

ENVIRONMENTAL IMPLICATION OF CONFLICTING AGRICULTURAL PRACTISES IN NIGERIA: ANIMAL HUSBANDRY VERSUS CROP PRODUCTION.

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ABSTRACT

Agricultural practises are known to be complementary as the waste of one tends to be the raw materials in the activities of the other. This is peculiar to crop production and animal husbandry as the dungs of animals are useful materials for enhancing the performance of soils for crop production. However, the tide seems to be turning in some part of Nigeria with the rise in conflict of interest of practitioners of the two agricultural endeavours. The activities of animal husbandry especially cattle rearing appears to be counterproductive on the production of crops as grazing animals feast on crop plantation. This negative act is injurious to man-environment nexus at the same time detrimental to food security and food supply. Conflict in any political entity has multifarious consequences on the physical, human, environmental and capital factors diminishing available opportunities for sustainable development. In the light of many challenges faced by crop production farmers in rural communities in most Nigerian cities, this work examined environmental implications of conflicting agricultural practises while examining the need for mediation-negotiation as an essential arbiter in alternative dispute resolution whereby they share a common vision and demonstrate sufficient political will to manage the loggerhead between farmers and herdsman in their domain and invariably boost food supply in the country.

Keywords: Animal Husbandry, Crop Production, Conflict and Food Supply.

INTRODUCTION

Agriculture is the major economic sector of many developing countries and most Least Developed Countries (LDCs). It has been the main livelihood of 75 percent of the poor in developing countries. Farmers

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constitute the largest group of natural resource managers on earth (land, water, domesticated genetic resources etc). Agriculture is expected to feed a population that will number 9.1 billion in 2050, while providing income, employment and environmental services. Responding to more rapid and intense climate changes is additional to these other demands on the sector and follows decades of declining investment in the sector and a global financial crisis (FAO, 2009).

Food, which is the basic provision of agriculture and number one basic need of mankind, is mostly affected by agricultural failures. Dwindling food supply in both quality and quantity, especially in developing regions of the world, increasingly poses threats to the sustainability of the human race. Many health issues and deaths can be attributed to dietary deficiencies which are results of financial incapacitations more than of ignorance. In fact, FAO in 2012 stated that about 5 million child deaths per year are due to under nutrition. Life can be said to be more insecure in the absence of good food than of armed forces. The concept of food security describes a situation where food needed for daily metabolic activities are readily available, accessible, nutritious and safe as well as stable in supply (FAO, 2009). The possibility of such scenario hinges solely on effective agricultural systems. However, agricultural systems in recent times are becoming more vulnerable to climate change and of recent the conflict between farmers and herdsmen which culminates into declining food production.

There are several factors that underpin food security, including access to food and availability but researchers' are seeing the environment as perhaps the missing, underpinning pillar. The environment supports agriculture in two fundamental ways; Natural resources such as fertile land and adequate supplies of freshwater and planet's ecosystem services such as the nutrient recycling and soil stabilization provided by forests and biodiversity (UNEP Report, 2012).

Animal husbandry and crop production have been witnessing unhealthy rivalry in some regions of sub-Saharan Africa. As observed by Oksen (2000), crop production has been hampered by animal husbandry especially cattle rearing which involves destruction of crops by the grazing animals in the South of Burkina Faso. In Nigeria conflicting agricultural trend has subsequently been observed in most rural communities especially in the north central region of the country. The conflicts between herdsmen and farmers.

Agriculture provides income for majority of the people in the area due to the abundance of fertile arable land which encourages the people to engage in farming. However, the continuous conflict between farmers and herdsmen poses threat to food supply, multiplying effect on price of food commodity and the inability to meet other essential needs. Therefore, considering the overview, this paper examines the threat posed by conflicting agricultural practices on national Food Security. Considering the enormity of the above outlined issues on food production capacity, this paper seeks to environmental implications on conflicting agricultural practises. It will also examine mediation-negotiation as an essential arbiter in alternative dispute resolution whereby demonstrate sufficient political will to manage the loggerhead between farmers and herdsmen in their domain and invariably boost food supply in the country.

Challenges of Food Security

The human race is currently confronted by two major challenges attributable to changes occurring within the global food and climate systems. Basically, these changes have anthropogenic inclinations evidenced by the recent food crisis of 2008 and the widely felt impacts of global warming. This has culminated into the priority given to issues on food security and climate change in the agenda of international summits (FAO, 2009). The Food and Agriculture Organisation (FAO) of the United Nations describes food security as a condition whereby "...all people at all times have physical or economic access to sufficient safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (FAO, 1996). This definition birthed its (FAO) vision of a *world without hunger* "...in which most people are able, by themselves, to obtain the food they need for an active and healthy life, and where social safety nets ensure that those who lack resources still get enough to eat" (FAO, 2007). This implies that it is not enough to raise the level of food production neither does it suffice to improve agro-climatic conditions but that food security bothers more on socio-economic conditions and general access to food (FAO, 2003b).

