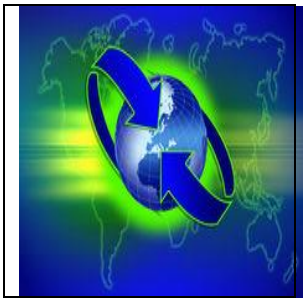

# Geospatial Pattern of Resource Conflict Between Farmers and Herdsmen in Benue State Nigeria

*Odele Muyiwa* **Oliatan**[1], *Marcus Danjuma*[2], *Ogah T.A.*[3] *and* **Ahmed Yero Bello** [4]

*1, 2& 3 Geography Department Nasarawa State University Keffi*[4]*Faculty of Natural and Applied Sciences Nigerian Army University BIU*

[1]*Correspondence: reachodele@gmail.com 080233612637*

[2] *marcusdanjuma@yahoo.com 08036785102*

[3] *ogahadamu@gmail.com 08035799855*

[4] *wealthyahmed@gmail.com 08024440370*

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## Abstract

Despite that locations and time of crime is quite important in arresting the problem of crime. There are still sparse literatures on spatial pattern of farmers and herdsmen conflict in Benue State, Nigeria. Resource conflict map of Benue state is currently not in existence; thus, this study was designed to bridge this gap. The objectives of this study were to assess the occurrence of resource conflict between farmers and herdsmen in Benue state; assess the death casualty in each LGA and produce maps of resource conflict occurrence and casualties from 2010-2019. Data were collected from secondary sources such as report of Nigeria Police Force, Nigeria watch data base and Newspapers. Data were analyzed using descriptive statistic and GIS technique and presented in tables. Result shows that resource conflicts have occurred sixty-eighty (68) times in a decade and have claimed two thousand and fifty-three (2053) lives in seventeen (17) LGAs. Resource conflicts are highest in Agatu followed by Guma, Logo, Gwer-West and Makurdi Local Government Areas. It was concluded that both occurrence and casualty are higher in the upper Benue. It was however recommended that further study should be conducted on the factors that are responsible for higher incidence of resource conflict between farmers and herdsmen in the upper Benue.

*Key words: Geospatial pattern, Resource conflict, Farmers and Herdsmen*

## Introduction

Resource conflict largely attributed to change in climate pattern, land use, population growth and ethno-religious difference is among the contemporary global challenges. Resource conflicts are disagreements and disputes over access to, control and use of natural resources (FAO, 2000). These conflicts often emerge because people have different uses for resources such as minerals, forests, water, pastures and land, or want to manage them in different ways.

Disagreements also arise when these interests and needs are incompatible, or when the priorities of some user groups are not considered in policies, programme and projects. Such conflicts of interest are an inevitable feature of all societies across the globe, (FAO, 2000).Resource conflict between herder and farmer has existed since the beginnings of agriculture (Blench, 2010), but in Africa, the prevalence of tsetse and low settlement densities kept the incidence of clashes at a low frequency until the twentieth century (Blench, 2004). According to Blench, (2004), the introduction of cheap trypanocides and other veterinary drugs have increased herd sizes to levels that compelled herders to seek pastures outside their traditional and ecological ranges in West Africa.

Nigeria has experienced and is still experiencing conflicts triggered by resource use among several ethnic and religious communities across the states. These conflicts significantly vary in dimension, process and the groups involved. It has been observed that, while some conflicts arise between same resource user group such as between one farming community and another, others occur between different user groups such as between herders and farmers or between foresters and farmers. Farmers-herdsmen conflict has remained the most preponderant resource-use conflict in Nigeria (Adisa, 2012). Clashes between mostly Fulani herdsmen and settled communities have been concentrated in North Central Nigeria, particularly the states of Taraba, Kaduna, Benue, Plateau, Kaduna and Nasarawa. Benue has been a flash point of deadly clashes between herdsmen and indigenes of the state especially those in the rural areas, who are mostly farmers (Ortom, 2015). These deadly clashes may be prevalent in a particular location and time (season).

The domain of geography in sciences is seen its ability to study things in space and time (Sutton, 2012). However, there are insignificant literature in the geospatial and seasonal pattern of resource conflict in Nigeria, Benue state inclusive (Madu and Nwankwo, 2020). It also a well-known fact that the use and availability of resources that causes conflict varies in time and space.

The drivers of resource conflict such as population, migration, climate change, religion, land, water, politics and polices vary in time and space. Thus, studies in conflict management should be systematic and geographic in approaches by way of assessing spatial and temporal patterns of resource conflict. This will help in security deployment across the region and at particular time or season.

