THE EFFECTS OF HERDSMEN-FARMERS CRISIS ON FOOD SECURITY IN IBILLO, AKOKO-EDO

BY

OLAJIDE SUNDAY ARUEZOR

ENV/2242001452

DEPARTMENT OF URBAN AND REGIONAL PLANNING,SCHOOL OF ENVIRONMENTAL STUDIES,

AUCHI POLYTECHNIC, AUCHI.

BEING A PROJECT PRESENTED TO THE DEPARTMENT OF URBANAND REGIONAL PLANNING, SCHOOL OF ENVIRONMENTAL STUDIES, AUCHI POLYTECHNIC, AUCHI, EDO STATE, NIGERIA. IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF HIGHER NATIONAL DIPLOMA (HND) IN URBAN AND REGIONAL PLANNING.

November, 2022.

DECLARATION

I, **OLAJIDE SUNDAY ARUEZOR,** hereby declare that this project titled **"the Effects of Herdsmen-Farmers Crisis on Food Security in Ibillo, Akoko-Edo"** is a product of my own research work under the supervisionof **TPL. EDIGAN B.I**

_____

Olajide Sunday Aruezor

ENV/2242001452

CERTIFICATION

This is to certify that this project titled **"the Effects of Herdsmen-Farmers Crisis on Food Security in Ibillo, Akoko-Edo"** was carried out by **Olajide Sunday Aruezor** with Matric. Number **ENV/2242001452** as a project in partial fulfillment of the requirements for the award of Higher National Diploma (HND) in the department of Urban and Regional Planning, Auchi Polytechnic, Auchi Edo state.

TPL. Edigan B.I	**Date**
Project Supervisor	
TPL Edigan, B.I.	**Date**
Head of Department	
Surv. Aweh, D. S	**Date**
Dean, School of Environmental Studies	

DEDICATION

This project is dedicated to God Almighty, the creator, the strong Pillar and the infinite source of wisdom, inspiration, knowledge and understanding. He has been the source of my strength throughout the program and on His wings have I soar high.

I also dedicate this work to my God sent parents, Mr. and Mrs. Olajide Osamonoshi Christopher and my lovely siblings. I love you all.

Lastly, I dedicate this project work to True Light of Christ Church Ministry.

ACKNOWLEDGEMENT

My deepest gratitude goes to God Almighty who has provided all that was needed to complete this project and the program for which it is intended for. His infinite mercies were great and all that was needed to undertake the program was made available, and even through the difficult times; He was there and gave the strength needed to effectively and efficiently carry out the program.

I wish to appreciate my wonderful and fatherly supervisor, TPL Edigan B.I, whose contribution and constructive criticism assisted this project work to unique level. I pray the Good Lord bless you and grant you your heart desires, because truly I have learned and my knowledge frontiers have been broadened in this aspect. Thank you sir.

My appreciation also goes to the Rector of this great Institution, Dr. Umar, S. S., the Dean School of Environmental Studies, the Head Department of Urban and Regional Planning and to the lecturers and staff of the Department of Urban and Regional Planning, I say thank you all.

To my family, my God sent parents, Mr. and Mrs. Olajide Osamonoshi Christopher and my lovely siblings who stood by me financially, morally, prayerfully and otherwise during my course of study, I appreciate you all, your words of encouragement has helped through the struggle of the program,I am eternally grateful.

I cannot also forget my Spiritual fathers; Pastor Bola Davidson, Pastor Samuel Oke Odio and many more whom the Lord uses to wipe always my tears and made me see reasons why all hope wasn't lost during my difficult times. I love you all and I pray that God will continue to bless you all and your families graciously. Amen.

To my brothers in the Lord; brother Godwin Olufemi, brother Christian Bayode, brother Stephen Adurojaiye and many more, a very big thanks for your support in all ramifications.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

The study examines the effects of herdsmen-farmers crisis on food security in Ibillo, Akoko-Edo Region. Nigeria is seriously threatened by herdsmen and farmers crisis and therefore, considered to be a major potential threat affecting Nigerians mostly on the part of socio-economic activities of the country (Egodi, 2010). The herdsmen and farmers crisis is posing a serious obstacle to a successful national economy. Herdsmen and farmers has become a major threat to the national security and development of Nigeria due to the fact that its increased operation has caused diversion and removed government attention on some key areas of the economy, as huge amount of human and material resources are channeled into curbing the menace. The major objectives of the paper are: to examine the causes of herdsmen and farmers crisis in Ibillo, Akoko-Edo Region., ascertain the level of awareness of Ibillo people on issues relating to food security in the area, to examine the level of food availability and accessibility as a result of herdsmen and farmers crisis in Ibillo, Akoko-Edo Region., to evaluate the effect of Fulani herdsmen and farmers crisis on food security in Ibillo, Akoko-Edo Region. and to discuss the management options of the Fulani herdsmen and farmers crisis as it affects food security in Ibillo. A survey research design sampling technique was used with a sample size of 622.58 respondents drawn from the Ibillo, Akoko-Edo Region where 0.046% of the sample size was used. Data was analyzed using statistical descriptive. Key findings from the study showed that Ibillo people lack awareness of securing their food produce during crisis especially the Fulani-herdsmen and farmers crisis. Recommendations for the study include; Avoiding the act of grazing too early, you can have the stockpiled in the rainy season (spring) so that there is enough grass in the dry periods (summer), Making sustainable pasture management decisions in dry weather conditions, this can be achieved by learning more and more about sustainable pasture practices and so on.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The Fula people also known as Fulani in Hausa language, are a mass population widely dispersed and culturally diverse in all of Africa countries, but most predominant in West Africa. The Fulani's generally speak the Fula Language. A significant number of them 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 (Eyekpimi, 2016). They are massively spread over many countries, and are found mainly in West Africa and northern parts of Central Africa, but also in Sudan and Egypt. The main Fulani sub-groups in Nigeria are: Fulbe Adamawa, Fulbe Mbororo, Fulbe Sokoto, Fulbe Gombe, and the Fulbe Borgu (Eyekpimi, 2016).

Nigeria as a nation State is under a severe internal socio-economic and security threat. At a more general level, the threat has special economic, political and environmental dimensions. Each of these dimensions has greatly affected the nation's stability and can be traced to the Fulani-herdsmen and farmers clash, ethnic militant armies, ethnic and religious conflicts, poverty, insurgency, armed robbery, corruption, economic sabotage and environmental degradation (Damba, 2007).

Food security is a condition related to the supply of food, and individuals' access to it. Concerns over food security have existed throughout history. There is evidence of Granaries being in use over 10,000 years ago, with central authorities in civilizations including ancient China and ancient Egypt being known to release food from storage in times of famine (Illufoye, 2009). At the 1974 World Food Conference the term "food security" was defined with an emphasis on supply. Food security, they said, is the "availability at all times of adequate world food supplies of basic foodstuffs to sustain a steady expansion of food consumption and to offset fluctuations in production and prices" (United Nations, 2013). Later definitions added demand and access issues to the definition. The final report of the 1996 World Food Summit states that food security "exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (United Nations, 2015).

Household food security exists when all members, at all times, have access to enough food for an active, healthy life (USDA, 2008). Individuals who are food secure do not live in hunger or fear of starvation (FAO, 2006). Food insecurity, on the other hand, is a situation of "limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways", according to the United States Department of Agriculture (USDA) (2008). Food security incorporates a measure of resilience to future disruption or unavailability of

critical food supply due to various risk factors including droughts, shipping disruptions, fuel shortages, economic instability, and wars (Boeing, 2016). In the years 2011-2017 (FAO, 2017), an estimated 842 million people were suffering from chronic hunger (FAO, 2017). The Food and Agriculture Organization of the United Nations, or FAO, identified the four pillars of food security as availability, access, utilization, and stability (FAO, 2009). The United Nations (UN) recognized the Right to Food in the Declaration of Human Rights in 1948, (United Nations, 2015) and has since noted that it is vital for the enjoyment of all other rights (United Nations, 2015).

Violent conflict and crisis in Nigeria, like other parts of the world, have created a rift in human relations, caused serious threat to food security, among many other effects (Basil, 2015). Crisis is inevitable as long as we live together, especially in a multi-ethnic, cultural and religious community like Nigeria. However violence leaves us with various forms of retardation and underdevelopment resulting from the destruction of lives, farmland and property. The menaces of violent crisis conflict have been on the increase in some most Nigerian cities in the last two decades (Ilufoye, 2009). Most of these conflicts are generally regarded as ethno-religious bigotry and antagonism.

According to Kassam (2014) and Basil (2015), the conflicts in most part of Nigeria especially the Fulani herdsmen and farmers clash are largely uncalled for. Farmers can no longer farm peacefully because of Fulani herdsmen. These Fulani herdsmen and farmers clash have pitched Christians and Muslims against each other. The conflict has had devastating effects on inter-group relationships especially in Nasarawa Egor in Nasarawa State and Agatu L.G.A of Benue State. Apart from the loss of lives, farmlands, food produce and property, it has profound influence on residential relationships, leading to new trends in the polarization of communities. This is evident in a physical manifestation of mono religious areas in Nasarawa and Benue States, with Christians and Muslims living in dominant religious clusters (Eyekpemi, 2016).

Recent studies conducted by Basil (2015) and Ekpeyemi (2016) have shown that, serious conflict erupt between Fulani herdsmen and farmers leading to loss of lives, valuable properties and destruction of vast expanse of arable agricultural farmlands thereby posing serious threat to food security since farmers for fear of attack could no longer go to farm and harvest their farm produce. The recent attacks by Fulani herdsmen is on the increase, with the most recent attacks in June 2016 occurring in Ossissa community in Ndokwa East and Abraka community in Ethiope East Local Government Areas of Delta State and three more communities (Ugondo, Turan, Gabo Nenzev) in Logo Local Government Area, Benue State, total killings involving no fewer than 60 persons (Ekpeyemi, 2016). The Federal

Government recently ordered an inquiry, military crackdown on the group and affirmed its plans to establish cattle ranches as a solution to the frequent clashes between Fulani herdsmen and farmers in Nigeria (Basil, 2015). In recent times, the killings recorded by Fulani herdsmen and farmers clash has rampaged most communities displacing them of their farmlands and loss of their major source of livelihood. This is becoming unbearable with the Fulani herdsmen always having their ways leaving the farmers at their mercy. Farmers now go to farm armed with weapons for defense in case of attack (Ekpeyemi, 2016).

Recently, several deaths and casualties have been recorded in series of clash between Fulnai herdsmen and farmers. Most people attribute the clash between Fulani Herdsmen and Farmers to religious differences between the Muslims or Islam's and the Christians (Basil, 2015). Several farmlands have been destroyed due to conflict erupting between farmers and herdsmen. Herdsmen attribute the roots of the crisis to religious differences resulting in the killing of their cows while the farmers see the herdsmen as a threat to their crops and agricultural produce since the herdsmen allow their cows to feed on the farmer crops. Evidences have shown that herdsmen and farmers clash in several parts of Nigeria especially in the Nassarawa, Delta, Edo, and Benue states could be due to differences in religious background between the herdsmen and farmers. Several lives and farmlands been destroyed in this crisis (Ekpeyemi, 2016). Recently, in Akoko-Edo Fulani herdsmen attacked farmers at the farm and claimed one life which prompted the indigenes of Akoko-Edo to riot. It was due to this saga that the Olekor of Ekor Kingdom (HRM Alufa Monday II) declared state of emergency on the 23rd of April, 2017 on the Fulani herdsmen and farmers clash in a bid to restore peace to the community. It is against this background that this study is conducted to investigate the effects of Fulani herdsmen-farmers crisis on food security in Akoko-Edo region.

1.2 Statement of Research Problem

Nigeria is seriously threatened by Fulani herdsmen and farmers crisis and therefore, considered to be a major potential threat affecting Nigerians mostly on the part of socio-economic activities of the country (Egodi, 2010). The Fulani herdsmen and farmers crisis is posing a serious obstacle to a successful national economy. Fulani herdsmen and farmers has become a major threat to the national

security and development of Nigeria due to the fact that its increased operation has caused diversion and removed government attention on some key areas of the economy, as huge amount of human and material resources are channeled into curbing the menace (Egodi, 2010).

Conflict is a great predicament in any human society, and most times, it is predictable. In fact, history indicates that conflict is an on-going process in human relations and may occur within and among groups and communities. In the case of Nigeria, the frequent occurrence of Fulani herdsmen and farmers crisis has left adverse effects on food security and socio-economic development of the people (Damba, 2007). In the course of these conflicts, farmers have at certain times, taken up weapons to counter the attacks from the Fulani herdsmen, claiming to do so in self-defense. The study conducted by Kassam (2016) gave an overview of the general concept and causes of conflicts in Nigeria and, advocates for ethical principles such as the common solidarity of humanity by origin, forgiveness and tolerance that could engender cordiality and understanding rather than sustained hostility and suspicion in Fulani herdsmen and farmers relation in Nigeria.

Fulani herdsmen and farmers crisis no doubt have negative impact on the lives, property, food security and educational development in Nigeria. Though, there is the dearth of quantitative evaluation of the catastrophic attacks, available statistics has it that between June 2015 to December, 2016 Human Rights Watch in 2017, reported a total death toll of 65 persons in more than 24 attacks. It was also reported that an estimate of 50 people were killed in Nasarawa Egor (Nasarawa State) and Agatu/Logo (Benue State) in the June 2016 and recently lives were claimed in Ikiran-Ile in the April 23rd 2017 crisis between Fulani herdsmen and farmers. Fulani herdsmen attack apart from the loss of lives has also led to the destruction of arable farmland and valuable properties worth several millions of naira.

The above scenario has dire consequences for sustainable and educational development in the regions of attack in particular and Nigeria in general. In the regions where the Fulani herdsmen and farmers crisis is pervasive and the property destroyed potentially and in real terms, drag their economic fortune back by several steps. Besides the property destroyed, economic life in those regions is automatically grounded to a halt. People are no longer free to go about their farming, economic and educational activities for fear of being killed. This is made worse as several thousands of people have migrated swiftly to other parts of Nigeria. The overall implication for sustainable development is that the farming, economic and educational activities are fast deteriorating. The murderous campaigns and vicious onslaughts on individuals and institutions provide highly unfavorable business environment for

internal and foreign investment, which is a major factor in the achievement of sustainable development (Damba, 2007).

Another major problem posed by Fulani and herdsmen and farmers clash is that farming activities in some parts of Nigeria has been put to a halt. Farmers within this region find it hard to go to their farms as well as to get enough food crops to the market thereby, increasing price of commodity in the market. The government has spent huge amount of money on the renovation of buildings, and infrastructures that has been destroyed by these religious conflicts. Also, huge amount of funds from the country's budget has been spent on the compensation of families who have lost their loved ones to the Fulani-herdsmen and farmers crisis. Also, huge amount of money is being spent on the acquisition weapons, ammunition in other to equip the military to handle the situation on ground. All these have affected Nigeria's economy.

Again, in Ibillo the recent Fulani-herdsmen and farmers clash which took place on 23rd April, 2017 at Ibillo reserve have caused serious damage to farmlands, claimed life and disrupt the socio-economic activities of the people of people leading to increase in the price of food items and commodities. Problems emanated from fear of Fulani herdsmen since people can no longer go to farms and walk at night. This has disrupted the peaceful co-existence of the Hausa people and indigenes of Akoko-Edo people. All these have form the basis for the problem stated in this study, and this research work focuses on the effects of Fulani herdsmen-farmers crisis on food security in Akoko-Edo Local Government Area, Edo State, Nigeria.

1.3 Research Questions

1. What are the causes of Fulani-herdsmen and Farmers crisis in Ibillo, Akoko-Edo region?
2. What is the level of awareness of Akoko-Edo people on issues relating to food security in the area?
3. What is the level of food availability and accessibility as a result of Fulani herdsmen and farmers crisis in Akoko-Edo region?
4. What is the effect of Fulani herdsmen and farmers crisis on food security in Ibillo, Akoko-Edo region?
5. Discuss the management options of the Fulani herdsmen and farmers crisis as it affects food security in Ibillo, Akoko-Edo?

1.4 Aim of the Study

The aim of this study is to examine the effects of Fulani herdsmen-farmers crisis on food security in Ibillo, Akoko-Edo region.

1.5 Objectives of the Study

The specific objectives include to;

1. Examine the causes of Fulani herdsmen and farmers crisis in Ibillo, Akoko-Edo region.
2. Ascertain the level of awareness of Akoko-Edo people on issues relating to food security in the area.
3. Examine the level of food availability and accessibility as a result of Fulani herdsmen and farmers crisis in Ibillo, Akoko-Edo region.
4. Evaluate the effect of Fulani herdsmen and farmers crisis on food security in Ibillo, Akoko-Edo region.
5. Discuss the management options of the Fulani herdsmen and farmers crisis as it affects food security in Ibillo, Akoko-Edo.

1.6 Scope of Study

This study is restricted to the effects of Fulani herdsmen-farmers crisis on food security in Ibillo, Akoko-Edo region. The study will cover the whole of Ibillo, Akoko-Edo especially urban and rural areas of Ibillo, Akoko-Edo clan.

1.7 Significance of the Study

This study is basically produced to fulfill an academic requirement. Nevertheless, it is hoped that it would go a long way to encourage more meaningful development efforts on issues relating to the effects of Fulani herdsmen-farmers crisis on food security in Ibillo, Akoko-Edo region.

This study is not intended to break an entire new ground, rather, it is undertaken in the premise that it will add to the existing literature in the area of geography. In addition this study is very necessary especially at this point of Nigeria's development, when there is massive increase in the need to map and study the infrastructural development of an area.