Four elements of Food security are identifiable according to FAO's State of Food Insecurity report (2002): food availability, food accessibility, food utilization and food system stability. *Availability* focuses on food production whereas *Accessibility* focuses on the ability of people to obtain food, either through production, purchase or transfers. *Food utilization* focuses on the nutritional value of food, the interaction with

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physiological condition and food safety. *Food system stability* focuses on stability of supply and access, as well as the ability to respond to food emergencies (FAO, 2009). These are the parameters against which food security is measured or assessed.

According to the State of Food Insecurity report of 2008, about a one-sixth of the world population are undernourished. In sub-Saharan Africa, undernourishment accounts for about 30 percent of the overall population and over 50 percent in some countries. Undernourishment also affects more than a fifth of the population of South Asia (21%) and many Caribbean countries (23%), (FAO, 2008).

For many developing countries, food accessibility remains closely tied to local food production (FAO 2008a, b; Bruinsma 2009). In Nigeria for instance, where about 60 to 70 percent of the population are engaged in agriculture, subsistent food production accounts for 80 percent of all farm holdings (Nwajiuba, 2012). The countries with large food insecure populations are mostly those with agricultural systems vulnerable to climate shocks and conflicts, particularly in sub-Saharan Africa and South and Southeast Asia (Gregory et al, 2005). With the UN world population projection put at 30 percent increase by 2050 (9.1 billion from 6 billion), food insecurity figures are likely to increase, South Asia and sub-Saharan Africa hosting most of the increase. Given this fact and the close link between local production and food insecurity, investment in the agricultural sector that increases food availability and strengthens food production system is a natural candidate in the agenda to resolve food insecurity issues in food insecure regions.

Food Production Challenges in Nigeria

The current level of food production in Nigeria is inadequate. This has been attributed to insecure land tenure, scarcity of funds and credit, labour scarcity despite overall high unemployment and stagnant technology amongst others (Nwajiuba, 2012). Among these factors, labour scarcity seems to be more impacting on the level of food production. Food production is essentially rural based since the rural areas are the location of ample agricultural land. Over the years, urban population has gradually outstripped rural populace owing to the continuous rural-urban migration. Alarmingly, majority of the migrants are youths leaving the aged behind who can only afford the subsistent production. This has culminated in rising urban food demand with a non-corresponding and diminishing rural food supply. Despite its rural roots, the urban population which is disconnected from food production

now relies on the market for food supplies, whether domestically produced or imported (Nwajiuba, 2012). A worse scenario could be on course as some of the remnant farmers begin to seek other jobs apart from agriculture. Agricultural production in some parts of Nigeria is increasingly being threatened by the activities of nomads whose cattle feed on the un-harvested crop plantation. The farmers seem to be losing out conceding their means of livelihood to this conflict in search for alternatives in the urban areas which leads to further reduction in labour and hence production. Consequently, insufficient food may eventually become unavailable if this trend persists. This is the threat in most rural communities in Nigeria.

Threat to Food Production and Security

Many International Agencies have presented a global picture of food system and its implication on the developing countries. The US Department of Agriculture (2011), estimates that the number of 'food-insecure' people (as of 2010) in 77 developing countries stood at 861 million. Meanwhile, the UN says that the world population is likely to reach 9 billion by 2050. Most of these billions will live in developing countries and have higher incomes, which in turn will further increase the demand for food. Although food production has increased, many have been left behind, with some 925 million people still counted as undernourished as of 2010 (FAO 2010; IFRC 2011). Meanwhile, the growth in cereal productivity has been declining since the 1980s (OECD/FAO 2012), and the FAO estimates that 40% more cereal will need to be produced by 2050 to feed the nine billion people expected by that year (FAO 2009). The implication is that food production has to grow still further over the next half-century to cover this new demand. For instance, the Intergovernmental Panel on Climate Change (2007) noted that some African countries could face reductions in yield of up to 50% by 2020 if they fail to adapt to the changing climate. The Food and Agriculture Organization (FAO) and International Energy Agency (2008) have estimated that around 2 to 5 million hectares of land in the world continue to be lost each year to land degradation, mostly related to soil erosion. However, when the conflict between farmers and herdsmen are taken into consideration, it is obvious that food production chain will be reduced.

