



EFFECT OF UNCONTROLLED LAND USE CHANGES ON NEIGHBORHOOD QUALITY IN KARU, NASARAWA STATE

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Abstract:

This research examines the effect of uncontrolled and use changes on neighborhood quality. All of these different uses have at some of the time led to overlapping uses with one use negatively affecting the other. Hence, the need to have a defined process or system of and administration and management which would govern the use to which land is put as well as ensures complementary land uses. Descriptive statistics based on mean ranking standard deviation was adopted and it shows that profit maximization ranked 1st with government policies ranking last. In another vein where the neighborhood quality is looked into it shows that quality of building ranked 1st and communication signs and symbol ranked last. While regression analysis was also adopted as shown in the main work with the view to show the effect of uncontrolled land use changes on neighborhood quality in the study area. Descriptive statistics based on mean ranking and standard deviation was adopted and it shows the preferred measures to take in order to curb uncontrolled changes in land uses. Data was collected by way of questionnaire administration. Data retrieved were analyzed using descriptive and information obtained was presented using SPSS. This study found that the main reason individuals engage in land use change is to make extra money. Data was also ranked on a 5-point Likert Scale using mean ranking. This study found that the main reason for individuals engaging in land use is to make extra money and that the Development Control Department is taking measures in form of dispatching teams to identify breaches and sanction of violators.

Keywords: *Effect, Land use change, Neighborhood Quality, Karu, Nasarawa State.*

Introduction

Land use patterns tell a story of human activity and environmental evolution, and future settlement patterns are of interest to many. Changes in land use alter the distribution of vegetation, homes and workplaces, and consequently influence biogenic and on-road mobile emissions. Numerous studies have shown that land use patterns and intensities have a direct impact on development and even the travel pattern (Berardi & Geisler, 2019). Land and its resources remain the basic element to the sustenance of the universe. The significance of land use in the physical, socio-political and economic growth in the development of cities cannot be overemphasized, hence the intrinsic value of land is perceived through the various uses that land is committed. Generally, land is broadly categorized into two namely rural and urban lands. Rural land is identified as remnants of land after urban land has been designated; they are predominantly lands committed to agriculture and extensively governed by local public authority (local government). On the other hand, urban land is any land which falls within the geographical areas of an urbanized environment. Land in urban areas is limited in supply, relatively scarce and command high value. (Oke, Mills, Christen & Voogt, 2017). However, Peter, Fateye, Oloke, & Iyanda, (2018). Posited that, the nature and pattern of land use dynamics in an urban environment is complex and interdependence. Changes in the physical use of land will be continuous as a result of insatiable nature of man-land relationship and changes in optimal use (highest and best use). For instance, from economic view, land owners will behave rationally by conversion of low demand land use to competitive use in order to explore the economic opportunities associated with the unsatisfied demand of specific land use in the property market. Therefore the land owners are more concerned with the economic benefits rather than the spill-over effects of the conversion. Hence, the spatial use potential of land for the locating various interconnectivity activities is more stressed than the net production capability. The continuous desires at maximising economic returns as well as the urgent request to accommodating new physical re-development of spatial area by local planning authorities necessitates the changes in land use pattern.

Peter *et al* (2018) posited that, understanding the factors responsible for changes in land use pattern provide needful information concerning the spatial implications and configuration on environmental quality, economic climate and well-being of the citizen both as present as well as in the future. The forces that drive land use change range from climate to topography, public policies to highway access, and interact in an intricate way (Kleemann, Baysal, Bulley & Fürst 2017). Such factors

can be spatially correlated to a large extent, and distance plays a major role. Tobler's Law suggests that "everything is related to everything else, but near things are more related than distant things." (Tobler 1970 page 236) However, it is not clear how correlations in existing and potential development diminish with distance.

Urban land use is the physical manifestation of socio-economic, cultural, political and environmental forces shaping the use of land in urban areas (Röder, Pröpper, Stellmes, Schneibel, & Hill, 2015). Environmental sanity and friendliness in any civilized city/urban center are guaranteed by an effective land use administration and management. Change in any form and in any society is inevitable and in fact has become part of an urban growth. For economic reasons, land and buildings will continue to change in use from a lower order to a higher order status in order to attain optimal use. Such changes usually result into land being allocated to its highest and best use culminating in higher economic returns, although it is not all the time these land use changes result in such positive impacts to economic growth (Grubb, Vrolijk, & Brack, (2018). The changing land use structure of an urban area has many implications on the land use prospects of the city, both positive and negative. Land use guidelines normally make provision for due process for land use change to avoid disastrous land use patterns.

