

Ezinma Stella Herler

The British School In The Netherlands

Voorschoten, The Netherlands

Nigeria, Poverty

The Impact of Poverty in Nigeria; Proposed methods to decrease poverty

Introduction

It is clearly evident that the population of earth has been growing at a rapid rate in the previous years, and has been estimated to soar up to 9.8 billion in 2050 (UN). Closely related to population increase, is the emergence of more poverty. In order to accommodate this growing population as well as poverty, it is vital that we address the lack of food security in developing countries. In this research paper, I will be exploring the current issues in Nigeria concerning food security, and sustainable agriculture, and how to combat them.

Country and Family

Nigeria is situated in West-Africa, and is surrounded by the following neighboring countries Chad, Benin, Cameroon and Niger. Throughout the year, typically, Nigeria maintains an average temperature of 25 degrees Celsius (Holiday Weather) from the months January to December. Nigeria has 2 main periods of weather; the rain season and the dry season. Nigeria is known as a tropical country, due to its humid/warm conditions throughout the year. It has been estimated that the overall amount of poverty in Nigeria, lies at an alarmingly high 48.3% (Quartz Africa), however this may be slightly overestimated due to the lack of information concerning rural areas in Nigeria. Having the largest population in Africa, Nigeria is expected to have 234 million inhabitants by 2025 (Worldometers), and a population of 411 million by 2050 (Worldometers). Due to this, it is clear that something has to be done regarding food security in Nigeria. Furthermore, after gaining their independence from their colonial master, the British, on October 1st 1960 (Britannica), Nigeria has become a federal republic, remodeled to imitate the USA. Currently, the leader of Nigeria is Muhammadu Buhari. The estimated number of hectares used for farmland in Nigeria is currently 30 million (Export.Gov), where the average farm is 0.85 hectares (FAO), whereas it has been estimated that 78.5 million hectares (Export.Gov) of farmland would be needed in order to feed Nigeria's population. Nigeria's largest product in agriculture is palm oil, followed by groundnut, however Nigeria's main export in order to support the collapsing economy, is crude petroleum.

A typical Nigerian family consists of 4-5 people per family (ArcGIS). This is significantly higher than many other developed countries, as in Nigeria having many children is fashionable, and a sign of prosperity. In a typical poor (southern Nigeria) household, which is typically Christian, the mother and father will provide income for the family, as well as children helping. In a stable household, the father is the main source of income, having to provide for the family. In the north of Nigeria the population is predominantly of the Muslim religion, this allows one man to marry up to four women,

through the Sharia Law. The Sharia Law also allows a husband to divorce any of his wives in an instance, without a court session. These women are then completely cut off, left with an impossible amount of children to feed and care for. This results in tens of thousands of children and mothers left in extreme poverty. Commonly, the main foods eaten in a Nigerian diet are yams, rice, beans and corn (processed in different ways). Meat and fish are a luxury in Nigeria, and when bought or eaten, are commonly dried using herbs. Food is bought from local markets, or local farmers, in more central areas, such as Lagos, food can be obtained from regular supermarkets. In Nigeria the average income per hour is 2,688 NGN (Salary Explorer) which equates to 7.42 USD. Moreover, although school is compulsory and education is officially free, 10,5 million children (UNICEF) are currently still not attending school in Nigeria. In previous years this number was even higher, and thus many adults now have no academic background, resulting in a lower chance of a stable income. Only 30% of the population has access to clean water in Nigeria (US Aid).

Sustainable agriculture/ Challenge and Impact

Sustainable agriculture is one of the main constraints in Nigeria, which is preventing food security from commencing. The sustainability of agriculture is the maintenance and improvement of agricultural development in order to sustain the livelihood in that nation and their future generation (as stated by Ayinde 2008). Sustainable agriculture would greatly benefit Nigeria, as it would drastically reduce the rate of poverty, due to the fact that enough crops would be yielded to feed the nation. The lack of development of sustainable agriculture, could be due to the lack of good infrastructure, unstable prices and agricultural labor. Agriculture in Nigeria suffers greatly due to poor infrastructure. Electricity, health facilities and safe water, are often not available in many rural areas, thus resulting in a lack of supplies for farming, and a lack of workers. This is mainly due to the issue that the government favors urban development, as opposed to rural development. Furthermore, unstable prices, and the fluctuation of the worth of Naira, contributes to a lack of sustainable farming. The prices of basic tools and machinery for agriculture, for example cutlasses, tractors and more, have greatly increased, as result of the unstable macroeconomic policy, which lead to fluctuating prices. This has the tendency to cause rising prices in fuel, farm inputs, and transportation, thus increasing the overall cost of production for farmers. Moreover, agricultural labor, also exacerbates the lack of sustainable agriculture in Nigeria. Due to the fact that Nigeria has such a high population, manual labor is the cheapest, and most available form of labor in Nigeria. Thus, as many able bodied men migrate to the more urban areas, there is a lack of workers in rural areas, resulting in less land being used for agriculture, resulting in a reduced chance of sustainable farming. There are heavy impacts on the environment which link directly to unsustainable agriculture. These practices can result in soil erosion, deforestation, climate change and more, all which accelerate the process of unsustainable farming.