This work is expected to guide Geographers, Educationists, Scientists, Planners, Engineers, Architects, Environmentalists, and so on, and all those whose livelihoods are affected to gain understanding of how Fulani herdsmen-farmers crisis can affect food security. However, the findings

will also provide useful background information to future research in the contribution of geography education towards nation building.

1.8 Delimitation and Limitation of the Study

However, the study has some constrained and limitations which are:

a. **Availability of research material:-** The research material available to the researcher is insufficient, thereby limiting the study
b. **Time: -** The time frame allocated to the study does not enhance wider coverage as the researcher has to combine other academic activities and examinations with the study.
c. **Finance: -** The finance available for the research work does not allow for wider coverage as resources are very limited as the researcher has other academic bills to cover.

1.9 Study Area

The study area of this project work is Ibillo, Akoko-Edo Local Government Area, Edo State. This study reveals the "Effect of Fulani herdsmen-farmers crisis on food security in Ibillo, Akoko-Edo region."

1.9.1 Location of the Study Area

The Ancient Ibillo, Akoko-Edo area is situated in the northern part of Edo State in the South of the Niger-Benue Confluence. Its dominant geographical and environmental features are chains of ancient ridges of rugged rocky hills and a cave, stretching across the length and breadth of what is now known as the Akoko-Edo L.G.A of the present Northern Edo State, located between latitudes 45 N 35 N and longitudes 55 E, 45 E. Ibillo, Akoko-Edo, with a population of about 124, 000 by the 1991 National Population Census, occupies a land area of about 1, 371 square kilometers or 6.5% of Edo land and constitutes about 5.70% of Edo State population. The area is described as the ancestral homeland of all the sub-ethnic peoples who have been the speakers of the ancient language which is classified as Edoid. Akoko-Edo is bounded in the North by the present Kwara State and parts of the present Kogi State, in the north-west by the present Ondo State, in the South-East by both Etsako west (Auchi clans) and Etsako north (Okpella), and in the South-West by Owan.

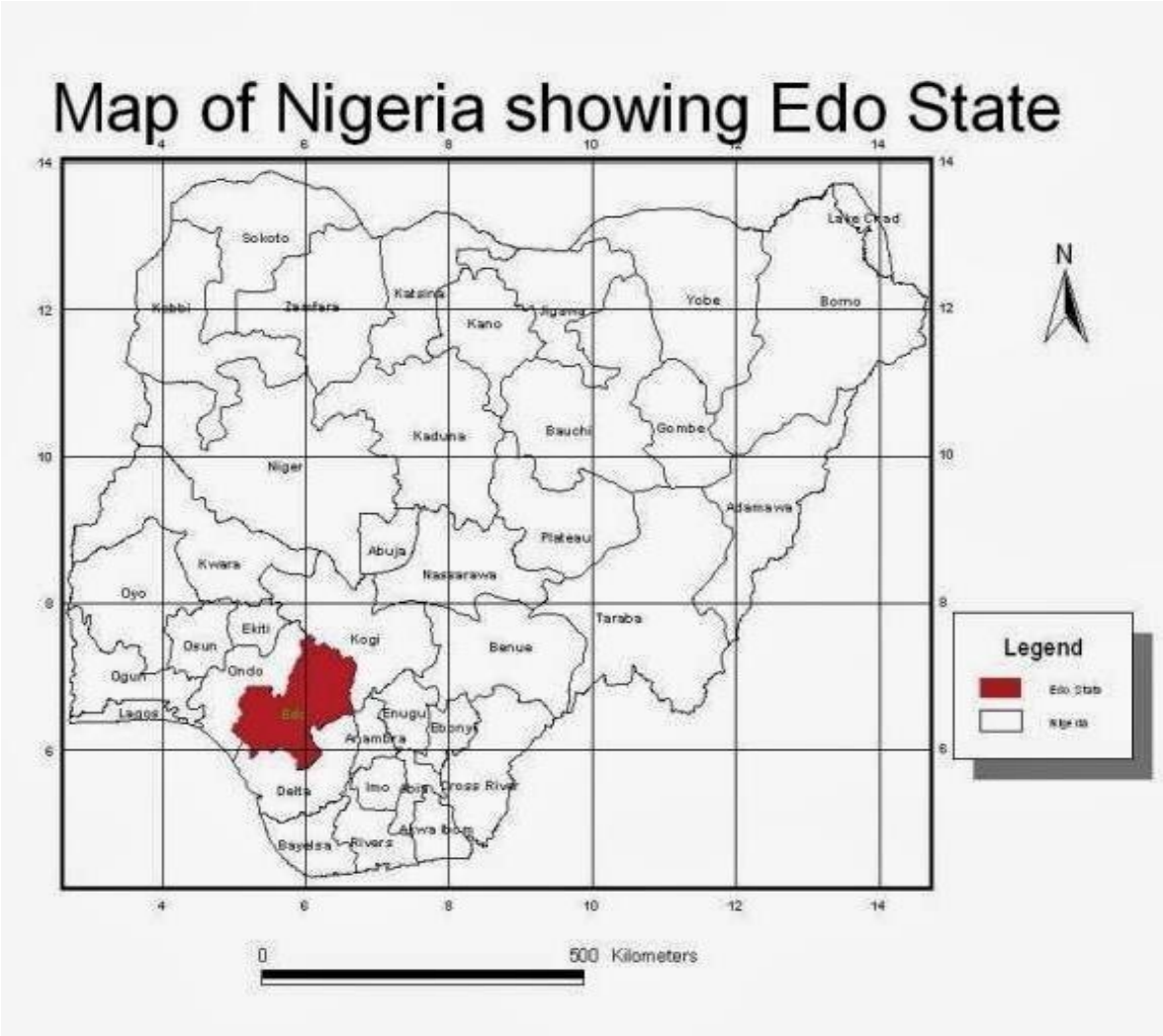

Figure 1.1: Map of Nigeria showing Edo state

Source: Google maps, 2021

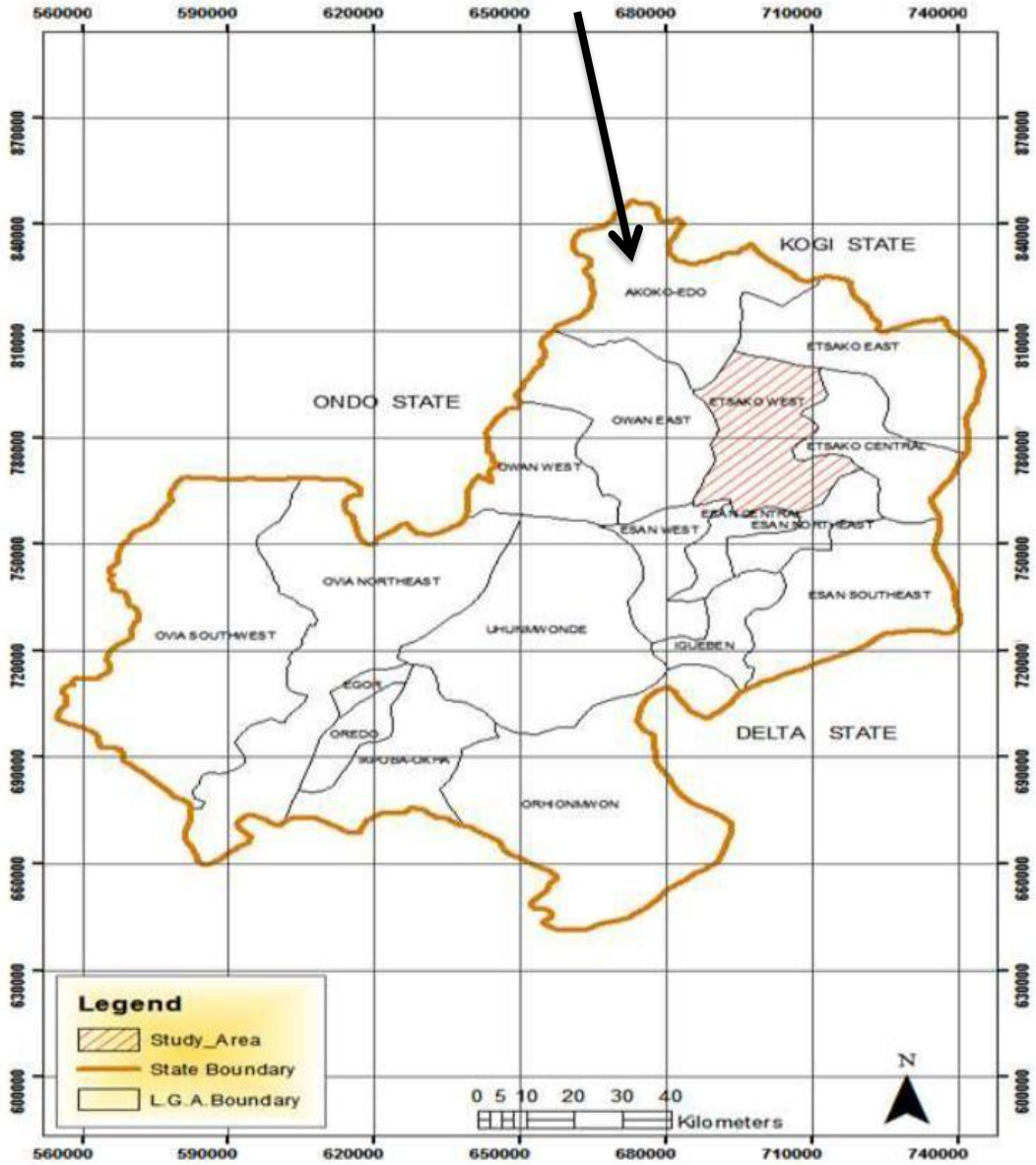

Figure 1.2: Map of Edo State showing Akoko-Edo

Source: Google Maps 2022

Figure 1.3: Map of Akoko-Edo showing Ibillo

Source: Google Maps 2022

1.9.2 Population of the study Area

Ibillo has an area of 1,373 km^2 of land and a population of about 26,449 by the 1991 National Population Census. As at 2022, the population was projected to be 62,258 with the growth rate of 2.8%.

1.9.3 Historical Background of the Study

Ibillo was founder on its present site by a man of the name who was more probably an early emigrant from Benin. It was sacked by the Ibadan and its people took refuse near Ogugu were they remained some years before being driven back again by the Okpes. They submitted to the Nupes , accepted "ajele" and paid tribute. Ibillo is one of the largest town situated in the Akoko-Edo local government area in Edo State in Nigeria. Ibillo is surrounded by several neighboring towns/villages including Ikiran Oke, Imoga, Ekpesa and Lampese which are all part of the Twenty two communities said to make up the Okpameri group, all within the Akoko Edo local government area with the LGA headquarters in Igarra

Ibillo has been administered since 1890 from Ikiran, Kabba, Okene, Iddo, Fuger and Auchi. Ibillois one of the central towns in our country and the political headquarter of ward four (4), Akoko-Edo Local Government Area, Edo State.

1.9.4 Climate and Vegetation

Vegetation is savannah, and climate is tropical, characterized by the wet (April-September) and the dry (October-March) seasons, and a dry misty harmattan period of not more than 8 weeks between November and December.

1.9.5 Physical Features (Relief and Drainage)

The Ancient Ibillo area is situated in the northern part of Edo State in the South of the Niger-Benue Confluence. Its dominant geographical and environmental features are chains of ancient ridges of rugged rocky hills and a cave, stretching across the length and breadth of what is now known as the central town for the Okpemari, located between latitudes 45 N 35 N and longitudes 55 E, 45 E. Ibillo, with a population of about 26,449 by the 1991 National Population Census, occupies a land area of about 1, 373 square kilometers.

1.9.6 Socio Economic Background of the Study Area

Farming and garri making. Ibillo is rated the highest garri producers in the whole of Akoko-Edo. People come from far and near to Ibillo market to buy garri. They also cultivate crops for cash and consumption. Presently Ibillo is the headquarter of electoral ward four (4), Ibillo is one of the communities that make up North Akoko. Note that Ibillo is a central town in Akoko-Edo though very much under developed. It has a lengthy road that links Abuja, Lagos. The only Federal Government College in Akoko-Edo is located at Ibillo.

1.9.7 Definition of Terms

Effect: a change which is a result or consequence of an action or other cause.

Farmer: is a person engaged in agriculture, raising living organisms for food or raw materials.

Crisis: a difficult or dangerous situation that needs serious attention

Food: any nutritious substance that people or animals eat or drink or those plants absorb in order to maintain life and growth.

Security: the state of being free from danger or injury.

CHAPTER TWO

CONCEPTUAL FRAMEWORK AND LITERATURE REVIEW

2.1 CONCEPTUAL FRAMEWORK

This study adopts the concept of conflict and the frustration aggression theory to explain the effect of Fulani-herdsmen and farmers crisis on food security in Ibillo, Akoko-Edo.

2.1.1 Conflict Theory

Conflict theory proposes that social systems are essentially divided into two sides or social groups, the ruling class and the working class, and that these two groups will be in constant conflict given their inherent natures. The theory was developed by political philosopher Karl Marx (Sophia, 2016). The reason for the conflict, in Marx's view, is due to the almost timeless division of society by wealth and power. The ruling class ultimately controls legal and political institutions, as well as the power of manufacturing and production. As a result, the working or subject class is exploited and consistently at the mercy of the whims of the ruling class. This conflict is at the core of all social systems according to Marx, which had developed in four main stages as he saw it, from primitive communism to ancient society, followed by feudal society and modern capitalist society (Janis, 2011). This idea of division is apparent in all ages except for primitive communism, which essentially means prehistorical societies that were at the most basic levels of social development. Marx wrote that as societies became more developed, so too did the methods of dividing ruling classes from the subjects, along with the methods of exploitation and oppression. In such societies, economic power directly affects the chances of obtaining the desired level of living.

Conflict refers to some form of friction, disagreement, or discord arising within a group when the beliefs or actions of one or more members of the group are either resisted by or unacceptable to one or more members of another group. Conflict can arise between members of the same group, known as intra-group dispute, or it can occur between members of two or more groups, and involve violence, interpersonal discord, and psychological tension, known as inter-group concflict (Sophia, 2007). Conflict in groups often follows a specific course. Routine group interaction is first disrupted by an initial conflict, often caused by differences of opinion, disagreements between members, or scarcity of resources. At this point, the group is no longer united, and may split into coalitions (Janis, 2011). This period of dispute escalation in some cases gives way to a conflict resolution stage, after which the group can eventually return to routine group interaction once again.

Rakhim (2016) notes that there is no single universally accepted definition of conflict. He notes that one issue of contention is whether the conflict is a situation or a type of behavior. Citing a review of definitions of organizational conflict in 1990, Robert (2012) and Rakhim (2016) notes the following common elements in the definitions of conflict:

a. There are recognized opposing interests between parties in a zero-sum situation;
b. There must be a belief by each side that the other one is acting or will act against them;
c. This belief is likely to be justified by actions taken;
d. Conflict is a process, having developed from their past interactions.

Building on that, the proposed definition of conflict by Rakhim (2016) is "an interactive process manifested in incompatibility, disagreement or dissonance within or between social entities". Rakhim (2016) also notes that a conflict may be limited to one individual, who is conflicted within himself (the intrapersonal conflict). To take another definition of conflict, Nicholson (2015) defines it as an activity which takes place when conscious beings (individuals or groups) wish to carry out mutually inconsistent acts concerning their wants, needs or obligations. Conflict is an escalation of a disagreement, which is its common prerequisite, and is characterized by the existence of conflict behavior, in which the beings are actively trying to damage one another. Rakhim (2016) lists some manifestations of conflict behavior, starting with disagreement, and followed by verbal abuse and interference.

Nicholson (2015) notes that a conflict is resolved when the inconsistency between wishes and actions of parties is resolved. Negotiation is an important part of conflict resolution, and any design of a process which tries to incorporate positive conflict from the start needs to be cautious not to let it degenerate into the negative types of conflict. Conflict is a social process that is exacerbated when individual members of a group take sides in the debate. Among the methods to resolve conflict is mediation of the dispute by a group member not currently involved in the conflict (Jehn and Mannix, 2001). More specifically, a mediator is defined as a person who attempts to resolve a conflict dispute between two group members by intervening in this conflict. Put simply, the mediator can be thought of as a disinterested guide directs the disputants through the process of developing a solution to a disagreement (Forsyth, 2006).

Although the tendency will be for group members who are uninvolved in the conflict to remain uninvolved, in some cases, the sheer intensity of the conflict may escalate to the point where mediation is unavoidable (Amason and Sapienza, 1997). Third party mediation of the conflict opens avenues for communication between group members in conflict. It allows members to express their opinions and

request clarification of other member's standpoints while the mediator acts as a form of protection against any shame or "loss of face" that either disputant may experience (Eidelson and Eidelson, 2003). This can be done by shedding a positive light on the reconciliation that was made during the mediation process (Forsyth, 2006). The mediator can also offer assistance in refining solutions and making counter-offers between members, adjusting the time and location of meetings so that they are mutually satisfying for both parties (Forsyth, 2006).

According to Forsyth (2006), there are three major mediation approaches:

Inquisitorial procedure: Using this procedure, the mediator asks each of the disputants a series of questions, considers the two sets of responses, and then selects and imposes a mandatory solution on the members. The inquisitorial procedure is the least popular approach to mediation.

Arbitration: Here, mediation involves the two disputants explaining their arguments to the mediator, who creates a solution based on the arguments presented. Arbitration is best for low intensity dispute, but is the most favored mediation style overall.

