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Analysis of Land-Use Conflict between Farmers and Pastoralists in Gwagwalada Area Council of Abuja, Nigeria

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Abstract- The issue of land-use conflict between farmers and pastoralists of recent had become an alarming situation which requires urgent attention due to its nature and effects in term of socio-economic imbalance, poor welfare, political indifference, cultural and ethnic belief. This study analyses Land-use Conflict between Farmers and Pastoralist in Gwagwalada Area Council, Abuja, Nigeria. Data were source using a structured questionnaire. 400 questionnaire were administered to 10 selected wards in Gwagwalada Area Council. Purposive and multi-stage techniques were used for this study. 322 questionnaires were administered to the farmers while 78 were for the pastoralist. Descriptive statistics such as; mean, standard deviation, and Wilcox on Sum Rank Test (WSRT) analysis were employed in the analysis. The study reveals that blockage and reduction of the size of the stock route and access to water points are the major causes of conflict between the farmers and pastoralists. On the effect of the of land-use conflict; farmers identify destruction of crops (mean=3.6), follow by mean=2.8 on the displacement of farmers/Fulanis, and mean= 2.4 on Loss of house, while pastoralist's Major effects of the conflict were; mean=5.1 on the loss of lives/cattle, follow by mean=4.8 on Loss of houses and properties amongst others. Therefore, the study recommends that sensitization of stakeholders – farmers and herdsmen on the mutual co-existence of peace should be advocated, this would help to forestall needless provocations and opportunistic violence between farmers and herdsmen. Also, Government should amend the land use Act and come up with new policies to benefit both the farmers and pastoralists.

Keywords: land, conflict, farmers, herdsmen, and community.

I. Introduction

Land-use Conflict is not infrequent and perhaps not abnormal in human natural balance. Increasing demand for natural resources caused by increasing human population, climate variability, development projects, and other land-use activities thus lead to pressure on arable land Okoli (2014). Land conflicts are indeed a widespread phenomenon and can occur at any time or place. Both need and greed can equally lead to them, scarcity and increases in land value can make things worse (Olanrewaju, 2013). The growth in the magnitude of herds and the production of livestock in the arid and semi-arid regions constrained by inconsistency in the period of rainfall are some of the factors responsible for the prevalence of the conflict between farmers and herdsmen in West Africa wherein Nigeria is situated (Abbass, 2012). However, this necessitates the call for the herdsmen to move around the regions in search of pasture for animals and sustainable management of the rangelands (Shettima and Tar, 2008).

There is a long historical record of fluctuating conflict, competition, and cooperation between settled farmers and pastoral or transhumant herders. This includes periods of violent herder domination over settled farming production systems and the conversion of former pastoral lands to cultivation. The current levels of conflict that occur in some locations are intolerable for farmers, herders, and also for the environment. The need for local communities to resort to such violence is indicative of a lack of policies, or that existing policies are not working to the benefit of these communities as a whole.

Moore (2005) noted that conflict per se, is not bad: it is perhaps a necessity in the evolution and development of human organizations. But when conflict degenerates to violent, destructive clashes, they become not only unhealthy but also counterproductive and progress-threatening. Therefore, the conflict between the farmers and herders has remained one of the most outweighing resource-use conflicts in Nigeria (Wulster-Radcliffe. et al., 2004; Fasona and Omojola, 2005). The expansion of Fulbe pastoralism into Nigeria is unknown. It is suggested that Fulbe began to settle on the plains of Bauchi Emirate transcending onto the grassland of the Jos Plateau (Morrison, 1982). Conflicts between pastoralists and farmers have existed since the beginnings of agriculture and increased or decreased in intensity and frequency depending on economic, environmental, and other factors. For example, increases in the herd sizes, due to improved conditions of the cattle, compelled the pastoralists to seek more pastures beyond their limited range. Climate change has constituted a great threat by putting great pressures on the land and thus provoking conflicts between them.

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However, improvements in human health and population have enhanced a much greater pressure on land.

