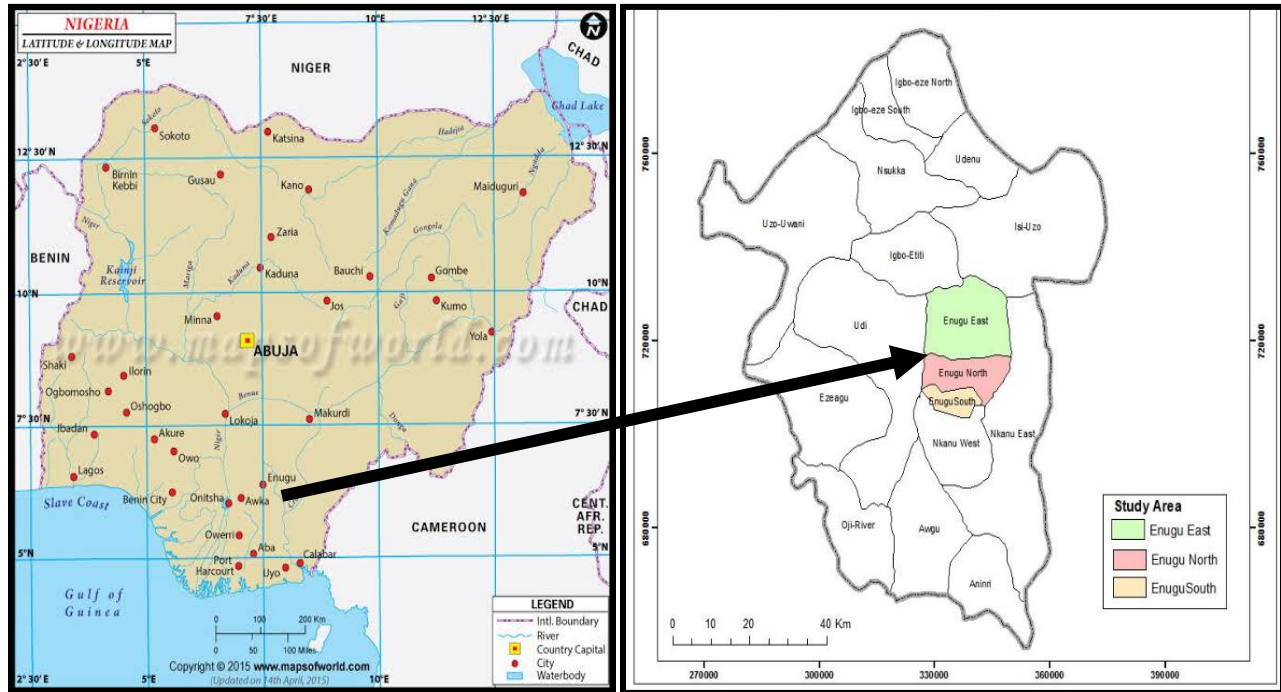Source: Ministry of Lands Survey, Enugu State, 2018.

Figure 2. Map of Nigeria showing Enugu and that of Enugu State showing Enugu urban
Source: Ministry of Lands Survey, Enugu State, 2018.

2.1 Setback Standards Adopted for Controlling Development in Enugu State

The minimum front setback from building line to major features/ utilities to be adopted by the planning agencies in Enugu State as stated in the planning regulation used by the Enugu State planning authorities. A critical observation of this revealed that provisions were not made for left, right and rear airspace setbacks. See table 1. This situation could result in inconsistency in the manner planning agencies would treat development plan applications.

Table 1: Setback Standards according to Enugu State Ministry of land and urban development Handbook of 2000

S/N	Types of Utility	Setback (Metres)
1	Stream	30.0
2	Rivers	60.0
3	Dams and large water bodies	100.0
4	Local roads	4.5
5	State road	30.0
6	Federal road	50.0

7	Low tension (domestic) power line	4.5
8	Medium tension power line	15.0
9	High tension power line	45.0
10	GSM cell radio antenna	10.0
11	Optic fibre line	4.5
12	Main water line	15.0
13	Quarry	100.0
14	Railway line	30.0
15	Gas pipeline	30.0

Source: *Enugu State ministry of land and urban Development Handbook, 2000*

2.2 Airspace Standards Adopted by the Different Planning Agencies in the Study Area

Information contained from different strata of development control agencies show that there were inconsistencies in the airspace standards adopted by planning agencies in the study area. For example, the minimum airspace standards allowable by the Enugu State Ministry of Lands, Housing and Urban Development were 1.8m for the rear, right and left side of development respectively. Some town planning authorities adopted 2m at the rear, 3m left and 3m right. The Federal Ministry of Lands, Housing and Urban Development and Enugu State Housing Corporation adopted similar setback standards of 3m in the rear, left and right of a residential building. Noteworthy is the fact that all the planned residential schemes in Enugu urban have development plans prepared by the statutory planning agencies in charge to channel the growths and development area concerned. However, the standards for different uses are specified in the plans guiding physical development. This made it easy for the agencies in charge of the schemes to stick to setbacks provided in the plans.

3. Research methods

3.1 Research Design and Study Population

The cross-sectional survey was adopted as the research design in the study. The research population comprised developers (homeowners) who had lived up to 5 years in Enugu urban. The number of developers in the metropolis stands as 643,878 according to the aggregated number of landlords in the Landlord Association register as at 2023.

3.2 Sample size determination

The sample size was determined using Williams (1978) formula as was adopted by Kerlinger and Lee (2000). The formula is given as:

$$S = n$$

$$- \frac{}{1 + n/N}$$

Where:

S   =   Sample size

n   =   The proportion of developers population that was sampled which was 2.5 percent. 2.5% was used because of its aptness in calculating proportions that relates to developers.

