



Mitigation Strategies for Farmer-Herder Conflict Towards Sustainable Agriculture and Food Security in Nigeria: A Systematic Review

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Abstract

This paper review mitigation strategies for farmer-herder conflict towards sustainable agriculture and food security in Nigeria. The relationship between farmers and herders deteriorates due to livestock-induced crop damage or other factors that may cause conflict particularly during the harvest season. At harvest, if care is not taken conflict becomes inevitable. And the consequences become severe as no party will be able to handle the outcome. A sound mediation and mitigation strategies that will stand the test of time is needed urgently to addressed the conflict so that it will not threatened national security and peaceful coexistence of the communities even though some of the disputes were straight forward, while others were intricate, requiring a viable possible approach to resolution. The mitigation strategies or approaches adopted in this paper includes; the establishment of open communication channel and peace building committee, ADR, symbiotic farm project, birth control, creation of awareness on climate change, revival of grazing reserve/land, and use of improved varieties. The paper concludes that there was the need for the involvement of all stakeholders to act and harnessed the problem of farmer-herder conflict in Nigeria so that prompt and sustainable agricultural production, food security and livelihoods could be achieved.

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1. Introduction

Agriculture continues to be the backbone of the economies of developing nations like Nigeria. It involves a mutually beneficial relationship between animal husbandry and crop production. This is due to the fact that farmers use animal faeces as manure for crop production, and herders use crops to feed animals. If animals are not properly managed, they have the potential to ruin crops as well as the environment (land, water, and air). Conflict between farmers and herdsmen typically starts here (Enwelu *et al.*, 2015)^[8]. Conflict between farmers and herders has persisted in Nigeria for a number of years and has recently emerged as a more complex contemporary problem. Conflicts or clashes between farmers and herders have become more common in sub-Saharan Africa, especially in Nigeria. Recurrences of the conflict threatened both national security and peaceful coexistence, resulting in daily destruction of communities and the loss of many lives and property (Abbass, 2012)^[1]. These days, a herder views his herd as his life because without his cattle, life is meaningless, whereas a farmer relies on crop yield to survive. When farmers encroach on his grazing fields and routes, he interprets it as a call to war (IRIN, 2009). All parties involved rely solely on the environment for their livelihood.

Nigeria's situation is that cattle are mostly raised in the north (Fulani), while some areas in the north and south are good for

growing crops and have lush grasslands for cattle grazing. As a result, the herders were temporarily denied access to a sizable tract of grassland. The herders were forced to relocate southward to the coastal region as time went on, where the rainy season lasted longer and the soil held moisture for a longer period of time. Between October-December, when the rainy season ends and the dry season begins, the southward movement starts. Conflict with farmers arises because this season falls during the harvest season in the North and in some parts of the South. Herders' southward migration is not expected to stop anytime soon because climate change is making matters worse in the country (Enwelu *et al.*, 2015)^[8]. The dispute between farmers and herders cannot be entirely resolved for apparent reasons. It is concerning how serious the conflicts are right now and how they are affecting the country's struggling economy and food security. Therefore, finding a peaceful solution to lessen and mediate the growing hostilities between farmers and herders, which have resulted in the loss of life and property, is therefore the only viable course of action. Understanding the reality and necessity of coexisting in a community for mutual benefit is necessary. It is impossible to overstate the importance of ongoing sharing and negotiation.

2. Purpose of the Review

This review is set out to discuss all the mitigation strategies for farmer-herder conflict towards sustainable agriculture and food security in Nigeria. The aim is to understand how to mediate or find a solution to the growing hostilities between farmers and herders, which have resulted in many losses.