Some studies evidenced on the pervasiveness of conflict in north-central Nigeria includes; Modupe, 1996;

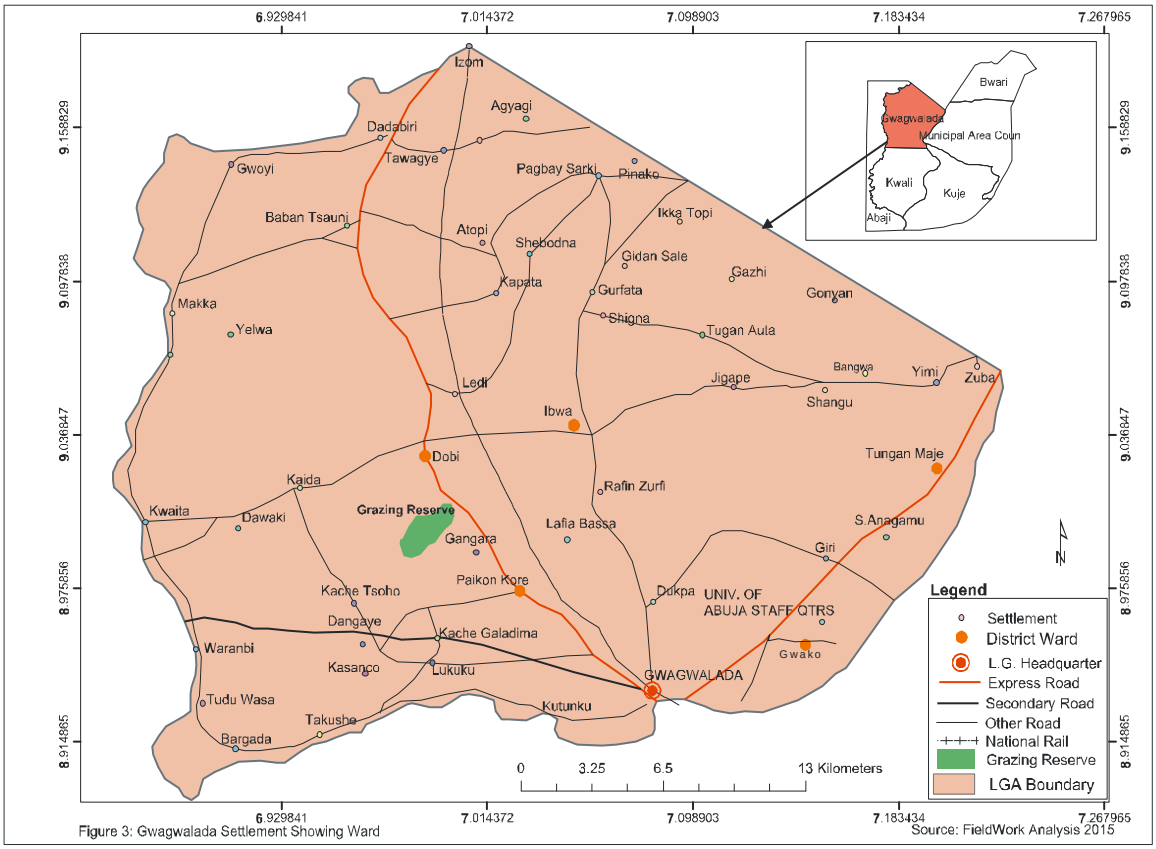
Lee, 2012; Boege and Turner, 2006; Gyuse and Ajene, 2006; Alubo, 2008; Okolie and Ugwu, 2011; Abbas, 2012; 2012; Muhammed, 2015; Nwoko, 2016; Bottazzi, 2016; Ukamaka et al., 2017) revealed trends of confrontations between the two groups aspiring towards incompatible values or competitive resources. The competition between these two agricultural land user groups, however, has oftentimes turned into a serious explicit and hidden manifestation of hostilities and social friction in many parts of Nigeria (Rashid, 2012).

The efficient and effective management of conflict is fundamental to the development of any society, but the prevailing situations in Nigeria constitute a reversal of this reality (Fasona&Omojola, (2005). Some cases of conflict are the cases of Modekeke in Osun state, the case of Agatu in Benue state, the case of Ohaji in Enugu state, the case Asakio in Nassarawa state, the case of village invading in southern Kaduna, the case of cow rustled in Gwagwalada, inter conflict in Adamawa, Benue, Bauchi, Enugu, Kebbi, Kogi, Kwara, Imo, Nasarawa, Oyo, e.t.c (International Group Crisis, 2009; Harrington 2009). However, Land-Use Conflict occurs when one land user is perceived to breach the rights, values, or amenity of another and it constitutes great impediments to livestock production and farming practice, especially to the rural areas.

The goal of human development is to evolve and foster understanding, mutual respect, and the principle of giving and take, among others. This is to enhance security and safety for all to directly participate and be inclusively involved to make life better, dynamic, and respond to changing circumstances. This should be deliberately designed to avoid, mitigate or neutralize conflicts to accommodate and sustain collective interest for security and safety.

