

Abigail Tackett
Oberlin High School
Oberlin, Ohio
Nigeria, Factor 5: Climate Change

Nigeria: Adapting to Climate Change by Manipulating Water Sources to Save Agricultural Production

Nigeria is a very populous country located on the west coast of Africa, lying slightly north of the equator. It has an extremely varied terrain depending on the region. The country is usually referred to by either its northern or southern region. Regardless of its surplus of farmable land and wealth from its oil industry, the country as a whole still suffers from food insecurity and poverty (RuralPovertyPortal.org). With the southern region still recovering from great flooding, and the northern region being struck by drought, other factors are also affecting the agricultural production in Nigeria. Restricting import policies imposed by the government are harming the country more than they are helping. The small and even large-scale farmers cannot provide for the rapidly increasing population. Lastly, climate change is an enormous issue and plays a key role in the lack of food production. With extreme flooding in one region and devastating drought in the other, farmers of all sizes are not able to keep up crop production. Agriculture in Nigeria is essential to the growth of their economy, however not everyone farms. Urban families that are forced to live in crowded slums are also affected by the agricultural down fall. These urban dwellers would rely on the foods provided from these farmers. Without them, these people, and even the farmers, are forced to buy unhealthy foods elsewhere, such as low quality fast food chains. This leaves about half of the population living below the line of poverty. There are ways, such as manipulating water sources to save agricultural production, boosting the economy, and improving the quality of life for the people of Nigeria.

The average family, not including urban dwellers, is a subsistence farming family. The typical composition of the family includes seven immediate relatives but many households also include extended members such as aunts, uncles, cousins, and grandparents (SciencePub.net). It is seen as a status symbol for women to have many children; however, this can take its toll. With more children and family members to provide food, and only one, *maybe* two, sources of income, makes it much more difficult to ensure food security (yfuusa.org). An entire family lives on less than three hundred Naira per day. This is equal to only two American dollars per day (RuralPovertyPortal.org). The diet of a typical family in Nigeria is dependent on which region they live. Main staples for the entire country are yams and rice as they are among the easiest to buy, grow and harvest. However, much of the food in Nigeria is grain based. Roadside stalls called, Bukas, are primarily where the best food is found and sold. As for drinking, the most common and favorite beverage is a palm wine or natural juice made from palm trees (OwlNet.Rice.edu).

Agriculture is very important to the economy of Nigeria. It accounts for sixty percent of labor force overall and ninety percent in rural areas (RuralPovertyPortal.org). Small-scale farmers make up the majority of Nigeria's population. These farmers account for about eighty percent of the total food production in Nigeria (NationsEncyclopedia.com). Each of these farms has approximately 3.8 acres of farmable land (Effects of Family Size On Household Food Security in Osun State, Nigeria). Ninety percent of crop yield comes from small-scale farmers. The agricultural practices also vary depending on the region. In Nigeria, it is mainly divided into the northern region and the southern region. In northern Nigeria, it is more than likely for farmers to grow cowpeas, maize, millet, rice and cotton. In southern Nigeria, the main food crops are cassava, yam, plantain, maize and sorghum. Nigeria in general has adequate land for a diverse crop and livestock production. Although they account for so much of the food production, these small-scale family farmers are among the poorest in all of the country, especially in times of preharvest.

Food insecurity is the result of many different factors like population, import policies, and climate change. The population of Nigeria is the largest in all of Africa. It is predicted that by the year 2050, Nigeria alone will have a larger population than the entire United States (theguardian.com). Land wise, it is about the size of Texas, however, Texas only has a population of nearly twenty-seven million, while

Nigeria has a population of a little over one hundred seventy-seven million. Nigeria accounts for one sixth of the population in Africa alone and two percent worldwide. The major problem for improving agricultural productivity for this is that the food production is not able to keep up with the rapidly growing population. Another problem in improving agricultural activity is the strange import policy that the government has placed on the country. As of 2013, there are twenty-four products that are banned to be imported into Nigeria; many of these are food items. Banned food items include frozen poultry, pork, beef, veggie oils and fats, eggs, cocoa products, noodles, fruit juice and water (customs.gov.ng). The government explains that they want to maintain the domestic industries and reduce the country's dependence on imports. The government also claims that it only bans products it feels the country has the capability to produce itself (web.worldbank.org). However, this also means that the consumers must pay more for the smaller variety of food that is offered. Although the government is trying to protect the domestic economy, it is also harming the consumers.

Climate change is a huge issue in Nigeria. The northern and southern regions are affected in different ways, as if they were not apart of the same country at all. Because of climate change, the precipitation in Nigeria falls in uneven patterns all across the country, causing the northern and southern regions to be affected with many differences. The northern region of Nigeria suffers from drought. The rise in climate has caused a shorter rainy season. With consistent dry weather, a drought has been created which causes lakes, rivers, groundwater and moisture in the soil to be below the normal level (climatehotmap.org). Because of this, crops cannot grow. As explained before, the precipitation falls in uneven patterns, so the extreme lack of rain contrasts with the weather issues of Southern Nigeria. In the south, farmers suffer from extreme flooding. The excessive rains wipe out most all of the crops. Both of these factors cause farmers to buy from other markets, which are very expensive, and people in urban areas are forced to buy the farm grown food at much higher prices.

