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# INFLUENCE OF DEVELOPMENT CONTROL INSTRUMENTS ON BUILDING DEVELOPMENT IN UYO METROPOLIS

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## ABSTRACT

**Purpose:** Environmental Impact Assessment Report (EIAR) and Site Plan Analysis Report (SPAR) are two legal instruments of development control to enhance sustainable development in the construction industry. The aim of this paper is to x-ray the extent to which the use of EIAR and SPAR instruments has enhanced sustainable development in the construction industry in Uyo metropolis.
**Design/methodology/approach:** To achieve this aim, evaluations were carried out on the extent of building development permits issued as well as cost implications prior to and after commencement of the implementation of these instruments in Akwa Ibom State. Deductive and explanatory research design was employed and data relating to number of approved plans, cost associated with the control instruments, and average cost of buildings were obtained from official records of Uyo Capital City Development Authority (UCCDA) and professional bodies. Interviews were held with the staff of UCCDA in enforcement unit while qualitative and quantitative analytical designs were utilized in the analysis and discussion of findings.
**Findings:** The result showed that the rate of building plans approval was higher prior to the implementation of the control instruments. In addition, the influence of the instruments was found significant on approval rate of both bungalow and storey buildings.
**Research limitations/Implications**: The limitations include the use of only two development control instruments and costs of three bedroom bungalows and four bedroom duplex in Uyo metropolis. The contribution to knowledge is that this study established the influence of the selected control instruments on building approval and development.
**Practical implications:** It is recommended that government approval agencies, professionals and other stakeholders should harmonize the process and costs of obtaining the adequate documents for approval, failure of which will increase illegal building construction.
**Originality/value** – The study revealed the percentage contributions of the control instruments to building development and the need to harmonize the process and costs of obtaining the instruments for development in Uyo metropolis.

**Keywords:** Building plan approval; development control instruments; environment impact assessment; site plan analysis report; Uyo metropolis

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## 1. INTRODUCTION

The construction industry has been mainly responsible for the development of the built environment which serves as a major source of economic growth, development and economic activities of every nation. The industry is regarded as a mechanism for generating employment and offering job opportunities to millions of unskilled, semi-skilled and skilled work force, while also playing key role in generating income in both formal and informal sector (Khan, 2008). The Nigerian Urban and Regional Planning Degree No. 88 of 1992 describes development as the carrying out of any building, engineering, mining, or other operations in, on, over or under any land, or the making of any environmentally significant change in the use of any land or demolition of buildings including the felling of trees (Nduthu, 2010). Some developmental activities of the construction industry include construction of hospitals, schools, townships, offices, houses and other buildings; urban infrastructure (including water supply, sewerage, drainage); highways, roads, ports, railways, airports; power systems; irrigation and agriculture systems; telecommunications and so on(Khan, 2008). The increasing population growth rate, urbanization, and increasing need to provide man with a conducive environment for habitation in cities have affirmed the global concern for sustainable development with the attendant problem of ensuring developmental planning, coordination and control (Alabi, 2010; Ahmed and Dinye, 2011).

According to Ujene and Atser (2016) the development plan of a city or town tries to advance scientific and coherent policies to meet the functional needs of the city and aspirations of its citizens. Planning of land use and construction activities require control on it by some regulations, which are General Development Control Regulations. These regulations affect many parameters of urban development like housing, population density, infrastructure requirement, environment and others. This impact directly depends upon the development control regulations for the city (Vaghani, Shah and Chauhan, 2010). Several studies have described development controls as the mechanism through which the entire process of urban development is regulated to achieve the objective of promoting overall benefit of the society and creating a distinct image of the city (Aluko, 2011a; Ogundele, Ayo, Odewumi and Aigbe, 2011). Development control as a potent tool for city management ensures that the continual growth and management of a city can make for orderliness, improved city image, healthy and aesthetics. It includes guiding the development and use of land, curbing misuse of land and promoting rational and orderly development of built environment (Aluko, 2011b). Ahmed and Dinye (2011) however, observed that sustainable development in developing countries has been hindered by deficient land resources use and planning failures coupled with overall inappropriate and weak enforcement of development controls.