The studies thus aim to analyze Land-Use Conflict between Farmers and Pastoralists in Gwagwalada Area Council, Abuja, Nigeria.

II. The Study Area



Source: Fieldwork Analysis, 2019

Figure 1: The study area Gwagwalada showing wards

The study area is Gwagwalada Area Council. It is located in the North-Central part of Nigeria and North-West of FCT Abuja. (Figure1). It located between Latitude 8° 56' N and 9° 34' N of the equator and

Longitude 7° 04' E and 7° 08' E of the Greenwich Meridian. It produced a population figure of 157,770 (National Population Commission, 2006). It has a landmass of 1,043 square kilometers and is bounded by Abuja Municipal Area Council (AMAC) and Kaduna in the North, Kwali on the South, Niger, and Abaji on the West, and Kuje and AMAC on the East as shown in Figure 1. The vegetation of the area is within the guinea savannah. However, gallery vegetation exists along the banks of the streams and rivers. Activities of man such as farming, fuelwood, and grazing have affected the vegetation so much so that the vegetation is at various levels of cereal development. Economic trees such as Locust bean (*Parkiabiglobosa*) Baobab (*Adansonia-digitata*) and Lime tree (*Isoberlinadoka*) are present. Grasses of various types ranging from short to tall grasses are available. The natural state of these vegetation has been tampered with by man's activities such as cultivation, over-grazing, and bush burning, thus changing the original vegetation so that climatic climax is not attained instead we have a Plagio-climax in the area. (Lyam, 2000). The climate of the area is characterized by two seasons. The wet season commences around mid-April to the later part of October while the dry season spans from November to early April. This climatic belt is generally very warm and humid. The mean temperature ranges between 26^{O}C and 36^{O}C. Temperatures are high during the day especially in the months of March and April. The hottest months are March and April while the coolest months are December and January. The mean annual rainfall is between 1120mm and 1500mm, Rainfall is accompanied by lightning and thunderstorm of high intensity, particularly at the beginning and end of the rainy season. Lafia has a relative humidity of between 60-80%, and it falls within the guinea savannah kind of vegetation Akwa et al*.,* (2007).

III. Methodology

a) Research Design and Strategy of the study

The study adopted a field survey design. The choice of survey design was based on the objectives of the study, the types and sources of data, the method of data collection.

Data on Farmers' and Pastoralists' perception, were gathered through the field survey using a structured questionnaire and observation to elicit the following information.

The farmers' and pastoralists' perception of the causes and effects of land-use conflict on farming and grazing activities. The method of data that were adopted to achieve the objectives of this study were.

b) Reconnaissance/Pilot Survey

The researcher carried out a reconnaissance survey from 7thoct – 10th November 2019 to be well acquainted with the study area. During the investigation, the researcher was opportune to meet all the relevant people such as head of village farmers (Sarkinnoma) and head of Fulanis (Sarkinfulanis), informants, stakeholder's that would, in any way, assist in the analysis of the land-use conflict between farmers and pastoralists in the study area. Besides, the pilot survey helped the researcher to have in-depth knowledge of the study area for 120 days (8th October to 6th November 2019) to distribute the questionnaire and interview the respondents with the help of field assistance. Also, to seek their support and cooperation Validation of the instrument.

Relevant data were collected with the aid of a structured questionnaire and personal interview and observation methods. The test-retest method was used to determine the reliability of the instrument. The data collection instrument which is the main schedule to be used in collecting data on the field is designed using a combination of subjective; multiple choices of questions were set up. The validation of the field research items was done by Senior lecturers of the Geography Department, Nasarawa State University. Keffi

Reliability: To ensure the reliability of the instrument, the test re-test method was adopted.

c) Target Population of the study

The Gwagwalada area council had a projected population of 232,350 as of 2019. The target population for this study is the small household Farmers/Herdsmen in Gwagwalada area councils. There are forty-nine (49) villages identified in the Gwagwalada area council.

d) Sampling Frame and Selection of Samples

The total population of the 10 sampled wards in Gwagwalada Area Council was projected at 292,350 (Projected, 2019). It comprises of Paiko-Kore with 22,500, Dukpa had 12,000 Zuba had 62,500, Kutunku had 14,750, Ibwa had 16,900, Quarters had 18,500, Central 68,700 while Dobi, Tunga-Maje, and Gwako had 31,500, 29,100, and 15,900 respectively. However, the target population of this study is the population of localities (Wards) in the sampled wards where land-use conflict between farmers and pastoralists often occurred (Table 2)