Moreover, with the current issues of climate change with its associated changes in the pattern of economic activities, settlement pattern, migration and emigration, there are the likelihoods that areas with increasing population, economic activities and scarce resource may experience more conflict than the others. Communities that depend more on natural resource especially land for income are susceptible to resource conflict (Solagberu, 2012; Ofem and Inyang, 2014; Chukwuma and Ateli, 2014). Other factors such ethnic and religious mixed up have been found as casual factors of conflict in Nigeria (Bello,2013). Thus, the occurrence of conflict may also vary along the religious components of each Local Government areas of Benue state.

According to Muhammed and Umar (2015), farmers and herders in many localities and different countries make their livelihood within the same geographical, political, and socio-cultural conditions which vary in space and time. Farmer-pastoralist conflicts have been associated with the conflict of land resource use exacerbated by dwindling resources as a result of global climate change with its associated climatic condition variations leading to scarce resources endangerment and subsequent extinction (Blench, 2004). Some researchers have linked this crisis to the theory of eco-violence (Okoli and Atelhe, 2014), where environmental factors and exploitation of scarce resources leads to conflict and violence among people with competing interest in resource use. In addition, the human population is dynamic and ever increasing compared to land that is relatively static, therefore, more and more people will continue to compete for land over time.

The issue of famers/ herdsmen conflicts is not new, clashes between different groups of Fulani herders and farmers have killed thousands of people in Nigeria over the past two decades **(**Mikailu, 2016**).** The Global Terrorism Index 2014 puts Fulani herders the world's fourth deadliest militant group (UKOJI *et al.*,2019 ), the menace posed by Fulani Herdsmen in the different communities they migrate to, for the purposes of grazing their cattle is quite alarming that most of the affected States had cried out for help from Federal Government, international communities and Non-Governmental Organizations. Their outcry had attracted the attention of researchers, Government and Non-Governmental Organizations (NGOs).

Thus, lots of findings have been made in relation to farmers/herdsmen conflicts (Bleach, 2010; Abbass 2012; Audu 2013; 2014; Fabiyi and Otunuga, 2016). From a historical point of view, certain scholars refer to the fact that resource conflicts resulting from cattle grazing have existed for as long as the practice of agriculture (Blench 2010; Abbass, 2012). 'However, the advancing nature and scope of farmers/herdsmen conflicts is worrisome'. The primary causes of these conflicts in Nigeria have been linked to southward migration of herders which has been largely attributed to climate change and the recent insecurity in the Northeast.

Disagreements over the use of essential resources such as farmland, grazing areas and water between herders and local farmers are said to be the major igniting causes of the fighting (Adebayo and Olaniyi, 2008; Ofuoku and Isife, 2009; Abubakar, 2012; Bello,2013; Audu 2013; 2014; Fabiyi and Otunuga, 2016). Climate change has been linked to farmers/herdsmen conflicts on the presumption that climate change has slowly changed the landscape of Northern Nigeria leading to increasing draught and desertification which invariably forces herders to migrate southward (Dioha and Emodi, 2018; Elisha *et al.*, 2017). The effects of resource conflict between farmers and herdsmen is well studied and include loss of lives, displacement of indigenous settlers, food insecurity, hardships and destruction of properties and the disruption of livelihood sources, famine/mass starvation, reductions in farmland, loss of herds and so on. So many aspects

of farmers/herdsmen conflicts such as the nature, causes, frequencies, effects and resolution mechanism have been well elaborated (Adisa, 2012; Agbegbedia,2013; Agom and Enyenihi, 2015; 2017; Eje Angai and Abdulahi, 2017; Amadi *et al.*, 2019).

Researches have also shown that the Middle Belt or North Central is the safest zone for both farmers and herders on the basis of climate change pattern (Odoh and Chilaka, 2012; Haider, 2019). However, there is sparse literature on the spatial pattern of conflict in Nigeria (Madu and Nwankwo, 2020). Locations and time of crime is quite important in arresting the problem of crime. On this note, Madu and Nwankwo, (2020) examined the spatial dimension of the relationship between climate change and farmer–herder conflict vulnerabilities in Nigeria and found that the farmer–herder conflict is widespread across Nigeria but with significant spatial clustering and the hotspot is in the Middle Belt, especially in Benue State.