3. Theoretical Framework

3.1. Conflict theory

According to conflict theory, when resources, status, and power are not distributed fairly among groups in society, tensions and conflicts result and these conflicts serve as the catalyst for social change (Crossman, 2016)^[6]. People are inherently conflicted. Tonah (2006)^[24] supports this view by confirming that the core cause of conflict between economic agents, according to mainstream conflict theory, is ongoing hostility over economic resources. Farmers and herders are the economic actors in this situation. Conflict typically arises when farmers' crops are intentionally or inadvertently destroyed by cattle. Furthermore, Ofuoku and Isife (2010)^[18] note that there is a distinct line separating the various forms of conflict in farmer-herder relationships. The following are some possible forms of conflict in farmer-herder relationships:

1. Disputes among individuals and groups,
2. Conflict of interest and,
3. Violent conflict.

A dispute is when two or more people disagree, whereas a violent conflict is when there is chaos, destruction, and the death of people and animals as a result of a disagreement (Tonah, 2006)^[24]. According to Ofuoku and Isife (2010)^[18], a conflict of interest arises when various actors adopt conflicting opinions and concerns. This typically manifests as non-violent competition for control of resources in a

particular area. It is concerning that there are more and more conflicts in different spheres of human endeavour. Future conflicts are at risk due to trends like population growth, chronic poverty, climate change, environmental degradation, globalization, and rising inequality (Lund, 2016)^[14]. As the demand for some materials surpasses the supply, these different kinds of resource control conflicts are growing more common and more noticeable in some places. For instance, a severe lack of fresh water and arable land appears to have played a major role in a number of conflicts in Nigeria.

3.2. Frustration-Aggression theory

Frustration-aggression theory is a theory that provides a useful psychological and sociological insights through which individuals/parties will understand the escalation of tensions between farmers and herders into violent conflict. This theory was proposed by John Dollard *et al.* (1939)^[7]. It was evident that "frustration" the feeling of being blocked, prevented or thwarted from achieving a goal often leads to aggression. The theory primary point is that frustration is a powerful tool and a common precursor to aggression. The aggression is an emotional response to the inability to reach a desired outcome. The theory further explain that frustration caused by interference in an individuals seeking to achieve a particular goal produces a 'readiness' for aggression which if 'triggered' can result in aggressive behaviour. The trigger could be an insignificant element of behavioral outcome, such as a casual joke, gesture or mild criticism which would normally be overlooked, but to the frustrated individual who is already waiting for an opportunity to show his frustration it may provoke aggressive response or reprisal.

The unexpected occurrence of the frustration also increases the likelihood of aggression. For example, the desire for available natural resources abundantly endowed in Nigeria has transformed the previous peace and unity of the country into a dreadful region of violent activity as a result of farmer-herder conflict. Ijirshar and Terlumun (2015)^[10] asserted that the withering of pasture during the dry season, where less pasture was available for grazing by cattle herders and the high volume of Tsetse flies make the herder to move to the southern and central zones of Nigeria in order to have access to abundant pasture and water. This translate into conflict if care is not taking. The theory says that frustration causes aggression, but when the source of the frustration cannot be challenged, the aggression gets displaced and target innocent individuals. This theory is also used to explain violence caused by more deprived sections of society who may express their frustration and anger through conflict.

4. Causes of Farmer-Herder Conflict

The causes of conflicts between farmers and herders include the following;

4.1. Destruction of crops

It is common knowledge that conflicts arise when cattle destroy farmers' crops. Such crop destruction can occur when cattle roam freely, when herders are present, or occasionally when farmers and herders are present. According to research, crop destruction is the most common reason for conflict

(Tonah, 2006; Ofuoku & Isife, 2009) ^[18, 24]. The farmer feels that his or her livelihood is in danger, so this type of conflict is typically of an immediate nature.

4.2. Contamination of water sources

It is well known that, like people, cattle require drinking water. However, it can easily lead to an immediate conflict between farmers and herders when cattle are allowed to defecate on an area near a source of drinking water or when herders allow cattle to overgraze on areas that are off-limits to the host community. The destruction or contamination of domestic water sources in certain villages influences how the impacted communities respond to the herdsmen invasion (Tenuche & Hetimehin, 2009) ^[23].

4.3. Rape/sexual harassment

Rape or sexual harassment is one of the main causes of conflict. The unmarried herders who try to quench their desire for females succumb to this temptation. For example, hundreds of people, primarily women, from Ahaba Imenyi in Isuikwuato local government marched to Umuahia, the capital of Abia State, to protest Fulani herdsmen invasion of their farmlands (Ofuoku & Isife, 2010) ^[18].