Land is required for various uses in both the urban and rural areas of all society. It is a major factor of production and a vital element in the socio-economic development of any country or society (Federal Ministry of Housing & Urban Development, 2006).

Different neighborhood models can play a significant role in shaping individual travel behavior. Land use patterns, housing income pattern, street network patterns and density are factors that differentiate neighborhood models, and can affect movement behavior inside our cities. Neighborhood patterns impact the type, quality and quantity of mobility facilities that can be used and accordingly shape residents travel choices of movement behavior (Giles-Corti *et al.*, 2013). Mode choices depend on residents socioeconomic characteristics like age, gender and socioeconomic level; at the same time, urban form characteristics.

Against the stated background it call the attention of the researcher to carried out studies on the effect of the uncontrolled land use on the neighborhood quality in Karu local government area of Nasarawa state.

Literature Review

Land use involves the management and modification of natural environment or wilderness into built environment such as settlements and semi-natural habitat such

as arable fields, pastures and managed woods. Land use by humans has a long history, first emerging more than 10,000 years ago. Land use change has also been defined as the total arrangement that people undertake in a certain land cover type (Bennett, Radford & Haslem 2006).

Oluseyi (2006) evaluated urban temporal changes in a typical traditional settlement in Ibadan, Nigeria. The techniques of remote sensing to evaluate land use land cover changes was employed and a projection into 2023 was done using marcov change model. The density classification and the change rate were utilized in correlation analysis to identify the relationship between the density types at the base year with the rate of change in the study area. A correlation value of 0.49 significant at 0.01 2-tailed test was obtained showing that there is a significant relationship between the weighting of the initial land use types and the potential future land use change pattern. It was observed that there are considerable dynamic changes in Ibadan metropolis and the major contributor to changes is the vegetal cover, low density and sprawl development. The paper concludes by suggesting that the approach adopted in this study clearly demonstrated the potential of GIS and remote sensing techniques in measuring change pattern of urban land use even in traditional unplanned settlements.

Adebayo (2009), aimed to take a close look at the impact of land use changes on property values in metropolitan Lagos with particular reference to Victoria Island. 100 questionnaires were randomly distributed to Estate Surveyors, Estate agents and managing agents practicing on the island and 90 were retrieved. The retrieved data was analysed using simple descriptive statistics particularly frequencies, percentages and ratios. This study revealed that Victoria Island land use had undergone a substantial level of change from residential use to commercial with the latter becoming more prevalent. Alongside this change is a corresponding increase in both rental and capital values of the properties on the island. These changes have also created problems such as traffic congestion, over stretching of infrastructural facilities and noise pollution. The study recommends the need for adequate land use planning to take care of the changes brought about by increased commercial activities. Also, there is a need for town planning authorities to monitor the process of changes to prevent negative effect on the environment.

Ogungbemi (2012) examined the arbitrary changes or urban residential to commercial uses such as shopping and light industrial ventures with a view to bringing out salient factors that stimulate change in use and to address same. The study's major finding was that the property owners responded mainly to demand but the effects of this trend is far reaching. The study concluded by recommending

that government should be more proactive in ensuring strict compliance with planning codes.

Oyinloye, Kufoniyi and Somasundaram (2013), analyzed urban land use change in Nigeria. 2000 and 2010 IKONOS were used in a post classification comparison analysis to map the land use changes and identify the conversion process in Ikeja, GRA, Lagos. The land use change statistic results obtained revealed that residential land use has changed rapidly for the periods 2000-2010. The results also show increase in commercial land use between the same periods. The application of urban satellite images with higher ground resolution was found to be effective in monitoring the land use changes and providing valuable information necessary for planning and research.

