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EFFECTS OF FORCED MIGRATION ON URBAN EXPANSION IN GREATER YOLA, ADAMAWA STATE, NIGERIA

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Abstract

This study examines forced migration's impact on Greater Yola Area urban expansion. The primary sources of data for this study were questionnaires/interview schedules. Secondary data sources include information on the number of internally displaced persons (IDPs) obtained from the International Organization for Migration (IOM), as well as house numbering data from the Primary Health Care Departments of Yola South, Yola North, and Girei LGAs in the study area. Satellite images were also used to analyse urban expansion in Greater Yola before and after the insurgency. Descriptive statistics, such as tables and percentages, were used to analyse the collected data. The results indicate that the influx of displaced populations into the study area has led to an increase in the built-up area of Greater Yola by 10.4 km^2 from 2015 to 2019. The study suggests that the government should address security challenges, which are the main cause of displacement

Keywords: Greater Yola, urban expansion, forced migration and IDPs

1.1 Introduction

Migration incorporates all kinds of movement of people from one place to another. It may take place within a particular geographical boundary of a country and then beyond its boundaries. The rapid growth of rural-urban migration has been a common feature of the developing countries. There are various reasons for migration and types of migration may vary from country to country. However, the consequences of the various types of migration have similar effects for different countries. (Islam, 1999).

Over many years, experience has shown that conflict and disasters often drive large-scale sudden displacements of rural populations to cities and towns. This trend has increased considerably in recent years as more and more refugees and internally displaced people migrate to cities and towns during and after conflict, seeking protection or to reduce their visibility. The United Nations High Commission for Refugees (UNHCR, 2016) Policy on Refugee Protection and Solutions in Urban Areas reflects these changing trends. Displacement places extra stress on urban services and resources with forced migrants and existing urban dwellers sharing densely populated and poorly serviced environments. Increased competition and conflict between communities over limited urban resources such as land and shelter may further exacerbate the potential for urban crises (Tibaijuka, 2010).

In Nigeria, especially in the Northeast, the Boko Haram insurgency has been the reason for forced migration. The genesis of Boko Haram has been traced in large part to the frustration of disenfranchised Northeastern youths denied livelihood opportunities and education (Ayo, 2015). In addition, livelihoods, access to water, and grazing pastures have also been under strain for decades as the surface area of Lake Chad has shrunk by 90 percent over the last 45 years (Uche *et al*, 2014). This is a result of climate change and anthropogenic factors including the damming of tributaries, lack of sustainable water management policies, and overgrazing (Gao *et al,* 2011).

In Northeastern Nigeria, the driver of displacement in recent years has been the Boko Haram insurgence. This group of people has been attacking the inhabitants of Borno, Adamawa, Yobe, Bauchi, Gombe, and Taraba States in recent years. These attacks have led to mass displacement of people to the various State Capitals in the Northeast and across the country thereby bloating the urban population size and living conditions. Adamawa State being one of the States in the Northeast has experienced forced migration in recent years, in that the whole Northern parts and some parts of the central senatorial areas of the State were displaced by Boko Haram in 2014. The affected Local Governments include Madagali, Michika, Mubi North, Mubi South, Maiha, Hong, Gombi and Song Local Government Areas. The displaced persons from these Local Governments mostly fled to Yola for safety. People from other neighbouring Local Governments of Borno State also fled to Yola as their nearest place of refuge. On getting to Yola, these displaced populations needed food, shelter, and land for building. Several studies both local and international have been carried out on forced migration; for example, the World Commission on Dams, (2000), carried out research on Dams and Development: A New Framework for decision making and UNHCR, (2008), which carried a study on Refugees, Asylum-seekers, Returnees, internally displaced and Stateless person.

Since the beginning of this displacement in Adamawa State in 2014, there has been little or no known research that was carried out on this subject matter. There is no information available on the nature and extent of the effects of large-scale migration on urban expansion in the study area. It is against this background that this research is designed to examine the effect of forced migration on urban expansion in the study area.

1.2 Location of the Study Area

The study area lies between latitudes 9° 7” to 9° 19” N and longitudes 12° 17” to 12° 22” E. It is made up of the twin towns of Yola which is the traditional seat of the paramount ruler (Lamido Adamawa) known as Yola South Local Government Area and Jimeta which is the administrative and commercial nerves of the State known as Yola North Local Government Area. The Study area also extends to some parts of the Girei Local Government area about 15 kilometres away from the State capital (Fig.1.).