Okekeogbu (2011) similarly observed a gross manifestation of impropriety and inefficiency as evidenced in the spate of uncoordinated physical and infrastructural development in most Nigerian cities. The study noted that except for the few well planned areas in the colonial era (most of which have been bastardized) nearly all other physical planning and development control activities lack merit. It is also currently evident that the development law has failed in some developing countries to provide an orderly and sustainable urban development, as many urban areas continued to experience a myriad of problems including; squatter settlements and informal sector developments, congestions and overcrowding, pollution, inadequate provision of social amenities and disasters such as collapsed buildings (Ngetich, Opata and Mulongo, 2014). Peters (2015) also in a study noted that one of the major problems of urban development in Nigeria is ineffective development control enforcement, due to rapid urbanization taking place in all Nigerian

cities. This problem has led to urban problems of housing, transportation, drainage, sanitation and general inadequacies of social services which have significant influence on economic growth because of the link of construction industry with other economic sectors (Jackman, 2010).

Although some studies in Nigeria have attempted to look at the challenges and prospects of development control in some cities (Obabori, Obiuwevbi and Olomu, 2007; Aluko, 2011a; Ogundele *et al*., 2011; Okekeogbu, 2011 and Peters, 2015), yet literature seem very scarce on development control costs and its influence on the rate of building construction, particularly in Akwa Ibom state. Ofem and Atser (2005) focused on the social-economic impact of illegal development in Uyo. The study which saw illegal structures as those carried out before formal approval and/or contrary to the approval granted by the development control authority, noted that the demolition of illegal buildings not only cost the government huge sums of money, but also cost the developers whatever was spent on such structures. Ofem and Atser (2005) also observed that between 2002 and 2005 Uyo Capital City Development Authority (UCCDA) identified 1,538 illegal structures which might have undoubtedly risen beyond this number in between 2016 and 2017 considering the current economic recession, high cost of processing the approval and obtaining building permit by many private individuals who want to be homeowner in Nigeria (Ayotamuno and Owei, 2015). Hence this study which aims at providing an insight into the extent to which the use of site plan analysis report (SPAR) and environmental impact assessment report (EIAR) have influenced the extent of approval and development of buildings, with a view to enhancing sustainable development in Uyo metropolis.

## 1.1 Objectives of the Study

To achieve the aim of this study, the objectives were to:

i. evaluate the extent of building development permits issued prior to and after the implementation of SPAR and EIAR as development control instruments in Uyo metropolis
ii. assess the cost implication of the implementation of these control instruments in the study area; and
iii. determine the influence of these instruments on the extent of building plans approval in the study area.

## 1.2. Research Hypothesis

Two hypotheses were proposed for this study. The first hypothesis states that there is no significant difference in the extent of building development permit prior to and after the utilisation of SPAR and EIAR as development control instruments in Uyo metropolis. The second states that there is no significant association between the use SPAR and EIAR as development control instruments and the extent of building development approval in Uyo metropolis. The results of these hypotheses will provide an insight into the extent to which the use of the instruments for development control can influence the extent of building development in Uyo metropolis. The results will also enlighten the built environment stakeholders on the need to moderate/harmonise the process and costs of the instruments used for development control so as to enhance sustainable development in Uyo metropolis.

# 2. LITERATURE REVIEW

## 2.1. Development Control and its Relevance

A number of studies on development control, its relevance and its instruments as applicable in the construction industry abound in literature. Aluko (2011a) described development control as the control of the use of land, the character, appearance and arrangement of buildings and facilities, to ensure economy, convenience, sightless results and aesthetics. What is peculiar to development control is that it acts to segregate obnoxious activities out of residential areas and others while it also prevents over-exploitation of land. Development control can then be defined precisely as the process of implementing building and land sub-division regulations and specifications. The word control is exercised when what is actually happening is compared with and guided towards the achievement of the proposals and specifications in approved building and layout plans. Aluko (2011a) identified two levels of development control: the macro and micro levels. At the macro level, the objective is to control the sub-division of land. This is the control of the development of layouts or sub-divisions and the aim is to ensure that as new areas are brought under urban use and influence, they not only form an integral part of the present overall urban structure, but also fit into the future structure. While at the micro level, the objective is to control the development of the individual plot and structure within the sub-division. Also, there are different types of development controls. They are amongst others in Nigeria, density control, zoning, building lines, lighting, plot ratio, building height regulation, master plan preparation, planning schemes, type of materials and so on.

