IOSR Journal Of Humanities And Social Science (IOSR-JHSS)
Volume 22, Issue 12, Ver. 9 (December. 2017) PP 56-61
e-ISSN: 2279-0837, p-ISSN: 2279-0845.
www.iosrjournals.org

Physico-Legal Characteristics Of Buildings And Compliance With Building Law In Urban Area A Quantitative Finding Of A Planning Law Practitioner In Calabar Urban, Cross River State, Nigeria

Victor Eyo Offiong LL.B, M.Sc, Ph.D
Building/Planning Law Legal Unit
Department Of Urban And Regional Planning Crutech, Nigeria
Corresponding Author: Victor eyooffiongLL.B, M.Sc, Ph.D

Abstract: *This study was carried out to specifically examine the relationship between physico-legal characteristics of buildings and the level of compliance with building Laws in urban Calabar of Cross River State, Nigeria. The type of data utilized in this study was based on the physico-legal characteristics of buildings in the study area in relation to the level of compliance with the Cross River State Building Law of 1984 as amended in 1987. Based on these physical and legal characteristics, data relevant to this study were obtained through direct measurements of the physical characteristics of the buildings and questionnaires issued to owners of Buildings. The physical variables included Housing Density, Building Supervisor Competence, Age of Building, and Building Plan Approval status. The measurement was to determine the level of compliance with the provisions on the physico-legal characteristics of buildings. The resulting data were analysed using Statistical Package (SPSS) version 11.0, employing the multiple regression analysis for the study of the relationship between physico-legal characteristics of buildings and the level of compliance with the Cross River State Building Law at 17.8 per cent, with significance of P< 0.05 and an F ratio equal to 32.29. From the result of regression coefficients in Table 6, given a unit increase in supervisor competence while holding the effects of housing density, age of Buildings, Building plan approval status constant, level of compliance will increase 0.1675 units (predicted by supervisor competence). In addition, if the effect of supervisor competence, age of buildings, building plan approval status is held constant and there is a unit increase in housing density, compliance decreases by 0.1174 units. Given a unit increase in age of building while holding the effects of housing density, supervisor competence andBuilding plan approval status, level of compliance will increase 0.1362 units. And if the effect of Housing density, Supervisor competence, Age of buildings is held constant, and there is a unit change in Building plan approval status , level of compliance with building Laws in Calabar Urban will increase 0.2343 units. The study found that the most dominant physico-legal predictor of compliance in the study area was building plan approval and therefore recommended measures which will improve compliance with building approval, including pre and post approval inspections to sites as well as allotment of resources according to the relative contributions of each of the compliance determinants.*

Keywords*: Urban Calabar, Physico-Legal Characteristics, Planning Law, Building Law, Quantitative Finding.*

Date of Submission: 20-12-2017 Date of acceptance: 30-12-2017

I. INTRODUCTION

The problem of development, especially, in the urban environment, has posed a phenomenal concern for man since the cradle of urbanization. In order to cope with this persistent problem, governments of different developing countries have made concerted efforts through Laws, under their respective Town and Country Planning Laws, to maintain the liveability of the environment and ensure a well- planned development and Nigeria is no exception to the movement. Due to her long account and progression of the problems of unprecedented violations to preceding urban development control schemes, the urban and regional planning Decree of 1992 (Decree No. 88) was passed into law (Sule, 2003).

Regrettably, there are still gross cases of violations of the Law in Calabar, the capital city and administrative headquarters of Cross River State, since the past twenty six years after the Cross River State building Law was enacted. From the survey carried out, more than 10 per cent of buildings in the metropolis are erected in close proximity to each other in infringement of the regulated 4.5 meters. From the survey, it was discovered that no fewer than 88 buildings in the study area are suspected to be without certification. These buildings are seriously at the risk of collapse, which, as a result, would claim innocent lives. Based on the

survey, it was also discovered that 50 per cent of vehicles are physically seen packed on the road side in every street, as more than 50 per cent of lands are visibly built beyond the maximum 50 per cent of the land area against the requirements of the Law. Illegal building constructions which impinge on normal flow channels are seen on almost every street, in continued neglect to past incidents of flood disasters in already flood-prone terrains.

It was also discovered that non-compliant buildings are widespread across the residential districts of the study area. They range from those buildings erected in outright disregard to already secured approved building plans to those erected without any approved plans. It should be noted that an infringement of any of the provisions of the building Law is an infringement of the building plan requirements whether the plan is drawn at all or not and, where drawn, whether it is approved or not. Where a plan is approved, any other infringement means an infringement of the approved plan. However, where unapproved, it becomes an infringement of the requirements that buildings can only commence after a building plan had been approved.