4.4. Rural banditry and cattle rustling

Rural banditry and cattle rustling are crimes that occasionally happen among Fulani pastoralists, particularly in the North west and North central regions. It is regrettable that in response to the theft of their cattle, the rustlers have organized armed groups and are now moving through and attacking rural communities. In the crises in Talatan Mafara, Shinkafi, and Dansadau Local Government Areas of Zamfara, Birnin Gwari LGA of Kaduna, Numan LGA of Adamawa, and Gwer West in Benue, respectively, more than 500 people were reported dead, and some were held hostage (Ahmed & Williams, 2018) ^[5]. The International Review for Peace Initiative (2017) ^[11] states that the north-west region of Taraba, the south-east Plateau, Zamfara, and certain rural areas of Yobe and Borno State are the area's most impacted. The terrorist organization *Boko Haram* killed more than 1,900 Shuwa Arab pastoralists and stole more than 227,000 animals between 2011 and 2016.

4.5. Indiscriminate bush burning

When grasses and forages dry up during the dry season, herdsmen think that if the dried vegetation is burned, new pasture will grow again (Ofuoku & Isife, 2010) ^[18]. As it burns, the fire spreads to neighbouring farms, destroying the crops grown there.

4.6. Changes in pastoralism and farming practice

In the past, the herdsmen lived together with their cattle wherever they went, leading to a completely nomadic lifestyle. The "sedentary lifestyle that they leave to the younger men or boys aged 9-25 years" is something that some pastoralist are gradually adopting these days. These younger generations are unable to keep the cows under control, and if they do manage to get onto the farms, they lack the formalities necessary to settle the dispute amicably and

civily. Farmers would become more tense as a result of this action, which could lead to a crisis if not adequately controlled (Haro & Dayo, 2005) ^[9].

4.7. Disregard of constituted authority

Nigerian rural communities are governed by traditional leaders, chiefs, village chiefs, and others. In order to improve their lives and help the government with community development, these local authorities have the authority to enact laws and regulations. According to Ofuoku and Isife (2010), after being caught grazing on a farm, herdsmen sometimes refuse to pay development levies that traditional authorities in their host communities imposed. The traditional authorities, who are constantly seeking to exercise their power, typically interpret this as disrespect and contempt. These frequently result in conflict.

4.8. Ethnic and religious inclination

In Nigeria, one of the things that indirectly fuels farmer-herder conflict is ethnic rivalry. Even security personnel sent in to quell a brewing conflict in Nigeria lack objectivity when it comes to resource conflicts, most likely due to their ethnic and religious affiliations. This situation intensifies the conflict and fosters a great deal of animosity. Another significant hidden factor contributing to the escalation of farmer-herder conflict is religion. As a result, religious sentiments take precedence in situations where there is conflict between Christian-dominated communities and predominantly Muslim cattle herders.

4.9. Loss of grazing reserve

Another contributing factor to the farmer-herder conflict in Nigeria is the growth of farming on pastures and grazing reserves (Adisa, 2012) ^[4]. Adeoyo (2017) states that although there are 4125 grazing reserves in the nation, only one-third of them are used. The other 270 have either been developed or turned into farmland, which has irritated herdsmen and could contribute to the crisis. This act promotes inactivity and settles disputes with a plan to build infrastructure and produce a bountiful harvest for pastoralist families. Unfortunately, not all of this law's provisions were put into effect, which could be one of the reasons why this issue persists today (Tenuche & Hatimehim, 2009) ^[23].

4.10. Poverty

Conflict in the region may be intensifying as a result of the growing poverty in majority of African nations, including Nigeria. Poor rural farmers and cattle herders, who might not be the true owners of the herds, make up the majority of those directly involved in farmer-herder conflicts in Nigeria. Herders' pay is entirely dependent on providing the herds with the right food and protection while farmers view their crops as their last chance for survival. Even though it might not be considered the direct cause of the conflict, this circumstance makes it inevitable.

