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Nigeria, Factor 9: Water & Sanitation

The Status of Water and Sanitation in Nigeria

Imagine coming home after a long day. It was a very hot day, so some cool, icy water would be very satisfying. For most Americans, all that is required to get some water here in this country is to go to the kitchen or fridge. However, in most parts of Africa, this is not the case. Most of the time, there is no access to water, and even where there is access, the water is of very poor quality. Sub-Saharan Africa has been the most affected by the global water crisis, as of the 783 million people globally who are without access to clean water, 40% live in sub-Saharan Africa (Rodriguez, 2019).

Of the many countries in the large continent of Africa, this paper will focus on the wealthiest and most populated country in the continent: Nigeria. Nigeria is a country located specifically in West Africa. Its population is approximately 203.5 million people, as of July 2018, with its population growing by nearly 2.54% annually (CIA, 2019). The climate varies by region, as it is "equatorial in [the] south, tropical in [the] center, arid in [the] north" (CIA, 2019). Furthermore, the economy of Nigeria "relies heavily on oil as its main source of revenue." There are "efforts to diversify into agriculture, telecommunications, and services", however these efforts "are limited by poverty and corruption" (CIA, 2019).

Unfortunately, access to clean water is an issue in Nigeria. Author Leah Rodriguez of the Global Citizen details the story of \when American Actress Uzo Aduba visited the country as a part of her show *ACTIVATE: The Global Citizen Movement*. She spoke with farmer Salamatu Jibrin. Farmer Jibrin's daughter who was only a baby had suffered from the lack of quality drinking water in the region. One day, when Jibrin's baby daughter drank water from a river, she began to cry. This puzzled Jibrin at first, but then when the baby started urinating blood and experiencing diarrhea, he realized that the water source she drank from was contaminated. Sadly, Jibrin's baby daughter's devastating experience is not a rare story, as "Jibrin is part of the 70% of the country's population that does not have access to clean water and sanitation" (Rodriguez, 2019).

While there are some steps being taken to create a better situation, they are not enough and it is important to devise some new plans to help the Nigerian population. Nigeria will have the most difficult time implementing solutions, as the water system is already under significant pressure due to the significant overpopulation. Therefore, if the water situation in Nigeria is improved, then other countries will be incentivized to also take steps to improve and the global water crisis will be less severe. This paper will provide background information about Nigerian families, farms, and the barriers that are faced by families when it comes to food production, employment, and access to food markets. Then, the chosen food factor will be established and some devised solutions to the crisis will be introduced.

Family is deeply rooted in African culture, so it is crucial to explain the basics of family in Nigeria. The typical family in Nigeria is rather unique. Households usually contain children, a mother, a father, and "many include grandparents, uncles, and aunts as well" (AFS-USA, 2021). Within these households, the father is typically the one that generates income for the family and makes most of the important decisions. On the other hand, the mother is responsible for childrearing and household duties. Family size varies depending on whether the area is rural or urban. A source finds that "a family living in

a more urban area may have between three to five children, while a more rural family may have as many as seven to ten" (AFS-USA, 2021). Clearly, there are a lot of children in the country, adding to the overpopulation. In order for these kids to go to school, there needs to be a strong education system. That is not the case unfortunately. The Nigerian government has built thousands of schools to try to solve the school shortage, "yet, despite recent improvements in total enrollment numbers in elementary schools, the basic education system remains underfunded; facilities are often poor, teachers inadequately trained, and participation rates are low by international standards" (WES Staff, 2017). The lack of education is harmful to the country's prosperity because with less education, there is less opportunity to pursue a job.

Because family is so important, it is critical to maintain a good diet to keep families healthy. Nigerians typically follow a food pyramid for their diet. A description of this pyramid is as follows: "The Nigerian food guide is a food pyramid divided into five food groups. At the bottom are bread, grains and tubers, followed by vegetables and fruits. Both groups are to be eaten at every meal. Eggs, fish, meat and dairy are on the third level, and are to be eaten in moderation. Oils and fats should be eaten sparingly according to the pyramid, with confectionery limited to rare occasions. A glass of water is placed outside of the pyramid with the advice to always drink plenty of water" (Food and Agriculture Organization of the United Nations, 2001). Sadly, as mentioned before, this glass of water is typically nonexistent or contaminated. This lack of access to safe water is devastating because it played a major role in the 2010s cholera outbreak. Cholera is a waterborne disease. Tragically, Nigerians have suffered from waterborne diseases, as "the use of contaminated drinking water and poor sanitary conditions result in increased vulnerability to water-borne diseases, including diarrhoea which leads to deaths of more than 70,000 children under five annually" (UNICEF, n.d.).

