

**ASSESSING PERCEPTION OF SPATIAL DIMENSIONS OF FARMER-  
HERDER LAND CONFLICTS (FHLCs) IN SUB-SAHARAN AFRICA: A  
STUDY CASE IN OKE-OGUN, NIGERIA**

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**ABSTRACT**

Lately, there has been an upsurge in different forms of violent conflicts in Sub-Saharan Africa. This study focuses on Farmer-Herder Land Conflict (FHLC) in Oke-Ogun, Nigeria, examining the perception of spatial dimension including causes and effects on the physical and socio-economic environment. Using both primary and secondary data, the study employed descriptive statistical analysis. Findings reveal that the major causes of FHLC were cattle rustling (RII =3.59), encroachment of farmland/grazing land (RII=3.35), and poor application of statutory laws (RII=3.50). Spatially, findings show that areas with the highest occurrence of the conflict were farm settlements in small and large communities. The socio-economic implications of FHLC in the study area include among others, displacement of people, loss of lives and livelihoods. The study concluded that FHLC is prevalent in the study area and more critical in small and large communities where farming and grazing were the predominant land-use activities. Thus, perception of both parties on spatial dimension, improved application of statutory laws on land use and accessibility as well as political downplay are required to enhance peace building and socio-economic development in the study area.

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### **Introduction**

Conflict denotes the incompatibility of views and interests (Collins English Dictionary, 2018). This definition is a general perspective because it emphasizes the opposition or incompatibility at the heart of the conflict. It initially leaves open the exact nature of these incompatibilities, whether they are between individuals, groups or societal positions; whether they rest in different interests or beliefs; or whether they have material existence or come into being only through discourse. Utsaha, Ugbah and Evuleocha, (2007) identifies the drivers of conflicts in developing nations which to include human rights violation, ethnic marginalization, poor governance, and poverty among others. Ofuoku and Isife, (2009) reveals that the occurrence of conflicts could be a competing for vital socio-economic needs of individuals or groups or certain scarce resources. One of these resources is land. Magsi (2013), defines land as natural resource, limited in supply but highly essential for the support of all forms of human activities.

Land conflicts therefore occur when there is disagreement and tussle over the right to and use of land and its appurtenances between opposing parties with varying interests (von der Dunk, Gret-Regamey, Dalang & Hersperger, 2011). Various kinds of inter personal and inter group conflicts often erupt from competition for land and its resources. Tonah (2006), identifies conflict to include inter-communal conflict, boundary dispute, tussle over land mineral resources, conflict on residential land use and farmer-herder land conflict. Land conflicts could be violent and non-violent. A case involve at least two parties using physical force to resolve competing claims or interest on land is violent land conflict. While positive and constructive is otherwise known as non-violent land conflict, a violent land conflict is often negative and destructive. Tonah (2006), associates violent land conflicts with most low-income countries whose there complex economic and socio-cultural values attached to land. This, no doubt, applies to Nigerian farmers and herders who rely largely on land for their occupation and sustenance.

The farmer-herder land conflict has been found to be always violent and has attained an unprecedented dimension in recent past especially in sub-Sahara Africa like Mali, Ghana and Nigeria (Bolarinwa, 2007). The types of land-use that require large expanse of land are crop farming in grassland and herding; the open grazing (nomadic herding) and pastoralism in precise. The competition for these identified land use and its incompatibility among others often lead to unhealthy rivalries and conflicts amongst users. Currently in Nigeria, the incidences of farmer-herder land conflict is common in North-western zone, Middle belt area, Oke-Ogun Region in Oyo State and other areas in both South-eastern and South-western of the country.

The need to document the spatial dimensions of farmer-herder land conflict is imperative to the current study's statement of research problem. The works of (Conroy, 2015; Amusan, Abegunde and Akinyemi, 2017) have explored the patterns and trends of land conflict in Nigeria between 2006 and 2014. They seem to only iterate the number of human and economic losses recorded per year from the conflicts, without spatially expressing the dimension of the causes and effects of farmer-herder land conflict in relation to land-use/land cover and other socio-physical attributes of the environment (ACP, 2017 Ufuoku & Isife, 2009; Abegunde, 2014; Conroy, 2015; Muhammed, Ismaila & Bibi, 2015; ICG, 2017). The current study therefore spatially defined and examined the causes and effects of farmer-herder land conflict on the built environment in Oke-Ogun Region. These include damage to infrastructure, transportation and housing; displacement of residents among others.

The above discussions show that an explanation of farmer-herder land conflict in form of the occurrences, causes and the spatial dimension in Oke-Ogun region is overdue. This will help to identify areas of critical impacts based on the severity of past conflicts and areas that are susceptible to further conflicts in the study area. Information from this study will assist in knowing the perception of farmer and herders in terms of their knowledge of the essence, requirement and benefit of spatial dimension to land conflicts and their response. This will help in developing a framework for effective land use planning and mitigate the menace of farmer-herder land conflict, hence this study.

The foregoing reveals the need to assess the perception of farmers and herders in relation to spatial dimension of land conflicts. The basis for introducing perception

in this study reveals thus. First, farmers and herders conflicts requires solutions that be proffered with the divers levels of knowledge in order to providing information for policy formulation from the parties that will eventually be the subjects of the policy. Second, the study of perception supports stakeholders' involvement and give directions to policy makers and planners to spatially defined and examined the causes and effects of farmer-herder land conflict on the built environment in Oke-Ogun Region. Lastly, the perception study helps to manifest the direction of peace building and land conflict resolutions in order to avert further occurrence of farmer and herders conflicts. This study therefore attempt to assess the Perception of Spatial Dimensions of Farmer-Herder Land Conflicts (FHLCs) in Sub-Saharan Africa: Oke-Ogun, Nigeria.

To develop this article further, what follows from here is structured into sections. The next section is about a discussion on the the deep-rooted causes of land conflicts. Next to this is a discussion on the peculiar the Farmer-herder Land Conflict in Sub-Sahara Africa. The research methodology is then described, and this is followed by research findings and discussion. Moving forward, this article offers some potential policy recommendations in the final section.

### **Drivers Land conflicts**

Governments across the world have invested and indeed are still investing enormous resources and political might in reforming and perfecting the land ownership system of their countries Atiola (2010). This is with the primary objective of building and developing a transparent and efficient land market avoid severe land conflicts. However, studies have shown that more is needed than surveying, demarcation and land registration (Magsi, 2013). There is therefore the need to examine the deep-rooted causes of land conflicts.

Socially and ecologically optimum land use patterns are necessary to prevent conflict even in perfect and economically efficient market (Burton, 1990). The negative effects of deforestation and conversion of forests and farmland into construction land often include market eviction of the peasant farmers from the land market. Ecologically and socially sustainable land market is therefore required and could be achieved through secured property rights, land management (land use planning, land use regulations, land

consolidation, land readjustment and land banking), and ethical principles Magsi, (2013). According to Wehrmann, (2008), constitutive and regulatory institutions are needed in this regard. One to enable an economically efficient land market work, and include such fundamental elements as land rights, land registration and the rule of law and the other to provide the ingredients necessary to make the land market socially sustainable and environmentally sound such as land management and ethical principles Wehrmann, (2008).

