

Information and Communications Technology, Agricultural Development and Food Security in Nigeria: Implication for Herders-Farmers Conflicts

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Abstract

As Nigeria continues to experience boom in its crude oil products, the persistent conflict between farmers and herders in Nigeria poses a significant challenge to the country's agricultural development and food security. There has been increasing violent clashes between herders and farmers across the country in recent time. In this review, information and communications technology, agricultural development and food security in Nigeria: implication for herders-farmers conflicts was assessed. Herders and farmers conflict, agricultural development and food security were critically assessed. Results reveal that ranching and adopting ICT applications are possible path ways to addressing herders-farmers conflicts for agricultural development and food security. Based on these findings, it was recommended among others that ICT tools such as CCTV be installed on farmland. A database be opened for all herders in the country as well as equipping both farmers and herders with an emergency call reporting application be developed to checkmate infringement on farmland and spur prompt communication.

Keywords: ICT, Farmers-herders conflict, agricultural development, and food security.

Introduction

Information and Communications Technology (ICT) is the integration of telecommunications, computers as well as necessary enterprise software, middleware, storage, and audio-visual systems, which enable users to access, store, transmit, and manipulate information (Norad, 2002; Yekini, 2014). According to Oluwatayo

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(2014), ICT consists of technologies employed in a wide range of activities especially for generating, collecting, sharing, and transmitting information. It has become a household term as it impacts virtually all spheres of human endeavours, spanning mobile phones, calculators, laptop, iPad, radio and smart watches and the like. As observed by Lashgarara et al. (2010), ICT is used to enhance rural decision power, extend rural markets, preserve the environment, increase life quality and empower the rural poor. ICT finds application in crucial areas such as research, education, organizational management, social development, extension, gender equality, hygiene, environment, agriculture and nutrition (Okadi et al., 2024). Application of ICT in these areas is achievable through proper dissemination and monitoring of critical signals necessary for efficient service delivery, such as food production, and thus food security. According to Lashgarara et al. (2010), the essential condition for obtaining food security is communication because it is an essential factor in the food system. Clapp (2016) and De Schutter (2014) further assert that food insecurity results essentially from the inequitable distribution of resources and information in the agriculture and food production system.

Food security according to the United Nations Food and Agriculture Organization (UNFAO) in (Bassey & Ukpong, 2021) is a situation when people don't have access to sufficient safe and nutritious food required for an active and healthy life. In this definition, emphases are laid on four criteria which determine food security. They are the physical availability of food, economic access to these foods, appropriate utilization, and stability. These four qualities must be achieved before Nigeria can be described as food secure. On the other hand, the Food and Agricultural Organization (2009) defined food security as when all people at all times have physical and economic access to sufficient, safe, and nutritious food to meet their dietary needs. This means that insecurity such as farmers-herders conflict in Nigeria will lead to food insecurity. While Agriculture is generally referred to as the process of tilling the soil and rearing animals for food and other purposes which is one of the ways to ensure food security in Nigeria.

The importance of food security cannot be over emphasized, since it is a respecter of no one, it affects both the young and the old and the poor and the rich. However, the constant clashes between farmers and herders in Nigeria have threatened the security of food in the country (Bassey & Ukpong, 2021). The conflict has had a profound environmental impact ranging from deforestation, soil degradation, and water pollution. It has adversely affected agricultural productivity, with significant losses in crop yields and livestock which has led to food shortages, inflation, and loss of livelihoods for many farming and herding communities. Nonetheless, ICTs can play a critical role in improving food security in Nigeria (Oluwatayo and Ojo (2019). This is in line with the United Nations (UN) Sustainable Development Goal (Goal 2) which aimed at creating a world free of hunger by 2030. This paper therefore, explores information and communications technology, agricultural development and food security in Nigeria: implication for farmer-herder conflicts.

