Economic impacts of violent conflicts in Nigeria

Abstract

The study analysed the impacts of violent conflicts on the economies of rural communities in Nasarawa State, Nigeria. Primary data were collected from the respondents using a structured interview schedule, while focus group discussions (FGD) sessions were employed to assess effects of conflicts on communities. Data were analysed using simple descriptive statistics, alternative resource cost estimation (ARCE) and content analysis while the Likert scale was used to measure the perception of respondents towards the causes of conflicts. There were six (6) major categories of conflicts identified in the area. These categories were communal conflicts, ethnic conflicts, resource conflicts (most often land conflicts), politically motivated conflicts, conflicts due to traditional chieftaincy, and the conflicts between state forces and militia groups. Expansion of agro-pastoralism (4.6) and Extensive sedentism (4.5) were very serious factors that were perceived to lead to conflicts. A total of ₦2,289,859,549 worth 30.28% of the State's 2018 IGR were lost in these conflicts. It was recommended that laws regarding people with diverse backgrounds and socioeconomic needs and population growth in relation to limited resources should be developed with great care and attention paid to all the parties involved in the process. Participatory approaches to problem identification, conflict management and resolutions need to be established in the communities with regular interactions between and among locals periodically and frequently.

Keywords: Violent conflicts, rural economies, agriculture, impact.

INTRODUCTION

Several contexts affect the rural economy in Nigeria and define or influence definitions of livelihood strategies of dwellers thereof. Conflict is a very critical context. This is coupled with population pressure and hence, land scarcity, land conflicts have raised concerns over likely food insecurity and high poverty incidence in the affected areas (Andre and Plateau, 1998; Deininger and Castagnini, 2006). Farmers and pastoralists have identified conflict as the most important problem they face in the course of executing their different trades (Negedu, 2005; van't Hooft *et al*., 2005). Most households in Nigeria's middle belt have reportedly experienced land-related crisis and several villages have experienced conflicts of different forms and varying proportions (Nyong and Fiki, 2005; De Haan, 2002).

Sociologists define conflict as a social fact in which at least two parties are involved and whose origins are differences either in interests or in the social position of the parties (Imbusch, 1999). Wehrmann (2005) posited that land conflict can be understood as a misuse, restriction or dispute over property rights to land. Viewed as such, land conflicts may be aggravated even further when the conflicting parties have considerable differentials in social status, this is to the disadvantage of the party further lower in the social hierarchy. Zartman (1991) advances that conflicts are ineluctable in human interactions and are essentially

concomitant with decisions and choices. This point of view projects the position of conflict theorists who see conflicts as effectively unavoidable in society.

Conflict is further defined as a situation in which two or more parties strive to acquire the same scarce resources at the same time (Wallensteen, 2002). Scholars agree that there has to exist multiple factors acting to have a conflict and that the time as a factor of conflict is important. What does cause concern, however, is the term 'scarce resource'. The focal point of this argument is scarcity, but resources need also be included in the discussion. Wallensteen (2002) pointed out that resources are not only economic in nature, and that the terminology may very well exclude in its scope conflicts involving economic orientation, human security, environment, historical issues, et cetera. Such conflicts are not necessarily about resources, and when they are, these resources are, more importantly, not necessarily scarce. In congruity, Gausset *et al*. (2005) asserted that "the same territory, landscape or resource can be perceived very differently by different people, and what has been interpreted as conflict over scarce resources often appears to be conflict of perspectives, over the definition of resource, and over the resource management rules." Conflict may be said to exist when two or more groups engage in a struggle over values and claims to status, power and resources in which the aims of the opponents are to neutralize, injure or eliminate the rivals (Jeong, 2000).

A conflict is, moreover, in many cases based on perceptions, rather than on attitudes or behaviour as it has generally been defined (Wallensteen, 2002). Conflict is a demonstration of parallel purposes of distinct or similar political groups which often ends in political violence. According to Anifowose (1982), who contextualized it in a Weberian sense, in his book Violence and Politics in Nigeria, conflict is an acceptable weapon to ventilate anger. Conflict also depicts different perceptions, which may not strictly result in hostility. This way, conflict simply means 'a different perception' or view to an issue or situation (Barash and Webel, 2002). Here, it may mean a different interpretation of a motive or a different world-view as perceived by different people from their own partial perspectives. These include religion, customs, cosmologies or values. Such differences may never culminate in direct and sharp confrontations. On the other hand, however, different perceptions, values or world-views may transcend just 'differences' and result in the extreme connotation of conflict. Inter-faith violence is a critical example of such breakdown. Conflict may also refer to hostility or physical confrontation (Jeong, 2000). When goal incongruence or perception/value differences reach a climax, a manifestation of actual hostility or clashes is possible. Yet conflict is necessary for the perpetuation of society, "the desire to eradicate conflict, the hope for harmony and universal cooperation, is the wish for a frozen, unchanging world with all relationships fixed in their patterns – with all in balance" (Rummel, 1976).

Rummel (1976) viewed conflict as a balancing of vectors of powers, of capabilities to produce effects. It is a clash of powers. However, conflict does not amount to a balance, or equilibrium, of powers. It is not a stable resultant. 'Conflict is the pushing and pulling, the giving and taking, the process of finding the balance between powers.' Rummel further established that conflict existed in the chronological levels of potentiality, dispositions, and

manifestations. As a potentiality conflict can be seen to mean the space available for conflict to occur. Potentiality is the environmental provisions that are likely to trigger conflicts as a result of the divergent realities and perspectives that are ever-present. It may be called a conflict-space. Disposition, and powers, on the hand, refers to the potential for conflict gradually transforming toward specific trends and gaining the strength to be manifest. Examples of conflict structures that may describe dispositions are slave and master, bourgeoisie and proletariat, peasant and landowners. If these two actors in the three categories of examples agree to their position in society then there exists a conflict structure. However, if modernity and civilization cause the weaker actors, such as the slaves for instance, in any of the categories to realize the need for equality and strive for it and the masters see the need to secure their position and interests then a conflict situation results. That is a manifestation of conflict. Manifestation is the last level of conflict. In manifestations, the opposing powers are specific and have been fully expressed. It is like slaves finally holding meetings and preparing for a full-scale rebellion with their masters. Manifestations, however, exist is three stages: opposing attempts to produce results (opposing powers), the process of balancing of powers, and a state of the actual balance of the powers. Once powers are balanced the conflict is over.

