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Nigeria, Cattle Crisis

Nigeria: A Peaceful, Sustainable Solution to a Terrible Crisis

Nigeria is a country that resides on the Western Coast of Africa, bordering the Sahara Desert to the North, Chad to the East, the Atlantic Ocean to the West. The climate of Nigeria varies from region to region. Nigeria is classified overall as a tropical, semi-arid country. Nigeria's climate; however,, is not consistent throughout the country. The Northern Region of Nigeria receives an annual rainfall of or below 500 millimeters (20 inches) of rainfall. Towards the Central Region of Nigeria, the annual rainfall averages around 1,000 to 1,500 millimeters (40 to 60 inches). In the Southern Region of Nigeria, the area in which most biodiversity can be found, the annual rainfall exceeds 2,000 millimeters (80 inches) and in some areas can even exceed 3,000 millimeters (120 inches). This uneven distribution of rainfall naturally results in more food production in the areas of the southern part of Nigeria, which consequently leads to a rising population and increased population density. The Northern part of Nigeria is barren, having very little water to create produce, or to simply survive. The North part of Nigeria is fairly rural and less populous, which creates a divide in cultures. This divide in cultures is what is shaping the current crisis.

The crisis that is being referred to in this paper is the Cattle Crisis. A war between nomadic pastoralists and agricultural producers. This war is not just between two political views, but a fight for life, for prosperity, for rights that are beyond morals. This is a war that cannot be fought with just weapons but has to be fought with technology and innovation. This is a war that is not just going to be fought in Nigeria, but it will be fought in almost every nation soon. This is a war that is the result of climate change. A war that the Fulani Tribe and the Nigerian Farmers have become one of the first victims of.

The Fulani Tribe, also known as Peul or Fulbe People, is a nomadic tribe that is situated around Lake Chad, but concentrated in Nigeria, Mali, Guinea, Cameroon, Senegal and Niger. The Fulani live a pastoral lifestyle, which most of their daily lives involves cattle and walking. The essential style and farming practices of the Fulanis are to allow the cattle to graze on vegetative land until there is little left for the livestock to live on, then move to a new location, repeating the same process. The open grazing of livestock has been found in many studies to be considered a sustainable and environmentally friendly way of raising livestock; however, a wide variety of issues have been noticed. When a dry season arrives, the Fulanis are forced to migrate to southern parts of the continent to find substantial forage for the livestock, and in the wet seasons, many of the livestock are at risk to diseases like African Animal Trypanosomiasis which is transmitted by tsetse flies, which force the Fulanis to move northward to lesser quality forages. However, those issues are just the tip of the iceberg, there is something much larger that is affecting the Fulani Cattlemen, that issue is climate change.

The Food and Agriculture of the United Nations (FAO) has identified a crisis in Lake Chad, which is shrinking at an alarming rate.. Lake Chad was an estimated 25,000 \square^2 in 1963. In 2001, Lake Chad took up only 1,500 \square^2 of land, a 90% reduction in area. This is a result from overuse of the water in urban areas and in farming communities, alongside with many indirect issues. The lack of water in the Lake has led to desertification in the areas surrounding Lake Chad, which is coincidentally the land in which the Fulani Cattlemen use to graze their livestock. The lack of vegetation and water resources has given the

Fulanis no choice but to move south to the areas of more rainfall and increased vegetation. The Fulanis were attracted to Nigeria for many reasons. Nigeria has heightened security in the central and southern regions, as well as less risks of many parasitic diseases. Additionally, the Fulanis wanted to avoid the taxes which were imposed by the British in the Northern regions of Nigeria. The Fulanis decided that the further south they went into Nigeria, the better lifestyle they would have.

In the 1960's, Nigeria owned around 415 grazing reserves which were open areas that were protected for the herdsmen; however,, due to lack of followthrough with legislation, increased land competition, private investments from other nations, droughts, and lack of vegetation, only 114 reserves were documented, and very few exist today. In the 1970s, the agronomic farmers of Nigeria were encouraged to expand into uncultivated lands and to use water pumps to have continuous irrigation in their lands. This led to less land available for the cattlemen and less water for their livestock. Another important factor in this conflict is the increased levels of rural banditry and cattle rustling. One report estimated that in 2013 more than 64,750 cattle were stolen in Central Nigeria. This led to a vigilant mindset of the Fulanis in which they became armed with weapons and ready for conflict to protect their cattle.

As a result from all of these negative events the Fulanis endured, the Fulanis were forced to move south into Central/Southern Nigeria. The Fulanis were found on many farmer's properties, in which the livestock were grazing on their crops. The farmers, in defense of their crops and their land, became vigilantes and would murder Fulanis and their livestock to drive them away. In retaliation, the cattlemen would return to attack the farmers. This small volley of bullets led to a full war. The Fulanis realized that in order to get to the land to graze their cattle, they had to attack and raid the farms. On the other side, the farmers knew that they had to protect their land and fight off the herdsmen. Over the last few years, the conflicts have intensified. Armed raids from the Fulanis wiping out whole villages, killing hundreds of people, and in many cases, raping and kidnapping has become prevalent. These raids happen consistently throughout the weeks in Nigeria. While many sources vary on the total number of deaths, it is estimated that over 10,000 people have died and hundreds of thousands have been displaced from these conflicts. It has greatly affected the economy of Nigeria as well. One report states that in a 2015 study, the Federal Government was losing \$13.7 billion in revenue annually as a result of the conflict. The conflicts and lack of securities has also increased food insecurity in Nigeria, and led many to poverty as many farmers are moving to urban areas.

