

**IMPACT OF CLIMATE CHANGE AWARENESS ON FARMERS-HERDERS CONFLICT IN
ALKALERI LOCAL GOVERNMENT AREA OF BAUCHI STATE, NIGERIA**

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Abstract

The study was anchored on Impact of Climate Change Awareness on Farmers-Herders Conflict in Alkaleri Local Government Area of Bauchi State, Nigeria. The study adopted survey research design and the total population of 138 Agricultural extension workers and registered farmers in the study area were used. The entire population of 138 was used as sample size of the study because the population was small and manageable to be used. The study has 2 research objectives and 2 research questions that guided its conduct. The study used structured questionnaire as an instrument for data collection from the respondents in the study area. The instrument was validated and was tested at a reliability coefficient of 0.875 levels. Mean and standard deviation was used to answer all the research questions of 20 items on a five-point likert scale. The result of the findings indicated that, land desertification and population growth awareness have a significant impact on farmers-herders conflict. The study recommended that, Bauchi State Government should reiterate on farmers-herders' education on climate change in order to reduce drastically the rate of clashes so as to boost the economy of the Local, State and Nigeria at large.

Keywords: Climate change, Farmers-herders' conflict, Land desertification awareness and Population growth

Introduction

Farmers and herders have been over the years enjoying a strong relationship as they live in one accord to one another in various communities in Alkaleri Local Government Area of Bauchi State, Nigeria. What is worrisome here according to the researcher is the impact of climate change that is becoming more intense because of an increase in flooding, drought and general rainfall fluctuation experienced in the country in recent years. It is on this reason that, Ukonzeas cited in Ikuemonisan, Oluwadare and Adeoye (2020) identified many effects of climate change as ranging from reduction in nutritional value, taste, and quality to low yield. Ukonze added that, the climate is no longer predictable as in the past where rainy and dry seasons were succinctly separated. According to Ikuemonisan *et al.* (2020) most farmers today still rely on the fluctuating climate signals for farming activities, resulting in heavy losses of planted crops. To the authors, if the present trend of climate variability continues, it is likely that the frequency and intensity of weather-related disasters may increase in the years ahead. The authors added that, the climate variability trend has continued to progress over the years. This highlights the urgent need to develop effective and sustainable mitigation and adaptation measures such as educating farmers and herders on the dangers of climate change which have resulted in farmers-herders conflict in the study area.

According to Atobatele and Moliki (2022), there have been age-long rifts between farmers and pastoralists though their relationship is both symbiotic and competitive in nature, hence this has often times led to crises which heightened tensions and intolerance among them. On their own part Adetunji and Ukhurebor (2020) stated that, many villages have been deserted which has affected the socio-economic activities of most communities in Alkaleri, Bauchi and Nigeria at large. Adetunji and Ukhurebor added that in recent developments, especially the frequent clashes between herdsmen and farmers in the predominantly farming areas have resulted in the destruction of lives, farmlands among others that have also become a major threat to efforts to boost food production in the nation at large. Alkaleri Local Government Area of Bauchi State is not in exception to this assertion made by Adetunji and Ukhurebor. In the same vein, Iro as cited in Apenda (2016) explained that, the herders use other strategies to access water and pasture in order to cater for their herds. Iro added that, herders most often go to farms where foods and water are available for their cattle but these movements oftentimes make the herds move into the farms and damage the indigenous crops which degenerate into chaos and heighten tensions which result in religious clashes. This has resulted in a drastic reduction in farm outputs, a development that has heightened the fear of hunger (Ajibefun, 2018).

