



**EFFECT OF DEVELOPMENT CONTROL MECHANISMS OF KADUNA CITY
CENTRE ON THE PERI-URBAN AREAS**

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Abstract

The research is aimed at examining the effect of development control mechanisms on the development of peri-urban Kaduna with a view to making recommendations for improvement. The first objective of the study is to examine the determinants for residing in the peri-urban areas of Kaduna Metropolis, while the second is to assess the nature and challenges of residential densities in such areas. The research design adopted for the study is the case study approach. The estimate population of the study area is 1,412,974 people as projected from (NPC 2006) using a constant growth rate of 2.5%. The peri-urban areas in Kaduna metropolis and the household heads in such areas constitute the sampling frames for the study. Six peri-urban areas were purposively selected viz; Rigachikun, Rigasa, Rafin Guza, Narayi, Gonin Gora and Unguwan Muazu/Kabala West. The proportional stratified random sampling was employed in selecting the respondents in each settlement and questionnaires were administered to them. The analysis of data was done using the descriptive statistics in terms of frequency distribution and percentages. The data were presented in tabular and textual forms. The research findings show that there is improper land use allocation in the study area, easy access/cheap land is the major determinant for building houses in the area, residential densities in terms of plot sizes, plot ratios and building setbacks are below the desirable standards. It is recommended that there should be effective implementation and enforcement of planning and development control mechanisms in the state and local government areas for effectiveness integration of peri-urban areas and sensitization programmes should be organized to create public

awareness on the activities of planning in the state. It is also recommended that the ongoing regularization of informal settlements and land tenure system should be strengthened and sustained.

Keywords: *Development Control, mechanisms, Impacts, Development and Peri-urban*

INTRODUCTION

Globally, the phenomenon of rapid and uncontrolled urban growth and its attendant effects on the city and regional setting particularly in the developing countries is a thing of concern. In view of that, Kleemannab and Fursto (2017) noted that rapid population growth of the urban centers coupled with ineffective spatial planning due to social, economic and political challenges which hinder planned urban development can result to the formation of urban sprawl (and these are usually the peri-urban areas). This has therefore according to Gutman and Dascal (1987) been an issue of serious concern for academics in urban and regional affairs as well as city administrators.

The term 'development control' simply refers to the way the use of land for physical development is regulated. Development control is said to be a guide through which the land use is licensed for building and other purposes backed up by planned law (Alder 2018 cited in Tammi, Oliver 2018). Development control according to Obabori, Obiuwevbi and Olomu 2017 reduces the negative effects that accompany physical development. Furthermore, according to Lekwot, Kyom & Balasom (2013) stated that development control is an effective instrument for urban management which ensures that the persistent growth and management of settlements attains orderliness, safety, and aesthetic. Development control is usually achieved by way of planning legislations and such legislations impose restrictions on the general right of every landowner with the general purpose of utilizing land in the interest of all stakeholders (Utuama, 1992). Furthermore, development control is a mechanism put in place to maintain standard. There are restrictions introduced to prevent certain acts that are detrimental to stake holder in the built environment.

Nowadays, development control has become an issue of growing importance, in view of the obviously deeper consciousness of communities across the

globe concerning their environment. This is much more so due to city invasion on productive agricultural land and other socio-economic concerns on the peri-urban areas of most metropolis. The peri-urban population is a combination of rural and urban dwellers and whose land uses are being perforated by different forms of urban development (Morello, Buzai, Baxendale, Rodriguez, Matteucci, Godagnone and Casas, 2000; Rahayu and Mardiansjah 2018).

Wandl and Magoni (2017) opined that because the peri-urban areas are generally affected by the expansion processes of the city may tend to have chaotic and fragmented mix of urban and rural functions. The peri-urban areas are said to be characterised by high and often growing population densities, small land holdings, diverse sources of income, rich country side homes, shantytowns, lack of planning regulation, disputed land tenure rights, uncoordinated change of farmlands to housing, pollution, environmentally friendly problems, increased resource utilisation, significant economic dynamism and the absence of service provision among others (Friedberg, 2001; Simon, Macgregor, NsiahGyabaah, and Thompson, 2003).

