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“Sack Solution” that Saves Ghana

Humans do not have the ability to survive without water for prolonged periods of time. Humans need water for almost every bodily process, which is why they can only survive a short time without it. Similarly, countries need water to fulfill their daily needs, such as for irrigation in agriculture. Access to water is the lifeblood of every country. Without access to water in Northern Ghana, the daily tasks they need carry out to survive are limited during the dry seasons.

Ghana spans across 238,533 square kilometers of Western Africa. To put this size into a better perspective, Ghana is about the size of Texas. In this vast area lives 28,102,471 people, of which 56.7% live in urban areas, and 43.3% in rural areas. The geography of Ghana is mostly made up of low plains with plateaus in the south-central area. Ghana is most known for being home to the world’s largest artificial lake (“Ghana”).

The problems encountered by any nation often cannot be resolved without assistance from the government. The government plays a key role in any project, but also has its own limitations. Both parties’ election platforms have focused on private-sector-driven growth, which will hopefully lead to finding a solution for this water scarcity issue (“Ghana: Current Issues and U.S. Relations in Brief”). Since the food supply is an important matter to ordinary citizens, they can also play a role in supporting their government. Ghana became the first country to gain independence from European Colonialism (“Gold Coast (Ghana) Gains Independence”). British colonists passed down their native language of English to Ghana, which is now the country’s official language (“What Languages are Spoken in Ghana?”). Today, Ghana is established as a Presidential Republic, run by a President and a Vice President (“Ghana”).

Exports function as the lifeblood for the economy of Ghana, proving to be their greatest source of income (“Ghana”). The country’s major exports include: oil, gold, timber, tuna, bauxite, aluminum, manganese ore, diamonds, and horticulture products (“Ghana”). Ghana’s main export partners are the Netherlands, Burkina Faso, South Africa, and the United Kingdom (“Ghana Exports”).

Climate plays a major role in where farmers can grow their crops in every country. Along the southeast coast, the climate is warm and dry; hot and humid in the southwest; and hot and dry in the north (“Ghana”). The land that is currently cultivated for farming makes up about 69.1% of the country (“Ghana”). According to Khadija Sharife, over 64 percent of Ghana’s population is employed in the agricultural sector. The average size of a farm in Ghana is about 1.6 hectares, amounting to about the size of four football fields (*Food and Agriculture Organization for the United States*). This land is widely used for growing cocoa, rice, cassava, peanuts, corn, shea nuts, and bananas (“Ghana”).

Remarkably, most of the food consumed in Ghana is plant-based. Many Ghanaian meals contain stews and other staple foods (*Food in Every Country*). The people of Northern Ghana consume mostly millet, yams, and corn. In the Southern and Western parts of Ghana, the people eat plantains, cassava, and coco yams (*Food in Every Country*). Rice is used as a staple food throughout the entire country (*Food in Every Country*). Many families grow their own foods and turn to other options for foods they are unable to grow. If a family can afford it, they buy their food from open-aired supermarkets (Meng). If a Ghanaian family does not have the funds to purchase food, they have access to food banks (Genkin).

Water scarcity not only affects those who farm in Ghana, but also families with everyday household tasks. The average size of a family in Ghana is 4.5 people (*ArcGis*). Rita Agyei says, compared to other African countries, this size is fairly average for a family. Two types of houses in Ghana include traditional and modern housing. (Agyei). Traditional houses are constructed of mud, thatch, and grass, making them more durable than modern houses (Agyei). The more modern houses are composed of single rooms and single rooms self-contained (Agyei). According to Rita Agyei, single room self-contained is the local term for a studio apartment. These types of houses share bathroom and kitchen facilities (Agyei).

Occupations that Ghanaians hold are by no means a walk in the park. Their jobs are found to be quite laborious. For example, many Ghanaians make a living by hauling items around, such as propane bottles (“Some Typical Jobs in Ghana”). They also manufacture cement blocks, work in tailor and fitting shops, and do service jobs, like being a waiter (“Some Typical Jobs in Ghana”). The average salary for an employed person in Ghana is about 4,906 GHS a month, which comes out to be around \$869.12 in the United States (“Average Salary in Ghana”). The biggest contribution to unemployment in any country is the inadequate availability of means of production, meaning that there aren’t enough available jobs to fulfill the amount of people needing them. The fifty plus population is most affected by this because they often have health issues and can no longer work to afford three square meals a day (Genkin).

Ghana has made many expenses more affordable for everyone. Unlike numerous other countries, schooling is free for everyone in Ghana (Kamran). Mehwish Kamran states, “Healthcare is more accessible in urban areas, rather than rural.” However, paying for healthcare expenses is much easier for Ghanaians now, because they can pay later instead of upfront (Kamran).