Herders-farmers Conflict and Agricultural Development and Food Security in Nigeria

Herders-farmers conflict in Nigeria has significant implications on agricultural development and food security in the country. The prolonged herders-farmers crisis in the country has raised concerns about Nigeria's food security and overall agriculture development in the country, with the potential to exacerbate existing socio-economic challenges (International Conflict Group, 2010). It is imperative to address the root causes of the conflict to ensure sustainable agricultural development and food security. The conflict has been seen to be often rooted majorly in the competing land use practices and scarcity of resource which presents series of challenges that hinder agricultural development in the country thereby exacerbating food insecurity in the country. It is therefore important to first understand the impact of the herders-farmers conflict on agricultural development and food security in order to develop an effective strategy to address and mitigate the impacts of this conflict in the country.

Herders-farmers conflict in Nigeria causes a terrible disruption of agricultural activities in the country and it is one of the major and primary implications of herders-farmers conflict in the country (Adisa & Adebunle, 2021). The continuous conflict disrupts farming activities thereby causing decrease in agricultural productivity and pose a threat on food security in the country. In most cases, it degenerates to the point that farmers may be unable to access their farms and effectively tend to their crops leading to reduction in overall yield production and pose threat to food security in the country. Unfortunately, this disruption not only affects the livelihoods of individual farmers but also has broader implications for food security in the country as a whole. Another implication of herders-farmers conflict in Nigeria is the destruction of crops. During conflicts, herders' no longer care to graze their livestock on farmlands resulting to crop damage and loss for farmers which is a threat to food security in the country (Adejumobi, 2019). Hunger and malnutrition among vulnerable populations could be experienced since the conflict causes crop destruction which not only undermines farmers' efforts to produce food but also diminishes the availability of food and ultimately impacting food security in the country.

Furthermore, the herders-farmers conflict exacted heavy humanitarian crisis on people in their various communities. It is estimated that about 2,500 persons were killed in the country by 2016 and this figure is higher than that killed by Boko Haram. According to Obasanmi & Enoma, (2022), 2,069 people died in herder-farmers conflict in Benue and Kaduna States. From 2015 to 2019 at least 189,862 people were displaced in Kaduna, Benue, Bornu, Taraba and Plateau states. Most of these people were forced to find

shelter in other poor rural communities or in the overcrowded Internally Displaced Camps (IDP) (Obasanmi & Enoma, 2022). This conflict has continued till today, in Benue state for instance there is no day one will not hear of herders killing especially in Ukum, Gwer, Kwande, etc. This herders-farmers conflict has displaced farmers from their lands and forced them to abandon their farms and seek refuge elsewhere. This displacement disrupts agricultural activities, reduces food production, and exacerbates food insecurity by depriving farmers of essential sources of livelihood and nutrition (Muazu, 2024).

Possible ways of ending herders-farmer conflict in Nigeria for agricultural development and food security

The persistent conflict between herders-farmers in Nigeria poses a significant challenge to the country's agricultural development and food security. This article therefore explores potential strategies for ending the herders-farmers conflict in Nigeria which will create an enabling environment for sustainable agricultural development and food security in the country.

Ranching

One of the modern practices of animal husbandry is ranching which is unacceptable to herders in Nigeria for reasons best known to them. Ranching has emerged as a viable solution to the enduring conflict between herders and farmers in Nigeria. Ranching has the potential to enhance agricultural development and ensure food security in the country. By transitioning from open grazing to ranching, both herders and farmers can benefit from improved livestock management practices, increased productivity, and reduced tensions over land use (Becking et al., 2021). Furthermore, apart from its potentials of mitigating conflicts between herders and farmers in the country, ranching holds promise for boosting agricultural development in Nigeria. With proper infrastructure and support systems in place, ranching can attract investment, create employment opportunities, and stimulate economic growth in every part of the country thereby elimination hunger situation in the Nation. By promoting sustainable practices and enhancing livestock productivity, ranching has the capacity to contribute to the overall efficiency of the agricultural development and food security and the entire agricultural sector in the country. The adoption of ranching aligns with global trends towards sustainable agriculture and environmental conservation (World Bank, 2019). Therefore, by reducing the environmental impact of open grazing, such as deforestation and soil degradation, ranching supports long-term food security goals which can fosters a more resilient agricultural system in Nigeria for agricultural development and food security in the country.