## 2.2. Overview of Instruments used in Developmental Control

Development controls instruments are the tools or mechanisms through which entire process of urban development is regulated to achieve the objective of promoting overall benefit of the society and creating a distinct image of the city (Aluko, 2011a; Ogundele, Ayo, Odewumi. and Aigbe, 2011). Nduthu (2010) and Aluko (2011b) identified some important development control instruments to include Physical Planning Act, Building Code, Planning Standards, Physical Development Plans, Area action plans developed from the physical development plan and zoning policy guidelines generated from the area action plans. Ikejide (2011) similarly identified Building Code, Zoning Ordinance, Sub-division Regulations and Environmental Impact Assessment Report (EIAR). Kahi (2015) observed the additional use of Licenses/permits, while Ayotamuno and Owei (2015) identified site analysis report as one of the instruments in development control.

## 2.3. Site Plan Analysis Report as Development Control Instrument in Uyo

According to Ayotamuno and Owei (2015), Site Plan Analysis Report (SPAR) is one of the development control instruments used in Port Harcourt as in many other towns and cities in Nigeria. This is also being used for development control in Uyo metropolis since 2011. According to Bogoro and Nghalmi (2014) site-plan review, helps to guide orderly development, protect prospective and current residents from poorly designed buildings or business districts, and ensure that most of the costs of land conversion are borne by those who will benefit from the development, that is, by the developer and the future residents. World Bank (2014) stated that site plan analysis report as a key requirement for building

plan approval in Uyo metropolis, provides information on the details of the location, accessibility and topography of the site, as well as the proximity of the site to essential services such as electricity source, water source, hospital, commercial area, airport, and others. This document is usually prepared by a registered Town Planner.

## 2.4. Environmental Impact Assessment Report as Development Control Instrument

In terms of Environmental Impact Assessment Report (EIAR), Ikejide (2011) opined that it is a process or study in which the potential physical, biological, economic and social impacts of proposed developments on environment are identified, analyzed and predicted. Environmental Impact Assessment is an important mechanism for translating the principles of sustainable development into action by studying the effect of a proposed action on the environment. The results of the assessment helps to predict the likely changes in the environmental quality, which would result from the proposed action, thereby finding ways to reduce unacceptable impacts and provide options in design, sitting and operation of the proposed development. This is corroborated by Ojo and Olapade (2014) who defined EIA as a tool that identifies, predicts, interprets, as well as-communicates impacts of proposed, planned, and on-going projects on the 'total' environment and puts in place a monitoring plan for mitigating and/or ameliorating identified negative impacts of proposed projects after evaluation of alternatives. According to Nwoko (2013) the EIAR is not a one-off process which terminates in the production of a report on the effects of the project and associated mitigation measures, but also deals with monitoring the construction and operational phases, till the project is decommissioned together with the post-closure care.

According to World Bank (2014) the EIAR, lists the potential impact of the project on the environment, such as the noise, traffic, flooding and increase in human density issues that might arise as a result of the development. In order to adequately draft the SPAR and EIAR in Uyo metropolis, the environmental specialist first verifies the site plan (attached to the Certificate of Occupancy or letter of consent) as well as the preliminary drawings prepared by architects and engineers, before conducting an on-site inspection. Sometimes, interviews are conducted with relevant stakeholders living in the area to obtain all relevant information.

## 2.5. Requirements for Approval of Plan for Residential Building in Uyo Metropolis

According to Usip (2008) and World Bank (2014) a developer who wants to obtain a building plan approval, must submit a duly completed application form to the Uyo Capital City Development Authority, along with the following documents:

i. Proof of ownership (such as land agreement, affidavit of land ownership, a Certificate of occupancy/ letter of consent);
ii. Survey plan (attached to the Certificate of Occupancy);
iii. Drawings showing elevations, sections, storm drainage system, construction details, and doors and windows schedules) duly signed by a registered architect;
iv. Drawings showing foundation layout, structural details on beams, columns, staircases, etc.) duly signed by a registered structural engineer;
v. Drawings showing calculation, power point layout, lighting point layout, and schedule of fittings and fixtures)duly signed by a registered electrical engineer;

vi. Drawings showing calculations, waste disposal layout, soil disposal layout, and schedule of sanitary fittings) duly signed by a registered mechanical engineer;
vii. Environmental Impact Assessment Report (EIAR);
viii. Site Plan Analysis Report (SPAR);
ix. Receipt of payment of fees including Tax clearance and three years local government rate tickets.

Among the requirements for building approval in the study area the EIAR and SPAR appear to be the two most recent development control tools implemented in 2011 to enhance environmental sustainability through a systematic compilation of expert quantitative analysis and qualitative assessment of construction projects, land use and property development viability, including its effect on the surrounding area, and the presentation of results in a manner that enables proper evaluation of the predicted results, and the scope of modifying or mitigating them by the relevant decision making body before a planning permission is rendered. Consequently, the low awareness among developers regarding the relevance of these documents in the application for building permit and the associated costs of obtaining them provided justification to the importance attached to the two control tools in this study.