The concern about peri-urban areas of cities began with conceptual issue of their inclusion or exclusion in the scheme of things in urban and regional policies. To support this assertion, Encyclopaedia of Environmental Health (2011) stated that government agencies do not promote the initial development of peri-urban areas through the provision of services and allocation of plots to individuals. Similarly, Morello *et al.*, (2000) said that governments and their agencies often exclude the peri-urban areas in their programmes, thus allowing them to function and have a fabric dictated by what is called "Geophagy" a concept that describes the interaction and competition between urban and rural land uses. Though, the planning authorities put in place are supposed to control growth in all parts of the city (including peripheral areas) , the ineffectiveness of the development control mechanisms have resulted into such peripheral areas growing into large areas without any form of development control thereby associated with enormous problems (Olujimi and Gbadamosi, 2007). This is therefore, the basis for this study.

The aim of this research is to examine the effect of development control mechanisms on the development of peri-urban Kaduna with a view to making

recommendations for improvement. The first objective of the study is to examine the determinants for residing in the peri-urban areas of Kaduna Metropolis, while the second is to assess the nature and challenges of residential densities in such areas.

THE STUDY AREA

Kaduna metropolis is located between Lat. N10°23' and 10°43' N and Long. 7°17' and 7°37'E. The study area consists of fully Kaduna North and Kaduna South Local Government Area and partly Igabi and Chikun covering about 12,347sq km as shown in Figure 1.