In the sense of language, all wars are conflicts but not all conflict situations are wars. War is a state of mutually declared aggression between two or more parties prosecuted by conventional (uniformed and armed) soldiers, with the knowledge and observation of a third (neutral) party who sees to it that acts are within the rules of engagement (Waltz, 2007). This conceptualization presents a unique contradiction in a number of conflicts across different global regions and in the world at large. The conflict in Mali is regarded as a state of war. On the other hand, the crisis in the Democratic Republic of Congo (DRC) is not 'war' but 'conflict'. This is because the M23 in DRC is not a conventional army, and it lacks any such legitimacy to declare war. It is a rebel group that seeks to topple a legitimate government using illegal and unrecognized means.

As far as causality is concerned, except for the Islamist uprising of Boko Haram, the current wave of violence in the north and the Middle Belt region of Nigeria is predominantly designated by clashes between Fulani pastoralists and farmer groups and sporadic inter-ethnic clashes in the major cities (Idemudia and Uwem, 2006). Nigeria's middle belt region is the country's most ethnically diverse. The region is also the country's most productive in terms of agricultural productivity potentials and real productivity statistics. The ethnic diversity of the middle belt has led to a protracted recurrence of violent conflicts that claim innumerable lives of people and cost millions in losses of property, livestock and agricultural products on a yearly basis with violent conflict recurrences rising to double-digit figures in some locations within the region. Across 4 States of the middle-belt region (Benue, Nasarawa, Plateau and Kaduna) a total calculated cost of the recurrent violent crises was put at 1.25 billion naira (or about 7.6 million USD) (McDougal *et al*., 2015a). On the average, household members from the affected areas were willing to invest up to 15% of this amount in order to ensure that conflicts do not occur – this depicts the degree of desperation crises situations subject people who suffer them to.

Farmer-pastoralist and other communal conflict typologies thrive upon the already existing cultural and religious tensions prevalent in several communities and escalate quickly along their trail. The violent clashes between pastoralists and farmers date back several thousand years. The trend of these clashes around Nigeria shows a steady increase in their incidence (Taiwo, 2010). Desertification further north of the country and complications arising from climate change have both impacted upon the distinction between a grazing field and a cropland area, and further made the middle-belt a haven for pastoralists in a desperate search for pasture. For the pastoralists the trend of nomad herding has been altered significantly, nowadays pastoralists do not merely come to graze, they come to stay and stay to conquer. Population explosions have forced farmers into dedicating more land areas to cultivation and climate change has made scarce the desired stock of pasture. Therefore, pastoralists have been forced to enter cropped lands in a bid to meet the herd's nutritional requirements (IRIN News, 2011).

A major difficulty that arises from internal conflict is that hunger is more often than not used to target both the armed groups and civilians (Messer, 1998). Consequently, hunger persists long after the end of the war. This is because, to gain a needed advantage in conflict, different factions target the sources and resources that ensure the survival of their opponents. These include distribution channels, production resources, manpower and other conditions necessary for food production. That conflict has severe negative economic and social consequences is not under dispute, but analysing the extent of this is problematic given the lack of reliable data at the micro-economic level (Mohammed, 1999).

Sulaiman and Ja'afar-Furo (2010) studying the economic effects of farmer-grazier conflicts in Nigeria with Case Study of Bauchi State employed descriptive statistics, t-test and alternative cost technique concluded that conflicts cost arable farmers ₦80,075,172.00 losses in monetary term while the pastoralists incurred ₦7,047,013.00 in the conflicts. Furthermore, the income of farmers in the conflict area was significantly ($p<0.05$) lower than those in non-conflict areas. The study focused strictly on Fadama conflicts between farmers and pastoralists and not on conflicts across all agricultural areas. This limited the scope of the study and the restriction to just a specific category of farmers (Fadama).

McDougal *et al*. (2015a) analysing the macroeconomic benefits of farmer-pastoralist peace in Nigeria's Middle Belt States using an input-output analysis approach concluded that the potential benefit of farmer-pastoralist peace in the Middle Belt States amounted to around 2.8 per cent of the official Nigerian GDP, or around 0.8 per cent of total Nigerian GDP, inclusive of the informal sector, an amount worth about ₦2,256,883,491. The extrapolation of this study relied principally on IGR of States which did not account for several external incomes and is said to be 3.5% less than actual figures. This fact has threatened underestimation of actual costs by the study. As an improvement, we will focus on possible costs in a counterfactual approach using alternative costs forgone as a result of conflicts.

Sulaiman *et al*. (2011) in their study of farmers' socio-economic factors influencing resource use conflicts in a typical Fadama area in Nigeria focusing on Bauchi State used correlation analysis and regression analysis to discover strong relationship existing between the selected socio-economic variable and conflict incidence for both arable farmers and pastoralist in the

Fadama areas of Bauchi State. They also found some of the selected socio-economic characteristics of the communities to strongly influence conflict incidences suggesting that improvement in variables such as education and accessibility to grazing reserves would reduce conflict incidences.

Ani *et al*. (2015) analysing effects of communal conflicts on agricultural extension services delivery in Imo State, Nigeria used simple descriptive statistics and observed that conflicts hindered the smooth operation of extension personnel who transfers the knowledge. The agents were observed to have been hindered by conflicts of various magnitudes which made carrying out extension services extremely difficult.

Kughur *et al*. (2017) studied the effects of communal crises on selected crops production among farmers in Langtang North Local Government Area of Plateau State, Nigeria employed correlation analysis and posited that 38.8% communal crises were caused by religion, 43.9% of communal crises leads to loss of lives, 87.8% used assorted types of guns during communal crises and there was a significant reduction in quantity and value of money on crops produced before and after communal crises.

Chikaire *et al*. (2016) in the study of communal clashes/conflicts: bane of achieving food production and security among farming households in South-East, Nigeria used simple descriptive statistics presented a result indicating that land dispute, Ezeship tussle (traditional ruler), counterclaims to lands, poverty, unemployment were chief causes of communal conflicts. The effects of conflict on food production and food security included loss of lives, increased hunger, farmland abandonment, labour migration, poor yield, malnutrition, poor savings, and displacement of people, increase in transportation costs and increased prices of produce.

Sambe *et al*. (2013) in their study of communal violence and food security in Africa using secondary data analysed that communal violence has both direct and indirect consequences on food security. They found that conflict limited people's access to food through destruction of infrastructure necessary for food production, cutting off access to food supplies and ultimately leading to famine. Communal violence was also found to lead to physical destruction and plundering of crops, and livestock, harvest and food reserves. Conflicts were observed to drive youth out of agriculture.

Uyang *et al*. (2013) using chi-square analysis in their study of communal land conflict and food security in Obudu Local Government Area of Cross River State, Nigeria observed that frequent communal land conflicts in contemporary Nigeria have exacerbated food insecurity in the society. Apart from the people killed and properties lost, they reported massive crop loss, loss of stored food and consequent increase in food prices and famine. Communal land conflicts cause food emergencies and able-bodied men that would have worked on the farm to migrate to non-conflict areas.