According to Wehrmann, (2008), dysfunctional constitutive and regulatory institutions often result in unclear property rights and consequently conflicts over land ownership. Land administration authorities often lack trained staff, technical infrastructure and financial resources with administrative services been both over centralised and underdeveloped, thus impeding co-operation and co-ordination Atiola, (2010). Therefore, neither institutions constituting nor those regulating the land market make a substantial contribution to preventing land conflicts.

It can therefore be concluded that imperfect constitutive land market institutions promote land ownership conflicts, while poor regulatory institutions are responsible for land ownership as well as land use conflicts (Atiola 2010).

It needs to be stressed that the functional deficits of institutions are not the core reason for land conflicts; they merely facilitate them (Chikare, Ani and Ukponson (2017). Other major reasons include profit maximisation, land grabbing and exclusion of disadvantaged sections of the population from legally using land (Chikare, Ani and Ukponson (2007). Theoretically, these actors include all social gatekeepers who use their job and position to manipulate the land market to their advantage (Cousins, 1996). The decisive factor for these irregularities is the “normality of misbehaviour”. Nepotism, corruption, and disregard for regulations are considered normal by the people (Cousins, 1996). This underlines the importance of ethical values and rule-of-law principles in preventing land conflicts. If individual profit maximisation is the underlying reason for land ownership conflicts, then a dysfunctional institution constituting and regulating the land market act merely as catalysts for land conflicts – especially in times of institutional change (Chikare, Ani and Ukponson (2007).

Natural resources are those entities deemed by people to have some form of value (United States Institute of Peace, 2007). These resources include water, vegetation,

land, minerals and so on. However, because of such complexities as migration, increasing populations and rapid urbanism in communities around the world, the competition for these resources is becoming increasingly fierce (United States Institute of Peace, 2007). This is particularly noticeable with such resources as land, water and natural mineral deposits. Some scholars (Kahl, 2006; Gleditsch, 2007) argue that the scarcity, depletion or uneven access to these resources increase the level of violence related to natural resource use. Another school of thought posits that it is not the scarcity, depletion or degradation of natural resources that lead to conflicts. They argue that conflicts actually arise from the desire to assert control over these resources (United States Institute for Peace, 2007).

Researchers in recent times have focused on climate change and the impact it has on communities around the world. Kelleya, Mohtadib, Canec, Seagerc, and Kushnirc (2015) opined that drought had dramatic effects in increasing the political unrest in Syria. Their research showed that, the drought that took place in Syria between 2007 and 2010 caused a widespread crop failure and mass migration of farming families to urban centres, a situation which increased the pressure on facilities in the urban centres and ultimately resulting in conflicts. Similarly, Blondel (2012) stated that most of the violent (and even non-violent) conflicts occurring in Asia were a result (direct and indirect) of climate change. The study showed that in Nepal and Myanmar, the conflicts were fuelled either by the degradation of resources, the uneven and inequitable distribution of resources or the pollution of existing resources such as land and water.

The causes of farmer-herdsmen conflicts are often not far-fetched. However, there appears to be no consensus among both groups as to the causes of their mutual conflict. According to de Haan (2002), ‘destruction of crops by cattle and other property (irrigation equipment and infrastructure) by the herders themselves are the main direct causes for conflicts cited by the farmers, whereas burning of rangelands and blockage of stock routes and water points by crop encroachment are important direct reasons cited by the herders. Ingawa, Ega, and Erhabor (1999) reported that the key underlying causes of farmer-herdsmen conflict in Nigeria are:

- a. Changing resource access rights, whereby traditional access rights to communal grazing and water resources are being obstructed by the individual tenure-ship of arable farmers. This is particularly severe on the traditional trek routes, which

become favourite cropping sites because of their better soil fertility resulting from the concentration of animal manure from the trekking herds in these areas;

- b. Inadequacy of grazing resources, as increasing crop cultivation (and increasing commercialization of the crop-residues) and poor management of the existing grazing reserves have resulted in a significant reduction in available livestock feed resources, in particular in the Northern States; and
- c. Decline in internal discipline and social cohesion, as the adherence to the traditional rules regarding grazing periods, and the authority of the traditional rulers is breaking down. This is exacerbated by increased rent seeking of the formal and traditional authorities in managing resource access.

De Haan (2002) also noted that antagonistic perceptions and beliefs among farmers and herdsmen could compound conflict situation, especially due to failing institutions and fierce competition for resources. Another cause of farmer-herdsmen conflicts is increasing rate of cattle theft which, according to de Haan (2002), is often accompanied by violence. Other perceived causes of farmer-herdsmen conflicts include inequitable access to land, diminishing land resources, antagonistic values among user groups, policy contradictions, and non-recognition of rights of indigenous people Adisa (2011a).

#### **Peculiarity of FHLC in Sub-Sahara Africa**

The Sub-Sahara African region is specifically known for agricultural production Adisa (2011). In Nigeria for instance, agriculture employs about 70 per cent of its labour force Ajuwon (2004)). Small-holders in the country's centre and south harvest most of the country's tuber and vegetable crops while pastoralists in the north raise most of its grains and livestock. Over 90 per cent of pastoralists reportedly are Fulani, a large ethnic group straddling several West and Central African countries Abegunde, (2014). Pastoralists own approximately 90 per cent of the national herd, estimated at 19.5 million cattle, about 975,000 donkeys, 28,000 camels, 72.5 million goats and 41.3 million sheep. Livestock represents between 20 and 30 per cent of total agricultural production and about 6 to 8 per cent of overall Gross Domestic Products (GDP). About 30 per cent of live animals slaughtered in Nigeria are brought in by pastoralists from other countries (FMARD, 2012; Mercy Corps, 2015).

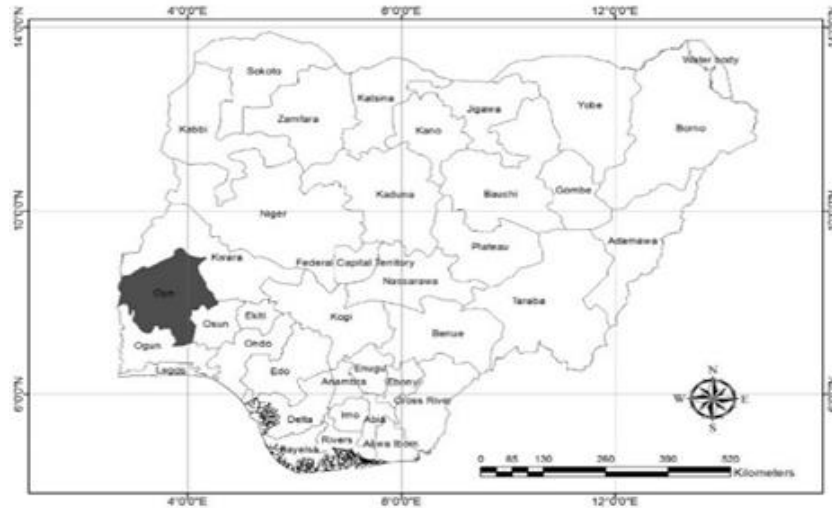
Historically, relations between herders and sedentary farming communities have been harmonious. By and large, they lived in a peaceful, symbiotic relationship: herders' cattle would fertilise the farmers' land in exchange for grazing rights (Adekunle, & Adisa, 2010). But tensions have grown over the past decade, with increasingly violent flare-ups spreading throughout central and southern states; incidents have occurred in at least 22 of the country's 36 states. According to a report by (ICG, 2017), in 2016 over 2,000 people were killed and tens of thousands displaced in Benue and Kaduna states alone. According to another report of AI, (2018), incidents involving herders accounted for 44 per cent of all fatalities in the country in 2016. These conflicts are, by every measure, complex and multidimensional. Formulating appropriate responses requires a clear diagnosis of their root causes, evolution, impacts and implications (AI, 2018).

