

Effect of Open Grazing on Sustainable Development of Nigeria (2005-2019)

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Abstract: This study titled, *Effects of Open Grazing on Sustainable Development of Nigeria (2005-2019)*, was carried out to examine Open Grazing System and how it affects Sustainable Development in Nigeria. The system has, in the last few years brought herders and crop farmers into direct conflicts over grazing resources (most times resulting in deaths and wanton destruction of valuables). The conflicts appear to be costing the Country a lot of precious man-hour both in terms of abandonment of farming activities and deaths and is also leading to food shortages, environmental degradation and division among the peoples of the Country. The broad objective of the study therefore is to examine the effects of Open Grazing System on Sustainable Development of Nigeria with particular insight into how it affects food security, economic development, our environment and national integration. The Researcher used the quasi-survey method, comprising of the questionnaire, focus group discussion and content analysis to carry out the study. The study revealed among others that open grazing system is detrimental to food security. The study recommended among others, a ban on open animal grazing and to replace it with ranching system as obtains in advanced societies.

Keywords: Grazing, cattle colony, herders, farmers, conflict

1.1 Introduction

In Nigeria like in other parts of the world, livestock keeping is known to all cultures and groups since ages and the need to provide food of crop and animal origin to meet the ever growing demand of its increasing population has often resulted in keeping of livestock and in opening up of lands hitherto uncultivated. The industry in Nigeria constitutes a very important national resource with a great deal of untapped potentials. This derives from the fact that the country enjoys a tropical climate with distinct wet and dry seasons – a feature that makes it conducive for plant and animal food production.

However, due to increasing population, agricultural production (both for animal and food crops) has intensified. Consequently, farm lands that were hitherto left uncultivated for natural regeneration of the soil nutrients are fast disappearing, so also are grazing lands which have traditionally provided dry season grazing to pastoralists.

Herding of animals or pastoralism, though practiced in various parts of Nigeria, at least at subsistent level, is a major preoccupation of the Fulani people who live in the northern part of the country. According to Alhassan (2013), the Fulani own over 90% of the nation's livestock population which accounts for one-third of agricultural GDP and 3.2% of the nation's GDP and so their contribution to the local food chain and national food security cannot be overstressed. By constituting the major breeders of cattle, the main source of meat, the most available and cheap source of animal proteins consumed by Nigerians, they indisputably represent a significant component of the Nigerian economy. According to Ezeonwuka and Igwe (2016), the Fulani are undoubtedly the largest pastoral nomadic group in the world, herding goats, camel, sheep, horse, mule and cattle. With their dominance in the Sahel region, they are the best known and most numerous of all the pastoral groups in Nigeria (Alhassan, 2013).

A typical Fulani herdsman keeps and sustains his herd through open grazing. This open grazing system involves young men who do labor intensive herding while the women engage in culinary services, cook and sell animal products in the market, (Olayoku, 2014; Dimelu, Salifu, Enwelu, and Igbokwe, 2017). According to Blench (2010), one of the striking aspects of pastoralism in Nigeria is the contrast between its actual complexity and the simplified representations usually made of it. An important aspect of the nomadic Fulani pastoral group as a social unit is that permanent habitation is usually not common. Camps are shifted frequently in the dry season and less in the wet season (Awogbade. 2004). Nze (2015) reckon that the Fulani, by their culture, tradition and occupation, have remained an itinerant race who never owned lands nor had any permanent abode. In fact, they cared less about land ownership because they are always on the move. They simply live with their cattle wherever there is abundance of fodder and absence of tsetse-fly.

The Fulani pasture or graze their animals in the uncultivated wetlands during the dry season but with increasing population, leading to agricultural intensification and encroachment as well as factors imposed on them by changing climatic conditions especially in their traditional abode in the Sahel region and the advent of dry season irrigation projects, they have been denied access to this dry season grazing resource. These factors have imposed on them a southward migration to where the grass is much greener. This migration has often meant travelling long distances from

one point to the other and thus intruding into spaces long claimed by settled farmers and this has thus, become the source of potential conflicts between them and the sedentary farming population, (Olaniyan, Michael and Okeke-Uzodike, 2015). It has also often led to cows, sheep, and goats, roaming and scavenging around school playgrounds, golf courses, government residential areas, street shoulders, and railway sidings both at nights and during the day all in the name of grazing. While doing this, they hinder traffic flows, endanger human and vehicular road users, and exacerbate city congestion, and most often, cause fatal road mishaps. In addition to all these, they mess up the surroundings and bring flies and stench.

1.2 Statement of the Problem

This study was informed by the observed dangers which open grazing system and the conflicts arising from there poses to food security, environmental sustainability, economic growth and to the unity of the country.

What has now become a problem demanding urgent national attention is that the clashes are becoming widespread and constant – becoming a daily occurrence and engulfing almost the entire country and that the parties to the conflicts (especially those that we have lately come to know as Fulani herdsmen) now weld guns which they used indiscriminately to invade their host communities and leaving horrible bitter tales in the wake of any such attack.

As precious human and animal lives are lost and crop yields damaged, food security is not only being hampered but precious manpower to support development is reduced. Again as the animals are taken round through the open grazing system, they do not only pollute a few available water sources to the local people but also (through their destructive activities) bring their breeders and the settled farming communities into direct conflicts that heighten inter ethnic tensions in the land. As all these happen, emotions flare that these constitute ominous danger to environmental sustainability and national integration especially as these happenings are perceived by people in the South and North-Central regions of the country as signs of failure, imperialism and favoritism by the present Government of Gen. Muhammadu Buhari (rtd).

The question that now agitates the minds of concerned Nigerians is, why are these grazing related clashes becoming widespread and constant in our Country, who and who are supplying the parties with guns, why is the government seemingly keeping quiet or rather why is it playing politics with the matter and what remote and immediate dangers does this pose to the effort to bring sustainable development to our country, Nigeria? Finding the nexus between these issues and sustainable development in Nigeria is the primary concern of this study.

1.3 Objectives of the Study

1. To determine the effect of open cattle grazing on the environment and sustainable development in Nigeria.
2. To examine the effect of open cattle grazing on economic development and sustainable development in Nigeria

1.5 Hypotheses

The following hypotheses were formulated for the study

- (1) Open cattle grazing is detrimental to food security and sustainable development of Nigeria.
- (2) Open cattle grazing is inimical to the environment and sustainable development of Nigeria

2.0 Literature Review

2.1 Impact of Open Grazing System on Food Security and Sustainable Development of Nigeria

Grazing animals has been noted to have a two sided effect on food production and agriculture generally. For instance, through open grazing, animals can disperse seeds by transporting them in their coats (fur, fleece, or hair), feet, or digestive tracts. For some plant species, grazing ungulates may facilitate seed germination by trampling seed into the soil and through their dung, can produce manure needed by plants to grow. It can as well decrease flower and seed production directly by consuming reproductive structures, or indirectly by stressing the plant and reducing energy available to develop seeds. Grazing of animals can also be a competitor in world food supply with humans. However this is only possible in areas where cattle are pastured in areas perfectly suitable for agriculture, or where they are fed substantial cereal supplements (Rojas-Downing, Nejadhashemi, Harrigan, and Woznicki, 2017).

Generally, the Food and Agriculture Organization (FAO) in its 2011 report noted that livestock production and animal grazing in particular can be seen as lending indispensable support to agriculture as it contributes greatly to food security through:

- (1) Supply of global calories, proteins, and essential micronutrients,
- (2) Support to agriculture in areas that have difficulty growing crops.
- (3) Consumption of the feed that are not appropriate for human consumption, and
- (4) Provision of manure for crop production (FAO, 2011).

However, there are concerns also that livestock production is detrimental to society. Where animals are grazed the way they are done in Nigeria, the first concern according to Abba and Usman (2008), cited in Eje, Angai, Abdulahi, Eje,

Wudaba, and Ishaku, (2017), is exacerbated insecurity and food crisis particularly in rural communities where most of the conflicts are localized, with reverberating consequences nationwide. In all the states studied by the researchers, particularly Taraba and Benue States, the majority of those displaced by herders-farmers clashes are women and youths who make up substantial part of the farming communities, just like in Nasarawa, Kaduna (Southern Kaduna) and Plateau States. These displacements, (stemming from the clashes between herders and sedentary farmers over free grazing rights and instability caused by these incessant clashes), will likely lead to food shortages in the immediate communities in particular and in the general economy.

Worldwide, arable crops enjoy remarkable dominance, playing significant roles in the socioeconomic lives of both rural and urban peoples. Arable crops include a wide range of annual crops of primary importance such as maize, rice, sorghum, millet, cassava, cowpea, wheat, soybeans, melon, groundnut, yam, vegetables and so on. In Nigeria, production of these arable crops is essentially the prominent feature of agricultural activities. Indeed, almost all farmers in Nigeria cultivate one or more arable crops for food and income. According to Fayinka (2004), Nigerian agricultural production is dominated by rural-based small scale arable crop producers, who account for about 80% of total food requirement. Of an estimated 71 million hectares of cultivable land, only half is currently used for farming. The reasons may largely be due to the worrisome open grazing of animals on farm lands as farmers now helplessly continue to abandon their farms.

In a Thisday Newspaper report of January 30, 2017, the Publicity Secretary of Afenifere Renewal Group (ARG), Mr. Kunle Famoriyo, called for the proscription of open grazing system because it is undermining food security in the South Western part of Nigeria. He lamented that the south-west local small-holder farmers could no longer work at their full capacity due to the ruinous activities of Fulani herdsmen and their free open grazing system. He argued that the fear of gun wielding cattle herders not only prevent their small-holder farmers from going to the farm but that cultivated farm lands and crop yields are destroyed by cattle, resulting in sweeping poverty and unemployment in the land (Famoriyo, 2017).

Figure 2.21: Yam tubers destroyed during the farmers and herders crises



Source: Amnesty International Nigeria, 2018.

Figure 2.2 Burnt yam in Tse-Ajaver village in Wukari LGA of Taraba State following attack by suspected Fulani gunmen in April 2018



Source: Amnesty International Nigeria, 2018.

Figure 2.3: Cows slaughtered by Villagers as a result of the crises.



Source: Amnesty International Nigeria, 2018.

2.4: Impact of Open Grazing on Environment and Sustainable Development in Nigeria

The world we live in is our environment. It is an asset all human beings share in common, so the responsibility for protecting it is common to all men. The environment is at the center of the concern for environmental sustainability, meaning that the next thing to man's life is his environment (Ogbo, Eneh, Nnajiofor, Agbaeze, Chukwu, and Isijola, 2017). Specifically, the environment includes the natural environment such as the vegetation, land, the atmosphere, open fields, forests and water on one hand and the built environment (infrastructure) like roads, bridges, stadia, hospitals and schools on the other. Arising from the concern to our environment, there has been a growing volume of criticism in recent years against open grazing of livestock from environmentalists. They argue that even though organic components of feces and urine from grazing animals can build soil organic matter reserves, resulting in soils having increased water-holding capacity, increased water-infiltration rates, and improved structural stability and consequently decreased soil loss by wind and water erosion, grazing of animals (especially when not properly managed) can result into the following:

1. Increased desertification through long term over grazing, particularly in semiarid rangelands;
2. Deforestation by lopping branches for use as fodder and felling trees to make way for pastures.
3. Increased greenhouse gas effect, since grazing ruminants produce methane as an end product of rumen digestion; and
4. Water and environmental pollution through animal wastes.

