



Assessment of the Causes and Problems Associated With Urban Sprawl in Sokoto Metropolis

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ABSTRACT

This study examines the causes and problems associated with urban sprawl in Sokoto metropolis. Urban sprawl has been challenged for eliminating agricultural land, causing air pollution and higher demand of social services. Purposive and snow- ball sampling techniques were employed in selection of interviewers and administration of the questionnaire. The findings revealed that most respondents acquired their lands in cheap areas where the infrastructural development was low, and have inadequate planning regulations. Moreover, leapfrog pattern occurred in prominent areas like Mana, Tamaje, Nakasari, Gagi and Mabera, and between 1998 and 2015. In conclusion, there are no planning policy to regulate and guide the growth and development of landuse in the study area. This resulted in unauthorized and haphazard development, emergence of slums, squatters, and environmental degradation. Therefore, it was recommended that government should provide necessary infrastructural facilities to mitigate the problems and ensure sustainable growth and development of Sokoto metropolis.

Keywords: - Assessment, Urban sprawl, Problems and Sokoto Metropolis

INTRODUCTION

Generally, before the industrial revolution of the late eighteenth and nineteenth centuries, people mainly resided in rural areas as well as small villages. Though cities were in existence for thousands of years, and had been planned to some extent right throughout this period, only a tiny fraction of the world's population lived in urban areas before the Industrial Revolution (Elkin *et al.*, 1991). However, technology from the late 1700s onwards not only brought about greater numbers of people to live in urban areas as industrial works replaced many former farm jobs, some of which became advanced mechanically, but fundamentally changed the structure of urban environment through a series of technological innovations. Newman (1999) has identified three distinct time periods shaping the development of urban areas and how the periods are linked with the available technology of the time. On the other hand, Vellinga (1999) asserts that all over the world, cities cover only about one percent of the earth's surface, but many issues happening in the cities greatly impact on the environment and global change. He therefore viewed that, urbanization leads to urban spatial expansion due to the demand for rapid change and housing growth, as well as facilities in the areas to serve human life. Furthermore, because of the lack of appropriate land use planning and the measures for sustainable development, rampant urban growth is creating severe environmental consequences (Thomas, 2002). The environmental consequence as studied by Dantuni (2011) is due to rapid expansion which culminated into the absorption of peripheral settlements such as Runjin Sambo, Gwiwa, GidanIgwai and particularly eastern part of Sokoto such as Mabera, Gagi, among others. The aim of this study is to assess the causes and problems of urban sprawl in Sokoto metropolis

RESEARCH METHODOLOGY

Study Area

Sokoto metropolis is located between latitude $13^{\circ}2'45.6''N$ and longitude $5^{\circ}14'20.4''E$. The metropolis has an estimated population of about 503, 256 people as of 2015 with 95.9 person per square kilometer and 3 percent growth rate annually based on 2016 population census (NPC,2006). The Metropolis covers 16km radius which comprises 4 local governments such as Sokoto south, Sokoto North, Wamakko and part of Kware local governments of Sokoto State, Nigeria with Local inhabitants mostly Hausa, Fulani and other groups such as , Zabarmawa, Kabawa, Adarawa, Arawa, Nupe, Yoruba, Igbo and other migrants. The predominant language is Hausa. Occupations of city dwellers include trading, commerce, domestication of animals with a reasonable proportion of the population working in private and public sectors. Population of farmers is on the decline (Bello, 2006).