Managing the water supply in Nigeria seems to be the largest of issues greatly affecting the agricultural production in both the southern and northern regions. As explained previously, the north is currently experiencing drought. The slightest rise of temperatures, about one and seven tenths degrees Celsius more, this year alone, does not seem like such a drastic change (Our-Africa.org). However, it has altered the weather of the northern region severely, causing the rainy season of the northern region to be much shorter. Farmers there rely more on rainfall than irrigation systems, which is very dangerous and risky to their crop production. On the opposite end of the spectrum, the south suffers from flooding. The South's rainy season is much longer and when crops are almost ready to be harvested, excessive rains wipe them out. The most current flooding disaster occurred in 2012. This flood killed three hundred sixty-three people and misplaced over two million people. The flooding also wiped out approximately 988,421 acres of potential agricultural land. Subsistence farmers in rural areas were especially affected, lacking the resources to control the excessive rains. In both instances, farmers lost their food supply, which was their only main source of their income. The rainfall in Nigeria can also be very inconsistent and costly. A farmer from Kano State explains, "[The] amount of rainfall has reduced drastically ... a few years back it rained heavily and erosion has washed away our farmlands including the crops. This year we have suffered the impact of low rainfall and drought to the extent that we had to replant our crops three times before the rain became normal!" (ccic.ca Climate Change Adaption). This is only one farmer's story; ninety percent of the rural population has to suffer from harvesting issues like this because of the climate change.

With limited crops and the already rapidly growing population, there is not enough food to feed the population. Because of this, others are forced to raise food prices and this makes it very difficult for people to get enough food, or at least healthy. Most youth and adults are reliant on one of Nigeria's largest fast food chain called *Tantalizers*. Although the food from here is cheaper and more convenient, they are not getting the proper nutrition their bodies need. Not much is being done to correct or even manage this problem. Rural farmers do not have the financing to keep up with irrigational and harvesting technologies. Between the fifty million farmers in Nigeria, there are only thirty thousand tractors (Our-Africa.org). With the southern droughts, there is very little being done to help this problem. The only things that are being done to help the people, in actuality, are not truly helping them. One thing that the

government is doing is letting up on some of the import policy, now allowing some extra rice to be imported. However, because of this, taxes and prices of the rice have been raised greatly (Oryza.com). Another thing that is being done is by the IFC, or, International Finance Corporation. They are providing \$7 million and investing \$1.5 million into the fast food chain restaurant *Tantalizers* (web.ugometrics.com). Although this meets the need of convenient and affordable food, it has no or little nutritional value and can leave consumers with serious health problems such as obesity and diabetes.

If the water's management problem was resolved or even somewhat improved, food insecurity and access to healthier foods would be improved upon as well, due to a chain reaction. When water is managed carefully, crop yields can be more plentiful and consistent. As the amount of crops from local farmers rises, less importation would be necessary, meaning taxes would be lowered and the economy could grow. Healthier foods would become available for a lower price because of increased crop production while reducing the need for fast food restaurants. Lastly, small-scale farmers would be able to provide for themselves and not have to rely on high priced foods from other markets or the low quality food from the fast food restaurants. The way to increase agricultural production is to manage the water within each region. For example, in the north, a way to conserve the water for the crops needs to be implemented in order for them to grow properly and so productivity can continue. For the south, ways to manage the excessive rain so that they do not ruin crops must be instituted. In rural areas, family farmers do not have the resources or finances to properly irrigate and/or manage their land. For these problems, the primary things that are needed to achieve this goal are education and funding.

As explained previously, the situation of managing water is different depending on the region, so it should be treated as such. In the northern region, farmers need to be educated on how to conserve water and perhaps learn new methods of farming instead of relying on rain fed harvesting. An organization called ECOVA MALI works to educate small-scale farmers on creating and implementing new and sufficient agricultural methods (FoodTank.com). They also provide some grants mainly to small-scale farmers. Another thing that could be useful is the growing of genetically modified crops. Today with the advances in biological sciences, seeds can be modified to withstand certain climate changes, such as drought. This may be useful if the farmers are not able to get enough water to their crops. However things like genetically modified crops can be expensive, especially to a country already facing financial struggles. A United Nations supported organization called, International Fund of Agricultural Development (IFAD), works to end rural poverty by providing resources and funding to well deserving farmers. They could possibly help finance the purchase of these genetically modified seeds. In the south, education needs to be provided to show the farmers how to irrigate their lands in order to protect their crops from excessive flooding. A step further would be to help provide farmers with the proper equipment, which they cannot afford without financial assistance. Getting back on to the track of agricultural sustainability will take time and especially money. Since the government alone is unable to assist the farmers, Non Governmental Organizations (NGO's) are needed to help improve this desperate situation. For example, The *International Finance Corporation* (IFC), who already funds the fast food restaurant *Tantalizers*, could do the same by investing in farmers to create healthier food sources for lower prices.

Recovering from climate change to save agricultural production will take time and money. However, recovery is only the first step. The Nigerian population and government need to work together with willing NGO's to create good habits of farming, water conservation, and water distribution. This will not be a simple task. If Nigeria could get assistance from some of the organizations previously stated, it would be easier. Recovering from their current situation needs to be an all around effort from those living in Nigeria and some outside of the country who are willing to help. When Nigeria is able to cope with the climate change situation, other factors will fall into place. The rate of food security would be much higher as more people would have access to the healthier, farm fresh local foods.

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