4.11. Climate change

Both plant and animal-based natural resources are in danger of disappearing due to climate change. Conflict between

farmers and herders is the ultimate result of this circumstance. A special report by the United Nations institute for peace stated that climate change, drought and desert encroachment in the Sahel region reduced animal feeds and water supplies, forcing herdsmen to drift southward "outside their normal grazing route" (Sayne, 2018)^[21]. Climate change may be the primary cause of the farmer-herder conflict, as it forces the Fulani and their cattle to migrate further south (Olayoku, 2014)^[19].

4.12. Rapid population growth

By 2050, there will be roughly 9.3 billion people on the planet. It goes without saying that all of these extra people will need energy, food, clothing, shelter, and other essentials. In regions of Africa, Asia, and Latin America with particularly high population densities, severe shortages of these resources have already emerged. According to Abbass (2012)^[1], as the population increases, more land is being farmed and less is available for pasture, which forces herdsmen to migrate and trample on farmers' crops. As a result, there is now more competition between livestock and agricultural production, which frequently leads to the intensification of disputes.

5. Effect of Farmer-Herder Conflict

Conflict between farmers and herders has clear consequences, but they must be emphasized. The following effects were examined for the purposes of this review:

5.1. Loss of lives and property

Martin (2016)^[15] claims that the construction of farms on the old paths of a Nigerian semi-nomadic group has resulted in violence that has already taken hundreds of lives. Many farmers and herders lost their lives as a result of the conflict, and every time it happened, the government would appoint a committee to look into the underlying cause. However, the main issue appears to be the government's incapacity to carry out the committee's recommendations, which would have meant punishing the people who caused the crises.

5.2. Reduction in output of farmers and herdsmen

The yield, quantity, and quality of the crops are decreased as a result of the cattle grazing and trample on some of them. As a result, both income and output are jeopardized. Conflict can also result in cattle starvation, rustling, killing, and confiscation. The cattle suffer from starvation during the conflict, which can cause illness, weight loss, and even death. Poverty and food insecurity are the conflict's long-term effects.

5.3. Displacement of farmers and herdsmen

When disputes between farmers and herders turn violent, communities are destroyed by fire. The residents become homeless. While herdsmen may move from their hamlet to another area, farmers similarly look for temporary housing from friends, family, and the surrounding community. Internally displaced persons (IDPs) in Nigeria are growing as a result of this type of bloody conflict. Farmers and herders

are impacted economically, socially, and psychologically when they are displaced.

5.4. Reduction in social, religious and educational activities

People's high level of fear suppresses social gatherings of any kind, and occasionally planned events are postponed. This may increase the level of stress and even cause death. People or groups may refrain from attending worship or other religious events out of fear of being attacked. Similarly, when the source of livelihoods is destroyed by the conflict, students may be compelled to skip school out of fear of being attacked.

6. Current Status of Farmer-Herder Conflict

Conflict between farmers and herders is not a recent development in Nigeria. Such disputes have existed since the dawn of agriculture, according to Abbass (2012)^[1]. Depending on environmental, economic, and other factors, its frequency and intensity fluctuate. The ongoing rise in the number of cattle herds migrating south may be the cause of the ongoing disputes between farmers and herders. Cattle herders now carry advanced weapons to protect their cattle and make sure they are fed properly in any circumstance or location (sometimes on a farmer's farm), as they must find ways to survive in order to stay in business. With their shepherd sticks, the herdsmen have lived side by side with their host communities in the towns and villages for many years. The worst weapons you saw them using were daggers, cutlasses, and arrows. Frequent violent conflicts across the nation have led to herdsmen's current use of weapons of mass destruction. In several Nigerian states, including Adamawa, Plateau, Benue, Taraba, Enugu, Imo, Ekiti, Zamfara, Kaduna, Oyo, Osun, Yobe, and Ondo, farmer-herder conflict is currently pervasive. Recent events in Nimbo and Nkanu, two areas of Enugu, are concrete examples of how cattle herders have used advanced weapons against their host communities. Due to the inability of government security personnel to protect their lives, these attacks on farmers using advanced weapons have prompted threats against farmers to purchase such weapons for self-defence.

