



AfricaGIS 2019

Innovations in Geospatial Technologies for Achieving
Sustainable Development Goals in Africa



Insecurity Impact on Settlements and Agricultural Land Use in Gwoza LGA, Northeast, Nigeria.

By

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Background

- The use of religious conflict in the Sahel of Northern Nigeria and the Horn of Africa has caused a focus of attention on such evolving security concerns, not only in the sub-region but also in the world.
- In Nigeria, issues linked to politico-religion and widespread poverty has led to the emergence of a number of local militants that have embraced Al Qaeda-type ideology.
- This is the case with the emergence of the Boko Haram (which means 'Western Education is sin') sect and the Ansaru groups.



Background....

- These sects have unleashed a reign of terror that has rendered social, economic and political infrastructure irrelevant (Simon *et al.*, 2013).
- Kimenyi (2014) estimate that during the periods of conflict, agricultural production dropped at an average of 12.3% each year.
- more than 1.5 million people, mostly farmers, have been forced to flee their homes as these terrorist groups intensified insurgency in the past years across different geographical areas, according to United Nations High Commissioner for Refugees.



Background...

- The manifestation of Boko Haram recently has been a great threat to the Nigerian business environment as farming and other business activities are being harmed.
- The lives of those that are still involved in the business are also at stake, because an attack from such groups can occur at any moment.
- Analyzing land use patterns using satellite images can provide a spatial dimension that census-based studies often lack (Gibson, 2012)