Table 2: Selected Wards of the study Area

Gwagwalada Wards	Population 2006	Projected Population 2019	Sample Size	
			Farmers	Pastoralists
Central	38,967	68,700	76	18
Dobi	17,046	31,500	35	08
Dukpa	5,322	12,000	13	03
Gwako	8,453	15,900	18	04
Ibwa	8,675	16,900	19	05
Kutunku	7,324	14,750	16	04
Paikon-Kore	11,876	22,500	25	06
TungaMaje	18,473	29,100	32	08
Quarters	8,090	18,500	20	05
Zuba	33,544	62,500	68	17
			322	78
Total	157,770	292,350	400	

IV. Results and Discussion

Table 2: The Major or Minor causes of conflict

Causes of conflict	Farmers ◄——► Pastoralists	Freq.	Mean	Freq.	Mean
Contamination of the stream		31	1.9	14	0.9
Land tenure and land use practice		33	2.1	01	0.1
Blockage and reduction in size of stock routes and access to water point		41	2.6	11	0.7
Commercialization of crop residues		20	1.3	00	0.0
Limited use of improved pasture and feeds		28	1.8	10	0.6
Traditional beliefs and practices		26	1.6	04	0.3
Sexual harassment of women		06	0.4	01	0.1
Theft of cattle		07	0.4	08	0.5
Poor land and soil conservation measures		24	1.5	06	0.4
Non-observation of rules and regulations		32	2.0	00	0.0
Poor state of the existing grazing reserves		05	0.3	10	0.6
Zero grazing of fallow land		15	0.9	02	0.1
Inadequacy of the existing farming land		44	2.8	00	0.0
Indiscriminate bush burning		06	0.4	11	0.7
Others		04	0.3	00	0.0
Total		322	20.5	78	5.0

Source: Field Survey, 2019
≤ 0.4 = Minor ≥ 0.5 = Major

Table 3: Using Wilcoxon Sum Rank Test (WSRT) Analysis to evaluate the causes of land-use conflict between farmers and pastoralists in Gwagwalada Abuja, Nigeria (n=400)

Causes of land-use conflict	Farmers	Pastoralists
Contamination of the stream	31	14
Land tenure and land use practice	33	01
Blockage and reduction in size of stock routes and access to water point	41	11
Commercialization of crop residues	20	00
Limited use of improved pasture and feeds	28	10

Traditional beliefs and practices	26	04
Sexual harassment of women	06	01
Theft of cattle	07	08
Poor land and soil conservation measures	24	06
Non-observation of rules and regulations	32	00
Poor state of the existing grazing reserves	05	10
Zero grazing of fallow land	15	02
Inadequacy of the existing farming land	44	00
Indiscriminate bush burning	06	11
Others	04	00
Total	322	78

Source: Field Work, 2019

n1=	15
n2=	15
Sum=	322
Expectation	232.5
Std. Error	24.109127
t-stat.	3.7122871
p-value	0.0001027

Source: Field work, 2019

The causes of conflict were classified into two scales namely; Major (mean= >0.6) and Minor (mean= ≤0.5). Table 4.5.1 shows a high mean(x) score on the factors causing land-use conflict for Farmers such as; Blockage and reduction in the size of stock routes and access to water point seem major causes on farmers=1.4 and pastoralists=2.0, Traditional beliefs and practices on farmers=1.0 and pastoralists=1.3, Limited use of improved pasture and feeds on farmers= 0.9 and pastoralists=1.1 and so on. On the contrary, Sexual harassment of woman seems a minor issue to the farmers (mean=0.4) while pastoralists see it as a major (mean=1.1), Theft of cattle seems a major to pastoralists (mean=1.4) while farmers are opposite of (mean=0.4), Contamination of the stream both parties tally on the mean of 1.0, Inadequacy of the existing farming land (mean=0.8) and pastoralists (mean=0.0), and so on. The view of the farmers and pastoralists agreed on some issues and disagreed on others as shown in figure 2. The inference of this shown problems because their view seems parallel and all stakeholders need to be involved for a lasting solution.