Alkaleri Local Government Area of Bauchi State is endowed with vast arable land but with sparse population which resulted in the movement of agricultural practitioners to the state making the state good for grazing. As the trend increases, this led to struggle for farmland and a stiff competition for the scarce land resources which

led to confrontation and heightened tension (Adogi as cited by Okoli & Atelhe, 2014). According to Ukhurebor and Abiodun (2018), most of these clashes caused the death of many farmers and herders as many crops were destroyed and cattle were killed. As reported in Premium Times (2018), farmers/herders clashes have said to have started after many protests by the host community with respect to constant destruction of their farms by the cattle reared by the herders. In this regard, Apenda (2016) pointed out that the clashes between farmers and herders are dangerous because it involved the use of weapons. This in turn has led to obstruction during the farming season most especially in the study area. The reason been that, several farmers have been displaced and dispossessed of their farms by armed men believed to be herders (Eme, Ugwu & Onuigbo, 2017).

Statement of the Problem

The livestock open grazing and rearing currently practice in Nigeria, is not environmentally tolerated. The problems still increase as a result of deficiency of vigorous machinery for stakeholder participation in land reform processes, deficiency of robust legal protection for pastoralists in existing in their legal framework and inadequate access to effective clash resolution mechanisms in case of conflict, have all worsened the spate of open grazing conflicts and clashes in Nigeria (Ogboru, Adejonwo & Osho, 2018). According to Atobatele and Moliki (2022), some identified problems of these clashes include: Destruction of farm crops by herders, lack of security, and intolerance. The author continued that, this has a negative impact on lives and properties of local farmers which tend to hinder secondary school education and as well affected farmers' income/gross domestic product (GDP).

The herders people have a mass population widely dispersed and culturally diverse in all of Africa, but most predominant in North-central, Nigeria (Anter, 2015). Anter added that, a significant number of herders are nomadic in nature, herding cattle, goats and sheep across the vast dry grass lands of their environment, keeping isolate from the local farming communities, making them the world's largest pastoral nomadic group. The important message here is that, herders unarguably represent a significant part of the economy of Nigeria (Atobatele & Moliki, 2022). Atobatele and Moliki continued that, Herders are the major breeders of goats, sheep and cattle as those animals are the major source of meat and affordable source of animal proteins ate by Nigerians. As reported in Punch (2018); Sahara Reporter (2018) and Premium Times (2018) that many people lost their lives in Bauchi, Gombe, Benue, Kaduna and Plateau States as a result of clashes between herders and farmers. According to Amaza (2016), the serial attacks by the herders-farmers had claimed up to twenty million people and displaced more than a million from their homes. A very good example is the recent attack on Duguri, Katuna, Mansir and Nasira communities in Duguri of Alkaleri LGA where thousands of lives have been lost and several herders and farmers were killed and as a result all economic activities were close down indefinitely. As asserted by Ikuemonisan *et al.* (2020) most farmers-herders clashes are as a result of not being aware of the effect of climate change in the affected areas. This has call for the conduct of this study in order to determine the impact of climate change awareness on farmers-herders conflict in Alkaleri Local Government Area of Bauchi State, Nigeria. This was made possible through the following two major constructs to include: Land desertification awareness and awareness of the population growth.

Objectives of the Study

The main objectives of this study were to determine the impact of climate change awareness on farmers-herders conflict in Alkaleri Local Government Area of Bauchi State, Nigeria. Specifically, the study was based on the:

- i. Impact of land desertification awareness on farmers-herders conflict in Alkaleri Local Government Area of Bauchi State, Nigeria.
- ii. Impact of population growth awareness on farmers-herders conflict in Alkaleri Local Government Area of Bauchi State, Nigeria.

Research Questions

- 3 What is the impact of land desertification awareness on farmers-herders conflict?
- 4 What is the impact of population growth awareness on farmers-herders conflict?