Moot: The moot approach involves an open discussion between disputants and the mediator about the problems and potential solutions. In the moot approach, the mediator cannot impose a mandatory solution. After arbitration, a moot is the most preferred mediation style.

2.1.2 Conflict Resolution

In practice, conflict resolution is often interwoven with daily activities, as in organizations, workplaces and institutions. Staff and residents in a youth care setting, for instance, interweave everyday concerns (meals, lessons, breaks, meetings, or other mundane but concerted projects) with interpersonal conflict. This may also be applicable to Fulani-herdsmen and farmers clash (Sue, *et al.*, 1999).

One of the key pieces of advice that experts give for conflict resolution is communication (Forbes, 2014). Other tips include moderating or overriding emotions, clearly defining acceptable behavior and viewing conflict as a opportunity to learn leadership skills and develop cooperation within a team. Particularly within the workplace, where conflict is often unavoidable, it is a good idea to embrace rather than attempt to avoid it (Sophia, 2016). Avoidance of conflict is generally not a good idea, because workplace conflicts do not tend to be self-resolving. They are far more likely to worsen over time and lead to rifts within a team, according to Forbes (2014).

Communication underpins conflict resolution, not only in the workplace but in all spheres of life. Ensuring that everyone involved in a conflict is aware of all the pertinent information be it about

workplace tasks or interpersonal misunderstandings, can help to bring conflicts to a quick resolution. In the workplace, a good way of resolving conflicts is to establish a clear hierarchy or procedural framework that can be cited when miscommunication or conflicts arise. Keeping emotions in check is another fundamental idea for conflict resolution, and often a difficult one to remember during the midst of a heated conflict. Always aiming to understand the perspective of others involved can help with this, as can defining acceptable behavior.

2.1.3 Relevance of the theory to this Study

Conflict theory is a very broad concept which has been applied to many studies such as Forbes (2014), Janis (2011), Sophia (2016), among others. The concept is relevant to this study because conflict tends to abound whenever disagreement comes in. Fulani-herdsmen and farmers in recent time has had series of clash and constant crisis which have destroyed farmlands, valuable properties, food crops, leading to death cases on one hand and injuries on other hand. This has posed serious threat to food security in Akoko-Edo region. Farmers due to fear of being killed can no longer go to farms constantly as before. This has also led to increase in food prices and numerous problems including starvation and hunger.

2.1.4 Frustration Aggression Theory

The frustration aggression theory is a psychological theory that aggression is caused by blocking, or frustrating, a person's efforts to achieve a goal. The theory has its origin in a 1939 hypothesis and study by Dollar, Doob, Miller, Mower and Sears.

According to frustration aggression theory, frustration augments the probability of aggression. Appalachian State University records that the original proponents of the theory defined frustration as "the state that emerges when circumstances interfere with a goal response." Subsequent research has found that frustration is more likely to lead to aggression when the frustrated individual believes that aggressive behavior will reduce his frustration (Damba, 2007).

In the 1939 experiment that serves as the basis for frustration aggression theory, subjects were asked to create a specific origami pattern with instructions that were only to be repeated once. During the experiment, a confederate interrupted the instructions, asking the experimenter to slow down. In the unjustified frustration group, the experimenter refused to slow down due to a pending appointment with a boyfriend or girlfriend. The experimenter in the justified group also refused to slow down but attributed his refusal to limited availability of the experiment room. The experimenters measured the

subjects' level of aggression by having them answer a questionnaire that supposedly determined whether the experimenter would receive additional funds or be reproved. The unjustified group exhibited greater aggression than the justified and control groups, confirming the frustration aggression hypothesis. This may be applicable to this study since farmers who have soiled all day may arrive at their farm only to see that their food products and farms have been subjected to cattle grazing by Fulani-herdsmen. Aggression tends to arise in this case since frustration from farmers may lead to conflicts among farmers and Fulani-herdsmen (Kassam, 2015).

2.1.5 Principles of Frustration Aggression Theory

A basic principle of frustration aggression theory is that a person's functioning is based on the three-way reciprocal interaction of personal, behavioral and environmental factors and what he believes about himself and experiences from others. While acknowledging the import of environmental factors, the theory posits that an individual can plan, direct and self-regulate their own learning and behavioral outcomes. It says that people learn by observing others but don't necessarily evidence the learning until personally motivated to do so (Damba, 2007).

Observational learning, as described in frustration aggression theory, requires an individual to pay attention to what he is observing, retain the information he observes and transform it for later use, acting upon or producing it when he's ready. The learner's perception of the expected outcomes for a behavior impacts his production of the behavior. If he believes the outcome he observed to be negative, he may choose not to produce the observed behavior. Similarly, if he expects the positive outcome that he observed and then does not receive that same positive response from others, he is likely to avoid the behavior in the future (Egodi, 2010).

The theory also posits that individuals learn according to goals they set for themselves internally and their belief in their ability to succeed, both of which help them manage their learning. It suggests that an individual's sense of their ability to succeed depends on his own observations, feedback from others and his personal psychological state.

2.1.6 Types of FRUSTRATION

The different types of frustration are divided into environmental frustration, personal frustration, conflict-produced frustration and motivational conflict. Frustration is the reaction to the hindrance or hardship that prevents an individual from reaching a goal. Farmers frustration usually results from the consistence destruction of their farm crops by Fulani-herdsmen.

Environmental Frustration: is the frustration that arises from an individual's surroundings, such as his workplace or his family. It may also come in a physical form, such as untimely rain, famine, flood or earthquakes.

Personal Frustration: is caused when a person tries to achieve an unrealistic or impractical goal. When an individual experiences frustration due to his limitations as a person, it is called personal frustration. For instance, a student with average intelligence who hopes to get the highest score in his class, or a physically challenged person who wants to compete with fit people in a race, will probably experience personal frustration (Kassam, 2015).

Conflict-Produced Frustration: An individual is said to experience conflict-produced frustration when he is not on good terms with the people he has to deal with regularly. It can be caused by the hostility he feels towards others, or the hostility others have towards him. Such conflicting frustration usually occurs between colleagues, or between an employee and the employer.

Motivational Conflict: This occurs when an individual has contrasting ideologies. For instance, an individual who values independence and needs strong relationships with others may experience motivational frustration.

Responses to frustration include anger, a loss of confidence, stress and depression. Meditation and a healthy perspective on life may help deal with frustration.

2.1.7 Relevance of the Theory to this Study

Frustration Aggression Theory is relevant to this research work since it clearly explains the nature, causes and effects of aggression on individuals. Farmers who have experienced Fulani-herdsmen grazing on their farmlands tend to be aggressive and angry. This is because nature demands that aggressive is more common among people who have been psychologically depressed. This is the case of most Nigerian farmers who rely heavily in their farm produce for their source of livelihood.

2.2 Literature Review

The review of literature will be done under the following sub-topics;

i. Food Security and Insecurity in Developed and Third World Countries

ii. Effects of Food Insecurity

iii. Cases of Fulani-Herdsmen and Farmers Crisis in Nigeria

iv. Reasons why Fulani-Herdsmen and Farmers Fight: Contribution of Climate Change to the Crisis

v. Economic Effects of the Fulani Herdsmen and Farmers Clashes in Nigeria

vi. The Effects of Climate Change Crisis on the Fulani-Herdsmen and Farmers Crisis

2.2.1 Food Security and Insecurity in Developed and Third World Countries

Food security is defined as the availability, accessibility and affordability of food in any given society (Perez, *et al.*, 2008). The United States Department of Agriculture defines food insecurity as "limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways" (United Nations, 2015). Food security indicators and measures are derived from country level household income and expenditure surveys to estimate per capita caloric availability (Webb, *et al.*, 2006). In general the objective of food security indicators and measures is to capture some or all of the main components of food security in terms of food availability, access and utilization or adequacy. While availability (production and supply) and utilization/adequacy (nutritional status/anthropometric measures) seemed much easier to estimate, thus more popular, access (ability to acquire sufficient quantity and quality) remain largely elusive (Barrett, 2010). The factors influencing household food access are often context specific. Thus the financial and technical demands of collecting and analyzing data on all aspects of household's experience of food access and the development of valid and clear measures remain a huge challenge (Swindale and Bilinsky, 2006). Nevertheless, several measures have been developed that aim to capture the access component of food security, with some notable examples developed by the USAID-funded Food and Nutrition Technical Assistance (FANTA) project, collaborating with Cornell and Tufts University and Africare and World Vision (United Nations, 2015). These include:

i. **Household Food Insecurity Access Scale (HFIAS)**: continuous measure of the degree of food insecurity (access) in the household in the previous month

ii. **Household Dietary Diversity Scale (HDDS):** measures the number of different food groups consumed over a specific reference period (24hrs/48hrs/7days).

iii. **Household Hunger Scale (HHS):** measures the experience of household food deprivation based on a set of predictable reactions, captured through a survey and summarized in a scale.

iv. **Coping Strategies Index (CSI)**: assesses household behaviours and rates them based on a set of varied established behaviours on how households cope with food shortages. The methodology for this research is based on collecting data on a single question: "What do you do when you do not have enough food, and do not have enough money to buy food?"

The prevalence of food insecurity has been relatively in the United States since the economic recession 2008.

In 2012:

i. 49.0 million People lived in food-insecure households.
ii. 12.4 million Adults lived in households with very low food security.
iii. 8.3 million Children lived in food-insecure households in which children, along with adults, were food insecure.
iv. 977,000 children lived in households in which one or more child experienced very low food security (United Nations, 2015).

Food insecurity is measured in the United States by questions in the Census Bureau's Current Population Survey. The questions asked are about anxiety that the household budget is inadequate to buy enough food, inadequacy in the quantity or quality of food eaten by adults and children in the household, and instances of reduced food intake or consequences of reduced food intake for adults and for children (USDA, 2010). A National Academy of Sciences study commissioned by the USDA criticized this measurement and the relationship of "food security" to hunger, adding "it is not clear whether hunger is appropriately identified as the extreme end of the food security scale." (Maxwell, *et al.*, 2008).

The FAO, World Food Programme (WFP), and International Fund for Agricultural Development (IFAD) collaborate to produce The State of Food Insecurity in the World. The 2012 edition described improvements made by the FAO to the prevalence of undernourishment (PoU) indicator that is used to measure rates of food insecurity. New features include revised minimum dietary energy requirements for individual countries, updates to the world population data, and estimates of food losses in retail distribution for each country. Measurements that factor into the indicator include dietary energy supply, food production, food prices, food expenditures, and volatility of the food system (FAO, 2017). The stages of food insecurity range from food secure situations to full-scale famine. A new peer-reviewed journal of Food Security: The Science, Sociology and Economics of Food Production and Access to Food began publishing in 2009 (United Nations, 2015).

The WHO (2009) states that there are three pillars that determine food security: food availability, food access, and food use. The FAO (2012) adds a fourth pillar: the stability of the first three dimensions of food security over time. In 2009, the World Summit on Food Security stated that the "four pillars of food security are availability, access, utilization, and stability" (United Nations, 2015).

Food Availability:

Food availability relates to the supply of food through production, distribution, and exchange (Coates, *et al.*, 2007). Food production is determined by a variety of factors including land ownership and use; soil management; crop selection, breeding, and management; livestock breeding and management; and harvesting (Maxwell, 2016). Crop production can be affected by changes in rainfall and temperatures. The use of land, water, and energy to grow food often competes with other uses, which can affect food production. Land used for agriculture can be used for urbanization or lost to desertification, salinization, and soil erosion due to unsustainable agricultural practices. Crop production is not required for a country to achieve food security.

Nations don't have to have the natural resources required to produce crops in order to achieve food security (Maxwell, *et al.*, 2008). Because food consumers outnumber producers in every country, food must be distributed to different regions or nations. Food distribution involves the storage, processing, transport, packaging, and marketing of food (Oldewage, *et al.*, 2006). Food-chain infrastructure and storage technologies on farms can also affect the amount of food wasted in the distribution process. Poor transport infrastructure can increase the price of supplying water and fertilizer as well as the price of moving food to national and global markets. Around the world, few individuals or households are continuously self-reliant for food. This creates the need for a bartering, exchange, or cash economy to acquire food (FAO, 2012). The exchange of food requires efficient trading systems and market institutions, which can affect food security. Per capita world food supplies are more than adequate to provide food security to all, and thus food accessibility is a greater barrier to achieving food security (Ayalew, 2013).

Food Access:

Food access refers to the affordability and allocation of food, as well as the preferences of individuals and households (Gregory, *et al.*, 2005). The UN Committee on Economic, Social, and Cultural Rights noted that the causes of hunger and malnutrition are often not a scarcity of food but an inability to access available food, usually due to poverty (United Nations, 2015). Poverty can limit access to food, and can also increase how vulnerable an individual or household is to food price spikes (Ecker and Breisinger, 2012). Access depends on whether the household has enough income to purchase food at prevailing prices or has sufficient land and other resources to grow its own food.[65] Households with enough resources can overcome unstable harvests and local food shortages and maintain their access to food (Tweeten, 2009).

There are two distinct types of access to food: direct access, in which a household produces food using human and material resources, and economic access, in which a household purchases food produced elsewhere FAO, 2017). Location can affect access to food and which type of access a family will rely on (Garrett and Ruel, 2013). The assets of a household, including income, land, products of labor, inheritances, and gifts can determine a household's access to food (FAO, 2015). However, the ability to access to sufficient food may not lead to the purchase of food over other materials and services (Ecker and Breisinger (2012). Demographics and education levels of members of the household as well as the gender of the household head determine the preferences of the household, which influences the type of food that are purchased (Garrett and Ruel, 2009). A household's access to enough and nutritious food may not assure adequate food intake of all household members, as intrahousehold food allocation may not sufficiently meet the requirements of each member of the household (Ecker and Breisinger, 2012). The USDA adds that access to food must be available in socially acceptable ways, without, for example, resorting to emergency food supplies, scavenging, stealing, or other coping strategies (USDA, 2008).

Food Utilization:

The next pillar of food security is food utilization, which refers to the metabolism of food by individuals (Loring and Gerlach, 2009). Once food is obtained by a household, a variety of factors affect the quantity and quality of food that reaches members of the household. In order to achieve food security, the food ingested must be safe and must be enough to meet the physiological requirements of each individual (Ecker and Breisinger, 2012). Food safety affects food utilization,[59] and can be affected by the preparation, processing, and cooking of food in the community and household (FAO, 2017). Nutritional values of the household determine food choice, (Gregory, *et al.*, 2005; FAO, 2017) and whether food meets cultural preferences is important to utilization in terms of psychological and social well-being (Loring and Gerlach, 2009). Access to healthcare is another determinant of food utilization, since the health of individuals controls how the food is metabolized (FAO, 2017). For example, intestinal parasites can take nutrients from the body and decrease food utilization (Tweeten, 2009). Sanitation can also decrease the occurrence and spread of diseases that can affect food utilization (FAO, 2017). Education about nutrition and food preparation can affect food utilization and improve this pillar of food security (Tweeten, 2009). Education brings accountability among people, create awareness, which foster them for food security.

Food Stability:

Food stability refers to the ability to obtain food over time. Food insecurity can be transitory, seasonal, or chronic (FAO, 2017). In transitory food insecurity, food may be unavailable during certain periods of time (Ecker and Breisinger, 2012). At the food production level, natural disasters (Ecker and Breisinger, 2012) and drought (FAO, 2017) result in crop failure and decreased food availability. Civil conflicts can also decrease access to food (Ecker and Breisinger, 2012). Instability in markets resulting in food-price spikes can cause transitory food insecurity. Other factors that can temporarily cause food insecurity are loss of employment or productivity, which can be caused by illness. Seasonal food insecurity can result from the regular pattern of growing seasons in food production (FAO, 2017).

Chronic (or permanent) food insecurity is defined as the long-term, persistent lack of adequate food (Ecker and Breisinger, 2012). In this case, households are constantly at risk of being unable to acquire food to meet the needs of all members. Chronic and transitory food insecurity are linked, since the reoccurrence of transitory food security can make households more vulnerable to chronic food insecurity (FAO, 2017).

2.2.2 Effects of Food Insecurity

Famine and hunger are both rooted in food insecurity. Chronic food insecurity translates into a high degree of vulnerability to famine and hunger; ensuring food security presupposes elimination of that vulnerability (Ayelew, 2013). Many countries experience ongoing food shortages and distribution problems. These result in chronic and often widespread hunger amongst significant numbers of people.

Human populations can respond to chronic hunger and malnutrition by decreasing body size, known in medical terms as stunting or stunted growth. This process starts *in utero* if the mother is malnourished and continues through approximately the third year of life. It leads to higher infant and child mortality, but at rates far lower than during famines. Once stunting has occurred, improved nutritional intake after the age of about two years is unable to reverse the damage. Stunting itself can be viewed as a coping mechanism, bringing body size into alignment with the calories available during adulthood in the location where the child is born. Limiting body size as a way of adapting to low levels of energy (calories) adversely affects health in three ways:

- Premature failure of vital organs during adulthood. For example, a 50-year-old individual might die of heart failure because his/her heart suffered structural defects during early development;

- Stunted individuals suffer a higher rate of disease and illness than those who have not undergone stunting;
- Severe malnutrition in early childhood often leads to defects in cognitive development (Robert, 2004). It therefore creates disparity among children who did not experience severe malnutrition and those who experience it.