According to (Orheruata and Omoyakhi, 2008), surveys conducted in Benin City, Nigeria showed that most animal food producers are operating outside the boundaries of sustainability because of inadequate waste management and excessive waste produced in small geographical areas, well beyond the assimilation capacity of the local environment. With smallholder farmers, waste could be applied to land used to produce food and other crops. But with development and specialization in livestock production that requires large herds, waste may exceed the carrying capacity of local ecosystem and are a potential cause of a number of pollution and health problems related to their organic matter, nutrients, pathogens, stench, dust and air-borne micro-organisms. It is commonly observed in major farms in Nigeria that animal waste discharges run into rivers and erosion courses. These contribute a substantial amount to river pollution.

According to experts, livestock production and their waste have polluted the environmental in the following ways:

Socio-economic problems

The extensive system of livestock production especially by the nomadic Fulani which houses over 90% of the ruminant animals has continued to pose serious threat to crop farming in Nigeria. The migration grazing system imposed upon this ruminant production by climatic factors results in animals trampling and eating existing or growing crops on the field. Fulani herdsmen, most often, set bushes on fire, destroying crops and damaging the ecosystem. There have been several reports of clashes between the herdsmen and the crop farmers leading to loss of lives, displacement of settlements and destruction of valuable property.

Figure 2.4: Exposure of top soil to the vagaries of wind and flood erosion in some parts of the country as a result of uncontrolled open grazing of cattle.



Source: Amnesty International Nigeria, 2018.

2.3 Impact of Open Grazing System on Economic Growth and Sustainable Development in Nigeria

Beyond doubt, Nigeria is enormously endowed with abundant human and material resources which made it by far the most populous country in Africa. As at 2018, the country's population is estimated to be around 196.1m (United Nations Department of Economic and Social Affairs: Population Division). As a resource, a chunk of this population will be available as factors of production for economic combination with other resources in productive activities. As consumers, the goal of economic development is to maximize the realization of their desires and aspirations. Thus, any analysis must consider population in both its role as producers and consumers as no national, organizational or institutional setting can function well without human resources. Irrespective of the introduction of modern equipment and other technological inventions, human resources plays significant role in the development, operation and management of an organization. In the same vein, no economy can sustain or endure the vagaries of modern realities without the impact of human resources. Human resources therefore remained at the center of all forms of activities in the economy of a nation.

In the light of the above, it is pertinent to note that both the migrant pastoralists and the local crop farmers all constitute human resources of the nation and both contribute individually or collectively to national development. While migrant pastoralists are carrying their cattle to graze on open fields, the sedentary crop farmers are heavily affected as the herds destroy crops, farmlands and other agricultural resources which often lead to conflicts and confrontations. It was observed that between the year 2000 and 2015, no month passed without a report of conflict between pastoralists and sedentary farmers. From Plateau to Nasarawa, Benue, Taraba, Enugu, Anambra, Abia, Imo States, the media is awash with reports of conflicts between the duo and the conflicts often result in the death of many people and sometimes the dislocation of the entire host communities as observed in Benue, Plateau and Taraba States. Daily Sun Newspapers of May 20, 2015, reported that 38 people were killed in Benue and Taraba, by Fulani herdsmen. This captured the ugly scenario going on in several States in the country today. Since year 2000 till date, hundreds of people (from both sides) have lost their lives in conflicts arising from open grazing of cattle by herdsmen and its attendant fallouts.

In the same vein, other resources worth millions of naira have been lost and thus increasing aggressive poverty in the affected regions. Considering the number of people killed in these conflicts, it becomes glaring that the human resource that engaged in economic activity in the country is being depleted and by that reducing the productive and consuming strength of the nation. More so, the presence of Fulani herdsmen in the affected areas creates a climate of fear as they carry sophisticated arms and ammunitions with which they unleash terror on the people of the regions and other perceived enemies.(Abugu and Onuba, 2015).

These conflicts have exacted a heavy humanitarian toll with thousands killed and tens of thousands displaced. Some estimates suggest that about 2,500 people were killed countrywide in 2016 – a toll higher than that caused by the Boko Haram insurgency over the same period. In Benue, one of the hardest-hit states, Governor Samuel Ortom reported that more than 1,878 people were killed between 2014 and 2016 and tens of thousands also displaced. From January, 2015 to February, 2017, at least 62,000 people were displaced in Kaduna, Benue and Plateau States. In the absence of any arrangement like Internally Displaced Persons (IDP) camps, most of these displaced people seek shelter in other poor, rural communities and end up overstretaching the already scarce resources in the area.

The fear of conflict alone can drive residents to relatively more secure urban and semi-urban areas where they contribute to worsen the decay of our cities. For women and girls, the impact is frequently magnified. The relatives of men killed in the violence often evict widows from their farmland. Moreover, post-conflict economic and social disenfranchisement renders women and girls even more vulnerable to sexual and economic harassment.

In the same vein, Bashir, cited in Olugbenga (2017) observed that cattle rustling and banditry which derive from the nature of our grazing system has had major impact on pastoral livelihoods in Katsina State. It has, according to respondents, led to 26.7% of conflict-related deaths. 22.6% immigration, 17.2% of internally displaced persons, 17.2% of intolerance between communities, 12.8% high number of police patrol and military personnel, 9.1% incidence of human rights abuses and 6.1% of sexual assault. It has also increased arrest and detention of the common people without probable cause or warrant to the tune of 5.4%. Participants in the study also cited the main impacts of cattle rustling as poverty due to source of livelihood being taken away. High number of widows and children also get killed as raiders come into the community. The community has also continuously experienced trauma due to the deaths and anxiety created by unexpected turnouts of cattle rustling in the area.

The International Crisis Group report (2017) noted that the economic toll has also been huge. According to a study conducted by the group in 2015, the federal government was losing \$13.7 billion in revenue annually because of herder-farmer conflicts in Benue, Kaduna, Nasarawa and Plateau states. The study found out that on average, these four States lost 47 per cent of their internally-generated revenues. In March 2017, Benue State Governor, Samuel Ortom asserted that attacks by herders coming from more northerly States, and possibly also from Cameroon and Niger, had cost his State N95 billion (about \$634 million at that time) between 2012 and 2014.

Communities and households also pay a heavy price. The ethnic Nzor-Tiv Global Association estimated that its Agatu communities in Benue State lost N65 billion in properties (\$204 million) during the early 2016 herdsmen attacks. The loss of large cattle herds, crops (due to population displacements and damage to irrigation facilities), as well as increases in transport and labor costs in post-conflict environments all increase poverty and food insecurity in affected communities and beyond – ICG, 2015).

Figure 2.5.1: People being displaced as a result of the conflict



Ameh Comrade Godwin

Source:

Figure 2.4: House completely razed down by suspected Fulani Herdsmen in Benue State, North Central Nigeria



Source:

Figure 2.5.3: A man receives treatment at the Jos University teaching hospital after clashes in central Nigeria between Muslim herders and Christian farmers.



Source:

Figure 2.5: 17 Year Old victim of Godogodo attack had his leg amputated after he was shot on 24 September, 2016.



Source: Amnesty International Nigeria, 218.

Figure 2.6: In this 2010 file photo, villagers look at bodies of victims of violence between ethnic Berom farmers on Fulani herders lying in a mass grave in the Dogo Nahawa village in central Nigeria.



Source: Agence France-Presse Published: 10:05am, 25 Jun, 2018

Figure 2.7: Men march along a truck carrying the coffins of people killed by the Fulani herdsmen, in Makurdi, Nigeria on January 11



Source: [Afolabi Sotunde/Reuters]

Figure 2.8: A picture taken on February 24, 2017, shows a damaged house in the village of Bakin Kogi, in Kaduna state, northwest Nigeria that was recently attacked by suspected Fulani herdsmen. Photo: Agence France-Presse



Source: Agence France-Presse Published: 10:05am, 25 Jun, 2018

2.5 Impact of Open Grazing System on National Integration and Sustainable Development in Nigeria

Conflicts between nomads and sedentary farmers date back to the earliest written records and are mythically symbolized in many cultures. Such conflicts have existed since the beginning of agriculture (Ezeonwuka and Igwe, 2016). They only increased or decreased in intensity and frequency as a result of economic, environmental and other factors (Alhassan, 2013).

According to International Crisis Group, historically, relations between herders and sedentary farming communities have been harmonious. They lived in a peaceful, symbiotic relationship with herders' cattle fertilizing the farmers' land in exchange for grazing rights. But tensions have grown over the past decade, with increasingly violent flare-ups spreading throughout central and southern Nigerian States; with incidents occurring in at least 22 of the country's 36 states. According to one report, in 2016, over 2,000 people were killed and tens of thousands displaced in Benue and Kaduna States alone.

The spread of these conflicts into southern states is aggravating the already fragile relations among the country's major regional, ethnic and religious groups. The south's majority Christian communities resent the influx of predominantly Muslim herders, portrayed in some narratives as an 'islamisation force' (because herders are mostly moslem Fulanis), thereby lending an ethnic dimension to the strife. In March, 2016, the prelate of the Methodist Church of Nigeria, Dr Samuel Uche, said: "We are aware that there is a game plan to Islamize Nigeria, and they are using the Fulani herdsmen to initiate it". Just recently, former President Olusegun Obasanjo had at a second session of the Synod of the Cathedral Church of St. Paul's Anglican Church held at Oleh, Isoko South LGA of Delta State, described the activities of the Nigerian-based marauding cattle herders and their sister Boko haram as an attempt to Fulanize West Africa and Islamize Africa (Sahara Reporter, 2019).

In the South East, Biafra separatist groups describe the attacks as part of a northern plot to overwhelm the peoples of the south and forcefully convert them to Islam. Some southerners accuse President Buhari of deliberately failing to stop herder aggressions, pointing to his pastoral Fulani background and his position as life patron of the Miyetti-Allah Cattle Breeders' Association of Nigeria, (MACBAN), to buttress their charges.

Most worrisome is that the conflicts are becoming more frequent and deadly lately. In 2015 for instance, the Global Terrorism Index (GTI), which is published by Sidney, Australia-based Institute for Economics and Peace labeled Fulani herdsmen as the fourth deadliest global terror organization after Boko Haram, the Islamic State in Iraq and Syria (ISIS) and al-Shabab in Somalia (Olugbenga, 2017). On the threat posed to peace and mutual coexistence by these conflicts, the International Crisis Group (ICG) in their September, 2017 edition opined that violent conflicts between nomadic herders from northern Nigeria and sedentary agrarian communities in the central and southern zones have escalated in recent years and are spreading southward, threatening the country's security and stability. With an estimated death toll of approximately 2,500 people in 2016, these clashes are becoming as potentially dangerous as the Boko Haram insurgency in the North East. Continuing, the publication said, 'The conflicts, particularly herder attacks on farming communities, have spawned dangerous political and religious conspiracy theories. One is that the attacks are part of a longer-term Fulani plot to displace indigenous populations and seize their lands. Among Christian communities, herder attacks are widely seen as a subtle form of jihad. According to the group, these charges are not supported by any solid evidence, but they are aggravating inter-faith distrust and undermining the country's fragile unity. The Sultan of Sokoto, Mohammed Sa'ad Abubakar III, spiritual head of Nigerian Muslims and a prominent Fulani, has repeatedly stressed that Fulani herders who kill should be prosecuted as criminals and even terrorists, but many remain unconvinced in a country with deep inter-faith suspicions.

Communities in the middle belt and south have formed self-defense vigilante groups, some of which have threatened organized reprisals. In March, 2014, Leonard Karshima Shilgba, an ethnic Tiv academic and opinion leader, warned that if the federal government does not stop the attacks, “the Tiv people would also demonstrate that they equally have the right and also the capacity to raise a standing army of thousands from each ward and kindred”.

