

# Urban Transformation: a Changing Phase of Minna Central Area, Nigeria

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**ABSTRACT:** Urban centres in the world are undergoing facets of changes. these changes are evident in developing countries and more divergent because urban transformation in developing countries is often accompanied challenges which include traffic congestion, overcrowding, pollution and continuous land use succession. This phenomenon remains peculiar to the central area of Minna, Nigeria. Since the year 2008, central Minna has undergone approaches aimed at addressing overcrowding, street trading, indiscriminate waste disposal and traffic congestion. Data employed in this study includes high resolution image of the the Minna central area and socioeconomic characteristics of Minna obtained through the use of questionnaires using purposive sampling techniques. The data were corroborated with Geo-spatial analysis. The study reveals that between 2008 to 2016 there was a significant change in urban transformations in Minna central area as 75% of the residential area were converted to commercial uses, although the Minna central market was also relocated to a new site in order to address the issues, little was however achieved as this only relocated the problems to another part of the town. This study recommends that urban management and monitoring (development control) of Minna city centre and similar cities should imbibe the current SDGs approach that emphasizes participation and inclusive planning approach to urban development.

**Keywords:** Central area, Geo-Spatial, Inclusive planning, Landuse, Transformation.

## INTRODUCTION

Cities in different parts of the world are experiencing different forms of changes. These changes often manifest itself in term of population growth, urban gentrification, and conversion of vegetal cover into other land uses and improvement of infrastructures. The transformation witnessed in urban centres of the world is an indication that urban centres are the focal point of economic, political and artistic activities (Spates & Macronis, 1987). With over half of the world population residing in urban areas, urban centres been the catalyst of civilization can no longer be argued (Spates and Macronis, 1987; UN-Habitat, 2008). This assertion is not farfetched because urban centres worldwide exerts an increasing attraction on people (Gbadegesin & Aluko, 2010).

With urban centres characterized by rapid unplanned urbanization and population growth (UN-Habitat, 2009a)

and post-2007 expected to bring about a 2.27 percent annual increase in urban population (UN-Habitat, 2009b) urban decay reflecting from poor urban management, poor governance and inadequate and pressure on infrastructure is non-negotiable (UN-Habitat, 2009a).

This phenomenon of urban transformation of towns and cities in the world is often challenging for urban planners, particularly in the developing countries, where less planning is being carried out (Agbola, Egunjobi & Olatubara, 2007). It is considered that the governance and the management of the urban centres in developing countries are most discouraging, because the pace of the rapid urbanization and population growth normally go beyond the control of the planners, beyond management capacities and beyond available resources (Agbola & Olurin, 1998 cited by Olujimi, 2009).

The relics of planned modernist urban cores are often displayed

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in urban centres of developing countries, and these urban centres are frequently surrounded by vast areas of informal settlements, the commercial hub and residential enclaves (UN-HABITAT, 2009a). This belief is also visible in the Core of Minna, Niger state. The informal settlements surrounding the city centre and the commercial activities located in the city centre of Minna frequently breeds challenges such as traffic congestion, on street trading, overcrowding, and indiscriminate waste disposal.

In an effort to address the problems posed by urban transformation in Minna, the Niger State Government took a decisive step in 2008 to ameliorate these problems through the implementation of urban policies. New roads were constructed, some roads were rehabilitated, demolitions were done and land uses were relocated. An example was the relocation of the Minna central market from the Mobil area to the western by-pass of the state. Against this background, this paper will assess the changes that have occurred in the core area of Minna between 2008 and 2016 with its implications on human settlement.

**Aim and Objectives of the Study**

This paper aims at assessing the changes that have occurred

in the core area of Minna between 2008 and 2016 with its implications on human settlement.

To achieve this assessment, the following objectives were considered:

- To examine the socio-economic character of the residents of Minna Core;
- To give a spatial analysis of Minna Core between 2008 and 2016;
- To examine the factors responsible for Urban transformation in Minna Core; and
- To ascertain the implication of urban transformation in Minna Core.