Adisa (2012) in his book "Land Use Conflict between Farmers and Herdsmen – Implications for Agricultural and Rural Development in Nigeria, Rural Development – Contemporary Issues and Practices" depended on Probit analysis to determine the influence of respondents' socio-economic characteristics on their coping strategies. He concluded that Conflict between

arable crop farmers and cattle herdsmen over the use of agricultural land was still pervasive in Nigeria, and portends grave consequences for rural development. It demonstrated great potential to affect various aspects of rural life. The conflicts had far-reaching economic, production and socio-psychological effects on the households of most respondents. However, conflict actors and persons affected have used many strategies to cope with the effects of conflict.

McDougal *et al*. (2015b) analysing the effect of farmer-pastoralist violence on income relied on new survey evidence from Nigeria's Middle Belt States using a negative binomial instrumental variables model, they found an inverse relationship between violence and household incomes. Incomes could be increased by between 64 to 210 per cent of current levels if violence related to the farmer-pastoralist conflict in the four study states were reduced to near-zero. Cumulatively, they found that forgone income represents 10.2 per cent of the combined official state domestic product in the study area. After incorporating an estimate of the size of the informal economy, the microeconomic cost of farmer-pastoralist conflict to the total economy is approximately 2.9 per cent.

Problem Statement

A Mercy Corp study of 2015 concluded that annual economic losses due to violent conflicts emanating from 4 middle belt states (Benue, Kaduna, Nasarawa and Plateau) could reach 109 million naira and losses in internally generated income (IGR) stood at 347 million naira. The study put Nigeria's macroeconomic progress in a conflict-free scenario at US$ 13.7 billion per annum. Furthermore, microeconomic costs of farmer-pastoralist conflicts were estimated to reach up to US$ 9.2 billion annually constituting about 2.9% of formal and informal GDPs of the affected states. Agriculture was the hardest hit sector as it is the mainstay of the region's economy (McDougal *et al*., 2015a). More so, the continuous accumulation of development that results from one development continuum forming the foundational structure upon which subsequent development eras would stand is continually lost as social systems that are conflict-prone continue to return to the lowest, or near lowest, development levels. A situation that forces them to begin all over again. The socio-economic costs of conflicts over the past 10 – 20 years in Nasarawa State are very scarce. While estimates for state-wide and multi-state losses occasioned by perennial violent conflicts in the middle belt and other regions in Nigeria have been made (McDougal *et al*., 2015a; 2015b; Sulaiman and Ja'afar-Furo, 2010; Sulaiman *et al*., 2010; Ikurekong *et al*., 2012; Chikaire *et al*., 2016; Kughur *et al*., 2017), this study was in order to fill the gap in literature on socio-economic impact of violent conflicts in Nasarawa State. The study is important to elucidate the imperative of incorporating conflict into agricultural policy given the significant economic costs of violent conflicts and because conflict is never factored into Nigeria's national agricultural policies despite the fact that they have become recurrent phenomena in rural Nigeria. The study sort to identify the remote and immediate causes of recent crises in the State; ascertain the major types of conflicts that occur in the area; describe the effects of conflicts on households and communities; and, determine the economic and social impacts of conflicts on the rural households and communities.

METHODOLOGY

Description of the study area

Nasarawa State is bordered to the North by Kaduna State, to the West by the Federal Capital Territory, Abuja to the South by Kogi and Benue States and to the East by Taraba and Plateau States. The State is bordered with Kaduna state in the north, Abuja, the Federal Capital Territory to the west, Kogi and Benue states in the south and Taraba and Plateau states in the east (Marcus and Binbol, 2007). The climate in Nasarawa is referred to as a local steppe climate. In Nasarawa, there is little rainfall throughout the year. According to the Köppen and Geiger climate classification, this climate is classified as BSh (Peel *et al*., 2007). This is explained thus; BS – Steppe (semi-arid) while h – Hot Arid (Tann ≥ +18°C). The average annual temperature is 28.4°C in Nasarawa. About 839 mm of precipitation falls annually. The State has a total land area of 27,117 km^2. Nasarawa State is located at latitude 8.5705°N and longitude 8.3088°E (Ekwe *et al*., 2011).

Agriculture as the mainstay of its economy with the production varieties of food and cash crops throughout the year (Marcus and Binbol, 2007). It also contains various minerals such as salt, baryte, and bauxite, which are mostly mined by artisanal miners. A network of roads exists within the state, linking many rural areas and major towns. Nasarawa State is home to the Farin Ruwa Falls in Wamba Local Government Area of the State. Farin Ruwa falls is reputed to be one of the highest falls in Africa. There is also the Salt Village in Keana Local Government Area of the State. It produces naturally iodized salt from the lake located near it.

Some of the ethnic groups in Nasarawa State are the Agatu, Alago, Basa, Ebira, Eggon, Gbagyi, Gwandara, Mada, Migili and Tiv. There are over 20 languages spoken in the state, including Agatu, Alago, Basa, Eggon, Gbagyi, Gade, Goemai, Gwandara, Ham, Kofyar, Migili, Mada and many others (Yari *et al*., 2002). The dominant religions in Nasarawa State are Christianity and Islam. The State is also home to a number of traditional religion practitioners (www.facts.ng/nigerian-states/nasarawa). As at the 2006 census, Nasarawa state had a population of 2,040,097 (NPC, 2007). The population in 2018 is projected to be 3,013,183 persons at 3% annual growth rate.

Located in the North Central Geo-political zone of Nigeria, Nasarawa State is blessed with abundant mineral resources and for this reason, it is tagged the "Home of Solid Minerals". The State is endowed with abundant solid mineral resources with also the possibility of petroleum occurrence in parts of her sedimentary basin (Obaje *et al*., 2007). Prominent among the mineral deposits of the State are coal, barytes, salt, limestone, clays, glass sands, tantalite, columbite, cassiterite, marble, iron ore and gold. The three rock types that constitute the components of Nigeria geology, namely the rocks of the Basement Complex, the Younger Granites and Sedimentary rocks are all exposed in Nasarawa State (Ekwe *et al*., 2011).

Nasarawa State has thirteen (13) Local Government Areas; each of them has a chairman as its administrative head. The State is divided into three (3) divisions based on the Senatorial district. There are three agricultural zones in Nasarawa State as adopted by the State ADP. The Southern zone comprises Lafia, Doma, Obi, Keana and Awe. The Western zone consists of Karu, Keffi, Nasarawa and Toto while the Central zone includes Nasarawa-Eggon,

Akwanga, Kokona and Wamba. The State is characterized by a tropical sub-humid climate with two distinct seasons – the wet season and dry season. The wet season starts from May and ends in October while the dry season is experienced between November and April. The Sahelian region is usually characterized by climatic variations and irregular rainfall patterns which ranges between 200–600mm with a coefficient of variation ranging between 15–30% (Mitchell *et al*., 1966; Kandji *et al*., 2006). Agidi *et al*. (2018) reported rainfall cessation after studying daily rainfall record from 1998 – 2015, the averages of onset dates, cessation dates and length of rainy season dates across the State were not uniform. The study advanced evidence that rainfall decline had occurred in the period investigated.