Many questions have been asked about the conflict between farmers and Fulani herdsmen. Many people have attributed violent attacks on villages and farming communities, especially (North) Central Nigeria to

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'Fulani herdsmen'. Major causes of the conflict as observed by Haro and Dayo (2005) is that most times the Fulani herdsmen wonder into the fields during growing season while their herds eat or trample on the crops due to the herdsmen's lack of attention or the cattle's stray movement, hence tension rise. In most of the cases reported, there are often skirmishes between youth in the affected areas and the Fulani herdsmen or their cattle. This is why, Schama, (1996) concluded that crops, livestock, water resources and other vegetal resources played key roles in the development, maintenance and projection of socioeconomic strength of a society. These conflicts therefore stem from the need to preserve and protect individuals belonging. Whereas the Fulani herdsmen strategize on the protection and reservation of their livestock the farmers strategize on restriction to farmland which hitherto generate conflict of livelihood.

The Agricultural Conflict of Interests

Predominantly, the residents of most rural communities in Nigeria are crop farmers. The animal farmers deal in poultry, piggery, fishery productions and some other domestically raised animals like goats and rabbits. Raising cattle, especially cows, is predominantly the engagement of the non-indigenes of the community, the Fulanis alias Bororo. However, over time, both crop production and animal production have been at logger heads in most rural communities resulting most times in fatal clashes between the herdsmen and the farmers. The herdsmen are a subgroup of the Fulani ethnic group who migrated also from southern Niger entering into Nigeria through the north whereas Transhumant pastoralists are people who move from dry areas to wet areas for seasonal grazing and then they move back. So, over the years, cultural affinities have developed between these people but of recent, because of desert encroachment, lack of water, particularly in the Sahel region, they are pastoralists who move into these areas, particularly into Central Nigeria for grazing. They don't understand the culture and traditions of the people (Powell and Williams, 1993).

The most challenging issues faced by the herdsmen include inadequate access to pasture, lack of access to water, the issue of veterinary drugs, the issue of land tenure, the issue of marginalization even by government particularly those who are involved in the agric sector. This could be affirmed by the lacklustre response of the village heads and chiefs to cases of conflicts which has resulted in the death of some indigenous farmers as reported by the people of the community.

Although the cattle were made to graze on open fields but they were not restricted from entering into cultivated farmlands as such vegetables have been eaten up, maize stands devoured and just growing plants trampled by the invading animals. As grazing fields decreases, the herdsmen became more daunting uprooting tuber crops and pulling down on-farm silos to feed hungry animals. Protesting farmers have been threatened, beaten up or hacked by the herdsmen on different occasions. It has been reported that about 300 persons were killed in Aguta local government area of Benue State as Fulani herdsmen lay siege on the community. Other villages, affected during the siege includes Okokolo, Akwu, Ocholonya, Adagbo, Ugboku and Aila all razed by fire, while decomposing bodies of those killed littered the various communities (vanguard newspaper, 02,2016.) Also, it was reported that the Fulani herdsmen attacked Police divisional officer in charge of Vunokilang Police Station in Girei Local Government Area of Adamawa State and 30 other people were killed during the attack (Premium times of Sunday January 25th 2016). However, the cry of the villagers seems to have fallen on deaf ears as the herdsmen dwell freely and safely within these communities.

PLATE I: Grazing Cattle and a young herdsman in Itesiwaju Local Government Area, Oyo State.



Source: Field Survey at Itesiwaju, 2013.

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Environmental Implications of Conflicting Agricultural Practises

Agriculture plays an important role in human development. It provides 90% of the world's total caloric intake. Besides providing food, fibre and other biomaterials, the agricultural sector also provides employment for many people, especially in developing countries where it is a major source of income for the poor. On the other hand farming systems, technologies, cultural values and norms of communities have constructive and beneficial influence on the urban landscape. For instance, soils have been ruined by direct and indirect actions, which interfere with the delicate balances of nature. Currently, there are conflict between farmers and herdsmen in many communities in Nigeria which is worrisome for policy makers and urban planners. However, understanding environmental consequences of conflicting agricultural practises is critical to minimize unintended environmental consequences which includes:

Depopulation

Depopulation in most conflict prone communities between farmers and herdsmen is drawing attention of the physical planners as there are serious threat to existing social infrastructure and people domicile in the area. Whenever there is conflict, it threatens socio-economic activities which would have provided life support for the citizen. It has been observed that that conflict stimulate out-migration of the active population to urban community. According to UN- Habitat, (2010) half of humanity now lives in cities, and within the next two decades, 60 per cent of the world's people will reside in urban areas. Whereas the UN-Habitat (2009) had observed the astronomical increase in the world population is giving a clear perspective for urban managers and policy makers to develop a blue print and keep humanity's footprints within plenary boundaries. It is obvious that continued conflict in agricultural practises will necessitate out-migration to urban areas which will not only result in urbanisation but will cause a rippling effect on the food production chain.