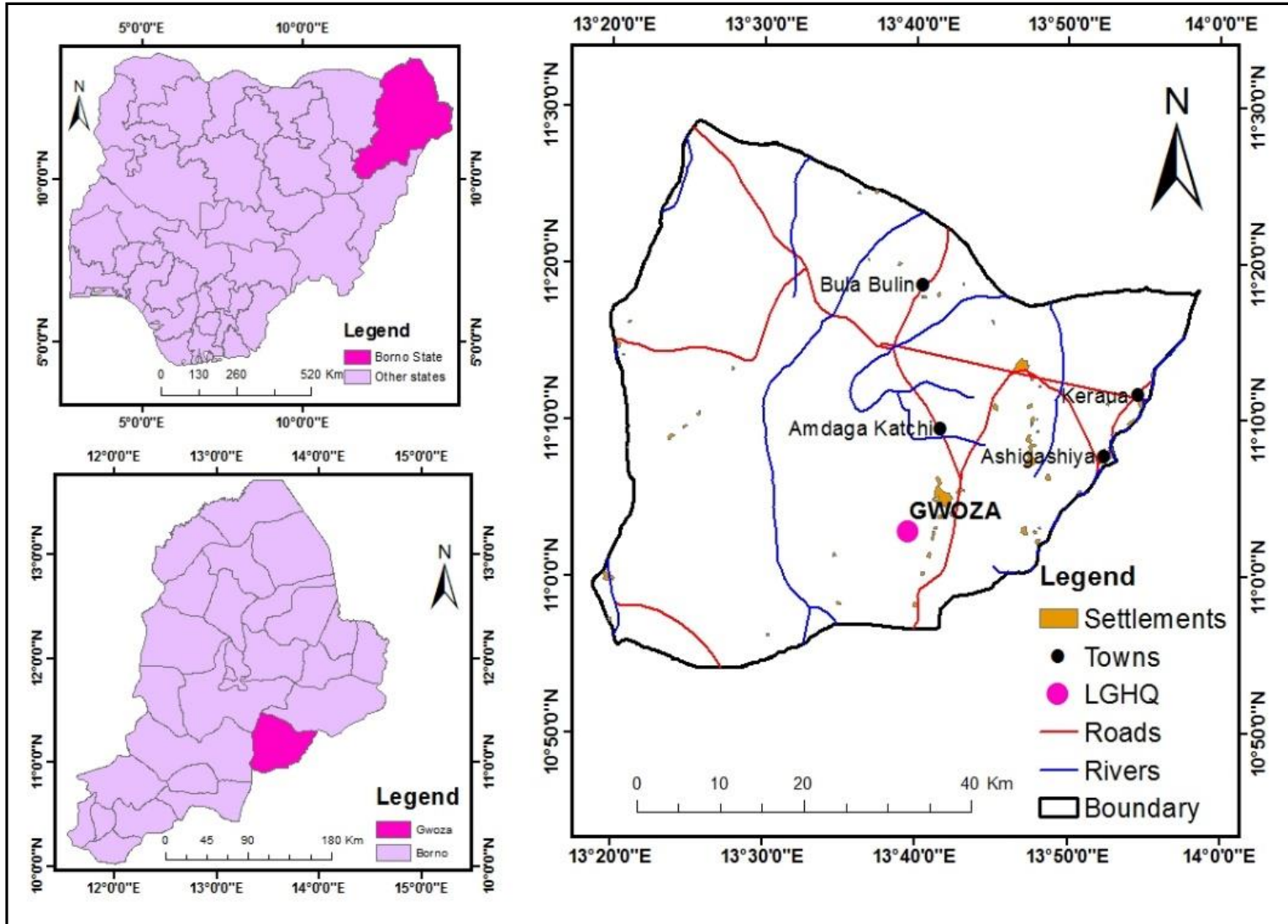


Study Area

- Gwoza LGA is located in Borno state, Northeast Nigeria. It lies between longitudes $13^{\circ}39'12''\text{E}$ and $13^{\circ}46'7''\text{E}$, and latitudes $11^{\circ}23'38''\text{N}$ and $11^{\circ}1'49''\text{N}$. The land area is about $2,861 \text{ km}^2$. It has a population of about 276,312 inhabitants.
- Gwoza LGA has been called "a notorious hide out for Boko Haram insurgents," who arrived in the area in 2009 from Maiduguri.
- Gwoza LGA is dominantly characterized by agricultural activities and is known for its vast fertile soil which is suitable for cultivation of maize, rice, millet, groundnut and guinea corn.



Study Area





Methodology

- The methodology adopted for this study has two aspects. The first is the technical aspect, which is the use Remote Sensing and GIS techniques to assess changes in settlements and agricultural land use resulting from the insecurity problem in Gwoza area.
- The second method adopted was social surveys. This was achieved through questionnaire administration to Internal Displaced Persons (IDPs) and officials in IDP camps.



Methodology...

- Landsat ETM+ for 2002 (before the crises) and Landsat OLI (2014 and 2017) images of 30m resolution were obtained from USGS official website and utilized to analyze LULC change pattern and dynamic in settlements and agricultural land use. The data were resampled to 15m using the panchromatic band (8 for ETM+ and 9 for OLI) so as to identify agricultural lands more distinctly.
- GPS point data for each land cover type in the area was collected using hand-held Garmin CSX to validate results of the images processed.



Methodology...

- The questionnaire was made of two sections, Section A contained personal information of the respondents such as gender, age, level etc., while section B was used to gather information to quantify the impact of insurgency in the area.
- A total of one hundred and seven (107) respondents were interviewed from three (3) IDP camps. Officials and displaced persons were interviewed to get their perception on the problem of insecurity and insurgency in Gwoza area.