## **Materials and Methods**

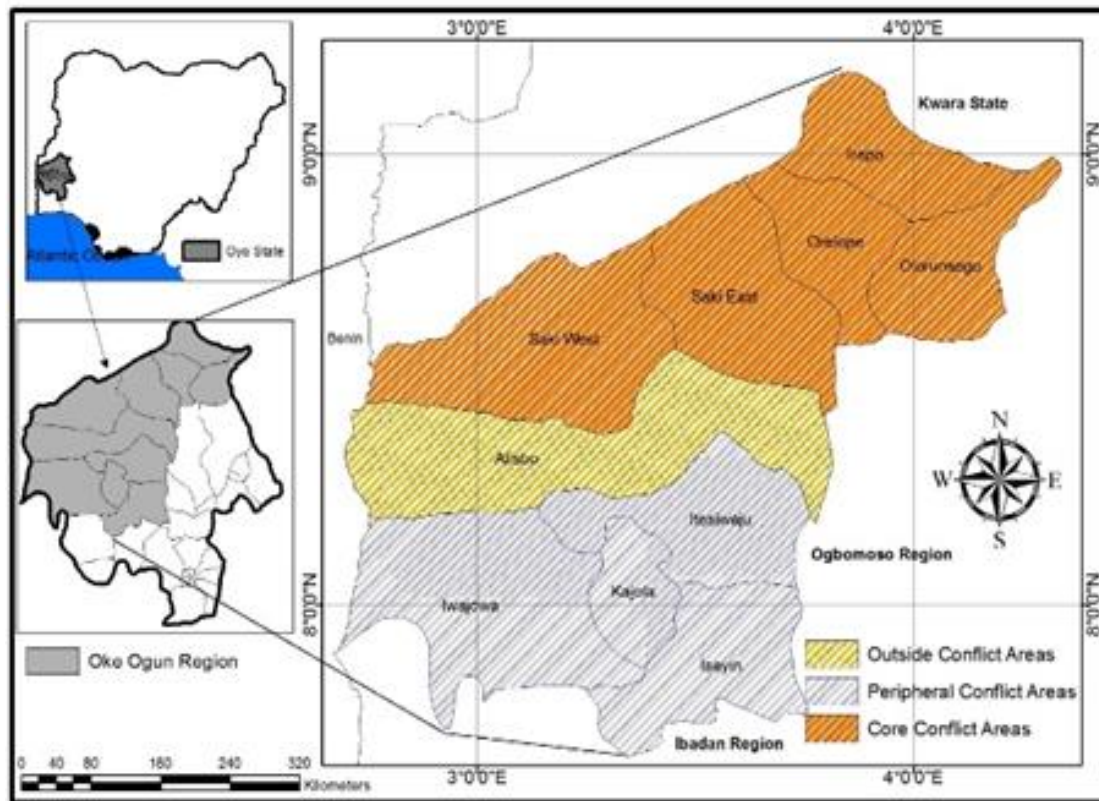
### ***An Overview of the Study Area***

The study area is Oke Ogun region of Oyo State which consists of Atisbo, Oorelope, Iseyin, Itesiwaju, Kajola, Irepo, Olorunsogo, Iwajowa, Saki East and Saki West Local Government Area (LGAs). The study area is also known as the northern part of Oyo State. The region derived its name from its location in relation to river Ogun. It is in the elevated and somewhat northern part of river Ogun, hence its name. The people in this region are Yorubas having their origins linked to Ile-Ife which is believed to be the ancestral home of all Yoruba race. The area lies between longitude  $2^{\circ}31'$  and  $4^{\circ}20'$  E and latitude  $7^{\circ}40'$  and  $9^{\circ}20'$  N of the Greenwich meridian (Olayiwola, Ajala & Sangodipe, 2014) with the total land area of  $13,537\text{km}^2$  which presently represent about 60 percent of the present Oyo State. The study area is bounded in the North by Kwara State, in the East by Osun State, in the South by Ogun, and in the West by Republic of Benin (Dahomey) (see Figure 1 and Figure 2)





**Fig. 1:** Map of Oyo State in the context of Nigeria  
**Source:** Cooperative Information Network (COPINE) (2018)



**Fig. 2:** Map of Oke-Ogun Region  
**Source:** Cooperative Information Network (COPINE) (2018)

**Research Method**

Data collection was from both primary and secondary sources. Primary data were collected using multistage sampling technique to administer questionnaire on both farmers and herders in OOR. Reconnaissance survey revealed that the incidence of

FHLC was predominant in 598 communities located in Saki West (183), Saki East (154), Irepo (74), Oorelope (139) and Olorunsogo (48) Local Government Areas. These communities were re-categorized based on their number of buildings. They were large (more than 100 buildings), medium (51-100 buildings) and small sized communities (less than 50 buildings). One out of every six communities in each category was systematically sampled. Thus, a total of 96 communities comprising small (42), medium (32) and large (22) communities, were selected.

Physical observation revealed that there were 5,350 buildings in the selected communities; comprising small (910), medium (1,980) and large (2,460) buildings respectively. Ten percent of these, totalling 535 were randomly selected across board for questionnaire administration (277 for farmers and 258 for herders). Qualitative data were sourced through in-depth interview (IDI) of the overall leader of each of the farmers' and herders' community heads. Secondary data were sourced from Ministry of Lands and Housing, Local Planning Authorities, Health Centres in the LGAs, Police Stations and Baptist Medical Centre, Saki. Data were analysed using frequency distribution. The rate index of conflict occurrence on the land-use were examined with 5-point Likert scale as follows - 5- very often; 4-often; 3- just often; 2-not often; and 1- not at all often. The severity of causes of FHLC were examined in the study using a five-point Likert scale. These were not at all severe – 1; not severe – 2; Just severe – 3; Severe – 4 and Very severe - 5. The perception of the respondents on the effect of the FHLC on the respondents. This was examined using a 5-point Likert scale, viz, 5- very much affected; 4affected; 3- just affected; 2- unaffected; 1- not at affected.

## **Result and Discussion**

Findings are discussed in various sub-sections as follows. Except where otherwise stated, information presented in tables, and figures were results from the household survey conducted by the authors in 2019.

### ***Occurrence of FHLCs in different communities of Oke-Ogun***

In the small communities (see Table 1 in the Appendix), land conflicts occur just often in the farm settlements (RII = 2.92). Also, FHLCs occur just often at community centers (RII = 2.79), whereas, conflicts do not occur often at market (RII = 2.47), social security (RII = 2.39), office (RII = 2.32), transportation routes (RII = 2.29), industrial estates (RII = 2.09), shopping centres (RII = 2.07) and schools (2.07).

Furthermore, FHLCs did not occur often at religious centers (RII = 1.98), and recreational areas (RII = 1.78). Likewise, in the medium communities (see Table 2 in the Appendix), the study revealed that land conflicts incidences occur just often on farm settlements and community centres with RIIs of 3.02 and 2.87 respectively. Whereas, FHLCs did not often occur at market (RII = 2.47), transportation routes (RII = 2.28), and communication center (RII = 2.24). Also, conflicts did not often occur at schools (RII = 2.07), shopping centres (RII = 2.04), industrial estates (RII = 2.01), religious (RII = 1.94), and recreation (RII = 1.83) areas.