Water deficits, which are already spurring heavy grain imports in numerous smaller countries, may soon do the same in larger countries, such as China or India (FAO, 2017). The water tables are falling in scores of countries (including northern China, the US, and India) due to widespread over pumping using powerful diesel and electric pumps. Other countries affected include Pakistan, Afghanistan, and Iran. This will eventually lead to water scarcity and cutbacks in grain harvest. Even with the over pumping of its aquifers, China is developing a grain deficit. When this happens, it will almost certainly drive grain prices upward. Most of the 3 billion people projected to be born worldwide by mid-century will be born in countries already experiencing water shortages. After China and India, there is a second tier of smaller countries with large water deficits; Afghanistan, Algeria, Egypt, Iran, Mexico, and Pakistan. Four of these already import a large share of their grain. Only Pakistan remains self-sufficient. But with a population expanding by 4 million a year, it will likely soon turn to the world market for grain (FAO, 2017).

Regionally, Sub-Saharan Africa has the largest number of water-stressed countries of any place on the globe, as of an estimated 800 million people who live in Africa, 300 million live in a water-stressed environment (FAO, 2017). It is estimated that by 2030, 75 million to 250 million people in Africa will be living in areas of high water stress, which will likely displace anywhere between 24 million and 700 million people as conditions become increasingly unlivable. Because the majority of Africa remains dependent on an agricultural lifestyle and 80 to 90 percent of all families in rural Africa rely upon producing their own food, water scarcity translates to a loss of food security (FAO, 2017).

Multimillion-dollar investments beginning in the 1990s by the World Bank have reclaimed desert and turned the Ica Valley in Peru, one of the driest places on earth, into the largest supplier of asparagus in the world. However, the constant irrigation has caused a rapid drop in the water table, in some places as much as eight meters per year, one of the fastest rates of aquifer depletion in the world. The wells of small farmers and local people are beginning to run dry and the water supply for the main city in the valley is under threat. As a cash crop, asparagus has provided jobs for local people, but most of the money goes to the buyers, mainly the British (United Nations, 2015). A 2010 report

concluded that the industry is not sustainable and accuses investors, including the World Bank, of failing to take proper responsibility for the effect of their decisions on the water resources of poorer countries (Felicity, 2010). Diverting water from the headwaters of the Ica River to asparagus fields has also led to a water shortage in the mountain region of Huancavelica, where indigenous communities make a marginal living herding (Lawrence, 2010).

Land degradation

Intensive farming often leads to a vicious cycle of exhaustion of soil fertility and decline of agricultural yields (Felicity, 2010). Approximately 40 percent of the world's agricultural land is seriously degraded (United Nations, 2015). In Africa, if current trends of soil degradation continue the continent might be able to feed just 25 percent of its population by 2025, according to UNU's Ghana-based Institute for Natural Resources in Africa (FAO, 2017).

Climate change

Extreme events, such as droughts and floods, are forecast to increase as climate change and global warming takes hold (Harvey, 2011). Ranging from overnight floods to gradually worsening droughts, these will have a range of effects on the agricultural sector. By 2040, almost the entire Nile region, which once included large areas of irrigated agricultural land, is expected to become hot desert where cultivation is impossible due to water limitation. According to the Climate & Development Knowledge Network (2012) report Managing Climate Extremes and Disasters in the Agriculture Sectors: Lessons from the IPCC SREX Report, the effects will include changing productivity and livelihood patterns, economic losses, and effects on infrastructure, markets and food security. Food security in future will be linked to our ability to adapt agricultural systems to extreme events. For example, the Garifuna women in Honduras are helping to ensure food security locally by reviving and improving production of traditional root crops, building up traditional methods of soil conservation, carrying out training in organic composting and pesticide use and creating the first Garifuna farmers' market. Sixteen towns have worked together to establish tool and seed banks. Efforts to plant wild fruit trees along the coast are helping to prevent soil erosion. The aim is to reduce the communities' vulnerability to the hazards of shifting weather patterns.

Approximately 2.4 billion people live in the drainage basin of the Himalayan rivers. India, China, Pakistan, Afghanistan, Bangladesh, Nepal and Myanmar could experience floods followed by severe droughts in coming decades (United Nations, 2015). In India alone, the Ganges provides water for drinking and farming for more than 500 million people (Singh, 2004). The west coast of North

America, which gets much of its water from glaciers in mountain ranges such as the Rocky Mountains and Sierra Nevada, also would be affected. Glaciers aren't the only worry that the developing nations have; sea level is reported to rise as climate change progresses, reducing the amount of land available for agriculture (Singh, 2004).

In other parts of the world, a big effect will be low yields of grain according to the World Food Trade Model, specifically in the low latitude regions where much of the developing world is located. From this the price of grain will rise, along with the developing nations trying to grow the grain. Due to this, every 2–2.5% price hike will increase the number of hungry people by 1% (Fraser, 2003) Low crop yields are just one of the problem facing farmers in the low latitudes and tropical regions. The timing and length of the growing seasons, when farmers plant their crops, are going to be changing dramatically, per the USDA, due to unknown changes in soil temperature and moisture conditions (FAO, 2017). Another way of thinking about food security and climate change comes from Fraser (2003), he defines vulnerability to climate change as situations that occur when relatively minor environmental problems cause major effects on food security. Three factors stand out as common in such cases, and these three factors act as a diagnostic "tool kit" through which to identify cases where food security may be vulnerable to climate change. These factors are:

(1) Specialized agro-ecosystems;

(2) Households with very few livelihood options other than farming;

(3) Situations where formal institutions do not provide adequate safety nets to protect people (Fraser, 2007). "The International Food Policy Research Institute (IFPRI) estimates that an additional US$ 7.1-7.3 billion per year are needed in agricultural investments to offset the negative effect of climate change on nutrition for children by 2050 (UNEP, 2011).

Agricultural diseases

Diseases affecting livestock or crops can have devastating effects on food availability especially if there are no contingency plans in place. For example, a lineage of wheat stem rust which can cause up to 100% crop losses, is present in wheat fields in several countries in Africa and the Middle East and is predicted to spread rapidly through these regions and possibly further afield, potentially causing a wheat production disaster that would affect food security worldwide (Robin and Xan, 2007). The genetic diversity of the crop wild relatives of wheat can be used to improve modern varieties to be more resistant to rust. In their centers of origin wild wheat plants are screened for resistance to rust, then their genetic information is studied and finally wild plants and modern varieties are crossed through means of

modern plant breeding in order to transfer the resistance genes from the wild plants to the modern varieties (Vincent, *et al.*, 2012).

Dictatorship and Kleptocracy

Nobel Prize winning economist Amartya Sen has observed that "there is no such thing as an apolitical food problem." While drought and other naturally occurring events may trigger famine conditions, it is government action or inaction that determines its severity, and often even whether or not a famine will occur. The 20th century has examples of governments, such as the Great Leap Forward in the People's Republic of China (FAO, 2017) undermining the food security of their own nations – sometimes intentionally, such as the Hunger Plan enacted by Nazi Germany (FAO, 2017). When governments come to power by force or rigged elections, and not by way of fair and open elections, their base of support is often narrow and built upon cronyism and patronage. Under such conditions "The distribution of food within a country is a political issue. Governments in most countries give priority to urban areas, since that is where the most influential and powerful families and enterprises are usually located. The government often neglects subsistence farmers and rural areas in general. The more remote and underdeveloped the area the less likely the government will be to effectively meet its needs. Many agrarian policies, especially the pricing of agricultural commodities, discriminate against rural areas. Governments often keep prices of basic grains at such artificially low levels that subsistence producers cannot accumulate enough capital to make investments to improve their production. Thus, they are effectively prevented from getting out of their precarious situation (Fred, 2009).

Further dictators and warlords (military head of states) have used food as a political weapon, rewarding their supporters while denying food supplies to areas that oppose their rule. Under such conditions food becomes a currency with which to buy support and famine becomes an effective weapon to be used against the opposition. Federal governments with strong tendencies towards kleptocracy can undermine food security even when harvests are good. When government monopolizes trade, farmers may find that they are free to grow cash crops for export, but under penalty of law only able to sell their crops to government buyers at prices far below the world market price.

The government then is free to sell their crop on the world market at full price, pocketing the difference. This creates an artificial "poverty trap" from which even the most hard working and motivated farmers may not escape. When the rule of law is absent, or private property is non-existent, farmers have little incentive to improve their productivity. If a farm becomes noticeably more productive than neighboring farms, it may become the target of individuals well connected to the government. Rather than risk being noticed and possibly losing their land, farmers may be content with

the perceived safety of mediocrity (FAO, 2017). As pointed out by William Bernstein in his book *The Birth of Plenty*: "Individuals without property are susceptible to starvation, and it is much easier to bend the fearful and hungry to the will of the state. If a [farmer's] property can be arbitrarily threatened by the state, that power will inevitably be employed to intimidate those with divergent political and religious opinions."

Food Sovereignty

The approach known as food sovereignty views the business practices of multinational corporations as a form of neocolonialism. It contends that multinational corporations have the financial resources available to buy up the agricultural resources of impoverished nations, particularly in the tropics. They also have the political clout to convert these resources to the exclusive production of cash crops for sale to industrialized nations outside of the tropics, and in the process to squeeze the poor off of the more productive lands (Fraser, 2007). Under this view subsistence farmers are left to cultivate only lands that are so marginal in terms of productivity as to be of no interest to the multinational corporations. Likewise, food sovereignty holds it to be true that communities should be able to define their own means of production and that food is a basic human right. With several multinational corporations now pushing agricultural technologies on developing countries, technologies that include improved seeds, chemical fertilizers, and pesticides, crop production has become an increasingly analyzed and debated issue. Many communities calling for food sovereignty are protesting the imposition of Western technologies on to their indigenous systems and agency (Fraser, 2007).

2.2.3 Cases of Fulani-Herdsmen and Farmers Crisis in Nigeria

The recent attacks by Fulani herdsmen is on the increase, with the most recent attacks in June 2016 occurring in Ossissa community in Ndokwa east local government area, Delta state and three more communities (Ugondo, Turan, Gabo Nenzev) in Logo Local Government Area, Benue State, total killings involving no fewer than 60 persons. The Federal Government recently ordered an inquiry, military crackdown on the group and affirmed its plans to establish cattle ranches as a solution to the frequent clashes between herdsmen and farmers in Nigeria (Eyekpimi, 2016). This turbulence stands out because of the seeming boldness of the perpetrators and the mystery surrounding their real agenda. While many believe that it is a simply a farming, grazing land and water dispute, whereby they clash with farmers who accuse them of damaging their crops and failure to control their animals, the Fulani's under the cattle breeders association claims that they are being attacked by gangs from farming communities who try to steal their cattle and they are just defending themselves (Sophia, 2016).

According to the 2015 Global Terrorism Index, these Fulani militants are the fourth deadliest militant group in the world with a record killing of 1229 people in 2014. However, the Federal Government of Nigeria has stated that inquiries have established that most of these herdsmen who were involved in these clashes in Nigerian communities are not Nigerian citizens and due to the ECOWAS Transhumance Protocol; which has given the right of free movement to citizens of member countries, it cannot stop non-citizens of Nigeria from grazing their cattle across the country (Eyekpimi, 2016).

Timeline of Fulani Herdsmen and Farmers Clashes in Nigeria

Here are some of the attacks by Fulani Herdsmen compiled from various news headlines:

- **September 30, 2012:** A Fulani herdsman had been accused of murdering one Benjamin Chegue on his farm, the Director of Personal Management in the Isoko North Local Government Council in Delta State.
- **April 5th, 2014:** Assailants opened fire on community leaders and residents that were meeting in Galadima village. At least 200 people were killed and an unknown number were injured in the attack. Sources attributed the attack to Fulani assailants.
- **February 18th, 2016:** Five persons were killed by Fulani herdsmen at Okokolo village in Agatu Local Government Area of Benue State.
- **March 5th 2016:** About 500 persons were killed by the rampaging herdsmen following a siege on Agatu Local Government Area of Benue State. These communities include; Aila, Akwu, Adagbo, Okokolo, Ugboju, Odugbeho, Ogbaulu, Egba and Obagaji.
- **April 12th, 2016:** Fulani herdsmen attacked two villages in Gashaka Local Government Area of Taraba State on and killed 15 people.
- **April 19th, 2016:** Twenty-five local government areas in Delta State grounded activities on the Benin-Asaba Expressway. They reported that the herdsmen allegedly killed over 23 persons. Interestingly, the police recovered 20 AK-47 rifles, 70 dane guns, 30 double-barrel guns and over 1,000 live ammunition, mostly from Fulani herdsmen during this period.
- **April 21st, 2016:** Farmers in Lagun, Iyana Offa, Offa, Atagba, Lapata and their surrounding communities in Lagelu Local Council Area of Ibadan, Oyo State, alleged that a group of Fulani armed men attacked their communities at night, injured a guard and carted away valuables.
- **April 25th, 2016:** Fulani herdsmen attack seven villages in Nimbo in Uzo- Uwani Local Government Area of Enugu State. About 40 persons were reportedly killed.
- **June 16th, 2016:** A 45-year-old renowned farmer was shot by gunmen suspected to be Fulani herdsmen in Ossissa community in Ndokwa east local government area of Delta state.

- **June 20th, 2016:** At Least 59 Deaths have been recorded following recent attacks on Benue communities such as Ugondo, Turan, Gabo Nenzev in the Logo Local Government Area by Suspected Herdsmen.
- **November 8th, 2018:** Five persons were killed by Fulani herdsmen at Ibillo-Okpemeri, Akoko-Edo Region. To mention but a few.

Several agencies have proffered solutions to the federal government such as, mediation by community heads and herdsmen associations, provision of security and patrols on attacked communities, fencing and funding solutions for displaced farmers, etc. Though, till present efforts made so far to ensure that this conflict is resolved amicably to avoid more loss of lives or avoid an imminent retaliation have proved abortive (Eyekpimi, 2016).

2.2.4 Reasons why Fulani-Herdsmen and Farmers Fight: Contribution of Climate Change to the Crisis

Nigeria has 22 million cows that consume about 1 billion gallons per day of water and 500 million kilograms of grass and forage crops. The stock value of Nigeria's cattle population is about N3.4 trillion or $16.2 billion at N150,000 per head (Janis, 2011). The intensification of the Boko Haram crisis in the last five years has caused nomadic Fulani herdsmen to abandon their foraging grounds in the North East Climate change has caused desertification in the far north, and has led to extended drought and an estimated 20% drop in crop yields across the rest of Nigeria (Sophia, 2016). The combination of a growing cattle population, the effects of climate change on the availability of water and forage crops, as well as the lack of access to North Eastern foraging grounds due to the Boko Haram crisis are the proximate causes of the increasing tensions between farming communities and Fulani herdsmen.

Solutions that have been proposed in a grazing bill that focuses only on appropriating grazing lands and stock reserves will lead to an intensification of conflicts (Eyekpimi, 2016). Others have suggested that Fulani herdsmen should be provided with ranches by willing governments at the state and local government level. The debates so far have been waged on an emotive and geopolitical basis, with little consideration for the basic math of what resource requirements will be needed to support 20 million cows that will continue to grow at about 2% per year. Forbes (2017) demonstrate in his policy brief, that the scale of the water and foraging requirements for tens of millions of cattle are beyond the capacity of the resources available from appropriating grazing reserves or providing ranches to Fulani herdsmen with little knowledge of ranch-style farming. An alternative framework that aims at an economically, ecologically and politically sustainable solution is proposed by Forbes (2017). According

to Forbes (2017), for a sustainable, market driven solution, it is recommended that there should be the creation of 2.5 million acres of ranches across five hydrological zones in the country for all of Nigeria's cattle stock. Funding for the sites will come from an initial land deed by the government worth an estimated $1.3 billion at N100,000 per acre. The ranches will be broken up into allotments that aggregate multiple acres. A market will then be established for the purchase of the allotments by private sector participants. Targeted governmental investments will be required to get the ranches online as quickly as possible (Forbes, 2017).

About 60 billion gallons of water will be required per day for the cattle and the growing of grass and forage crops. About 500 MW of power will be required across the 5 ranch sites for supporting irrigation requirements. About 700 MW of power can be generated from the cattle waste using anaerobic digesters. An additional 40 million metric tons of organic fertilizer can be generated from the stabilized solid waste from the digesters (Sophia, 2016). Up to 250,000 direct jobs can be created across the ranch sites. The herdsmen will be required to pay a herd tax of about N1,000 per head of cattle per annum (N3 per day) to access the ranch sites. This corresponds to about 10% of the $ 1 billion value gained from the 1.3 million cows slaughtered annually in Nigeria (Fabiyi, 2017).

Direct annual revenues of about $3 Billion are estimated from across the ranches, comprising of incomes from beef, organic fertilizer and about 200 MW net power exports. This does not include enhanced value from milk & dairy, leather tannery activities and other auxiliary activities (Fabiyi, 2017).

The Agriculture Minister recently announced the results of the 2011 Agricultural Sample Survey which indicated that Nigeria had 19.5 million cows as of 2011 (Janis, 2011). Based on prior data showing that Nigeria's cattle stock in 1975 was about 9.3 million head, a growth rate of about 2.1% per annum can be inferred. This puts the 2016 population of Nigerian cows at about 22 million cows (Fabiyi, 2017). The average cow drinks about 30-40 gallons of water per day, and consumes as much as 20-30 kg of hay or forage crops. This implies that Nigeria's cows require about 1 billion gallons of water and 500,000 metric tons (i.e., 500 million kilograms) of hay and forage products on a daily basis. Since there are no commercial ranching operations in Nigeria, these significant nutritional needs are met through nomadic foraging activities by Fulani herdsmen who roam the country with their cattle, following natural water ways and foraging reserves (Fabiyi, 2017).