Solutions and recommendations

The use of additional mycorrhizae (an ancient symbiosis formed billions of years ago) in agriculture, could greatly improve food security in Nigeria. Mycorrhizae is a fungi, it comes in the form of almost entirely microscopic threads called hyphae. These hyphae are interconnected, which forms a web-like formation called a mycelium, which contains up to thousands of miles of hyphae. These features allow mycorrhizae to increase the surface area of the roots of a plant. Mycorrhizae is not defined as a parasite, but as a mutually beneficial fungus, thus not harming the plant in any way. The increase in surface area of the roots of plants, result in greater crop yields. This is as the rate of absorption of water and minerals, such as nitrate ions and magnesium ions, is greater, thus resulting in greater growth for the plant. This enables more fruits, and desired products from plants to be formed, effectively producing a greater crop yield. A greater crop yield, would result in lower food prices due to the abundance thereof. As a result, more families, especially those struggling financially, would have access to food, which therefore would help to reduce poverty. Furthermore, mycorrhizae has significant effects on soil. Mycorrhizae allows there to be better soil conditions, due to the hyphae made. This results in better plant resistance to water/wind, a greater permeability to air, higher microbial activity and better resistance to compaction, all of which greatly enhance agriculture. In addition to this, mycorrhizae is reasonably cheap in large quantities, and thus is available to local farmers in Nigeria, as well as it being available in different concentrations, different carriers and formulations according to the customer's needs. Mycorrhizae could be provided by Non-governmental organizations, such as the Ecoagriculture Partners, an NGO dedicated to support communities with their agriculture; it could be distributed by setting up Mycorrhizae collection points in the top 5 cities where agriculture is most dominant; the local farmer could then collect the mycorrhizae in powder form, and either mix it into their soil, or sprinkle it onto their seeds as they are planted. When distributing the mycorrhizae, in order to ensure that the local farmers know how to use it, pamphlets, explaining the quantities to be used, and how to apply it to crops. In order to ensure that farmers don't take advantage of this system, each farmer could be given an ID card, which will allow the distributors to record how many times a farmer collects mycorrhizae. There are clearly many advantages that come with using mycorrhizae, however there are some disadvantages of their usage. In Nigeria fertilizers are commonly used in agriculture, if they are combined with the use of mycorrhizae, the plant does not need to absorb more minerals from the soil, thus the mycorrhizae behaves as a parasite, as it is benefitting from the plant, but the plant doesn't need it. Thus, mycorrhizae would be ideal to use without, or with little fertilizers, which would be a very large step for farmers to take, resulting in less farmers wanting to use mycorrhizae.

Another method in which sustainable agriculture in Nigeria could emerge, is through the process of preventing/reversing desertification. Annually, Nigeria loses 350,999 hectares of land due to desertification (Punch NG). This occurs mainly due to the following factors: meteorological effects, which is as a result of very low precipitation levels, below the normal recorded level, agricultural effects, which is when the soil moisture is not sufficient to attend to the demands of agricultural crops and hydrological effects, which is when there is a shortage of water supply, as a result of the reduction or absence of surface water. This large loss of land, decreases the cultivable land in Nigeria, thus reducing the rate at which food is produced. There are several ways in which this could be prevented, in order to maximize the cultivable land in Nigeria. Desertification often happens due to

the exposure of land to wind, water erosion and heat. Thus, by the preservation of a vegetative covers, desertification could most definitely be prevented. Nigeria is already covered with 3 types of vegetation: savannahs, forests and montane land. These areas need to be preserved, by measures taken by the government, in order to help deter desertification. Drought periods in Nigeria, which are especially prominent during the winter season, can result in desertification. Desertification could be prevented through maintaining management practices for water capture during intensive precipitation periods, such as during late summer in Nigeria. The heavy rainfall, during “rain season” in Nigeria, results in the nutrients and minerals in soil being washed away, resulting in very nutrient depleted soil in the dry season, leading to desertification. Thus, this could be combatted by building up the minerals and nutrients in the soil again, in order to allow crops to grow. This could be done with the help of NGOs, such as the Soil Association, which could help provide nutrient solutions and powders, to farmers in Nigeria; which could be used to reintroduce minerals and nutrients, thus promoting, and maintaining growth. Negative aspects of trying to prevent desertification, is the fact that it is expensive, and the process of making masses nutrient-depleted soil cultivable again would be a very long and labor-intensive process.