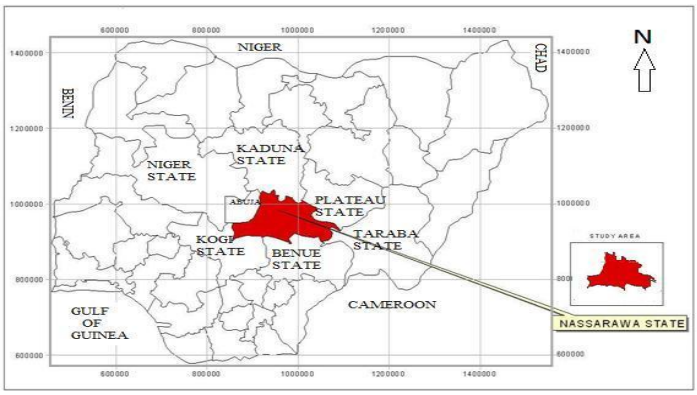

Fig. 1: Map of Nigeria showing Nasarawa State

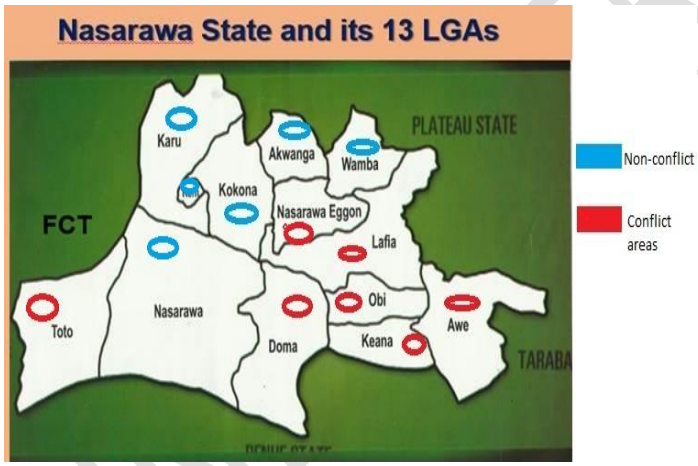

Fig 2: Map of Nasarawa State showing study areas

Sampling Technique and Sampling size

The study population encompassed returnees affected by the conflict and people who did not move at all from the rural areas in the 7 Local Government Areas, LGAs (Keana, Obi, Nasarawa Eggon, Toto, Lafia, Doma and Awe) of Nasarawa State where significant violent conflicts have occurred in recurrent trend. Cochran's formula for calculating sample size when the population is infinite (that is, if the population is greater than 50,000) was employed to determine an accurate sample population. Cochran (1977) developed a formula to calculate a representative sample for proportions given as:

$$n_0 = \frac{z^2 pq}{e^2}$$

Where:

n_o is the sample size

z is the selected critical value of desired confidence level,

p is the estimated proportion of an attribute that is present in the population,

q =1 – p, and;

e is the desired level of precision

Because the population of Nasarawa State is large and has a great degree of variability, we assume variability of 50% (p = 0.5), the confidence level of 95% (5%), precision level of 0.05.

Therefore, p = 0.5; q = 1 – 0.5; e = 0.05; z = 1.96

$$n_0 = \frac{(1.96)^2(0.5)(0.5)}{(0.05)}$$

$$= \frac{384 \text{ X } 0.25}{0.0025}$$

$$= \frac{0.96}{0.0025} \qquad = 384$$

A multi-stage sampling technique was used for the selection of respondents for the study. In the first stage, purposive sampling of 7 Local Government Areas (LGAs) of the State, which have been prone to conflict in recent years was done. In the second stage, a cluster sampling of these crisis-hit communities within the LGAs was done to capture interest groups involved in the conflicts. In the last stage a proportional selection was employed to select respondents according to the size of the respective population of the LGA to give a total of 384 respondents for the study (Table 1).

Sample size by LGA = $\left(\frac{\text{Population of each Local Government Area}}{\text{Total population of the 7 Local Government Areas}}\right)$ x 384

Table 1: Selection of sample size of the Study

LGA	Projected 2018 population	Sample size
Lafia	488,455	118
Keana	205,287	49
Obi	167,021	40
Nasarawa Eggon	120,818	29
Awe	175,836	42

Toto	219,191	53
Doma	220,036	53
Total	**1,596,645**	**384**

Source: Author's extrapolation, 2018

Data Collection

Primary data were collected from the respondents using a structured interview schedule, while 34 structured focus group discussions (FGD) sessions were conducted in the clusters to assess the effects of conflicts on communities. The FGD were composed of the elderly and the young and cut across gender and ethnicity; about 15 – 25 people. A check list was used to guide the Focus Group Discussions while the key data were carefully recorded.

Analytical Technique

Both descriptive and inferential statistics were used in analysing the data collected. Data were analysed using simple descriptive statistics including frequencies, percentages, means and standard deviation, content analysis of the qualitative data derived from the FGD and resource cost estimation strategy i.e. real resources spent or production possibilities foregone because of conflict and generalized cost model by summing up all recorded losses (crop, livestock, shelter, property and lives) and the alternatives forgone as a result of the conflict including social costs; alternative resource cost estimation, ARCE. Cause of the conflict was measured using mean score incorporated into Likert-type five-point continuum scale.

Model Specification

Alternative Resource Cost Estimation

This approach to analysis of losses incurred in conflicts is similar to that employed by Yonguan *et al*. (2001) when analysing the environmental cost of water pollution in Chongqing, China as similarly replicated by Sulaiman and Ja'afar-Furo (2010). It was specifically utilized to estimate the damage to human health and life due to industrial end products. Using the strategy of estimating the resource cost of the water pollution which actually consisted of two items, namely: (1) resource spent to mitigate the impact, e.g., the cost of treatment of ill health, (2) the loss of potential GDP – the loss through leave of absence from work by the victim. For the dead, they employed the loss of production (the production possibility forwent) – expected production and or its value by the victim.

The approach is embedded in the opportunity cost concept expressed by Lipsey and Chrystal (1995) as choice measuring the cost of anything that is chosen in term of the best alternative that could have been chosen instead. The sacrificed alternative measures the cost of obtaining what is chosen. The model estimates what would have been gained in a no-conflict scenario given the same level of resources and personnel. It measures the microeconomic costs of conflicts.