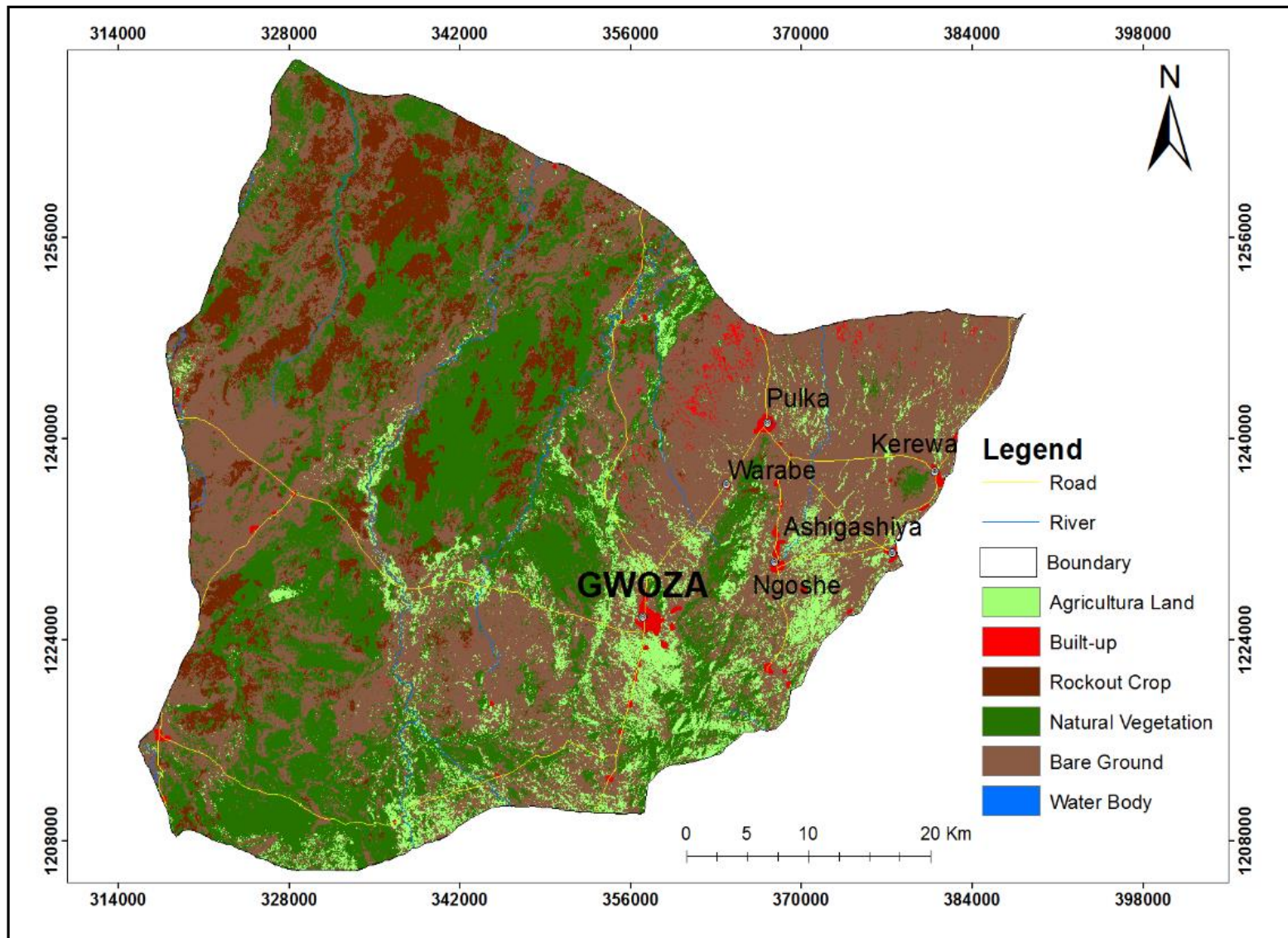


Result

Classes	Years					
	2002		2014		2017	
	Area(km ²)	(%)	Area(km ²)	(%)	Area(km ²))	(%)
Agricultural land	241.18	8.43	12.49	0.45	20.39	0.71
Built-up	12.96	0.42	12.27	0.43	10.09	0.35
Rock out Crop	279.27	9.76	516.57	18.05	675.56	23.61
Natural Vegetation	889.99	31.10	1232.33	43.07	663.74	23.20
Bare ground	1437.61	50.24	1087.65	38.01	1488.31	52.01
Water Body	0.30735	0.01	0.0056	1.97	3.223	0.11
Total	2861	100	2861	100	2861	100