**Study Area**

Minna Core is located between latitude 9°35' 00.69"N and Longitude 6° 31'00.69"E (Fig.1). The Minna core area comprises of six neighbourhoods that is, Makera, Sabon-Gari, Nassarawa, Minna Central, Angwan Daji and Limawa. Minna Core is encapsulated by the Bosso Local Government area of Niger State (Fig.1). The core of Minna has a population of 136,010.

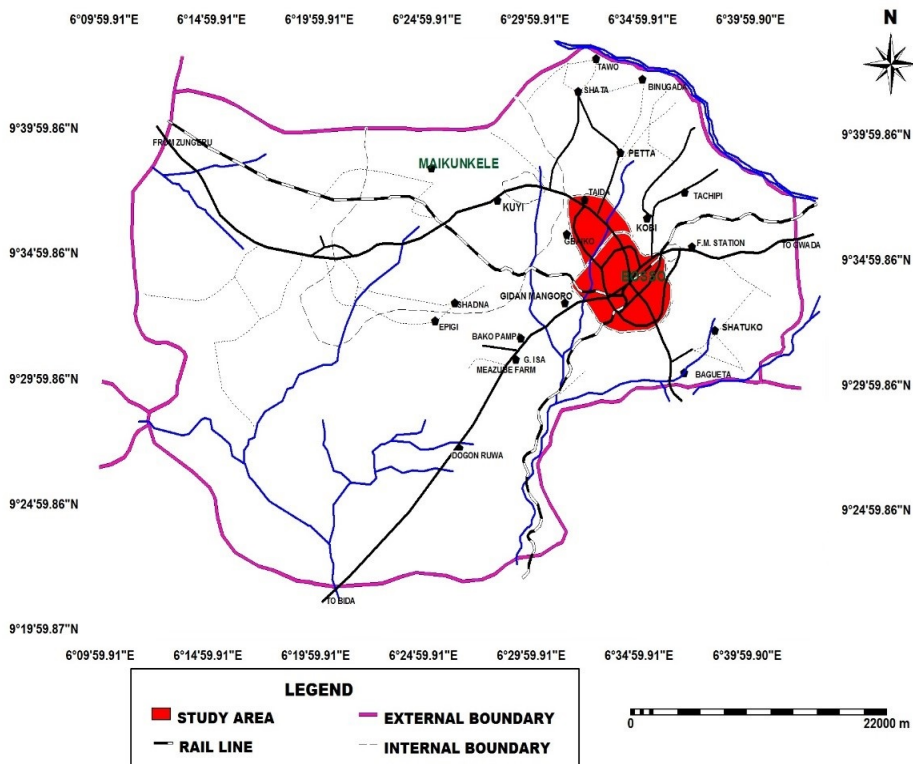


Fig. 1: Minna highlighted in Bosso Local Government Area (Department of Urban and Regional Planning, FUTMinna).

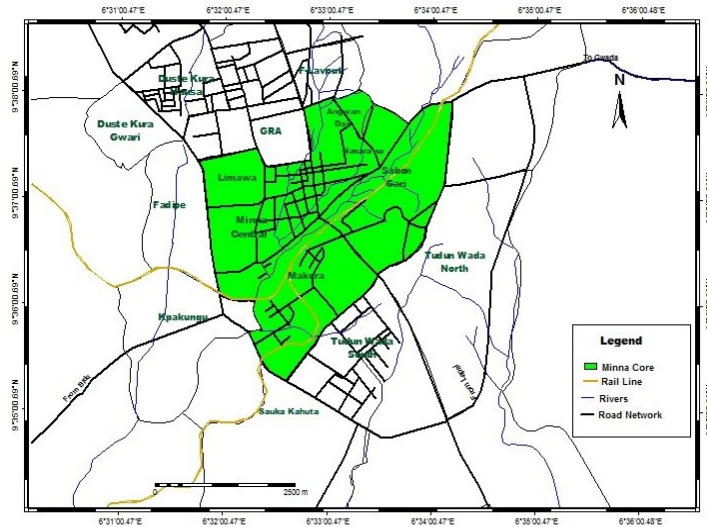


Fig.2: Street Guide Map of Minna with emphasis on Minna Core (Department of Urban and Regional Planning, FUTMinna).