There were several attempts to end the violence in Nigeria from the Government. In total, there have been 3 attempts from the Nigerian Government to open grazing reserves to allow for the Fulanis to live in adequate areas; however,, none of which were successful, for many of the states disagreed with the legislation. The Nigerian government banned cattle grazing in the villages and cities to allow for military interference with the Fulanis. However, the military/police has oftentimes arrived late to distresses and issues have been upwelled from both the Fulanis and the Farmers. Some state governments, like Ekiti and the Federal Capital Territory of Abuja, have allowed for regulated grazing. In the Edo State, regulation has passed to allow for fenced grazing areas; however, the cattlemen find this as restricting and oftentimes fail to respect the boundaries.

Today, the conflict is only getting worse. Tensions between the farmers and the Fulanis have only continued to get hotter and hotter. Many organizations are siding with the farmers on the matter, creating "solutions" that protect the farmers but only continue to hurt the Fulanis. In addition, the "solutions" that are being enacted are only temporary solutions to a massive problem. We need to enact solutions that will give support to both sides of the divide. Solutions that will allow for everyone to prosper.

In order to stop the southern migration of the Fulani Tribes, regenerative agricultural practices need to be exacted in the regions affected by desertification. I recommend using a model that utilizes biodiversity, constant forage cover, and the implementation of crops with high biomass and good livestock nutritional value that is versatile. *Leucaena leucocephala* (also known as Leucaena Grass) is a legume forage that is native to Central America. Leucaena Grass are extremely drought tolerant, perennial, have high biomass, require little water, rapidly expanding, and are extremely versatile. However, if planted in a monocultural fashion, the plant could lead to a lack of biodiversity and have an opposite effect than the intention. I recommend that long rows of Leucaena Grass should be planted allowing for ample room between each plant for maximized growth. Between each row a variety of native grasses should be planted allowing for complete coverage of the area. An efficient way of doing this would be using aerial sowing methods. These plots would serve as areas where a more flourishing ecosystem could exist, allow for better water retention, and allow for continuous forage for the Fulanis. These plots would need to be strategically placed, allowing for cohesion between the sites. Governments will need to protect these lands, ensuring that the land continues to be used for its purpose. These plots would take roughly 7-10 years to be complete, and regulations will need to be enacted to prevent overuse of the land. These lands will take the stress away from the Nigerian farmers, protect Fulani culture and values, and allow for the Fulanis to raise livestock peacefully.

In addition to the plots, farmers need to become more conservative on their water usage. Implementing rainwater collection systems on farmlands, using the Zai Pit System, using less water dependent crops, regulating irrigation systems, and other sustainable water management systems should be enacted to the farmers. By adopting these practices, desertification can decelerate to allow for new solutions to reverse the Lake Chad crisis and bring better water systems to those areas. In order to enact this, the Nigerian Government needs to create education programs for the farmers. Nigerian Farmers can learn to sustainably intensify their farmland and receive maximum yield for minimum input. This will also aid in reversing food insecurity and poverty in Nigeria.

The Nigerian Government should establish a zoning program which would optimize land use . They should enact a nationwide survey to identify which regions are most effective to raise livestock, grow crops, build cities/villages, mine, etc. By doing this, Nigeria can maximize their land and resources and create a sustainable and stable economy to aid in development. This will allow for better wealth distribution, and for solutions for issues that might arise in the future. The boundaries should not be restricted and violently enforced; however, it should act as encouragement for the industries to maximize profit. This will also serve as a boundary that the Fulanis can learn to respect to avoid conflict.

In addition, the Nigerian Government should assemble a continuous meeting round table consisting of Fulani representatives, Farming representatives, government representatives, humanitarian organizations representatives, environmentalists, conservationists, and representatives from major agricultural organizations. The goal of this meeting is to create a peaceful gathering of opposing sides to make agreements regarding issues and to discover new solutions to future issues. This will allow for peaceful dialogue between all parties of this crisis, protect the rights of everyone, and allow for accountability on all sides. Additionally, this round table will need to create and agree on a form of judicial law that will allow for justified and equal repercussions in the event of another interaction between all members. The Nigerian Herdsman-Farmer Crisis is only the beginning of the conflicts that will arise with our changing climate. This war is being fought with guns and enforcement; however, it should be fought with better agricultural practices and peaceful dialogues. My recommendations are meant to serve as a solution to this crisis, but adaptations of these recommendations can be used in future conflicts. No one can predict what the next 100 years on Earth are going to look like; however, if we work together, listen and

sympathize with all sides, and create equal and sustainable solutions, we will solve the global problems that seem unsolvable.

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