In the large communities (see Table 3), the FHLCs occurred just often at farm settlements (2.96) and community centres (2.85). However, the conflicts did not often arise at transportation routes (2.23), Communication center (2.12), as depicted by their respective frequency RII. The conflicts did not occur often as well at Shopping centres (2.11), Schools (2.06), Industrial estates (2.01), Religious centres (1.98), Health facilities (1.87) and Recreation area (1.78). Generally on the incidence of FHLCs in Oke-Ogun (see Figure 3 in the Appendix), the conflicts just occur at farm settlements and community centres with RIIs of 2.98 and 2.85 respectively. Whereas, conflicts did not often arise at Markets (2.46), Offices (2.40), social security centres (2.32), Transportation routes (2.26), Communication centres (2.19), and power supply areas (2.12). The conflicts did not occur at Water supply areas (2.10), Shopping centres (2.08), Schools (2.06), Industrial estates (2.02), Religious centres (1.97), Health facilities (1.84), and Recreation area (1.79).

### ***Causes of FHLCs in Oke-Ogun Region, Nigeria***

As established in literature, the causes of FHLC include destructions of food crops and farmland; contamination of stream by cattle; killing of residents by herdsmen; killing of cattle by farmers; sexual harassment of women by the herders; encroachment of farmland/grazing land. Other are: rendering soil infertile; land tenure system; improper management of cattle; poor application of statutory laws; theft of cattle; and State institutions' inability to resolve farmer-herder land conflicts. The severity of these causes were therefore identified in this study as it relates to the study area.

The study revealed that in the small community (see Table 4), theft of cattle (RII = 3.69) and state institutions' inability to resolve farmer-herder land conflicts (3.69) had the most severe influence. Other important influencing factors are poor application of

statutory laws (3.65), and harassment of the Fulani (3.53). Furthermore, rendering soil infertile (3.46), land tenure system (3.45), improper management of cattle (3.45), encroachment of farmland/grazing land (3.45) and killing of residents by herdsmen (3.33) were also identified causes, whose effect were rated just severe by respondents in the small communities. Other causes rated as just severe were sexual harassment of women by the Fulani (3.30), killing of cattle by farmers (3.25), contamination of stream by cattle (3.25) and destruction of food crops and farmland (3.21).

As summarized in Table 5, respondents in the medium communities generally rated theft of cattle (3.57) as the most important cause of FHLCs in the area. Other causes rated as being severe were state institutions' inability to resolve farmer-herder land conflicts (3.55) and harassment of the Fulani (3.50) while poor application of statutory laws (RII of 3.46); land tenure system (RII=3.38); hardening of the soil (RII=3.37) and improper management of cattle were causes of FHLCs with just severe effects. Furthermore, killing of residents by herdsmen (3.32), killing of cattle by farmers (3.31), destruction of food crops and farmland (3.30); encroachment of farmland/grazing land (3.28), contamination of stream by cattle (3.23), and sexual harassment of women by the Fulani (3.23) were among the causes of FHLCs with just severe effect in the medium communities.

The respondents in the large community (see Table 6) rated theft of cattle, state institutions' inability to resolve farmer-herder land conflict, poor application of statutory laws and harassment of the Fulani as severe on the FHLCs. Other causes such as hardening of soil (3.46), land tenure system (3.45), improper management of cattle (3.45), and encroachment of farmland/grazing land (3.44) and killing of residents by herdsmen (3.33) had just severe effect on the FHLCs in the large communities. Other causes with just severe effect were sexual harassment of women by the Fulani (3.30), killing of cattle by farmers (3.25), contamination of stream by cattle (3.25) and destruction of food crops (3.21).

Generally, in the Oke-Ogun (see Figure 4), the causes of FHLCs with the most severe effects were theft of cattle (3.59), state institutions' inability to resolve farmer-herder land conflicts (3.56), poor application of statutory laws (3.50) and harassment of the Fulani (3.49). Land tenure system (3.42), hardening of soil rendering them infertile (3.37), encroachment of farmland/ grazing land (3.35), improper management of cattle

(3.35), killing of residents by herdsmen (3.32), killing of cattle by farmers (3.28), and sexual harassment of women by the Fulani (3.26) had just severe effect on FHLCs. Other causes that had just severe effect in the Oke-Ogun were destruction of food crops and farmland (RII = 3.26) and contamination of stream by cattle (RII = 3.23).

### **Effects of FHLCs in Oke-Ogun Region, Nigeria**

As presented in Table 7, the effects of FHLCs in the small communities were mostly felt around physical injury (3.5), loss of life (3.49), displacement of persons (3.47) and loss of Income/livelihood (3.47). Furthermore, effects of the FHLCs were just felt around forced migration (3.34), Social unease/distrust (3.34), Permanent disability (3.28), Racism or ethnic stigmatization (3.25), Spread of communicable diseases (3.24), and Ease of access to education (3.24). Other areas where the effects were just felt by the residents of small communities were Ease of transportation (3.21), Land conflict issues (3.20), Stress/depression (3.19), Increase in crime rates (3.17), Desert encroachment (3.17), Sense of security (3.10), and (3.09). The respondents' inability to access services (3.04), poor agricultural production (3.00), Religious/ethnic stigmatization (2.98) and Social cohesion (2.95)

The household representatives in the medium communities were mostly affected by loss of life (3.61), loss of Income/livelihood (3.58), and Physical injury (3.55) which ranked 'affected' on the Likert scale. The respondents were just affected by Social unease/distrust (3.42), Spread of communicable diseases (3.42), Displacement of persons (3.40), Loss of arable/fertile ground (3.39), Forced migration (3.89), lack of easy access to education (3.36), and Permanent disability (3.32). Also, Land conflict issues (3.32), Increase in crime rates (3.29), Feeling of fear (3.26), Stress/depression (3.26), lack of Ease of transportation (3.26), Sense of insecurity (3.23), and Racism or ethnic stigmatization (3.20) just affected the respondents in the medium community type of Oke-Ogun region. Other effects of the conflicts that just affected the respondents included Agricultural production (3.19), Social cohesion (3.15), Desert encroachment (3.14), inability to access services (3.03), and Religious/ethnic stigmatization (2.97).

In the large communities, the respondents were mostly affected by Loss of life (3.65), Physical injury (3.64), loss of Income/livelihood (3.57), and the Spread of communicable diseases (3.54). Other effects identified in the study just affected those

in the large community type, such as Loss of arable/fertile ground (3.48), Displacement of persons (3.47), lack of Ease of access to education (3.47), Forced migration (3.47), Social unease/distrust (3.42), and Permanent disability (3.36). furthermore, the study revealed that Land conflict issues (3.34), Increase in crime rates (3.23), Stress/depression (3.27), lack of Ease of transportation (3.26), Sense of insecurity (3.25), Feeling of fear (3.24), and poor Agricultural production (3.21) affected the people in the large community types of Oke-Ogun region. Others were Desert encroachment (3.19), Racism or ethnic stigmatization (3.18), lack of Social cohesion (3.16), Religious/ethnic stigmatization (3.11), and inability to access services.