Following an April, 2016 attack on Nimbo, in Enugu State in the South East, MASSOB, a separatist Movement for the Actualization of the Sovereign State of Biafra ordered “Fulani herdsmen to leave Biafra land or ... face our their wrath”. In May, 2016, former Ekiti State Governor, Ayodele Fayose, warned of possible attacks on Fulani herders if their alleged predatory behaviour vis-à-vis locals continued. And the President of the Christian Association of Nigeria (CAN), Rev. Olasupo Ayokunle, warned: “If the government fails to stop the provocation by the Fulani (herdsman), they should be prepared for war as no ethnic group has a monopoly of violence and none should be a monster to others”.

To date, these reprisal attacks against northern herders have not materialized but there are ominous signs. The interplay of herders’ attacks on farming communities and inflammatory rhetoric by ethnic and Christian leaders in the south could spark even more violence. The geographic spread or escalation of the conflicts could put Nigeria’s military and other security forces under greater stress, diverting the resources they need for operations against Boko Haram in the North East, militants in the Niger Delta and other security challenges (ICG, 2017).

One thing is certain and that is that the conflict being discussed derive its fuel from a type of animal grazing that majority have come to see as trouble shooting. Though seen in some quarters as ordinary conflicts between groups, the grazing induced conflict is dangerously viewed by a large section of the Nigerian population (especially from the southern part of the country) as being politically motivated and targeted at ethnic and religious cleansing against groups from the southern part of the country. This feeling if allowed to explode, could spell doom for the corporate entity called Nigeria. Some have expressed the view that no nation ever survives two civil wars. Coming out of a devastating thirty months civil war and presently contending with the Boko haram insurgency in the North Eastern part of the country, a restive Niger Delta and a secession-clamoring South East, it is left to be seen how the diverse elements in the country can fully integrate into a one united nation if matters get to its head.

Figure 2.6 Fulani herdsmen carrying deadly weapons and ready to attack sedentary farmers in Nigeria’s Middle Belt as new laws restrict the open grazing of cattle on farmlands. Screen capture from Biafra Television



Source: Biafra Television

Figure 2.7: Armed Fulani herdsmen are accused of burning homes and killing as many as 120 Christians leaving the funeral of a pastor’s father Saturday in Plateau State. Screen capture from Empire One News in Nigeria



Source: Empire One News in Nigeria

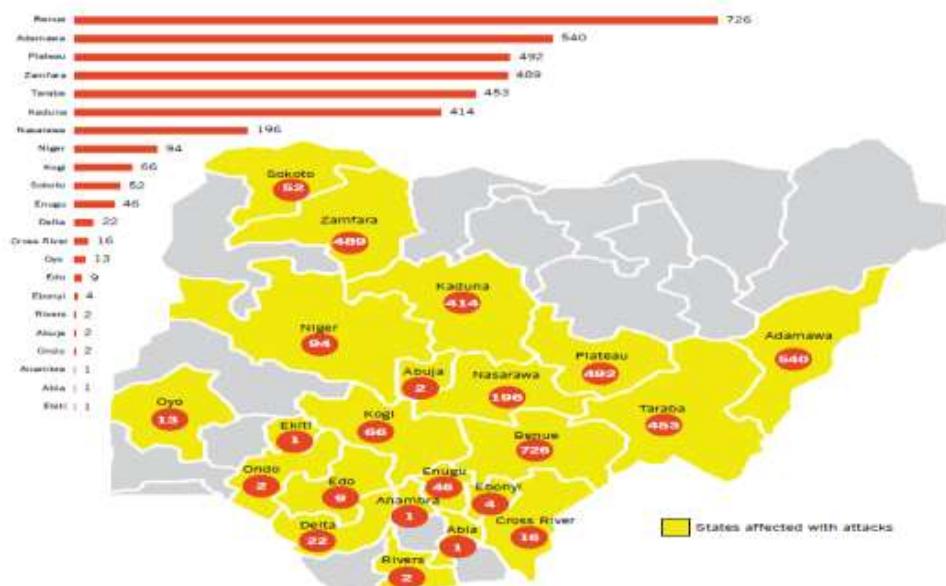
Figure 2.8: Women mourn after Fulani herdsmen attack the village of Jos in Nigeria's south. Photograph: Pius Utomi Ekpei/AFP/Getty Images



Source: Photograph by Pius Utomi Ekpei/AFP/Getty Images

2.7: States affected by Farmers and Herder's clashes.

Fig. .9:Diagrammatic illustration of States affected and the total number of people killed from January, 2016-October, 2018 in each State



Source: Amnesty International Nigeria, 2018.

In the diagramme above, the portions shaded yellow represent States that are affected by the farmers and herders crises in the country. A close analysis of the map will show that out of the thirty six (36) States in the country, twenty two (22) States, which represent roughly two-third of the states, spread across the entire six (6) geopolitical zones in the country (though with a lesser degree in some), are engulfed in the crises.

On a zone by zone level, the North Central, often taken to be the food basket of the nation, South-South and the South East (both seen as the hub of the nation's economy with Lagos), are mostly affected.

Carrying the analysis further, Benue State with 726 clash-related deaths has the highest number of casualties, which with Adamawa (640), Plateau (492) and Taraba (453) as second, third and fifth highest casualties respectively, are all in the North Central zone of the country.

What can be deducted as a product of our analysis of the above map is that:

- With North Central, which is the main source of food produced and consumed in the South being seriously affected by the crises, food security (both in quantity and quality) is seriously under threat.
- Where economic activities (especially in the high economic zones of the South-South and South East) are constantly being disrupted both through loss of man-hour and damage to resources as a result of the crises, GDP and overall economic growth will be negatively affected.
- Where the crises has gone beyond just a few states and zones in the country to affect close to two-third of states, spread across all the geopolitical zones and the major ethnic nationalities in the country, national integration will be difficult if not impossible to achieve.

2.7 Timeline of Farmers and Herders Clashes in Nigeria from 2000 to 2019

Attacks by what has lately come to be known as Fulani herdsmen against other Nigerians in general and crop farmers in particular have been with us for quite some time but they have been on the increase in recent times. One BBC report claimed that these clashes have claimed thousands of lives within a period of roughly twenty years BBC (2016). Idowu (2017) noted that clashes between different groups of Fulani herders and farmers have killed thousands of people in Nigeria over the past two decades. According to him, information released by the Global Terrorism Index (GTI), which ranked the Fulani herdsmen as the fourth deadliest terrorist group in the world, after the Islamic State in Iraq and Syria (ISIS), Taliban and al-Shabaab, show that in 2014 alone, more than 1,200 people lost their lives.

While many have divergent opinions on the remote and immediate causes of these attacks, it has been reported that the Fulani, under an umbrella organization known as the Miyetti Allah Cattle Breeders Association of Nigeria (MACBAN), claim that they are being attacked by gangs from farming communities who steal their cattle and that they are simply defending themselves against such attacks (Iloanya and Ananti, 2018). Recently, the country recorded series of clashes between them and farmers which led to loss of lives and properties and some of these clashes in Nigeria as compiled by some notable organizations, online and mainstream news media include:

S/N	DATE	INCIDENCE	PLACE
1	Feb, 2005	Dozens of people were killed in Adamawa state when Fulani herdsmen alleged to come from Chad and Niger attacked farming communities in a dispute over grazing land.	Adamawa State
2	Dec, 2009	32 people were killed, scores of houses burned, and several farms destroyed following clashes between pastoralists and farmers in Nasarawa State.	Nasarawa/and Borno State

		About 700 pastoralists were sent away from Borno State	
3	March, 2010	Fulani herders invaded three villages of Dogo Na Hauwa, Ratsat and Jeji in Jos South Local Government Area of Plateau State killing many people including mostly children and women in a barbaric manner.	Plateau State
4	Nov, 2011	Fulani/ farmers clash in Kirikasamma Local Government area of Borno State left one person killed and over 17 people from the farmers' side seriously injured. This was triggered when farmers in the area took measures to protect the perennial destruction of their yet -to-be harvested farm produce and frequent attacks on them by the Fulani pastoralists. Conflicts between farmers and Fulani pastoralists in Benue State, left two soldiers, some 50 men, women, and children dead.	Borno and Benue State
5	March, 2012	The conflict between Fulani pastoralists and sedentary farmers in Gwer West Local Government Area of Benue State left over 30 people dead.	Benue State
6	March, 2012	Sixteen people were killed in a clash between Tiv farmers and Fulani herdsmen in Kadarko community, Giza Local Council of Nasarawa State. About 5,000 residents fled to safer areas in nearby towns.	Nasarawa State
7	April, 2012	April 2012 One person was killed, and several others were injured in a Fulani -Hausa Clash in Sokoto.	Sokoto State
8	May, 2012	A clash between farmers and herders in Gwer West area in Benue State left five people dead, and many others displaced	Benue State
9	June, 2012	At least six people were killed, houses burnt, and several farmlands were destroyed in Ngandum Village, Adamawa State as pastoralists and farmers engaged in a fierce battle. These occurred after Herdsmen led their cattle into rice fields resulting in the death of a farmer.	Adamawa State
10	July, 2012	About 200 persons, including a serving federal senator, Gyang Dantong, were killed in Matse and Kakuru villages during a funeral for some people killed earlier by suspected Fulani herdsmen.	Plateau State
11	Dec, 2012	Clashes between Gbagyi farmers and Fulani nomads near Abuja left two people dead, five injured, and over 1,500 people displaced from about 27 settlements that were destroyed.	Plateau State
12	April 23, 2013	10 farmers killed in Mbasenge community, Guma LGA	Benue State
13	May 7, 2013	47 mourners killed in Agatu while burying 2 policemen killed in neighboring Nassarawa town	Benue State
14	May 12, 2013	83 killed by Fulani herdsmen in the Okpanchenyi and Ekwo communities of Agatu	Benue State
15	May 14, 2013	40 killed as over 200 herdsmen stormed Ekwo-Okpanchenyi, Agatu LGA	Benue State
16	June 11, 2013	1 killed, by Fulani rubbers. Also, over 40 cattle belonging to the Catholic Church Otukpo were led away. A number of people were injured. Ichama Village, Okpokwu LGA, Benue State.	Benue State
17	July 1, 2013	40 people killed Fulani gunmen attacked in Okpanchenyi village.	Benue State
18	July 5, 2013	60 killed following clashes between Tiv farmers and herdsmen in Nzorov, Guma, LGA.	Benue State
19	July 28, 2013	8 killed as herdsmen invaded 2 villages in Agatu LGA.	Benue State
20	Sept 29, 2013	15 killed in Agatu by Fulani herdsmen	Benue State
21	Oct 13, 2013	30 People killed in Ogueche and Agatu by suspected Fulani Herdsmen	Benue State
22	Nov 7, 2013	7 killed, 6,000+ displaced when attackers struck Ikpele & Okpopolo communities, Agatu LGA.	Benue State
23	Nov 9, 2013	36 killed and 7 villages overrun in Agatu LGA.	Benue State
24	Nov 20, 2013	22 killed and lots of properties destroyed in an attack in Guma LGA.	Benue State
25	Jan 20, 2014	5 soldiers and 7 civilians gunned down in an attack, in Agatu LGA and 3 killed in attack in Adeke Village	Benue State
26	Feb 20-21, 2014	35 killed, 80,000 displaced, 6 villages sacked following an attack in Gwer West LGA	Benue State
27	Feb 24, 2014	8 killed following an attack on a Tiv community along Naka road, Makurdi	Benue State