Another health hazard that is prevalent in the country of Nigeria is the dangerously common practice of open defecation. Open defecation is the practice of defecating in public spaces. Nearly 47 million Nigerians practice open defecation, as fewer than half of households in Nigeria have their own toilet (Adepoju, 2019). This can lead to severe health consequences because most of the time, the practice is conducted near rivers or waterways. This means that many can be exposed to human waste, and the exposure or ingestion of human waste can cause a number of waterborne diseases such as cholera and diarrhea..

As a result of these disease outbreaks, thousands need access to healthcare facilities. This would not be an issue in a country with strong healthcare systems such as the United States of America or various European countries. Sadly, Nigeria's healthcare system is already enduring a massive burden. This can be seen as there is a significant lack of access. The Nigerian government tried to strengthen healthcare by launching an initiative known as NHIS to provide healthcare to people. Unfortunately, this program has been largely unsuccessful as "only about 10% of the Nigerian population is covered by the scheme with the vast majority still left to fend for their health needs" (Asakitikpi, 2019). As a result, Nigerian access to healthcare is rare and in some parts of the country, nonexistent.

Next, it is essential to create an understanding of farms in Nigeria because agriculture is a significant part of the Nigerian economy. Specifically, "Nigeria's agricultural sector contributes to a significant part of the country's GDP. Between January and March 2021, the agriculture contributed to 22.35 percent of the total GDP, an increase by almost one percentage point compared to the same period of 2020. Agriculture is a key activity for Nigeria's economy after oil. Nevertheless, agricultural activities provide livelihood for many Nigerians, whereas the wealth generated by oil reach a restricted share of people" (Varrella, 2021).

However, even though agriculture makes up a significant portion of the Nigerian economy, the typical farm in Nigeria is relatively small, as the average farm is only "1.8 hectares" (Thrive, 2020). To put this measurement into perspective, 1 hectare is equivalent to about 1.2 to 1.6 soccer fields, which means that the average farm in Nigeria is 2.16 to 2.88 soccer fields big. While this may seem like a large space, there is not enough space for adequate production. This small farming land, in addition to "a very low level of irrigation development, limited adoption of research findings and technologies, high cost of farm inputs, poor access to credit, inefficient fertilizer procurement and distribution, inadequate storage facilities and poor access to markets have all combined to keep agricultural productivity low with high post harvest losses and waste" (Thrive, 2020).

On the bright side, even though agricultural productivity is low, Nigerian farms still produce a wide variety of crops. This includes but is not limited to sorghum, millet, corn, rice, peanuts, palm oil, sugar cane, palm kernel, soybeans, as well as a large variety of fruits and vegetables. In addition to producing crops, Nigerian farms also contain multiple species of animals, as "a significant portion of the agricultural sector in Nigeria involves cattle herding, fishing, poultry, and lumbering. There are 12.2 million cattle, 13.2 million sheep, 26.0 million goats, 1.3 million pigs, 700,000 donkeys, 250,000 horses, and 18,000 camels, mostly in northern Nigeria, and owned mostly by rural dwellers rather than by commercial companies." (Nations Encyclopedia, 2010). When it comes to how farmers produce these crops and work with these animals, they conduct various practices. Specifically, they "focus on Sustainable Land and Water Management and Climate Smart Agriculture" (Resilient Food Systems, 2020). All in all, Nigeria's agriculture sector is essential for the country and produces a large variety of crops, uses lots of different animals, and uses the practices of Sustainable Land and Water Management and Climate Smart Agriculture.

Sadly, even though Nigerian agriculture is vital to the economy, there are a few barriers that families face regarding food production, employment, and accessing food markets. With regards to food production, the output isn't that high. This is because as mentioned before, Nigerian farms on average are only 1.8 hectares large. Furthermore, a lot of farms have low irrigation development, as less than 1 percent of the land has irrigation (Food and Agriculture Organization of the United Nations, n.d.). At first thought, irrigation may not seem that important. However, it is very important. With low irrigation levels, farms experience high losses, which worsens the food security crisis in Nigeria.

Also, there is not proper access to food markets as these markets are not well-established. Oftentimes, food markets can just be someone on the street selling their crops, which is not good because most people are not aware of this. Additionally, the overall poverty in Nigeria has worsened transportation, which as a result has reduced access to proper food markets as sometimes people do not have the proper means to go to these markets. Clearly, there are significant barriers that prevent Nigerians from being able to produce food, obtain jobs, and access food.