About 1.3 million cows are slaughtered annually to provide a portion of the meat for Nigeria's population of about 170 million people. Nigeria's cattle provide about 30% of our meat consumption and are therefore a critical and important part of assuring Nigeria's food security (Eyekpimi, 2016). Although Nigeria's cattle are a key part of its food security, events that have occurred over the last 5 years have strained the relationships between nomadic herdsmen and the communities situated on the grazing routes followed by the herdsmen.

Nigeria's cattle population has been the cause of intensifying insecurity and gruesome conflicts (Egodi, 2010). Why is it that a practice that has existed for hundreds of years, with few conflicts, has now become a live wire issue that is pitting many southern communities against the Fulani? One obvious cause is the growing population of Nigeria's cattle population (Sophia, 2016). From about 9 million heads of cattle in 1975, Nigeria's cows are now about 25 million, and are on pace to reach about 60 million by 2050. It is unconscionable that the provision of food and water to such massive numbers of animals should continue to be left to the unpredictable lottery of nomadic foraging (Eyekpimi, 2016).

2.2.5 Economic Effects of the Fulani Herdsmen and Farmers Clashes in Nigeria

According to Mercy corps (2017), the incessant attacks have a drastic effect on food security and have caused a loss of $14 billion in three years. This global humanitarian organization, funded by the British Department for International Development (BFID) carried out a research between 2013 and 2016 on the causes and effects of the perennial clashes between herdsmen and farmers in Nigeria. The study also pointed out that ongoing, conflict is thwarting the country's economic development to an enormous extent, and if conflicts were resolved the average household affected today could see income increase by at least 64 percent, and potentially 210 percent or higher. And also, states affected by Herdsmen-Farmers conflicts lost an average of 47% of taxes (Internally Generated Revenue) during these attacks.

Other economic impacts include: impeding trade practices, reduction in crop yield, displacement of farmers, loss of lives and properties, loss of products in storage and destruction of public and private buildings (Eyekpimi, 2016).

2.2.6 The Effects of Climate Change Crisis on the Fulani-Herdsmen and Farmers Crisis

Studies indicate that the root causes of the conflicts stem from two events that have combined to exacerbate the resource challenges imposed by Nigeria's bourgeoning cattle population. These events are climate change and the Boko Haram crisis. For decades, climate change has slowly changed the landscape of Northern Nigeria. Much of the far north has been inundated by desertification. The

northern tip of the foraging grounds of Nigeria's cattle has disappeared. Watering grounds are disappearing. Lake Chad, once a massive oasis in the North Eastern tip of Nigeria has lost 95% of its volume over the last 50 years (Fabiyi, 2017).

The impact of climate change is not limited to northern Nigeria. Across the country, communities are dealing with extended droughts, reduction in water reserves and reduced crop yields. The most recent data available suggests there has been as much as a 20% reduction in crop yields in Nigeria; and this can be attributed to climate change largely due to the slow adaptation of mostly subsistence based farming practices to profound changes in climate. Nigeria's dams and rivers are at the lowest levels they have been in years with significant implications for hydropower generation (Illufoye, 2009).

For the last 5 years, the Boko Haram crisis has had a profound impact on Northern Nigeria, specifically the North Eastern states of Bauchi, Borno, Yobe, Gombe, Adamawa and Taraba. As the sect rampaged through the North East, it decimated communities and spread insecurity across the region. Cattle rustling increased, millions of people were displaced from their communities, farm lands were abandoned, and a land mass that is almost 15% of Nigeria, has essentially become a no go area for nomadic herdsmen. The North Eastern region of Nigeria has some of the richest foraging stock in the country and much of that is no longer available for use because of the Boko Haram crisis. The impact has been a downward, southwards movement by nomadic Fulani herdsmen as they move in search of water and foraging resources for their cows. This has led to intensification of resource pressures on north central and southern communities, culminating in violent struggles that have led to an estimated 8,000 deaths since 2005. Indiscriminate cattle grazing has also contributed to the destruction of vegetation and wildlife habitats, and led to the pollution of farms, rivers and waterways with cattle manure across many communities. Communities have experienced ecological and economic devastation as a result of this crisis (Damba, 2007).

2.2.7 Why a Grazing Bill will not Resolve Farmer-Herdsmen Conflicts

The enactment of a grazing act has been proposed as a means for reducing tensions between herdsmen and host communities by creating established zones in different communities that will be exclusive to, and/or readily accessible by, nomadic herdsmen and their cattle (Fabiyi, 2017). Much of the discussion on a grazing bill has focused on the elements of a 2008 bill sponsored by Senator Zainab Kure and further expatiated in recent public discourse. The proposal has the following provisions:

1. The establishment of a national grazing reserve commission,

2. Appropriation of lands across different zones of the country to be designated as grazing reserve and stock routes, and

3. Conserving and preserving of the national grazing reserve and stock route for the benefit of nomadic cattle herds.

The proponents of a national grazing bill should be commended for offering what has so far turned out to be the most detailed proposal put forward for resolving the crisis (Fabiyi, 2017). However, it is his view that the ideas that underpin the grazing reserve and stock route bill are unlikely to lead to the anticipated outcome of resolving conflict between herdsmen and the communities through which they travel for five reasons;

Firstly, it does not address the root cause of the problem which is the pressure on water and foliage resources due to climate change problems such as the bourgeoning cattle population, the debilitating effects of climate change and the increased levels of insecurity caused by the Boko Haram insurgency.

Secondly, since the appropriated lands will have to be proximate to water resources to ensure that the 1 billion gallon per day water needs of the cows are met, communities that the lands are taken from will be cut off from critical water reserves, thereby exacerbating pressures on already strained water reserves (Sophia, 2016).

Thirdly, it will necessarily take some of the most fertile and arable lands away from farming communities, since such lands also happen to be those that are most readily stocked by plants and grass that cattle forage upon.

Fourthly, such grazing reserves will limit cattle to a footprint that is much smaller than they currently forage, intensifying pressures on the reserves, without a concerted commercially viable means for effecting the restocking of the grass and water resources along the routes.

Fifthly, by drawing a line between the grazing reserves and host communities, an adversarial mentality is perpetuated, worsening tensions and reducing opportunities for cooperative and constructive engagement.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter is devoted to the methodology of the study in which the; Research design, sample size, sampling techniques, instruments of data collection and methods of data analysis are discussed.

3.1 The Study Area

This project work is mainly centered on Ibillo, Akoko-Edo Local Government Area, Edo State. This study reveals the "Effect of Fulani herdsmen-farmers crisis on food security in Ibillo, Akoko-Edo region."

3.2 The Population of the Study

The populations for this study were Fulani-herdsmen, Farmers and Residents in Ibillo, Akoko-Edo, Edo State, Nigeria. A total of 150 respondents were selected from the population figure out of which the sample size was determined. The reason for choosing Akoko-Edo is because of its proximity to the researcher.

Ibillo has an area of 1,373 km^2 of land and a population of about 26,449 by the 1991 National Population Census. As at 2022, the population was projected to be 62,258 with the growth rate of 2.8%.

3.3 Research Design

This study adopted the survey design. This involves a survey of Ibillo, Akoko-Edo Local Government, Area in order to generate data that were used to ascertain the effects of Fulani herdsmen-farmers crisis on food security in Ibillo, Akoko-Edo Local Government, Area, Edo State.

3.4 The Sample Size/Sampling Framework

The study population consists of the entire Ibillo, Akoko-Edo clan. The study adopted a stratified sampling technique where the areas were stratified into two (2) location namely; urban and rural areas of study for easy collection of data. These zones are listed below.

The table below gives a summary of the sample size of the study under investigation.

Zones	Areas	Locations	No of questionnaire to be distributed	No of questionnaire expected to be returned
A	Urban	Ibillo	15	15
B	Rural	Ogbe and Ekor,	20	20
	Total		**35**	**35**

Source: Fieldwork August, 2022

The simple random sampling technique was used in stratifying the study area into two (2) zones. The lottery method will be employed in selecting the required samples from the Villages and towns that make up Akoko-Edo clan in particular. A list of 150 respondents were drawn from the given population sample.

3.5 Types and Sources of Data

The types of data used in this study were mainly sourced from primary and secondary sources. Primary data was collected through the use of personal observation of destroyed farmlands, oral interviews, self-administered questionnaire, and group discussions. Secondary data was also employed. Review of the available literature on the effects of Fulani herdsmen and farmers crisis on food security either published or unpublished was explored. Journals, Periodicals, newspaper and online resources like internet also form part of the secondary.

3.6 Questionnaires

The Questionnaire was the main instrument in data collection. Questionnaire is preferred because it could collect information from a large sample in a very short time. It is very reliable method as the respondents give objective answers since they usually feel free without prejudice when filling them. The questionnaires contained both open and closed-ended items and was used to collect information from the urban and rural populace of Ibillo, Akoko-Edo clan.

The questionnaires were administered to the urban and rural populace in Akoko-Edo especially farmers who have direct experience on the effect of Fulani herdsmen and farmers crisis on food security. The researcher personally distributed the questionnaire by hand to every representative who has knowledgeable experience about the questions raised in the questionnaires. The questionnaires were

distributed at every 15th buildings in the different streets and quarters that make up Ibillo, Akoko-Edo community. The researcher adopted same method (face to face contact) in retrieving the distributed questionnaires immediately from the respondents after filling them.

3.7 Method of Data Collection

The method of data collection includes data obtained directly from the field through the administration of self-structured questionnaire and farmer's record on farm produce before and after the Fulani herdsmen attack on their farmlands. The researcher personally visited the destroyed farmlands at Akoko-Edo reserve where large expense of lands is preserved for farming activities. Data on farm produce and crop yield was extracted directly from the farmers. The various methods used were:

3.7.1 Oral Interviews

This method was employed to collect information from the urban and rural dwellers of Akoko-Edo, Edo State. This is aimed at collecting technical application information and challenges facing them in settling land disputes that have culminated into serious conflicts affecting many people and particularly the urban and rural residents. Oral interview was conducted with the some of the notable Chiefs in Akoko-Edo and farmers in Ogbe, Ibillo, Ikiran-Ile and reserve areas.

3.7.2 Focused Group Discussion

This method was employed to gather data from urban and rural dwellers in Ibillo, Akoko-Edo clan. This is due to their limited capacity to answer questionnaires or have a smooth interview session with them because of their low education levels. Focused grouped discussion was carried out with farmers and some religious clergy (the Imam of Ibillo, Akoko-Edo central mosque, Pastors, and Priests) in Akoko-Edo to ascertain if the crisis is tied to religious differences.

3.7.3 Participant Observation

This method was also used in collecting data from the field. Observation was carried out at Akoko-Edo clan. The researcher personally observed farms destroyed by Fulan-herdsmen during their cattle grazing. This enabled the researcher to understand how Fulani-herdsmen affect farmer productivity through their cattle grazing. This observation was carried out in Ibillo, Akoko-Edo reserve along Igarra-Benin route to ascertain the severity of the damage caused by this crisis.

3.8 Analysis of Data

Data collected from the field with the aid of the research questionnaire was edited, coded, classified and tabulated with a view of reducing it to manageable proportions. The descriptive statistical technique was employed to analyze data and interpretation in order to draw conclusions.

CHAPTER FOUR

DATA PRESENTATION AND DISCUSSION OF RESULT

4.1 Introduction

This chapter entails presentation and analysis of data obtained from the field. It also entails hypothesis testing and discussion of result on the perception of the effects of Fulani-Herdsmen and Farmers Crisis.

This study generated data from questionnaire administration to obtain information on the crisis between Fulani-herdsmen and farmers and its effect on food security in the study area.

4.2 Demographic Structure of Respondents

Table 4.1: Sex of Respondents

Sex	**Frequency**	**Percentage (%)**
Male	96	64
Female	54	36
Total	**150**	**100**

Source: Fieldwork August, 2022

From table 4.1, it could be deduced that the population of Ibillo, Akoko-Edo comprise more of the female gender than the male folk. This is because male consist of 64% of the total population while female consist of 36% of the remaining population. The male respondents consist of farmers and herdsmen who have knowledgeable experience about the crisis between them (farmers and Fulani).

Table 4.2: Age of Respondents

Age	**Frequency**	**Percentage (%)**
Below 18years	16	10
18-20years	51	34
21-30years	37	25
31years above	46	36
Total	**150**	**100**

Source: Fieldwork August, 2022

The table 4.2 shows the age composition of the respondents in the study area. The table shows that 10% of the respondents are below 18years, 34% are 18-20years old, 25% are 21-30years old and 36% are 31years and above. This implies that majority of the respondents which comprise of adults who are either farmers, herdsmen or have knowledge about Fulani and Farmers crisis in the locality.

Table 4.3: Religion of Respondents

Religion	Frequency	Percentage (%)
Christianity	140	93
Muslim	3	2
Traditional worshipers	7	5
Total	**150**	**100**

Source: Fieldwork August, 2022

Table 4.3 shows that 93% of the respondents are Christians, 2% are Muslim, and 5% are traditional worshipers. This implies that Christians dominate the area of which majority of them are farmers.

Table 4.4: Marital Status

Marital Status	Frequency	Percentage (%)
Single	63	42
Married	52	35
Others	35	23
Total	**150**	**100**

Source: Fieldwork August, 2022

The table 4.4 clearly shows that majority of the respondents in the study area are still single. This is because those who affirm that they are single constitute 42% of the total respondents, married occupy 35% and other marital status such as those who are divorced, separated, widowed, clergy, and so on make up the remaining 23% of the respondents who responded to this question. This shows that majority of the respondents who are single feel the effect of Fulani-herdsmen and farmers crisis in Akoko-Edo.

Table 4.5: Occupational Status

Occupation	**Frequency**	**Percentage (%)**
Farmers	19	13
Herdsmen	30	20
Self-employed	36	24
Students	38	25
Civil servant	27	18
Total	**150**	**100**

Source: Fieldwork August, 2022

From the table 4.5 and Fig 4.2, majority of the respondents in the study area are self-employed and students. This is because civil servants occupy 18%, farmers occupy 13%, students occupy 25%, and herdsmen occupy 20%. Majority of the respondents in the study area comprising of herdsmen and farmers are faced with problems of food security due to Fulani-herdsmen and farmers clash.

Table 4.6: Educational status of respondents

Education	**Frequency**	**Percentage (%)**
Educated	51	34
Not educated	99	66
Total	**150**	**100**

Source: Fieldwork August, 2022

The table 4.6 reveals that 34% of the respondents are educated while 66% are not educated. The respondents who are educated have professional skill required to address Fulani-herdsmen crisis which has become a global concern. These include engineers, lecturers, lawyers, doctors, artisans (welders, fashion designers, hairdressers, and so on while the uneducated respondents comprise of the people who cannot read or write but understand the topics.

4.3 Causes of Fulani-Herdsmen and Farmers Crisis in Ibillo, Akoko-Edo Region

Table 4.7: Farming activities within Akoko-Edo reserve areas where herdsmen attack is severe

Response	Frequency	Percentage (%)
Yes	139	93
No	11	7
Total	**150**	**100**

Source: Fieldwork August, 2022

Table 4.7 shows that 93% of the respondents in Ibillo, Akoko-Edo carryout farming activities within Akoko-Edo reserve areas where herdsmen attack is severe while 7% do not. This implies that respondent's carryout farming activities within Ibillo, Akoko-Edo reserve areas where herdsmen attack is severe.

Table 4.8: Farmers that have been attacked by Fulani herdsmen

Response	Frequency	Percentage (%)
Yes	148	99
No	2	1
Total	**150**	**100**

Source: Fieldwork August, 2022

Table 4.8 shows that 99% of the respondents farmers have been attacked by Fulani herdsmen while 1% has not. This implies that most farmers have been attacked by Fulani herdsmen.

Table 4.9: Cause(s) of Fulani herdsmen and farmers crisis

Options	Frequency	Percentage (%)
Religious differences	18	12
Cattle grazing on crops	42	28
Harsh climate in the north	52	35
Economic hardship/recession	24	16
High cost of feeding cattle's at ranch	14	9
Others	0	0
Total	**150**	**100**

Source: Fieldwork August, 2022

Table 4.9 shows that, 12% of the respondents indicated that religious differences is the major causes of Fulani herdsmen and farmers crisis, 28% said grazing on crops, 35% said harsh climate in the north, 16% said economic hardship, and about 9% said high cost of feeding cattle ranch. This means herdsmen using their cattle to graze on farmers crops are the major causes of Fulani herdsmen and farmers crisis.

Table 4.10: Fulani Herdsmen and Farmers crisis alongside food security problem severe in your area

Response	**Frequency**	**Percentage (%)**
Yes	138	92
No	12	8
Total	**150**	**100**

Source: Fieldwork August, 2022

The table 4.10 clearly shows that 92% of the respondents agreed that Fulani herdsmen and farmers crisis alongside food security problem severe in the area while 8% of the respondents did not agree to this view. This implies that Fulani herdsmen and farmers crisis alongside food security problem severe in the area.