However, there is yet no detailed documentation on the pattern of farmers /herdsmen conflict over resource use within Benue state. Despite that, how it varies within Benue State is significant in its' management. Thus, this study bridged this gap by analyzing the geospatial and seasonal pattern of resource conflict between famers and herdsmen in Benue State Nigeria. The objectives are as follows: to assess the occurrence of resource conflict between farmers and herdsmen in Benue state, assess the resource conflict in each LGA and produce maps of resource occurrence and casualties in Benue State.

## Materials and Methods

### The Study Area

The study area (Benue state) is located between Longitude 7° 47' and 10° 0' East of the equator and Latitude 6° 25' and 8° 8' North of the Greenwich Meridian. It is bounded to the North by Nasarawa state, to the West by Kogi State, to the East by Taraba state and the Cameroun Republic, and to the South by Cross-River and Enugu states. The study area has a tropical sub-humid climate, with two distinct seasons, namely wet and dry season. The wet season lasts from

April to October with mean annual rainfall in the range of 1120 to 1500 $mm^3$. The dry season begins in November and ends in March. There is, however, usually one or more heavy rain in the months of dry season (January, February and March). The climate is characterized by high temperature regime, ranging from 27-38$^0$C as mean annual temperature. Benue is well drained as it hosts River Benue and its tributaries. Thus, there is abundant water resource for both crop farming and herd keeping. The availability of water and plain land makes the area good for farmer and herders' activities. This if not well managed leads to resource conflict as both farmers and herders needs plain land and water resources.

Benue state utilizes land for many socioeconomic activities including administrative, educational, recreational, commercial, agricultural, transportation and residential land uses. Among these various land uses, agricultural land use especially food cropping is the most recognized land use in Benue state as the authorities like to refer to Benue State as the "food basket of the nation". Benue is a rich agricultural region; some of the crops grown there are potatoes, cassava, soya bean, guinea corn, flax, yams, sesame and groundnuts.

This study relied completely on secondary sources of data. Data were collected from Nigeria Police Force, Nigeria watch data base and Newspapers. Firstly, request was made to Nigeria Police Force Benue State headquarter for records of farmer/herdsmen conflicts from 2010-2019 and report was complimented with Nigeria watch data base, Christian Association of Nigeria (CAN) conflict timeline and Newspapers review. Care was taken to ensure zero repetition of count as frequency and casualties were collected on monthly basis. Data were presented in tables and analyzed using Geographic Information System and statistical techniques. Statistical techniques such as frequency, percentage, mean standard deviation and coefficient of variation were used to assess the variation in occurrence, within the study area.