Displacement

Data on the status of biodiversity in Nigeria according to (FEPA, 1992, FME, 1992) shows that out of a total number of 5,081 plant species, 8.5% are endangered and 0.4% are threatened. Also, of the 22,090 animal species, 0.22% are endangered and 0.14% are threatened. It has been reported that about 300 persons were killed and many people displaced in Aguta local government area of Benue State (vanguard

newspaper, 02,2016.). According to Cernea (2000) sociological studies has increasingly revealed the psychological and socio-cultural stress, high mortality and morbidity associated with involuntary resettlement. As a result of involuntary resettlement in most part of the world, farming system were destroyed, arable lands and social support networks are dismantled leaving many small and medium families impoverished. Environmental degradation including loss of grazing lands and sources of drinking water is also associated with involuntary resettlement. Ayanda (1988) posits that involuntary resettlement affects the organization and structure of local market, different from the previous patterns. As a result of conflict with herdsman, farmers were rooted out of their farm lands while fishermen and hunters were taken to places where their occupations were impeded (Olawepo, 2008).

Re-planning and Renewal Programs

Current urban development patterns, particularly in conflict prone communities are contributing to slum growth and inequitable standards of living through social and economic segregated urban spaces and sprawl. Whenever, there is conflict destruction of physical development such as housing, social amenities cause re-planning of the area which would incur additional cost on the dwellers and government as according to Effiong (2016) any community that is not properly planned or managed is a burden on natural resources and can easily threaten the quality of the air and water, thereby negatively impacting the natural and living environment.

Ecological Hazards

Environmental protection and safety are unique benefits derived from agroforestry. Different parts of plants such as leaves, stems, root and fruits have different functions to perform toward amelioration. The agroforestry trees and other vegetation in our environment contribute immensely in the protection of soil against erosion (Etuk and Uko, 2016). According to World Bank Report, (1990) Nigeria needs about 1000 million US dollars annually to mitigate the impact of gully erosion on the environmental integrity, human health and renewable resources. However, the continuous conflict between farmers and herdsman expose the community to erosion and other ecological hazard as there are destruction of vegetation which would've acted as barrier against the movement of materials by erosion from one location to the another.

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Soil Degradation

Soil degradation is ranked high by the World Bank (1990) because of its impact on the sustainable income of Nigerians, on large number of people, the poor and overall environmental integrity. Soil degradation may occur in form of nutrient loss, loss of soil micro-organism of agricultural land, pollution of surface and ground water, soil erosion and loss of human settlements, and other infrastructures. According to Ivbijaro, (2011), it is estimated that over 8 percent of the total land area of Nigeria is degraded by severe sheet, rill and gully erosions. The consequence of this is that arable agricultural land which would have provide food production in the country is now faced with threats from conflict between farmers and herdsmen thus reducing food production capacity of the urban farmers.

Biodiversity loss

The major threat to biodiversity in Nigeria is habitat destruction and overharvesting of wildlife, fisheries and plant species. Of the 1.4 million species of plants and animals identified in Nigeria, insects, comprising approximately 751,000 species account for 53.6 percent. Higher plants species account for 15.7%, fishes 19,000 species (1.3% and mammals 4000 species (0.28%) (FEPA, 1992). Habitat loss in Nigeria has led to the extinction of many animals. However, the continuous conflict between farmers and herdsmen will increase the threat to biodiversity.

Conflict Resolution: Mediation-Negotiation an Essential Arbiter

The practicable response of the government should be to foster cordial relationship between the farmers and the herdsmen by resolving the conflict. This is achievable by calling for a community meeting where both parties are fully represented and each allowed to air his/her views. Goldberg, Sander and Roger (1992) define negotiation as "communication for the purpose of persuasion". Negotiation is a process in which parties to a dispute discuss possible outcome directly with each other. According to Ury et.al, (1993) identify three approaches to resolving dispute, each with different orientation and focus and they include: Interest-Based negotiation, Right- Based Negotiation, and Power- Based Negotiation. Whereas Interest- Based Negotiation shift discussion from position to interest because a discussion based on interest open up a range of possibilities and creative options. Rights-Based Negotiation on the other hand usually result in legal processes and the law is the dominant feature. Power- Based is resorting to threat

or even violence as a way of communication for the purpose of persuasion.