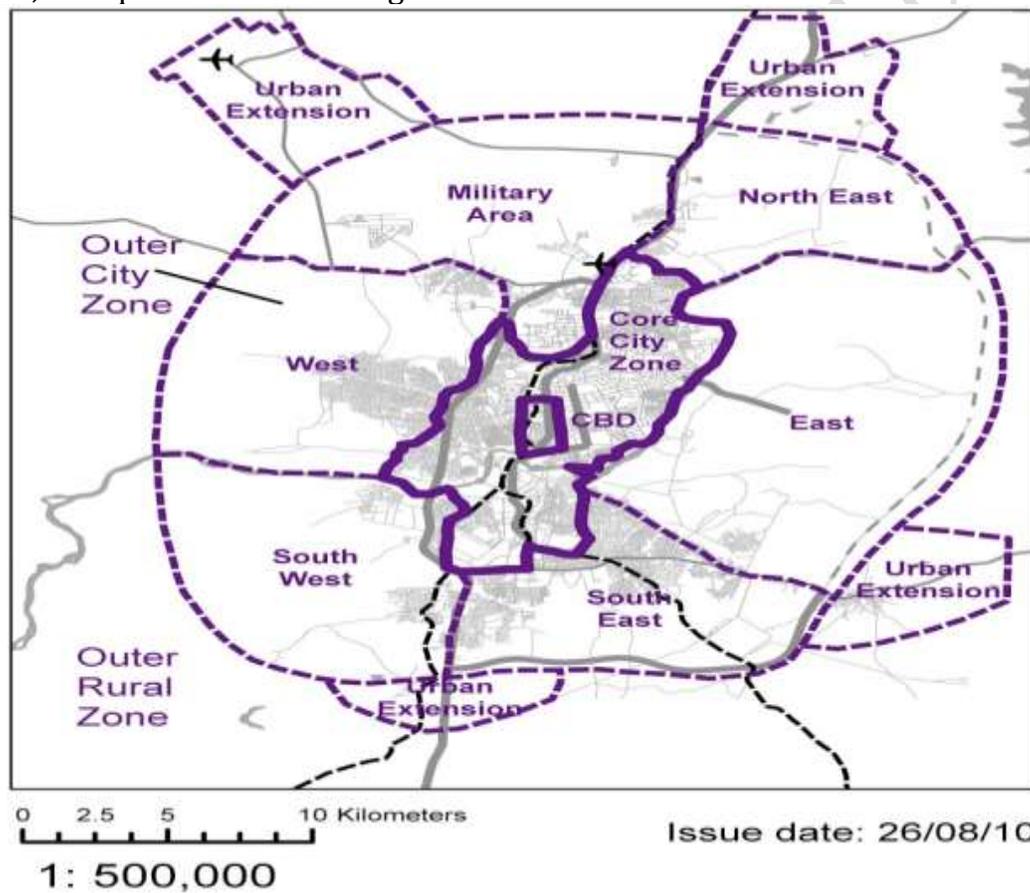


Figure1: The Study Area

Source: Obtained from KASUPDA

RESEARCH METHODOLOGY

The research design adopted for the study is the case study approach. This method was chosen because it will enable detail investigation of the

determinants for residing in peri-urban areas and the nature/challenges of residential densities. The population for the study is entire residents of the study area. Therefore, a total population of 1,412,974 people as projected from (NPC 2006) using a constant growth rate of 2.5% forms the population for the study.

The peri-urban areas in Kaduna metropolis and the household heads in such areas constitute the sampling frames for the study. These peri-urban areas include; Rigachikun, Barakallahu, Kawo and Kawo New Extention, Sabon Gida, Rigasa, Hayin Danmani, Unguwan Gwari, Unguwan Kaji, Rafin Guza, Television village, Sabon Tasha, Narayi, Gonin Gora, Unguwan Romi, Mararraban Rido, Kudenda, Tsaunin Kura, Unguwan Gimbiya, Unguwan Boro, Unguwan Sunday, Nasarawa, Unguwan Muazu/Kabala West, and Kamazou form the sampling frames for the study.

However, 6 peri-urban areas were purposively selected for the purpose of this study and these include Rigachikun, Rigasa, Rafin Guza, Narayi, Gonin Gora and Unguwan Muazu/Kabala West. Since the population of the sampled areas are not the same, the proportional stratified random sampling was employed in selecting the respondents in each settlement and questionnaire administered to them to ensure a fair representation. The questionnaires were administered in order to obtain data from the residents on the determinants for residing in the peri-urban areas and the nature and challenges of residential densities. The analysis of data was done using the descriptive statistics in terms of frequency distribution and percentages. The data were presented tabular and textual forms.

RESULTS AND DISCUSSION

The results and discussion for the study were based on the key objectives of the study which include investigation of the determinants for residing in the peri-urban areas of Kaduna metropolis as well as nature and challenges of residential densities in such areas.

Land Uses of the Peri-Urban Kaduna

On the general perspective, the study revealed that peri-urban areas in Kaduna metropolis display different land use pattern from the mother city. The categories of land uses constitute residential, open spaces, commercial,

industrial and agricultural as well as mixed land uses. However, in order to compare the existing land uses in the areas, the quick appraisal and inspection techniques were employed. The land uses were analyzed based on the land allocation provision for residential neighbourhood. The percentage coverage of the various land uses are as presented on Table 1.

Table 1: Estimated Average Percentage Coverage of Land uses in the Study Area

<i>Land Use</i>	Existing Average Coverage (%)	Required Coverage (%)	Remark
<i>Residential</i>	53	50-60	Adequate
<i>Circulation</i>	11	15-25	Inadequate
<i>Commercial</i>	2	3-5	Inadequate
<i>Open Space/Recreation</i>	23	6-8	Highly in excess
<i>Facilities, Utilities and Industrial</i>	5	10.15	Inadequate
	1	2-3	Inadequate

Source: Authors' Field Survey (2020)

Table 1 shows the existing average land use coverage in peri-urban Kaduna compared with the desirable percentages as recommended by Agbaeze (2003) and Obateru (2005) for residential neighbourhoods. Based on the table, it shows that most of the land uses are inadequate compared with the desirable standards. This therefore indicates lack of development control mechanisms in such areas hence the issue of compliance to planning standards may not be a common phenomenon.