### 2.6. Area of the Study

The area selected for the study is Uyo metropolis, which is the Capital City of Akwa Ibom State. The state was created in 1987 and situated in the Niger-Delta, South-South, Nigeria. Its locational latitudes and longitudes are between $7^0$47' and $8^0$03' north and between $4^0$52' and $5^0$07' east respectively. Demographically, the total estimated population based on 2006 Population Census is 273,000 persons; this must have gone higher by the present situation of the city (Mbina and Edem, 2015). Uyo as a capital city which houses many federal and state establishments has other parts of Uruan, Ibiono Ibom, Itu, Ibesikpo and Etinan Local Government Areas carved out and added to the former Uyo Township. Its former nature of rural local government headquarter has witnessed tremendous transformation and metamorphosed into a Municipality with many modern roads which have completely changed the landscape and aesthetics of the city (Udoh, 2014). These uncommon transformations have also encouraged rural-urban migration and steady influx of people from neighboring states, thereby imposing several housing problems like health, high cost of land and building development (James, Akpan, Essien and Ekpo, 2012; Udoh, 2014). With the available good road networks and other infrastructures many public servants and business men have chosen the place for settlement and resorted to the development of their personal houses within and outside Uyo metropolis to provide for themselves a more comfortable shelter. However Usip (2008) observed that there has been low and poor public compliance to planning and development standards resulting in increasing number of illegal developments in the Metropolis, a phenomenon which necessitated this study.

## 3. METHODOLOGY

This study adopted a deductive and explanatory research method. The approach focuses attention on costs of development control as critical problems which influence the extent of building development in Uyo metropolis and draws liberal explanations from the

discernable relationship using quantitative data obtained from primary and secondary sources. The costs of the development control instruments were obtained from the official records of the Nigerian Institute of Town Planners (NITP) Akwa Ibom State chapter, the number of building plans approved for development between 2005 and 2016 were compiled from the official records of UCCDA in 2017 as well as the previous work of Usip (2008). The average costs of building a 3-bedroom and 4-bedroom duplexes were obtained from the official records of Estate Surveyors and Valuers and Quantity Surveyors as well as their periodicals from 2011-2016. A total five staff of UCCDA in enforcement unit were interviewed to ascertain the possible causes of illegal structures and non- approval of many building plans submitted over the years. The data were analyzed using percentage, t-test and chi-square statistics.

## 4. PRESENTATION AND DISCUSSION OF RESULTS

### 4.1. Evaluation of Building Development Permits prior to the Utilisation of SPAR and EIAR in Uyo Metropolis

Evaluation of building development permit issued prior to the implementation of SPAR and EIAR in Uyo metropolis was carried out with a view to achieving the first objective. Thus data on building plans submitted between 2005 and 2010 when SPAR and EIAR were not introduced were obtained. Table 1 shows the data on the building plans submission from 2005 to 2010.

**Table 1**: Total building plan submission prior to use of EIAR and SPAR (2005-2010)

| Year | Plan submitted | Plan Approved | % Approved | Plan not approved | % not approved |
|---|---|---|---|---|---|
| 2005 | 728 | 389 | 53.43 | 339 | 46.57 |
| 2006 | 692 | 346 | 50.00 | 346 | 50.00 |
| 2007 | 441 | 200 | 45.35 | 241 | 54.65 |
| 2008 | 580 | 298 | 51.38 | 287 | 48.62 |
| 2009 | 558 | 351 | 62.90 | 207 | 37.10 |
| 2010 | 491 | 218 | 44.40 | 273 | 55.60 |
| **Average** | | | **51.24** | | **48.76** |

Table 1 shows that the percentages of total plan approved ranged between 44.4% and 62.9%, with average percentage approval of 51.24%, while the percentages of total plan not approved ranged between 37.10% and 55.60%, with average disapproval rate of 48.76%. The result indicates that the total percentage approved is more than percentage disapproved between 2005 and 2010, an indication of fewer illegal buildings in the city.
Table 2 shows that the percentage of storey buildings approved ranged between 4.50% and 46.33%, with average percentage approval of 36.61%, while the percentage of bungalow approved ranged between 53.67% and 95.50%, with approval rate of 63.39%. The result indicates that the percentage approved for bungalows is more than percentage approved for storey buildings between 2005 and 2010.