## MATERIALS AND METHODS

### Research Design

The cross-sectional design and the longitudinal research design were employed in this research. The cross-sectional design involves the administration of questionnaires and the longitudinal design for the interpretation of the Landsat images and the quick bird Images.

### Sources of Data

The primary and the secondary sources of data were used for this study. The primary source of data used for this study involves the use of questionnaire administration, ground truthing, taking of photographs, and detail survey. For the secondary source of data, literature relevant to the study was reviewed and also satellite images were acquired. All the satellite images were obtained from the National Centre for Remote Sensing and GIS, Jos, Plateau State.

### Sampling Techniques and Sample size

Purposive sampling techniques was used for this study. The questionnaires to be administered were selected based on the judgement of the researcher. Using the Macorr sampling calculator with the confidence level of 95% and an interval of 7 a sample size of 196 was deduced for the sample frame of 136,010.

### Post Processing

Two sets of satellite images were used for this study, that is, the Landsat images with 30metres resolutions and the quick bird image with 0.65cm resolution. The Landsat images used were, the enhanced thematic mapper plus (ETM+) for 2008 and 2016 likewise the quick bird Image of 2008 and 2016 were also used. On the two sets of satellite images (both Landsat and Quick bird) the area of interest was clipped out using ArcGIS 10.2 Software. Band 4,3,2 was used to form the "false colour composite" for the 2008 and 2016 Landsat images. In

this band combination Cyan Colour appears as Built-up area, Dark Red appears as vegetation while water bodies are shown in blue colour. Sample set (built-up area) was created on the "false colour composite" of the Landsat images of 2008 and 2016. These images were subjected to supervised maximum likelihood classification on ArcGIS 10.2 software and the land area for the sample set created (Built-up area) was ascertained. "Shape files" of features (Commercial areas, roads, Public land uses) were created with the quick bird images of 2008 and 2016. These features were digitized on the images and the land areas of the features were determined in order to carry out a spatial analysis.

## RESULTS AND DISCUSSION

### Socio-Economic Characteristic of the Residents of Minna Core

Fig.3 illustrates data relating to the Socio-Economic characteristics of the respondents. The Fig.3 shows that 32% of the respondents are public servant in the Core of Minna. This is as a result of the presence of various government establishments within the central core of Minna. The highest numbers of the respondents are Traders with 50%. The presence of shops and stalls in the core of Minna can be attributed to this and this affirms the claim of Orintunsin (2009) that the core of Minna is the "heart" of Commercial activities. Apprentice and students constitute 7.14% and 6.10% of the respondents, respectively, while 4.59% of the respondents are farmers.

### Spatial Analysis of Minna Core between 2008 and 2016

The trend of growth between 2008 and 2016 (table 1) is calculated by subtracting the area of the Land use for the year 2008 from 2016 that is, B-A. The annual frequency of change (D) is determined by dividing the magnitude of change of the Land use by the number of years between the periods, that is, 8 years for 2008-2016. The percentage of change (E) is calculated by dividing the magnitude of change C of the Land

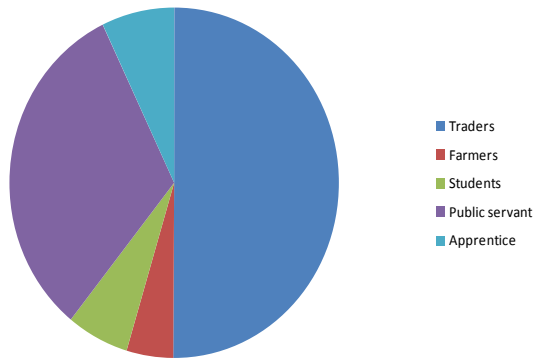


Fig. 3: Socio Economic characteristics of the Core.