Lam and Man (2013), aimed to develop a strategy for an effective and efficient control of illegal land use in a highly dense environment, with high rise buildings in multiple leasehold ownerships. Five typical cases were qualitatively analyzed, based on documentary analysis of the court proceedings. In Cases 1 and 2, lease conditions for restriction to industrial purposes on aged industrial buildings were found to be obsolete and not economically viable, thus resulting in illegal conversion of the premises for commercial use. Cases 2 and 3 showed that ambiguity in user clauses in land leases could lead to illegal changes of use from industrial or residential to commercial activities. Most importantly, Cases 1 and 3 demonstrated that limited resources for lease enforcement are the fundamental cause of the problem. Cases 4 and 5 proved that property managers could take effective legal action against changes of use in buildings with multiple ownerships. Ultimately, this study concluded that a more robust strategy can be developed for ensuring an effective and efficient control of illegal land uses in the leasehold system for Hong Kong and for those countries with a similar tenure system.

The quality of urban neighborhood environment depends largely on the provision of central services, public utilities, social amenities, community facilities and household conveniences. Public health related environmental parameters like sanitation, sewerage, drainage and solid waste disposal and public utilities like water supply, electricity, natural gas and so on are important physical infrastructure for maintaining the quality of urban neighborhood environment (Adewale, Ibem, Amole, & Adeboye 2019).

The causes, consequences and control of land use change have become issues of immense importance to the present-day world. The reasons for societal interest in land use and land use change are many. Land use both reflects and defines where economic activity takes place, and where and how communities develop (Goetz,

Shortle & Bergstrom 2005). Economic conditions, population, other land uses both public and private, and the size of the urban area continually change, subjecting the urban land market to forces of perpetual adjustment (Balchin, Bull & Kieve 1995).

As world population surges, there has been a general increase in the demand for land in cities around the globe. Of particular note is the demand for residential land. It has been emphasized that residential land use, among the several contending urban land uses, is the biggest consumer of land in urban centers (Alonso, 1960, Edwards, 2007; Kabba & Li, 2011, Uju & Iyanda, 2012; Adegoke, 2014). Under normal situations, increase in population elicits a proportionate increase in the demand for land for residential uses, and the occurrence of commercial, industrial, institutional and transportation land uses is spatially linked to residential development. Consequently, any changes in the general use of land affect residential property rental values.

The metropolis of Kaduna in Nigeria has gone through structural changes in its physical form, population, economic and social constituents over the last century largely owing to urban growth. This had engendered changes in land uses in the metropolis (Saleh *et al.*, 2014a; Saleh *et al.*, 2014b).

The rapid urban growth and proliferation of human activities in Kaduna metropolis, Nigeria, is accompanied by different types of land uses and their conversion from one type to another most often in contravention of land use planning. Incompatible combinations of various types of land use are commonly found adjacent to each other. Intra-urban migration of residents within Kaduna metropolis has resulted in irregular changes in land uses against urban planning regulations and this in turn affects residential property rental values in diverse ways (Ajibuah 2010).

Methodology

This study adopts the use of descriptive and exploratory design using quantitative approach as numerical data was collected and analyzed. Survey research strategy which uses questionnaire as instrument of data collection was adopted in this research. The instrument used for data collection in the study is questionnaire as an instrument for collecting data from the respondents in the study area designed to address the research questions. The target audiences for the study are the property/land owners in the study area. A total of five Hundred (500) was used as the sample frame. The sample size for this study was determined using Krejcie and Morgan table (1970) and a total of two Hundred and Seventeen (217) was realized. Furthermore, the study adopted random sampling technique. Statistical Package

for Social Science (SPSS) was used for statistical analysis of the data generated from the questionnaire survey. The data obtained using questionnaire survey was thoroughly screened, analyzed and sorted out for analysis depicting the information responses from the respondent, as the study contained descriptive, in research question and inferential question in research question, mean ranking, simple regression analysis was carried out. For illustration, the weighted mean of five-point likert scale was adopted.

Result and Findings

The 217 sets of questionnaires were administered in Karu local government area of Nasarawa (Table 6) A total number of 205 questionnaires with 96% response rate were retrieved. A total number of 120 were used in the analyses after removing incomplete ones and data screening for outliers. The overall response rate after data screening was 93.54%.

Table 1: Questionnaire Administration

Questionnaire	Number	Response rate
Administered	217	-
Collected	205	94.47%
Screened	203	93.54%

Demography

The demographic information of the respondents was collected. The frequency and percentage analysis was carried out and the results presented to explore the respondents' profile.