Generally, as presented in Figure 5, the effects of the FHLC in Oke-Ogun were mostly felt in the number of lives lost to the conflicts (RII = 3.61), Physical injury (3.58), and loss of Income/livelihood (3.56). Other effects on the people of Oke-Ogun included Displacement of persons (3.45), Spread of communicable diseases (3.44), Forced migration (3.42), Social unease/distrust (3.42), Loss of arable/fertile ground (3.40), lack Ease of access to education (3.39), Permanent disability (3.33), and Land conflict issues (3.31). other effects that just affected people in the region were Increase in crime rates (3.27), Stress/depression (3.25), lack of Ease of transportation (2.25), Feeling of fear (3.22), Sense of insecurity (3.21), Racism or ethnic stigmatization (3.20), Desert encroachment ((3.17), Agricultural production (3.17), Social cohesion (3.12), inability to access services (3.06), and Religious/ethnic stigmatization (3.03).

## **Conclusion**

The works of (Conroy, 2015; Amusan, Abegunde and Akinyemi, 2017; ACP, 2017 Ufuoku & Isife, 2009; Abegunde, 2014; Conroy, 2015; Muhammed, Ismaila & Bibi, 2015; ICG, 2017). have explored the patterns and trends of land conflict in Nigeria between 2006 and 2014. They seem to only iterate the number of human and economic losses recorded per year from the conflicts, without spatially expressing the dimension of the causes and effects of farmer-herder land conflict in relation to land-use/land cover and other socio-physical attributes of the environment. This study is spatially defined and focuses on Farmer-Herder Land Conflict (FHLC) in Oke-Ogun, Nigeria, examining spatial dimension including causes and effects on the physical and socio-economic environment. The causes of FHLC were cattle rustling, encroachment of farmland/grazing land, poor application of statutory laws, killing of residents by

herdsmen, among others. Spatially, areas with the highest occurrence of the conflict were farm settlements in small and large communities. Major effects of the conflicts included physical injury, displacement of persons, loss of income and livelihood and loss of lives.

This study showed that the migrating herders though they wander about with their cattle can still be accessible for research. Again, the fact that there seems to be little difference between the results of this study and the findings of existing studies demonstrates that the truth about a matter can be established from both parties involved in the situation in question using body of knowledge as a balance. The study has shown that farmer-herder land conflict is common in the study area. It is obvious that the conflict has the potential to affect the means of livelihood of both the farmers and the herders. The study concluded that farmer-herder land conflict was more intense and critical in small and large communities of the region where farming/grazing were the predominant land-use activities. People were displaced, lives and livelihoods were lost yet, residents were least interested in peace building process. This implies that improved application of statutory laws on land accessibility and political downplay is required to enhance peace building, land-use planning and development in the study area.

### **Recommendations**

Based on the conclusion of this study, it was generally established that the primary drivers of the farmer-herder land conflict comprised of overlapping land administration procedures, unchecked nomadic practices and climate change. Others are conflict resolution inadequacies, poverty and other socio-economic inadequacies and perceived marginalization along socio-cultural lines. The situation was so because Oke-Ogun region due to the presence of two types of land-use activities such as crop farming in grassland that require large expanse of land and herding; the open grazing (nomadic herding) and pastoralism in precise. The competition for these identified land uses and its incompatibility among others often lead to unhealthy rivalries and conflicts amongst users.

From the foregoing, it is posited that if these identified problems persist in the region, it would be very difficult to stem the tide of the conflict, and subsequently, sustainable goals of reducing poverty, building strong institutions, zero hunger and bridging the inequality gap will not be achieved. Therefore, rather than relying on intuition and guess

work, the following are recommended. These could serve as guidelines for policy and decision makers as well as urban planners in peace building and sustainable communities. There is therefore the need for identifying and promoting indigenous climate change adaptation techniques in Oke-Ogun region. The State Government should take actions to reviewed and harmonized land use law and administration in the state. There should be collaboration between all stakeholders – government, NGOs, traditional institutions among others on building Sustainable conflict resolution strategies and reduced marginalization. Government and NGOs should promptly intervene in terms of poverty alleviation and peace building with aids/compensation to reduce vulnerability, reprisal attacks and further spread of conflict of farmer-herder in the region. There should be creation of grazing reserves and dedicated grazing routes in order to solve the issue of herd's encroachment on farmlands and vice versa. There should be decentralization of grazing through ranching in order to regulate practice and foreclose clashes between herding and farming communities. Above all, there is the need to enforce policies that ensure compliance to grazing reserves and migration routes for sustainable peace co-existence among farmers and herders in the region.

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**Table 1:** FHLC rate in small communities

| Land-use                | N  | Sum    | RII  | Dmn   | Rank |
|-------------------------|----|--------|------|-------|------|
| Crop farming            | 90 | 263.00 | 2.92 | 0.70  | 1    |
| Community centre        | 89 | 248.00 | 2.79 | 0.57  | 2    |
| Market                  | 90 | 222.00 | 2.47 | 0.25  | 3    |
| Security stations       | 90 | 215.00 | 2.39 | 0.17  | 4    |
| Offices                 | 90 | 209.00 | 2.32 | 0.10  | 5    |
| Transportation routes   | 90 | 206.00 | 2.29 | 0.07  | 6    |
| Boreholes/Water outlets | 89 | 190.00 | 2.13 | -0.09 | 7    |
| Industrial centres      | 90 | 188.00 | 2.09 | -0.13 | 8    |
| Power stations          | 89 | 184.00 | 2.07 | -0.15 | 9    |
| Shopping centres        | 90 | 186.00 | 2.07 | -0.15 | 9    |