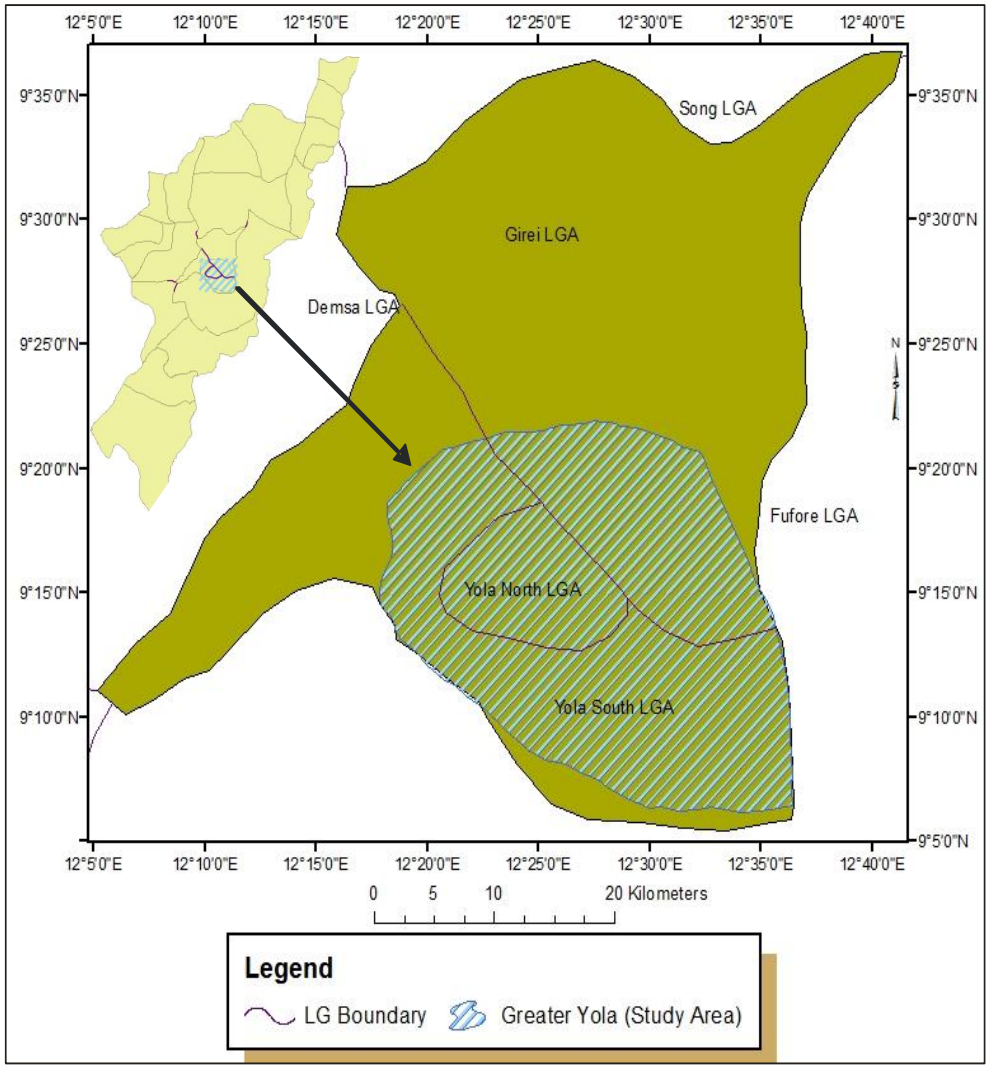

Fig. 1. Map of the study area

Source: GIS Laboratory, Department of Geography, MAU (2023)

2.1 Materials and Methods

Data for this study were sourced from both primary and secondary sources. The first reconnaissance survey was conducted to familiarize the researcher with the study area. Part of the reconnaissance survey includes familiarization with the ward's boundary and a pretest of the questionnaire to ensure its suitability among the respondents. Due to the outcome of the reconnaissance survey the researcher adopted the use of both primary and secondary data sources.

Primary Sources of data that were used for the study include observations and information on migrants and the host communities from interview schedules. Such information includes data on urban expansion.

Secondary data were extracted from published and unpublished materials especially documents from the National

Population Commission (NPC), and Primary HealthCare (PHC) of house numbering lists

in Yola, Jimeta and Girei Local Governments Areas respectively (Table 1.). Data from the International Organization for Migration (IOM) on the number of IDPs in host communities in the study area (2) were also used. Landsat Images of 2006/10/18, 2009/10/18, 2012/10/30, 2015/10/30 and 2019/10/30 were obtained online through USGS Earth Explorer. The political map of Greater Yola was obtained from the Ministry of Land and Survey, Yola, which was georeferenced while the shape file of the area was generated. The shape file was used to delineate Greater Yola from the five Landsat images. The delineated images were filtered using a 3*3 filter module of Arc GIS and resampled to each other.

2.2 Sampling and Sample Size

Table 1 shows the number of Wards, and number of households in each of the wards in Greater Yola. The questionnaire/interview schedule for this study was administered to two (2) categories of respondents. Firstly, to the host community, and secondly to IDPs living within the host community. A total of 167,915 heads of households constitute the population of the host community in greater Yola (Table 1.). The population of IDPs living in the host community is 8876 (Table 2) This implies that a total of 176,791 heads of households constitute the population for the study i.e. population of the host community, and IDPs living in the host community

Saunders *et al* (1997) is adopted to select the sample size for this study. He stated that sample size for any population may be decided using the Proportionality factor at 5% marginal error. According to him, for a population of one hundred thousand to one million (100001-1000000), a sample size of 386 will be sufficiently representative, allowing for a 5% margin of error. He went further by saying that for a population of five thousand to ten thousand (5001-10000), a sample size of 354 will be sufficiently representative, allowing a 5% marginal error.

Proportionately, 386 respondents were allocated to the three Local Government Areas according to their population sizes. The sample size is proportionately allocated to each L.G.A using the equation

Qi = (Fi / P) x N

Where:

Qi = The Number of samples allocated to each Local Government Area.

F = Population of each Local Government Area

P = The Total population of the three Local Government Areas.

N = (386) adopted sample size.

Therefore:

Girei = 16442/167915 x 386 = 41 respondents

Yola North = 77683/167915x386 =178respondents

Yola South=73790/167915 x 386 =167 respondents

Total = 386

Adapting Saunders (1997), the sample size for the host community is 386 heads of households.

Table 1: Local Government Areas, Wards, Number of Settlements, Number of Household and Sample Size in Greater Yola.