However, in the conflict situation, circumstance determines the choice and the alternative, but in principle of opportunity cost, the alternative was used to measure the choice as in the case

of cost of water pollution in Chongqing. This establishes the alternative cost principles, the alternative resource cost estimation (ARCE).

In applying the principle for the analysis of economic loss from conflicts, the elements were categorized into the following component and processes of analysis:

Loss Due to Loss of Life (LDLL):

LDLL = EPRI + ESEC + EOTH

Where:

EPRI = Expected earnings from primary occupation/annum (Peak periods + mid periods + low periods divide by 3) (₦)

ESEC = Expected earnings from secondary occupation/annum (non-farm activities, other secondary sources) (₦)

EOTH = Expected earnings from other sources/annum (remittances, one-off contracts, gifts, intermittent incomes) (₦)

If no loss of life, Loss Due to Injury (LI)

$LI = Ct + Edt_t$

Where:

Ct = Cost of treatment of injury (₦)

Edt_t = Expected earnings from primary, secondary and other sources lost during a period of treatment by the victim (₦)

Loss of Facilities

The facilities/assets/equipment included: farmhouses, farm machinery and other farm equipment such as farming implements and tools.

Partial loss (damaged) of the facility (Lpf)
$Lpf = Cr + Eef_t$

Where:

Cr = Cost of repair (₦)

EEf_t = Expected total earnings from the facility during the repair period (₦)

Complete loss of facility/Asset (Lcf)
Lcf = PVf

Where:

Pvf = current value of the facility/asset (₦)

Loss of shelter

Loss due to damaged shelter (Lds)
$Lds = Cr + Cfd_t$

Where:

Cr = Cost of repair of shelter (₦)

Cfd_t = Cost of renting apartment + cost of transporting family to a different during repairs (₦)

Loss due to total loss of shelter (LTLS)
Lls = PVs + Cfd_t + Hlp

Where:

PVs = Present value of shelter (₦)

Cfd_t = Cost of family displacement (₦)

Hlp = Value of household property loss (₦)

Cost Due to Loss of Farm/Farm Produce

(for both crops and livestock) = Llc
Llc = Y × P – C

Where:

Y = Total quantity produced/expected to be produced (Kg)

P = Unit price of the produce (₦)

C = Cost of production (TC = TVC+TFC) (₦)

Therefore, the total loss (in monetary terms) due to conflicts:

TLDC = (LDLL + LI + Lpf /Lcf + Lds/LTLS + Llc) (₦)

Likert Scale

To achieve objective v, Likert-type five-point continuum scale was employed to measure the degree or intensity of agreement by the respondents to a statement (used to determine respondents' felt causes of conflict). Respondents were asked to indicate the extent of their perception about statements presented to them using a 5-point Likert scale of Very serious (VS), serious (S), Moderate (M), Slightly serious (SS) and Not Serious (NS).

Weight of 5, 4, 3, 2 and 1 were assigned. For each indicator a weighted mean obtained as follows:

$$WM = \left(\frac{(fVS*5)+(fSE*4)+(fM*3)+(fSS*2)+(fNS*1)}{N}\right)$$

Where:

WM = Weighted mean; f = Frequency; Values 5, 4, 3, 2, 1 = Attached weights; VS, SE, M, SS and NS = degrees of perception of Very serious, serious, Moderate, Slightly serious and Not Serious.

N = Sample size

Following the formula of Bagheri (2010) and Bagheri *et al*. (2008) on perception analysis, the mean(s) for all indicators were measured thus;

The mean(s):

1.00 – 1.49 = Not Serious (NS),

1.50 – 2.49 = Slightly Serious (SS),

2.50 – 3.49 = Moderate (M),

3.50 – 4.49 = Serious (SE); and

4.50 – 5.00 = Very Serious (VS)

Remote and Immediate Causes of Conflicts

The degree of perception of respondents as to the causes of conflicts is presented in Table 2. Respondents were requested to state the degree to which they perceived that each of the causes of conflict may contribute to the occurrence of conflict. Expansion of agro-pastoralism (4.6) and Extensive sedentism (4.5) were very serious factors that were perceived to lead to conflicts. Factors that were under the serious category were Cattle theft (4.2), Expansion of cultivated areas (4.2), invasion of land by cattle (4.1), competition over land resources (4.0), ethnic stereotyping (4.0) and population growth (3.8). Causes of conflicts perceived as moderate by the respondents were Discriminatory patronage system (3.2), Breakdown of traditional relationships and formal agreement (2.9), politicized ethnicity (2.9), insufficient control over state land (2.8), Unprovoked attacks (2.8) and weak state laws/government presence (2.7).

These findings are congruent with those of Ingawa, Ega, and Erhabor (1999) who advanced that individual land tenure system newly operated by arable farmers is particularly severe on the traditional trek routes, which become favourite cropping sites because of their better soil fertility resulting from the concentration of animal manure from the trekking herds in these areas. They further highlighted that the inadequacy of grazing resources due to increasing crop cultivation (and increasing commercialization of the crop-residues) and poor management of the existing grazing reserves. Concluding that decline in internal discipline and social cohesion, as the adherence to the traditional rules regarding grazing periods, and the authority of the traditional rulers are breaking down.

De Haan (2002) observed the existence of antagonistic perceptions and beliefs among farmers and herdsmen which could compound conflict situation, especially due to failing institutions and fierce competition for resources. This, as well as the increasing rate of cattle theft, can exacerbate farmer-pastoralist conflicts. Inequitable access to land, diminishing land resources, antagonistic values among user groups, policy contradictions, and non-recognition of rights of indigenous people have been identified by Adisa (2011).

Further evidential to the realities of competition over land resources, Hoffmann *et al*. (2008) opined that the relationship between farmers and nomadic Fulanis started degenerating when the Hausa farmers began to raise animals, including cattle. The farmers would take crop residues to their animals, and as a consequence, forage became scarce for herders in the dry season. Probably, out of frustration, the settled herders invited the nomadic ones to carry-out

group herding on farmers field even while the crop was yet to be harvested. Adebayo and Olaniyi (2008) advanced that the most predominant causes of conflict between the crop farmers and pastoralist are damaging crops and blockage of water points. They also demonstrated that age, gender, marital status, religion, education and place of residence were attributes that could significantly influence causes of conflict between the crop and pastoral farmers.