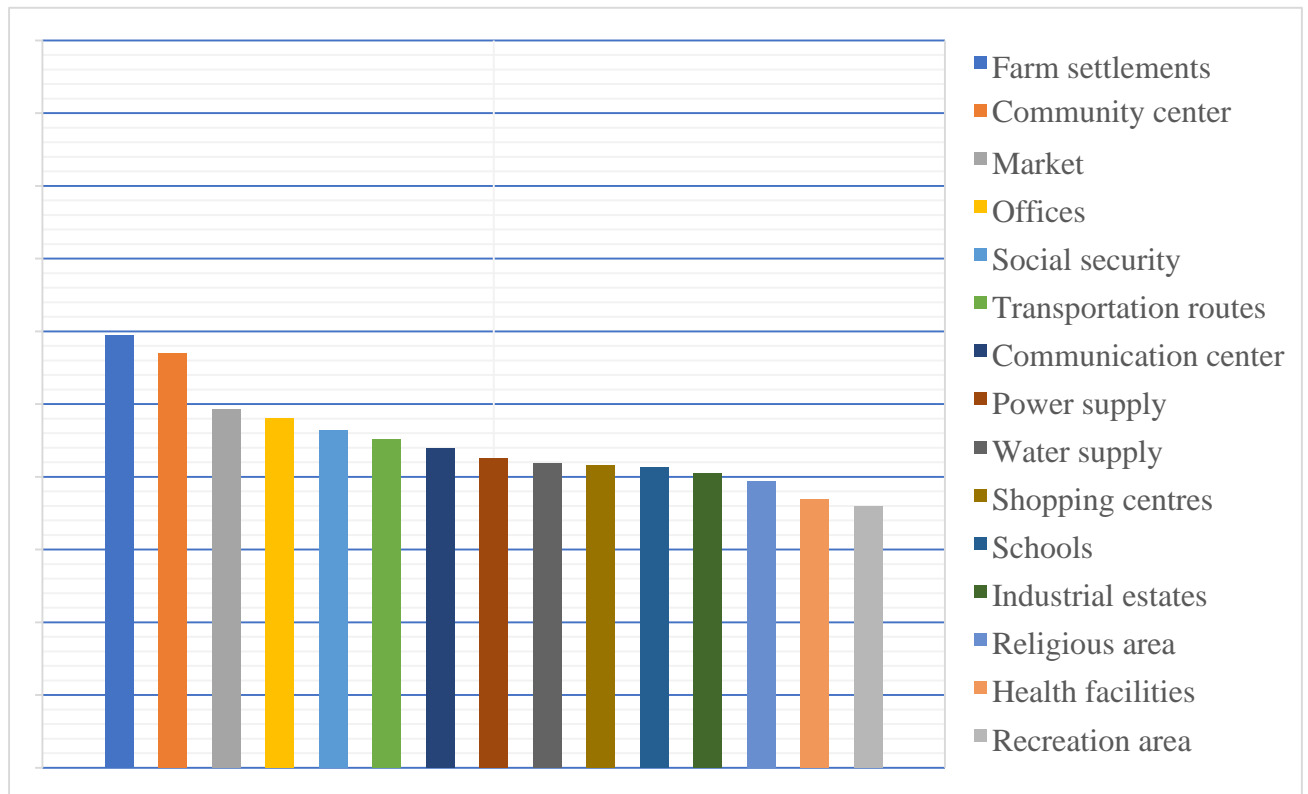
|                      |    |        |             |       |    |
|----------------------|----|--------|-------------|-------|----|
| Schools              | 90 | 186.00 | 2.07        | -0.15 | 9  |
| Communication centre | 90 | 185.00 | 2.06        | -0.16 | 12 |
| Religious centres    | 90 | 178.00 | 1.98        | -0.24 | 13 |
| Health centres       | 90 | 164.00 | 1.82        | -0.40 | 14 |
| Recreation areas     | 90 | 160.00 | 1.78        | -0.44 | 15 |
| <b>Mean</b>          |    |        | <b>2.22</b> |       |    |

**Table 2:** FHLC rate in medium Communities

| <b>Land use</b>         | <b>N</b> | <b>Sum</b> | <b>RII</b>  | <b>Dmn</b> | <b>Rank</b> |
|-------------------------|----------|------------|-------------|------------|-------------|
| Crop farms              | 197      | 594.00     | 3.02        | 0.79       | 1           |
| Community centre        | 197      | 565.00     | 2.87        | 0.64       | 2           |
| Market                  | 197      | 487.00     | 2.47        | 0.24       | 3           |
| Offices                 | 197      | 473.00     | 2.40        | 0.17       | 4           |
| Transportation routes   | 196      | 446.00     | 2.28        | 0.05       | 5           |
| Security Stations       | 197      | 448.00     | 2.27        | 0.04       | 6           |
| Communication centre    | 197      | 442.00     | 2.24        | 0.01       | 7           |
| Power stations          | 197      | 422.00     | 2.14        | -0.09      | 8           |
| Schools                 | 197      | 407.00     | 2.07        | -0.16      | 9           |
| Shopping centres        | 197      | 402.00     | 2.04        | -0.19      | 10          |
| Boreholes/water outlets | 197      | 400.00     | 2.03        | -0.20      | 11          |
| Industrial centres      | 196      | 393.00     | 2.01        | -0.22      | 12          |
| Religious centres       | 197      | 383.00     | 1.94        | -0.29      | 13          |
| Recreation area         | 196      | 359.00     | 1.83        | -0.40      | 14          |
| Health centres          | 197      | 358.00     | 1.82        | -0.41      | 15          |
| <b>Mean</b>             |          |            | <b>2.23</b> |            |             |

**Table 3:** FHLC rate in large Communities

| <b>Land-use</b>         | <b>N</b> | <b>Sum</b> | <b>RII</b>  | <b>Dmn</b> | <b>Rank</b> |
|-------------------------|----------|------------|-------------|------------|-------------|
| Crop farms              | 245      | 726.00     | 2.96        | 0.72       | 1           |
| Community centres       | 244      | 695.00     | 2.85        | 0.61       | 2           |
| Markets                 | 243      | 596.00     | 2.45        | 0.21       | 3           |
| Offices                 | 245      | 595.00     | 2.43        | 0.19       | 4           |
| Security Stations       | 245      | 570.00     | 2.33        | 0.09       | 5           |
| Transportation routes   | 243      | 543.00     | 2.23        | -0.01      | 6           |
| Communication centres   | 245      | 542.00     | 2.21        | -0.03      | 7           |
| Boreholes/Water outlets | 244      | 521.00     | 2.14        | -0.10      | 8           |
| Power Stations          | 244      | 521.00     | 2.14        | -0.10      | 8           |
| Shopping centres        | 245      | 518.00     | 2.11        | -0.13      | 9           |
| Schools                 | 245      | 505.00     | 2.06        | -0.18      | 10          |
| Industrial centres      | 243      | 488.00     | 2.01        | -0.23      | 11          |
| Religious centres       | 245      | 486.00     | 1.98        | -0.26      | 12          |
| Health centres          | 245      | 458.00     | 1.87        | -0.37      | 13          |
| Recreation areas        | 244      | 434.00     | 1.78        | -0.46      | 14          |
| <b>Mean</b>             |          |            | <b>2.24</b> |            |             |



**Figure 3: FHLC Rate in Oke-Ogun Nigeria**

**Table 4: Severity of Causes of FHLC in Small Community**

| Causes  | N  | Sum    | RII         | Dmn   |
|---|----|--------|-------------|-------|
| Theft of cattle                               | 88 | 325.00 | 3.69        | 0.25  |
| State institutions' inability to resolve FHLC | 88 | 325.00 | 3.69        | 0.25  |
| Poor application of statutory laws            | 88 | 321.00 | 3.65        | 0.21  |
| Harassment of the Fulani                      | 89 | 314.00 | 3.53        | 0.09  |
| Rendering soil infertile                      | 89 | 308.00 | 3.46        | 0.02  |
| Land tenure system                            | 88 | 304.00 | 3.45        | 0.01  |
| Improper management of cattle                 | 87 | 300.00 | 3.45        | 0.01  |
| Encroachment of farmland/grazing land         | 89 | 306.00 | 3.44        | 0.00  |
| Killing of residents by herdsmen              | 88 | 293.00 | 3.33        | -0.11 |
| Sexual harassment of women by the Fulani      | 89 | 294.00 | 3.30        | -0.14 |
| Killing of cattle by farmers                  | 89 | 289.00 | 3.25        | -0.19 |
| Contamination of stream by cattle             | 89 | 289.00 | 3.25        | -0.19 |
| Destruction of food crops and farmland        | 89 | 286.00 | 3.21        | -0.23 |
| <b>Mean</b>                                   |    |        | <b>3.44</b> |       |

(N- Sample Size; RII – Rate of Influencing Index; Dmn – Deviation about the Mean)

**Table 5: Severity of Causes of FHLC in Medium Community**

| Causes   | N   | Sum    | RII  | Dmn  |
|--|-----|--------|------|------|
| Theft of cattle                                | 196 | 700.00 | 3.57 | 0.20 |
| State institutions' inability to resolve FHLCs | 196 | 695.00 | 3.55 | 0.18 |