One of the key advantages of ranching is its ability to provide a controlled environment for livestock rearing (Rasolt, 2020). By confining animals to designated areas, ranching minimizes the risk of straying into

farmlands, consequently reducing conflicts between herders and farmers (Becking et al.,2021). Moreover, it enables herders to adopt modern breeding techniques, leading to healthier animals and higher yields. The adoption of ranching as a strategy to address the herders-farmers conflict in Nigeria can offer a pathway towards agricultural development and food security in the country. Although, this can only be achieved through effective policy implementation, stakeholder engagement, and investment in infrastructure, Nigeria can therefore harness the benefits of ranching to transform its livestock sector, promote harmony between herders-farmers in the country, and secure a sustainable future for agriculture in the country.

Adopting ICT Applications

The use of information and communication technologies as part of day -to- day way of life is pertinent to addressing the herders-farmers conflict that has lingered over the years. According to Okadi et al. (2024), the absence of technological invention in the quest for a peaceful resolution of the persistent farmer-herdsmen conflict has aggravated the conflict. It is generally the case when herdsmen infringe on farmland, farmers have to walk long distance to file the case at the local police station. This delay in getting officers to the scene often give the intruding herdsmen ample time to cause mayhem and leave.

It is obvious that the provision of suitable ICT device, such as mobile application designed mainly for farmers and herdsmen for prompt and direct complaints of crime to relevant authority will be a step in the positive direction. This will not only serve as deterrent but also a suitable substitute to the counterproductive approach of walking a number of miles to report a crime. Overall, stakeholders can seize the enormous potential ICT provides to overhaul the food production chain, thereby, boosting food security and reducing herders-farmers conflict. This is possible through infrastructural development in rural areas that stem agricultural activities (Al-Alwani, 2005). In the same vein, Mensink and Vranken (2017), advocated for ICT education programmes that build the economic potentials of families and producers to access and utilize ICT in seeking information relating to the production, distribution and marketing of food products. Bello and Aderbigbe (2014); Olaniyi and Ismaila (2016), noted that the rural dwellers need update on the knowledge and skills relating to ICT since they have lower skills compared to their urban counterparts.

Furthermore, farmlands across Nigeria can be equipped with unique recording cameras for safety and security monitoring. Akinrinde et al. (2021) observed that while the practice of installing remote recording cameras (CCTV) in most private and public properties in developing countries is rife, Nigeria and other developing countries have not made it a priority to ensure the installation of security cameras in pricey properties such as farmlands and others. This in turn, serves as an edge for many dodgy herdsmen to hide and commit acts of trespass, violence, and grazing of the cattle of farmers' farmlands in the hopes of not getting caught, due to lack of installed security cameras on the farmland. Therefore, the installation of

security, CCTV and other telecommunications cameras is pertinent in light of the increasing conflict between the farmers and herdsmen (Akinrinde et al. (2021). This will deter potential aggressors amongst the herdsmen. Additionally, the non-existent official database for herdsmen across Nigeria is a major setback to tracking crimes. With the continuous surge in herdsmen from all over Africa, especially neighboring West African countries, local herdsmen in Nigeria remain largely unaccounted for and digitally uncaptured. This increases the risk of criminals infiltrating the ranks and files of herdsmen owing to the none availability of a digital database that would harbor the personal and professional data of the herdsmen.

Conclusion

The study concludes that reduction in the food production processes due to herders-farmers conflict is a menace and constitutes threats to food security. Findings reveal that herders-farmers conflicts have multifaceted implications on agricultural development and food security, ranging from disrupted agricultural activities and land degradation to crop destruction, displacement of farmers, and resource competition. Results further show that the non-existence of ICT applications in resolving the herders-farmers conflict is lingering factor in averting the conflict that has impeded agricultural development and food security in Nigeria. Based on these results, it was recommended among others that security cameras be installed cameras across farmlands and other public spaces. A digital database register be established for all herdsmen and an emergency call reporting application be developed for herdsmen and farmers.

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