Nevertheless, scholars including Folami, 2009; Ofuoku and Isife, 2009; Adisa and Adekunle, 2010; Blench, 2010; Odoh and Chigozie, 2012; Solagberu, 2012; Audu, 2014; Bello, 2013; McGregor, 2014 have identified root and immediate causes to range from climate change, southerly migration trend, the growth of agro-pastoralism, the expansion of farming on pastures, the invasion of farmlands by cattle, assault on non-Fulani women by herders, blockage of stock routes and water points, freshwater scarcity, burning of rangelands, cattle theft, inadequate animal health care and disease control, overgrazing on fallow lands, defecation on streams and roads by cattle, extensive sedentism, ineffective coping strategies, ethnic stereotyping, to the breakdown of conflict intervention mechanisms.

Table 2: Causes of Conflicts

Cause	Not Serious (1)	Slightly Serious (2)	Moderate (3)	Serious (4)	Very Serious (5)	Weighted Total (WT)	Mean Score (MS)
Ethnicity	10	422	366	40	155	993	2.9^{M}
Breakdown of traditional relationships and formal agreement	13	328	378	80	305	1104	2.9^{M}
Competition over land resources	5	112	204	184	1045	1550	4.0^{S}
Population growth	15	96	228	388	740	1467	3.8^{M}
Stereotyping based on tribe	22	56	138	480	840	1536	4.0^{S}
Expansion of agro-pastoralism	6	22	75	216	1440	1759	4.6^{VS}
Weak state laws (government presence)	20	296	459	144	135	1054	2.7^{M}
Unprovoked attacks	20	198	624	160	85	1087	2.8^{M}
Expansion of cultivated areas	16	46	144	252	1170	1628	4.2^{M}
Discriminatory patronage systems	18	114	525	372	205	1234	3.2^{M}
Insufficient control over state land	18	258	498	140	180	1094	2.8^{M}
Invasion of farmlands by cattle	16	48	222	312	960	1558	4.1^{S}
Cattle theft	17	96	105	144	1240	1602	4.2^{S}
Extensive sedentism (sedentarization)	13	30	60	200	1430	1733	4.5^{VS}

Source: Field Survey, 2018

^{VS} – Very serious
^{S} – Serious
^{M} – Moderate

Major types of conflict that occur in the area

The major types of conflicts in the area are presented in table 3. From the table, it was identified that communal conflicts, ethnic conflicts, resource conflicts, politically motivated conflicts, chieftaincy tussles and state forces versus militia groups were the major kinds of

conflicts that occur in the area. In the period under review, about 28 major conflicts were identified.

Ethnic conflicts occur between different ethnicities in the area and was identified to be the most recurrent form of conflict and it takes the form of conflicts between farmers and herdsmen. However, in most cases ethnic conflicts are often intertwined with resource conflicts. About 32% of the conflicts identified were ethnic conflicts but even though they had ethnic orientation, the struggle for resource ownership was at root of the conflicts. Nevertheless, 14% of the conflicts identified were purely resource conflicts, meaning that these conflicts were not manifested as any other appearance other than as resource conflicts.

Politically motivated conflicts occur occasionally especially during elections where factions compete to gain power by the use of force and usually violence. Politically motivated conflicts accounted for 18% of all conflicts in the period under review. Communal conflicts often occur among people who have shared communal identity and go about their daily activities in shared places. About 18% of all the conflicts identified were communal conflicts. It is very easy for communal conflicts to degenerate into ethnic conflicts usually because there already exist mutual distrust and unresolved tensions between ethnicities in the State.

Chieftaincy tussles result among people of the same ethnicity but in peculiar circumstances the occur between ethnicities as each ethnic group is struggling to gain prominence and thereby gain political importance and have more access to national resources. About 11% of the conflicts were chieftaincy-related conflicts. Chieftaincy conflicts were hard to identify because they usually manifest as different forms of conflicts, usually as ethnic conflicts but they are mutually distinctive from each other.

Militia groups have begun to emerged all over Nigeria and particularly the middle belt region, clashes with government agencies have been recorded. About 7% of the conflicts were between the emerging militia groups and the forces of the State. Militia groups often emerge when ethnic groups begin to perceive that State forces have not properly attended to their problems or when a feeling of marginalization affects a certain people.

Table 3: Major types of conflicts in the area

Types of conflicts	Frequency	Percentage
Communal Conflicts	5	18
Ethnic conflicts	9	32
Resource conflicts (Land, water, passage routes)	4	14
Politically-motivated conflicts	5	18
Chieftaincy tussles	3	11
State forces versus militia groups	2	7
Total	28	100

Source: Group Discussion, 2018

4.4 Effects of each conflict type

The major types of conflicts that occur in the area and the effects of these conflicts are presented in Table 4. From the result of the analysis of qualitative data derived from the FGD, there were six (6) major categories of conflicts identified in the area. These categories are communal conflicts, ethnic conflicts, resource conflicts (most often land conflicts), politically motivated conflicts, conflicts due to traditional chieftaincy, and the conflicts resulting from the clash between state forces and militia groups. Brosché and Elfversson (2012) defined communal conflict as violent conflict between non-state groups that are organised along a shared communal identity. It was identified that communal conflicts led to sporadic killings, destruction of property, disruption of social and commercial activities in the area, breakdown of law and order, incidences of IDPs and fatalities of neutral parties caught in the conflicts.

Ethnic conflicts were identified in the study area. According to Horowitz (1985) "an ethnic conflict is one particular form of conflict, in which the goals of at least one party are defined in (exclusively) ethnic terms, and the primary fault line of confrontation is one of ethnic distinctions." The results revealed that ethnic cleansing, ethnic discrimination, breakdown of inter-ethnic associations and affiliations and intense mutual suspicion were all results of ethnic conflicts and these occurred at different degrees. As a result of ethnic conflicts, either expressed violently or expressed subtly, the interactions between these conflicting groups are usually on the brink of violence due to intense suspicion, these conflicts are usually culminated by killings and other acts of violence across ethnic lines.

Resource conflicts are conflicts that have been conducted to obtain access to scarce resources such as land, water or minerals. The farmer-herder conflict is a new wave of violent confrontations over the claim for land and fresh water as well as stock routes which have been converted into farmlands as a result of soil fertility decline and rise in human population in Nigeria. Nasarawa State has specifically been affected by this form of conflict. Intense hatred among conflicting factions, violent killings, mutual distrust, molestations and intimidations, competitions over which faction claims a larger share of the resource, invasions are commonplace, persistent and recurrent attacks, destruction of livestock and crops, occupation of land by the stronger faction often characterize such conflicts. Due to intense competition the result of which often determines the survivability of each faction, the employment of small arms and light weapons is common as recent conflicts have become even more violent and deadly. These types of conflicts are multigenerational. Even children who have no idea of the root causes of the conflicts inherit and continue it. The farmer-herder conflict is now Nigeria's deadliest form of conflict and has claimed more lives than the Boko Haram insurgency (International Crises Group, 2018).