N   =   the total number of developers

Therefore, the minimum sample size was determined as follows:

$$S = \frac{347,522}{1 + 2.5\%/347,522}$$

S   =   399.9,   Approximately : 400

A sample size of four hundred was obtained as sample size for developers using Williams (1978) formula as was adopted by Kerlinger and Lee (2000)

3.3 Data collection instrument and variables investigated

The major instrument that was used in the survey is the questionnaire. They were given to the developers who represent the citizens. Only developers who have lived for more than 5 years were considered in the study. The questionnaire comprised of two parts. The first part consisted of the personal data of respondents. The second part was composed of structured and unstructured questions. The structured or closed questions were meant to tailor the respondents to specific answers that addressed the aim and the hypothesis of the study. The questions in this part of the questionnaire have responses that were either open in ranking scale or closed choices. A 4-point Likert scale responses was used to ascertain the factors that influence citizens participation in urban planning processes in Enugu. These factors were also derived from the literature and included in the questionnaire in the study area. A 5-point Likert scale responses was used to ascertain the factors that influence compliance to development control regulation in the Enugu. These factors were also derived from the literature and included in the questionnaire in the study area. The 5 likert scale were answered in scale of namely: (1) = very agreed; (2) = Agreed; (3) = Neutral; (4) Not = Agreed; (5) = very disagreed. Ubani et al (2023) stated that likert scale is a five point scale in which the interval between each point on the scale is assumed to be equal and it is used to register the extent of agreement or disagreement with a particular statement or an attitude, belief

or judgments. The questionnaire was first of all tested with few randomly selected residents in the neighbourhoods before administering it to the sampled residents in area. This was done in order to assess the level of comprehension of the contents of the questionnaires by the respondents and make minor changes in the grammar to avoid ambiguity of any sort.

The various factors that were identified as variables that influenced compliance to development control regulation from literatures reviewed were 20 in number and are listed in Table 2. They were included in the questionnaire as the possible variables that influenced compliance to development control regulation in the study area.

Table 2: The 20 variables that influenced public participation in planning processes

X1   cultural factors

X2   foreign/western

X3   outdated

X4   rigid

X5   restrictive

X6   Elitist

X7   non public participation

X8   Not implementing the URP degree

X9   Absence of inter-agency coordination

X10   dearth of finance

X11   shortage of skilled personnel

X12   lack of equipment

X13   political intervention

X14   no physical development goal

X15   poverty

X16   illiteracy

X17   apathy by the public

X18   No feedback monitoring exercise

X19   Long protocol and bureaucracy

X20   corruption

Source: Literatures and pilot survey

3.4 Data collection and analysis

The multi stage sampling techniques was used in the study which comprised the stratified, systematic and simple random sampling techniques. They were used to proportionately select the residential densities and respondents used in the study. Simple random sampling technique was used to select streets/roads in the neighbourhoods. Systematic sampling technique was used to select the houses/developers from each of the selected streets to be sampled. The 5th building was always selected, this was to ensure proper representativeness in the streets sampled. However, any building that the landlord or developer has not lived up to 5 years will not be sampled. Proportionate allocation strategy was used to get the sample size for each of the neighbourhoods using their various developers' numbers. Enugu urban have 24 neighbourhoods. Stratified random sampling was used to divide these 24 neighbourhoods into residential densities- high, medium and low densities. Based on 2023 Landlord Association register for all the registered landlords in these neighbours, the sample frame was used. Note, the landlords are synonymous to the developers in this study. These slums were not considered in this study. Table 3 shows the various residential zones in Enugu urban as gazette by the town planning authority newsletter

Table 3: Residential zones and neighbourhoods in Enugu.

Traditional/core	Sub Urban	Planned residential
Onu Ato	Achara Layout	New Haven
Asata	Amechi Awkunanaw	City Layout
Obiagu	Abakpa	G.R.A
Ogui	Emene	Independence Layout
	Jioto	Achara Layout
	Amorji/Ibegwa	New Haven
		Thinkers Corner
		Trans-Ekulu
		Uwani
		Trans Ekulu

Source: Researcher's field study, 2023.

Eight neighbourhoods were randomly chosen from the study area. 2 from the traditional area, 3 each from both the sub urban and the planned residential zones. The choice of these areas was because of their relatively high population, large number of residential building and the urban morphology of the area as well as neighborhood age. Thus, a total of eight neighbourhoods were selected in the study. Below is table 4 that shows selected neighbourhoods, and their residential zones

Table 4: Selected neighbourhoods and residential zones.

S/N	Traditional/core	Sub-urban zone	Planned area
1	Ogui	Abakpa	New Haven
2	Asata	Emene	G.R.A
3		Amechi Awkunanaw	Independence Layout

Based on 2023 Landlord Association registers for all the registered landlords in these neighbourhoods, their number were used to calculate the size. Note, the house owners are synonymous to the developers/ residents in this study. The table 5 shows the selected neighbourhoods and the number of developers.

Table 5: Sampled neighbourhoods and their population

NEIGHBOURHOODS	DENSITY	DEVELOPERS/ HOUSEOWNERS
Asata	Traditional/Core	30,887
Ogui		41,189
Subtotal		**72,076**
Abakpa	Sub-urban	52,836
Emene		33,022
Amechi Awkunanaw		27,491
Subtotal		**113,349**

Independence layout	Planned areas	28,733
G.R.A		31,049
New Haven		30, 272
Subtotal		**90, 054**
Total		**275, 479**

Source: 2023 Landlord register by the researcher.