28	Mar 6, 2014	30 killed, 6 villages sacked in Katsina/Ala and Logo LGAs.	Benue State
29	March 10, 2014	The convoy of ex-Governor Suswam attacked at Umenger. He managed to escape.	Benue State
30	Maech 12, 2014	28 killed in a raid on Ukpam, in Guma LGA. Yam barns and farms burnt and another 22 slaughtered in an attack on Suswam's village, Logo LGA. The entire village sacked.	Benue State
31	March 25, 2014	More than 60 killed and many houses burnt, prompting Gov. Suswan to seek help from the army.	Benue State
32	March 27, 2014	About 55 were killed at Gbajimba with many houses destroyed. over 52,000 internally displaced people at camp established by the Catholic Diocese of Makurdi.	Benue State
33	March 29, 2014	More than 200 villagers and a few herdsmen in army camouflage killed. 3 Villages (Sankwai, Takum, Marchek) about 250 kilometers South of Kaduna metropolis destroyed.	Kaduna State
34	April 12, 2014	2 were killed in Gwer West L.G.A	Benue State
35	Sept 10, 2014	Scores dead when herdsmen attacked 5 villages in Ogbadibo LGA.	Benue State
36	Dec 14, 2014	10 killed in Benue State by Fulani Herds men.	Benue State
37	March 5, 2015	10 people were killed with more than 100 houses burnt in Riyan L.G.A.	Plateau State
38	March, 2015	Farmer's hand was cut off; his sibling was raped and farmland destroyed.	Oyo State
39	May 24, 2015	5 days to the end of Governor Suswam's administration in May 2015 over 100 farmers and their family members were killed in villages and refugee camps located in Ukura, Per, Gafa and Tse -Gusa LGAs of the State	Benue State
40	24 Jan, 2016	65 villagers, including 54 men and 11 women, and a police officer were killed when suspected Fulani gunmen attacked Koh, Ndikajam, Tabongo, Balawo, Dyemsare, and Noine villages in Girei local government area of Adamawa.	Adamawa State
41	Apr 12, 2016	15 people were killed as the Fulani herdsmen attacked two villages in Gashaka Local Government Area of Taraba State	Taraba State
42	April 19, 2016	Twenty-five Local Government Areas in Delta State protested on the Benin -Asaba Expressway, the alleged killing of about 23 persons by herdsmen.	Delta State
43	April 25, 2016	Fulani herdsmen attacked Ukpabi Nimbo in Uzo – Uwani Local Government Area of Enugu State and about 40 people were killed	Enugu State
44	June, 2016	A 46 year old renowned farmer was shot by gunmen suspected to be Fulani herdsmen in Ossissa community in Ndokwa East Local Government Area	Delta State
45	August, 2016	Herdsmen reportedly numbering over 50, armed with machetes disrupted the peace of Ndiagu community of Attakwu, Akegbé-Ugwu in Nkanu West Local Government Area. A Catholic Seminarian, Lazarus Nwafor killed and severely injured four members of the Ogbodo Nwarum family	Enugu State
46	Oct., 2016	Armed Fulani herdsmen opened fire on villagers who attempted to stop their cattle from grazing their farmlands in Umuekune village of Irete community in Owerri West Local Government Area. Several people were wounded in the ensuing stampede with two of the injured on danger list	Imo State
47	Jan. 17, 2017	Herdsmen opened fire in Samaru Kataf market, killing 3 persons and injuring 5 in Zango-Kataf Local Council Area.	Kaduna State
48	Jan., 2017	A fresh crisis between Fulani herdsmen and Idoma farmers at Okpokwu Local Government Area, left not less than five people dead and several others injured	Benue State
49	Jan. 24, 2017	Grazing of cattle and destruction of farmlands led to a bloody fight in which 2 herdsmen and 13 villagers (a total of 15 persons were killed in Ipiga village in Ohimini LGA.	Benue State
50	Jan. 24, 2017	5 students of the College of Education, Gidan Waya in a commercial car taking students to school from Kafanchan were waylaid and shot dead by alleged herdsmen in Jema'a LGA.	Kaduna State
51	Jan., 2017	Fulani herdsmen attacked Rafin Gona and Gbagyi villages in Bosso Local	Niger State.

		Governemnt Area. At least 6,000 persons displaced and nine people killed, including a police Inspector and an Assistant Superintendent Officer of the Nigeria Security and Civil Defence Corps	
52	Feb. 10, 2017	8 people were confirmed dead in clashes between community members and suspected herdsmen in Rukumawa Tsafe LGA,	Zamfara State
53	19 Feb, 2017	Gunmen attacked Kanikon village, resulting in the death of 8 villagers and a police man.	Kaduna State.
54	Feb. 21, 2017	About 21 people were killed when Fulani herdsmen launched attacks on four communities in Southern Kaduna,	Kaduna State
55	Mar 2, 2017	No fewer than 10 persons were killed in renewed hostilities between herdsmen and farmers in Mbahimin community in Gwer East LGA,	Benue State
56	Mar. 6, 2017	6 persons died in clash between suspected herdsmen and residents of Omumu community in Ika South LGA,	Delta State
57	Mar 11, 2017	7 people were killed in Mkgovur village, a Tiv Community in Buruku L.G.A.	Benue State
58	Mar, 14, 2017	1 person was killed and several others injured in clashes between herdsmen and the people of Umuobasikwu, Ozuitem in Bende L.G.A.	Abia State
59	Mar. 27, 2018	1 killed, 1 injured, women raped in their farms in a suspected Herdsmen attack in Adam Village, Kwande LGA.	Benue State
60	Mar. 28, 2018	3 persons were killed while six others sustained injuries in an attack by suspected herdsmen in Emuhi community in Ika South LGA,	Delta State
61	Apr 1, 2017	Suspected Fulani herdsmen killed no fewer than 10 persons in a raid on Obio Usiere village in Eniong Abatim community, Odukpani LGA,	Cross River State
62	May 8, 2017	3 persons were killed. In clash between herdsmen and farmers in Tse-Akaa village, Ugondo Mbamar District of Logo LGA,	Benue State
63	May 12, 2017	Suspected herdsmen beheaded a commercial motorcycle rider and six farmers who worked with Ugo Farm. They were ambushed on their way home to Ossissa community in Ndokwa East LGA,	Delta State
64	May. 18, 2017	2 persons lost their lives in a suspected herdsmen attack in Afam Uku, Oyigbo LGA,	Rivers State
65	May 22, 2017	2 people were killed and 1 was wounded and lots of persons sacked from their farmlands. Crops worth millions of naira were destroyed while herdsmen entered farmlands raped two women and strangled them to death in Ewu community, Esan Central LGA,	Edo State
66	Oct 16, 2017	Attack on a school guarded by soldiers which resulted in the death of 27 residents of Nkiedowro village seeking refuge there.	Plateau State
67	Dec. 4, 2017	7 villages in Numan and Demsa local government areas were attacked by suspected Fulani herdsmen. In response, Nigerian Air Force (NAF) carried out an attack and in the end at least 86 villagers died and about 3,000 houses were destroyed in the attack and air raid.	Adamawa State
68	Dec.31 17/Jan. 1, 18	Suspected Fulani herdsmen-turned gunmen also visited several communities in two LGAs (Logo and Guma) and killed over fifty (50) villagers, including women and children.	Benue State
69	April 24, 2018	Armed men, believed to be cattle herders, stormed a Catholic church during early morning Mass on Tuesday in a remote village and killed 2 priests and 17 worshippers.	Benue State
70	May 1-2, 2018	Fulani gunmen numbering about 250 gathered in Babagasa in Lau LGA of Taraba State. May 2, at about 4pm, they crossed into Adamawa State and killed 33 villagers and burnt down over 500 houses in five villages – Nega, Bang, Bolki, Gon, and Nzumosu, all in Numan LGA.	Adamawa State
71	May 24, 2018	5 farmers were killed by gunmen on their farm in Malikawa Village under Gidan Goga district. Same day, another 22 men who went to retrieve the	Zamfara State

		corpses of those earlier killed were attacked and killed.	
72	June 4. 2018	Gunmen on motorcycles, at around 1pm, attacked Jarkuka Village in Anka local government area, killing 26 people.	Zamfara State
73	July 14, 2018	Some Fulani villages in Mayo-Belwa LGA were attacked by armed men suspected to be Bile. One of the worst affected villages was Bidda, where 27 residents of Fulani origin were killed.	Adamawa State.
74	Dece. 16, 18	Militants believed to be Fulani Herdsmen attacked a village in Jema'a, during a wedding, killing 15 people and injuring at least 24 others.	Kaduna State
75	January. 28, 2019	7 herders were burnt by a team of vigilantes alongside their cows	Zamfara State
76	Feb. 10-11, 2019	In a conflict involving Fulani herdsmen and Adara militia, 130 Fulanis and 11Adara people were killed according to government sources. Miyetti Allah said 66 Fulani were buried and 65 remain missing.	Kajuru, Kaduna State
77	March 2, 2019	Herdsmen killed 16 in an attack on Gwer West LGA. The government blamed the attack on allegations of theft of cows by livestock guards made by the military. Residents said the herdsmen brought along many cattle and took over their lands for grazing after killing people	Benue State

Source: Adapted from Amnesty International Nigeria (2018), Ukwayi and Anam, (2017), Ezeonwuka and Igwe (2016), Idowu (2017) and Oli, Ibekwe & Nwankwo (2018).

The table above shows that out a total of 77 incidents recorded, the North-Central part of Nigeria with 44 incidents and representing 57%, was the most hit by the clashes. The zone was followed by North-West, North East , South-South and South East zones with 12, 8, 8 and 4 recorded incidents, representing 16% 10%, 10% and 5% respectively. The South-West with only one recorded incident, representing 2% is the least affected by the crises.

On a State by State analysis, Benue State in North-Central Nigeria with 38 recorded clashes out of a total of 77 (taking roughly 50% of the crises) is the most affected in the zone and in the entire country, followed by Kaduna State with 7 recorded incidents or 9%. Adamawa and Delta States recorded 5 incidents, amounting to 7% each.

Figures from the table show that North-Central Nigeria and Benue State in particular remain the hot bed of herdsmen and farmers clashes in the country. With North-Central zone which is regarded as the food basket of the nation being severely affected, there is ominous danger to steady food supply throughout the country.

3.0 Methodology

3.1: Research Design

The study adopted a descriptive quasi-survey method. Accordingly, while primary data was generated from experts and a few opinion leaders in the society through a purposive/judgemental method to support secondary data, the study in the main adopted a qualitative method of treating data. Qualitative research ‘emphasizes words rather than quantification in the collection and analysis of data’ (Bryman 2008:366). It was relevant to use this method because the study deals with social and human behaviour and because it has always been difficult to express and understand some human actions with numbers (Berg and Lune 2012).

3.2 Method of Data Collection

The researcher used focus group discussions (FGD), review of relevant documents and questionnaire method to collect data for the study. The researcher had discussions with some stakeholders, analyzed the contents of relevant documents as contained in textbooks, newspapers, magazines and journals that were reviewed. To support the above methods, a questionnaire was also designed and administered on the focus group discussants to supplement the other methods.

3.3 Data Analysis Technique

In view of the fact that this study relied heavily on secondary data, all data used were content analyzed with a view to determining whether they support or vary with the study’s stated objectives and the degree of such support or variation. Data generated from questionnaire was also presented and analyzed with tables and simple percentages while Likert’s 5-point attitudinal measurement scale was used to structure the questionnaire.

4.0 Data Analysis, Findings Conclusion and Recommendations

4.1 Nigeria’s GDP Composition for 2015, 2016, 2017 and 2018

To underscore the importance of agriculture to the Nigerian economy, the study presents data from the CBN Statistical Bulletin and the National Bureau of Statistics (NBS) showing the GDP composition of the Nigerian economy and the place of agriculture as a percentage of the economy for 2015, 2016, 2017 and 2018.