The food security factor discussed in this paper is water and sanitation. On the Penn State Agriculture Sciences website, this factor is described as "increasing access to safe, potable water supplies, toilets and pit latrines, and education on proper sanitation/hygiene and food preparation techniques to reduce the transmission of food and water‑borne disease." The current status of this factor in Nigeria is poor, as "Access to clean water and improved sanitation facilities is a daily challenge for many Nigerians. This problem is particularly acute in northern Nigeria, where only 30 percent of the population has access to safe drinking water and adequate sanitation. This contributes to high prevalence of waterborne

diseases" (USAID, 2020). Thankfully, leaders in the nation are starting to understand the severity of the water crisis in Nigeria and are beginning to take steps to improve the situation. However, while "the government launched an emergency action plan in November to address water problems," unfortunately, "it has yet to make much of an impact" (reliefweb, 2019). Reuben Habu of Nigeria's Integrated Water Resources Management Commission explains that "The major problem is funding,' [. . .] 'With improved funding there will be improved infrastructural development, which will guarantee adequate provision of water for the population" (reliefweb, 2019). Therefore, now is the time to take action and help Nigeria because the government is unable to with minimal funding.

Clearly, something must be done to work towards bettering the state of water and sanitation in Nigeria. This paper will include four solutions. Two of the solutions are government-based, while the other two solutions are science-based.

Now, the government solutions to the water and sanitation crisis in Nigeria will be explained. The first government solution would be to have the federal government more involved in the process. Currently, the federal government gives the state government funding for projects without getting involved in the process, as the federal government "simply gives funding without aligned priorities" (Kassie, 2018). Changing this could be a significant step in the right direction to solving this problem. Rather than just giving funding, the federal government should actually give plans and blueprints for the state government to use in construction. Then, there could be a penalty if the project is not completed, as this does not occur currently since there is lots of room for confusion right now with the lack of instruction.

The second way that the government can be involved to improve the food security situation in Nigeria would be to mandate more land for farming and create more centralized food markets. As mentioned previously, there is a lack of space for farmers as they only have access to 1.8 hectares of land on average. Devoting more land would allow for more food production. Creating more centralized food markets would allow for people to have more knowledge about where to get food from. While this could cost small food markets, they could be offered compensation through employment in the centralized food market. Funding would only be required to create the new market, and this should not be an issue as the state or even federal government can provide funding for this. One may think that the government would not approve these solutions because of certain reasons such as funding, time, and resources. However, these solutions would drastically increase the quality of life for each Nigerian. It is safe to say that because the government's job is to represent and serve its people, these solutions would be approved.

While the government on its own could increase access to water, it would not be able to increase the actual quality of water. This is where science can be used. The first scientific way to solve the water and sanitation crisis in Nigeria is to use waste treatment plants. Water and environmental expert Joseph Ibrahim would agree with this, as he states, "I think it's high time we started recycling our water through channeling our water to waste treatment plants, and from there we separate the water as it is done in other developed countries of the world" (reliefweb, 2019). A wastewater treatment system is defined as a system that "receives, stores, treats and disposes of waste water from toilets, sinks, washing machines, baths and all other domestic water-using appliances" (Tanks, 2014). Wastewater treatment systems are already being developed, but are still not at operational levels. These smaller level projects could be scaled up and use national resources to be completed quicker. This would be the best solution because it would not only create clean water, but it would also remove existing contaminated water. However, using water treatment plants takes lots of money and time, so this could be one hurdle to the success of this

solution. Still, this solution is worth the cost because precedence has shown it will work. Even so, if cost were to become an issue, there's another scientific solution.

The second way to use science to work towards solving this problem would be to give quality tracking kits to locals. There are lots of things to track, including "pH levels, temperature, dissolved oxygen, salinity, and the presence of contaminants like nitrates" (Master's in Data Science, 2020). Tracking these would be beneficial because if contaminated water is discovered, then there would be a lower chance of contracting waterborne diseases, and lowering the burden on the healthcare system. Families could help with this solution by getting the instruments needed for monitoring these items. Some may think this solution will make no impact because it seems a bit basic. Although this is not a high-tech solution, it will still be effective. Identifying contaminated water sources is one of the best ways to save lives. Overall, there are a variety of solutions that could be implemented, with some coming from the government and others coming from the use of science.

To conclude, the state of water and sanitation in Nigeria needs to be improved. More than half of the country doesn't have access to clean water. Those who drink water are at risk, as thousands die from waterborne diseases like diarrhea and cholera. Also, current access to food markets and lack of food production is due to barriers like a lack of established food sellers and small land areas for farmers. There are two ways to go about improving water and sanitation in Nigeria. The first way would be to use governmental legislation and mandates. Specifically, this can be done through increasing the involvement of the federal government in construction, devoting more land for farmers, and creating centralized food markets. The second way to go about solving this problem would be to use science. This would involve using wastewater treatment plants and monitoring contaminants in water. American anthropologist Loren Eiseley once said that "If there is magic on this planet, it is contained in water." Water allows our species to thrive, and when society is healthy, then brilliant things can happen. It is truly heartbreaking that so many do not have access to a basic requirement of life, which is why immediate action is needed. If these solutions are utilized, the glass of water next to the Nigerian food pyramid has a much larger chance of being clean and accessible.

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