L.G. As	Wards	Settlements/union	Number ofhouseholds	Sample Size (N)
Yola North	Ajiya	1	4294	10
	Alkalawa	1	4166	9
	Dobeli	1	6444	15
	Gwadabawa	1	3072	7
	Jambutu	1	15619	36
	Karewa	1	18816	43
	Limawa	1	3420	8
	Luggere	1	7012	16
	Nassarawo	1	10426	24
	Rumde	1	1781	4
	Yelwa	1	2633	6
Girei	Modire	26	5156	12
	Damare	25	2703	7
	Dakri	49	2483	6
	Girei 1	67	7100	16
Yola South	Bako	17	2697	6
	Bole Yolde Pate	69	8245	19
	Makama A	43	7571	17
	Makama B	16	3287	8
	Mbamba	50	3892	9
	Namtari	76	36228	82
	Adarawo	61	5817	13
	Mbamoi	22	1827	4
	Toungo	27	3963	9
Total	**24**		**167,915**	**386**

Source: Primary Health Care Department, Yola North and South and Girei Local Government Area, Household Enumeration (2017).

Proportionately, the 354 IDP respondents were allocated to the Three Local Governments Area according to the population of the IDPs living within the host community to get information on the magnitude of forced migration into the study area since 2009, the direction and common places of abode of migrants in the study area and to examine the impact of migration on the migrants themselves and the implication of the forced migration for urbanization on Greater Yola using this formula to select their sample size proportionately:

Qi = (Fi / P) x N

Where:

Qi = The Number of respondents from each Local Government Area.

F = Population of each Local Government Area

P = The Total population of the three Local Government Areas.

N = (354) adopted sample size.

Yola North = 2504/8876x354 =100 respondents

Girei = 3185/8876 x 357 = 127 respondents

Yola South=3187/8876x 357 = 127 respondents

Total = 354

Table 2: Number of IDP households in each Ward in Greater Yola.

L.G. A	Ward	Number of households	Sample Size
Yola North	Ajiya	194	8
	Alkalawa	10	1
	Dobeli	207	8

	Gwadabawa	60	2
	Jambutu	1009	41
	Karewa	589	21
	Limawa	86	3
	Luggere	194	7
	Nassarawo	64	2
	Rumde	0	0
	Yelwa	91	7
Girei	Modire	664	27
	Damare	748	30
	Dakri	299	11
	Girei 1	1474	59
Yola South	Bako	54	2
	Bole Yolde Pate	949	38
	Makama A	168	7
	Makama B	142	6
	Mbamba	155	6
	Namtari	1461	58
	Adarawo	178	7
	Mbamoi	80	3
	Tongo	0	0
Total	24	8876	354

Source: IOM, 2017

2.3 Methods of Data Collection

Both open and close-ended Questionnaires and interview schedules were administered randomly to the heads of households in the study area to elicit information from the migrants and the host community on the effects of forced displacement on urban expansion in the study area. Satellite images were also downloaded for the study.

2.4 Data Sources and Pre-Processing

Landsat Images of 2006/10/18, 2009/10/18, 2012/10/18, 2015/10/18, 2019/10/18 were obtained online through USGS Earth Explorer. The political map of Greater Yola was obtained from the Ministry of Land and Survey, Yola which was georeferenced while the shape file of the area was generated. The shape file was used to delineate Greater Yola from the five Landsat images. The delineated images were filtered using a 3*3 filter module of Arc GIS and resampled to each other.

2.5 Image Classifications

Each of the five images was classified into three: built-up, water body and "others" because the main area of interest is the built-up areas. After the classification, only the built-up and waterbody were retained while the others were discarded since the area of interest is built-up areas. The waterbody was also retained to ensure that the images were correctly classified if no part of the waterbody was wrongly classified. About ten samples were taken for ground-trothing and the classified images perfectly aligned with the ten samples.

2.6 Image Analysis

The Landsat images of 2006/10/18, 2009/10/18, 2012/10/18, 2015/10/18, and 2019/10/18 was used to obtain the differences between the built-up areas in 2006, 2009, 2012, 2016, and 2019 through image differencing and the calculation module of ArcGIS. The three main data that were needed, that is, the built-up land area as at 2006, 2009, 2012, 2015, and 2019 the built-up area as at 2006 and the difference between the built-up areas between the five-

year periods were obtained from the calculated built-up areas. The value obtained from the image differencing formed the difference of the built-up areas. Other features of interest such as political boundaries, roads, and rivers were overlaid on the maps.

2.7 Sampling Method

Simple random sampling techniques were adopted to select the heads of households in the study area. The households were selected using the balloting method (crude method) using the Primary HealthCare numbering of houses in all the wards in the study area. All the houses in the study area have been numbered by the Primary Healthcare Departments of the Local Governments. The total number of houses in each ward was used to determine the sample size assigned to every ward at random. For example, Ajiya Ward in Yola North LGA has 4294 total houses and allocates a sample size of ten (10) (Table 1). The researcher tore 4294 small sheets of paper and wrote 1-4294 on the small sheet of paper, mixed them thoroughly and selected ten (10) at random without any bias to serve as the sampled household in Ajiya Ward. Where there is more than one head of household in a compound, a random sampling procedure was also conducted using the above procedure to select the respondents to be interviewed. The same procedure was repeated in each of the Wards respectively (Table 1).

To get information on the impact of forced migration on IDPs in host communities, a Purposive sampling technique was adopted to select the first respondents in every Ward since the IDPs are mixed up with the inhabitants of the community. This was subsequently followed by a snowball sampling technique to select the rest of the respondents to be interviewed based on the sample size of IDPs assigned to every Ward. In the interaction with the first respondent, the respondents were asked to identify at least one other IDPs close to him to be interviewed until the target sample size was attained (Table 2). Even though snowball sampling may be somehow purposive, there was no way the researcher could have gotten information about the IDPs in the host communities without the use of snowball sampling since the IDPs are mixed up with the inhabitants of the study area. This did not affect the quality of the result in any way.