use (Built-Up Area) by the figure of the base year that is, 2008 then multiplying the result by 100. Table 1 shows that between the year 2008 and 2016 the change in the core of Minna was progressive. The analysis reveals a magnitude change of 5.96 km<sup>2</sup> in the core area of Minna. This implies that additional 5.96 km<sup>2</sup> of green areas were converted into built-up areas in the core of Minna between 2008 and 2016. The analysis also reveals that, annually, 0.745km<sup>2</sup> of green areas are converted into built-up areas with a percentage of change of 73.9%. The change experienced in the core of Minna

can be attributed to population increase and rapid urbanization. The spatial extent of the Core area of Minna is shown in Fig. 4. In order to meet the challenges posed by rapid urbanization and population increase in the core of Minna, the government decided to bring some innovation via her policies and these policies brought about transformation at the core of Minna. In 2009, the Minna central market was relocated to the site earmarked for the proposed stadium because the central market of 800 stalls and shops of different sizes was believed to be grossly inadequate by the State government (Orintunsin, 2009).

Table 1. Trend of growth between 2008 and 2016.

Year	Built-up Area (km <sup>2</sup> )	Magnitude of change (C) (km <sup>2</sup> )	Annual Frequency of change (C/8)	Percentage of change (C/A)
(A) 2008	8.06			
(B) 2016	14.02	5.96	0.745	73.9

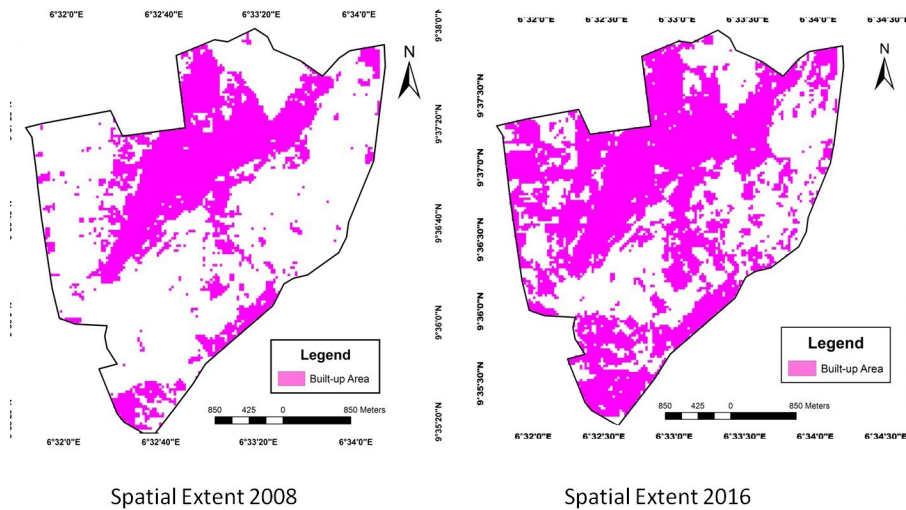


Fig. 4: Spatial Extent of Minna Core in 2008 and 2016.

Orintunsin (2009) was of the view that, the Illegal structures in the market have tripled the legal ones, more so, every available space within the Minna central market were converted to stalls, and this made the market spilling over to Mobil Roundabout which is assumed to be the heart of Minna city. It is believed that the Minna Central market was fast becoming another Oshodi (Lagos) Market in Minna, where Motorists and customers in the market have to compete and struggle for the little available space with pepper and grocery sellers because of the on- street trading found around the market area (Orintunsin, 2009). Table 2 shows the land use analysis of Minna Core Area in 2008. The analysis reveals that roads in the core area of Minna were 412894 M<sup>2</sup> of the total land area in 2008. The General hospital covers a total land area of 41983 M<sup>2</sup> while the Minna

Central market and the Katerigwuri market have a land area of 58821 M<sup>2</sup> and 21531 M<sup>2</sup> respectively in 2008. A total of 3750 M<sup>2</sup> was recorded in Mobil garage in 2008. The analysis (Table 2) further reveals that 390207 M<sup>2</sup> was allotted for the proposed stadium (in the Minna Core) as stated by the Minna Masterplan (Fig.5).