Table 2: Demography Results

Variables	Options	Frequency	Percentages
Gender	Male	167	80.5
	Female	38	19.5
Age	Under 30 years	30	14.4
	30 to 60 years	140	66.3
	Above 60 years	40	19.3
Occupation	Civil servant	35	17.5
	Business man	136	65.3

	Farmer	34	17.2
Educational Qualification	Informal/primary education	20	9.56
	Secondary certificate	25	12.12
	Diploma	69	34
	Degree	76	37.02
	Master degree and above	15	7.3

Source: Field Survey, 2019

Table: 2 reveals that 80.5% were males, while 19.5% were females. This explains the extent to which men traditionally predominant most of visitors in the study area. The analysis of the gender of the respondent was carried out to provide background information of the gender distribution of the respondent within the study areas. The age range indicates that 14.4% are under thirty years and 66.3% of the respondents were within the range of 30-60 years and 19.3% are above 60 years old, respectively, thus, under 30-60 years that they are predominance middle-aged life span. Respondent categories 17.5% are civil servant, 65.3% are business men and 17.2% are farmers and the educational backgrounds, most of the respondent were well educated; 9.56% informal/primary education, 12.12% secondary certificate, 34 % Diploma, 37.02% has Degree, 7.3% Master’s Degree and above,

Analysis of Results

Descriptive statistics based on mean ranking was carried out to explore the reasons of uncontrolled land use changes in karu local government area of Nasarawa state of Nigeria. The results showed the ranking, mean and standard deviation for each Item.

Table 3: Reasons of uncontrolled land use changes in the study area

Reason for land use change	Mean	Std. Deviation	Ranking
Profit Maximization	5.00	.000	1 st
Economic Hardship	3.22	1.314	2 nd
Personal Choice	3.00	.000	3 th

Entrepreneurial Opportunities	2.72	1.296	4 th
Decision of Developers purposes	2.58	1.295	5 th
Loose Legislation	2.52	1.285	6 th
Nature of the Land	2.48	1.279	7 th
Availability of Technology	2.42	1.259	8 th
Government Policies	2.40	1.249	9 th

Table 3: shows the reasons of change in land use in Karu local government area Nasarawa state. It shows most of the reason change in land use take place, is based on five point measurement scale, were Profit Maximization with 5.00 mean ranked 1st, Economic Hardship with 3.22 mean ranked 2nd, Personal Choice with 3.00 mean ranked 3rd, Entrepreneurial Opportunities with mean values of 2.72 ranked 4th, Decision of Developers with mean value of 2.58 ranked 5th, Loose Legislation with mean value of 2.52 ranked 6th, Nature of the Land with mean value 2.48 ranked the 7th, Availability of Technology with mean of 2.42 ranked the 8th, Government Policies with mean of 2.40 rank the 9th, in the table above. Therefore, these results are indicating the most reason for change in land use in the study area. Descriptive statistics based on mean ranking was carried out to explore the qualities of the neighborhoods in the study area, Nigeria. The results showed the ranking, mean and standard deviation for each Item.

Table 4: the neighborhood qualities in the study area

Measures	Mean	Std. Deviation	Ranking
Quality of Building standard	4.35	1.001	1 st
Drainages	4.21	1.021	2 nd
Accessibility	4.01	1.023	3 th
Parking spaces	4.00	1.319	4 th
Water supply	3.98	1.308	5 th
Electricity supply	3.68	1.302	6 th
Landscape	3.60	1.301	7 th
Security	3.41	1.221	8 th
Fencing	3.33	1.211	9 th

Wastes management	3.21	1.192	10 th
Communicational sign and symbol	3.11	1.182	11 th

Table 4: measures the neighborhood qualities in Karu local government area Nasarawa state. It shows the qualities of the neighborhoods in Karu local government area Nasarawa state, based on five point measurement scale, were Quality of Building standard with 4.35 mean ranked 1st, Drainages with 4.21 mean ranked 2nd, Accessibility with 4.01 mean ranked 3rd, Parking spaces with mean values of 4.00 ranked 4th, Water supply with mean value of 3.98 ranked 5th, Electricity supply with mean value of 3.68 ranked 6th, Landscape with 3.60 mean ranked 7, Security with 3.41 mean ranked 8, Fencing with 3.33 mean ranked 9th, Wastes management with 3.21 mean ranked 10th, Communicational sign and symbol with 3.11 mean ranked 11th. Therefore, these results are indicating the qualities of the neighborhoods in Karu local government area Nasarawa state.