2.8 Method of Data Analysis

Descriptive statistics were the analytical tools that were used for the study. The descriptive tools include tables, percentages, charts and graphs. The information obtained from satellite imagery was presented in a map to show the built-up areas over the years.

3.1 Results

Table 3. shows the perception of the residents of the study area on forced migration and its implications on urban expansion in the study area. The table shows that over 60% of the inhabitants of the study area agreed that forced migration has brought about expansion in the built-up areas of Greater Yola. While only 40% of the respondents disagreed that forced migration did not bring about expansion in the built-up area in the study area. The reason for this high number of the respondents agreeing to the fact that the insurgency has brought about expansion in the built-up area in the study area is because

some of the IDPs that were wealthy on arrival to the study area were able to buy land, build houses and some bought houses.

Table 3. Urban Expansion Due to Forced Migration in the Study Area

	Frequency	Percent
Strongly Disagreed	20	5.2
Disagreed	33	8.5
Neither Agreed or Disagreed	90	23.3
Agreed	96	24.9
Strongly Agreed	147	38.1
Total	386	100.0

Source: Field survey, 2019

3.2 Migrants' Ownership of Houses in their Host Communities (IDPs in Host Communities).

This section analyses the number of migrants who were able to acquire houses in their host communities after the insurgency. Some of the migrants (IDPs) while arriving can carry along some of their possessions or money in their account to buy some land and houses in their host communities. This might have likely triggered the prices of land and houses in their host communities. Over 40% of the IDPs were able to secure houses on their arrival to Greater Yola. This means that their arrival to Greater Yola contributed minimally to the hike in prices of houses in the study area and consequently led to expansion in the built-up areas of Greater Yola. The reason for this is that, on arrival to the study area some of them bought land and developed it, some bought the house, while some stated that friends, family and relatives gave them the house.

Table 4. shows the method of acquisition of houses by IDPs in their host communities. The table shows that over 70% of the IDPs who were able to acquire houses in their host community acquired their houses by buying their land and building it for themselves. While less than 30% of the IDPs

either bought it or somebody gave it to them. This means that since some of the IDPs on their arrival to the study area, bought land and built their houses is an indication that the arrival of the IDPs into the study area contributed to urban growth in the area and consequently led to expansion in the build-up area. Fig 1. shows greater Yola before displacement in 2006.

Table 4. Method of acquisition of houses by IDPs in their host communities.

Method of acquisition of houses by IDPs in their host communities.		
	Frequency	**Percent**
I built the house	103	72
I bought the house	33	23
Somebody gave me the house	4	2.7
Others	3	2
Total	143	100

Mapping and Analyzing Greater Yola before and after Displacement

Fig.2 Shows the spatial extent or size (dimension) of the built-up area in Greater Yola by 2006, using ArcGIS Version 10.6. According to Fig. 5.4, The total built-up area of Greater Yola as of 2006 was 29.42 km2. During this period Boko-Haram insurgency did not start, even if there was an increase or expansion in the built-up area, it was due to either rural-urban migration or natural population increase and not due to insurgency.

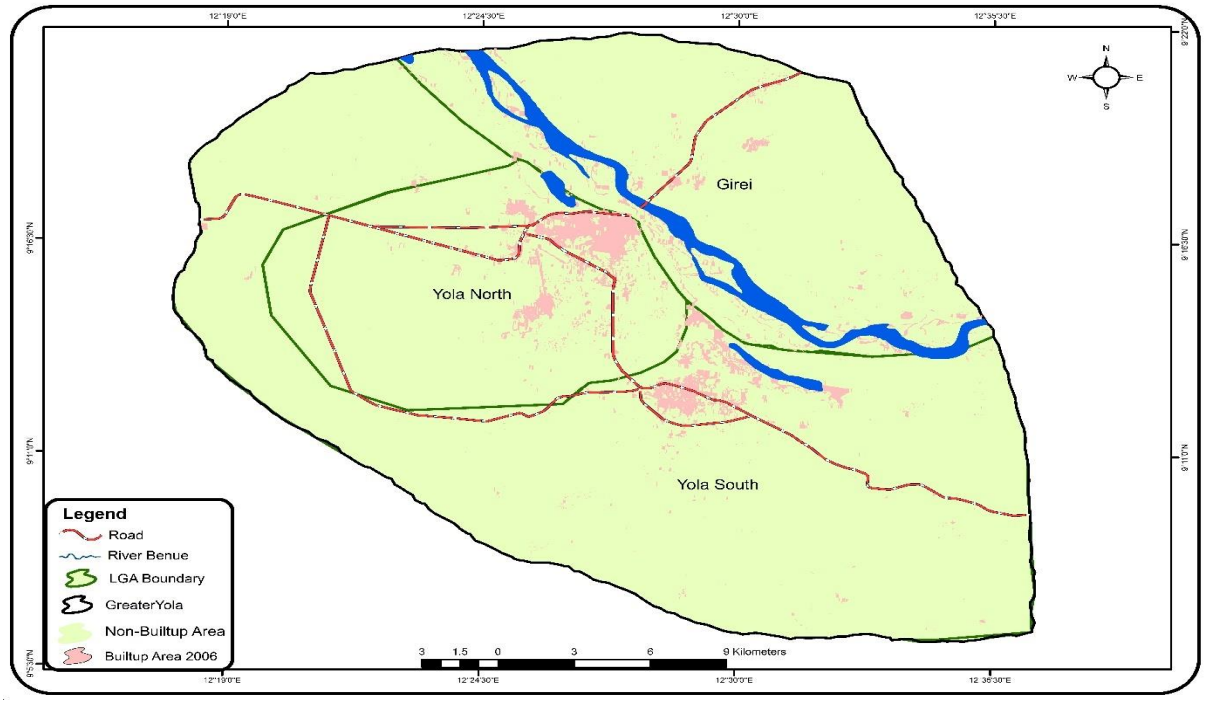

Fig. 2. Map of Greater Yola Showing Build-Up area in 2006.