As a result of the increase in population and Urbanization, more changes were experienced in Minna Core. Table 3 shows a significant change in the areas of the land uses. In 2016 the land area for roads increased from 412894 M<sup>2</sup> to 475029 M<sup>2</sup>. Roads that were under rehabilitation constitutes 4956 M<sup>2</sup>, Rehabilitated roads cover 100500 M<sup>2</sup>, while the newly constructed roads and the existing roads covered 15654 M<sup>2</sup> and 353919 M<sup>2</sup> respectively. The sum total of all these roads is

Table 2. Land use Analysis of Minna Core Area in 2008.

S/No	Land use	Area (Metres Square)
1	Roads	412894
2	General Hospital	41983
3	Minna Central Market (Old Market)	58821
4	Katerigwuri Market	21531
5	Mobil Garage	3750
6	Proposed Stadium	390207

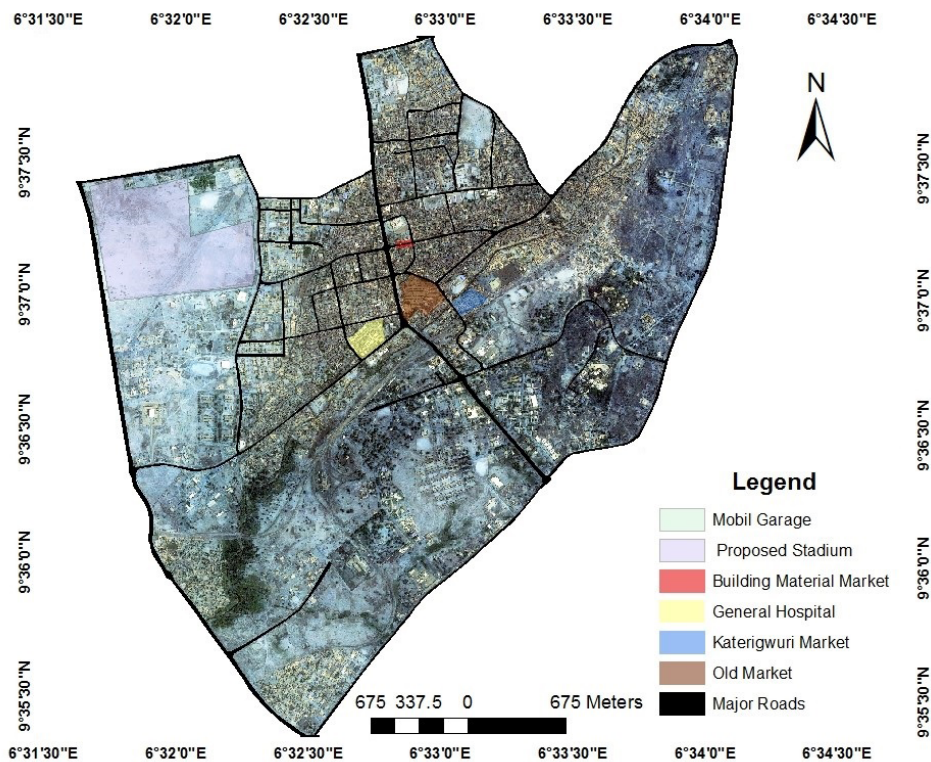


Fig. 5: Spatial Analysis of Minna core in 2008.

Table 3. Land use Analysis of Minna Core Area in 2016.