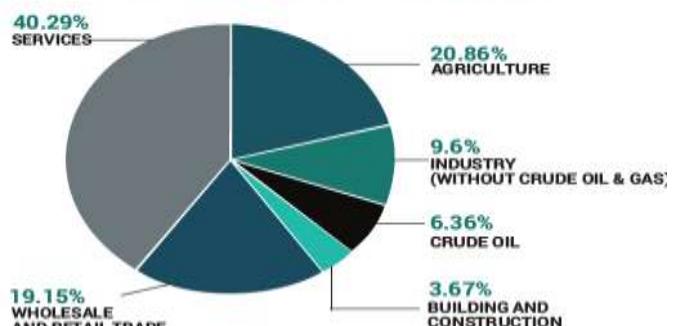
Table 4.1.1: Nigeria's GDP composition in five yearly intervals from 1985 to 2015.

GDP COMPOSITION

	1985	1990	1995	2000	2005	2010	2015
AGRICULTURE	17.81%	21.34%	27.29%	21.87%	27.09%	23.89%	20.86%
INDUSTRY (EXCL. CRUDE OIL & GAS)	23.17%	17.99%	14.45%	12.09%	8.08%	6.65%	9.65%
CRUDE OIL	3.43%	11.62%	15.34%	18.36%	14.73%	15.39%	6.36%
BUILDING AND CONSTRUCTION	3.17%	3.47%	1.90%	1.77%	1.86%	2.88%	3.69%
WHOLESALE AND RETAIL TRADE	9.24%	13.87%	18.30%	14.79%	16.23%	16.47%	19.15%
SERVICES	43.18%	31.71%	22.73%	31.12%	32.01%	34.73%	40.29%
TOTAL	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Source : CBN Statistical Bulletin

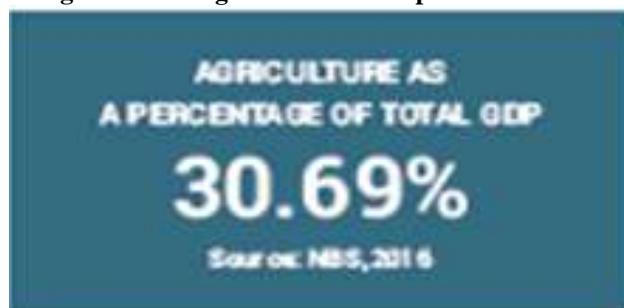
GDP COMPOSITION (2015)



Source : NBS

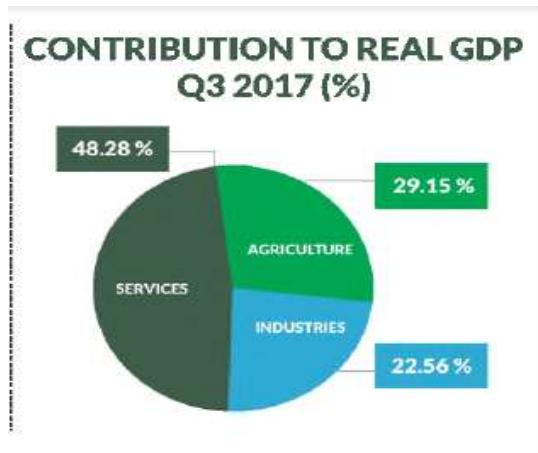
Figure 4.1.1: Nigeria's GDP Composition for 2015

Figure 4.1.2: Nigeria's GDP Composition for 2016



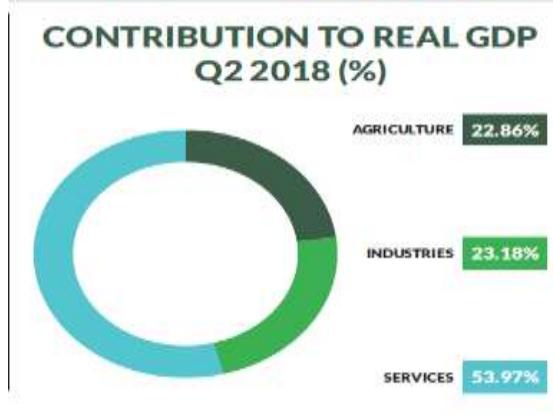
Source: CBN/NBS/Budget Office/World Bank.

Figure 4.1.3: Nigeria's GDP Composition for Q3 of 2017



Source: National Bureau of Statistics Report, 2017.

Figure 4.1.4: Nigeria's GDP Composition for Q2 of 2018



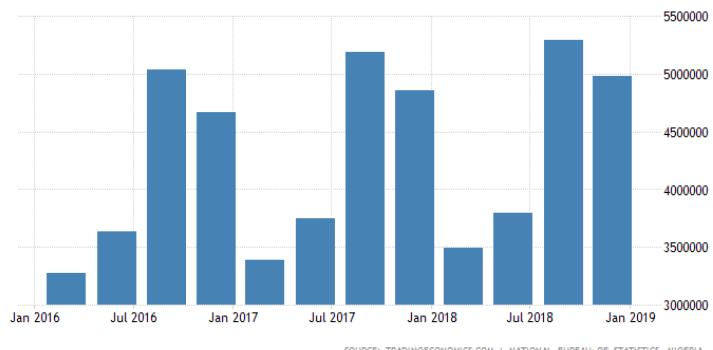
Source: NBS Report, 2018

The tables and the charts above show Nigeria's GDP composition and the place of agriculture in it from 2015 to the second quarter of 2018. The data show that Agriculture contributed a whopping 20.86%, to the country's total GDP for 2015 and 30.69% in 2016, coming second only to the Services sector in both years. In the third quarter of 2017, the sector contributed a total of 29.15% to the nation's GDP and ended the year with 21.6% contribution to the overall GDP for the year, coming second again to the Services sector, (CIA World Factbook, 2018). Between 2016 and the third quarter of 2017, the agricultural sector came close to contributing almost one-third of the nation's total GDP.

In the second quarter of 2018, the sector contributed 22.86% to overall GDP in real terms, this time coming third after the Services and the Industrial sectors with 53.97% and 23.18% contribution respectively (NBS, 2018).

The meaning of all the data above is that over the years, the agricultural sector has continued to remain one of the major drivers of the Nigerian economy with the implication being that as a major player in the Nigerian economy, any upheaval or dislocation in the sector will likely affect the other sectors of the Nigerian economy.

Figure 4.1.5: Nigeria's GDP Position as at Q4 of 2018.



Source: TradingEconomics.com/National Bureau of Statistics, Nigeria

According to Tradingeconomics.com/NBS, the chart above shows that Nigeria's GDP decreased to 4978775.48 NGN Million in the fourth quarter of 2018 from 5288339.21 NGN Million in the third quarter of 2017.

If agriculture is still recognized as a major player in the Nigerian economy, then the observed decrease in GDP growth for the period can be attributed to the disturbing signals from the sector where farmers and herders are having running battles over access to grazing and cultivable land resources, leading to massive waste of crop, animals and man-hour that could add value to the nation's GDP.

Table4.1. 2: GDP REPORT Q2, 2018

Subsectors of Agriculture and their position in Nigeria's Agricultural Production (Q1 2017 – Q2 2018)

ACTIVITY SECTOR	2017				Total	2018	
	Q1	Q2	Q3	Q4		Q1	Q2
AGRICULTURE							
1. Crop Production	3,969,515.26	4,530,128.43	6,536,584.78	6,059,876.78	21,096,105.25	4,201,158.94	5,040,537.40
2. Livestock	487,870.92	474,213.64	465,642.41	546,720.78	1,974,447.76	479,988.00	481,746.01
3. Forestry	58,244.18	66,980.17	60,618.56	71,366.54	257,209.46	60,024.07	70,007.69
4. Fishing	170,591.17	138,824.80	135,364.39	180,011.39	624,791.74	216,687.29	172,289.75

Source: NBS GDP Report, 2018.

The table above shows the four subsectors of agricultural production as crop production, livestock production, forestry and fishing. The table further show the commanding height of crop and livestock farming over the other two in the sector as crop and livestock production took distant first and second positions respectively over forestry and fishing.

The implication of the data above is that crop farming and animal husbandry are at the forefront of the country's agricultural production and that for a country with a preponderant GDP input from agriculture, the entire economy may be heading for the rocks if the two subsectors (crop and animal production) continue to be undermined by policy distortions or internecine resource induced conflicts as is the case now in Nigeria.

4.2: Open Grazing and Sustainable Food Security in Nigeria

4.2.1: Food Security and Sustainable Development in the eyes of the Business-As Usual (BAU) Model

In this section, the study presented and analyzed the table presented by the Thematic Group on Sustainable Agriculture and Food Systems of the Sustainable Development Solutions Network: A Global Initiative of the United Nations.

The group used a Business-As- Usual (BAU) Model to analyze food production and to show what will happen between now and the year 2050.

In the context of this study, a Business-As-Usual (BAU) model or strategy is one in which the status quo is maintained. That is, it is a strategy that relies on the present mode of agricultural production. Driven home to this study, a Business-As-Usual (BAU) strategy is one in which the age long culture of open cattle grazing and its associated interface with crop farming persists. It will mean a strategy that allows a free-for-all access to farmlands and to grazing routes by both herders and crop farmers respectively thereby bringing the parties into direct confrontations that result in food crops damages, killings and cattle rustling, economic dislocation and environmental degradation. Resulting from the skirmishes between farmers and herders, the business-as-usual model of agricultural production establishes a correlation between the grazing-induced clashes and the mutual distrust among the various groups that make up the country.

Table 4.2.1: Regions likely to suffer moderate (M) and high (H) costs in the Business-As -Usual scenario of unsustainable agricultural development.

Key: M = Moderate H = High H = Very Highly Affected.

	North America	Latin America & Caribbean	Europe	M/East & North Africa	Sub Saharan Africa	South & Central Asia	S/East Asia & Pacific	East Asia

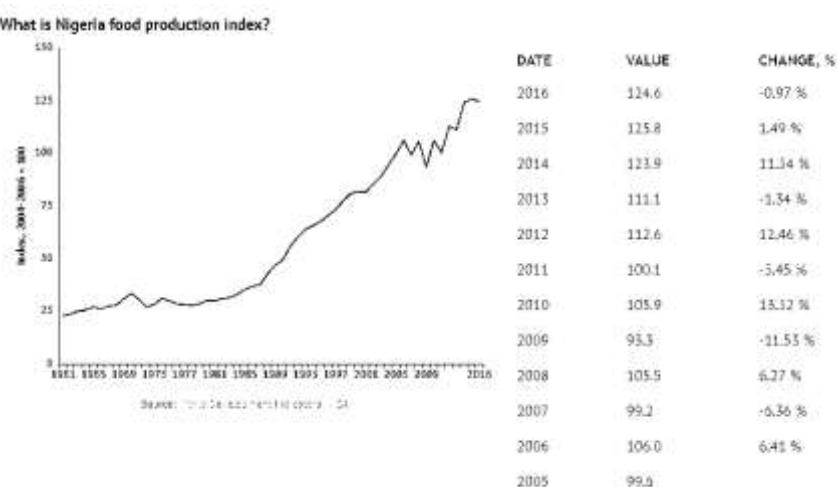
							c	
Food Security				H	H	H	M	M
Malnutrition					H	H	M	M
Obesity & Health	H	H	H	H		M	M	M
Poverty				M	H	H	M	M
Poor Rural Infrastructure		M		M	H	H	M	M
Conversion of Natural Land		H			H	M	M	M
Soil & Land Degradation				M	H	H	M	M
Water Shortage	M			H	H	H	M	M
Water & Air Pollution	M		M	M		H	H	H
Biodiversity Loss	M	H	M	M	M	M	H	H

Source: The Thematic Group on Sustainable Agriculture and Food Systems of the Sustainable Development Solutions Network: A Global Initiative of the United Nations

The table above shows that with a Business-As-Usual strategy, Sub Saharan Africa, of which Nigeria is one, there will be high very food insecurity in the period between 2010 and 2050. What this portends for a country like Nigeria is that our current agricultural production (open grazing) system is counterproductive to food security and sustainable development as growth in agricultural production and access to food will be insufficient to eradicate extreme hunger and nutritional deficiencies amongst Nigeria's growing population. Food supply shortages arising from crop damages, fear induced abstinence from farming activities and cattle killing/rustling will combine to result in shortages and high food prices that will affect economic and political stability. Faced with this type of problem, Nigeria may have to fall back to food aid and heavy importation of food items from abroad. Where food shortages continue unabated, the next generation may not be able to fulfill its human potentials.