Determinants for Residing in Peri-Urban Kaduna

The data on objective 1 about the determinants for residing in the peri-urban areas of Kaduna as presented on Table 2 shows the reasons why the peri-urban residents built their houses at the periphery of Kaduna Metropolis. It revealed that 64% (1232) of the respondents agreed that they built their houses at the outskirts of Kaduna due to the availability of cheaper land

compared to the city centre, 30% (557) of them agreed that they built their houses at the periphery because they inherited their land, while 6% (76) of the respondents gave other reasons. This implies that majority of the peri-urban residents in the study area built their houses due to easy access to land since there is little or no restriction, since development control is not effective in such areas.

Table 2: Reasons for Building houses at the Peri-urban Kaduna

Reasons for Building	Settlements												Average Total (%)
	Rigachikun		Rigasa		Rafin Guza		Gonin Gora		U-Muazu/ Kabala West		Narayi		
	Freq	(%)	Freq	(%)	Freq	(%)	Freq	(%)	Freq	(%)	Freq	(%)	
Family land	35	29	285	31	20	33	34	31	94	27	89	31	30
Availability of cheap Land	77	64	620	66	36	60	66	60	244	70	189	65	64
Others	8	7	30	3	4	7	10	9	12	3	12	4	6
Total	120	100	935	100	60	100	110	100	350	100	290	100	100

Source: Authors' Field Survey (2020)

Sources of Land Acquisition at the Peri-Urban Kaduna

The results in Table 3 shows that 1024 (54% of the respondents purchased their land, 26% (500) got their land through inheritance, 125 (10%) through government allocation, 174 (7%) through gifts and 42 (3%) through other means. This analysis implies that land acquisition through the informal means like purchase from the community leaders and other locals, inheritance and gift is common in the study area as against the desirable government allocation through well-defined layouts.

The lack of layout plans is especially evident in Rigasa, Rafin Guza and Narayi where there was no single layout by government in those areas. This is however expected since peri-urban areas are informal settings with little or no planning intervention. However, this phenomenon is changing in Kaduna, particularly with the on going regularization of informal settlements which would cover most of the peri-urban areas in Kaduna metropolis. Therefore, when the programme is sustainably fully implemented, most of the physical planning challenges in such areas would be ameliorated. .

Table 3: Sources of Land Acquisition at the Peri-Urban Areas

Source of Land	Settlement												Average Total (%)
	Rigachikun		Rigasa		Rafin Guza		Gonin Gora		U-Muazu/ Kabala West		Narayi		
	Freq	(%)	Freq	(%)	Freq	(%)	Freq	(%)	Freq	(%)	Freq	(%)	
Gift	11	9	120	13	2	3	5	5	12	4	24	8	7
Inheritance	29	24	282	30	23	39	20	18	57	16	89	31	26
Purchase	58	48	521	56	33	55	63	57	184	53	165	57	54
Govt Allocation	18	15	-	-	-	-	15	14	92	26	-	-	10
Others	4	4	12	1	2	3	7	6	5	1	12	4	3
Total	120	100	935	100	60	100	110	100	350	100	290	100	100

Source: Authors' Field Survey (2020)

Net Areas of Residential Buildings in the Six Sampled Peri-Urban Areas

The analysis of research objective 2 on the nature/challenges of residential densities in peri-urban Kaduna as shows in table 4 indicates that the net areas of residential buildings in the six sampled areas indicate that 3% (55) of households have net residential area of less than 50m², 10% (195) have between 50-100m², 27% (380) households have between 101 - 200 m², 440 (25%) households have between 201 - 300 m², 425 (22%) have between 301- 400m² and 13% (370) households have between 401 - 500m² respectively. This implies that majority of the residential buildings have an average net area of 200m² thereby signifying that such plots are below the minimum of 450m² as recommended by (Obateru, 2005) among others . On that basis, it signifies that by the time all the plots are developed in those areas, they would experience densities, thereby making the residents vulnerable to safety and health challenges particularly epidemic and pandemic as in the case of Covid-19.