The study using the proportionate allocation strategy ensured that the neighhourhoods with larger number of developers had more sample size. Table 6 showed the developers population and number of questionnaires that was administered:

Table 6 : The sampled neighbourhoods and the sample sizes

	Neighbourhoods	**Developers/House owners**	**Sample Size**
1	Abakpa	52,836	**88**
2	Asata	30,887	**44**
3	Ogui	41,189	**64**
4	Emene	33,022	**50**
5	New haven	30,272	**42**
6	Amechi Awkunanaw	27,491	**37**
7	Independence layout	28,733	**29**
8	G.R.A	31,049	**46**
TOTAL		**275, 479**	**400**

Source: Researcher's Survey, (2023).

The total number of questionnaires share were 400 for developers, In all, a total of 400 copies of questionnaires were distributed

2.5 Data Analysis

The data were analyzed using simple descriptive statistics - frequency and percentage distributions, Principal Component Analysis (PCA) - a variant of factor analysis. The data processing and analysis were performed using the Statistical Package for the Social Sciences (SPSS) version 22.0

for Windows. Principal Component Analysis (PCA) - This was used to compress 20 primary variables which were the identified factors influencing the public participation in urban planning processes in Enugu urban. These factors were obtained through reviewed literatures and pilot survey.

To establish the reliability of the instrument, two trial questionnaire administrations were carried out in order to spot possible errors before their mass production. On collection, Product Moment Correlation statistics was used to consider the level of consistency of responses. The co-efficient index was calculated and the score obtained. The result of the correlation coefficient was 0.67. This result was further subjected to Spearman-Brown Step-up (prophecy) formula (r_w) and this gave an r_w value of 0.74. This value is statistically high as the correlation coefficients of instrument which fall within the range of 0.60 to 0.79 are interpreted as being highly reliable.

4. Results

4.1 *Factors influencing Compliance To Development Control Regulation in the Various Residential Areas/Zones*

Principal Component Analysis (PCA) was used to reduce the 20 identified primary variables to fewer dimensions. These dimensions derived formed the secondary variables (factors) that influenced compliance to development control regulation in the various residential areas/zones in the study area. This study use the PCA to reduce these factors in the three different residential zones –traditional, sub urban and planned, areas in the study area

4.1.1 Factors in the Planned Residential Areas/Zones

The PCA output showed for the planned residential zone showed that 4 components (factors) expressed the bulk of the common variance among the 20 primary variables. These four dimensions (factors) were continually referred to as the factors that influenced compliance to development control regulation in the planned residential areas/zones in Enugu metropolis. Each of the factors was given a component name. (see table 7)

For clarity, each of the factors was named to match the variables that were found in them.

Factor 1   -   **Regulation instrument Deficient**

Factor 2   -   **Public disposition**

Factor 3   -   **Institutional dysfunctionality**

Factor 4   -   **Administrative/political machinery**

In other to have a clearer understanding of the output, table 7 showed those primary factors/ variables that made up each component with their factor loadings as well as their percentage variance and eigen values. This table shows the factors and the corresponding variables that make up each of them. Further explanations of the table and its contents were discussed subsequently.

Table 7: Primary factors/ variables that made up each components with their factor loadings for the planned residential areas

livelihood coping strategies	FACTORS			
	Regulation instrument Deficits	Public disposition	Institutional dysfunctionality	Administrative/political
Regulation is foreign/western	.803			
Regulation is outdated	.780			
Regulation is rigid	.776			
Regulation is restrictive	.729			
Regulation is elitist in nature	.700			
No development plan	.687			
No feedback mechanism	.677			
Cultural reasons		.693		
No public participation		.635		
poverty		.592		
Illiteracy		.567		
Apathy by the public		.555		
Lack of equipment			.873	
Dearth of finance			.789	
No coordination among agencies			.759	
Corruption by planners			.628	
No skilled personnel			.589	
Not implementing URP decree				.909
				.818
				.608

Political reasons Long protocol and beureacracy				
EIGENVALUE	**5.625**	**2.819**	**1.417**	**1.093**
% VARIANCE	**28.127**	**14.095**	**7.083**	**5.463**

Sources: field work 2023

The four components/factors that were presented in table 7 accounted for the factors that influenced factors that influenced compliance to development control regulation in the planned residential areas/zones in Enugu metropolis.. This result was elicited from the responses from the **developers in the planned residential area** only

However, to appreciate the stands of the developers from the other residential zones these factors that influenced that compliance to development control regulation in the other residential areas/zones in Enugu metropolis, two different analyses were done for the sub urban and traditional residential areas using their responses from the same variables

4.1.2. Factors in the Sub urban residential Areas/Zones

The PCA output from the responses from the developers showed that 5 components (factors) expressed the bulk of the common variance among the 20 primary variables. Details are seen in table 8. Each of the factors was given a component name.

For clarity, each of the factors was named to match the variables that were found in them.

Factor 1   -   Institutional challenges

Factor 2   -   Regulation instrument features

Factor 3   -   Developers demographic characteristic

Factor 4   - Public disposition

Factor 5   -   Administrative/political factors

In other to have a clearer understanding of the output, table 5.8 shows those primary factors/ variables that made up each components with their factor loadings.