**Results and Discussion**

**Table 1: Spatial Pattern of Armed Conflict Occurrence and Resultant Death in Benue State (2010-2019)**

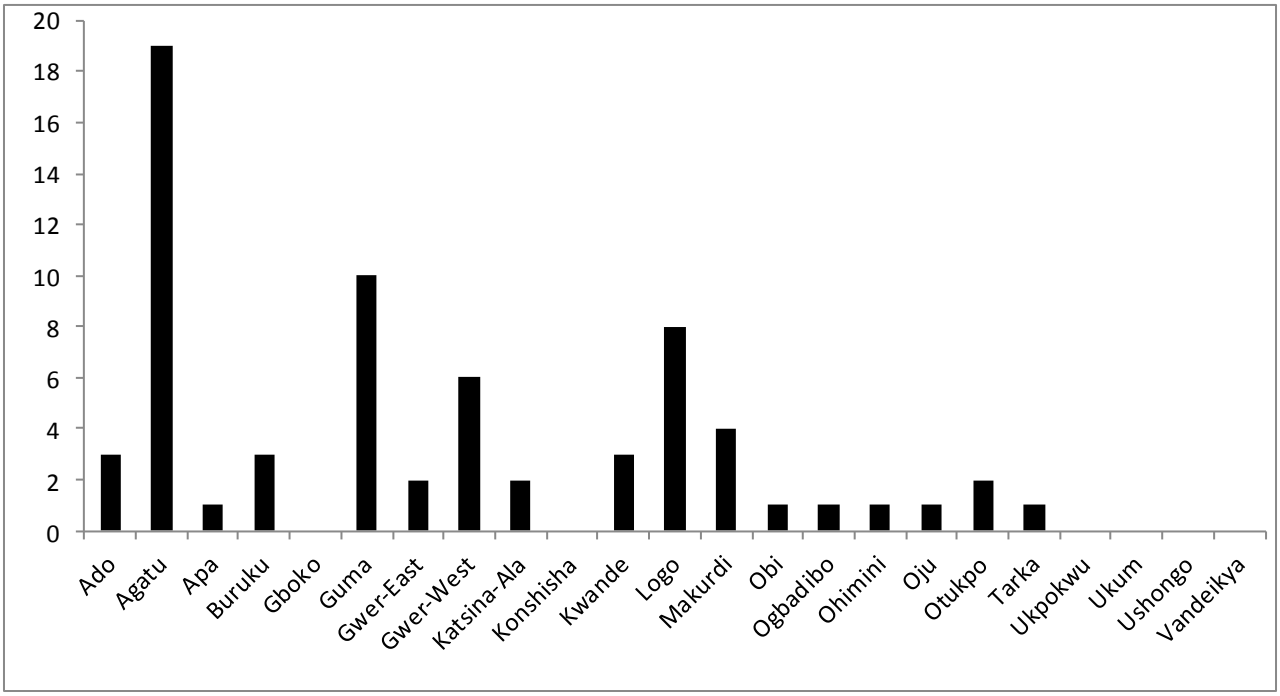
| S/N | LGA | No. of Occurrence | % | No. of Death | % |
|---|---|---|---|---|---|
| 1 | Ado | 3 | 4.41 | 0 | 0 |
| 2 | Agatu | 19 | 27.94 | 788 | 38.38 |
| 3 | Apa | 1 | 1.47 | 4 | 0.19 |
| 4 | Buruku | 3 | 4.41 | 15 | 0.73 |
| 5 | Gboko | 0 | 0 | 0 | 0 |
| 6 | Guma | 10 | 14.7 | 659 | 32.1 |
| 7 | Gwer-East | 2 | 2.94 | 10 | 0.49 |
| 8 | Gwer-West | 6 | 8.82 | 50 | 2.44 |
| 9 | Katsina-Ala | 2 | 2.94 | 29 | 1.41 |
| 10 | Konshisha | 0 | 0 | 0 | 0 |
| 11 | Kwande | 3 | 4.41 | 16 | 0.78 |
| 12 | Logo | 8 | 11.76 | 211 | 10.28 |
| 13 | Makurdi | 4 | 5.88 | 233 | 11.35 |
| 14 | Obi | 1 | 1.47 | 2 | 0.09 |
| 15 | Ogbadibo | 1 | 1.4 | 3 | 0.15 |
| 16 | Ohimini | 1 | 1.47 | 15 | 0.73 |
| 17 | Oju | 1 | 1.47 | 2 | 0.09 |
| 18 | Otukpo | 2 | 2.94 | 10 | 0.49 |
| 19 | Tarka | 1 | 1.47 | 6 | 0.3 |
| 20 | Ukpokwu | 0 | 0 | 0 | 0 |
| 21 | Ukum | 0 | 0 | 0 | 0 |
| 22 | Ushongo | 0 | 0 | 0 | 0 |
| 23 | Vandeikya | 0 | 0 | 0 | 0 |
| **Total** | | **68** | **99.9** | **2053** | **100** |
| **Mean** | | **4.82** | | **128** | |
| **Standard Deviation** | | **4.55** | | **236.5** | |
| **Coefficient of Variation** | | **87** | | **94** | |

Table 1 shows the occurrence of resource conflicts among the twenty-three Local Government Areas in Benue state within the study period. It shows that resource conflicts have occurred sixty-eighty (68) times in a decade (2010 to 2019) times and have claimed two and fifty-three (2053) lives in sixteen (17) Local Government Areas, Benue State. This shows that resource conflict in Benue is very frequent and fatal. The result is line with earlier report for example, Dr Samuel Ortom the Governor of Benue lamented that Herdsmen killed 1,878 in