REGRESSION:

The effects of uncontrolled land use change on the neighborhood quality in the study area

Regression analysis was carried out, to assess the influence of Uncontrolled Land Use Change on neighborhood quality. The r value in table below shows how much of the variance in the dependent variable neighborhood quality is explained by the independent variable of Mast Uncontrolled Land Use Change. In this case, the value was $r = .584$, $f(1756) = 102.434$, $p < .001$. This means that the independent variable Uncontrolled Land Use Change explained 58.% strong effect size in neighborhood quality with significance at $p < 0.001$.

Table 5: Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.584 ^a	.341	.338	.41404
a. Predictors: (Constant), UNCONTROLLED LAND USE CHANGE				

Table 6: ANOVA^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	17.560	1	17.560	102.434	.000 ^b

Residual	33.942	198	.171		
Total	51.502	199			
a. Dependent Variable: NEIGHBORHOOD QUALITY					
b. Predictors: (Constant), UNCONTROLLED LAND USE CHANGE					

Descriptive statistics based on mean ranking was carried out to explore the measures to be taken in order curbed the uncontrolled land used changes in karu, Nasarawa state, Nigeria. The results showed the ranking, mean and standard deviation for each Item.

Table 7: measures for uncontrolled land use change

Measures	Mean	Std. Deviation	Ranking
Development control law enforcement conversions.	5.00	.000	1 st
Obtaining of requisite approval.	3.86	.000	2 nd
Implantation of Sanctions	3.66	.000	3 th
The prescription of the Development Control Manual must be strictly followed.	2.66	1.319	4 th
Safe, healthy and social uses considerations.	2.44	1.319	5 th
Improvement in national economy.	2.32	1.319	6 th

Table 7: shows the measure to take to curb uncontrolled change in land uses in Karu local government area Nasarawa state. It shows the preferred measures to take to curb uncontrolled change in land uses, based on five point measurement scale, were development control law enforcement conversions with 5.00 mean ranked 1st, obtaining of requisite approval with 3.86 mean ranked 2nd, Implantation of Sanctions with 3.66 mean ranked 3rd, The prescription of the Development Control Manual must be strictly followed with mean values of 2.66 ranked 4th, safe, healthy and social uses considerations with mean value of 2.44 ranked 5th, Improvement in national economy with mean value of 2.32 ranked 6th, Therefore, these results are indicating the suitable measure to curb uncontrolled land use change in the study area.

Conclusion

The aim of the study is to examine the effects of the uncontrolled land use changes on neighborhood quality in karu local government area of Nasarawa state with the

view explore the effect of uncontrolled land use change and provide lasting solutions to it.

The findings from the survey carried out we can conclude that that the factors causing the uncontrolled land use are Profit Maximization, follow by Economic Hardship, Personal Choice, Entrepreneurial Opportunities, Decision of Developers, Loose Legislation, Nature of the Land, Availability of Technology, and Government Policies and the effects of the uncontrolled land use on neighborhood quality is very strong and also the measures to adopt in reducing the uncontrolled land use change are development control law enforcement conversions, obtaining of requisite approval, Implantation of Sanctions, The prescription of the Development Control Manual must be strictly followed, safe, healthy and social uses considerations, and Improvement in national economy.

Land use change is the product of urban physical growth and socioeconomic development.

The changing pattern and direction of land use change in Karu local government area of Nasarawa state is majorly form agricultural and residential land uses to private business, public, retail, office and residential land uses. The causes such as economic and spatial political factors were the dominant factors while the significant consequences were arbitrary rental/land value, landscape distortions, pressure on urban infrastructure among others as indicated by the respondents.

The study also show the implication of the subject matter of discussion that it lead to problem of global warming, loss of biodiversity and many more with today it mind draw of most international organizations

Recommendations

Based on the findings from the respondents living Karu local government of Nasarawa and information reviewed in literature, it is essential to make some viable recommendations on the way of improving the implementation of law regarding development control in the study area. Hence, the following recommendations were also made:

The study recommended that policymakers and private stakeholders should encourage and adhere to land use control measures to strike a balance between economic development and land administrative system to foster a sustainable urban cities.

Government should also provide loans to other less privilege people to enable them develop their land according to uses allocated to.

Efforts should be made to constant monitoring of developments in the study area

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