Table 8: Primary factors/ variables that made up each components with their factor loadings for the sub urban residential areas

livelihood coping strategies	FACTORS				
	Institutional challenges	Regulation instrument features	Developers demographic characteristic	Public disposition	Administrative/political
No coordination among agencies	.759				
Dearth of finance	.731				
No skilled personnel	.651				
Lack of equipment	.590				
Corruption by planners	.569				
Regulation is foreign/western		.876			
Regulation is outdated		.715			
Regulation is rigid		.733			
Regulation is restrictive		.703			
Regulation is elitist in nature		.673			
No development plan		.518			
No feedback mechanism		.509			
poverty			.681		
Illiteracy			.546		
Cultural reasons			.530		
				.802	
				.733	

No public participation					.866
Apathy by the public					.754
Not implementing URP decree					.582
Political reasons					
Long protocol and beureacracy					
EIGENVALUE	**4.213**	**3.309**	**1.402**	**1.152**	**1.045**
% VARIANCE	**21.064**	**16.546**	**7.011**	**5.758**	**5.227**

Source: PCA analysis

4.1.3. Factors that influenced Compliance to Development Control Regulation in the traditional residential Areas/Zones

The PCA output showed for the traditional residential zone showed that 7 components (factors) expressed the bulk of the common variance among the 20 primary variables. These seven dimensions (factors) were continually referred to as the factors that influenced compliance to development control regulation in the traditional residential areas/zones in Enugu metropolis. Each of the factors was given a component name. (see Table 9)

For clarity, each of the factors was named to match the variables that were found in them.

Factor 1   -   Developers' disposition

Factor 2   -   Administrative factor

Factor 3   -   Regulation instrument dysfunctionality

Factor 4   -   Social factors

Factor 5   -   Cultural factor

Factor 6   -   Operational factors

Factor 7   -   Political factors

In other to have a clearer understanding of the output, table 9 showed those primary factors/ variables that made up each component with their factor loadings. This table shows the factors and

the corresponding variables that make up each of them. Further explanations of the table and its contents were discussed subsequently.

Table 9: Primary factors/ variables that made up each components with their factor loadings for the traditional residential areas

livelihood coping strategies	FACTORS						
	Developersdisposition	Administrative factor	Regulation instrument dysfuntional	Social factor	Cultural factor	Operational factors	Political factors
poverty	.976						
Illiteracy	.964						
Apathy by the public	.913						
No coordination among agencies		.971					
No feedback mechanism	.	.935					
Regulation is foreign/western			.967				
Regulation is outdated			.919				
Regulation is rigid			.907				
Regulation is restrictive			.889				
Regulation is elitist in nature			.626				
No development plan			.553				
			.521				
			.515				
Not implementing URP decree				.542			
Long protocol and beureacracy					.877		
						.955	
Corruption by planners						.893	

Cultural reasons						.827	
Dearth of finance							.891
No skilled personnel							.595
Lack of equipment							
Political reasons							
No public participation							
EIGENVALUE	**4.128**	**3.044**	**2.769**	**2.022**	**1.599**	**1.400**	**1.141**
% VARIANCE	**20.642**	**15.222**	**13.843**	**10.108**	**7.995**	**7.000**	**5.705**

The research showed that there were some seemingly differences in the factors that influenced compliance to development control regulation in the various residential areas/zones in Enugu metropolis.

In other to further appreciate the factors that influenced compliance to development control regulation in the various residential areas/zones in Enugu metropolis in a glance, table 10 gave an aggregated cross tabulation summary of factors as well as the percentage of variance of the eigenvalue. This eigenvalue helps to indicate the strength and magnitude of these factors in the study area

Table 10 : Aggregated cross tabulation summary of factors that compliance to development control regulation in the various residential areas/zones in Enugu metropolis as well as the percentage of variance of the eigenvalue.

Planned residential zone	Sub-Urban residential zone	Traditional residential zone
FACTOR 1- Regulation instrument Deficient – 28.127%	FACTOR 1- Institutional challenges – 21.064%	FACTOR 1- Developers disposition – 20.642%
FACTOR 2: Public disposition - 14.095%	FACTOR 2: Regulation instrument features - 16.546%	FACTOR 2: Administrative factors - 15.222%

FACTOR 3: Institutional dysfunctionality - 7.083%	FACTOR 3: Developers demographic characteristic - 7.011%	FACTOR 3: Regulation instrument dysfunctionality - 13.843%
FACTOR 4: Administrative/political machinery - 5.463%	**FACTOR 4: Public disposition - 5.758%**	**FACTOR 4: Social factors - 10.108%**
	FACTOR 5: Administrative/political factor **– 5.227%**	**FACTOR 5: cultural factor** **– 7.995%**
		FACTOR 6: Operational factors - 7.000%
		FACTOR 7: Political factor **– 5.705%**

4.2 Analysis of the factors that influenced Compliance to Development Control Regulation in the Planned Residential Areas/Zones

The result of the of hypothesis using the PCA patterned and dimensioned the predominant factors that influenced compliance to development control regulation in the planned residential areas in Enugu urban into 4 components that explained 54.767 percent of observed variation in compliance to development control regulation variables. The identified predominant factors that influenced compliance to development control regulation in the planned residential areas in Enugu urban that accounted for the explained percentage variations were as follows: regulation instrument deficient (28.127%), public disposition (14.095%), institutional dysfunctionality (7.083%), and Administrative/political machinery (5.463%)

These factors were further explained individually.

Factor 1: regulation instrument deficient

This was highly and positively loaded on 7 variables out of the 20 variables in the study. The highest variable in this factor was that the regulation instruments were foreign/western with the factor loading of 0.803. Other variables in this factor include those that posited that the regulation were outdated, regulation were rigid, regulation was restrictive, regulation were elitist in nature, lack of development plan and lack of feedback mechanism with factor loading of .677. This Factor 1 with an Eigen value of 5.625, explains 28.127% of the determining variables or factors that influence compliance to development control regulation in the planned residential areas in Enugu urban. Factor 1 is therefore the most significant factor that influences compliance to development control regulation in the planned residential areas in the study area contributing to 28.127% of the factors that influenced compliance to development control regulation in the planned residential areas in Enugu urban. Factor 1 as defined by **regulation instrument deficient** is therefore identified and classified as the greatest and the major factor that influence compliance to development control regulation in the planned residential areas in Enugu urban.