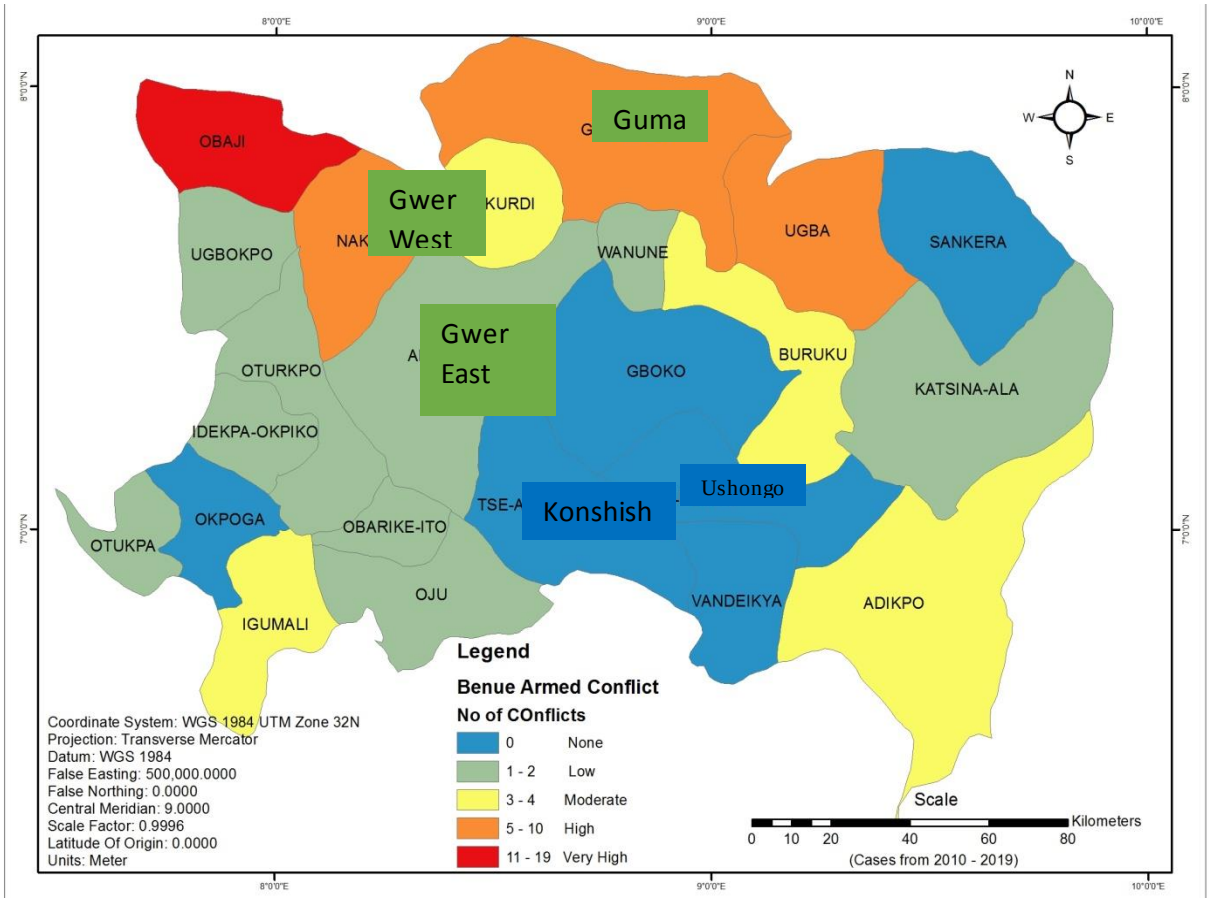
Benue between 2013 and 2016 (The Nation, 2017). It has also been reported that "from September 2017 through June 2018, farmer-herder violence displaced an estimated 176,000 people in Benue" (International Crisis Group, 2018). International Crisis Group (2018) also documented that "there were 49 violent incidents across fourteen of the 23 local government areas in Benue state, from 2012 to 2017". *Omeje (2018) also reported that* since 2013, the Benue State government has documented more than 50 attacks against farmers by the pastoralists, with more than 1,600 people killed in

Table 1 shows that the mean occurrence of resource conflict per Local Government Area is 4.82 times and loss of lives per Local Government Area is 128. However, the coefficient of variation being 87% and 94% for resource conflict occurrence and death casualty respectively indicate high disparity in both occurrence and death casualty vary among the seventeen (17) Local Government Areas in Benue State affected. Therefore, resource conflicts occurrence and death casualties vary among the twenty-three Local Government Area, Benue State (Figures 1). Figures 1 shows that resource conflicts have occurred in seventeen(17) Local Government Areas (Agatu, Apa, Buruku, Guma, Gwer-East, Gwer-West, Katsina-Ala, Kwande, Logo, Makurdi, Obi, Ogbadibo, Ohimini, Oju, Otukpo, Tarka and Ado) but have not occurred in six Local Government Areas (Ukpokwu, Ukum, Ushongo, Vandeikya Konshisha and Gboko). It also shows that resource conflict occurrence is highest in Agatu followed by Guma, Logo, Gwer-West and Makurdi Local Government Areas.