Literature Review

Concept of Climate Change

Climate change is arguably the most severe and complex challenge facing today's society (Feulner, 2017). According to Asayehegn et al (2017) climate change is a statistical variation in either the mean state of the climate or in its variability, persisting for an extended period typically decades or longer. Climate change is indeed a cross-cutting issue affecting many sectors and connected to other global challenges, such as the twin challenge of promoting sustainable water use and ensuring food security (Jagermeyr, 2020). Jagermeyr added that, climate change referred to a natural internal processes or external forces, or persistent anthropogenic changes in the composition of the atmosphere. Agricultural systems being the most vulnerable economic sector to climate and natural conditions are adversely influenced by climate change through increased water stress

change in run-off patterns, seasonality fluctuation, and temperature variations (Konapala *et al.*, 2020; Tabari, 2020).

On the other hand, Bates *et al.* as cited in Balasha and Nkulu (2021) argue that the occurrence of extreme climatic events and unpredictable rainfall patterns leads to more frequent and intense droughts and floods. This compromises water quantity and quality, directly affecting the livelihoods and infrastructure (like agriculture, housing, and transport systems) of both rural and urban populations (He *et al.*, 2021; Bossio *et al.*, 2021). Bossio *et al.*, lamented that, climate change is in fact one of the most devastating environmental threats. climate change impact on cropland degradation is expected to compromise households' food security and the gross domestic production of many developing countries (Rasul, 2021; Fan and Rue, 2020; Harvey *et al.*, 2018). In marshy landscapes, heavy rains accentuate flooding and excessive deposits of sediment and pollutant waste, thus compromising the sustainability of these fragile ecosystems. This favors the development of crop pests, disease vectors for animals and humans, and crop failure (Fazaa *et al.*, 2021).

In a study conducted by Balasha *et al.*, (2022) indicated that the perceptions of the population about climate change showed 52 % of the study area perceive decrease in the amount of rainfall per season. Balasha *et al.*, continued that, a long dry season and late rainfall attributed the proliferation of agricultural pests to climate change. in the same vein, stated that, climate change is due to natural processes, such as changes in sun radiation, volcanoes eccentricity and obliquity of the earth, or internal variability in the climate system as well as due to human influences such as urbanization, industrialization and deforestation. The impacts of climate change are expected to be severe owing to high levels of poverty, weak socioeconomic systems, and political instability, making the highly vulnerable land to climate variability and change (Bele & Sonwa, 2014).

In addition, Akanoet *al.* (2022) asserted that, climate change impact is either negative or positive aspect such as flood, droughts, crop failures, long term shift in wind speed, change in rainfall intensity and uncertainty of rainfall. This seems worrying for a country where 70 % of the population lives in rural areas and depends on rain-fed small-scale agriculture for livelihood (Dontsop-Nguezet *et al.*, 2020). According to Bele and Sonwa (2014) changes in rainfall patterns and increasing temperatures are closely correlated with the increase in diseases such as cholera and typhoid. Also, in a study conducted by Cirimwami *et al.* (2019) showed that climatic behavior is different from the past, with more heavy rain, long dry spells and changes in seasonal rainfall patterns, unseasonal rainfall, and the disruption of the agricultural calendar. Farmers observe new pests, a decline in cropland fertility, and significant post-harvest losses (Chuma *et al.*, 2021a; Balasha & Nkulu, 2021). This situation will result in reduced farm income and food supply (Muhindo *et al.*, 2016). The climate changes are affecting the livelihoods of rural households which in turn is resulting in community conflicts over access to resources, including water for crop irrigation and pastures (Tshimanga *et al.*, 2021).