Figure 4.2.1: Nigeria's Food Production Index (2005- 2016)

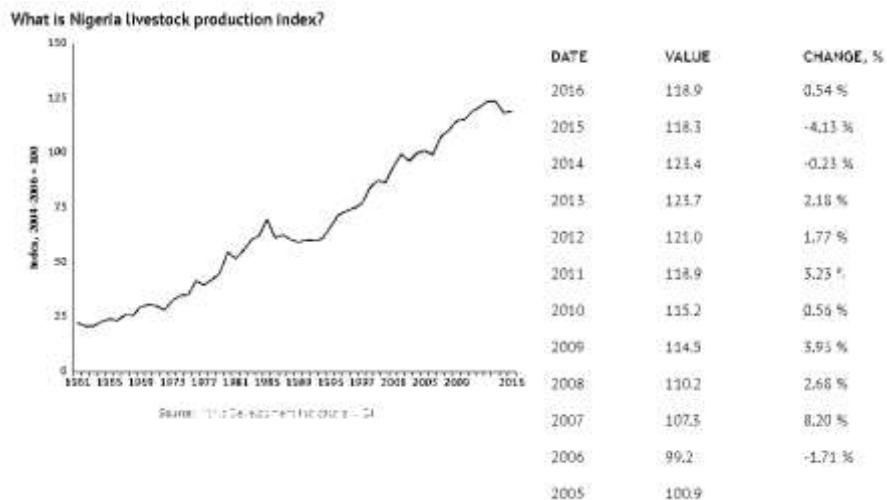
Definition: Food production index covers food crops that are considered edible and that contain nutrients.



Looking at the graph and the table adjacent to it, total value of food production from 2005 continued to experience an unsteady upward and downward swing. Though some years recorded marginal increases in the total value of food produced, the table show that there was real percentage decline in national food production from 2014.

This decline could be attributable to the disturbing menace of farmers and herders clashes that became rampant during the period.

Figure 4.2.2: Nigeria's Crop Production Index (2005-2016)

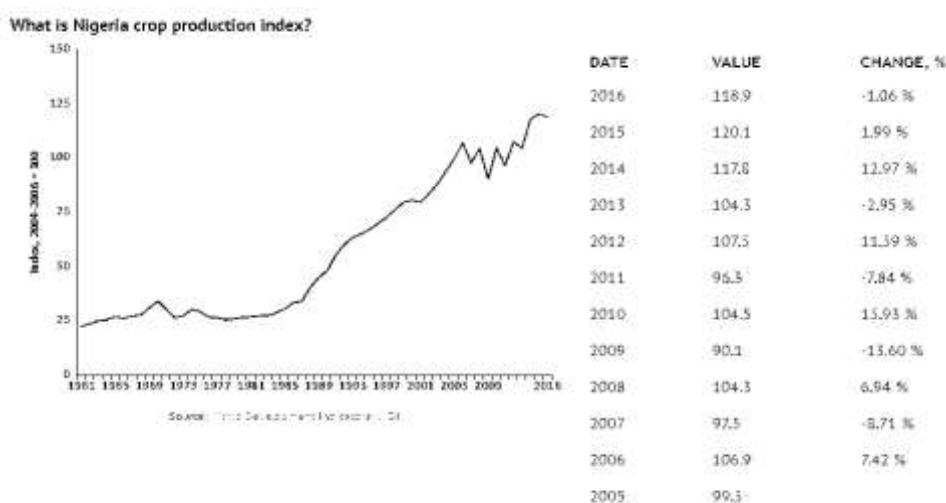


Source: World Development Indicators (WDI)

Food crop production is trapped between farmers and herders conflict in Nigeria and the graph above show that from 2006 to 2016, the country recorded steady decline in the value of food crop production.

This decline could also be attributed to the high quantity of food crops that are always destroyed whenever the parties clashed on one hand and from the abandonment of farming activities by crop farmers due to fear of being harmed or killed on the other hand.

Figure 4.2.3: Nigeria's Livestock Production Index (2005-2016)

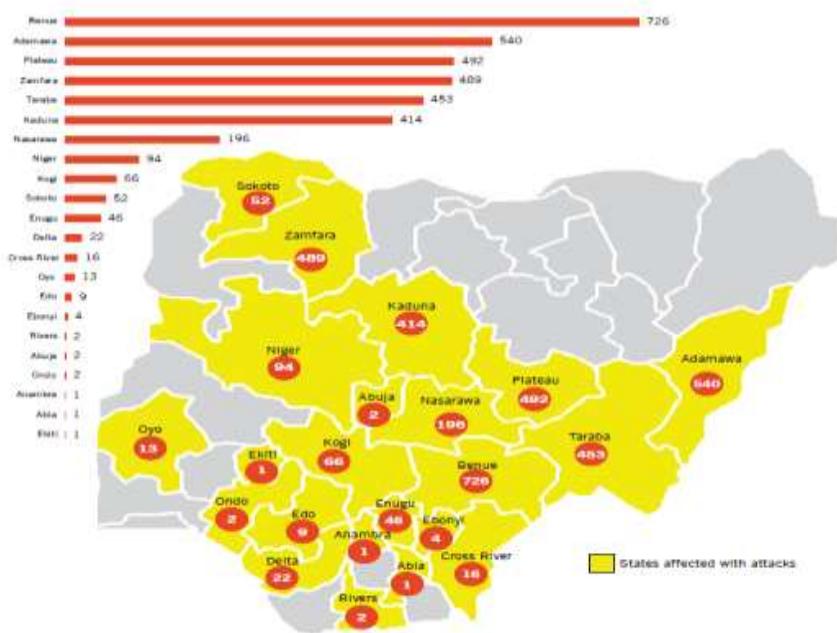


Source: World Development Indicators (WDI)

A critical analysis of the graph and the accompanying table above will show that livestock production in Nigeria from 2005 has remained unstable too - going up and down within the period under review and only managed to show a marginal improvement in 2015 with another decline in 2016.

With cattle, goat and sheep being the major livestock farming engaged by one of the parties involved in the conflict, this decline in livestock production may be as a result of the clashes that constantly result in cattle rustling and poisoning that has lately become the other of the day in Nigeria.

Figure 4.2.4: Diagrammatic illustration of States hard-hit by Grazing Conflicts and how Food Security in the Country may be affected



Source: ICG (2017)/AI Nigeria (2018) Reports.

In the map of Nigeria shown above, the portions shaded yellow represent the parts of the country that are mostly affected by grazing related conflicts between sedentary farmers and herders. The States mostly affected include Kaduna, Plateau, Nasarawa, Taraba and Benue - States most commonly referred to as the food basket of the nation. The discernible implication of this is that food supply is likely going to be negatively affected as most crop and animal yields coming from the zone will be lost to the crisis. Again as most farmers and farming communities will abandon their farms, valuable manpower (which ought to be put to gainful agricultural production) will be lost to the clashes. All these will reflect on the quantity and quality of food available to the consuming Nigerian public.

4.3: Open Grazing and Sustainable Environment in Nigeria

4.3.1: Implications of the Business-As-Usual Model on Environmental Sustainability of Nigeria

Table 4.3.1: Regions likely to suffer moderate (M) and high (H) costs in the Business-As -Usual scenario of unsustainable agricultural development.

Key: M = Moderate

H = High

H = Very Highly Affected.

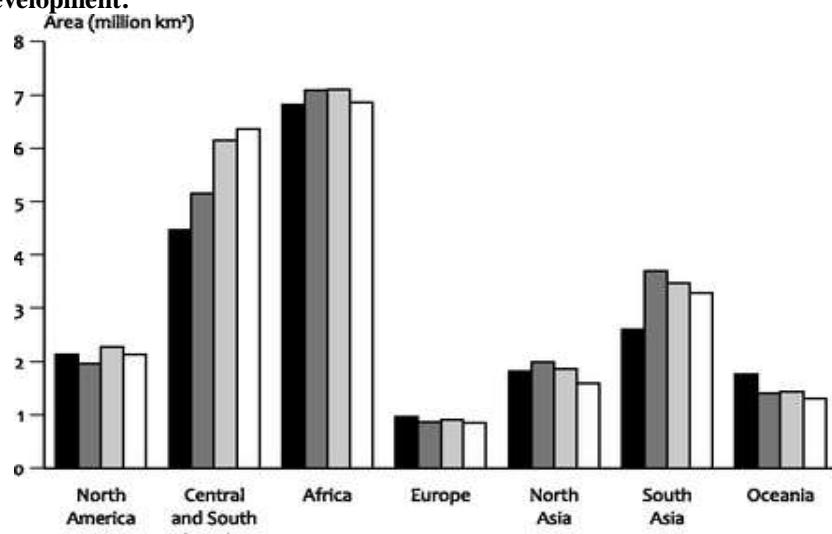
	North America	Latin America & Caribbean	Europe	M/East & North Africa	Sub Saharan Africa	South & Central Asia	S/East Asia & Pacific	East Asia
Food Security				H	H	H	M	M
Malnutrition					H	H	M	M
Obesity & Health	H	H	H	H		M	M	M
Poverty				M	H	H	M	M

Poor Rural Infrastructure		M		M	H	H	M	M
Conversion of Natural Land		H			H	M	M	M
Soil & Land Degradation				M	H	H	M	M
Water Shortage	M			H	H	H	M	M
Water & Air Pollution	M		M	M		H	H	H
Biodiversity Loss	M	H	M	M	M	M	H	H

Source: The Thematic Group on Sustainable Agriculture and Food Systems of the Sustainable Development Solutions Network: A Global Initiative of the United Nations

Table 4.3.1 above show that Nigeria as a country in the Sub-Saharan Africa will be highly confronted by natural conversion problems, soil and land degradation and severe water shortages. Save for water and air pollution for which the impact is unknown in the business-as-usual scenario, the table also show that biodiversity will also be moderately affected in Nigeria and in the entire sub continent. This would lead to many grazing lands (particularly in marginal areas of developing countries like Nigeria) being degraded, affecting productivity, household incomes and environmental services such as hydrology, biodiversity, and carbon cycles. More forests, wetlands and other lands could be converted to agriculture, further increasing greenhouse gas emissions.

Figure 4.3.1: Baseline-Scenario of Present Livestock Production System on Biodiversity/Rangeland Ecosystems and Sustainable Development:



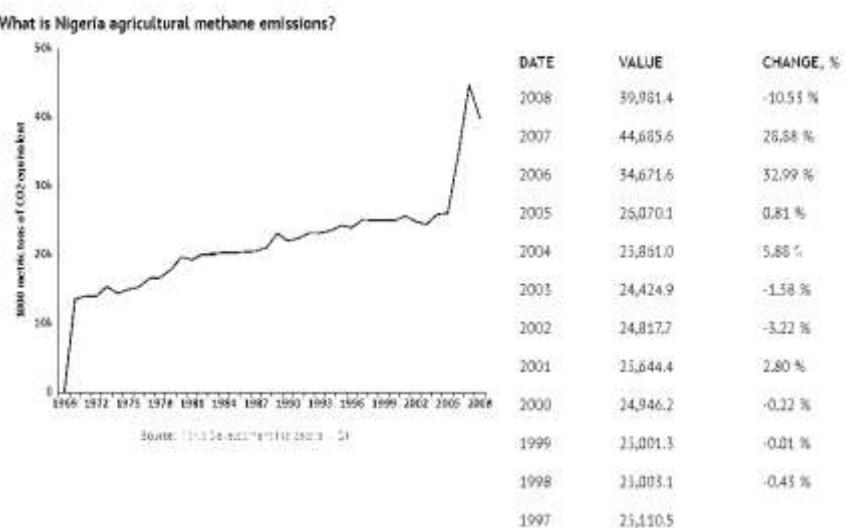
Source: Alkemade, Reid, Berg, Leeud, and Jeuken (2013). International Livestock Research Institute, Nairobi, Kenya.