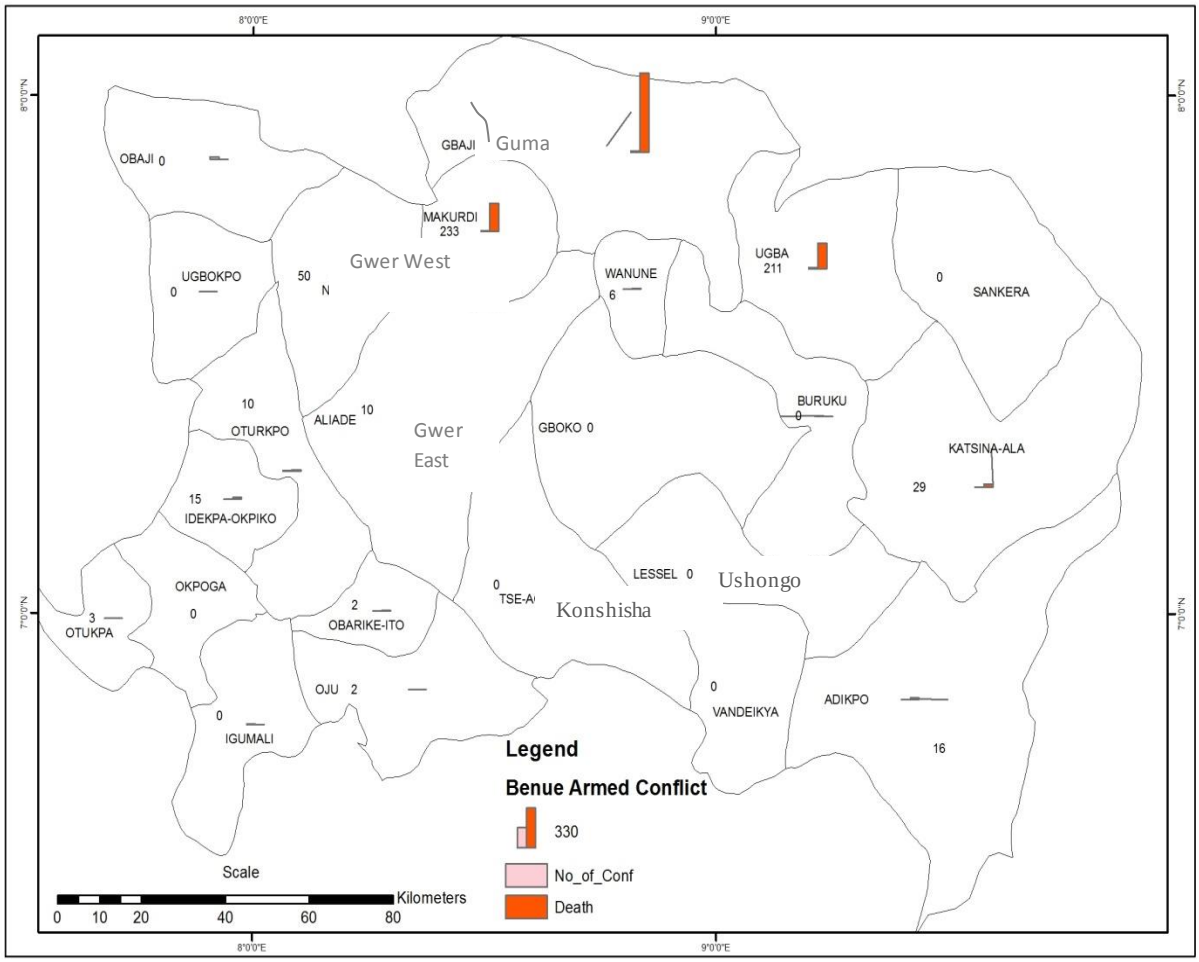
The death casualties were also highest in Agatu followed by Guma Local Government Areas. For examples Agatu recorded nineteen (19) incidences and 788 deaths representing 27.94% and 38.38% of occurrence and death casualties respectively. Guma recorded ten (10) incidences and 659 deaths representing 14.7% and 32.1% of occurrence and death casualties respectively. Local Governments with high incidence also have high death casualties too (Figure 2 and 3).




*Figures 1: Frequency of Resource Conflict among the Local Government Areas in Benue State Source: Field Survey, 2019)*




*Figures 2: Pattern of Resource Conflict Among the Local Government Areas in Benue State (Source: Field Survey, 2019)*




*Figures 3: Pattern of Death Casualties Among the Local Government Areas in Benue State ( Source: Field Survey, 2019)*