According to Zougmor *et al.* (2018), these changes in climate directly affect farmers because their crop fields are small, ranging from 0.1 to 3 ha. Also, the land is often held under informal tenure, which does not allow them to adopt more sustainable practices such as agroforestry, the most recommended adaptation measure for climate change (Noordwijk & Richard, 2021; Camila *et al.*, 2019). Further, smallholder farmers' low adaptive capacity is due in large part to limited access to climate-adapted technologies and resources (Shimeles & Verdier-Chouchane, 2018; Fisher *et al.*, 2015). Additionally, the lack of information on climate and weather trends prevents these farmers from anticipating and managing risks by implementing appropriate strategies (Harvey *et al.*, 2014). Jost *et al.* (2016), Shahla *et al.* (2019) and Doss *et al.* (2018) argued that farmers appear to be less adaptive because of financial or resource constraints in receiving information and extension services and because available adaptation strategies tend to create higher workloads. To deal with these threats, farmers continuously make changes in their practices, including crop diversification and introduction of resistant varieties, adjusting planting dates, increasing organic fertilizers (Aggarwal *et al.*, 2019), ensuring soil and water conservation techniques (Bagheri and Teymouri, 2022), reducing cultivated area, promoting contour farming (Diallo *et al.*, 2020, Khanal *et al.*, 2021, Li *et al.*, 2021), subscribing risk transfer mechanisms, such as insurance coverage (Surminski & Oramas-Dorta, 2014) or incorporating climate services to assist decision-making (Tall *et al.*, 2018).

Overview of Farmers-Herders Conflict

Alkaleri Local government of Bauchi State is one of the 20th LGA in the state, located in the northern central part of with many tribes but predominantly occupied by Jarawa, and Fulani people. It has a vast farmland and this brought about interaction between the indigenes who are predominately farmers and nomadic pastoralist. The agricultural activities of the indigenous people coupled with large arable farmland attract a lot of people to Alkaleri Local government Area which include the pastoralist Fulani. Their quest for conducive environments where they can comfortably raise and cater for their cattle make them move from one place to another where there is water and no infestation of flies. According to Iro as cited in Apenda (2016) the herders use mobility as

a production strategy to access water and pasture and possibly markets. In order to cater for their herds, herders most often go to farms where foods and water are available for their cattle but these movements oftentimes make the herds move into the farms and damage the indigenous crops which degenerate into chaos and heightened tensions which result in clashes. Apenda (2016) pointed out that before now, clashes between the herders and farmers, took a dimension that could be referred to as dangerous, involved the use of traditional weapons such as machetes, bows and arrows.

The nature of weapons used now include but are not limited to locally made pistols, Dane guns, rifles sub-machine guns, light machines guns and improvised explosive devices (IEDS). Plateau State is endowed with vast arable land but with sparse population which resulted in the movement of agricultural practitioners to the state making the state good for grazing. As the trend increases, this led to struggle for farmland and a stiff competition for the scarce land resources which led to confrontation and heightened tension. According to Adogi as cited in Okoli and Atelhe (2014), existing conflicts between farmer/herder relations is believed to have political undertone because of the dimension it assumes. This politicization of the situation was achieved through ethno-religious and parochial sentiments which different groups employed as an opportunity to wage war against their host communities. The clash caused the death of many farmers and herdsmen as many crops were destroyed and cattle were killed. Most of the clashes started after many protests by the host community with respect to constant destruction of their farms by the herders, where scores were massacred armed herdsmen and armed community members often times (Premium Times, 2018).

In a like manner, in Ondo state, there was a ceaseless havoc wrecked on the produce of farmers coupled with violence caused herders (Sahara Reporter, 2016), where lives and properties were also destroyed. According to Kantiyok et al. (2022), conflict has manifest in different dimension across the globe. Kantiyok *et al* added that it is a phenomenon that is so important to human existences in view of it being a natural part of human daily lives. To the authors, conflict is therefore natural part of human daily lives. Clashes is therefore natural, healthy and promote organization development as well as enhance human endeavour but if conflict is not managed well it becomes destructive (Marshall and Gurr 2005). Gregory (2014) point out how conflict between farmers and herders to be age long reoccurring issue in northern Nigeria. In 2004 to him “farmers and herders” conflict almost resulted to genocide of both Christian and Muslims in plateau state, with over 20,000 refugees fleeing to neighboring Cameroun. The frequency in which farmers and people of Nigeria are attacked by herdsmen are alarming. Attesting to this fact, Adetula (2016) averts that previously the herdsmen were known to wreck minimal havoc in some communities in Nigeria.