Factor 2: Public Disposition

This was highly and positively loaded on 5 variables out of the 20 variables in the study. The striking variable in this factor was cultural reasons with the factor loading of 0.693. Other variables in this factor include, non public participation, poverty, illiteracy and apathy by the public with factor loading of .555. This Factor 2 with an Eigen value of 2.819, explains 14.095% of the determining variables of factors that influence compliance to development control regulation in the planned residential areas in the study area. Factor 2 is therefore the second most significant factor that influences compliance to development control regulation in the planned residential areas in the study area contributing to 14.09% of the factors that compliance to development control regulation in the planned residential areas in Enugu metropolis. Factor 2 as defined by **Public Disposition** is therefore identified as the second greatest factor that influence compliance to development control regulation in the planned residential areas in Enugu urban.

Factor 3: Institutional dysfunctionality

This was highly and positively loaded on 5 variables out of the 20 variables. The defining variable in this factor was lack of equipment with the factor loading of 0.873. Other four variables in this factor include, dearth of finance, non coordination among agencies, corruption by planners and few skilled personnel with factor loading of .589. This Factor 3 with an Eigen value of 1.417, explains 7.083% of the determining variables of factors that influence compliance to development control regulation in the planned residential areas in Enugu urban. Factor 3 is therefore the third most significant factor that influences compliance to development control regulation in the planned residential areas in the study area contributing to 7.083% of the factors that influenced compliance to development control regulation in the planned residential areas in Enugu urban. Factor 3 as defined by Social media is therefore identified as the third greatest factor that influence compliance to development control regulation in the planned residential areas in Enugu

Factor 4: Administrative/ Political machinery

This was positively loaded on 3 variables out of the 20 variables. The defining variable in this factor was the non implementation of urban planning laws with the factor loading of 0.909. Other variables that were in this component was political reasons and long protocol and baeureacracy with the factor loading of .608. This Factor 4 with an Eigen value of 1.093 explains 5.463% of the determining variables of factors that influence compliance to development control regulation in the planned residential areas in Enugu urban. Factor 4 is therefore the fourth most significant factor that influences compliance to development control regulation in the planned residential areas in the study area contributing to 5.463% of the factors that influenced compliance to development control regulation in the planned residential areas in Enugu metropolis. Factor 4 as defined by **Administrative/ Political machinery** is therefore identified as the least and fourth prominent factor that influence compliance to development control regulation in the planned residential areas in Enugu

5.20.2 Analysis of the factors that influenced Compliance to Development Control Regulation in the sub urban residential Areas/Zones

The result of the of hypothesis using the PCA patterned and dimensioned the predominant factors that influenced compliance to development control regulation in the planned residential areas in Enugu urban into 5 components that explained 55.607 percent of observed variation in compliance to development control regulation variables. The identified predominant factors that influenced compliance to development control regulation in the planned residential areas in Enugu urban that accounted for the explained percentage variations were as follows: Institutional challenges (21.064%), Regulation instrument features (16.546%), Developers demographic characteristic (7.011%), Public disposition (5.758%) and Administrative/political factor (5.227%).

These factors were further explained individually.

Factor 1: Institutional challenges

This was highly and positively loaded on 5 variables out of the 20 variables in the study. The highest variable in this factor was that the non coordination among the planning agencies with the factor loading of 0.759. Other variables in this factor include dearth of finance, non skilled personnel, lack of equipment, corruption by planners with factor loading of .569. This Factor 1 with an Eigen value of 4.213, explains 21.064% of the determining variables or factors that influence compliance to development control regulation in the sub urban residential areas in Enugu urban. Factor 1 is therefore the most significant factor that influences compliance to development control regulation in the sub urban residential areas in the study area contributing to 21.064% of the factors that influenced compliance to development control regulation in the planned residential areas in Enugu urban. Factor 1 as defined by **Institutional challenges** is therefore identified and classified as the greatest and the major factor that influence compliance to development control regulation in the planned residential areas in Enugu urban.

Factor 2: Regulation instrument features

This was highly and positively loaded on 7 variables out of the 20 variables in the study. The striking variable in this factor was that regulations were foreign/western with the factor loading of 0.876. Other variables in this factor include, Regulation is outdated, Regulation is rigid, Regulation is restrictive, Regulation is elitist in nature, No development plan, and no feedback mechanism with factor loading of .509. This Factor 2 with an Eigen value of 3.309, explains 16.546% of the determining variables of factors that influence compliance to development control regulation in the sub urban residential areas in the study area. Factor 2 is therefore the second most significant factor that influences compliance to development control regulation in the sub urban residential areas in the study area contributing to 16.546% of the factors that compliance to development control regulation in the sub urban residential areas in Enugu metropolis. Factor 2 as defined by **Regulation instrument features** is therefore identified as the second greatest factor that influence compliance to development control regulation in the sub urban residential areas in Enugu urban.