Fig 3 Shows the spatial extent or size (dimension) of the built-up area in Greater Yola by 2009, using ArcGIS Version 10.6. The map shows that the built area of Greater Yola as of 2009 was 31.63 km2, while the built-up area in 2006 was 29.42 km2. The difference in the built-up area in 2006 and 2009 is 2.21km2. The increase or expansion in the build-up area was minimal because, between 2006 -2009, no locality was displaced in the State or the Northeast. The influx of displaced persons in the study area was towards the end of 2009 when the Boko-Haram insurgency started.

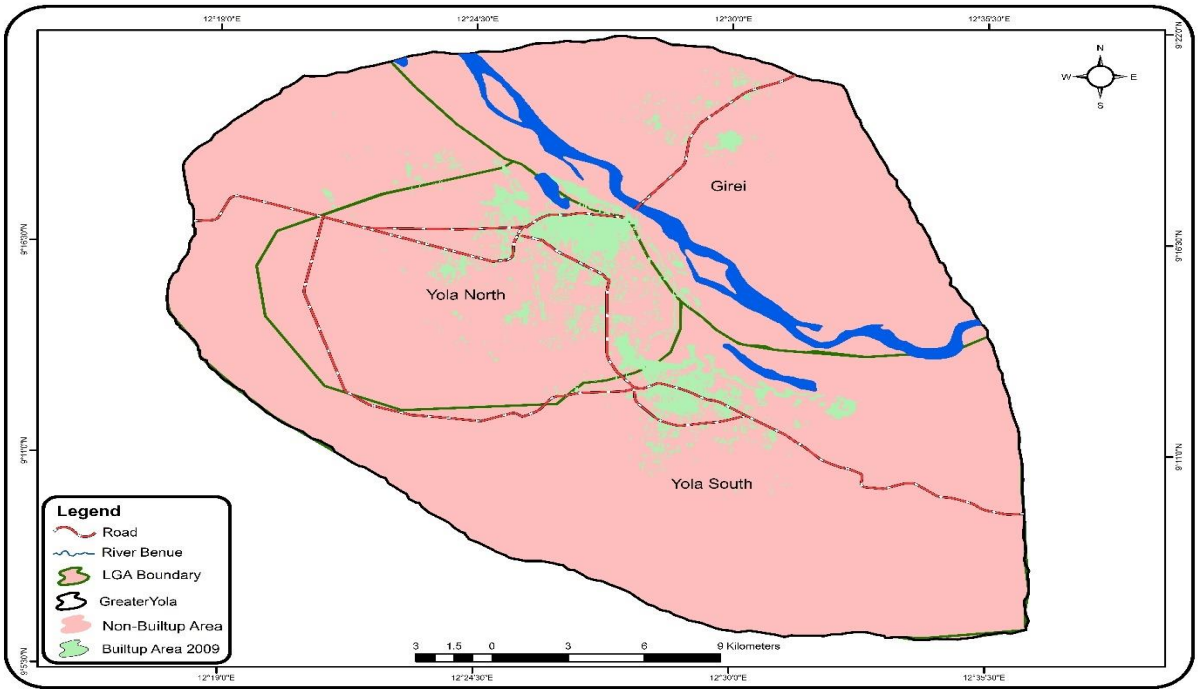

Fig.3. Map of Greater Yola Showing Build-Up area in 2009.

Fig 4. Shows the spatial extent or size (dimension) of the built-up area in Greater Yola by 2012, using ArcGIS Version 10.6. The total built-up area as of 2012 was 36.42 km2. The built-up in 2009 was 31.63 km2. The difference between the built-up area in 2009 and 2012 was 4.79 km2. The difference in built-up area between 2009 to 2012 was more than double the increase in the built-up area from 2006 to 2009. The reasons for this rapid expansion in the built-up area may be constituted by many factors including economic growth and diversification of economic activities, increasing urban functions, provision of land for social services, in addition to the demands from immigration and natural population increase.