Concept of Land Desertification Awareness

In the northern part of the country, there has been shift in cultivation of crops due to desertification (Folami & Folami, 2013). Desertification is a process of land degradation in arid, semi-arid and sub-humid areas due to various factors including climatic variations and human activities. On his own part, Idowu (2017) stated that, desertification results in persistent degradation of dryland and fragile ecosystems due to man-made activities and variations in climate. Idowu added that, whenever a land that was of another type of biome turns into a desert biome due to changes of all sorts. According to Ufuoma *et al.* (2021), a huge issue that many countries have is the fact that there are large pockets of land that are going through a process that is known as desertification. One of the major causes of desertification is overgrazing. As posited by Adeyemi (2017) that there are other factors that cause desertification and these include: urbanization, climate change, overuse of groundwater, deforestation, natural disasters, and tillage practices in agriculture that make soils more vulnerable to wind. Desertification affects topsoil, groundwater reserves, surface runoff, human, and animal and plant populations. In the same vein, Oyaba and Nein (2019) stated that, water scarcity in dry lands limits the production of wood, crops, forage, and other services that ecosystems provide to our community. Oyaba and Nein continued that, desertification is a land degradation process that occurs in drylands. It affects the land's capacity to supply ecosystem services, such as producing food or hosting biodiversity, to mention the most well-known ones. To the authors, desertification drivers are related to both human activity and the climate and depend on the specific context.

According to UNESCO, one-third of world's land surface is threatened by desertification, and across the world, it affects the livelihood of millions of people who depend on the benefits of ecosystems that drylands provide. Desertification is another major environmental concern and a significant barrier to meeting basic human needs in drylands and is being constantly threatened by increases in human pressures and climatic variability. According to Wikipedia as cited inUfuoma et al. (2021), desertification is a type of land degradation in which a relatively dry land region becomes increasingly arid, typically losing its bodies of water as well as vegetation and wildlife. It is caused by a variety of factors, such as climate change and human activities. Desertification is a significant global ecological and environmental problem.

Concept of Population Growth Awareness

Rapid population growth is one of the problems that are fast growing in the Sub-Saharan Africa. The world's population had increased from 1.65 billion in 1900 to 3.02 billion in 1960. The United Nations estimated that the world had reached 6 billion in the later part of 1999 (Sanni, 2016). Thus, the size of the population nearly quadrupled in the span of 100 years, an unprecedented rate of increase. The scene is more pronounced in the Third World Countries than in the already developed societies. In the sub-Saharan Africa, rapid population has defied a lot of solution due to over adherence and emphasis on act such as: tradition, religion system and the low level of literacy that is common in most of the societies (Moses, 2015). The National Population Commission in 1991 stressed that the population of Nigeria was 120 million and in 2006, it projected the country's population as 158 million.

The Nigerian government for long has kept implementing sumptuous of reforms to improve the quality of life and standard of living of the people but all to the contrary. This is due to the continued rises in the country's population (Uzuegbunam cited in Dickson, Danjuma & Joel, 2020). Uzuegbunam added that, this ugly incidence has opened way to the rise of the hydra headed monster known as headers-farmers' conflict in Nigeria. This unwanted development was built from pressure associated with competition for resources such as land. Land and land resources are at the heart of the herders and farmers conflicts in Nigeria (Cinjel & Akende, 2016). The rapid growth in the country population and the immense need for socio-economic ventures such as: urbanization spread, large scale settlement, industrialization and settlers and indigene categorization have opened ground for conflict and most especially between the farmers and herders (Cinjel & Akende, 2016). This development further has attendant consequences on act such as: pollution, deforestation, land occupation and rising demand for individual and animal consumption for food, water and other natural resources (Moses, 2015).