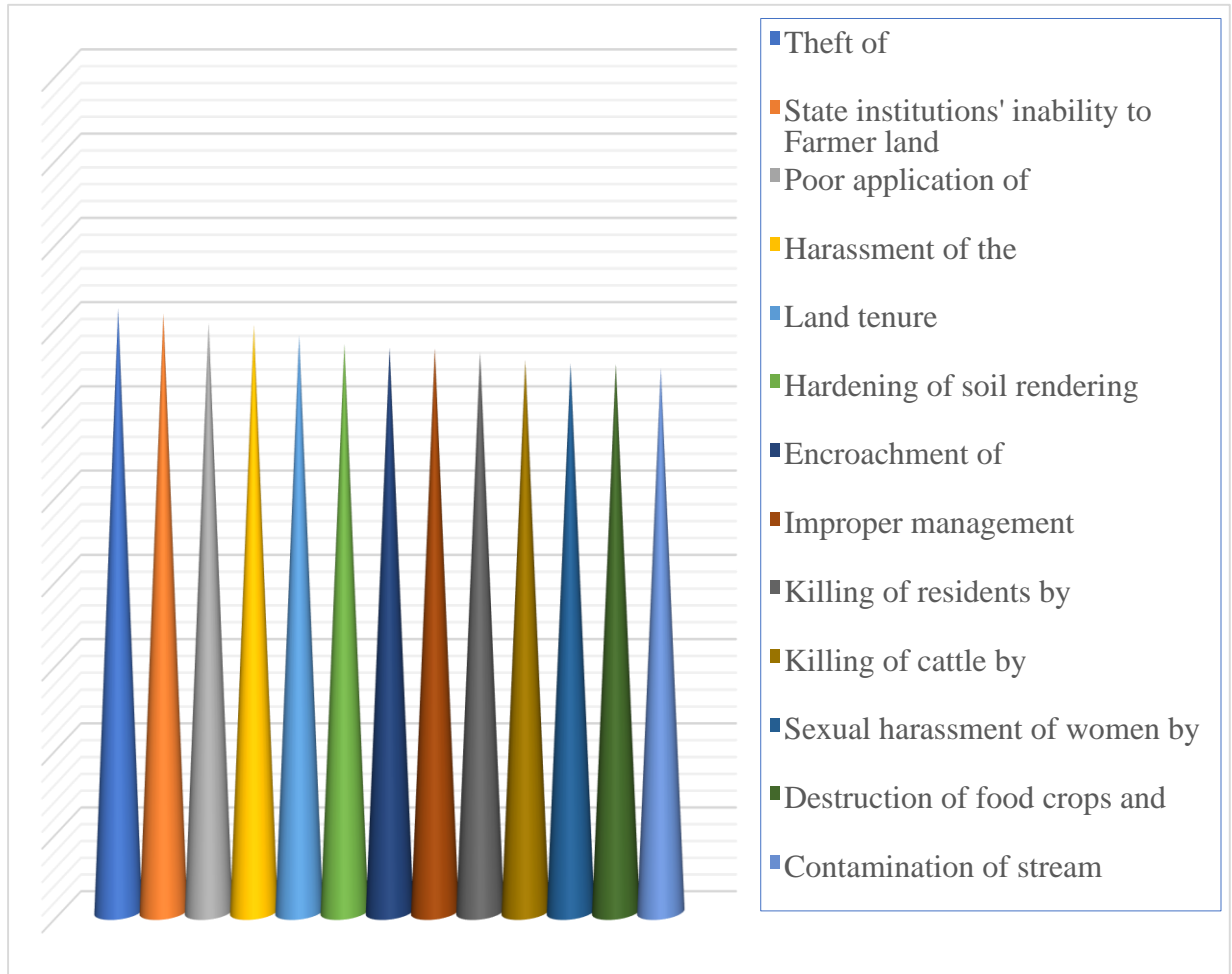
|  |     |        |             |       |
|--|-----|--------|-------------|-------|
| Harassment of the Fulani                   | 197 | 690.00 | 3.50        | 0.13  |
| Poor application of statutory laws         | 196 | 679.00 | 3.46        | 0.09  |
| Land tenure system                         | 196 | 662.00 | 3.38        | 0.01  |
| Hardening of soil rendering them infertile | 196 | 661.00 | 3.37        | 0.00  |
| Improper management of cattle              | 195 | 653.00 | 3.35        | -0.02 |
| Killing of residents by herdsmen           | 196 | 650.00 | 3.32        | -0.05 |
| Killing of cattle by farmers               | 197 | 652.00 | 3.31        | -0.06 |
| Destruction of food crops and farmland     | 197 | 651.00 | 3.30        | -0.07 |
| Encroachment of farmland/grazing land      | 197 | 647.00 | 3.28        | -0.09 |
| Contamination of stream by cattle          | 197 | 637.00 | 3.23        | -0.14 |
| Sexual harassment of women by the Fulani   | 197 | 636.00 | 3.23        | -0.16 |
| <b>Mean</b>                                |     |        | <b>3.37</b> |       |

(N- Sample Size; RII – Rate of Inflencing Index; Dmn – Deviation about the Mean)

**Table 6:** Severity of Causes of FHLC in Large Community

| <b>Causes</b>                                  | <b>N</b> | <b>Sum</b> | <b>RII</b>  | <b>Dmn</b> |
|--|----------|------------|-------------|------------|
| Theft of cattle                                | 244      | 868.00     | 3.56        | 0.19       |
| State institutions' inability to resolve FHLCs | 244      | 858.00     | 3.52        | 0.15       |
| Poor application of statutory laws             | 244      | 847.00     | 3.47        | 0.10       |
| Harassment of the Fulani                       | 244      | 844.00     | 3.46        | 0.09       |
| Land tenure system                             | 244      | 843.00     | 3.45        | 0.08       |
| Encroachment of farmland/grazing land          | 244      | 825.00     | 3.38        | 0.01       |
| Hardening of soil rendering them infertile     | 244      | 816.00     | 3.34        | -0.03      |
| Killing of residents by herdsmen               | 243      | 809.00     | 3.33        | -0.04      |
| Improper management of cattle                  | 243      | 806.00     | 3.32        | -0.05      |
| Sexual harassment of women by the Fulani       | 244      | 797.00     | 3.27        | -0.10      |
| Killing of cattle by farmers                   | 244      | 797.00     | 3.27        | -0.10      |
| Destruction of food crops and farmland         | 244      | 789.00     | 3.23        | -0.14      |
| Contamination of stream by cattle              | 244      | 786.00     | 3.22        | -0.15      |
| <b>Mean</b>                                    |          |            | <b>3.37</b> |            |