This may be attributable to the fact that the requirements for approval of most bungalows do not include structural and electrical drawings hence moderate total approval costs. Table 3 shows that the percentage of storey buildings not approved ranged between 23.69% and 78.74% out of the total plan disapproved, with average percentage disapproval rate of 45.38%, while the percentage of bungalows not approved ranged between 21.26% and 76.31%, with disapproval rate of 54.62%.

**Table 2:** Storey building/bungalow approval prior to use of EIA and SPA (2005-2010)

| Year | Plan Approved | Storey building | % approved | Bungalow approved | % approved |
|---|---|---|---|---|---|
| 2005 | 389 | 144 | 37.02 | 245 | 62.98 |
| 2006 | 346 | 154 | 44.51 | 192 | 55.49 |
| 2007 | 200 | 9 | 4.50 | 191 | 95.50 |
| 2008 | 298 | 148 | 49.66 | 145 | 50.34 |
| 2009 | 351 | 132 | 37.61 | 219 | 62.39 |
| 2010 | 218 | 101 | 46.33 | 117 | 53.67 |
| **Average** | | | **36.61** | | **63.39** |

**Table 3:** Extent of storey building/bungalow disapproval prior to use of EIA and SPA (2005-2010)

| Year | Plan not approved | Storey not approved | % not approved | Bungalow Not approved | % not approved |
|---|---|---|---|---|---|
| 2005 | 339 | 119 | 35.10 | 220 | 64.90 |
| 2006 | 346 | 106 | 30.64 | 240 | 69.36 |
| 2007 | 241 | 92 | 38.17 | 149 | 61.83 |
| 2008 | 287 | 68 | 23.69 | 219 | 76.31 |
| 2009 | 207 | 163 | 78.74 | 44 | 21.26 |
| 2010 | 273 | 180 | 65.93 | 93 | 34.07 |
| **Average** | | | **45.38** | | **54.62** |

The result indicates that the percentage disapproved for bungalows is more than percentage disapproved for storey buildings between 2005 and 2010. This may be attributable to the fact that more building plans for bungalow were submitted consequent on more numbers of low and medium income earners in most Nigerian cities who struggle to be home owners (Nwakanma and Nnamdi, 2013).

## 4.2. Evaluation of Building Development Permit Level after the Utilisation of SPAR and EIAR as Development Control Instruments in Uyo Metropolis

Similarly, evaluation of the rate of building development permits issued after the implementation of SPAR and EIAR as development control instruments in Uyo metropolis was also carried out in respect of the second objective. For this purpose the data on the building plan submission from 2011 -2016 were presented on Tables 4 – 6.

**Table 4:** Building plans submission after implementation of EIAR and SPAR (2011-2016)

| Year | Total Plan submitted | Plan Approved | % Approved | Plan not approved | % not approved |
|---|---|---|---|---|---|
| 2011 | 538 | 129 | 23.98 | 409 | 76.02 |
| 2012 | 287 | 150 | 52.26 | 137 | 47.74 |
| 2013 | 395 | 118 | 29.87 | 277 | 70.13 |
| 2014 | 415 | 240 | 57.83 | 175 | 42.17 |
| 2015 | 405 | 305 | 75.31 | 100 | 24.69 |
| 2016 | 509 | 273 | 53.6 | 236 | 46.4 |
| **Average** | | | **48.81** | | **51.19** |

Table 4 shows that the percentage of total plan approved ranged between 23.98% and 75.31%, with average percentage approval rate of 48.81%, while the percentage of total plan not approved ranged between 24.69% and 70.13%, with average disapproval rate of 51.19%. The result indicates that the percentage approved is less than percentage disapproved between 2011 and 2016, an indication of many illegal buildings in the city.

**Table 5:** Storey building and bungalow plans approval between 2011and 2016

| Year | Total Plan Approved | Storey building approved | % approved | Bungalow approved | % approved |
|---|---|---|---|---|---|
| 2011 | 129 | 74 | 57.36 | 55 | 42.64 |
| 2012 | 150 | 74 | 49.33 | 76 | 50.67 |
| 2013 | 118 | 63 | 53.39 | 55 | 46.61 |
| 2014 | 240 | 59 | 24.58 | 181 | 75.42 |
| 2015 | 305 | 60 | 19.67 | 245 | 80.33 |
| 2016 | 273 | 196 | 71.80 | 77 | 28.20 |
| **Average** | | | **46.02** | | **53.98** |

Table 5 shows that the percentage of storey building approved ranged between 19.67% and 71.80%, with average percentage approval of 46.02%, while the percentage of bungalow approved ranged between 28.20% and 80.33%, with approval rate of 53.98%. The result indicates that the percentage approved for bungalows is more than percentage approved for storey buildings between 2011 and 2016. This may also be attributable to the fact that EIAR is not required for approval of bungalow hence reducing the total approval costs.