This researcher, a planning law practitioner therefore, wasmotivated to design the study to examine the relationship between the highlighted physico-legal characteristics of buildingscomprising the physical and legalvariables,to wit; Housing Density, Building Supervisor Competence, Age of Building, and Building Plan Approval statusand the level of compliance in the study area as the objective of this study.

II. MATERIALS AND METHODS

2.1 Study Area

Calabar is the capital city of Cross River State. The city is located in the southern part of Cross River State. It lies between longitude 08^0 26 East of the Greenwich meridian and latitude 04^0 58 North of the equator and longitude $08^0$22 East. It has a total surface area of 159.65 square kilometres. It is bounded by the great Qua River and Calabar River. Calabar was the first city in the then Eastern Nigeria. It has remained more than 300 years as an urban centre (Offiong, 2007).

The population of Calabar was 379,605 going by the 1996 population projection. By the 2006 Nigeria population census, the population had grown to 461,796 according to Geo Names Geographical Database making its growth rate more than 3 per cent. The city population density of 134/ sqkm in 1991 and 293 sqkm in 2006 concealed the rather acute situation in Calabar (National Population Council (NPC), 2006).

The number of buildings on separate stand/yard in Calabar urban under study stood at 15.894 going by 2006, Nigeria's population and Housing census drawn from the thirteen (13) metropolis residential areas being studied. As rightly observed by Ebong (1993), housing has become the thorniest problem facing its inhabitants.in an attempt to contend with the housing problems, housing are springing up in disregard to the planning Law, with attendant consequences on land use planning. One unique characteristics of the study area is that it is contiguous to the completely built areas in the municipal capital. A greater percentage of completed houses are done without prior consideration of access to roads. It can be easily observed that more than 50% of districts already designated as residential locations are yet to be fully built up. These include settlements and suburbs such as IkotEkpa, IkotEffiom, Eyamba,ObotOkoho, Bacoco, Awkada,AdebyoIkotOmin, Ekaobo, IkotNkebre, IkotEnobong, IkotOmin, IneUdo, NditoOkobo, IneAkpanUfana, IneUdo, all surrounding the completely built up area but hindered by a near absence of access roads.

2.2 Types of Data and Source

Data relating to the physical/legal characteristics of buildings in the study area included data on the age of buildings, housing density, building supervisors' competence and building plan approval status. These set of data are needed so as to relate building characteristics to the level of compliance with building Law.

2.3 Procedures for Data Collection

The researcher collected data relevant to the study, using seven hundred and ninety four questionnaires administered on 794 respondents/owners of the five per cent of buildings on separate stand measured with the help of trained field assistants. After measurement of each variable the researcher and his field assistants recorded the data on the counterpart part of the questionnaire provided for that purpose. The data so obtained in the field were used for the analysis.

The population of study was made up of Metropolis Residential buildings/houses on separate stand and their owners in the thirteen residential areas of Calabar Metropolis. There are about 15,894 completed buildings on separate stands in the 13 residential districts of the study area.

Measurement of buildings was done considering 5 per cent of buildings on separate stand selected using systematic random sampling technique in each of the 13 metropolis residential districts that made up the study area. Copies of the questionnaire were distributed to owners of the buildings measured. From the study, out of 794 questionnaires, 742 copies of the questionnaire representing 93 per cent were successfully retrieved. This

number was considered representative enough by the researcher for the study. Table 1 shows the residential districts and number of buildings measured in the Study Area.

Table 1.0 *Residential districts and number of buildings measured in the Study Area*

S/N	Residential Districts	No. of Buildings	No. of buildings measured/ questionnaire administered.	Questionnaires Retrieved.	Percentage retrieved (%)
1.	Akim Qua Town	2020	101	99	98
2.	Ediba Qua Town	1837	92	82	90
3.	Big Qua Town	2361	118	117	99
4.	Essien Town	1942	97	97	100
5.	Ishie Town	2627	131	112	85
6.	IkotAnsa	1722	86	73	84
7.	University Satellite Town	750	38	38	100
8.	IkotEfa	414	21	18	85
9.	Esuk Utan	204	10	10	100
10.	Ekorinim	441	22	22	100
11.	Esuk Atu	240	12	12	100
12.	Nyangasang	720	36	36	100
13	EdimOtop	616	30	25	83
	Total	**15, 894**	**794**	**742**	**93**

Source: 2006 Population and Housing Population Data Bank, Nigerian's National Population Commission
Sample size: Researcher's Field Work 2016.