7. Conflict Prevention

According to common signs of escalating hostilities, conflict prevention is applicable to peaceful circumstances where significant physical violence may occur. However, public disputes that become so bitter that social groups cease interacting are typically unhealthy but far less serious than states or groups threatening to use lethal weapons against one another (Lund, 2016)^[14]. He set conflict prevention apart from other conflict resolution strategies primarily by defining when it is used during a conflict rather than how it is carried out. Therefore, conflict prevention focuses on potential new conflicts, or "virgin" conflicts, where a peaceful equilibrium was held for a few years but new controversies, tensions, and disputes are being produced by fundamental social and global forces. Later interventions (like conflict management and peace building) are necessary, but they are meant to reduce the number of fatalities. Because the adversaries are well-organized, armed, and vested in destroying one another, they

are less compassionate and probably more challenging (Lund, 2016)^[14].

8. Strategies for Mitigation of Farmer-Herder Conflict

Understanding and critically analyzing the conflict's root causes is essential to any attempts to reduce or mediate it. As a result, the following covered mediation and mitigation techniques;

8.1. Creation of awareness on climate change

Climate change is now a significant obstacle to agricultural development in Africa and the rest of the world (Adebisi-Adelani & Oyesola, 2014)^[2]. They stress that in order to manage the situation and continue their business, farmers must accept the realities of climate change. It is therefore necessary to educate farmers and herders about the threats posed by climate change and how the scourge affects them. For example, farmers often increase their hectares to leverage up when climate change reduces soil fertility, which in turn reduces the area used by herdsmen to feed their cattle.

8.2. Tree planting campaign

To combat the growing desertification and deforestation plaguing Nigeria, a greater effort should be made to plant trees throughout the country. The causes of climate change are made worse by deforestation and desertification. Therefore, prompt resolution of these issues could avert future conflicts between farmers and herders.

8.3. Use of improved technology/variety

Without necessarily expanding their hectares of land, farmers and herders will be able to boost their yields with the aid of improved technology. To stay in business, agricultural extension agents need to be given the authority to train and inform farmers and herdsmen on good agricultural practices. To supplement cattle grazing, for example, herdsmen should receive training on how to make and use supplemental feeds.

8.4. Control of population

In order to reduce the growing population density, more food, housing, clothing, energy, and other necessities will need to be produced. Although population control cannot be achieved overnight, stakeholders should be made aware of the potential connections between population growth and the amount of land available to farmers and herders. In order to encourage the stakeholders to control their birth rate, the government and non-governmental organizations need to step up their efforts.

8.5. Symbiotic farm project

It is still true that the symbiotic relationship between farmers and herders allows both parties to gain from one another. According to Oyama (2014)^[20], a contract governing livestock grazing has been established between farmers and herders. In order to camp on the farmers' property for a few weeks to several months, the farmers provide substantial meals or potash/salt lick and pay bonuses while the cattle provide excreta (Shinjo *et al.*, (2008)^[22]. As a way to stop

future conflicts, a symbiotic project of this nature should be established in Nigeria.

8.6. Establishment of peace-building committee

A peace-building committee comprising members with integrity from all parties involved should be formed in host communities to quickly resolve any potential conflicts between farmers and herders. A set date for meetings to discuss matters that could later cause disputes should also be decided upon by the committee. The committee need to draft the policies and procedures that will govern their operations.

8.7. Establishment of open communication channels

The problem of unresolved differences has emerged as a recurrent decimal in the majority of recent conflicts between Nigerian farmers and herders. It is imperative that open lines of communication be established so that all parties involved can report problems that are causing them pain. To handle some problems that need immediate attention, a hotline should be set up.

8.8. Payment of compensation

The person whose crop or animal is purposefully destroyed must receive fair compensation, particularly through the peace-building committee. Prior to the offense being committed, the rules governing offenses and suitable restitution must be established. Before farmers plant seeds, Oyama (2014)^[20] emphasizes that the rate of compensation must be reviewed at meetings with both parties in participation. Every host community where the herdsmen are found should give this a try.

8.9. Establishment/revival of grazing land policy

It is generally believed that establishing a legally designated area for cattle grazing is one way to guarantee long-term harmony and progress between farmers and herdsmen in Nigerian rural communities. Conflicts between the two parties would decrease if grazing reserves were established or restored to prevent herdsmen from roaming around with their cows (Nfomi *et al.*, 2014). Additionally, Musa *et al.*, (2016)^[16] contends that establishing and reviving grazing reserves appears to be a workable solution, which entails switching from an outdated to a contemporary approach of animal husbandry.