Table 4.11: Effect of Fulani herdsmen and farmers crisis on food security

S/N	**Causes**	**Very Severe**	**Severe**	**Mild**	**Low**	**No effect**
a.	Harsh climate in the north	45 (30%)	59 (39%)	4 (3%)	20 (13%)	22 (15%)
b.	Economic hardship/recession	48 (32%)	43 (29%)	17 (11%)	19 (13%)	23 (15%)
c.	High cost of feeding at cattle ranch	25 (17%)	23 (15%)	11 (7%)	50 (33%)	41 (27%)
d.	Religious crisis between Muslims and Christians	81 (54%)	43 (29%)	6 (4%)	9 (6%)	11 (7%)
e.	Cattle grazing on farmers crops	65 (43%)	68 (45%)	2 (1%)	5 (3%)	10 (7%)

f.	Boko Haram crisis in the north	45 (30%)	59 (39%)	4 (3%)	20 (13%)	22 (15%)
g.	Depletion of vegetation in the north	48 (32%)	43 (29%)	17 (11%)	19 (13%)	23 (15%)

Source: Fieldwork August, 2022

Item (a) in table 4.11 show that, 45(30%) respondents accepted the fact that harsh climate in the north has a very severe on food security, 59(39%) of the respondents said the effect is severe, 4(3%) said the effect is mild, 20(13%) said the effect is low and 22(15%) said no effect. This indicates that harsh climate in the north has prompted the Fulani herdsmen to migrate to the south for pasture and grazing thereby giving rise to incessant clash between farmers and herdsmen.

Also item (b) reveals that 48(32%) respondents accepted the fact that economic hardship/recession has a very severe effect on food security, 43(29%) respondents said the effect is severe, 17(11%) respondents said mild, 19(13%) respondents said low and 23(15%) respondents said no effect. This indicates that economic hardship/recession often lead to food security problems in the area. Also item (c) shows that 25(17%) respondents accepted the fact that high cost of feeding at cattle ranch has a very severe effect on food security in the area, 23(15%) respondents said the effect is severe, 11(7%) respondents said mild, 50(33%) respondents said low and 41(27%) said no effect. This indicates that high cost of feeding at cattle ranch leads to food security problems in Nigeria which often causes Fulani-herdsmen and farmers clash in Ibillo, Akoko-Edo.

Item (d) in table 4.11 also shows that, 81(54%) of the respondents indicated that religious crisis between Muslims and Christians which often escalates into herdsmen and farmers crisis has a very severe effect on food security , 43(29%) said severe, 6(4%) respondents said mild, 9(6%) respondents said low and 11(7%) said no effect. This indicates that religious crisis between Muslims and Christians often results to Fulani-herdsmen crisis which leads to food security problems in the area.

Item (e) shows that, 65(43%) respondents accepted the fact that cattle grazing on farmers crops leading to herdsmen and farmers crash has a very severe effect on food security, 68(45%) respondents said the effect is severe, 2(1%) respondents said mild, 5(3%) said low and 10(7%) said no effect. This indicates that cattle grazing on farmers crops has a he effect on agricultural crop yield.

Item (f) shows that, 45(30%) respondents accepted the fact that Boko Haram crisis in the north has a very severe effect on food security, 59(39%) of the respondents said the effect is severe, 4(3%) of

the respondents said mild, 20(13%) respondents said low, and 22(15%) said no effect. This indicates that Boko Haram crisis in the north leading to massive migration to the south has caused serious clash between herdsmen and farmers. Also, Item (g) reveals that 48(32%) of the respondents accepted the fact that depletion of vegetation in the north has a very severe effect on food security, 43(29%) respondents said the effect is severe, 17(11%) respondents said mild, 19(13%) respondents said mild and 23(15%) respondents said no effect.

4.2.3 Level of awareness of Ibillo, Akoko-Edo people on issues relating to food security in Ibillo, Akoko-Edo

Table 4.12: If respondent are aware of food security problems caused by the recent Fulani herdsmen and farmers crisis

Option	**Frequency**	**Percentage (%)**
Yes	41	27
No	109	73
Total	**150**	**100**

Source: Fieldwork August, 2022

Table 4.10 shows that 27% of the respondents agreed that they are aware of food security problems caused by the recent Fulani herdsmen and farmers crisis while 73% lack awareness of food security problems.

Table 4.13: Level of awareness on the crisis between Fulani herdsmen and farmers in Ibillo, Akoko-Edo

Level	**Frequency**	**Percentage (%)**
Very high	61	41
High	39	26
Moderate	30	20
Low	10	7
Very low	10	7
Total	**150**	**100**

Source: Fieldwork August, 2022

From table 4.11 above, 41% of the respondents said the level of awareness on the crisis between Fulani herdsmen and farmers in Ibillo, Akoko-Edo, 26% said high, 20% said moderate, 7% said low and

7% said very low. This shows that the level of awareness on the crisis between Fulani herdsmen and farmers in Ibillo, Akoko-Edo is vry high.

Table 4.14: level of awareness of Ibillo, Akoko-Edo people on issues relating to food security in the area

S/N	Awareness	Very High	High	Moderate	Low	Very Low
a.	Food Security awareness/campaign	47 (31%)	41 (27%)	12 (8%)	20 (13%)	30 (20%)
b.	Conflict resolution between herdsmen and farmers	53 (35%)	48 (32%)	8 (5%)	20 (13%)	21 (14%)
c.	Rural agricultural development programs	20 (13%)	32 (21%)	10 (7%) (7%)	42 (28%)	46 (31%)
d.	Climate change awareness programs	38 (25%)	30 (20%)	4 (3%)	37 (25%)	41 (27%)
e.	Public enlightenment and education	47 (31%)	41 (27%)	12 (8%)	20 (13%)	30 (20%)
f.	Adaption/mitigation strategies	53 (35%)	48 (32%)	8 (5%)	20 (13%)	21 (14%)
g.	Grazing field/cattle ranching system	20 (13%)	32 (21%)	10 (7%) (7%)	42 (28%)	46 (31%)
h.	Communal farming system	38 (25%)	30 (20%)	4 (3%)	37 (25%)	41 (27%)

Source: Fieldwork August, 2022

Item (a) in table 4.14 shows that, 47(31%) respondents accepted the fact that the level of awareness of Ibillo, Akoko-Edo people on issues relating to food security in the area in terms of food security awareness/campaign is very high, 41(27%) respondents said high, 12(8%) respondents said moderate, 20(13%) respondents said low and 30(20%) respondents disagreed. This indicates that tourist perception on tourist sites differs significantly from non-tourist perception of tourist sites.

Item (b) shows that the level of awareness of Ibillo, Akoko-Edo people on issues relating to food security in the area in terms of conflict resolution between herdsmen and farmers is very high, 53(35%) said high,, 48(32%) respondents said high, 8(5%) respondents said moderate, 20(13%) said low and 21(14%) respondents said very low.

Also item (c) shows that 20(13%) of the respondents indicated that the level of awareness of Akoko-Edo people on issues relating to food security in the area in terms of rural agricultural development programs us very high, 32(21%) respondents said high, 10(7%) said moderate, 42(28%) said low and 46(31%) respondents said very low. This indicates that the level of awareness of Akoko-Edo people on issues relating to food security in the area in terms of rural agricultural development programs is high.

Item (d) shows that 38(25%) of the respondents accepted the fact that the level of awareness of Akoko-Edo people on issues relating to food security in the area in terms of climate change awareness programs is very high, 30(20%) respondents said high, 4(3%) respondents said moderate, 37(25%) respondents said low and 41(27%) respondents said very low. This indicates that the level of awareness of Akoko-Edo people on issues relating to food security in the area in terms of climate change awareness programs is moderate.

Item (e) shows that, 47(31%) of the respondents indicated that the level of awareness of Akoko-Edo people on issues relating to food security in the area in terms of public enlightenment and education is very high, 41(27%) respondents agreed said high, 12(8%) respondents said moderate, 20(13%) respondents said low and 30(20%) respondent said very low. This indicates that the level of awareness of Akoko-Edo people on issues relating to food security in the area in terms of public enlightenment and education is very high.

Item (f) shows that, 53(35%) of the respondents accepted the fact that the level of awareness of Akoko-Edo people on issues relating to food security in the area in terms of adaption/mitigation strategies is very high, 48(32%) of the respondents said high, 8(5%) respondents said moderate, 20(13%) respondents said low and 21(14%) respondents said very low. This indicates that the level of awareness of Akoko-Edo people on issues relating to food security in the area in terms of adaption/mitigation strategies is very high.

Item (g) shows that 20(13%) of the respondents accepted the fact that the level of awareness of Akoko-Edo people on issues relating to food security in the area in terms of grazing field/cattle ranching

system is very high, 32(21%) respondents said high, 10(7%) respondents said moderate, 42(28%) respondents said low and 46(31%) respondents said very low. This indicates that the level of awareness of Akoko-Edo people on issues relating to food security in the area in terms of grazing field/cattle ranching system is very high.

Item (h) also shows that 38(25%) of the respondents the level of awareness of Ibillo, Akoko-Edo people on issues relating to food security in the area in terms of communal farming system is very high, 30(20%) respondents said high, 4(3%) respondents said moderate, 37(25%) respondents said low and 41(27%) respondents said very low. This indicates that the level of awareness of Ibillo, Akoko-Edo people on issues relating to food security in the area in terms of communal farming system is very high.

From the above analysis, it could be deduced that the level of awareness of Ibillo, Akoko-Edo people on issues relating to food security in the area in terms of communal farming system, food security awareness/campaign, conflict resolution between herdsmen and farmers, rural agricultural development programs, climate change awareness programs, public enlightenment and education, adaption/mitigation strategies, and grazing field/cattle ranching system differs significantly.

Table 4.15: Effects of the crisis between Fulani herdsmen and farmers on the level of awareness of the people on food security in Ibillo, Akoko-Edo

Effects	**Frequency**	**Percentage (%)**
Fear to go to farm as a result of the crisis	27	18
Farmers armed with weapons for self-defense	49	33
Premature harvest during the crisis	47	31
Poor crop yield	24	16
Loss of farmlands and farm produce	3	2
Total	**150**	**100**

Source: Fieldwork August, 2022

From table 4.15, 18% of the respondents were unable to go to their various farmland for fear of herdsmen, 33% of the respondents said farmers who manage to go to farm are armed with weapons for self-defense, 31% said it leads to premature harvest of farm produce 16% said poor crop yield and 2% said loss of farmlands and farm produce. This implies that Fulani-herdsmen and farmers crisis often lead to premature harvest of crops and destruction of farmland.

Table 4.16: Extent to which people in the area secured their food and agricultural produce during Fulani herdsmen and farmers crisis.

N.B: 1-To a very large extent, 2-To a great extent, 3-To a moderate extent, 4-To a small extent, 5-To a very small extent

S/N	Herdsmen and farmers crisis	1	%	2	%	3	%	4	%	5	%
a.	Fear to go to farm due to the crisis	40	27	34	23	31	21	24	16	21	14
b.	Purchase of weapons by farmers for self-defense	32	21	60	40	30	20	24	16	4	3
c.	Poor crop/agricultural yield due to the crisis	26	17	32	21	32	21	32	21	33	22
d.	Loss of farmland due to the crisis	47	31	51	34	7	5	25	17	20	13
e.	Premature harvest due to the crisis	53	35	55	37	15	10	16	11	11	7

Source: Fieldwork August, 2022.

From table 4.16, herdsmen and farmers crisis has affected famers at a very high extent (27%) since majority of the farmers can no longer go to farm for fear of being killed and slaughtered, purchase of weapons by farmers for self-defense has affected farming activities and food security at a high (40%) extent since most farmers now direct their efforts towards buying weapons rather buying fertilizers and manure to boast agricultural productivity, poor crop/agricultural yield due to the crisis has to a low (22%) extent affected food security since farmers have adopted advanced farming techniques to boast agricultural production, Loss of farmland due to the crisis has to a high (34%) extent affected food security since most farmland are now grave yards due to extension of farming activities in such areas due to Fulani-herdsmen and farmers crash , Premature harvest due to the crisis has to high (37%) extent affected food security since premature harvest of crops especially could lead to poor crop yields. It could be deduced that the crisis between the Fulani-herdsmen and farmers have no doubt affected food security in Ibillo, Akoko-Edo.

4.2.4 The level of food availability and accessibility as a result of Fulani herdsmen and farmers crisis in Ibillo, Akoko-Edo region.

Table 4.17: Level of food availability as a result of Fulani herdsmen and farmers crisis in Akoko-Edo Region

Level	Frequency	Percentage (%)
Very High	35	23
High	81	54
Moderate	24	16
Low	5	3
Very Low	5	3
Total	**150**	**100**

Source: Fieldwork August, 2022

From table 4.17 above, 23% of the respondents indicated that the level of food availability as a result of Fulani herdsmen and farmers crisis in Ibillo, Akoko-Edo region is very high, 54% said it high, 16% said it is moderate, 3% said low and 3% said very low. This implies that the level of food availability as a result of Fulani herdsmen and farmers crisis in Ibillo, Akoko-Edo region is high.

Table 4.18: Level of food accessibility as a result of Fulani herdsmen and farmers crisis in Ibillo, Akoko-Edo region

Level	Frequency	Percentage (%)
Very High	45	30
High	71	47
Moderate	25	17
Low	5	3
Very Low	4	3
Total	**150**	**100**

Source: Fieldwork August, 2022

From table 4.18 above, 30% of the respondents indicated that the level of food accessibility as a result of Fulani herdsmen and farmers crisis in Ibillo, Akoko-Edo region is very high, 47% said it high,

17% said it is moderate, 3% said low and 3% said very low. This implies that the level of food accessibility as a result of Fulani herdsmen and farmers crisis in Ibillo, Akoko-Edo region is high.

Table 4.19: Extent to which respondents agree

S/N	Options	Yes	%	No	%
a.	Do you have access to food produce after the Fulani herdsmen and farmers crisis?	135	68	65	33
b.	Are there foods available in your area after the Fulani herdsmen and farmers crisis?	142	71	58	29
c.	Are the food produce in Ibillo, Akoko-Edo accessible after the Fulani herdsmen and farmers crisis?	183	92	17	9
d.	Do you experience food scarcity in your area as a result of Fulani herdsmen and farmers crisis?	173	87	27	14
e.	Are the food produce in Ibillo, Akoko-Edo affordable after the Fulani herdsmen and farmers crisis?	131	66	69	35
f.	Is there increase in price of food items after the Fulani herdsmen and farmers crisis?	158	79	42	21

Source: Fieldwork August, 2022.

From the table 4.19 above, 68% of the respondents have access to food produce after the Fulani herdsmen and farmers crisis while 33% do not. This means that there available food produce after the crisis which is sold at high cost. About 71% of the respondents agreed that foods are available in your area after the Fulani herdsmen and farmers' crisis while 29% disagreed. These means that there available foods after the crisis. About 92% of the respondents agreed that food produce in Akoko-Edo are accessible after the Fulani herdsmen and farmers crisis while 9% did not agree. About 87% agreed that they experience food scarcity in their locality as a result of Fulani herdsmen and farmers crisis which often pose threat to food security while 14% did not agree. About 66% of the respondents agreed that food produce in Ibillo, Akoko-Edo are affordable after the Fulani herdsmen and farmers crisis while 34% disagreed. About 79% of the respondents agreed that there increase in price of food items after the Fulani herdsmen and farmers crisis while 21% did not agree. This means there is hike in the price of food items after the crisis especially garri. This is most prevalent in the urban areas than the surrounding rural areas.

Table 4.20: Level of food availability in the area

Level	Frequency	Percentage (%)
Very High	45	30
High	25	17
Moderate	71	47
Low	9	6
Very Low	0	0
Total	**150**	**100**

Source: Fieldwork August, 2022

Table 4.20 shows that 30% of the respondents indicated that the level of food availability in the area is very high, 17% said high, 47% said moderate, 6% said very low and none of the respondents indicated very low. This means that the level of food availability in Ibillo, Akoko-Edo is moderate.

Table 4.21: Level of food accessibility in your area

Level	Frequency	Percentage (%)
Very High	37	25
High	26	17
Moderate	21	14
Low	20	13
Very Low	46	31
Total	**150**	**100**

Source: Fieldwork August, 2022

Table 4.20 shows that 25% of the respondents indicated that the level of food accessibility in the area is very high, 17% said high, 14% said moderate, 13% said very low and 31% of the respondents indicated very low. This means that the level of food accessibility in Ibillo, Akoko-Edo is very high.

Table 4.22: Level of food affordability in your area

Level	Frequency	Percentage (%)
Very High	37	25
High	26	17
Moderate	21	14
Low	20	13
Very Low	46	31
Total	**150**	**100**

Source: Fieldwork August, 2022

Table 4.22 shows that 25% of the respondents indicated that the level of food accessibility in the area is very high, 17% said high, 14% said moderate, 13% said very low and 31% of the respondents indicated very low. This means that the level of food accessibility in Akoko-Edo is very high.

Table 4.23: Level of food utilization in your area

Level	Frequency	Percentage (%)
Very High	28	19
High	66	44
Moderate	31	21
Low	25	17
Very Low	0	0
Total	**150**	**100**

Source: Fieldwork August, 2022

Table 4.20 shows that 19% of the respondents indicated that the level of food utilization in the area is very high, 44% said high, 21% said moderate, 17% said very low and none of the respondents indicated very low. This means that the level of food utilization in Ibillo, Akoko-Edo is high.

Table 4.23: Level of food utilization in your area

Level	Frequency	Percentage (%)
Very High	69	46
High	62	41
Moderate	6	4
Low	8	5
Very Low	5	3
Total	**150**	**100**

Source: Fieldwork August, 2022

Table 4.23 shows that 46% of the respondents indicated that the level of food affordability in the area is very high, 41% said high, 4% said moderate, 5% said very low and 3% of the respondents indicated very low. This means that the level of food utilization in Ibillo, Akoko-Edo is high.