S/No	Land use	Area (Metres Square)
1	Roads	412894
2	General Hospital	41983
3	Minna Central Market (Old Market)	58821
4	Katerigwuri Market	21531
5	Mobil Garage	3750
6	Proposed Stadium	390207

475029 M<sup>2</sup>. In the rehabilitation of the roads the soft landscape that allows for easy percolation of water during precipitation were replaced with hard landscape (interlocking tiles) in an attempt to beautify the Core of Minna. Roads rehabilitated were the Sabon-Gari Road, Keterin Gwari Road, 123 quarters Road, Old Airport Road while Kuta road was still under construction as at the time of the study. The only road constructed at the core of Minna during this study is the Kure Market road. The new market (Kure Market) covers a total land area of 390207 M<sup>2</sup> as against the 58821 M<sup>2</sup> of the old central Market. Though the new Market (Kure Market) has over 2000 stalls and shops of different categories, banking halls, Police and fire service posts, restaurants, a clinic, Parks, administrative block, market union office, wider space for expansion, for vehicular park for traders to offload their wares as against the 800 stalls

and shops of the old market (Orintunsin, 2009). One would expect that all the problems highlighted in the old market would be solved by the Kure market, but reverse is the case, as on street trading; on street parking and lack of regard for traffic laws by motorist visiting the market are gradually marring the effort of the Niger State government in achieving a sustainable planning. The study also revealed between 2008 and 2016 the building material market was relocated from the Minna core to a new site (Mandela Area) while old market area is still left unoccupied. The Niger State General Hospital located in the core of Minna also received a facelift; the area for the General Hospital was expanded so as to meet the need of the growing population. The land area for the General Hospital increased from 41983 M<sup>2</sup> (in 2008) to 64481M<sup>2</sup> in 2016. The analysis further (Fig.6)

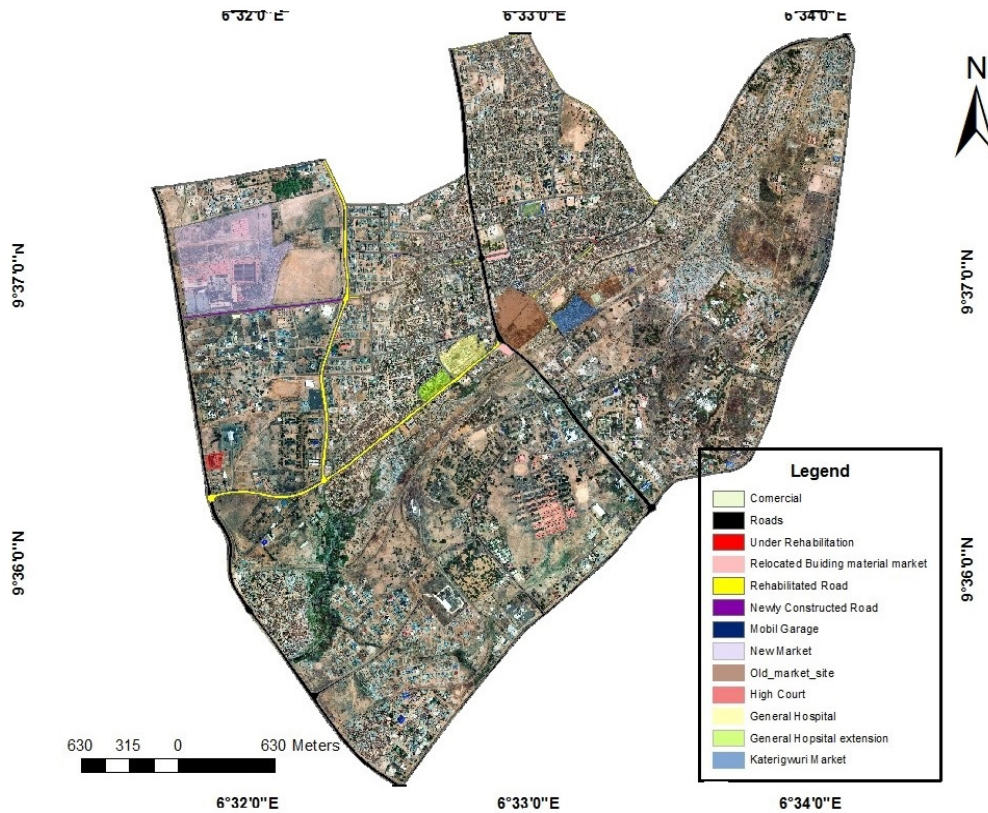


Fig.6: Spatial Analysis of Minna core in 2016.