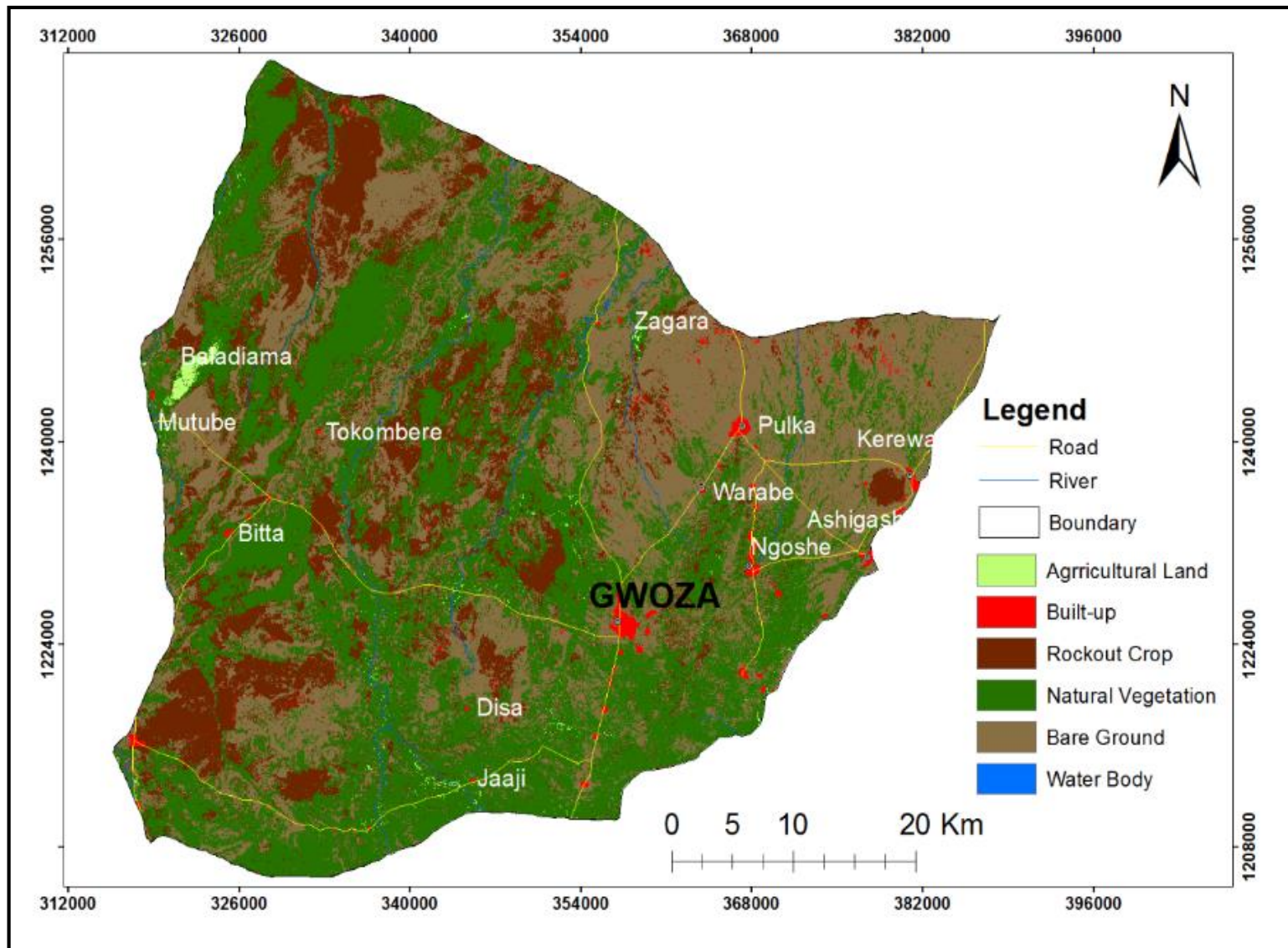


Land Use Land Cover, Gwoza LGA (2002)