4.2.5 Effects of Fulani herdsmen and farmers crisis on food security in Ibillo, Akoko-Edo region

Table 4.24: Vulnerability of farm products due to the crisis between Fulani herdsmen and farmers

S/N	Farm Produce	High Venerability	%	Venerability	%	Moderate Venerability	%	Low Venerability	%	Not Venerable	%
a.	**Tuber Crops Agriculture**										
	Yam	23	15	28	19	30	20	43	29	26	17
	Cassava	22	15	27	18	28	19	37	25	36	24
	Cocoyam	25	17	43	29	23	15	33	22	26	17
	Groundnut	28	19	26	17	48	32	20	13	28	19
b.	**Plantation**										

	Agriculture										
	Plantain	3	2	17	11	19	13	91	61	20	13
	Banana	62	41	71	47	8	5	6	4	3	2
	Fruit	40	27	34	23	31	21	24	16	21	14
	Vegetable	32	21	60	40	30	20	24	16	4	3
c.	**Cash & Food Crops**										
	Rice	47	31	51	34	7	5	25	17	20	13
	Millet	53	35	55	37	15	10	16	11	11	7
	Maize	67	45	58	39	16	11	6	4	3	2
	Beans	60	40	45	30	40	27	2	1	3	2

Source: Fieldwork August, 2022

Table 4.24 shows that 15% of the respondents indicated that there is high vulnerability of loss of tuber crops such as yam as a result of Fulani-herdsmen and farmers crisis on food security in Ibillo, Akoko-Edo, 19% said there is vulnerability, 20% said moderate vulnerability, 29% said low vulnerability, and 17% said no vulnerability.

About 15% of the respondents indicated that there is high vulnerability of loss of tuber crops such as cassava due to Fulani-herdsmen and farmers' crisis on food security in Ibillo, Akoko-Edo, 18% said there is vulnerability, 19% said moderate vulnerability, 25% said low vulnerability, and 24% said no vulnerability.

About 17% of the respondents indicated that there is high vulnerability of loss of tuber crops such as cocoyam due to Fulani-herdsmen and farmers' crisis on food security in Ibillo, Akoko-Edo, 29% said there is vulnerability, 15% said moderate vulnerability, 22% said low vulnerability, and 17% said no vulnerability.

About 19% of the respondents indicated that there is high vulnerability of loss of tuber crops such as groundnut due to Fulani-herdsmen and farmers' crisis on food security in Ibillo, Akoko-Edo, 17% said there is vulnerability, 32% said moderate vulnerability, 13% said low vulnerability, and 19% said no vulnerability.

About 2% of the respondents indicated that there is high vulnerability of loss of plantation agriculture such as plantain due to Fulani-herdsmen and farmers crisis on food security in Ibillo, Akoko-Edo, 11% said there is vulnerability, 13% said moderate vulnerability, 61% said low vulnerability, and 13% said no vulnerability. This implies that Fulani-herdsmen and farmers crisis does not affect the production of plantain in Ibillo, Akoko-Edo.

About 41% of the respondents indicated that there is high vulnerability of loss of plantation agriculture such as banana due to Fulani-herdsmen and farmers crisis on food security in Ibillo, Akoko-Edo, 47% said there is vulnerability, 5% said moderate vulnerability, 4% said low vulnerability, and 2% said no vulnerability.

About 27% of the respondents indicated that there is high vulnerability of loss of fruits such as groundnut due to Fulani-herdsmen and farmers crisis on food security in Ibillo, Akoko-Edo, 23% said there is vulnerability, 21% said moderate vulnerability, 16% said low vulnerability, and 14% said no vulnerability.

About 21% of the respondents indicated that there is high vulnerability of loss of vegetables due to Fulani-herdsmen and farmers crisis on food security in Ibillo, Akoko-Edo, 40% said there is vulnerability, 20% said moderate vulnerability, 16% said low vulnerability, and 5% said no vulnerability.

About 31% of the respondents indicated that there is high vulnerability of loss of cash and food crops such as rice due to Fulani-herdsmen and farmers crisis on food security in Ibillo, Akoko-Edo, 34% said there is vulnerability, 5% said moderate vulnerability, 17% said low vulnerability, and 13% said no vulnerability.

About 35% of the respondents indicated that there is high vulnerability of loss of millet due to Fulani-herdsmen and farmers crisis on food security in Ibillo, Akoko-Edo, 37% said there is vulnerability, 10% said moderate vulnerability, 11% said low vulnerability, and 7% said no vulnerability.

About 45% of the respondents indicated that there is high vulnerability of loss of maize due to Fulani-herdsmen and farmers' crisis on food security in Ibillo, Akoko-Edo, 39% said there is vulnerability, 11% said moderate vulnerability, 4% said low vulnerability, and 2% said no vulnerability.

About 40% of the respondents indicated that there is high vulnerability of loss of beans due to Fulani-herdsmen and farmers crisis on food security in Ibillo, Akoko-Edo, 30% said there is vulnerability, 27% said moderate vulnerability, 1% said low vulnerability, and 2% said no vulnerability.

Table 2.25: Effect of Fulani herdsmen and farmers crisis on farm practice

S/N	Farm Practices	Very Severe	%	Severe	%	Mild	%	Low	%	Not Severe	%
a.	Mixed cropping	40	27	34	23	31	21	24	16	21	14
b.	Bush Fallowing	32	21	60	40	30	20	24	16	4	3
c.	Irrigation practice	26	17	32	21	32	21	32	21	33	22
d.	Plantation	47	31	51	34	7	5	25	17	20	13
e.	Nomadic/Pastoral Farming	53	35	55	37	15	10	16	11	11	7
f.	Shifting Cultivation	67	45	58	39	16	11	6	4	3	2
g.	Livestock Breeding	60	40	45	30	40	27	2	1	3	2

Source: Fieldwork August, 2022

Table 4.25 and Fig 4.3 shows that the crisis between Fulani-herdsmen and farmers has a very severe effect on mixed cropping system, 40% of the respondents indicated that the crisis between Fulani-herdsmen and farmers has a severe effect on bush fallowing. About 22% of the respondents said the crisis between Fulani-herdsmen and farmers has no effect on irrigation farming, About 34% of the respondents indicated that crisis between Fulani-herdsmen and farmers has a severe effect on plantation, about 35% of the respondents said that the crisis between Fulani-herdsmen and farmers has a very severe effect on nomadic/pastoral farming, 45% of the respondents indicated that the crisis between Fulani-herdsmen and farmers has a very severe effect on shifting cultivation while 40% of the respondents said that the crisis between Fulani-herdsmen and farmers has a very severe effect on livestock breeding. This implies that the crisis between Fulani-herdsmen and farmers has a very severe effect on the different types of farm practice.

Table 4.26: Effect of Fulani-herdsmen and farmers crisis on food security

S/N	Option	Very Severe	%	Severe	%	Mild	%	Low	%	No Effect	%
a.	Increase in price of food items	43	29	28	19	30	20	15	29	26	17
b.	Food inaccessibility and affordability	36	24	27	18	28	19	37	25	22	15
c.	Food scarcity leading to hunger and famine	25	17	43	29	23	15	33	22	26	17
d.	Loss of famers income & source of livelihood	28	19	26	17	48	32	20	13	28	19
e.	Loss of farmlands & food produce	91	61	17	11	19	13	3	2	20	13
f.	Lack of food availability and utilization	62	41	71	47	8	5	6	4	3	2

Source: Fieldwork August, 2022

Table 4.26 reveals that 29% of the respondents indicated that the effect of Fulani-herdsmen and farmers crisis on food security resulting to the increase of price of food items is very severe, 25% said the effect of Fulani-herdsmen and farmers crisis on food security resulting on food inaccessibility and affordability is severe, 29% of the respondents indicated that the effect of Fulani-herdsmen and farmers crisis on food security resulting to food scarcity and in turn leading to hunger and famine is severe, 32% of the respondents indicated that the effect of Fulani-herdsmen and farmers crisis on food security resulting to loss of farmers income and source of livelihood is mild, 61% of the respondents indicated that the effect of Fulani-herdsmen and farmers crisis on food security resulting to loss of farmlands and food produce is very severe. About 41% of the respondents indicated that the effect of Fulani-herdsmen and farmers crisis on food security resulting to lack of food availability and utilization is very severe.

Table 4.27: Extent to which Fulani-herdsmen and farmers crisis not significantly depend on human activities

N.B: 4-To a very large extent, 3-To a great extent, 2-To a moderate extent, 1-To a small extent

S/N	Herdsmen and farmers crisis	4	%	3	%`	2	%	1	%
a.	Grazing on crops	52	33	25	17	38	25	35	23
b.	Depletion of vegetation in the north	5	3	12	8	98	65	35	23
c.	Harsh climate in the north	49	33	25	17	24	16	52	35
d.	Hostility between Fulani-herdsmen and farmers	87	58	13	8	23	15	27	18

Source: Fieldwork August, 2022

Table 4.27 shows that 33% of the respondents indicated that Fulani-herdsmen and farmers crisis to a very large extent dependent on the grazing of crops. About 65% of the respondents said Fulani-herdsmen and farmers crisis to a moderate extent dependent on the depletion of vegetation in the north. About 35% of the respondents indicated that Fulani-herdsmen and farmers crisis to a small extent dependent on harsh climate in the north and 58% of the respondents indicated that Fulani-herdsmen and farmers crisis to a very large extent dependent on hostility between Fulani-herdsmen and farmers. This implies that Fulani-herdsmen and farmers crisis dependents greatly on grazing of crops, depletion of vegetation in the north, harsh climate in the north and hostility between Fulani-herdsmen and farmers.

4.2.6 Management Options of the Fulani-Herdsmen and Farmers Crisis as it affects Food Security in Ibillo, Akoko-Edo.

Table 4.28: Management options of the Fulani-herdsmen and farmer's crisis as it affects food security

S/N	Options	Yes		No	
a.	Establish the cattle grazing field in various communities across the federal for herdsmen?	135	68	65	33
b.	Set up the school field system for those the internally displaced persons	142	71	58	29
c.	Establish the grazing policy of allocation some plots of land for herdsmen	183	92	17	9
d.	Farmers should be licensed to hold arms and weapons for self-defense	173	87	27	14
e.	The herdsmen and farmers association should meet to resolve the crisis	131	66	69	35
f.	The government should play a key role in handling this issue through conflict resolution policy	42	21	158	79

Source: Fieldwork August, 2022

From the table above, 68% of the respondents think it is advisable to establish the cattle grazing field in various communities across the federal for herdsmen while 33% disagreed. About 71% of the respondents agreed that government should set up the school field system for those the internally displaced persons while 29% disagreed. About 92% of the respondents agreed that government should establish the grazing policy of allocation some plots of land for herdsmen while 9% did not agree. About 87% agreed that farmers should be licensed to hold arms and weapons for self-defense while 14% did not agree. About 66% of the respondents agreed that the herdsmen and farmers association should meet to resolve the crisis while 34% disagreed. About 21% of the respondents agreed that the government should play a key role in handling this issue through conflict resolution policy while 79% did not agree.

4.4 Farm Record in Ibillo, Akoko-Edo

Table 4.29: Farm practices/agricultural productivity

	Farm Practices						
Zone	**Mixed cropping**	**Shifting cultivation**	**Bush fallowing**	**Pastoral/nomadic farming**	**Irrigation**	**Plantation**	**Total**
Ogbe	22.1	12.4	19.5	30.9	53.0	11.6	149.5
Ibillo	26.6	19.7	11.3	64.4	57.6	21.0	196.5
Igarra	25.5	18.3	18.4	99.1	62.2	12.7	236.2
Ekpeshi	20.4	15.6	17.9	79.2	53.9	16.8	203.8
Ikiran-Ile	28.4	14.7	16.3	58.3	59.4	13.5	190.6
Ekor	27.2	19.7	18.5	99.2	65.4	18.3	249.3
Total	**150.2**	**100.4**	**101.9**	**431.1**	**352.5**	**93.8**	**1229.9**
Mean	**25.0**	**16.73**	**16.98**	**71.85**	**58.75**	**15.6**	**205.0**

Source: Fieldwork August, 2022

Table 4.29 and Fig 4.4 show the different types of farm practices and agricultural productivity in the study area. It could be observed that crop yield in Ogbe recorded 149.5, Ibillo recorded 196.5, Igarra recorded 236.2, Ekpeshi recorded 203.8, Ikiran-Ile recorded 190.6 and Ekor recorded 249.3. It could also be deduced that mixed cropping system recorded 150.2, shifting cultivation practice recorded 100.4, bush fallowing system recorded 101.9, pastoral/nomadic farming recorded 431.1, irrigation farming recorded 352.5 and plantation agriculture recorded 93.8 having a total crop yield harvest of 1229.9 indicating that Akoko-Edo as an agrarian community is blessed with fertile soil which produces large crop yield on yearly basis.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION, RECOMMEDNATIONS

5.1 SUMMARY OF FINDINGS

The study examined the effects of Fulani herdsmen-farmers crisis on food security in Ibillo, Akoko-Edo region. The following findings were derived from the objectives;

The study examined the causes of Fulani herdsmen and farmers crisis in Ibillo, Akoko-Edo region. The study emphasized that grazing on crops, harsh climate in the north, severe weather condition, depletion of natural vegetation in the north and heavy rainfall in the south are the direct causes of Fulani-herdsmen and farmers crisis. These causes have often resulted to loss of farmlands and valuable farm properties in Ibillo, Akoko-Edo community especially the recent clash that led to the death of farmers in the community.

The study revealed that the level of awareness of Ibillo, Akoko-Edo people on issues relating to food security in the area is very low. The study findings obtained from the study showed that Akoko-Edo people lack awareness of securing their food produce during crisis especially the Fulani-herdsmen and farmers crisis.

The findings indicated that there is food scarcity during crisis in Ibillo, Akoko-Edo leading to food unavailability and inaccessibility as a result of Fulani herdsmen and farmers' crisis in Ibillo, Akoko-Edo region.

The study revealed the effect of Fulani herdsmen and farmers crisis on food security in Ibillo, Akoko-Edo region which includes destruction of properties and farmland. The findings showed that Fulani-herdsmen and farmers crisis has caused severe damage to farmland of most people in Ibillo, Akoko-Edo.

The study highlighted the management options of the Fulani herdsmen and farmers crisis as it affects food security in Ibillo, Akoko-Edo to include; government should establish the cattle grazing field in various communities across the federation for herdsmen, government should set up the school field system for the internally displaced persons, government should grazing policy of allocation some plots of land for herdsmen, farmers should be licensed to hold arms and weapons for self-defense, the herdsmen and farmers association should meet to resolve the crisis and government should play a key

role in handling this issue through conflict resolution policy. The findings showed that there are no mitigations strategies adopted in handling food security issues in Ibillo, Akoko-Edo.

Fig. 5.1: Showing Fulani-Herdsmen with their cattle at Aayo Farm, Ibillo, Akoko-Edo Region

5.2 CONTRIBUTION TO KNOWLEDGE

This study which examined the effects of Fulani-herdsmen and farmers crisis on food security in Ibillo, Akoko-Edo has exposed the people of Akoko-Edo especially farmers on the implications of Fulani-herdsmen. The study supported the idea of Eyekpimi (2016) in enlightening the people of Ibillo, Akoko-Edo on the causes of Fulani herdsmen and farmers crisis in Ibillo, Akoko-Edo region. The study contributed to existing knowledge on the causes of Fulani-herdsmen and farmers crisis in the area and emphasized that grazing on crops, harsh climate in the north, severe weather condition, depletion of natural vegetation in the north and heavy rainfall in the south are the direct causes of Fulani-herdsmen and farmers crisis.

The study corroborated adopted the concept of conflict and food security in enlightening the people of Ibillo, Akoko-Edo on the level of awareness of Ibillo, Akoko-Edo people on issues relating to food security in the area. The study has contributed immensely in providing alternative for cattle rearing and grazing so as to avoid farmers and Fulani-herdsmen crisis in Ibillo, Akoko-Edo.

5.3 RECOMMENDATIONS

The study recommended the following;

The government should play a key role in handling this issue through conflict resolution policy. Training herdsmen on local feed preservation techniques such as silage and hay would make a significant contribution towards seasonal dependency on feeds supply. It would further reduce the need for seasonal migration. Feed supply is generally not a problem during the rainy season. The excess herbage can be harvested, processed and stored against the dry season. Private investors can also tap into the business of feed manufacturing for ruminants. The poultry and aquaculture sub-sectors have well-established feed manufacturing companies and a lot of brands, but the ruminant sub-sector does not.

There are different types of animal trackers that herdsmen can use for effective monitoring of their animals during grazing. Since farmers are complaining about animals grazing on their crops, with these trackers, herders can prevent their animals from eating farmers' crops. In addition, it would protect the animals from cattle rustlers and proper record keeping.

Other recommendations include the following;

1. Avoiding the act of grazing too early, you can have the stockpiled in the rainy season (spring) so that there is enough grass in the dry periods (summer).

2. The use of a grazing chart can assist in planning out how to implement rotational grazing.
3. Monitoring rainfall patterns and the growth of pasture.
4. Maintaining and managing proper pasture residuals in the grazing area.
5. Making sustainable pasture management decisions in dry weather conditions, this can be achieved by learning more and more about sustainable pasture practices.
6. Proper land use management practices.
7. Trying to feed livestock with stored fodder.
8. Controlling the amount of time that livestock spends on the pastures.

5.4 CONCLUSION

The study concluded that the crises between Fulani-herdsmen and farmers are significantly depended on grazing of crops, depletion of vegetation in Ibillo, Akoko-Edo and harsh climate.

The study concluded that the crisis between Fulani herdsmen and farmers has significant effect on food security in Ibillo, Akoko-Edo region.

REFERENCES

Ayalew, M. (2013). "Food Security and Famine and Hunger". Retrieved 21 October 2013.

Ballard, T.; Coates, J.; Swindale, A.; Deitchler, M. (2011). Household Hunger Scale: Indicator Definition and Measurement Guide. Washington DC: FANTA-2 Bridge, FHI 360.