Using a Baseline-Scenario to demonstrate environmental sustainability between 1970 and 2050, the chart above show the extent of grazing livestock production on rangeland ecosystems (including man-made grasslands) in each world region in 1970 (Solid bars), 2000 (Bars with dark shading), 2030 (Bars with light shading) and 2050 (Open bars).

The chart show that on environmental sustainability, the whole continent of Africa and Nigeria in particular, is worst hit and will continue to be worst hit with the current livestock production system which relies heavily on open grazing system.

Figure 4.3.2: Nigeria's Agricultural Methane Emissions on the Environment from 2000-2008

Definition: Agricultural methane emissions are emissions from animals, animal waste, rice production, agricultural waste burning (non energy, on-site), and savannah burning.



Source: World Development Indicators (WDI)

The graph and the adjacent table above show that agricultural methane emissions into the Nigerian environment has been on a steady increase since 2003 and only managed to come down from its level of 44, 685.6 in the previous year to 39, 981.4 in 2008.

4.4: Open Grazing and Sustainable Economic Growth in Nigeria:

4.4.1: Nigerian Economy and Sustainable Development through the eyes of the BAU Model:

Table 4.4.1: Regions likely to suffer moderate (M) and high (H) costs in the Business-As -Usual scenario of unsustainable agricultural development.

Key: M = Moderate H = High

H = Very Highly Affected

	North America	Latin America & Caribbean	Europe	M/East & North Africa	Sub Saharan Africa	South & Central Asia	S/East Asia & Pacific	East Asia
Food Security				H	H	H	M	M
Malnutrition					H	H	M	M
Obesity & Health	H	H	H	H		M	M	M
Poverty				M	H	H	M	M
Poor Rural Infrastructure		M		M	H	H	M	M
Conversion of Natural Land		H			H	M	M	M
Soil & Land Degradation				M	H	H	M	M
Water Shortage	M			H	H	H	M	M
Water & Air Pollution	M		M	M		H	H	H
Biodiversity Loss	M	H	M	M	M	M	H	H

Source: The Thematic Group on Sustainable Agriculture and Food Systems of the Sustainable Development Solutions Network: A Global Initiative of the United Nations

Table 4.4.1 also shows that economic and social development in Sub Saharan Africa, (which Nigeria is a part of) will suffer severely between 2010 and 2050 if the Business-As-Usual (BAU) agriculture trajectory is followed. Due to food shortages, resulting in volatile food prices, tens of millions of people will swing between being lifted out of poverty and being thrown back into it. Economic stability is at risk due to large regional, national, and within-country nutritional and food distribution gaps as well as competition for natural resources. Smallholder farmers and local agricultural businesses will continue to lack access to markets and financial resources, and thus won't be able to overcome the poverty traps associated with small holdings and/or poor soils. They will also be unable to benefit from new technology. Farming families will be left behind in the economic and social development taking place in urban areas. Farmland prices will rise, making it difficult for young people to enter farming. Lack of roads, clean water and electricity will continue to make it impossible to significantly improve the lives of the rural poor. Youth unemployment in rural areas will further rise. More young people will leave the countryside and move to the city, accelerating urbanization and its attendant negative consequences.

As all these happen, government will be compelled to resort to massive importation of food items to close the food supply gap, thereby depleting further the nations' scarce foreign exchange on food importation rather than on machinery and technological equipments needed to grow the economy.

Table 4.4.2: Nigerian Economy and Sustainable Economic Growth from an annual GDP Calculation:

Nigeria GDP Growth rate from 2000 to 2017

Nigeria							
	GDP growth (annual %)	GDP per capita growth (annual %)	GDP (constant LCU)	GDP per capita (constant LCU)	GDP (current LCU)	GDP (current US\$)	GDP per capita (current US\$)
2000	5.0	2.4	25,430,423,386,735.1	207,846.4	7,062,751,068,401.8	69,448,756,932.6	567.6
2001	5.9	3.3	26,935,315,648,296.4	214,686.6	8,234,493,679,743.8	74,030,364,472.4	590.1
2002	15.3	12.5	31,064,272,132,564.0	241,432.1	11,501,450,399,217.2	95,385,819,320.7	741.3
2003	7.3	4.7	33,346,624,772,276.3	252,678.5	13,556,973,687,774.8	104,911,947,833.9	795.0
2004	9.3	6.5	36,431,373,714,127.7	269,077.5	18,124,060,020,233.0	136,385,979,322.7	1,007.3
2005	6.4	3.7	38,777,013,730,989.5	279,092.8	23,121,878,996,826.1	176,134,087,150.5	1,267.7
2006	6.1	3.3	41,126,678,970,716.8	288,377.4	30,375,178,716,600.5	236,103,982,431.6	1,655.5
2007	6.6	3.8	43,837,391,994,671.3	299,400.9	34,675,943,737,137.4	275,625,684,968.9	1,882.5
2008	6.8	4.0	46,802,760,442,716.8	311,297.5	39,954,211,885,756.0	337,035,512,676.6	2,241.7
2009	8.0	5.2	50,564,263,245,078.5	327,484.1	43,461,458,620,731.8	291,880,204,327.6	1,890.4
2010	8.0	5.2	54,612,264,176,578.0	344,386.8	54,612,264,176,578.0	363,359,886,203.3	2,291.4
2011	5.3	2.5	57,511,041,765,038.1	353,094.8	63,134,734,884,975.0	410,334,579,160.6	2,519.3
2012	4.2	1.5	59,943,794,014,060.8	358,307.0	72,351,452,212,171.6	459,376,049,763.8	2,745.9
2013	6.7	3.9	63,942,845,560,018.9	372,130.0	81,009,964,620,126.1	514,966,287,334.4	2,997.0
2014	6.3	3.5	67,977,459,215,284.7	385,227.6	90,136,984,656,190.2	568,498,937,615.6	3,221.7
2015	2.7	0.0	69,780,692,718,348.3	385,142.0	95,177,735,683,725.1	494,583,180,777.2	2,729.8
2016	-1.6	-4.2	68,652,430,364,689.9	369,119.6	102,575,418,034,590.0	404,649,527,537.7	2,175.7
							1,092,773,322,583.2

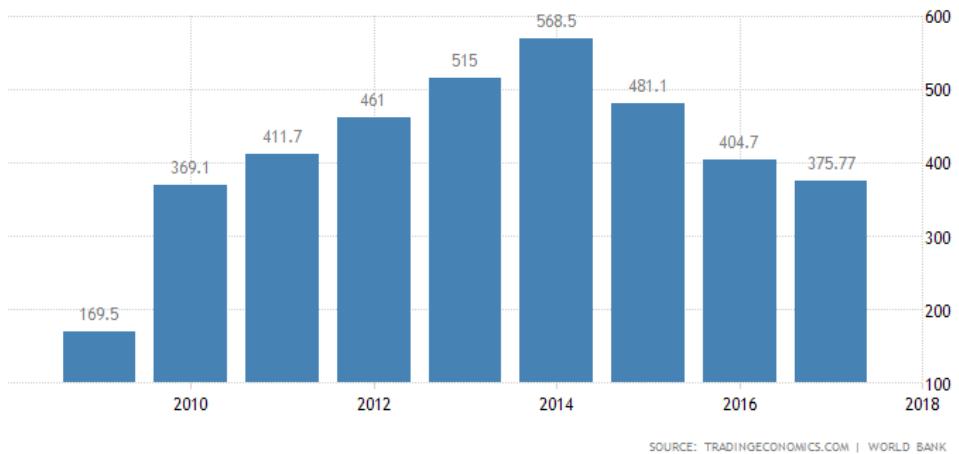
Nigeria							
	GDP growth (annual %)	GDP per capita growth (annual %)	GDP (constant LCU)	GDP per capita (constant LCU)	GDP (current LCU)	GDP (current US\$)	GDP per capita (current US\$)
2017	0.8	-1.8	69,205,691,115,000.0	362,549.3	114,899,249,897,700.0	375,745,486,520.7	1,968.4
							1,121,400,751,269.7

Source: World Development Indicators (WDI)

Column one of the table above show that GDP growth rate for Nigeria from year 2000 has been very unstable, attaining a cheerful growth rate of 15.3% in 2002 and a disheartening decline to -1.6% in 2016.

This fluctuation could be interpreted to be the result of the instability in the agricultural sector which negatively affected agricultural production which is a major contributor to the country's GDP.

Figure 4.4.1: Nigeria's GDP level from 2010 to 2018.



Source: Trading Economics.com/World Bank.

The chart above show that Nigeria's GDP was steadily rising from 2009, getting to its peak in 2014. However, from 2014 to 2017, the country's GDP has maintained a steady decline, going back almost to its pre 2010 figures.

For a country whose economy is driven heavily by agriculture, there may not be any other argument to explain the trend other than to attribute it to the current low level of agricultural production arising from the conflicts between crop farmers and castle herders in various parts of the country which always lead to production wastages and to abstinence from farming activities in some instances.

Figure 4.4.2: Nigeria's GDP Position as at Q4 of 2018.

Source: TradingEconomics.com/National Bureau of Statistics, Nigeria.

Figure 4.4.2 above is an extract of the chart in figure 4.3.1 showing the value of the nation's GDP level from January, 2016, 2017 to 2018 on a half yearly basis. The data showed significant upward and downward swings in the nation's GDP position over the period. These unsteady swings may be attributed to disruptions in agricultural production as a result of the crises experienced in the sector.