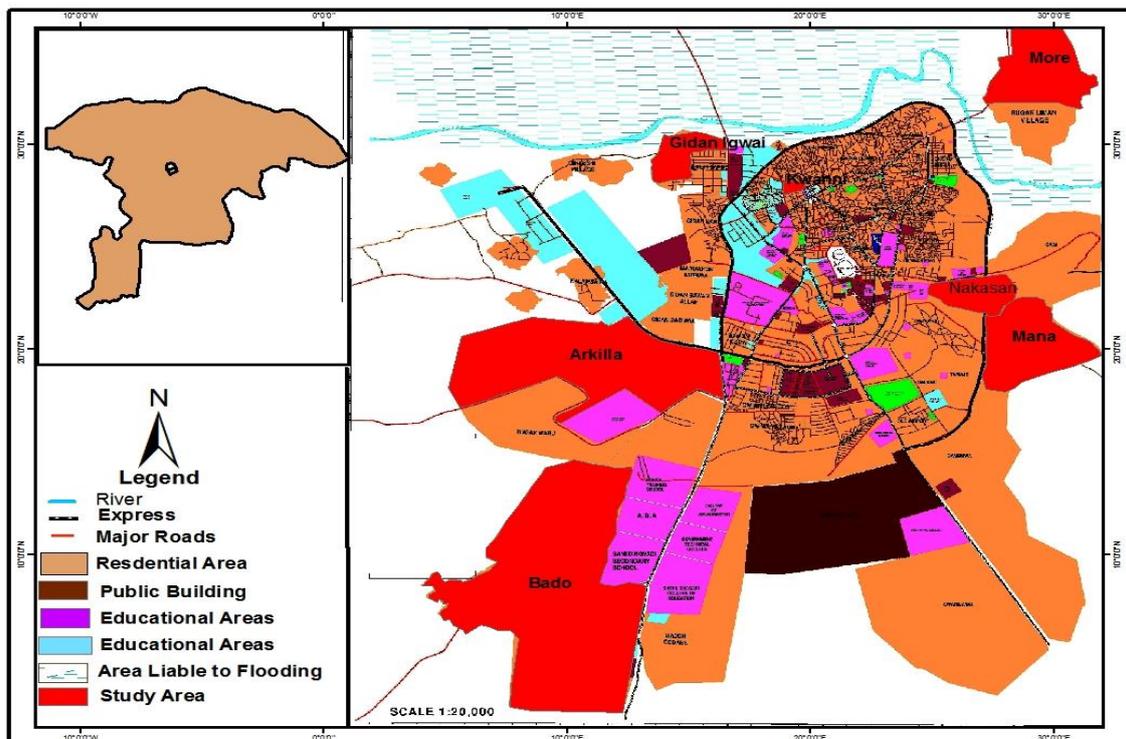


Fig 1: Map Showing the Study Area

Majority of the city's population are Muslims. It is therefore not uncommon to observe several mosques located around the entire city. Historically, Sokoto used to be the centre of the established political empire after the 1804 "Jihad" of Shehu Usmanu bin Fodiyo. Common local sports (although not very active nowadays) include *dambe*, *Kokawa* and *sharo* take place then. The nearby Argungu town is also famous in the annual fishing festival on the Rima River which passes through Sokoto metropolis. Because of the semi-arid nature of the city, a number of dry climate animals can be raised. A common feature of cities in northern Nigeria is a defensive wall and a number of city gates denoting entry points from other neighbouring areas. In Sokoto, the wall is presently nonexistent. However, almost all the known gates have been preserved at their original locations which show a good indication of how rapid the city sprawls: the old city centre surrounded by the gates only represents a small proportion of the city at present. The predominant architecture in the city is currently a mixture of modern buildings in a traditional context, reflecting the prevailing physical and economic conditions of the residents. Privacy in housing is important to the city dwellers. As such therefore, even the modern or semi-modern houses reflect the traditional concept of privacy.

Sokoto urban is the capital of the present Sokoto State, which is bounded by Kware Local Government Area to the North, Wammako to the west and Dange Shuni to the North Sokoto is one of

the hottest cities in the world. The warmest months are March to May, where day temperature can exceed 45°C (113°F). The rainy season is from June to October, during which showers are daily occurrence. The showers rarely last long and are far than the regular torrential showers known in the tropical regions. Hamattan wind blowing Sahara dust over the land. The dust dims the sunlight thereby lowering temperature significantly (Shamaki, 2015).

Source of Data Collection

A structured self-administered questionnaire was used to collect primary data from the respondents. The choice of this method is because of the chances for each participant to respond to the same set of questions in an arranging order (Shamaki, 2012), GIS data were sourced from USGS freely having 30m resolution already geo - referenced and reportedly cloud free. The secondary data was collected using urban land unit from Sokoto state urban development authority and state ministry for land and survey

Instrument for Data Collection

The instrument for data collection was structured questionnaire in two section. (A) comprising of demography data and gender level while section (B) was design to acquire an elicit response on urban sprawl, such as factors responsible for urban sprawl in the area, relationship between the built up environment and provision of infrastructure to provide researcher with an insight into planning effort and growth in the study area. Secondary data was also collected through interview with the planners and available comprehensive plan document to have information of the spatial distribution or built up land and reason for spatial distribution.