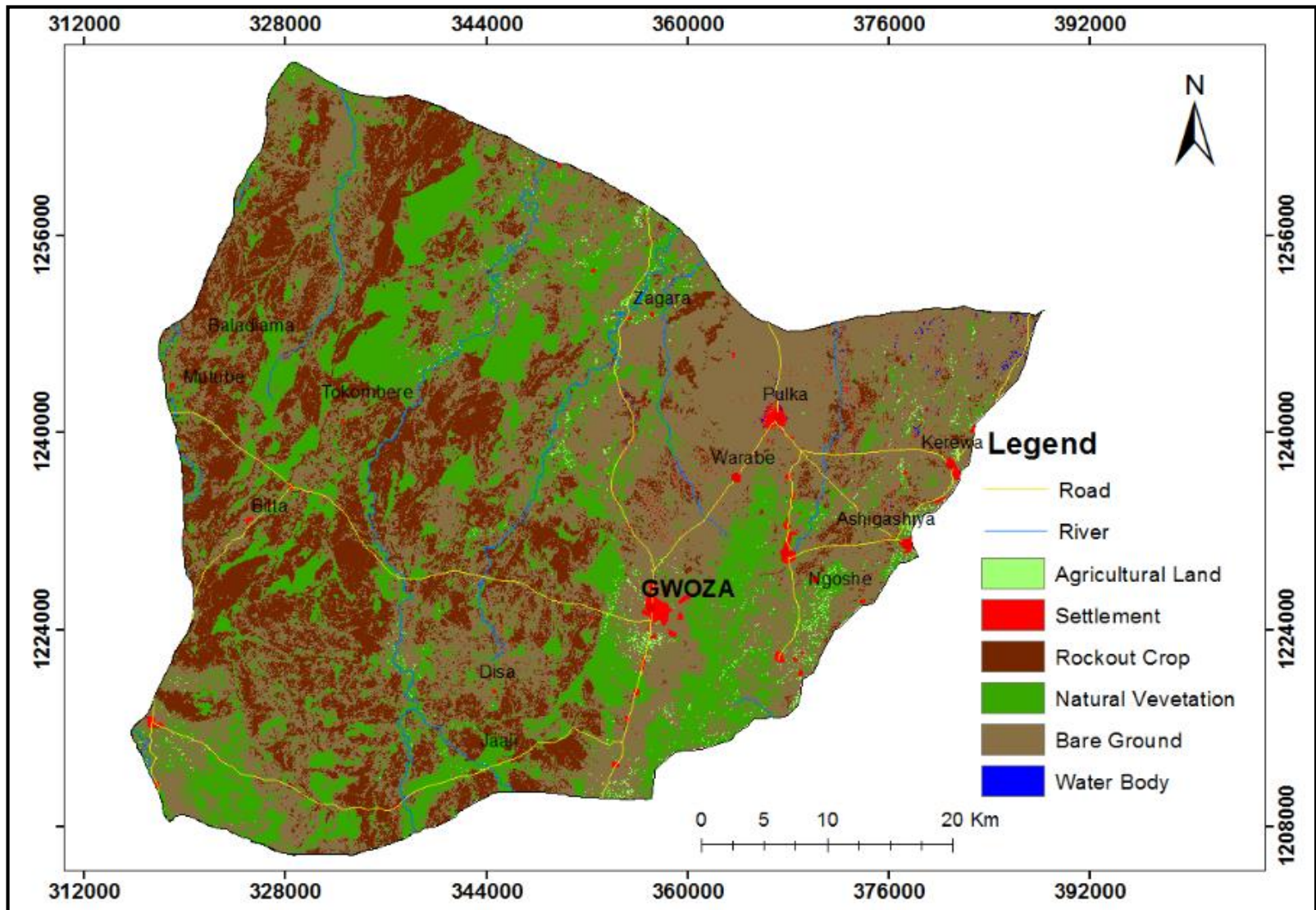


Land Use Land Cover, Gwoza LGA (2014).