Factor 3: Developers demographic characteristic

This was highly and positively loaded on 3 variables out of the 20 variables. The defining variable in this factor was poverty with the factor loading of 0.681. Other two variables in this factor include illiteracy and cultural reasons with factor loading of .530. This Factor 3 with an Eigen value of 1.402, explains 7.011% of the determining variables of factors that influence compliance to development control regulation in the sub urban residential areas in Enugu urban. Factor 3 is therefore the third most significant factor that influences compliance to development control regulation in the sub urban residential areas in the study area contributing to 7.011% of the factors that influenced compliance to development control regulation in the sub urban residential areas in Enugu urban. Factor 3 as defined by Social media is therefore identified as the third greatest factor that influence compliance to development control regulation in the sub urban residential areas in Enugu

Factor 4: Public disposition

This was positively loaded on 2 variables out of the 20 variables. The defining variable in this factor was the non public participation in urban planning laws with the factor loading of 0.802. Other variable that was tha apathy of the public with the factor loading of .733. This Factor 4 with an Eigen value of 1.152 explains 5.758% of the determining variables of factors that influence compliance to development control regulation in the sub urban residential areas in Enugu urban. Factor 4 is therefore the fourth most significant factor that influences compliance to development control regulation in the sub urban residential areas in the study area contributing to 5.758% of the factors that influenced compliance to development control regulation in the sub urban residential areas in Enugu metropolis. Factor 4 as defined by **Public disposition factor** is therefore identified as the fourth prominent factor that influence compliance to development control regulation in the sub urban residential areas in Enugu

Factor 5: Administrative/ political factor

This was positively loaded on 3 variables out of the 20 variables. The defining variable in this factor was the non implementation of urban planning laws with the factor loading of 0.866. Other variables that were in this component was political reasons and long protocol and baeureacracy with the factor loading of .582. This Factor 5 with an Eigen value of 1.045 explains 5.227% of the determining variables of factors that influence compliance to development control regulation in the sub urban residential areas in Enugu urban. Factor 5 is therefore the fifth most significant factor that influences compliance to development control regulation in the sub urban residential areas in the study area contributing to 5.463% of the factors that influenced compliance to development control regulation in the sub urban residential areas in Enugu metropolis. Factor 5 as defined by **Public disposition factor** is therefore identified as the least and fifth prominent factor that influence compliance to development control regulation in the sub urban residential areas in Enugu

4.3 Analysis of the factors that influenced Compliance to Development Control Regulation in the traditional residential Areas/Zones

The result of the of hypothesis using the PCA patterned and dimensioned the predominant factors that influenced compliance to development control regulation in the planned residential areas in Enugu urban into 7 components that explained 80.515 percent of observed variation in compliance to development control regulation variables. The identified predominant factors that influenced compliance to development control regulation in the planned residential areas in Enugu urban that accounted for the explained percentage variations were as follows: Developers' disposition (20.642%), administrative factor (15.222%), Regulation instrument dysfunctionality (13.843%), social factor (10.108%) , cultural factor(7.995%) , operational factor(7.000%) and political factor (5.705%). These factors were further explained individually.

Factor 1: Developers' disposition

This was highly and positively loaded on 3 variables out of the 20 variables in the study. The highest variable in this factor was poverty with the factor loading of 0.976. Other variables in this factor include illiteracy and apathy by the public with factor loading of .913. This Factor 1 with an Eigen value of 4.128, explains 20.642% of the determining variables or factors that influence compliance to development control regulation in the traditional residential areas in Enugu urban. Factor 1 is therefore the most significant factor that influences compliance to development control regulation in the traditional residential areas in the study area contributing to 20.642% of the factors that influenced compliance to development control regulation in the traditional residential areas in Enugu urban. Factor 1 as defined by Developers' disposition is therefore identified and classified as the greatest and the major factor that influence compliance to development control regulation in the traditional residential areas in Enugu urban.

Factor 2: Administrative factor

This was highly and positively loaded on 2 variables out of the 20 variables in the study. The striking variable in this factor was lack of coordination by planning agencies with the factor loading of 0.971. Other variable in this component was the absence of feedback mechanism with factor loading of .935. This Factor 2 with an Eigen value of 3.044, explains 15.222% of the determining variables of factors that influence compliance to development control regulation in the traditional residential areas in the study area. Factor 2 is therefore the second most significant factor that influences compliance to development control regulation in the traditional residential areas in the study area contributing to 15.222% of the factors that compliance to development control regulation in the traditional residential areas in Enugu metropolis. Factor 2 as defined by administrative factor is therefore identified as the second greatest factor that influence compliance to development control regulation in the traditional residential areas in Enugu urban.

Factor 3: Regulation instrument dysfunctional factor

This was highly and positively loaded on 8 variables out of the 20 variables in the study. The striking variable in this factor was regulations were foreign/western with the factor loading of 0.967. Other variables in this factor include, Regulation is outdated, Regulation is rigid, Regulation is restrictive, Regulation is elitist in nature, No development plan, and Long protocol and beureacracy with factor loading of .515. This Factor 3 with an Eigen value of 2.769, explains 13.843% of the determining variables of factors that influence compliance to development control regulation in the traditional residential areas in the study area. Factor 3 is therefore the third most significant factor that influences compliance to development control regulation in the traditional residential areas in the study area contributing to 13.843% of the factors that compliance to development control regulation in the traditional residential areas in Enugu metropolis. Factor 3 as defined by **Regulation instrument dysfunctional factor** is therefore identified as the third greatest factor that influence compliance to development control regulation in the traditional residential areas in Enugu urban.

Factor 4: Social factor

This was highly and positively loaded on 1 variables out of the 20 variables. The defining variable in this factor was corruption by the planners with the factor loading of 0.542. This Factor 4 with an Eigen value of 2.022, explains 10.108% of the determining variables of factors that influence compliance to development control regulation in the traditional residential areas in Enugu urban. Factor 4 is therefore the fourth most significant factor that influences compliance to development control regulation in the traditional residential areas in the study area contributing to 10.108% of the factors that influenced compliance to development control regulation in the traditional residential areas in Enugu urban. Factor 4 as defined by Social factor is therefore identified as the fourth greatest factor that influence compliance to development control regulation in the traditional residential areas in Enugu