Table 4: Net Areas of Residential Buildings in the Six Sampled Peri-Urban Urban Areas

Total Area in m ²	Settlements												Average Total (%)
	Rigachikun		Rigasa		Rafin Guza		Gonin Gora		U-Muazu/ K-West		Narayi		
	Freq	(%)	Freq	(%)	Freq	(%)	Freq	(%)	Freq	(%)	Freq	(%)	
<50	5	4	20	2	-	-	5	4	15	4	10	3	3
50-100	15	13	90	10	-	-	15	14	35	10	40	14	10
101-200	25	21	145	16	30	50	25	23	65	19	90	31	27

201-300	30	25	190	20	20	33	20	18	115	33	65	22	25
301-400	25	21	235	25	10	17	35	32	75	21	45	16	22
401-500	20	16	255	27	-	-	10	9	45	13	40	14	13
Average	120	100	935	100	60	100	110	100	350	100	290	100	100

Source: Adopted from Usman (2014)

Plot Ratios of Residential Buildings in the six Sampled Peri-Urban Areas

The analysis of results on Table 5 pertaining to plot ratios of residential buildings in the six sampled peri-urban areas shows that 7% (86) of the houses have below 35 plot ratios, 16% (192) have between 35 - 55, 29% (507) have between 56 - 65, and 34% (680) have between 66 - 70 while, 14% (400) have 71 and above plot ratios. This implies that majority of the residential buildings were developed within the range of 66 and above plot ratios thereby, indicating plot ratio coverage of medium and high above the maximum plot ratio coverage for high density residential (60% and above) as recommended by (Obateru, 2005). This therefore signifies that there are high densities in the peri-urban area in terms of buildings and these also implies high population densities hence, constituting potential safety and health challenges in terms of disasters and pandemic such as the current Covid-19.

Table 5: Plot Ratios of Residential Buildings in the Six Sampled Peri-Urban Areas

Plot Ratios	Settlements (%)												Density Group (%)	Type	
	Rigachikun		Rigasa		Gonin-Gora		U-Muazu K-West		Narayi		Rafin Guza				
	(F)	(%)	(F)	(%)	(F)	(%)	(F)	(%)	(F)	(%)	(F)	(%)			
<35	8	7	13	1	10	9	20	6	30	10	5	8	7	7	Low
35-55	24	20	61	7	22	20	30	9	40	15	15	26	16	16	Medium
56-65	51	42	252	27	35	32	90	25	65	22	14	23	29	29	High
66-70	33	28	315	34	38	34	155	44	125	43	14	23	34	34	Specially High
Above 70	4	3	294	31	5	5	55	16	30	10	12	20	14	48	
Total	120	100	935	100	110	100	350	100	290	100	60	100	100	100	

Source: Authors' Field Survey (2020)

Plot Sizes for Residential Buildings in the Six Sampled Peri-Urban Areas

The data on Table 6 indicates that plot sizes for residential buildings in the six sampled areas indicated that 4% (38) of the residential buildings have plot size of 30m x 30m, 9% (178) have 25m x 30m, 25% (370) have 15m x 30m, 26% (534) have 15m x 15m and 36% (745) have plot size of 15m x 25m respectively.