Figures 3 shows that death casualties have occurred in seventeen(17) Local Government Areas (Agatu, Apa, Buruku, Guma, Gwer-East, Gwer-West, Katsina-Ala, Kwande, Logo, Makurdi, Obi, Ogbadibo, Ohimini, Oju, Otukpo, Apo and Tarka) but have not occurred in seven Local Government Areas (Ukpokwu, Ukum, Ushongo, Vandeikya Konshisha and Gboko). It also shows that death casualties are highest in Agatu followed by Guma, Makurdi, Logo and Gwer-West Local Government Areas. This corroborates the report of Adamu and Ben (2017) that Agatu, Guma, Gwer-West, Logo and Makurdi are the most affected LGAs. It also agreed with studies like (Ujo, 2014; Madu and Nwankwo, 2020). Ujo, (2014) similarly explained that conflict in Tiv land Benue cluster in urbanizing area and areas more fertile and available farmlands. Madu and Nwankwo, (2020) also found that resource in Nigeria has clustering pattern.

Therefore, geospatial pattern is important in conflict study and management. Consequently, this study has contributed to knowledge as it was able to map and document the spatial pattern of resource conflict between farmers and herdsmen that was lacking in previous literature.

**Conclusion and Recommendations**

The conclusion of this study is that both the frequency and death casualties of resource conflict between farmers and herdsmen in Benue State within the study period are very high. The occurrence and casualties to resource conflict between farmers and herdsmen in Benue state were more in the upper Benue than the Lower Benue. Majority of the resource conflict between farmers and herdsmen took place in Guma, Logo, Gwer west and Makurdi Local Government. Since, the resource conflict between farmers and herdsmen concentrate mainly in the upper Benue, its management should include the use of GIS or geospatial technology. This will allow constant monitoring of its spread or decline.

It was recommended that more security personnel should be deplored to upper Benue state than the lower Benue to prevent conflict. Peace talk and crime investigation should also be intensified in the most affected area. Further study should be conducted on the factors that are responsible for higher incidence in the upper Benue.

**References**

Abass I.M. (2012). No Retreat, No Surrender: Conflict for Survival between the Fulani Pastoralists and Farmers in Northern Nigeria. *European Scientific Journal.* 8(1):331–346.

Abubakar, A. Z. (2012). effects of urbanization on land use/ land cover changes in Birnin Kebbi, Kebbi State, Nigeria. M.Sc Dissertation submitted to School of Post Graduate Studies, Ahmadu Bello University, Zaria, For The Award of Master of Science Degree in Remote Sensing and Geographic Information System, Department of Geography.

Adebayo, O.O. and Olaniyi, O.A. (2008). Factors Associated with Pastoral and Crop Farmers

Conflict in Derived Savannah Zone of Oyo State, Nigeria. *Journal of Human Ecology. Volume 23, Issue 1*. Retrieved from www.researchgate.net › publication › 237522318_Factors

Adisa, R.S. (2012). Land Use Conflicts between Farmers and Herdsmen: Implications for Agricultural and Rural Development in Nigeria. *Rural Development–Contemporary Issues and Practices (Ed) Shanghai, In–Tech. 1–23.*

Agbegbedia, A.O. (2013). An assessment of the methods of managing conflict between pastoralists and farmers in Benue State, Nigeria. A thesis submitted to the institute of African studies in partial fulfillment of the requirements for the award of the degree of doctor of philosophy (PhD) in peace and conflict studies, institute of African studies, university of Ibadan, Ibadan, Nigeria.

Agom, D. and Enyenihi, E. A. (2015). Effect of Communal Conflicts from Farm Land Use in Cross River State, Nigeria. Tropentag, Berlin, Germany "Management of land use systems for enhanced food security: conflicts, controversies and resolutions".

Amadi, L.A, Igwe, G. H and Ukachikara, U.(2019).Understanding Rural Violence in North-Central Nigeria: Experience from Nomadic Herdsmen and Rural Farmers' Conflict. *Journals of International Politics 1* (1): -74.

Audu, S. (2013). Conflicts among Farmers and Pastoralists in Northern Nigeria Induced by Fresh water Scarcity. *Developing Country Studies 3* (12): 25-32.

Audu, S. (2014) Freshwater Scarcity: A Threat to Peaceful Co-Existence between Farmers and Pastoralists in Northern Nigeria. *International Journal of Development and Sustainability, 3*(1):242-251.

Bello, A. (2013). Herdsmen and Farmers Conflicts in North-Eastern Nigeria: Causes, Repercussions and Resolutions. *Academic Journal of Interdisciplinary Studies,* 2(5):129-139.

Blench R. (2010). Conflict between Pastoralists and Cultivators in Nigeria: *Review paper prepared for DFID, Nigeria.*

Blench, R. (2004). The Transformation of Conflict between Pastoralists and Cultivators in Nigeria. Retrieved from http://www.rogerblench.info.