Barrett, C.B. (2010). "Measuring Food Insecurity". *Science*; Vol. 327 (5967), pp. 825–828.

Coates, J., Swindale, A. and Bilinsky, P. (2007). Household Food Insecurity Access Scale (HFIAS) for Measurement of Household Food Access: Indicator Guide (v. 3). Washington, D.C.:: Food and Nutrition Technical Assistance Project, Academy for Educational Development.

Damba, Z.A.B. (2007) *"Criminology and Criminal Justice"*; Ibadan: Spectrum Books.

Egodi, U. (2010) *"Religious Conflicts in Nigeria: Implications on Socio-Economic and Psychological Perceptions of Muslims in Igbo Land"*, pp. 1-8.

Eyekpimi, O. (2016). History of Fulani Herdsmen and Farmers Clashes In Nigeria. Published online on June 21, 2016

Fabiyi, M. & Adeleke, O. (2017). Why the Fulani Herdsmen & Farmers Fight: How Climate Change & the Boko Haram Crisis Created the Crisis and Six (6) Evidence-Based Policy Recommendations for its Resolution.

FAO (2003). Trade Reforms and Food Security: Conceptualizing the Linkages. FAO, United Nations Conference on Climate Change and Food Security.

FAO (2009). Declaration of the World Food Summit on Food Security. Rome: Food and Agriculture Organization of the United Nations.

FAO (2012). Agricultural and Development Economics Division. "Food Security". Retrieved June 8, 2012.

FAO (2013). "The State of Food Insecurity in the World 2013. The multiple dimensions of food security." FAO. Retrieved 26 November 2013.

FAO (2017) "The food system and factors affecting household food security and nutrition". Agriculture, food and nutrition for Africa: a resource book for teachers of agriculture. Rome: Agriculture and Consumer Protection Department.

Fraser, E (2007b). "Travelling in antique lands: using past famines to develop an adaptability/resilience framework to identify food systems vulnerable to climate change". *Climatic Change*; Vol. 83, pp. 495-514.

Fraser, E. (2003). Social vulnerability and ecological fragility: building bridges between social and natural sciences using the Irish Potato Famine as a case study. *Conservation Ecology*; Vol. 7, pp.2-9.

Godfray, H.C.J.; Beddington, J.R.; Crute, I.R.; Haddad, L.; Lawrence, D.; Muir, J. F.; Pretty, J.; Robinson, S.; Thomas, S.M.; Toulmin, C. (2010). "Food Security: The Challenge of Feeding 9 Billion People". *Science*; Vol. 327 (5967), pp. 812-818.

Gregory, P. J.; Ingram, J. S. I.; Brklacich, M. (2005). "Climate change and food security". Philosophical Transactions of the Royal Society. *Journal of Biological Sciences*; Vol. 360 (1463), pp. 2139-2148.

Ilufoye, S.O. (2009) "*Domestic and security threat in Niger Delta Region of Nigeria"*. Lagos: Sampters publisher.

James R. (2008) "Food crisis will take hold before climate change, warns chief scientist". Science Correspondent. *The Guardian. UK*. Retrieved November 13, 2011.

Janis, I.L. (1971) "Group think". *Psychology Today*; Vol. 5(6), pp. 43–46, 74–76.

Jehn, K.A. and Mannix, E.A. (2001) "The dynamic nature of conflict: A longitudinal study". *Academy of Management Journal*; Vol. 44(2), pp. 238–251.

John, V. (2007) "Global food crisis looms as climate change and fuel shortages bite". Environment Editor. The Guardian. UK. Retrieved November 13, 2011.

Julian, B. (2008) "Feed the world? We are fighting a losing battle, UN admits". Diplomatic Editor. The Guardian. UK. Retrieved November 13, 2011.

Kassam, B.F. (2015) "The Causes of Violent Inter-Religious Conflict and its Effects on Residential Relationships in Jos, Plateau State, Nigeria", Kimmage Development Studies Centre, Jos, pp. 2-7

Maxwell, D.; Caldwell, R.; Langworthy, M. (2008). "Measuring food insecurity: Can an indicator based on localized coping behaviors be used to compare across contexts?". *Food Policy*; Vol. 33(6), pp. 533-540.

Maxwell, D.G. (2016). "Measuring food insecurity: the frequency and severity of coping strategies". *Food Policy*; Vol. 21(3), pp. 291-303.

Moya K.M. (2011). "Has Urbanization Caused a Loss to Agricultural Land?". Moyak.com. Retrieved November 13, 2011.

Oldewage, T.; Wilna, H.; Dicks, E.G.; Napier, C.E. (2006). "Poverty, household food insecurity and nutrition: Coping strategies in an informal settlement in the Vaal Triangle, South Africa". *Public Health*; Vol. 120(9), pp. 795-804.

Patel, R. (2013). "Raj Patel: 'Food sovereignty' is next big idea". Financial Times. Retrieved 17 Jan 2014.

Perez, E.R. and Segall, C.A.M (2008). "Food insecurity measurement and indicators". The *Journal of Nutrition*; Vol. 21, pp. 15-26.

Robert, A.B. (2012) "Conflict in Organizations". In Kevin, R.M.; Frank, E. S.; Psychology in Organizations: integrating Science and Practice. Psychology Press. pp. 197–216.

Sophia, J. (2007). Social Psychology in Sport. Human Kinetics, p. 34.

Swindale, A. & Bilinsky, P. (2006). Household Dietary Diversity Score (HDDS) for measurement of household food access: Indicator guide (v.2). Washington DC: Food and Nutrition Technical Assistance Project, Academy for Educational Development.

Swindale, A. and Bilinsky, P. (2006) "Development of a universally applicable household food insecurity measurement tool: process, current status, and outstanding issues.". *The Journal of Nutrition*; Vol. 136(5), pp. 1449-1452.

UNEP (2011). Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication, www.unep.org/greeneconomy

United Nations (2013). "Sustainable food systems vital to end hunger, malnutrition, UN says on World Food Day". Retrieved 2 November 2013.

United Nations (2015). United Nations Committee on Economic, Social, and Cultural Rights. The right to adequate food. Geneva: United Nations.

USDA (2010). Food Security Measurement. *"Archived copy". Archived from the original on 2011-01-07. Retrieved 2010-11-28.*

Vincent, H.A, Wiersema, J, Dobbie, S.L., Kell, S.P, Fielder, H, Castañeda, Alvarez, N.P., Guarino, L, Eastwood, R, Leon, B, Maxted, N. (2012). A prioritized crop wild relative inventory to help underpin global food security

Walsoft, F. (2008). "Experts: Global Food Shortages Could 'Continue for Decades'". Marketoracle.co.uk. Retrieved November 13, 2011.

Walt, V. (2008). "The World's Growing Food-Price Crisis". Time. Retrieved November 13, 2011.

Webb, P; Coates, J.; Frongillo, E.A.; Rogers, B.L.; Swindale, A.; Bilinsky, P. (2006). "Measuring household food insecurity: why it's so important and yet so difficult to do". *The Journal of Nutrition*; Vol. 136(5), pp. 1404–1408.

APPENDIX I

DEPARTMENT OF URBAN & REGIONAL PLANNING,
SCHOOL OF ENVIRONMENTAL STUDIES,
AUCHI POLYTECHNIC, EDO STATE.

RESEARCH QUESTIONNAIRE

Dear Respondent,

The researcher is an undergraduate student of the above mentioned department/institution who is conducting a research study on the survey of "The effects of Fulani herdsmen and farmers crisis on food security in Ibillo, Akoko-Edo, Edo State".

This questionnaire is basically meant for academic purpose and to fulfill thee academic requirement for the award of HND in Urban and Regional Planning. I assure you that all information provided by you will be treated with utmost confidence and used strictly for the purpose for which it was designed. Please feel free to participate in this exercise.

Please you are requested to complete the questions raised in the questionnaire by ticking (√) appropriate boxes and fill in the blank spaces where necessary.

Thank you in anticipation.

Yours Faithfully,

Olajide Sunday Aruezor (Researcher).

SECTION A: Bio-Data

1. Sex: (a) Male ( ) (b) Female ( )
2. Age: (a) Below 18 ( ) (b) 18-20 ( ) (c) 21-30 ( ) (d) 31 and above ( )
3. Religion: (a) Christianity ( ) (b) Muslim ( ) (c) Traditional Worshiper ( )
4. Marital Status: (a) Married ( ) (b) Single ( )
5. Occupation: (a) Farmer ( ) (b) Herdsmen ( ) (c) Self-employed ( ) (d) Student ( ) (e) Civil servant ( )
6. Educational Background: (a) Educated ( ) (b) Not Educated ( )

SECTION B: Causes of Fulani herdsmen and farmers crisis in Ibillo, Akoko-Edo region;

Please tick (√) the alphabet that corresponds with your answers.

1. Do you carryout farming activities within Ibillo, Akoko-Edo reserve areas where herdsmen attack is severe? (a) Yes ( ) (b) No ( )
2. If yes have you been attacked by Fulani herdsmen? (a) Yes ( ) (b) No ( )
3. What do you think are the cause(s) of Fulani herdsmen and farmers crisis? (a) Religious differences () (b) Cattle grazing on crops ( ) (c) Harsh climate in the north ( ) (d) Economic hardship/recession ( ) (e) High cost of feeding cattle's at ranch ( ) (f) Others……
4. Is Fulani herdsmen and farmers crisis alongside food security problem severe in your area? (a) Yes ( ) (b) No ( )
5. What effect does the following causes of Fulani herdsmen and farmers crisis have on food security

		Severity/Effects				
S/N	**Causes**	**Very Severe**	**Severe**	**Mild**	**Low**	**No effect**
a.	Harsh climate in the north					
b.	Economic hardship/recession					
c.	High cost of feeding at cattle ranch					
d.	Religious crisis between Muslims and Christians					
e.	Cattle grazing on farmers crops					
f.	Boko Haram crisis in the north					

g.	Depletion of vegetation in the north					

SECTION C: Level of awareness of Ibillo, Akoko-Edo people on issues relating to food security in the area

6. Are you aware of food security problems caused by the recent Fulani herdsmen and farmers crisis? (a) Yes ( ) (b) No ( )
7. What is your level of awareness on the crisis between Fulani herdsmen and farmers in Akoko-Edo? (a) Very High ( ) (b) High ( ) (c) Moderate ( ) (d) Low ( ) (e) Very Low ( )
8. What is the level of awareness of Akoko-Edo people on issues relating to food security in the area?

		Scale Rating				
S/N	**Awareness**	**Very High**	**High**	**Moderate**	**Low**	**Very Low**
a.	Food Security awareness/campaign					
b.	Conflict resolution between herdsmen and farmers					
c.	Rural agricultural development programs					
d.	Climate change awareness programs					
e.	Public enlightenment and education					
f.	Adaption/mitigation strategies					
g.	Grazing field/cattle ranching system					
h.	Communal farming system					

9. Which of the following crisis between Fulani herdsmen and farmers affects the level of awareness of the people on food security? (a) fear to go to farm as a result of the crisis ( ) (b) Farmers armed with weapons for self-defense ( ) (c) Premature harvest during the crisis ( ) (d) Poor crop yield ( ) (e) Lost of farmlands and farm produce ( )
10. To what extent have the people in your area secured their food and agricultural produce during Fulani herdsmen and farmers crisis?

N.B:

1 - To a very large extent

2 - To a great extent

3 - To a moderate extent

4 - To a small extent

5 - To a very small extent

		Extent				
S/N	**Herdsmen and farmers crisis**	**1**	**2**	**3**	**4**	**5**
a.	Fear to go to farm due to the crisis					
b.	Purchase of weapons by farmers for self-defense					
c.	Poor crop/agricultural yield due to the crisis					
d.	Loss of farmland due to the crisis					
e.	Premature harvest due to the crisis					

Section D: The level of food availability and accessibility as a result of Fulani herdsmen and farmers crisis in Ibillo, Akoko-Edo region

11. What is the level of food availability as a result of Fulani herdsmen and farmers crisis in Ibillo, Akoko-Edo region? (a) Very High ( ) (b) High ( ) (c) Moderate ( ) (d) Low ( ) (e) Very Low ( )
12. What is the level of food accessibility as a result of Fulani herdsmen and farmers crisis in Ibillo, Akoko-Edo region? (a) Very High ( ) (b) High ( ) (c) Moderate ( ) (d) Low ( ) (e) Very Low ( )

13. Please indicate if you agree to the following or not

S/N	**Options**	**Yes**	**No**
a.	Do you have access to food produce after the Fulani herdsmen and farmers crisis?		
b.	Are there foods available in your area after the Fulani herdsmen and farmers crisis?		
c.	Are the food produce in Ibillo, Akoko-Edo accessible after the Fulani herdsmen and farmers crisis?		
d.	Do you experience food scarcity in your area as a result of Fulani herdsmen and farmers crisis?		
e.	Are the food produce in Ibillo, Akoko-Edo affordable after the Fulani herdsmen and farmers crisis?		

f.	Is there increase in price of food items after the Fulani herdsmen and farmers crisis?		

14. What is the level of food availability in your area? (a) Very High ( ) (b) High ( ) (c) Moderate ( ) (d) Low ( ) (e) Very Low ( )
15. What is the level of food accessibility in your area? (a) Very High ( ) (b) High ( ) (c) Moderate ( ) (d) Low ( ) (e) Very Low ( )
16. What is the level of food affordability in your area? (a) Very High ( ) (b) High ( ) (c) Moderate ( ) (d) Low ( ) (e) Very Low ( )
17. What is the level of food utilization as a result of Fulani herdsmen and farmers crisis in Akoko-Edo region? (a) Very High ( ) (b) High ( ) (c) Moderate ( ) (d) Low ( ) (e) Very Low ( )
18. What is the level of food affordability as a result of Fulani herdsmen and farmers crisis in Ibillo, Akoko-Edo region? (a) Very High ( ) (b) High ( ) (c) Moderate ( ) (d) Low ( ) (e) Very Low ( )

SECTION E: The effects of Fulani herdsmen and farmers crisis on food security in Ibillo, Akoko-Edo region

19. What is the vulnerability of farm products due to the crisis between Fulani herdsmen and farmers?

S/N	Farm Produce	High Venerability	Venerability	Moderate Venerability	Low Venerability	Not Venerable
a.	**Tuber Crops Agriculture**					
	Yam					
	Cassava					
	Cocoyam					
	Groundnut					
b.	**Plantation Agriculture**					
	Plantain					
	Banana					
	Fruit					
	Vegetable					
c.	**Cash & Food Crops**					
	Rice					
	Millet					
	Maize					
	Beans					

20. How has the crisis between Fulani herdsmen and farmers affected the following types of farm/agricultural practice in your area?

		Severity/Effect				
S/N	**Farm Practices**	**Very Severe**	**Severe**	**Mild**	**Low**	**Not Severe**
a.	Mixed cropping					
b.	Bush Fallowing					
c.	Irrigation practice					
d.	Plantation					
e.	Nomadic/Pastoral Farming					
f.	Shifting Cultivation					
g.	Livestock Breeding					

21. What effect does the crisis between Fulani herdsmen and farmers has on food security?

		Severity/Effects				
S/N	**Option**	**Very Severe**	**Severe**	**Mild**	**Low**	**No Effect**
a.	Increase in price of food items					
b.	Food inaccessibility and affordability					
c.	Food scarcity leading to hunger and famine					
d.	Loss of famers income & source of livelihood					
e.	Loss of farmlands & food produce					
f.	Lack of food availability and utilization					

22. To what extent does Fulani-herdsmen and farmers crisis not significantly depend on the following?

N.B:

4 - To a very large extent

3 - To a great extent

2 - To a moderate extent

1 - To a small extent

		Extent			
S/N	**Herdsmen and farmers crisis**	**4**	**3**	**2**	**1**
a.	Grazing on crops				
b.	Depletion of vegetation in the north				
c.	Harsh climate in the north				
d.	Hostility between Fulani-hersdmen and farmers				

SECTION G: The management options of the Fulani herdsmen and farmer's crisis as it affects food security in Ibillo, Akoko-Edo

23. Please indicate if you agree to the following management options of the Fulani herdsmen and farmer's crisis as it affects food security.

S/N	**Options**	**Yes**	**No**
a.	Do you think it is advisable to establish the cattle grazing field in various communities across the federal for herdsmen?		
b.	Set up the school field system for those the internally displaced persons		
c.	Establish the grazing policy of allocation some plots of land for herdsmen		
d.	Farmers should be licensed to hold arms and weapons for self-defense		
e.	The herdsmen and farmers association should meet to resolve the crisis		
f.	The government should play a key role in handling this issue through conflict resolution policy		

24. Apart from the remedies above please mention other management options you know?

i. ……...
ii. ……...
iii.……...
iv.……...
v. ……...
vi.……...

APPENDIX II

POPULATION PROJECTION AND SAMPLE SIZE

i. POPULATION PROJECTION

Formula

$Pn = Po*(1+r/100)^{n}$

Where Pn = Projected population

Po = Present population (26,449)r =

growth rate (2.8%)

n = number of years (31)Pn =

$Po*(1+r/100)^{n}$

$= 26,449 * (1 + 2.8/100)3^{1}$

$= 26,449 * (1 + 0.28)3^{1}$

$= 26,449 * (1.028)3^{1}$

= 26,449 * (2.3538921167)

= 62,258 persons

ii. SAMPLE SIZE

Sample size = 0.04% of total population

Total population = 62,258

Sample size = $\frac{0.046}{} * 62,258 / 100 = 29$