Factor 5: Cultural factor

This was highly and positively loaded on 1 variables out of the 20 variables. The defining variable in this factor was cultural influence with the factor loading of 0.877. This Factor 5 with an Eigen value of 1.599, explains 7.995% of the determining variables of factors that influence compliance to development control regulation in the traditional residential areas in Enugu urban. Factor 5 is therefore the fifth most significant factor that influences compliance to development control regulation in the traditional residential areas in the study area contributing to 7.995% of the factors that influenced compliance to development control regulation in the traditional residential areas in Enugu urban. Factor 5 as defined by cultural factor is therefore identified as the fifth greatest factor that influence compliance to development control regulation in the traditional residential areas in Enugu

Factor 6: Operational factor

This was highly and positively loaded on 3 variables out of the 20 variables in the study. The striking variable in this factor was dearth of finance by planning agencies regulations with the factor loading of 0.955. Other variables in this factor include no skilled personnel and lack of equipment with factor loading of 0.827. This Factor 6 with an Eigen value of 1.480, explains 7.000% of the determining variables of factors that influence compliance to development control regulation in the traditional residential areas in the study area. Factor 6 is therefore the sixth most significant factor that influences compliance to development control regulation in the traditional residential areas   in the study area contributing to 7.000% of the factors that compliance to development control regulation in the traditional residential areas in Enugu metropolis. Factor 6 as defined by operational **factor** is therefore identified as the sixth greatest factor that influence compliance to development control regulation in the traditional residential areas in Enugu urban.

Factor 7: Political factors

This was positively loaded on 2 variables out of the 20 variables. The defining variable in this factor was the   political attributes the factor loading of 0.891. Other variable was lack of public participation with the factor loading of .595. This Factor 7 with an Eigen value of 1.141 explains 5.705% of the determining variables of factors that influence compliance to development control regulation in the traditional residential areas in Enugu urban. Factor 7 is therefore the seventh significant factor that influences compliance to development control regulation in the traditional residential areas in the study area contributing to 5.705% of the factors that influenced compliance to development control regulation in the traditional residential areas in Enugu metropolis. Factor 7 as defined by **Political factor** is therefore identified as the least factor that influence compliance to development control regulation in the traditional residential areas in Enugu

5. Discussion of Findings

The study was aimed at examining residents' compliance with development control regulations in the different residential zones in Enugu urban with a view to evolving policies for sustainable urban land use control and management in Enugu. This study has some striking revelations which has been presented earlier and in this section these findings shall be discussed extensively It was determined from the study that four predominant factors influenced residents' compliance to development control regulation in the planned residential zones, five factors influenced residents' compliance to development control regulation in the sub urban residential zones while seven influenced residents' compliance to development control regulation in the traditional residential zones It is noteworthy to explain that these variables are the empirically established factors that influenced residents' compliance to development control regulation in the various residential zones in in the study area

Whereas previous studies (Carrerira et al, 2016, Shmueli,,et al, 2008; Vasconcelos, 2001) revealed the impact of some of these identified factors –poverty, lack of awareness, rigidity and out-datedness of the planning laws, corruptions of planning authority workers and lack of equipment, on compliance of developers\residents' in compliance to development control guidelines and regulations in cities, these variables were lumped together and the level of their influences were not differentiated as per the residential areas that these factors influenced most. However, this study gives policy makers and urban policy experts the guide on the possible factors that would influence compliance to planning development control in any given area. This assertion is in agreement with the findings of Carrerira et al, (2016b) where they posted that each urban areas has its unique development pattern and stage, there study found strong significance relationship between development stage of urban area and the behaviour of developers. Hence, proper consideration of developmental stages of urban areas is of great essence in determining the factors that will influence compliance of developers to urban planning regulations. Surprisingly, this study revealed that both administrative and political factors were among the predominant variables to be considered while considering the factors that would influence compliance of developers to urban planning regulations in any planned residential areas. This is expected because politics has great impacts in any planned environment since the government has much administrative structures in such areas. Evidence abound in some planned residential areas of Enugu urban like in GRA, independence layout, New haven, to mention but three neighborhoods, where there were noticeably presence and operations of different physical planning management bodies aside the local planning Authorities. These bodies include the Enugu State Capital Territory Development Authority (ESCTDA) , Enugu State Housing Co-operations (ESHC), State Ministry of Housing and the Federal Ministry of Works and Housing. The operation of these bodies in the planned residential area of Enugu urban has a lot to say about the administrative machineries in charge of physical planning exercise in the area. This is unlike the situations in traditional areas where the influences of the ESCTDA and ESHC were not felt. The main problem with these bodies is the absence of any form of inter-agency coordination. For instance, the Enugu state Housing coopration Authority had in the past, processed its application for development on its land through the state's Town Planning authorities but this was later stopped . The various Local Planning Authorities are not adequately supervised, if at all by the state's Town Planning

Division. They carry out their functions independent of the Town Planning Division. Furthermore, coordination among the various local planning authorities is lacking despite the fact that these local planning areas are contiguous. Furthermore, the factor that had the least influence on developers' compliance to urban planning regulations in the planned residential areas was the institutional dysfunctionalities factors. The variables that were subsumed under these factors were: the number of manpower, equipment availability by planning bodies and availability of finance. This least influence could be attributed to the facts that these planning agencies are funded and taking care of by the government. This finding was in line with the previous studies by Carreira, et al 2016, Siala, 2015) where they posted that government tends to strongly supports more agencies that generate income to coffer of the government. The perceptions of both the developers and the professional seems to be same on the content, intent and the spirit of these development control regulations. Both parties posited that the planning regulations are foreign, outdated and inadequate. They are also seen as being extremely rigid, elitist, restrictive and reactive. This view was in line with the findings of Sexton, (2013) in their study about development control regulations where the submitted that most of them were enacted many decades ago implies that they may no longer be relevant in present day context. It is interesting to note that after decades of years of being enacted, most of the provisions of Urban and Regional Planning Decree (URPD) are yet to be implemented. Consequently, the Town and Country Planning Law of 1946 still forms much of the legal foundation for urban development in Nigeria. The new decree has several enabling provisions. For instance, it provides for the establishment of a National Urban and Regional Planning Commission at the federal level; a State Urban Planning Board at the state level; and Local Planning Authorities at the local levels. With the expectation of the Local Planning Authorities that have been in existence since 1946, the other two bodies are yet to be established. The disposition of the developers to planning matters was the second most influential factor in developers' compliance to development control regulation in the planned environment. There is hardly any scope for public consultation or participation, as members of the public are not given the opportunity to participate in the planning process. As rightly observed by Vivan et al (2013), planning at all spatial levels remains the exclusive preserve of a small group of skilled professionals and bureaucratic elite as it is seen as a specialist and technical activity. The end result is a rigid top-down planning process that serves only the interest of a few.