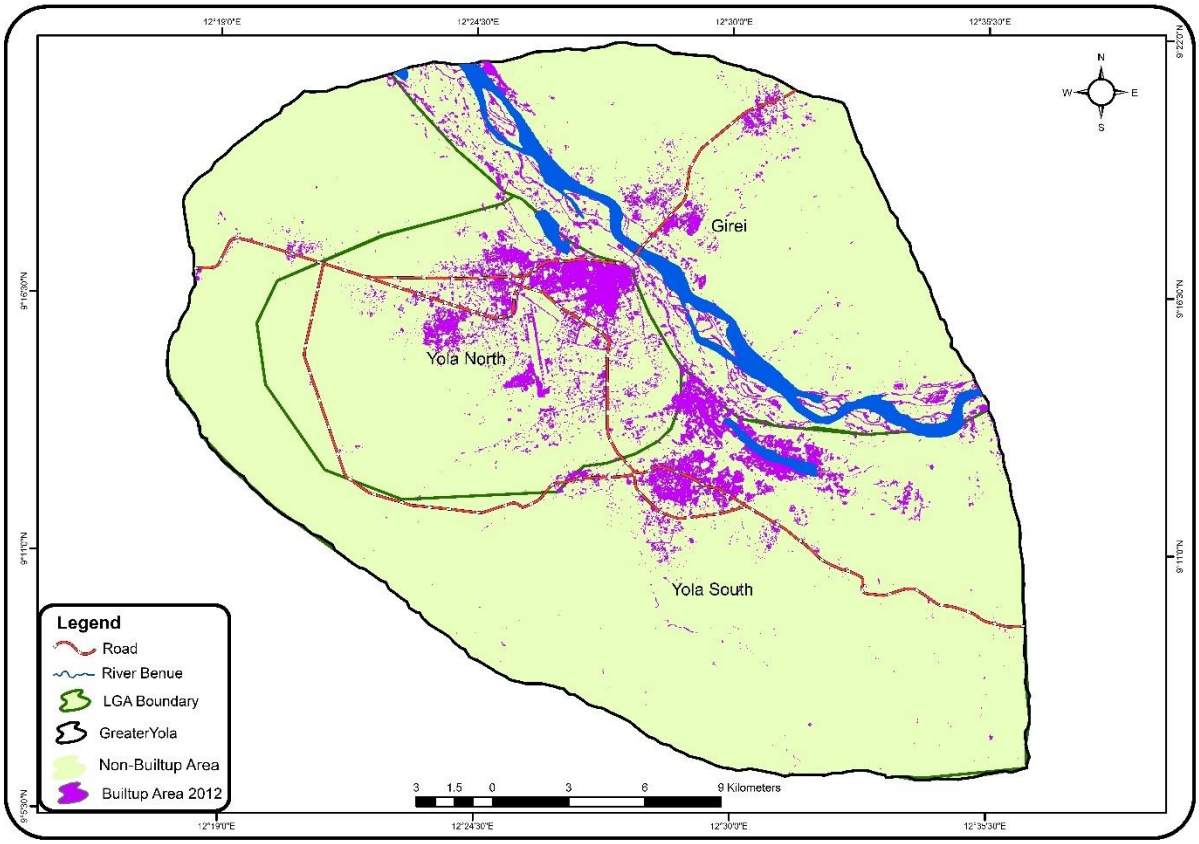

Fig. 4. Map of Greater Yola Showing Build-Up area in 2012.

Fig 5. Shows the spatial extent or size (dimension) of the built-up area in Greater Yola by 2015, using ArcGIS Version 10.6. The total built-up area as of 2015 was 54.16 km2. The built-up area in 2012 was 36.42 km2. The difference between the built-up area in 2012 and 2015 was 17.74 km2. This implies that Greater Yola has increased in size by 17.74 km2 from 2012-2015. The increase in built-up area between 2012 to 2015 is more than double the increase in the built-up area from 2009 to 2012. The reasons for this rapid expansion in the built-up area just like in the previous years may be constituted by many factors including economic growth and diversification of economic activities, increasing urban functions, provision of land for social services, in addition to the demands from immigration and natural population increase and the displacement of 2014 by Boko-Haram where the whole northern part of the State, parts of Borno State and even part of the central senatorial zone were displaced by Boko-Haram. This displaced population fled to Greater Yola and other States in the Country for refuge. On getting to Greater Yola, some of the displaced population bought land and built houses thereby adding to expansion in the built-up area in the study area.

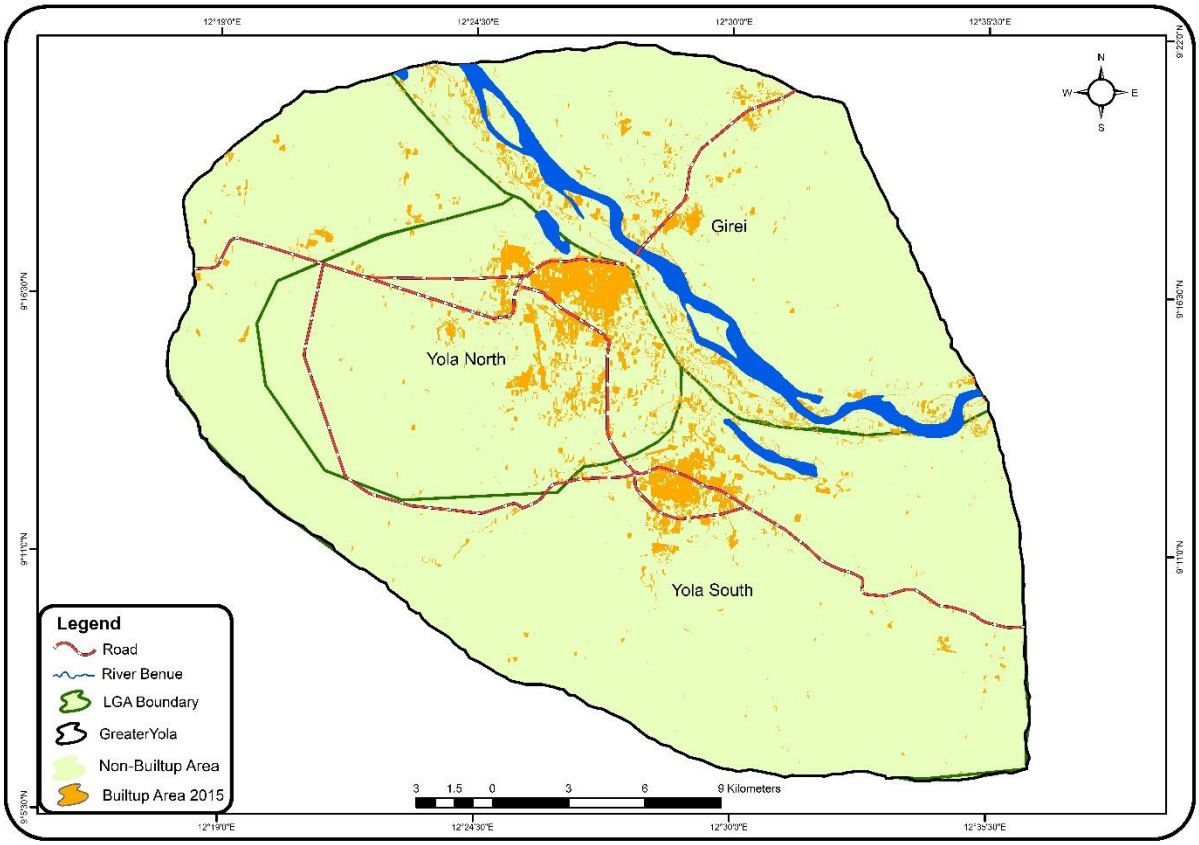

Fig. 5. Map of Greater Yola Showing Build-Up area in 2015.