The sampling technique adopted in this study was multi-stage sampling technique. At stage 1, purposive sampling of residential districts was done, to satisfy the researchers' desire to study only buildings within the metropolis residential districts which are contiguous to the completely built up area in the Calabar Municipality. The districts so captured include Akim Qua Town, Ediba Qua Town, Essien Town, Ishie Town, IkotAnsa, University Satelite Town, IkotEfa, Esuk Utan, Ekorinin, Nyangasang and EdimOtop; secondly, to capture only buildings on separate stand/yard.

Other types of housing unit include; informal improvised dwelling (0.6percent), semi-detached (7.3percent), flat in block of flats (10.4percent), Traditional Hut structure (9.5percent), others (0.4percent). At Stage 2, systematic sampling was done. A sample frame was defined for each street at the interval of 20 buildings according to the number of buildings on separate stand/yard with a target of not less than 5percent in mind. Stage 3 involved repeated systematic sampling in districts where the minimum 5percent was not met at first time due to repeated absence or outright refusal to allow measurement or supply needed information by owners of buildings within the frame.

2.4 Data Analysis

The physico-legal characteristics considered for the study included: Building Plan, building supervisor competence, age of building, and building plan approval status. The compliance classification was shown in the Table 2

Table 2 `*Compliance classification*

Compliance

Mean grouping	Ranking	Classification
1 – 59.4	1	Poorest
59.5 – 79.4	2	Poorer
79.5 – 95.4	3	Poor
95.5 – 100	4	Good (Full compliance)

Source: Researcher's Field Work 2016

III. RESULTS AND DISCUSSION

The data obtained from the field on compliance and physico-legal characteristics of buildings in the study area presented in Table 3. Table 3 shows the mean compliance and standard deviation for respective physico-legal characteristics of buildings measured in the study area. The physico-legal characteristics of buildings considered in the study area comprised age of buildings, housing density, building supervisors' competence and building approval status.

The regression model and the regression co-efficient were utilised in the analysis of the data presented from Table 3 to Table 6. The summary of the regression model analysis is presented in Table 3 to 3.3. From the result in Table 6, it shows that there is a relationship between the physico-legal characteristics of Buildings and the level of compliance, at a level of 17.8 per cent. The regression model was significant at $P< 0.05$, with an F ratio of 32.29.

Table 3 *Level of compliance with building Law and the physico-legal characteristics of Buildings factored by Age of Buildings*

Age of building Pre/post Law Enactment	Mean Compliance Level	N	Std. Dev.		Compliance classification
Before Law Enacted	72.4405	165	19.1741	2	Poorer
<= 9years after Law Enacted	72.7834	128	21.3692	2	Poorer
10 - 18 years after Law Enacted	76.9776	189	20.5111	2	Poorer
Greater than 18 years after Law Enacted	82.427	269	14.6638	3	Poor
Total	77.2178	751	18.9244	2	Poorer

Source: Researcher's fieldwork, 2016

Table 3.1 *level of compliance with Building Law and the physico-legal characteristics of Buildings factored by House density*

Compliance Level					
Housing Density	Mean Compliance Level	N	Std. Dev.	Cpl Level	Compliance Classification
Low	78.654	279	17.6092	2	Poorer
Medium	78.6995	259	17.7934	2	Poorer
High	69.7791	140	23.673	2	Poorer
Total	76.8388	678	19.3918	2	Poorer

Source: Researcher's fieldwork, 2016

Table 3.2 *level of compliance with Building Law and Building factored by Building Supervisors' Competence*

Supervisor Competence	Mean Compliance Level	N	Std. Dev.	Ranking	Compliance class
Unskilled	71.6867	107	20.6545	2	Poorer
Semi-skilled	72.7819	192	20.6706	2	Poorer
Skilled	80.5442	466	16.5693	3	Poor
Total	77.3572	765	18.6833	2	Poorer

Source: Researcher's fieldwork, 2016

Table 3.3 *level of compliance to building Law and building factored by Building Approval Status*

Compliance Level						
Building Plan Approval Status	Mean	N	Per cent	Std. Dev.	Ranking	Compliance class
No Plan at all (not approved)	69.855	131	17.2	18.7294	2	Poorer
Plan drawn, (not approved	67.5714	35	4.5	16.1578	2	Poorer
(Plan approved) but Building varies with approved plan	79.6151	578	75.9	18.0306	3	Poor
(Plan approved) Building erected in line with approved plan	84.5082	17	2.2	21.7562	3	Poor
Total	77.4904	761	100	18.6436	2	Poorer

Source: Researcher's fieldwork, 2016

Table 4 *Regression Summary Results*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.422	0.178	0.173	0.710

Predictors: (Constant), Building Plan Approval Status, Housing Density, Age of building (Pre/post Law Enactment), Building Supervisor Competence.
Source: Researcher's fieldwork, 2016.