Politically motivated conflicts are conflicts that have their roots planted in politics and the struggle to claim political power. These forms of conflicts often lead to discriminatory patronage as the winner chooses to bestow favours only the groups that have supported him/her, violent clashes between supporters of different factions ensue as violence is a tool used to gain power, use of political power against opposing factions, thuggery and killings are rife in this type of conflicts.

Chieftaincy tussles are another form of violent conflicts. Due to advantages gained from political alignment in Nigeria, chieftaincy takes an important position in resource and power allocation in the country for this reason alignment and acquisition of chieftaincy position are keenly contested with violent conflicts resulting sometimes. The effects of these chieftaincy tussles include long-term and recurrent crises, the more traditionally powerful faction attempts to repress the lesser one, IDP situations and emigrations.

State versus militia groups is a form of conflict that was identified in the study area. In 2013, more than 100 security personnel were killed by the Ombatse militia group in Nasarawa State. According to Olukotun (2003) ethnic militias are paramilitary forces that perform police functions within their locality while the government considers militia group as insurgent groups that engage in subversive activities against the state. Militias are often comprised of young men who come from rural, impoverished areas. Ethnic militias are not new in the middle belt of Nigeria, most ethnicities have one but hide under the pretext of taking up arms to defend themselves (International Crises Group, 2018). Confrontations of such illegal groups with government forces is a known fact in Nigeria. The effects of such confrontations include stereotyping of the ethnic group involved, severe breakdown of law and order, feeling of insecurity among inhabitants of the area, mutual suspicion and living in suspended terror, loss of confidence in the state security operatives.

Table 4: Effects of major conflicts identified

Types	Effects
Communal Conflicts	Sporadic killings, destruction of property, disruption of social and commercial activities in the area, breakdown of law and order, even neutral parties can be killed in the ensuing violence, IDP crises.
Ethnic conflicts	Ethnic cleansing, ethnic discrimination, breakdown of inter-ethnic associations and affiliations, consistent and intense suspicion, Interactions between the factions are usually on the brink of violence, killings across tribal lines.
Resource conflicts (Land, water, passage routes)	Intense hatred among conflicting factions, violent killings, mutual distrust, molestations and intimidations, competitions over which faction claims a larger share of the resource, invasions are commonplace, persistent and recurrent attacks, destruction of livestock and crops, occupation of land by the stronger faction, multigenerational conflicts.
Politically-motivated conflicts	Discriminatory patronage, violent clashes between supporters of different factions, use of political power against opposing factions, thuggery and killings.
Chieftaincy tussles	Long-term and recurrent crises, the more traditionally powerful faction attempts to repress the lesser one, IDP situations and emigrations.
State forces versus militia groups	Stereotyping of the ethnic group involved, severe breakdown of law and order, feeling of insecurity among inhabitants of the area, mutual suspicion and living in suspended terror, loss of confidence in the state security operatives.

Source: Focus Group Discussions, 2018

Economic Impacts of Conflicts on Rural Communities

Loss of lives: The economic impacts of conflicts in Nasarawa State measured as a proxy of the cost per annum due to conflict are presented in Table 5. The results on the Table revealed that the cost of lost lives (708) at an average income of ₦885,563 per annum was ₦626,978,604. This figure was extrapolated to be worth 8.3% of the total internally generated income of Nasarawa State in 2018. This is to mean that, hypothetically, the State loses 8.3% of its annual IGR with the loss of 708 lives due to conflict events. The 2018 IGR of Nasarawa State was seven billion five hundred and twenty-two million, nine hundred and twenty thousand six hundred and fifty-six thousand naira and ninety-one kobo – ₦7,566,920,656.91 (NBS, 2019).

Losses due to injury: Conflicts also resulted in 1,193 injuries of varying degrees in 2018 alone. The injury costs were averaged at ₦122,117.6. The total cost of the injury was extrapolated to be almost one hundred and forty-six million naira (₦145,686,296.8). This cost was worth 1.93% of the State's 2018 IGR. The breakdown showed that the cost of treatment on average was ₦33,450.6 per individual, while the cost of lost income during the period that the injury lasted was an average of ₦88,667.0.

Loss due to loss of shelter: Analysing costs of lost shelter as a result of the conflicts, the study arrived at ₦188,250,951 and this was about 2.5% of the total IGR generated from the State in 2018. Complete losses amounted to about 1,500 houses while partial losses were 509 houses. The total cost of complete loss of houses was ₦150,000,000 at an average of ₦100,000 per shelter. The cost of alternative accommodation was about ₦22,980,951. This brought the total cost of lost shelter to ₦188,250,951.

Loss of Farm/Farm produce: Furthermore, the extrapolation of crop and livestock losses attributable to conflicts in the year under review revealed that ₦51,001,999 worth of farm produce (crop) were lost as a result of conflicts in 2018 while ₦61,404,000 worth of livestock and livestock resources were lost as a result of conflicts in the same period in the 34 clusters sampled for the study. The total losses as a result of crop and livestock losses was ₦112,405,999.2. This figure is worth about 1.5% of the State's 2018 IGR.

Loss of Farm assets: Conflicts also resulted in the losses of farm assets/property across the 34 clusters used for the focus group discussions (FGD). From the results, it was observed that ₦14,280,000 was lost as a result of loss of irrigation facilities in the area. More so, ₦17,828,988 was lost as a result of destruction of tractor-mounted implements and accessories. Loss of hand-held tools constituted ₦8,500,000 while loss of farm structures including barns was worth ₦10,200,000. The total loss as a result of loss of farm assets/property was ₦50,808,988 worth about 0.64% of the State's total IGR in 2018.

Loss due to transportation: As a result of conflicts people are compelled to leave their location to other places, often before the next wave of conflicts reaches their location. In moving, the fleeing persons incur costs of moving themselves and their property to safety. From the result, it can be seen that ₦9,975,600 was spent in moving people from the face of

conflicts to safety while ₦10,823,369.6 was lost in moving goods and property to safety. The total cost incurred for transporting people and property/goods to safety was ₦20,798,901.6 and this was worth 0.27% of the State's 2018 IGR.

The grand total of the economic losses attributable to conflicts over the period under review was ₦2,289,859,549 and it was 30.28% of the State's 2018 IGR. This means that in a no-conflict scenario it is possible to save ₦2,289,859,549 as well as to avoid the loss of a development phase as a result of conflicts. This finding draws parallels with the finding of the State's Judicial Commission of Inquiry (2014) that placed the losses from the 2013 violent conflicts in Nasarawa State at ₦2.3 billion and lives lost at 667 people. The advantage that this research finding has over the previous one is the fact that the scientific research method was relied upon to arrive at the total cost and a step-by-step approach was relied upon to clearly analyse the losses accruable to conflicts in the area from all possible sub-sectors.