Fig 6. Shows the spatial extent or size (dimension) of the built-up area in Greater Yola by 2019, using ArcGIS Version 10.6. The total built-up area as of 2019 was 64.56 km2. The built-up area in 2015 was 54.16 km2. The difference between the built-up area in 2015 and 2019 was 10.4 km2. It can be seen that Greater Yola has increased in size by 10.4 km2 from 2015-2019. The reasons for this rapid expansion in the built-up area just like in the previous years may be constituted by many factors including economic growth and diversification of economic activities, increasing urban functions, provision of land for social services, in addition to the demands from immigration and natural population increase and the displacement of 2014 by Boko-Haram where the whole northern part of the State, parts of Borno State and even part of the central senatorial zone were displaced by Boko-Haram. Most of this displaced population fled to Greater Yola for refuge. On getting to Greater Yola, some of the displaced population bought land and built houses thereby adding to the expansion of the built-up area in the study area. This urban expansion is taking place on the fringes of the urban area that is part of the area where agricultural cultivation is taking place.

According to (Seto et al 2011), urban expansion represents the transformation of non-urban land to urban land, which results in increases in the areas of cities.

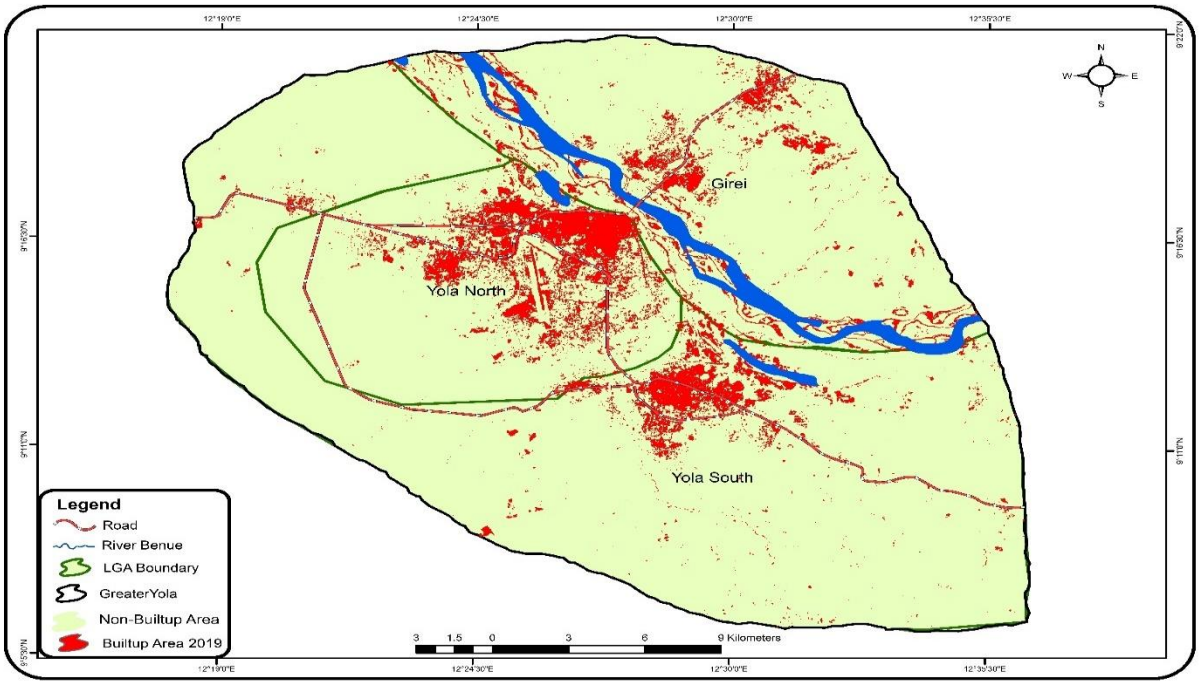

Fig. 6. Map of Greater Yola Showing Build-Up area in 2019.