Table 5 *Coefficients of the Predictors*

	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
Predictors	B	Std. Error	Beta		
(Constant)	1.3788	0.1522		9.0562	0.0000
Housing Density	-0.1174	0.0386	-0.1129	-3.0370	0.0025
Supervisor Competence	0.1675	0.0417	0.1548	4.0185	0.0001
Age Pre/post Law Enactment	0.1362	0.0250	0.2052	5.4417	0.0000
Building Plan Approval Status	0.2343	0.0373	0.2419	6.2858	0.0000

Dependent Variable: Level of Compliance
Source: Researcher's fieldwork, 2016.

From the result in Table 5, Building supervisors' competence, age of building and building plan approval status were good predictors of the level of compliance with building Law in the study area ($t > 2$ in the three cases). The table also shows that given a unit increase in supervisor competence while holding the effects of housing density, age of buildings, building plan approval status constant, level of compliance will increase .1675 units (predicted by supervisor competence). In addition, if the effect of supervisor competence, age of buildings, building plan approval status is held constant and there is a unit increase in housing density compliance decreases by 0.1174 units. Given a unit increase in age of building while holding the effects of housing density, supervisor competence, Building plan approval status, level of compliance will increase .1362 units. And if the effect of Housing density, Supervisor competence, Age of buildings is held constant, and there is a unit change in Building plan approval status , level of compliance with building Law in Calabar metropolis will increase .2343 units. Therefore, the most dominant physico-legal predictor of compliance in the study area was building plan approval.

To test for the significance of the regression model, we obtain the values of the Variance Ratio and The Test Probability from ANOVA, shown in Table 6.

TABLE 6 *Variance ratio to test the significance of the Regression*

	Sum of Squares	Do	Mean Square	F	Sig.
Regression	65.086	4	16.271	32.290	0.000
Residual	299.832	595	0.504		
Total	364.918	599			

Predictors: (Constant), Building Plan Approval Status, Housing Density, Age Pre/post Law Enactment, Supervisor Competence
Dependent Variable: Level of Compliance
Source: Researcher's fieldwork, 2016

From table 4.14, F=32.29, P= < 0.05.The regression is highly significant.

So therefore the null hypothesis is rejected and the alternate accepted, which means that there is a significant linear relationship between the Physico-legal characteristics of buildings and the level of compliance of the respondents with building Law in the study area. This is the finding of the researcher, thus satisfying the main objective set for the study.

IV. CONCLUSION AND RECOMMENDATIONS

Based on the results from the study, the quantitative judgment is that there is a linear relationship between the physico-legal characteristics of buildings and the level of compliance attainable in Calabar Metropolis. The correlation analysis results showed that not only was there a relationship, but that the relationship was significant. This shows that the physical and structural characteristics of buildings also accounted for the level of compliance recorded in the study area. The physical and structural characteristics included:

1. The age of the building deduced from the year the building was erected;
2. Building plan approval status classified into building without plan at all, building with plan but not approved, building with approved plan but without meeting the plan specifications 100 per cent, building with approved plan and erected in complete compliance with the specification of law;
3. Supervisor competence classified into skilled, semi-skilled, untrained.
4. Housing density classified as high, medium, low.

Therefore, age of building, approved building plan, housing density and supervisor competence collectively affect level of compliance in the study area. The implication is that improving the physical and structural status of buildings would improve compliance in the study area. This shows that apart from the socio-economic variables of developers, there are indeed other variables that account for present level of compliance in the study area.

Therefore, as part of the researcher's planning law contribution, the researcher recommends that addressing the issue of compliance, instead of capitalising on the concept of ignorance of the law as being no excuse (as this is clearly shown to be a major cause of the low level of compliance in the study area) a systematic reduction in the level of ignorance would help in increasing the level of compliance. This approach would be more pragmatic because, the concept of "ignorance of the law is no excuse" views punishment as an end, instead of a means to an end.

Furthermore, regarding building supervisor's competence, the researcher recommends that the more skilful the supervisors are the more compliant also are the buildings. It was also found that buildings with approved plan tended to comply more with the Law than those without approval plan. This is however indicative of the fact that the unsatisfactory level of compliance attained in the study area was a function of approved building plan. This is in line with the expectation of section 2(9) (A) of the 1984 building Law under consideration that buildings should only commence after building plan had been approved.

On the whole, the research agrees with the finding that compliance with building Law in Calabar Metropolis was a function of multiple causes and therefore clearly shows that a single factor approach to compliance with building Law would be inadequate. It is submitted therefore that the level of compliance in Calabar across residential districts, especially in those districts yet to be completely built up, can be improved by ensuring that approved Building Plans are secured and buildings also erected in line with the approved plan.

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