The unprecedented surge in the country population combined with the rising pressure on land and land resources have impacted negatively to the growth of farmers-herders conflict in Nigeria. This menace spread across every nook and crannies of the country but more predominant in the North Central geo-political zone of the country (Moses, 2015). A lot of persons and property were destroyed and the conflict kept re-occurring despite the effort of government in finding lasting solution to the menace. This ugly scene is a serious setback to food security and other socio-economic development in the country (Cinjel & Akende, 2016). Competition for land resources and its off-putting locus on farmers-herders conflict in Nigeria is one of the fundamental problems which have prompted this study (Dickson *et al.*, 2020). The competition for land resources is sharpened by the unchecked and uncontrolled population growth in the country. Arable lands that were previously being used as grazing area were turned as ground for crop farming and places that were known as animal routes are now occupied with human structure and settlement (Stephenson, 2016). The pressure on land increases as both the human and the animal population increase.

The land is a static variable that neither increase nor decrease and consequently the outburst of the herders and farmer's confrontation. Another problem which also called for this study is how the competition for the land resources has opened way for act such as crop damage. Information gathered from both the pastoralists and cultivators tend to relate the immediate cause of the conflict of herders and farmers is the scenario of crop damage by the animal of the herder (Anderson, 2016). The damage often attracts quick reaction from the cultivator either in the form of litigation or open clash. Most of these scenes are common during the dry season farming period. Most of the traditional cattle routes with water were already encroached due population growth; making it impossible for the pastoralist to have access to water. For example, Abdullahi cited by Dickson *et al.* (2020) indicated that area that was supposed to be reserved for grazing purpose in the North-East and Central of the country were encroached due rapid population growth and the quest for commercial production.

Methodology

The study was anchored on survey research design with the total population of 138 Agricultural extension workers and registered farmers in the study area. The entire population was used as sample size of the study because the population was small and manageable to be used. The study used structured questionnaire as an instrument for data collection from the respondents in the study area. The instrument was validated and was tested at a reliability coefficient of 0.875 levels. Mean and standard deviation was used to answer all the research questions of 20 items on a five-points likert scale.

Results

Research Question one

What is the impact of land desertification awareness on farmers-herders conflict?

The results of items 1 to 10 used to answer research question two presented in Table 1 disclosed the mean scores ranged 3.46 to 3.93. The means scores obtained were under the index score of Agreed. This is also applicable with the grand mean score of 3.69 and its corresponding standard deviation of .998 which suggested that the

items listed are an aspect of land desertification awareness on farmers-herders conflict. The result indicated that, land desertification awareness has a significant impact on farmers-herders conflict in Alkaleri Local Government Area of Bauchi State, Nigeria.

Table 1: Descriptive Statistics on the impact of land desertification awareness on farmers-herders conflict

Item	mean	Std. dev.	Remark
Not being aware about the problems of land desertification awareness.	3.75	.844	Agreed
Land desertification improper awareness causes lot of farmers-herders conflict in our community	3.93	.890	Agreed
Government and other stakeholders on climate change have neglected the aspect of farmers-herders awareness	3.58	1.237	Agreed
No proper orientation has been given on climate change and the causes of land desertification.	3.46	.864	Agreed
Poor knowledge on effect of land desertification leads to farmers-herders conflict.	3.63	1.040	Agreed
Negligence of farmers leads to conflict	3.62	1.246	Agreed
There is full knowledge of climate change have been given to farmers-herders.	3.77	.938	Agreed
Land desertification causes by climate change is a serious pandemic to peace in our community	3.88	.855	Agreed
The level of climate change awareness in our community is relatively low.	3.56	1.088	Agreed
There is need for Government and other stakeholders to come to the aid of our community and give proper awareness on climate change Land desertification.	3.75	.973	Agreed
GRAND MEAN	3.69	.998	Agreed

Source: Field Survey, 2023

Research Question Two

What is the impact of population growth awareness on farmers-herders conflict?