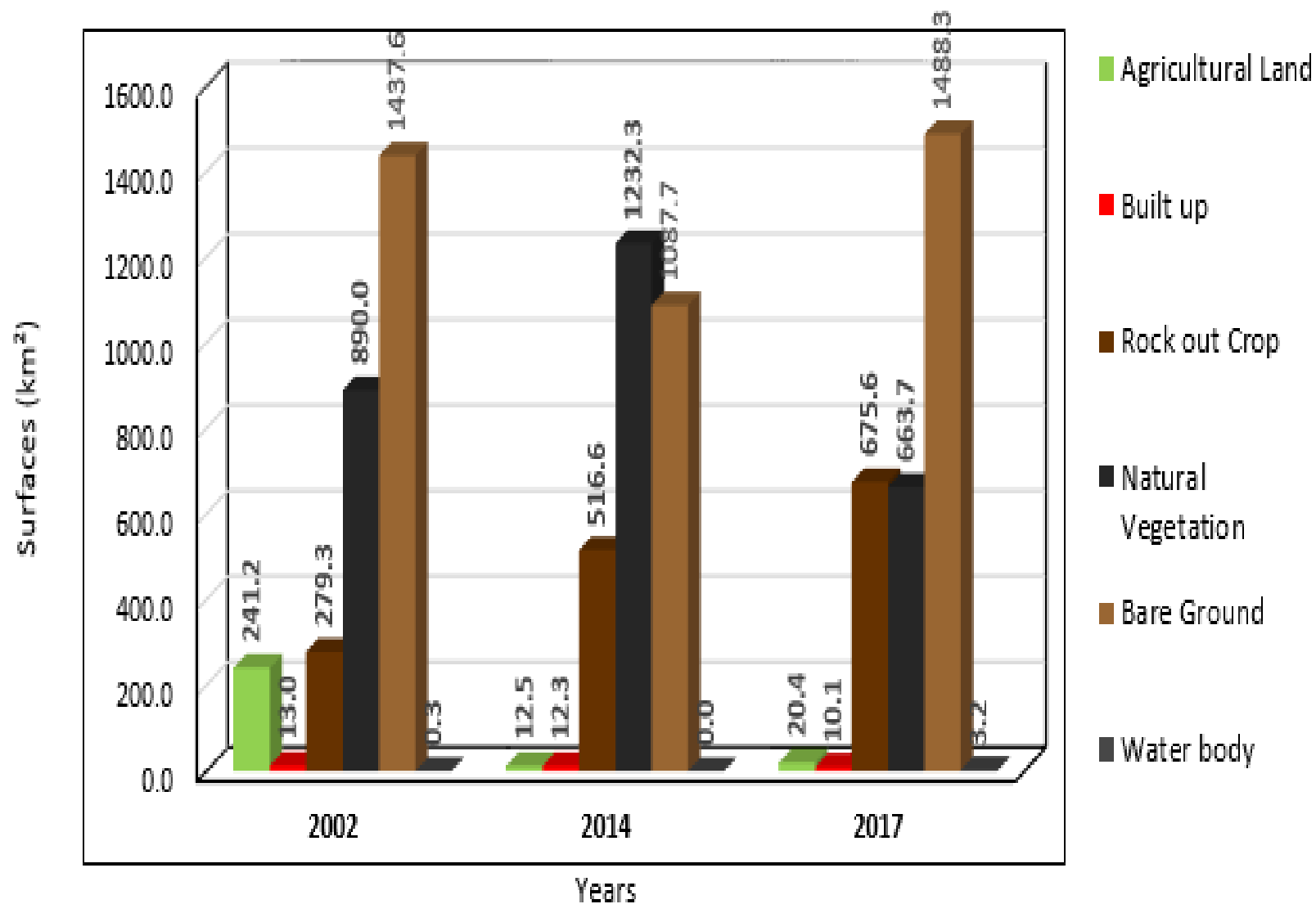


Land Use Land Cover, Gwoza LGA (2017)





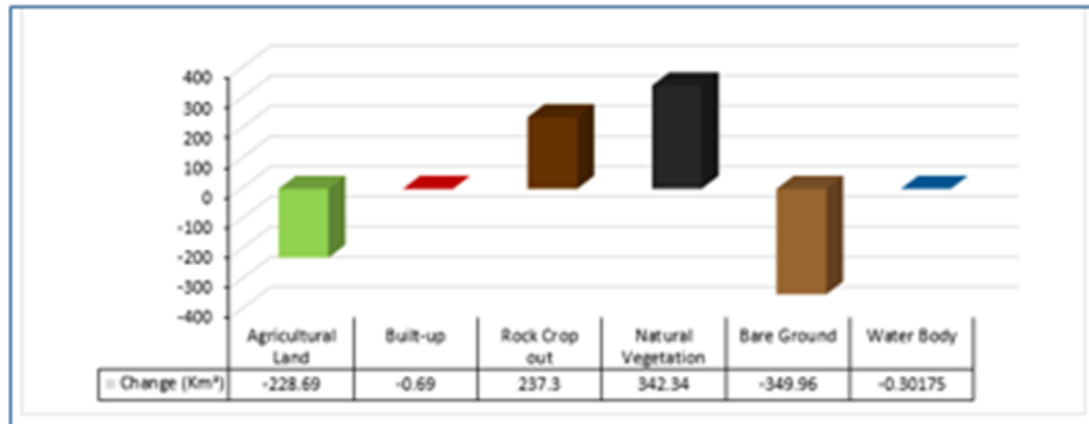
Changes in LULC (2002-2017)



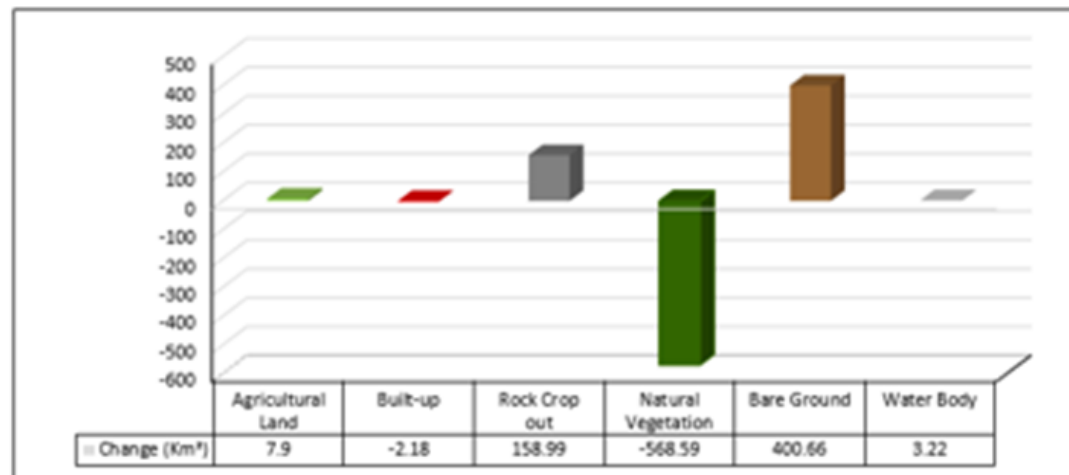


Rate of Change in the area over a period of fifteen years.