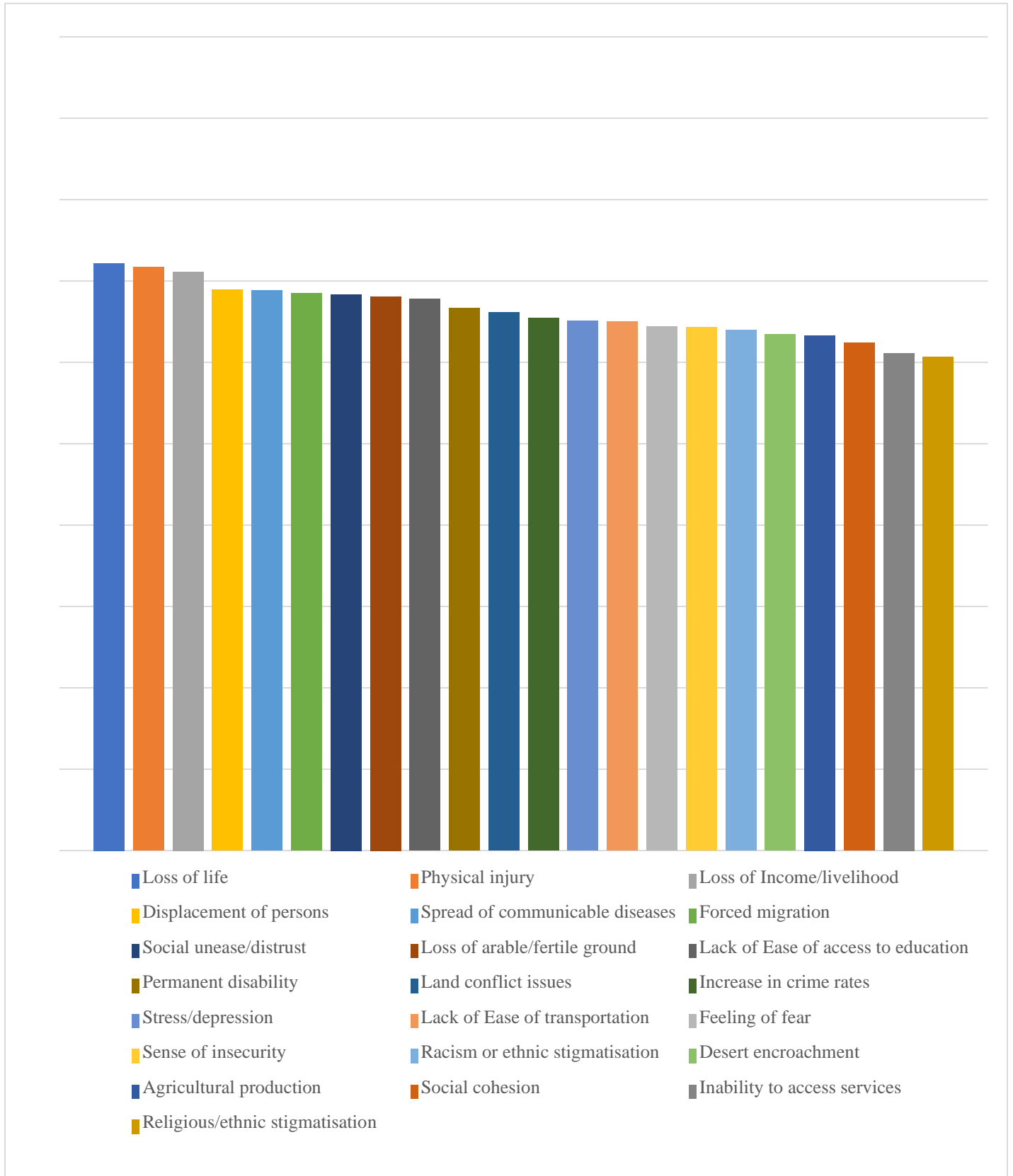
(N- Sample Size; RII – Rate of Inflencing Index; Dmn – Deviation about the Mean)



**Figure 4: Severity of Causes of FHLC in Oke-Ogun, Nigeria**

| Effect   | Community Types |        |      |        |        |      |       |        |      |
|--|-----------------|--------|------|--------|--------|------|-------|--------|------|
|  | Small           |        |      | Medium |        |      | Large |        |      |
|  | N               | Sum    | RII  | N      | Sum    | RII  | N     | Sum    | RII  |
| Loss of life   | 91              | 318.00 | 3.49 | 197    | 711.00 | 3.61 | 244   | 891.00 | 3.65 |
| Physical injury  | 90              | 315.00 | 3.50 | 196    | 696.00 | 3.55 | 243   | 885.00 | 3.64 |
| Loss of<br>Income/livelihood/Properties                    | 90              | 312.00 | 3.47 | 196    | 702.00 | 3.58 | 243   | 867.00 | 3.57 |
| Displacement of persons                                    | 87              | 302.00 | 3.47 | 193    | 656.00 | 3.40 | 239   | 830.00 | 3.47 |
| Spread of communicable<br>diseases                         | 87              | 282.00 | 3.24 | 193    | 660.00 | 3.42 | 239   | 845.00 | 3.54 |
| Forced migration   | 87              | 294.00 | 3.38 | 193    | 654.00 | 3.39 | 239   | 829.00 | 3.47 |
| Social unease/distrust                                     | 87              | 294.00 | 3.38 | 193    | 661.00 | 3.42 | 238   | 815.00 | 3.42 |
| Loss of arable/fertile ground                              | 87              | 281.00 | 3.23 | 193    | 655.00 | 3.39 | 239   | 831.00 | 3.48 |
| Lack of Ease of access to<br>education                     | 87              | 282.00 | 3.24 | 193    | 649.00 | 3.36 | 239   | 829.00 | 3.47 |
| Permanent disability                                       | 90              | 295.00 | 3.28 | 196    | 651.00 | 3.32 | 243   | 817.00 | 3.36 |
| Land conflict issues                                       | 87              | 278.00 | 3.20 | 193    | 640.00 | 3.32 | 239   | 799.00 | 3.34 |
| Increase in crime rates                                    | 87              | 276.00 | 3.17 | 193    | 635.00 | 3.29 | 239   | 787.00 | 3.29 |
| Stress/depression  | 89              | 284.00 | 3.19 | 194    | 633.00 | 3.26 | 243   | 795.00 | 3.27 |
| Lack of Ease of<br>transportation                          | 87              | 279.00 | 3.21 | 193    | 629.00 | 3.26 | 239   | 779.00 | 3.26 |
| Feeling of fear  | 90              | 278.00 | 3.09 | 194    | 633.00 | 3.26 | 241   | 780.00 | 3.24 |
| Sense of insecurity  | 89              | 276.00 | 3.10 | 194    | 626.00 | 3.23 | 240   | 779.00 | 3.25 |
| Racism or ethnic<br>stigmatization                         | 87              | 283.00 | 3.25 | 193    | 617.00 | 3.20 | 239   | 760.00 | 3.18 |
| Desert encroachment  | 87              | 276.00 | 3.17 | 193    | 606.00 | 3.14 | 239   | 764.00 | 3.20 |
| Agricultural production                                    | 87              | 261.00 | 3.00 | 194    | 618.00 | 3.19 | 240   | 770.00 | 3.21 |
| Social cohesion  | 86              | 254.00 | 2.95 | 190    | 598.00 | 3.15 | 233   | 737.00 | 3.16 |
| Inability to access services<br>(schools, hospitals, etc.) | 90              | 274.00 | 3.04 | 194    | 588.00 | 3.03 | 241   | 743.00 | 3.08 |
| Religious/ethnic<br>stigmatization                         | 87              | 259.00 | 2.98 | 192    | 570.00 | 2.97 | 237   | 736.00 | 3.11 |

**Table 7:** Effect of FHLC in the different Communities of Oke-Ogun, Nigeria



**Figure 5:** Effect of FHLC in Oke-Ogun, Nigeria