**Table 6:** Storey building and bungalow plans disapproval rate between 2011 and 2016

| Year | Total Plan not approved | Storey building not approved | % storey building not approved | Bungalow Not approved | % bungalow not approved |
|---|---|---|---|---|---|
| 2011 | 409 | 290 | 70.90 | 119 | 29.10 |
| 2012 | 137 | 87 | 63.50 | 50 | 36.50 |
| 2013 | 277 | 204 | 73.65 | 73 | 26.35 |
| 2014 | 175 | 111 | 63.43 | 64 | 36.57 |
| 2015 | 100 | 45 | 45.00 | 55 | 55.00 |
| 2016 | 236 | 135 | 57.20 | 101 | 42.80 |
| **Average** | | | **62.28** | | **37.72** |

Table 6 shows that the percentage of storey building not approved ranged between 45.00% and 73.65% out of the total plan not approved, with average percentage disapproval rate of 62.28%, while the percentage of bungalows not approved ranged between 26.35% and 55.00%, with disapproval rate of 37.72%. The result indicates that the percentage of disapproved bungalows is less than percentage of disapproved storey buildings between 2011 and 2016. This may be attributable to the high cost associated with meeting the costs of design and approval associated with the storey buildings.

## 4.3. Comparison of building development permits prior to and after the use of SPAR and EIAR

Comparison of building development permits issued prior to and after the implementation of SPAR and EIAR was undertaken to test if significant difference exist between the two time periods using the total number building plans submitted and approved as presented in Table 7. The hypothesis was tested with t- test at $p \leq 0.05$, the decision rule is that if p-value > 0.05, the hypothesis is accepted, but if p-value ≤ 0.05 the hypothesis is rejected. The result is presented on Table 8.

The result in Table 8 shows that the p-value for the test is 0.048, which is less than assumed significance level of 0.05, hence the null hypothesis was rejected and it was concluded that there is no evidence in the data to suggest that there is no significant difference in building development permits prior to and after implementing SPAR and EIAR. The result indicates that building development permits before implementation of SPAR and EIAR is significantly different from that after the use of SPAR and EIAR and

that the difference does not occur by chance. The implication of this is that there is high likelihood of illegal structures and huge losses which may result from demolition of such structures (Ofem and Atser, 2005).

**Table 7:** Building plan submitted and approved before and after of use of EIA and SPA

| Total Building Plans | Before use of EIA and SPA | After use of EIA and SPA |
|---|---|---|
| Total submitted | 3490 | 2549 |
| Total approved | 1802 | 1215 |
| Total storey building approved | 688 | 526 |
| Total Bungalow approved | 1109 | 689 |

**Table 8:** Paired t-test for Comparing building development permits prior to and after the use of SPAR and EIAR

| Comparison of building Plans approved | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | |
| | | | | | Lower | Upper | | | |
| Pair 1 | before & after use of EIAR & SPAR | 527.500 | 326.430 | 163.215 | 8.078 | 1046.922 | 3.232 | 3 | 0.048 |

## 4.4. Assessment of Cost Implication of SPAR and EIAR Control Instruments

The demolition of illegal structures has enormous cost implication. Therefore the assessment of cost implication of implementing SPAR and EIAR Control Instruments was carried out in order to achieve the third objective. Thus, the costs of SPAR and EIAR were computed as percentages of the average costs of building a three bedroom bungalow and a four bedroom duplex from the field values shown in Appendices 1-3 and the result is presented in Table 9.

**Table 9:** Percentage contribution of SPAR and EIAR to development of bungalow and storey buildings

| Year | 3-Bedroom Detached Bungalow | 4-Bedroom Duplex (Storey building | Bungalow SPAR % contribution | Storey SPAR % contribution | Bungalow EIAR % contribution | Storey EIAR % contribution |
|---|---|---|---|---|---|---|
| 2011 | 8,605,725 | 27,523,038.60 | 1.046 | 0.436 | 1.046 | 0.599 |
| 2012 | 10,525,196 | 30,672,479.70 | 0.855 | 0.391 | 0.855 | 0.538 |
| 2013 | 11,449,640 | 31,336,477.20 | 0.786 | 0.383 | 0.786 | 0.527 |
| 2014 | 11,906,763 | 33,662,471.40 | 0.756 | 0.356 | 0.756 | 0.490 |
| 2015 | 12906931 | 36,119,831.40 | 0.697 | 0.346 | 0.697 | 0.457 |
| 2016 | 13991113 | 38,720,459.70 | 0.643 | 0.323 | 0.643 | 0.426 |
| **Average** | | | **0.797** | **0.373** | **0.797** | **0.506** |