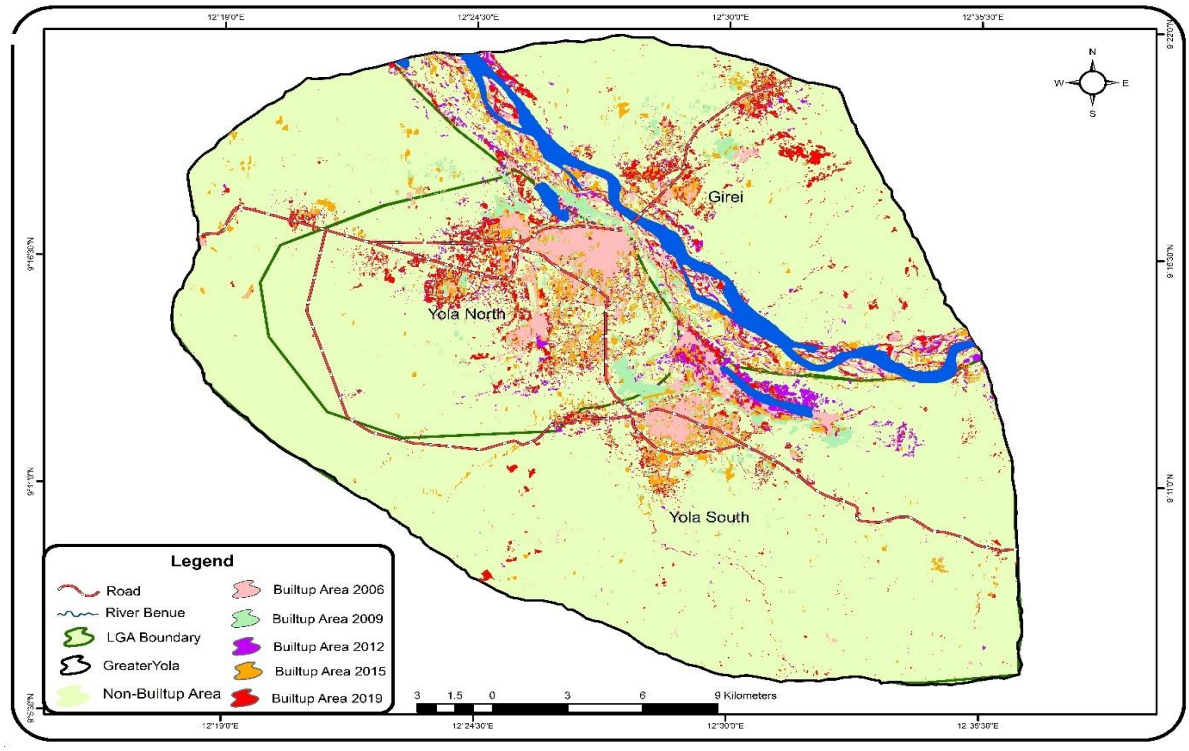

Fig. 7. Built-up area before and after 2006,2009,2012,2015,2019.

Table 5. Built-up Areas between 2006-2009(before displacement) and between 2012-2019(after displacement).

	Area (km^2)	Built-up area from 2006 - 2009 **(km^2)** before displacement	Built-up areas after 2009 **(km^2)** after displacement	Differences in the built areas before and after displacement
Built-up areas in 2006	29.42	29.42	-	62.05-155.14
Built-up areas in 2009	32.63	32.63	-	
Built-up areas in 2012	36.42	-	36.42	
Built-up areas in 2015	54.16	-	54.16	

Built-up areas in 2019	64.56	-	64.56	
Total	**217.19 (km^2)**	**62.05 (km^2)**	**155.14(km^2)**	**93.09(km^2)**

Table 5 shows the build-up area in 2009 and after 2009. The build-up area as of 2009 was 62.05 (km2) and the build-up area between 2009-2019 was 155.14(km2). The difference between the built-up area from 2009-2019 and that of 2006-2009 is 93.09**(km2).** This means that the build-up area in Greater Yola has increased horizontally with 93.09(km2) in 10 years which is more than half of its size in 2009. If Greater Yola can expand more than half of its size within just a space of 10 years, it means in another 10 years to come, Greater Yola will double its present size as a result of urban expansion. This rapid urban expansion that took place in the study area may be constituted by many factors including economic growth and diversification of economic activities, increasing urban functions, and provision of land for social services, in addition to the demands from immigration and natural population increase and the displacement of 2014 by Boko-Haram where the whole northern part of the State, parts of Borno State and even part of the central senatorial zone were displaced by Boko-Haram in 2014. During this period, the whole northern part of the State, parts of the central senatorial zone and some parts of Borno were displaced by the Boko-haram insurgency. This displaced population fled to the State capital which is Greater Yola for safety and refuge. On arrival in Greater Yola, these IDPs need accommodation to stay. Some bought land and developed it and some bought houses hence the rapid expansion of Greater within just a decade. Going on this fact in a Few Decades Greater Yola will exceed its area owing to urban expansion.

3.3 Recommendations

Based on the findings of the study, the following recommendations are put forward.

1. Since the urban areas are expanding fast due to the influx of the displaced population, the government should tackle the security challenges which are the main cause of the displacement so that the IDPs can return to their ancestral home to reduce more pressure on Greater Yola.
2. Government, NGOs and Philanthropists should build houses for the IDPs in their LGAs for those whose house has been burnt down by Boko-Haram to ease their return to their ancestral homes.

References

Ayo Obe, (2015) Environmental Degradation, Climate Change and Conflict: The Lake Chad Basin Area, 27 October 2015, https://medium.com/ the-future-of conflict/environmental-degradation-climate-changeand-conflict-the-lakechad-basin-area-aec2bd9fa25#.589lbok78

Islam, N. (1999). *Urbanization, Migration and development in Bangladesh: recent Trends and Emerging Issues*, Paper I, Centre for policy Dialogue, Dhaka.

Saunders M, Lewis P, Thornhil A., (1997). Research Methods for Business Students. PITMAN Publishing

Seto KC, Fragkias, M and Guneralp, B (2011). Addressing urban expansion using feature-oriented spatial data in a peripheral area of Ulaanbaater, Mongolia.

Tibaijuka Anna (2010). Adapting to Urban Displacement. Forced Migration Report 2010

Uche T. Okpara, Lindsay C. Stringer, Andrew J. Dougill and Mohammed D. Bila (2014). *Conflicts about water in Lake Chad are environmental, vulnerability and security issues*, June 2014, p.19.

UNHCR, (2008) 2007 Global Trends: Refugees, Asylum-Seekers, Returnees, Internally Displaced and Stateless Person, UNHCR.

UNHCR, (2016) *Global Trends: Forced Displacement in 2015*. Geneva: UNHCR

WCD (2000). Dams and Development: A New Framework for decision making-overview World Commission on Dam.