Table 5: Economic Impacts of conflicts on rural communities

Item	Number/ Quantity	Forms of losses	Mean Losses (₦)	Total Losses (₦)	Total Losses as % of 2018 IGR
Human Lives	708	Primary Income	450,000	318,600,000	4.2
	708	Secondary Income	225,000	159,300,000	2.1
	708	Other Income sources	210,563	149,078,604	2.0
Sub-total		**Human lives**	**885,563**	**626,978,604**	**8.3**
Injured persons	1,193	Cost of treatment	33,450.6	39,906,565.8	0.53
	1,193	Lost income due to injury	88,667.0	105,779,731	1.4
Sub-total		**Loss due to Injury**	**122,117.6**	**145,686,296.80**	**1.93**
Shelter (House)	1,500	Complete Loss	100,000	150,000,000	2.0
	509	Partial Loss	30,000	15,270,000	0.2
	2,009	Cost of alternative accommodation	11,439	22,980,951	0.3
Sub-total		**Shelter costs**	**141,439**	**188,250,951**	**2.5**
Farm/Farm Produce	34	Farm produce	1,500,058.8	51,001,999	0.7
	34	Livestock	1,806,000	61,404,000	0.8
Sub-total		**Crop/Livestock**	**3,306,058.8**	**112,405,999.2**	**1.5**
Farm assets	34	Irrigation Facilities	420,000	14,280,000	0.2
	34	Tractor implements	524,382.0	17,828,988	0.2
	34	Hand-held tools	250,000	8,500,000	0.11
	34	Barns/structures	300,000	10,200,000	0.13
Sub-total		**Farm assets**	**1,494,382**	**50,808,988**	**0.64**
Transportation	34	Cost for people	293,400	9,975,600	0.13
	34	Cost for property	318,334.4	10,823,369.6	0.14
Sub-total		**Transport**	**611,732.4**	**20,798,901.6**	**0.27**
Grand Total			**6,561,293**	**2,289,859,549**	**30.28**

Source: Field Survey and FGD, 2018

Note: *Other income sources are specified to include remittances, gifts, opportunistic incomes, intermittent contracts, among others.*

Social impacts of conflicts in the area

The direct effects of conflict on communities that experience sustained frequency of conflict events are presented in Table 6. From the result on the Table, hike is food prices ranked 1st as 98.7% of the respondents identified that the most important social impact of conflicts was its effect on hiking prices of food. Closely following in 2nd place and selected by 95.6% of the respondents is scarcity of food. Violent conflicts are most often accompanied by indiscriminate destruction of agricultural resources such as crops and livestock. At the end of conflicts, most recovering communities face scarcity of food. Scarcity of food also occurs as a result of the fact that conflicting parties each use food scarcity as a means to win the conflict and end up destroying the channels and sources of food coming into the area, therefore, food scarcity persists even after conflicts have ended (Messer, 1998).

Migration of labour is ranked 3rd on the social impacts of conflicts with 89.8% of the respondents identifying it. The migration of labour occurs as able-bodied men and women are forced to leave the conflict communities to peaceful ones in order to earn a living from agricultural activities. This causes a shortage of labour in the conflict communities. Majority (88.3%) of the respondents aligned with loss of farmlands as a social impact of conflicts and this ranked 4th. As a result of conflicts, farmlands are lost to either factions, the mere fear of what may result if people visit their own farmlands can keep them from cultivating certain farmlands within the radius of the conflict.

Furthermore, 87.5% of the respondents perceived increased insecurity as a social impact of conflicts and it was ranked 5th. Insecurity is a direct result of conflicts, even after conflicts have ended, the availability and use of small arms and light weapons (SAWL) can lead to opportunistic crimes such as banditry, kidnapping, homicides, cultism and terrorism. In the event of farmer-herder conflicts, an instant spike in prices of cattle was observed by 75.3% of the respondents. This was ranked 6th. The cattle rearing factions are often forced out of the community and in the event that they stay, the relationship between them and the host communities are often constrained resulting to an artificial scarcity and then a hike in the price of cattle.

Table 6: Social impacts of conflicts

Phenomenon	Frequency	Percentage	Rank
Hike in prices of goods	379	98.7	1st
Scarcity of food items	367	95.6	2nd
Migration of labour	345	89.8	3rd
Loss of farmlands	339	88.3	4th
Increased insecurity	336	87.5	5th
Hike in price of cattle	289	75.3	6th

Source: Field Survey, 2018

Conclusion

Based on the findings from the study, it is concluded that the immediate causes of conflicts in the area were extensive sedentism, expansion of agro-pastoralism and cattle theft. The major types of conflicts in the area were communal, ethnic, resource, political, chieftaincy and state versus militia conflicts. The violent conflicts resulted in the loss of lives and property worth ₦2,289,859,549 in 2018. This amount was worth 30.28% the State's 2018 IGR. The result indicates that violent conflicts have huge economic and social impacts on the economies of rural communities in the state.

Recommendations

1. From the causes of conflicts identified in the study, it is clear that the most salient reasons conflicts occur are the conflicting and often parallel definitions of land use that different actors apply. There is not a more propitious time than now for the revolutionizing of land laws in Nigeria to factor in the elemental realities of population growth, land requirement for construction, expansion of cultivated areas and the new realities of expansion of agro-pastoralism as well as the deliberate southerly movement of nomads.
2. Laws regarding people with diverse backgrounds and socio-economic needs and population growth in relation to limited resources, resource-based conflicts and resource management must be regarded as extremely important and delicate laws that should be developed with great care and attention paid to all the parties involved in the process.
3. Economic losses accounted for in the study are evidence of the need to view that conflicts as not merely struggle for resources but as economically significant events that affect the core structure of society as well as its economic well-being, therefore future design of agricultural development plans must take into account the disaster conflicts leave in their wake and understand that peace on its own is an economic variable.
4. Findings from the study have brought us to re-echoing the recommendations of the International Crisis Group in 2017. Long term approaches to mitigating farmer-herder conflicts in the rurality should see the Nigerian government intensify the implementation of the *Great Green Wall Initiative for the Sahara and the Sahel*. The project initially called for planting a 15km wide belt of trees, running 7,775km across nine African countries from Senegal to Djibouti. It was later broadened to include building water-retention ponds and other basic infrastructure, establishing agricultural production systems, and promoting other income-generating activities. It was later broadened to include building water-retention ponds and other basic infrastructure, establishing agricultural production systems, and promoting other income-generating activities.
5. Participatory approaches to problem identification, conflict management and resolutions need to be established in the communities with regular interactions between and among locals periodically and frequently.

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