The result in Table 9 shows that the contribution of SPAR and EIAR each to the development of a tree bedroom bungalow ranged between 0.643% and 1.046% from 2011 to 2016, with an average contribution of 0.797% each. The contribution of SPAR to four bedroom duplex vary from between 0.323% and 0.436%, with average contribution of 0.373%, while the contribution of EIAR to four bedroom duplex vary from between 0.426% and 0.599%, with average contribution of 0.506%.

## 4.5. Influence of Development Control Instruments on Building Development Approval

The influence of development control instruments on building development approvals was also examined as prelude to achieving the fourth objective. Thus, the frequency of buildings approved and buildings not approved before and after the implementation of SPAR and EIAR control instruments were used as data for further analysis as Table 10 shows.

**Table 10:** Frequency of buildings approved /disapproved before and after the use of the selected instruments

| | Storey buildings | | | Bungalow building | | |
|---|---|---|---|---|---|---|
| | approved | Not approved | total | approved | Not approved | Total |
| Before use of SPAR & EIAR | 688 | 728 | 1416 | 1109 | 965 | 2074 |
| During use of SPAR & EIAR | 526 | 872 | 1398 | 689 | 462 | 1151 |
| Total | 1214 | 1600 | 2814 | 1798 | 1427 | 3225 |

**Table 11:** Influence of control instruments on approval of Storey buildings

| | Value | df | Asymp. Sig. (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 2107.981[a] | 1 | 0.001 |
| Continuity Correction[b] | 2104.487 | 1 | 0.001 |
| Likelihood Ratio | 2687.492 | 1 | 0.001 |
| Linear-by-Linear Association | 2107.232 | 1 | 0.001 |
| N of Valid Cases | 2814 | | |

0 cells (0.0%) have expected count less than 5. The minimum expected count is 603.12[a]

**Table 12:** Influence of control instruments on approval of bungalows

| | Value | df | Asymp. Sig. (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 2255.080[a] | 1 | 0.001 |
| Continuity Correction[b] | 2251.567 | 1 | 0.001 |
| Likelihood Ratio | 2801.209 | 1 | 0.001 |
| Linear-by-Linear Association | 2254.381 | 1 | 0.001 |
| N of Valid Cases | 3225 | | |

0 cells (0.0%) have expected count less than 5. The minimum expected count is 509.30[a]

The data in Table 10 was then used to test the second hypothesis which states that: there is no significant association between the use the development control instruments and the extent of building development approval in Uyo metropolis. The hypothesis was tested with chi-square at $p \leq 0.05$, the decision rule is that if p-value > 0.05, the hypothesis is accepted, but if p-value ≤ 0.05 the hypothesis is rejected. The results presented on Tables 11 and 12 show that the p-value for the chi-square test for both storey buildings and bungalow is 0.001, which is less than assumed significance level of 0.05, hence the null hypothesis was rejected and it was concluded that there is evidence in the data to suggest that there is significant influence of control instruments on the extent of building development approvals in Uyo metropolis. The result indicates that the use of the SPAR and EIAR as control instruments actually influence the extent of development approvals in the study area. The implication of this is that if appropriate control strategies are not put in place more illegal buildings will spring up, thereby paving way for more demolitions in the metropolis.

### 4.6 Interview Response of on Causes of illegal structures and disapproval of Plans

In order to further substantiate the result of the quantitative evaluation, semi-structured interviews were conducted on five staff of UCCDA drawn from the enforcement unit, to ascertain the possible causes of illegal structures and disapproval of plans in Uyo metropolis over the years. *The question presented to them was, "what in your opinion is responsible for the observed illegal structures in Uyo metropolis?"* According to the respondents, 'the huge costs of surveying the land, carrying out the design and paying for SPAR & EIAR can really discourage the poor developers. Besides, the "administrative bottleneck in the approval process and the level of poverty of many urban inhabitants also contribute to illegal construction". However, they also commented that "it is good to control development, but the process should be made affordable and accessible for both rich and the poor''. *The second question presented to them was, "what in your opinion is responsible for the non-approval of the plans registered/ submitted to your office?* According to respondents, "the inadequate area of plot to allow for the required proportion of developed and undeveloped area" is one of the reasons, secondly ''the inadequate submission of documents such as letter of consent, SPAR, EIAR, and others'' could forestall approval of building plans that are registered. Most of the respondents indicated that the negligence of the developers to follow-up the approval process and inadequate design and specifications could contribute significantly to the non-approval of the registered plans.