The critical and foremost factor that influences developers' compliance to development control regulation in the sub urban residential area was the institutional challenges. Most of the planning institutions in the area has multiplicity of problems. These include dearth of finance, shortage of skilled personnel, lack of the necessary equipment to carry out its daily activities and political interference. These problems hinder the ability of the Town Planning Division to meet the challenges of ensuring sustainable urban development. The most serious of these problems is the lack of any clear physical development goal for Enugu, as it is growing without any physical development plan. These problems have further rendered the state Town Planning Division ineffective in enforcing planning regulations. The local planning authorities are the most important planning agencies in the enforcement of planning regulations. Local Planning Authorities were merged with local government councils with the aim of improving their performance. So far, this has not been achieved. Planning authorities under the local

government councils are short staffed, ill equipped, their workers are molested while on duty, suffer from under funding and rate very low on the list of the council's priority. Apart from the fact that the decisions of the planning authorities in respect of enforcing development control regulations are influenced by the council's chief executive in favour political associates, they are being used as avenues to generate revenue. According to Sexton, (2013) this has made planning authorities to abandon enabling aspects of planning regulations and concentrate on restrictive and reactive aspects of development control since those affected have to pay various forms offences and bribes. All these will of course affect the effectiveness of local planning authorities.

In the same vain, in the traditional residential zones, developers' dispositions was adjudged to be the most predominant factors that influence developers' compliance to urban planning regulations while political reasons was the least influential factor. This tends to be seemingly opposite to the situation in the planned residential zones that has political factors as very high influencers of the factors that affects developers' compliance to urban planning regulations . The proper understanding and alignment of these aforementioned variables to the various residential zones in urban areas will give for a robust and germane urban management protocols that would result in functional, safe, organized and pleasant aesthetically urban environment in any urban settings. The identifications of the unique factors for each urban areas according to the developmental stage of area is worthwhile and remains a valid considerations in urban management paradigm.

6. Conclusions and Study Implications

The research investigated the factors that influenced residents' compliance with development control regulations in the different residential zones in Enugu urban. The outcome of this research has some importance practical implications and recommendations. Firstly, the study portrays that different factors influence residents' compliance to development control regulation in the different residential zones: for the Planned residential area, the four identified factors were regulation instrument deficient, public disposition, institutional dysfunctionality, and administrative/political machinery; for the sub urban residential zone, the five identified factors were institutional challenges, regulation instrument features, developers' demographic characteristic, public disposition and Administrative/political factor; then for the traditional residential zone, the seven identified factors were developers' disposition, administrative factor, regulation instrument dysfunctionality, social factor, cultural factor, operational factor and political factor. This study, in the same vain, determined statistically that there was differentials in the factors that influenced compliance to development control regulation among the residential zones in Enugu urban.. Secondly, It must be emphasized that development control is one major tools through which orderliness can be achieved in the development of cities. However, development control cannot achieve its aim unless developers adhere to planning standards and regulations in the development plans guiding the city. The importance of development control regulations in physical planning cannot be over-emphasized. In fact, its benefits are widespread and can only be comprehended and appreciated if fully adopted in the course of planning and implementation of physical development plans in the area. In addition, the greatest form of effective control is achieved through a team of professionals, and government support of facility and equipment for day to day

planning and monitoring activities. These officials however, must be committed and avoid bias and corruption in their work.

Again, this study recommends that the fact that most of the existing urban development and planning regulations are restrictive and reactive, it is therefore recommended that these regulations be relaxed, and made to take cognizance of present day realities. In this respect, planning regulations should reflect different socio economic status. This is evident as the study shows that there are some significant relationship between developers socio economic characteristics and compliance to planning regulation. For instance, the factors that are operational in the traditional neighbourhoods should not necessarily be what obtains in the planned residential zones to reflect socioeconomic status, needs and level of affordability. Thus, there is need for modification of standards to march the level of maturity of development of these residential zones. The need to domesticate the Enugu State Urban and Regional Planning law cannot therefore be overemphasized. It provides for the preparation of different types of plans at different levels..

Furthermore, the findings also imply that to evolve any robust and sustainable policy that will involve the citizens to comply to planning regulations in cities of Nigeria, urban planners and other development agencies need to also pay attention to the eight variables that were empirically determined in this study.

Again, planners are encouraged to actively seek avenues to connect with locals more and engage in advocacy as it is an important aspect of planning. There is need for constant promotion of awareness and sensitization programmes on developmrnt control laws and regulations in the State. Government should carry out public enlightenment campaign on the important of taking planning permits and approval of their building plans before development starts. Finally, the erring and corrupt planning officers caught in the act of bribery and corruption in the authority (especially the development control unit) should be disciplined by the professional body; such officers can be deregistered, while the employer could dismiss such.

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