Sampling Techniques

Respondents for this study were selected using purposive sampling techniques in the case the researcher merely hand pick those cases or population considered to be typical or which are likely to possess the desired set of information or characteristic for inclusion into the sampling (Obikeze, 1986). The operation of this sampling technique employed here involved the identification of properties and land owners around Mana, More, Bado, Arkilla Kwanni, Gidan Igwai, Old Airport, Nakassari, Gagi I and II and Mabera area respectively. Visitation to the study area as well as contact with the tenants has been made in order to obtain firsthand information in this area regarding urban sprawl in the Sokoto metropolis. Furthermore, snowballing techniques has been employed in order to detect the addresses of land owners within the study area. The snowball techniques entail asking the first interviewee the name and landowner known to him who could be included in this sample. The same applies to subsequent interviewees. This method provides a way of introducing the researcher to other land owners and tenants by interviewees themselves. This method has surely enhanced the cooperation of sampled respondents of one hundred and thirty six (136).

Means of Data Analysis

Descriptive statistical tool was used to analyze the data. The data was also analyzed using simple frequency and percentages with the use of SPSS version 20.

DATA ANALYSIS AND DISCUSSION

From the observation of the data analysis of the demographic information of the Respondents, it clearly shows that men are having higher percentage (92%) than the female (08%) with an average range of 31-40 years to be the highest (36%) among the respondents looking into the educational qualification, those with tertiary institution are high (63%) in the study area which shows the rate of income or wealth may likely be a determinant in the obtaining of land for land development. This is also in line with occupation where by the civil servant are having the highest percentage (40%) . . It is also observed from the data that the higher demands for land development are married people which are higher than the demand from the single. This may be due to demand for the expansion of the family. By implication the demography of the respondents determined the category of land owned in the study area.

Environmental problem and Area of residence

As observed from the cross tabulation of environmental problem and area classification, it shows significantly that the areas are having one problem or the other depending on the types of problem that prevails in such area. Looking into the drainage as a problem it is most prevalent in Mabera, More and Mana having 25%, 22.5% and 10.00% respectively. This could be as a result of unplanned nature of the area. For Mabera poor drainage often lead to yearly flooding and as for More, it is because of its

proximity to a flood plain. Poor land use is clearly evident in Mabera, Mana and Gagi 1&2 all with 37.5% 16.7% and 12.5% respectively.

As a result of the population increase some of the area are overcrowded, some which are more crowded include; Kwanni, Mana, with 23.1% and Arkilla, Gidan Igwai all with 15.4% each. This might be as a result of the proximity of the areas with inner city and commercial activities. The land pollution as one of the major problem of the area, Arkilla is facing with such problem having almost 50%. This may resulted from the existing working institution and already existing government companies e.g. Cement Company emitting out pollutant to the environment Poor water supply constitute a problem to areas of the respondent, the most prevalent areas are Mabera and Mana having 22.2% while the rest of the area 11%.

Finally, problem of waste disposal is more prevalent in Mana with 35.7% and Mabera and Arkilla having 21.4%. Haphazard construction could be responsible for this challenge. For that refuse are dumped on any available space within the area. The table also shows that Bado, Kwanni and Nakasari are having less percentage in terms of waste disposal challenge

Respondents responses in respect to whether infrastructure are available in the area or not reveals that 44% claimed that some infrastructures are available while the majority (66%) claimed that infrastructures were not available in the study area when they acquire the land. The implication here is that Planning bodies or government do not provide most basic infrastructure on land along the periphery or fringes of Sokoto metropolis. Furthermore, an analysis also shows that availability of infrastructure is not a yardstick before developing land. They argue that who so ever move to the fringe to acquire land do so out of necessity to acquire shelter in most cases relegating issue of infrastructure to the background. Similar findings have been made by Dankani (1999, 2008 and 2012) which explain that in most developing nations and cities in Nigeria physical characteristics of sites as well as availability of infrastructural facilities only support development but not a yardstick for the choice of location to be developed particularly by the urban poor. By implication respondents have little or no choice rather to develop the land even though it is devoid of infrastructure, because provision of it by the government may take a long time to come.