## 5. CONCLUSION AND RECOMMENDATIONS

This study has provided an insight into the extent to which the use of site plan analysis report (SPAR) and environmental impact assessment report (EIAR) have influenced the extent of approval and the construction of buildings, with a view to enhancing sustainable development in Uyo metropolis. The result shows that average percentage approval of plans before the implementation of the control instruments was observed to be 51.24%, while the average disapproval rate was found to be 48.76%. The result indicates that the total percentage approved is more than percentage disapproved between 2005 and 2010. This implies that fewer illegal buildings in the city were observed prior to the implementation of the control instruments. It was also found that the average percentage approval of storey buildings was 36.61%, while the average approval rate for bungalows was 63.39%. The result indicates that bungalows received more approvals than storey building between 2005 and 2010, possibly because the requirements for approval of most bungalows do not include structural and electrical drawings hence moderate total approval costs.

The result showed an average disapproval rate of 45.38% for storey buildings, and an average disapproval rate of 54.62% for bungalows, an indication that the percentage disapproved bungalows was more than percentage disapproved storey building between 2005 and 2010. This may be attributable to the fact that more building plans for bungalow were submitted probably because of more numbers of low/medium income earners yearning to be home owners. The implication of this finding is that there may be more development of bungalows which reduces vertical growth where site space seems limitless, as well as high likelihood of illegal storey building in the study area. It was found that between 2011 and 2016 the average percentage total approval of buildings was 48.81%, while the average percentage disapproval rate was 51.19%. Thus, between 2011 and 2016 the average percentage of storey buildings approved was 46.02%, while the percentage of

bungalows approved was 53.98%. This is an indication that fewer storey buildings and more bungalows were developed. Similarly, there was disapproval rate of 62.28%and 37.72% for storey buildings bungalow respectively indicating that the approval process favors bungalows more than storey buildings between 2011 and 2016, implying many illegal storey buildings in the city.

The study also found that building development permits prior to the use of SPAR and EIAR was significantly different from that after the use of the instruments. The implication of this is that the current use of the instruments may result in high likelihood of illegal structures and huge losses which may result from demolition of such structures (Ofem and Atser, 2005). It was also found that the costs of SPAR and EIAR each to the development of a tree bedroom bungalow in recent years, has an average contribution of 0.797% each, SPAR has an average contribution of 0.373% to storey building, while the average contribution of EIAR is 0.506%. This may be considered high especially to low and medium income earners, considering the fact that all other requirements for approval have cost implications which when put together may become discouraging to developers. The study found that the use of the SPAR and EIAR instruments actually influence the extent of development permits approvals in the study area. The implication of this is that if appropriate control strategies are not put in place more illegal buildings will spring in the metropolis. The result of the study also indicated that apart from the cost of SPAR and EIAR, the huge costs of surveying the land and carrying out the designs seem to be outrageous and could discourage developers from seeking development permits approvals. In terms of approvals of already submitted plans, inadequate area of plot, inadequate submission of accompanying documents such as letter of consent, SPAR, EIAR, negligence of developers lead to disapproval of plans.

Consequent upon the findings of this study, it is concluded that the costs and process of meeting the requirements of development control agencies have significant influence on the sustainable development in the built environment. Therefore if the processes and costs of obtaining the adequate documents for approval are not harmonized among all the stakeholders, the envisaged sustainable development in the construction industry may not be realized. It is therefore recommended that government approval agencies, professionals and other stakeholders should harmonize the processes and costs of obtaining the adequate documents for approval to enhance sustainable development in the study area. Developers should be properly sensitized to follow-up the approval processes considering the consequences of demolition.

## 6. LIMITATION OF THE STUDY

This study is limited to the use of two development control instruments and costs of three bedroom bungalows and four bedroom duplexes in Uyo metropolis. Therefore the result could be improved by further studies on other towns, development control instruments and building types not covered in this study. In spite of these limitations the result could provide reasonable insight into the extent to which the use of the development control instruments have influenced the extent of approval and the construction of buildings with a view to enhancing sustainable development in Nigeria, as well as guide for further studies.

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