LULC Rate of Change



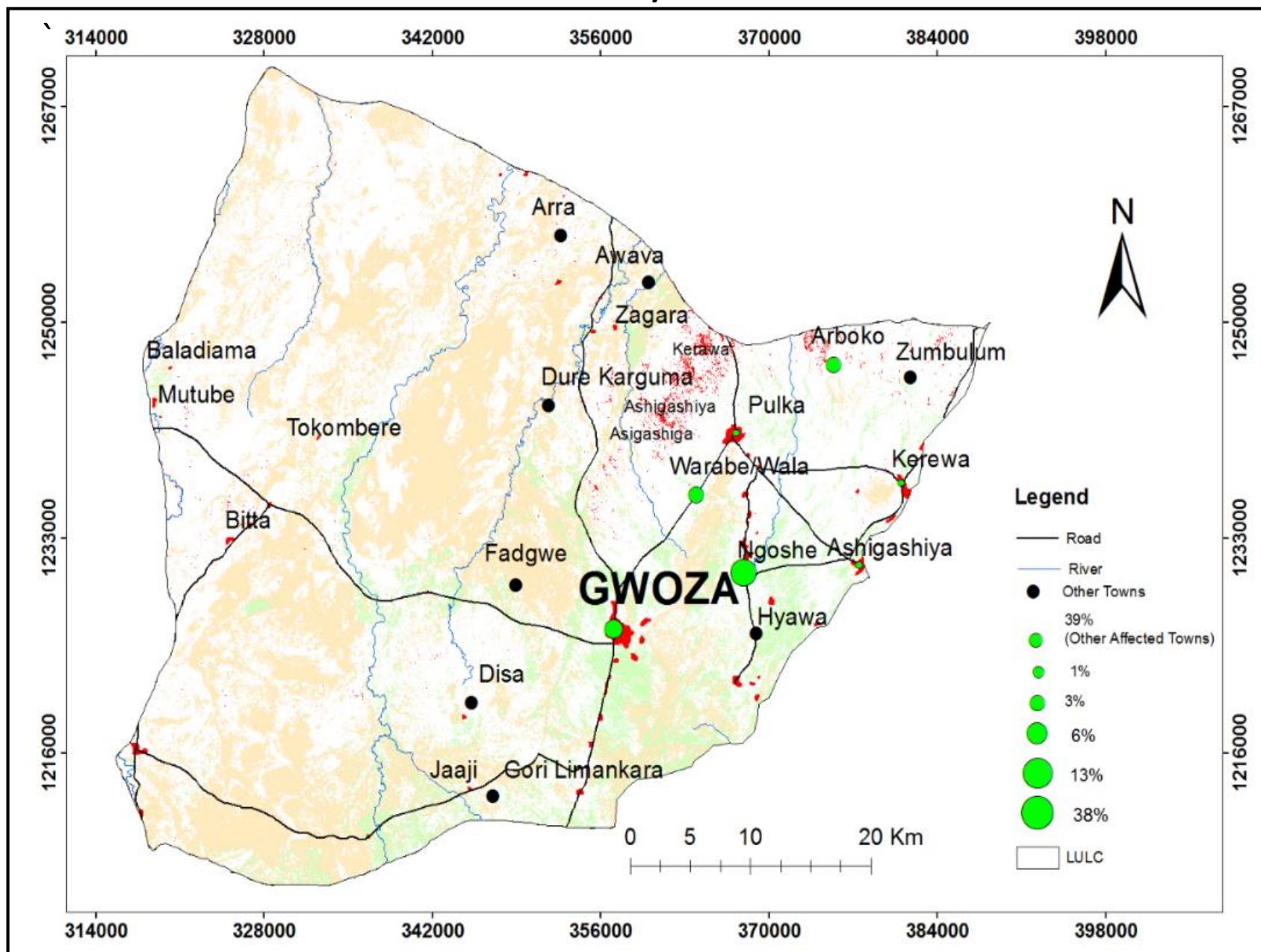
2002-2014



2014-2017

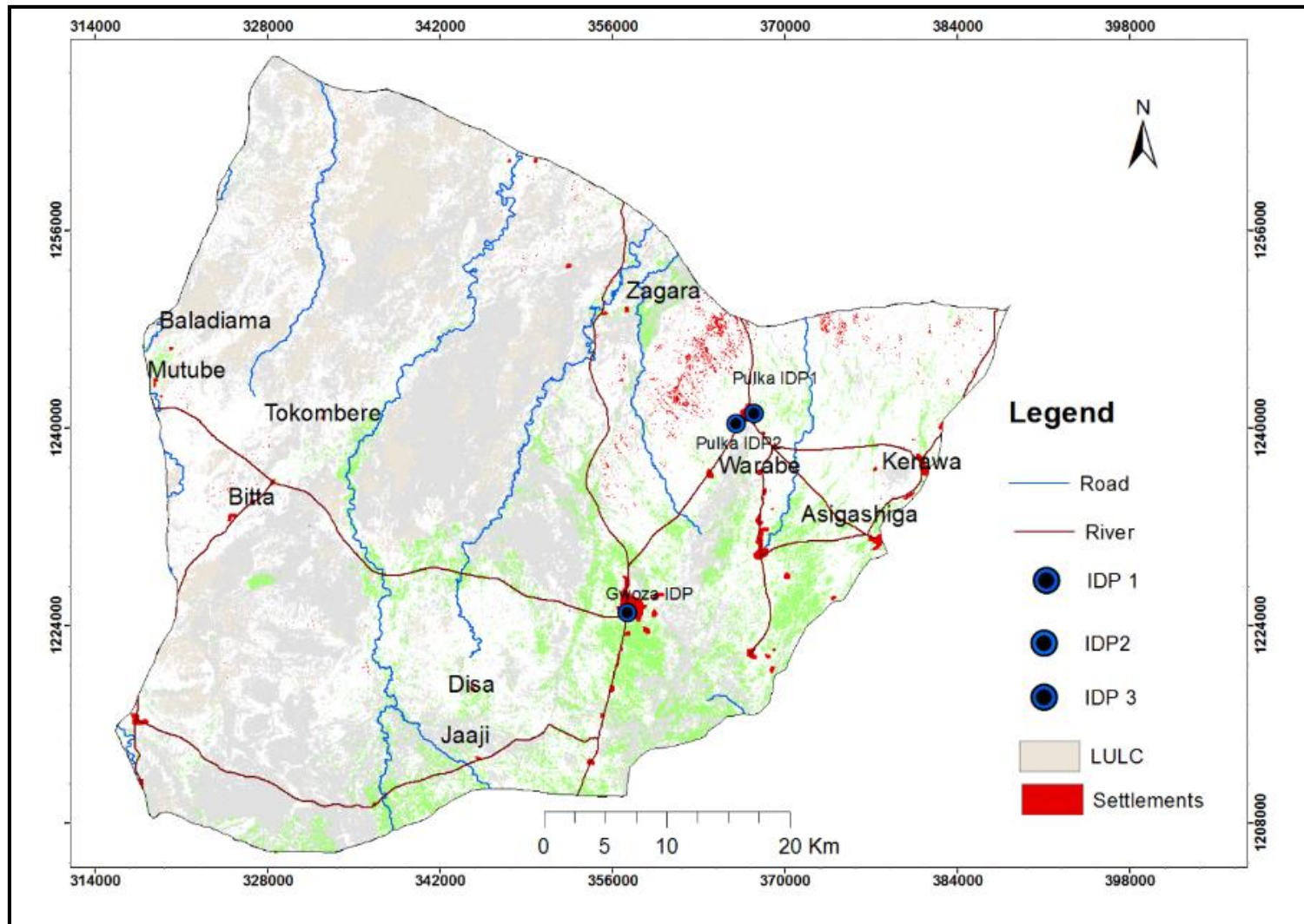


Communities most affected by Boko-haram in Gwoza area.





IDP Camps in Gwoza Area.





Conclusion

- The impact of insecurity associated with Boko Haram activities on settlements and agricultural landscape of Gwoza LGA, North-eastern Nigeria have been examined in this study.
- The main concern is the impact on local and regional food security through disruption of agricultural production, food trade, reduced investments and deterioration of land and infrastructure.
- This study used remotely sensed Landsat data for fifteen year period(2002, 2014 and 2017) and participatory approach through questionnaire administration to examine the impact of insecurity on settlements and agricultural land use.



Conclusion...

- A major decrease in agricultural land was observed. It was also discovered that areas where agricultural activities were active in 2002 were no more active/possessed less intensive agricultural activity in 2014.
- This means that the emergence of Boko Haram and its related violence reshaped the agricultural landscape of Gwoza in some areas. This research highlights the fact that the effects of armed conflict on land use are not unidirectional, but that changes are heterogeneous and dependent on local contexts.
- Over two hundred and seventy-six thousand, three hundred and twelve (276,312) people have been forced to leave their homes in Gwoza due to the conflict.



Conclusion...

- Abandonment of land and destroyed houses now characterize the area. The study found signs of land abandonment in the area were 8% of what had been agricultural land during the study period (2002–2017) changed to fallow/ bare soil and natural vegetation.
- In another development, it was observed that built-up area experienced a slight decline from 12.96km² in 2002 to 12.27km² (0.43%) in 2014, it further dropped to 0.35% in the year 2017.
- Gwoza area experienced the killing of hundreds of civilians, the abduction of women and girls, the destruction of towns, and large-scale forced displacement of population as a result of Boko-Haram terrorist activities which is still on within the area.



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THANK YOU.