Table 1: Environmental Problem and Area Classification Crosstabulation

Environmental Problem * Area Classification Crosstabulation

			Area Classification									Total
			Mabera	Bado	Kwanni	More	Arkillia	Mana	GidanIgwe	Gaji1&2	Nakasari	
Environmental Problem	Poor Drainage	Count	10	1	5	9	7	4	1	1	2	40
		% within Environmental Problem	25.0%	2.5%	12.5%	22.5%	17.5%	10.0%	2.5%	2.5%	5.0%	100.0%
	Poor Land Use	Count	9	0	2	2	2	4	1	3	1	24
		% within Environmental Problem	37.5%	0.0%	8.3%	8.3%	8.3%	16.7%	4.2%	12.5%	4.2%	100.0%
	Over Crowding	Count	1	0	3	1	2	3	2	0	1	13
		% within Environmental Problem	7.7%	0.0%	23.1%	7.7%	15.4%	23.1%	15.4%	0.0%	7.7%	100.0%
	Land Pollution	Count	1	0	1	0	3	1	0	0	0	6
		% within Environmental Problem	16.7%	0.0%	16.7%	0.0%	50.0%	16.7%	0.0%	0.0%	0.0%	100.0%
	Erosion	Count	3	6	2	3	4	0	1	2	1	22
		% within Environmental Problem	13.6%	27.3%	9.1%	13.6%	18.2%	0.0%	4.5%	9.1%	4.5%	100.0%
	Flooding	Count	6	0	1	0	0	0	1	0	0	8
		% within Environmental Problem	75.0%	0.0%	12.5%	0.0%	0.0%	0.0%	12.5%	0.0%	0.0%	100.0%
	Poor Water Supply	Count	2	1	1	0	1	2	1	0	1	9
		% within Environmental Problem	22.2%	11.1%	11.1%	0.0%	11.1%	22.2%	11.1%	0.0%	11.1%	100.0%
Waste Disposal	Count	3	1	1	0	3	5	0	0	1	14	
	% within Environmental Problem	21.4%	7.1%	7.1%	0.0%	21.4%	35.7%	0.0%	0.0%	7.1%	100.0%	
Total	Count	35	9	16	15	22	19	7	6	7	136	
	% within Environmental Problem	25.7%	6.6%	11.8%	11.0%	16.2%	14.0%	5.1%	4.4%	5.1%	100.0%	

Source: SPSS

Table 2: Availability of Infrastructure in the Sampled Area.

Response	Frequency	Percentage (%)
Yes	46	34
No	90	66
Total	136	100%

Source: Field work, 2015.

CONCLUSION

Urban sprawl effects have a wide range of immediate and remote implications. Sokoto state has not been able to evolve an up-to-date development strategy to effectively guide and control the growth of the region to achieve sustainable development. Consequently, settlements are developed haphazardly and uncontrolled leading to land use conversions and patterns that are unfavorable for sustainable development, service and infrastructural provision, encroachment and loss of quality arable lands, surface water bodies and biodiversity, congestion, slum formation, housing shortages, poor environmental condition and challenges, poverty, inadequate and lack of access to social services and infrastructure. Urban sprawl has been recognized as a problematic aspect of growth and development in Metropolitan areas but the implications are not well understood for evolving policy and management options for effectively addressing the problem.

Government should as a matter of urgency provide site and services layout to the public at affordable rate so as to do away with instances of dearth of basic infrastructure. Massive awareness campaign should be embarked upon to sensitize the people about the benefit of planning and provide ways of solving environmental problems by that focuses on proper planning in line with the government policies. This will enhance improvement in drainage system, proper waste disposal and provision of housing. Similarity, the improvement in the employment level will also reduce abuse of land use, indiscriminate land use conversion, uncoordinated land development and scattered pattern of urban development.

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