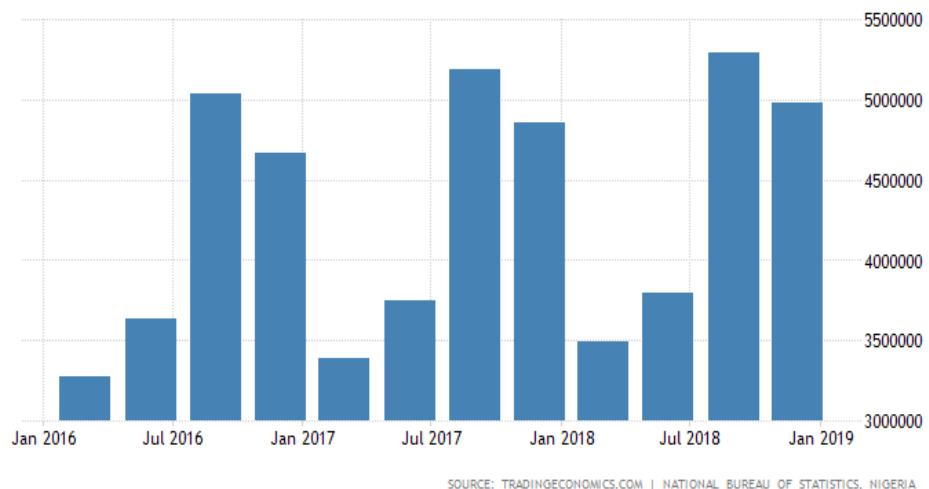
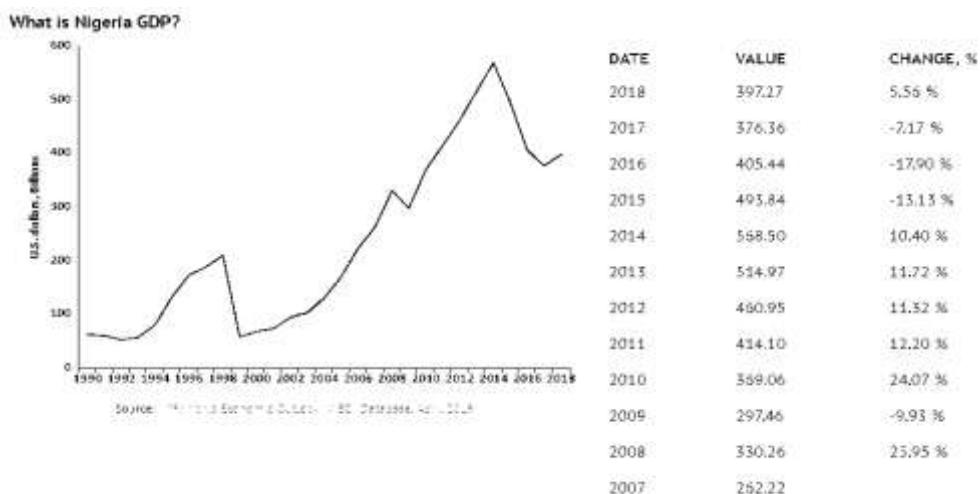


Figure 4.4.3: Nigeria's Gross Domestic Product (GDP) from 2005-2018



Source: IMF: World Economic Outlook (WEO) Database, October 2018

The graph and the table above corroborated the data contained in figure 4.4.3, showing a decline in the nation's GDP from 2014. As noted earlier, this downward trend in GDP growth may be attributable to poor crop and livestock output as a result of the farmers and herders crises in the period under review.

Table 4.4.3: Implications of the grazing-induced clashes on income, prices and sustainable development:

Indicators	Conflict community	Non-conflict community	Difference	t-value
Average income from farm (N)	358,000	437,313	79,313	2.081*
Average price of fadama fruit, vegetable (tomatoes, pepper, garden egg) (N)	4.120	2.911	1.198	-4.807**
Average labour cost per Man-day (N)	750	450	300	3.10***
Average cost of transportation of Farm products (1.00 kg bag) (N)	200	140	60	2.01**
Average price of a bul. (N)	81,000	78,424	2,576	0.912NS
Person abandoned fadama farming (No.)	21	3	18	6.70***
Number of drop out of school (not Able to pay school fees) (number)	7	2	5	6.91***

Source: Sulaiman and Ja'afar-Furo. Field Survey Data 2004-2007

In the table above, the economic impact of the grazing induced conflicts from the result of the comparative analysis of the conflict areas and their neighborhood where conflict did not occur show that the average income of the farmers in the conflict area, which is put at Three Hundred and Fifty Eight Thousand Naira

(N358, 000.00) was significantly lower than that of the farmers in a non conflict area which has Four Hundred and Thirty Seven Thousand, Three Hundred and Thirteen Naira (N437, 313.00). However, the average price of fruit/vegetables was significantly higher in the conflict community than in the non-conflict community. Despite the increase in prices, the farmer income in conflict area was lower. This was directly attributable to intrusion into farms by herders which resulted in damage to crop yields, scarcity of inputs such as fertilizers, abandonment of farms and farming activities.

4.7: Test of Hypotheses

In this section, the four hypotheses earlier postulated in chapter one were tested with the Z – test Statistical tool. The tests were set forth in the following order.

4.7.1: Hypothesis 1

H0: Open animal grazing is detrimental to food security and sustainable development of Nigeria.

H1: Open animal grazing is not detrimental to food security and sustainable development of Nigeria.

The above hypothesis was tested with tables 4.5.5, 4.5.6, 4.5.7 and 4.5.8

Table 4.7.1

Options	Frequency	Percentage (%)
Positive Responses	92	92 %
Negative Responses	8	8 %
Total	100	100%

Source: Field Survey, 2019.

$$(a) \text{ Formula for "Z"-test Statistics "Z" = } \frac{PQ}{nPQ} \sqrt{\frac{1}{P} + \frac{1}{Q}}$$

Where P = Proportion of Positive Responses (Strongly Agree and Agree)

Q = Proportion of Negative Responses (Undecided, Disagree and Strongly Disagree).

n = Sample

(b) Level of Significance = 0.05

(c) Critical "Z" Value: At 0.05 level of significance the Z score takes values between -1.96 and 1.96 (See Normal Distribution Table).

(d) Decision Rule: If the computed 'Z' value is between -1.96 and 1.96 our critical values, we accept the null hypothesis and reject the alternate hypothesis.

(e) Computation for the 'Z' Value:

From table 4.6.1, P = 92 (92%), Q = 8 (8%) and n = 25

$$"Z" = \frac{0.92 \times 0.08}{\sqrt{25 \times 0.92 \times 0.08}} = \frac{0.0736}{1.84} = \frac{0.0736}{1.356} = 0.054$$

(f) Statistical Decision: Since our computed "Z" value of 0.054 falls between -1.96 and 1.96, we accept the null hypothesis and reject the alternate hypothesis.

(g) Administrative Decision: Since our null hypothesis was accepted, the alternate hypothesis which states that Open animal grazing is not detrimental to food security and sustainable development of Nigeria was rejected.

4.7.2: Hypothesis 2

H0: Open animal grazing is inimical to the environment and sustainable development of Nigeria.

H1: Open animal grazing is not inimical to the environment and sustainable development of Nigeria.

The above hypothesis was tested with tables 4.5.9, 4.5.10, 4.5.11 and 4.5.12

Table 4.7.2

Options	Frequency	Percentage (%)

Positive Responses	78	78%
Negative Responses	22	22%
Total	100	100%

Source: Field Survey, 2019.

$$(a) \text{ Formula for "Z"-test Statistics "Z" = } \frac{PQ}{\sqrt{n}PQ}$$

Where P = Proportion of Positive Responses (Strongly Agree and Agree)

Q = Proportion of Negative Responses (Undecided, Disagree and Strongly Disagree).

n = Sample

(b) **Level of Significance = 0.05**

(c) **Critical "Z" Value:** At 0.05 level of significance the Z score takes values between -1.96 and 1.96 (See Normal Distribution Table).

(d) **Decision Rule:** If the computed 'Z' value is between -1.96 and 1.96 our critical values, we accept the null hypothesis and reject the alternate hypothesis.

(e) **Computation for the 'Z' Value:**

From table 4.6.2, P = 78 (78%), Q = 22 (22%) and n = 25

$$\text{"Z" = } \frac{0.78 \times 0.22}{\sqrt{25 \times 0.78 \times 0.22}} = \frac{0.1716}{4.29} = \frac{0.1716}{2.071} = 0.082$$

(f) **Statistical Decision:** Since our computed "Z" value of 0.082 falls between -1.96 and 1.96, we accept the null hypothesis and reject the alternate hypothesis.

(g) **Administrative Decision:** Since our null hypothesis was accepted, the alternate hypothesis which states that open animal grazing is not inimical to the environment and sustainable development of Nigeria was rejected.

5.1: Summary of Findings

This research set out to study the open grazing system of livestock production and the effects it has on Nigeria's sustainable development.

At the end of the study, the following findings were made:

1. That open grazing system is becoming counterproductive and out of tune with current animal food production methods as obtained in other parts of the world. Being outdated, sustainable food production in the country is at the risk of being threatened.
2. That open grazing system is disruptive to food crop and animal production as most times, animals on open grazing enter into cultivated farmlands and damage crop yields meant for human food consumption. In retaliation, crop farmers set traps and poison animal drinking water sources in order to prevent such animals from reaching and damaging their crops. As this happens, heavy losses are incurred by the herders which in the final analysis, goes to affect the amount of animal protein food that reach the consuming public.
3. That open grazing damages both the natural and built environment as the animals eat up grasses and use their often heavy weights and hard heels to damage substances that act as protective cover to the soil surfaces and get them exposed to the vagaries of the sun, weather and flood as well as pollute land, water and fresh air resources within our environment.
4. That frequent clashes between herders and settled farming communities disrupts local and national economies as most farmers abandon their homes and farming activities in an attempt to escape the ravaging cattle herders and their herds. This leads to excess demand on the few available food products that manage to reach the market. In the end, demand-pull inflation results.
5. That Nigerians are becoming divided more than ever before as disagreements and the resultant conflicts have erroneously come to be interpreted as plots to displace some and benefit some, raising the dust of mutual suspicion among the people.
6. That apart from the grazing reserve and stock route policy of the 1960s, successive governments of Nigeria, over the years has done nothing to give the country a functional livestock production policy. The one it tried

became moribund soon after it was initiated while no meaningful effort was made to tackle all skirmishes from the policy lacuna in a manner that will suit the feelings and interests of all stakeholders in the competition. Invariably, government, over time, only succeeded in opening itself up to all manner of accusations, including being partial and complicit in arming one side against the other.

5.2: Conclusion:

Governments all over the world are created to see to the welfare of the people and to act as a stabilizer, a resource distributor and an impartial mediator between individuals and groups in disagreements that arise as these individuals and groups engage themselves and compete for the often limited resources in society.

Arising from this onerous role of government and the nature of man in society, government is often subjected to all manner of pressures from these individuals and groups. While one individual or group is working to edge out the other or others on an issue, the other or others are counteracting to block that move or possibly displace the other to have its way. In doing this, government is subjected to a constant mobilization of peoples bias. In the course of exerting, counteracting, receiving or rejecting these pressures both by individuals, groups and government, a web of horse trading is generated in society that either lead to its destruction or advancement.

The scenario painted above represents a picture of what happens between crop farmers and herders over the struggle to sustain or jettison the open grazing system of livestock production in Nigeria. This study therefore set out to find how open grazing system as presently practiced in Nigeria is affecting the country's sustainable development in such areas as food security, environmental sustainability, economic growth and national integration in Nigeria.

At the end of the painstaking study, findings show that sustainable development of Nigeria as a country has very limited chances of success if the open cattle grazing culture is not replaced with a more acceptable livestock production that meets global best practices. This is because findings show that there is an inverse relationship between open cattle grazing system and food security, , sustainable environment, economic growth and national integration – four key indices of global sustainable development goals.

5.3: Recommendations

Based on the findings of this research, the following recommendations were made:

1. Government is advised to outlaw open cattle grazing and to replace with a modern way of livestock production such as ranching as they exist in civilized countries of the world. This will help to reduce if not totally eliminate farmers and herders clashes.
2. Government should revisit the grazing reserve and stock route policy of the 1960s with a view to its proper implementation. This will help to minimize the incessant encroachment of crop farmers or of herders on each other's means of livelihood.
3. Government should dedicate or designate some parts of the country as special areas for a given type of agricultural production. Through this way also, the level of unproductive interface between sedentary farmers and herders will reduce.
4. This study also suggests that government should set up and be ready to deploy its security apparatuses in a manner that makes it capable of identifying and nipping in the bud all disagreements likely to result in disruption of people's means of livelihood or loss of lives. This will create room for businesses and other gainful economic activities to thrive in the country.
5. Government should legislate against the rearing of animals (either for grazing or for any other purpose) on built infrastructure like school premises, hospital premises, highways and bridges. By doing this, the rate of environmental degradation occasioned by free roaming animals will be reduced.
6. Government should at all times and in all situations, position itself as the father of all and an impartial arbiter in all its dealings with all individuals and groups in the country. Since equity represents equality, this position of government will create a sense of belonging in the people and make them see the country as their own.

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