Table 6: Plot Sizes for Residential Buildings in the Six Sampled Peri-urban areas

Plot Sizes in Metres	Settlements												Total Plots	(%)
	Rigachikun		Rigasa		Rafin Guza		Gonin Gora		U-Muazu/K-West		Narayi			
	Freq	(%)	Freq	(%)	Freq	(%)	Freq	(%)	Freq	(%)	Freq	(%)		
15x15 (225m ²)	15	12	320	34	23	38	22	20	92	26	62	21	534	29
15x25 (375m ²)	25	21	405	43	18	30	49	45	150	43	98	34	745	40
15x30 (450m ²)	54	45	142	16	13	22	31	28	50	14	80	28	370	20
25x30 (750m ²)	18	15	60	6	6	10	8	7	48	14	38	13	178	9
30x30 (900m ²)	8	7	8	1	-	-	-	-	10	3	12	4	38	2
30x45 (1350m ²)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Average	120	100	935	100	60	100	110	100	350	100	290	100	1865	100

Source: Authors' Field Survey (2020)

Therefore the findings on Table 6 indicate that over 60% of plot sizes in the study area fall below the popular plot size of 15m x 30m (450m²) being the minimum standard for high density plot size. This phenomenon could largely be attributed to lack of physical development plan that guide development in the proper way in such areas. Similarly, the phenomenon could also partly be attributed to the poor socio-economic background of the peri-urban dwellers.

Building Setback in the Six Sampled Peri-Urban Areas

Research analysis on front set backs shows that 6% of the buildings have setbacks between 1.0m -1.5m, 54% between 1.5m - 2m, 27% between 2.5m - 3.0m, and 13% of the buildings have between 3.5m - 4.0m respectively. As regards the rear setbacks 69.6% of the buildings have between 0.5m - 1.0m, 27% between 1.0m - 1.5m, 2.6% between 1.5m - 2.0m and 0.8% has rear setbacks of between 2.0m - 2.5m. These findings indicate that most of the buildings in the study area did not comply with the desirable front and rear set backs of not less than 5.0 meters and 3 meters for front and rear respectively as recommended by (Essaghah, Monye and Nwodo, 2002). The

implication here is that there would be poor air circulation due to insufficient air spaces (open spaces). Also, there would be safety challenges in an event of fire outbreak, epidemic and pandemic.

CONCLUSION AND RECOMMENDATION

Based on the findings of this study, it is expedient that in order for there to be sustainable development of the peri-urban areas in Kaduna metropolis and other areas of the state, there is need to take urgent steps at remedying the challenges of these areas through their integration to the mother town. If this is done, it would grant the opportunity for such areas to be effectively planned. On that note, it is suggested that the recommendations made in this study be implemented.

Therefore, in view of the findings of the research, the following recommendations are made in order to ameliorate the challenges and forestall future uncoordinated physical development in peri-urban Kaduna and other similar areas thus:

1. The State Government should make efforts to implement the current (reviewed) Kaduna Master Plan which encompasses the peri-urban areas thereby, would control haphazard development and provide adequate infrastructure for the growing population.
2. There is need to implement the Urban and Regional Planning Law of 1992 as it concerns the states and local government areas.
3. Development control laws should be strengthened and aggressively enforced by the planning and related agencies such as the State Urban and Regional Planning Board, the Local Planning Authority, Environmental Protection Agency and all other stakeholders in the built environment in the city in order to avert the negative environmental implications of the increased rate of urbanization and uncoordinated physical development in the peri-urban areas.
4. All planning agencies and non governmental organizations such as Nigerian Institute of Town Planners (NITP), Nigerian Environmental Society (NES) among others in-charge of physical planning and environmental control needs to be proactive in the area of sensitizing the public on their activities by embarking on rigorous enlightenment campaigns and awareness creation. This if done will reduce the negative perceptions held by the people on planning policies and activities hence would reduce resistance to planning proposals and implementations/enforcements.
5. The ongoing urban renewal and regularization of the peri-urban areas in Kaduna should give due consideration to forestation and establishments of green belts and parks into planning schemes for the peri-urban areas in order to ensure their sustainable growth and development.
6. Similarly, the ongoing regularization of informal land tenure system should be strengthen in order to enable the planning authorities to effectively carry out development control in order to ensure an even urban spatial development in these areas.

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