Mediation is a process that employs a neutral/impartial person or persons to facilitate negotiation between the parties to a dispute in an effort to reach a mutually accepted resolution. Mediation is a process close in its premise to negotiation. Mediation is an assisted and facilitated negotiation carried out by a third party (Goldberg et al, 1992). Public participation seeks and facilitates the involvement of those potentially affected by or interested in a decision. The principle of public participation holds that those who are affected by a decision have a right to be involved in the decision-making process. Public participation therefore implies that the public's contribution will influence the decision. Public participation can be understood as the involvement of people in the process of decision making (Agbola and Oladoja, 2004). However, in this case, conflict between herdsman and farmers can best be resolved through Interest- Based Approach where government as mediator listens to various interests of both parties (farmers and herdsman) and establish a common ground to favour both parties. The Land Use Act vests land in the state governors and prior to the enactment of the Land Use Act, there were lands reserved for grazing. The state governments under the Nigerian constitution own the land. It is not the federal government that owns land. According to Tukur, (2014), in an interview granted him by Premium time's newspaper, says that between 1960 and 1966, the defunct Northern Nigeria Government created 417 grazing areas across the 19 Northern States of Nigeria but such areas were not maintained and thus the conflict witnessed today between farmers and herdsman.

It is therefore incumbent on State governors to find a lasting solution to the increasing conflict of farmers and herdsman by proposing a bill for grazing areas. Although, as observed, State Houses of Assembly in many States of the federation have started proposing a bill to establish grazing area for herdsman. However, such grazing areas should be fully equipped with requisite amenities like vet clinics, hospital, school etc. for herdsman to settle which will to a large extent reduce conflict of livelihood to the barest minimum. Also, state governors should create Farmers-Herdsman Dispute Resolution Committees and these committee should be given magisterial powers to arbitrate and resolve conflict.

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Nigerian Government should improve budget for agriculture and the percentage allocated to Livestock and Livestock Producers because we depend on livestock as a vital part of our economy.

The Need for Agricultural Intensification and Mixed Farming

After the conflict resolution, options for a more productive co-existence of farmers and herdsmen, agricultural intensification and mixed farming are needed. This can be achieved through consultative framework and the integration of both agricultural practises to enhance the production of food. Agricultural intensification involves the process of increasing the production per unit area of land by investing more or increasing the number of labour (Oksen, 2000). This is usually as a result of increased population or lack of adequate farmlands which reduces fallowing periods. Mixed farming on the other hand, entails combining both crop and animal production on the same land resource. Through mixed farming, animal traction could be employed to save labour need for elaborate tilling while also improving nutrient revitalization through the animal dung. This involves the use of animal-drawn ploughs in the tilling of the farmlands. The animals can as well feed on the crop residue after harvesting (Oksen, 2000). This process would help to solve the problem of labour loss to migration as the cattle-driven ploughs also helps to till more land area than manual labour. It thus, becomes the responsibility of the farmers to provide food for the cattle through the cost of labour saved. The herdsmen need not intrude into the farmlands since they are assured of food for their animals. The soil nutrients are enhanced by the animal dung and so fertilizer cost is also saved. Improved crop yield is also guaranteed which culminates into increased income for the farmers. Better forage is also provided for the animals as this could be planted separately through the cultivation of forage crops thus, providing nutritious feed for the cattle which in turn improves their market size.

CONCLUSION

To enhance the food security of any region, agricultural activities remain germane and play a significant role. Food supply is essentially dependent on agricultural activities whether directly (from farm to fork) or indirectly (from farm to industry to fork). More so, agricultural activities remain the major economic activity employing the highest number of labour in sub-Saharan Africa. In Nigeria, about 70% of the population earn their livelihood from agricultural based activities while agricultural activities accounts for about 40% of the country's GDP (Nwajiuba, 2012). This implies that Nigeria is essentially agrarian despite her overbearing

dependence on petroleum resource for public finance to run the economy.

There are opportunities to reduce the huge sum expended on food imports. This lies in the improvement of the agricultural systems and mitigation of its vulnerabilities, one of which is conflict between actors in agriculture – farmers and herdsmen as considered in this paper. Food security can be guaranteed again through prompt resolution of such conflicts and the incorporation of animal husbandry into crop production. Many more farmers are likely to join the present population of farmers when they are guaranteed of safety and assured their labour would not be a loss. Food also becomes more available, better accessible, and more complete in terms of diet since income can now increase and the systems of production are better stable which are the focal points of food security. More so, the economy can be revitalized through increased production of crops that thrive easily which affords the export of excess as well as animal production within the same resources. More food is available when agricultural activities are no longer counterproductive.

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