Moreover, genetically modified crops could help to achieve sustainable agriculture in Nigeria. In Nigeria, over 5-40% of crops are lost to plant diseases/pests (Research Gate). Furthermore, droughts, which are very common in Nigeria, can often result in very serious losses of crops, resulting in lower crop yields, and thus exacerbating unsustainable agriculture. The genetic modification of crops could result in crops being resistant to many common plant diseases, and resistance to droughts, which could lead Nigeria to sustainable agriculture in the future. Genetic modification is a process that entails inserting DNA into the genome of a plant. This could be beneficial to agriculture in Nigeria, as the disease resistant genes, and drought resistant genes, could be transferred into the most important crops in Nigeria, resulting in a higher yield. This could be achieved through the following steps. Firstly, metal particles would be coated with DNA entailing the desired genes. Hereafter, crop plant cells are then taken, such as cassava cells, and are then bombarded with the particles. The plant is then left to grow. Other methods include using a virus or bacterium (Royal Society). However, there are some risks associated with this method of procedure. Due to the fact that the discovery of GM crops is rather recent, there is limited research on the long term health related effects it can have on humans. Furthermore, there has been research carried out suggesting that GM crops could be related to allergies, antibiotic resistance and cancer. Nevertheless, GM seeds could be provided or made available to Nigerian farmers by the UN, including the most important crops in Nigeria such as: beans, cocoa, cassava, sesame, cashew nuts and ground nuts etc. This could be orchestrated in a similar way to the mycorrhizae distribution; collection points in the form of small shops could be set up in the top 5 cities in Nigeria where farming is the most popular profession. Hereafter local farmers could collect a fixed amount of GM seeds of their choice, out of the most popular crops in Nigeria (mentioned previously), which would greatly increase crop yield for farmers. To ensure that farmers aren't taking advantage of the situation, a recording system could be implemented, where all farms are given an ID card, and can collect crops only at a certain time in the year.

Conclusion

To conclude, it is evident that Nigeria is one of the countries in the world struggling with a major issue concerning food sustainability, which needs to be solved before the demand of food is unachievable due to the increase in its population. Sustainable farming is desperately needed and through the latter proposed solutions, Nigeria would be set on the path to food safety in the future. The available cultivable land in Nigeria has great potential, and should not be wasted through the process of desertification, but should rather be maintained to generate high crop yields through the use of mycorrhizae and genetically modified crops.

Bibliography (MLA)

- “Unsustainable Agriculture.” *Citizens of Earth*, www.thecitizensofearth.org/unearthing-our-roots.
- Rathi, Subodh, et al. “Agriculture.” *Agriculture | Special Issue : The Impact of Plant Disease on Food Security*, www.mdpi.com/journal/agriculture/special_issues/plant_disease.
- “Preserving Natural Vegetation.” *Geosyntec TEST PAGE*, prj.geosyntec.com/npsmanual/preservingnaturalvegetation.aspx.
- “Genetically Modified (GM) Plants: Questions and Answers.” *Royal Society*, royalsociety.org/topics-policy/projects/gm-plants/.
- Rlemke. “Sustainable Agriculture: Better Crops for Nigeria.” *CRS*, 13 Jan. 2016, www.crs.org/stories/sustainable-agriculture-better-crops-nigeria.
- “Desertification.” *Desertification: 6. How Can We Prevent or Reverse Desertification?*, www.greenfacts.org/en/desertification/1-2/6-prevention-desertification.htm.
- “WHAT ARE MYCORRHIZAE?” *All about Mycorrhizae, Its Benefits, Application and Research and Development*, www.mykepro.com/mycorrhizae-benefits-application-and-research.aspx.
- “How Do Mycorrhizae Work? Explained Simply.” *Untamed Science*, www.untamedscience.com/biology/ecology/mycorrhizae/.
- “Water | Nigeria.” *U.S. Agency for International Development*, 10 Nov. 2015, www.usaid.gov/nigeria/water.
- “Education.” *Related UNICEF Websites*, www.unicef.org/nigeria/education.
- “Nigeria - AgricultureNigeria - Agriculture.” *Nigeria - Agriculture*, www.export.gov/article?id=Nigeria-Agriculture.
- “Agriculture and Food Security in Nigeria.” *Agriculture and Food Security in Nigeria | Center for Strategic and International Studies*, 17 Mar. 2017, www.csis.org/programs/africa-program/archives/human-development/agriculture-and-food-security-nigeria
- “FAO.org.” *Indicator Details | Family Farming Knowledge Platform | Food and Agriculture Organization of the United Nations*, www.fao.org/family-farming/41data-sources/dataportrait/indicator-details/en/?ind=83447.
- “Home - PMC - NCBI.” *National Center for Biotechnology Information*, U.S. National Library of Medicine, www.ncbi.nlm.nih.gov/pmc/.

Average Salary in Nigeria 2019, www.salaryexplorer.com/salary-survey.php?loc=158&loctype=1.

“Lagos, Nigeria: Annual Weather Averages.” *Lagos, Nigeria Average Annual Weather - Holiday Weather*, www.holiday-weather.com/lagos/averages/.

Kazeem, Yomi. “Nigeria Has Become the Poverty Capital of the World.” *Quartz Africa*, Quartz, 25 June 2018, qz.com/africa/1313380/nigerias-has-the-highest-rate-of-extreme-poverty-globally/.

“Nigeria Population (LIVE).” *Worldometers*, www.worldometers.info/world-population/nigeria-population/.

Published. “Desertification: Nigeria Loses 350,999 Hectares of Land Annually, Says NiMet.” *Punch Newspapers*, 27 Mar. 2019, punchng.com/desertification-nigeria-loses-350999-hectares-of-land-annually-says-nimet/.

Arcgis.com, www.arcgis.com/home/item.html?id=cab92ace06e4416fb8c04dde9e3669a6.