9. Alternative Dispute Resolution (ADR) as a Possible Mediation and Mitigation Strategies for Farmer-Herder Conflict

According to the Legal Information Institute (2016)^[13], the term "alternative dispute resolution" (ADR) encompasses a variety of extrajudicial approaches to resolving disputes between two or more parties or communities. ADR includes mediation, arbitration, neutral evaluation, negotiation, and conciliation/summary jury as discussed below;

1. A dispute can be "submitted to one or more impartial persons for a final and binding decision" through arbitration. It is a condensed form of a trial with streamlined rules of evidence and little discovery. An arbitral panel hears the arbitration and renders a decision.

- Hearings for arbitration may run anywhere from a few days to several weeks. Arbitration requires a certain level of consent between the parties, though that consent may exist long before any dispute arises. The panel then deliberates and renders a written decision, or arbitral award, which is typically binding on the parties but is not public record.
2. The process of mediation involves an impartial third party, known as a mediator, stepping in to assist the parties in reaching a mutually agreeable and informal resolution. Negotiation-trained professionals known as mediators try to reach a compromise or agreement that both sides can accept or reject. Mediation gives parties a way to resolve conflicts while maintaining a profitable relationship without incurring the costs of litigation. It is typically non-binding and comparatively non-adversarial.
 3. Through a private evaluation session, the parties present their positions to a third-party neutral in a largely non-adversarial process known as "neutral evaluation". After reviewing the evidence and hearing both sides' points of view, the neutral party gives the parties his or her assessment of the case. Evaluation is easier and less expensive than arbitration or litigation, and it's particularly helpful when parties need a technical question answered fast.
 4. Through the less formal process of negotiation, parties meet in good faith to address and discuss the conflict in order to come to a mutually acceptable conclusion. Lawyers or impartial third parties may or may not be involved in negotiations. When parties are willing and able to collaborate to address important issues, the lack of formality and structure works best.
 5. The main goal of restorative justice is to address criminal behaviour by developing a process that prioritizes the needs of all parties involved, including the victim, the offender, and the community. Victims and offenders engage in a mediated conversation that promotes social reintegration, forgiveness, and accountability for both sides. The goal of restorative justice is to address social problems and criminal activity in a sustainable way.
 6. Each side presents a condensed case to a jury in a less formal, non-binding procedure known as a summary jury trial. In the event that the matter goes to trial, a summary jury trial provides the parties with an early look at the possible verdict.

The range of ADR approaches enables flexibility in resolving disputes between parties. The parties are free to select the approach that best suits their needs rather than using the rigid framework of a traditional court. Parties can settle disputes without the need for a fact finder, evidences and legal review, determination of underlying claims, or substantive procedural requirements. Without the burden of a full trial and without any legal issues, neutral evaluation enables parties to get an early assessment of possible problems before the actual litigation. While maintaining confidentiality and expediting the procedure, arbitration and summary jury trials enable a more comprehensive examination and resolution of

legal and factual issues. Restorative justice, on the other hand, can address complex social issues by allowing the victim, the community, and the offender to concentrate on the underlying causes of a sociological problem.

10. Conclusion

The conflict between farmers and herders had persisted for many years. The ongoing rise in the number of cattle herdsman migrating south may be the cause of the ongoing disputes between farmers and herders. The most serious effects of farmer-herder conflict were thought to be the loss of life and property, decreased productivity, and decreased educational opportunities. The mitigation strategies includes; the establishment of a peace building committee, ADR, a tree planting campaign, raising awareness of climate change, providing grazing reserve/land, and using improved technology. In order to resolve the conflict and ensure a lasting peace in the nation, there is an urgent need for more scholarly research on the origins and effects of the conflict as well as a thorough conflict resolution mechanism from the peace building committee, party leaders, policymakers, NGOs, and the government.

Competing Interest

The authors declare no conflict of interest exist.

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