Effect of conflict in Gwagwalada Area

Council	Farmers	Mean	Pastoralist	Mean
Reduction in output and income of farmers	52	5.2	2	0.2
Erosion	33	3.3	0	0
Loss of lives / Cattle rustlers	25	2.5	35	3.5
Displacement of farmers / fulanis	48	4.8	15	1.5
Loss of houses and properties	24	2.4	19	1.9
Destruction of crops	76	7.6	2	0.2
Inability to remit loan	0	0	0	0
Allocation of the pattern of social	26	2.6	2	0.2
Loss of product in storage	31	3.1	3	0.3
Others	7	0.7	0	0
Total	322	32.2	78	7.8

The effects was classified into two scales namely; Major (mean= >0.5) and Minor (mean= ≤0.5). Table 4. shows a high mean(x) score on the effects of land-use conflict for Farmers such as Destruction of crops (mean=3.6), follow by mean=2.8 on Displacement of farmers/Fulanis, follow by mean= 2.4 on Loss of house and properties, follow by mean=2.2 on Reduction of output and income of farmers, while the mean of 2.1;1.6;1.3; and 1.1 on Loss of product in storage, Allocation of the pattern of social amenities, Erosion, others respectively. But, the farmers' response to Loss of cattle/ lives as a minor effect (mean=0.4) and inability to remit loan (mean=0.0). On the other hand, the pastoralist's Major effects of the conflict were; mean=5.1 on the loss of lives/cattle, follow by mean=4.8 on Loss of houses and properties and follow by mean=4.7 on Displacement of Fulanis, but Reduction of output and income of farmers, Loss of product in storage, Allocation of the pattern of social amenities, Inability to remit loan, Destruction of crops and Erosion all serves as Minor effects to the pastoralists. Hence, understanding the peculiarities and exploiting opportunities inherited in the Gwagwalada area council in FCT Abuja, Nigeria can produce greater prospects for effective, efficient, and sustainable conflict resolution strategies in enhancing the farmer-nomad relationship.

Wilcoxon Sum Rank Test (WSRT) analysis shows that there is sufficient evidence to suggest that there is a difference between the farmer's perception and pastoralist's perception in terms of land-use conflict approach in the study area. In Wilcoxon Sum Rank Test we don't need to assume that the population of farmers and pastoralists is normally distributed (robust). The techniques also show the level of causes of conflict and how much it affects the lives and livelihood of the Gwagwalada community at large. The application of the t-test was to support and validates the Wilcoxon Sum Rank Test and to void complications during data interpretation.

The above analysis showed that both farmers and pastoralist's responses opined that Blockage and reduction in the size of stock routes was a major problem in the study area. This rhyme with the idea of Reichel, (2010) when he sees land-use conflict as a situation in which two or more parties strive to acquire the same scarce resources at the same time. The denial or blockage and reduction in the size of farm size or stock routes have laid to boundary trespasses and the claimed correlate with the farmer's view on denial access to their farmland that was converted to grazing reserves during 1980s. The second most common reason for the conflict was over the Theft of cattle, which exclusively occurs among the two parties. In the past fifteen years, it appeared that there was more conflict related to land use between farmers and pastoralists. However, as the value of land increases due to population pressure, agricultural commercialization, and urbanization, it is expected that all the stakeholders from top to grassroots actors should collaborate and achieve a lasting solution over time. Therefore, if land-use rights are not clearly defined, there could be more cases of land conflict in the study area in the future.

V. Conclusion

This study concludes that; land use, water resources, and grazing resources were the major courses of conflict between farmers and pastoralists; most of the conflict arises from competition over the use of land use, water, and grazing. This has to do with a combination of factors principally resulting from a deficiency in the overall national agricultural development strategy. This was manifested in the corrosion of the land use rights of the grazing resources, poor legislative structure, poor campaign and awareness measures, slow uptake of agricultural technology especially livestock production and management practices and poor land and soil conservation measures, and failure to recognize the impact of grassroots actors.

Excessive use such as overgrazing in the common land was likely to cause conflicts among the communities living in the area. Crop damage during grazing, animal theft, blockage of water points, and nomadic grazing were the major causes of land clashes among the farmers and pastoralists. Effects of such conflicts are known to cause loss of lives, damage of properties, and disappearance of peace and harmony. However, it was discovered that there were recurrent clashes of interests, values, and needs between the host farmers' communities and the nomadic cattle herders in the study area.

The study recommends that the role by the community leaders in resolving land conflict is very crucial; Sensitization of stakeholders, farmers and herdsmen alike – on the need for mutual co-existence and peace; this would help to forestall needless provocations and opportunistic violence; Poor extension contact with livestock producers should be addressed. This could be through the provision of proactive and well-trained extension personnel. Extension personnel in the employment of the Gwagwalada Area Council can be trained to deliver livestock extension messages to pastoral communities. Finally, Government should amend the land use Act and come up with new policies to benefit both the farmers and pastoralists

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