Table 4. Population change between 2008 and 2016.

Year	Population	Percentage of increase
2008	111159	
2016	136010	22.36

reveals that a total land area of 48718 M<sup>2</sup> was converted from Residential land uses to commercial land uses while a total of 22498 M<sup>2</sup> land areas were converted for the General Hospital expansion.

### Factors Responsible for Urban Transformation in Minna Core

#### Population Increase

Using the growth rate of 3.42% as stipulated by the National population commission (2006). The 1991 population figures were projected for 2008 and 2016 using the exponential formula for population projection. The projected population obtained for 2008 and 2016 were 111,159 and 136,010 respectively. Table 4 shows a progressive increase in the population of the core Minna with a percentage of increase of 22.36. The implication of this is that as the population increases more land areas will be converted to the built-up area. Thus, this will increase the area of the built-up area between the study periods. On the factors that influence the urban transformation in the Minna core. The study reveals that 39.80% of the respondents were of the view that government policies were responsible for the transformation that has occurred over the years in the core of Minna. The respondents that had the option that government policies were responsible for the current urban transformation in Minna Core are more in number; this is an indication that the recent trend of changes in the core of Minna by the government is well noticed by the general public. Despite these changes in the Core of Minna, 2.55% of the respondents do not have any idea of what must have influenced the changes. Some of the respondents (17.35%) believed that Low rental value of properties in the Core area must have influenced the changes. Land uses changes were attributed to the current urban transformation in the Core of Minna by 9.18% of the respondents.

#### Implications of Urban Transformation in the Core of Minna

The study reveals that urban transformation has had different implications in the Core of Minna within the period under study (2008 to 2016). The implications discovered during the course of the study range from the high cost of stalls and shops in the new Market (Kure Market), psychological trauma on residents relocated, Remoteness of facilities and loss of livelihood. The majority of the respondents (36.73%) believed that urban transformation in Minna has had negative effects on them because they now have to "travel" within Minna in order to enjoy some facilities that were formally located centrally due to the remoteness of the new facilities, example of these facilities are the relocated Minna central market and the building material market. High cost of shops and stalls

in the new market was perceived to be a major effect of urban transformation by 32.14% of the respondents, because of their inability to pay in the shops or stalls. 8.40% of the respondents are of the opinion that, relocation of residents from the core area has Psychological (trauma) effect on the people. A number of the respondents (4.40%) believed that inadequate and untimely compensation is often experienced by those relocated and this has made the general public to lose trust in the transformation agenda of the State Government. Others (18.33%) believed that the harassment by law enforcement agencies on those involved in on-street trading have made many lost their livelihoods.

### CONCLUSION

Urban transformation is not peculiar to developing countries alone, but the manner in which planning and management is carried out is the issue. This is because the less priority is often given to planning in this part of the world. To achieve sustainable planning in a region where rapid urbanization is experienced, it is of great significant to note that urban transformation will be visible in such region. The study Urban Transformation a changing phase in Minna, Niger State, Nigeria, has effectively addressed the Implications of urban transformation, factors that influence urban transformation and the trend of urban transformation in Minna between 2008 and 2016.

#### Recommendations

Based on the study findings, the following recommendations were arrived at:

Adequate and timely compensation should be paid to those relocated in order to guide the issue of psychological trauma or even death of the residents.

Law enforcement agencies in the state should be fully equipped so as to curb the activities of traffic offenders, especially those that take their turn on the median divide on the road.

Planning and management of Minna Core should be done through the inclusive planning approach which is a bottom-top approach. This will help to integrate everyone's view in the planning process.

On-street trading should be discouraged by the government so as to ensure the free flow of traffic around major facilities. This can be made possible through rigid land use management and the provision of cheap and affordable stalls and shops in areas designated for commercial activities such as the central market.

Planning education should also be encouraged in the state in order to meet the need gap of the planning profession.

SDGs approached that allows community participation in planning should also be encouraged.

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