The results of items 1 to 10 used to answer research question two presented in Table 2 disclosed the mean scores ranged 3.54 to 3.94. The means scores obtained were under the index score of Agreed. This is also applicable with the grand mean score of 3.67 and its corresponding standard deviation of 1.016 which suggested that the items listed are an aspect of population growth awareness on farmers-herders conflict. The result indicated that, population growth awareness has a significant impact on farmers-herders conflict in Alkaleri Local Government Area of Bauchi State, Nigeria.

Table 2: Descriptive Statistics on impact of population growth awareness on farmers-herders conflict

Item	Mean	Std. dev.	Remark
No awareness given in our community on population growth as the causes of farmers-herders conflict	3.94	.869	Agreed
Government and other stakeholders on climate change have neglected the aspect of population growth awareness as the causes of farmers-herders conflict.	3.63	1.128	Agreed
People are not aware that population growth causes farmers-herders conflict.	3.58	.980	Agreed
Increase in birth rate increase farmers-herders conflict.	3.55	1.004	Agreed
More knowledge about the causes of farmers-herders conflict like population growth is needed in our communities.	3.63	1.040	Agreed
The level of population growth awareness in our community is relatively low thereby causing farmers-herders conflict	3.81	.971	Agreed
Self-sufficiency is the causes of population growth which in turn causes a lot of farmers-herders conflict	3.78	.944	Agreed
There is full knowledge of population growth and its effect to farmers-herders conflict.	3.64	1.164	Agreed
More orientation should be capitalized about the increase in			

population, so as to curtail farmers-herders conflict.

	3.56	1.088	Agreed
Population growth is not a cause of farmers-herders conflict in our community	3.54	.975	Agreed
GRAND MEAN	3.67	1.016	Agreed

Source: Field Survey, 2023

Discussion

The result of research question one indicated that, land desertification awareness has a significant impact on farmers-herders conflict in Alkaleri Local Government Area of Bauchi State, Nigeria. This result is in concurred with the finding of Ikuemonisan, Oluwadare and Adeoye (2020) who in their study disclosed that, the one of the major causes of crises within most communities is as a result of land desertification. In the same vein, the study is related with the finding of Adetunji and Ukhurebor (2020) who discovered that, many villages have been deserted which has affected the socio-economic activities of most communities.

The result of research question one indicated that, population growth awareness has a significant impact on farmers-herders conflict in Alkaleri Local Government Area of Bauchi State, Nigeria. This finding is in concurred with the finding of Atobatele and Moliki (2022) who found that, there have been land age-long rifts between farmers and pastoralists though their relationship is both symbiotic and competitive in nature, hence this has often times led to crises which heightened tensions and intolerance among them. Similarly, this finding is in concurred with the finding of Apenda (2016) who in his study found that, herders over population has caused difficulty to access water and pasture in order to cater for their herds and often go to farms where foods and water are available for their cattle but these movements oftentimes make the herds move into the farms and damage the indigenous crops which degenerate into chaos and heighten tensions which result in religious clashes.

Conclusion

The current study empirically investigated analysis of Climate Change Awareness on Farmers-Herders Conflict. The study established that, land desertification and population growth awareness have a significant impact on farmers-herders conflict. Therefore, the conflict between farmers and herders will reduce drastically as a result of appropriate knowledge gathered in the course of this study on climate change land desertification and population growth awareness.

Recommendations

Based on the findings of the study, the following recommendations are made:

1. Bauchi State government should device a serious means of resolving farmers-herders’ conflict through dialogue. This will help in peace the communities involve to live in peace with one another for the development of the Local, state and the nation at large.
2. All Agricultural Extension Agents should have a good relationship with farmers and herders. This will encourage farmers-herders and workers relationship that can stimulate easy acceptance of new farming method which can ease conflict among the two classes of people in the study area.
3. Bauchi state government should organize workshops on the awareness of how farmers-herders can adapt land desertification and population growth awareness in the State.

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