Chukwuma, O.A and Ateli, A.G. (2014). Nomads against natives: A political ecology of Herder/farmer conflicts in Nasarawa State, Nigeria. *American International Journal of Contemporary Research 4*(2): 76–88.

Dioha, M. O. and Emodi, N. V. (2018). *Energy-climate dilemma in Nigeria: Options for the future*. IAEE Energy Forum. https://www.google.co.

Eje ,T.I, Angai I.A and Abdulahi Y.B.(2017). Pattern and Impact of Conflicts between Farmers and Herders in Riyom L.G.A. of Plateau State, Nigeria. *The International Journal of Humanities and Social Sciences.* 2017;5(10):256–271.

Elisha, I. (2017). Evidence of climate change and adaptation strategies among grain farmers in Sokoto State, Nigeria. *IOSR Journal of Environmental Science, Toxicology and Food Technology* (IOSR-JESTFT), 11(3), 1-7.

Fabiyi M and Otunuga A. (2016).Why The Fulani Herdsmen & Farmers Fight: How Climate Change & The Boko Haram Crisis Created The Crisis and Six (6) Evidence-Based Policy Recommendations For Its Resolution.

FAO, (2000). *Feeding Asian Cities*. Proceedings of the regional seminar organized by: The Regional Network of Local Authorities for the Management of Human Settlements (CityNet) and the Association of Food Marketing Agencies in Asia and the Pacific (AFMA), with the technical support of the Food and Agriculture Organization of the United Nations (FAO) Bangkok, Thailand November 27-30.

International Crisis Group (2017). Stopping Nigeria's Spiralling Farmer-Herder Violence. Online publication of International Crisis Group. Retrieved from *www.crisisgroup.org › africa › west-africa › nigeria › 262.*

Haider, H. (2019). *Climate change in Nigeria: Impacts and responses.* K4D Helpdesk Report 675. Brighton, UK: Institute of Development Studies.

Madu, I.A and Nwankwo, C.F.(2020). Spatial pattern of climate change and farmer–herder conflict vulnerabilities in Nigeria. *GeoJournal,* 2(5).

Mikailu, N. (5 May 2016). Making sense of Nigeria's Fulani-farmer conflict. BBC News.

Muhammed, A.B. and Umar, M. B. (2015). An assessment of farmer pastoralist conflict in Nigeria using GIS**.** *International Journal of Engineering Science Invention ISSN (Online): 2319 – 6734*

Odoh S.I and Chilaka F.C. (2012). Climate Change and Conflict in Nigeria: A Theoretical and Empirical Examination of the Worsening Incidence of Conflicts between Fulani Herdsmen and Farmers in Northern Nigeria. *Arabian Journal of Business and Management Review*, 2(1):110–124.

Ofem, O. O. and Inyang, B. (2014). Livelihood and conflict dimension among crop farmers and Fulani herdsmen in Yakurr region of Cross River State. *Mediterranean of Journal of Social Sciences, 5* (8), 512-519.

Ofuoku, A. and Islife, B. (2009). Causes, effects and resolution of farmer-nomadic cattle herders conflict in Delta State, Nigeria. *International Journal of Sociology and Anthropology*, 1, 47-54.

Okoli, A.C. and Atelhe, G. (2014). Nomads against natives: A political ecology of herders/farmers conflicts in Nasarawa State, Nigeria. *American International Journal of Contemporary Research, 4* (2): 76 -88.

*Omeje, C. (2018). Investigation: Survivors of herdsmen attacks tormented by deaths, rape at Benue IDP camps. International Centre for Investigative Reporting Genocide Watch*.

Solagberu, R. (2012). Land Use Conflict between Farmers and Herdsmen –Implications for Agricultural and Rural Development in Nigeria. In Solagberu, R (ed) Rural Development: Contemporary Issues and Practices. Rijeka/Shanghai: In Tech. pp 99 118

Sutton M. (2012). Introduction: A Scientific Approach to Geography and Environmental Studies. Retrieved online at us.sagepub.com › upm-assets › 50892_book_item_50892.

Ujoh, F. (2014). Population Growth and Land Resource Conflicts in Tivland, Nigeria. Resources and Environment 2014, 4(1): 67-78 DOI: 10.5923/j.re.20140401.08

Ukoji, V., Ayodokun, A. and Eze, V.(2019). Nigeria Watch: Eighth Report on Violence in Nigeria. *IFRA-NIGERIA WORKING PAPERS SERIES, N°59 15/03/2019.*