Ghana is not only without water, but the country also lacks access to appropriate sanitation. Almost 18% of the population relies on surface water to meet their daily needs (“Ghana’s Water and Sanitation Crisis”). The effects of drinking surface water can range from gastrointestinal illnesses to cancer (“Report on the Environment”). For this reason, it is very unsafe for the people who must consume this water to meet their daily needs. Furthermore, 81% of Ghanaians lack access to toilet facilities (“Ghana’s Water and Sanitation Crisis”).

Water scarcity is due to erratic rainfalls which have reduced access to water and pasture, affected the supply of agricultural produce, and polluted irrigated farmlands with waste water (“Food, Water, Sanitation, and Housing in Refugee Camps”). The issue in Ghana has become so severe that 18% of the population relies on surface water (“Ghana’s Water and Sanitation Crisis”). Putting this number into a better perspective, this would be equal to the whole city of Los Angeles without water. Ghana is

becoming very urbanized, which is pushing access to water and sanitation in these urban areas (“Water”). Where there is an influx in populations, there is an excess amount of waste being produced. For this reason, urbanization in Ghana is creating large amounts of waste water that is being mixed in with agricultural irrigation systems (Lewis). Rural areas are still struggling with having well pumps that they have not been given the proper training to maintain (*Safe Water Network*).

Many grants and donations have been given to Ghana to improve the lifestyle of the people who live there. The World Food Bank provided Ghana with 85.7 million dollars to be used for improving secondary education and sustainable rural water projects (“Ghana’s Water and Sanitation Crisis”). With the Feed the Future grant, more communities have access to dry season irrigation systems (Peace Corps).

In many and various ways, this water crisis affects men and women differently. Women cannot live up to their full potential without running water because they have the responsibility of retrieving water for the household (“Ghana’s Water and Sanitation Crisis”). Getting enough water a day is critical in maintaining the body’s everyday functions. Furthermore, a full-grown man should be drinking about 14 cups a day, while the men in Ghana are only receiving about 5 to 6 cups (Doegah).

Lack of water can also have a huge impact on academic performance in students. According to Lori Lewis, students are forced to deal with stomach pains and diarrhea from unsanitary water and hunger, and many are forced to leave school to fetch water for their family. Moreover, elderly people are more likely to get cholera, diarrhea, dysentery, hepatitis A, typhoid, and polio from contaminated water. People in refugee camps are largely affected by this water crisis, with only 43% of the people having access to water less than 200 meters away (“Food, Water, Sanitation, and Housing in Refugee Camps”).

With agricultural products being some of the most valued exports in Ghana, farmers are in dire need of a more sustainable irrigation method. There are two solutions that have come to mind for this ongoing water scarcity issue. They go hand in hand to make water a more sustainable resource in Northern Ghana. For the first solution, there will be large storage containers installed. They will almost resemble silos used for storing crops. These containers will be located where they are central to several small communities in an area. During the wet season, the containers will be used to catch and store water for use during the dry season. This extra storage of water can be used for cooking food in households and for agricultural needs. The only costs for this solution would be the storage containers themselves. Solar panels will also need to be purchased and placed on the outside of the containers. The solar panels will collect sunlight, and then will use the solar energy to sanitize the water cost-free.

The second solution is to implement the “sack solution” in Northern Ghana (Adie). This method has been used by farmers in the past, with the outcomes all proving to be good. What makes this method so versatile is its availability to be used in urban and rural areas. The way that this method of farming works is that farmers keep old feed sacks (Adie). Then, after they have filled the sacks with soil, they plant their crops in them. The benefits this method provides farmers with during the dry season makes it worth implementing in more areas. One benefit of using this method is that it saves water during the dry season by allowing the plant to absorb the water before it evaporates (Adie). Before, farmers would continually be re-watering their crops because the water would evaporate off the plants (Adie). Studies have shown

that the “sack solution” has provided farmers with better yields than in years past (Adie). The greatest benefit to incorporating this method into farming is that it is completely cost-free.

This course of action could be used in other areas of Ghana, but would be most useful in Northern Ghana, which receives the least rainfall. The World Food Bank has been involved with many of Ghana’s water projects in the past. For this reason, they would be the best fit for carrying out and managing this particular solution. The World Food Bank has found that transformational change in smallholder farmer’s lives can be found by focusing on four key enablers: 1) improved markets, 2) education on good agricultural practices, 3) access to high quality inputs, 4) access to affordable financing. (“Agricultural Market Development”). Although these solutions are cost-free in the long run, there is still an expense with the installation of the water storage bins. A way to fund this project would be to apply for the African Water Facility Grant (“Grants for Water Projects in Ghana”). They provide the technical and financial support in implementing projects similar to this (“Grants for Water Projects in Ghana”). Water.org has been working with the World Food Bank and other key players, to influence public policy and regulations in Ghana to unlock financing for water and sanitation services for people in need (“Ghana’s Water and Sanitation Crisis”). People are encouraged to make donations in support of organizations like the World Food Bank and Water.org, to provide them with the tools necessary to make a difference in struggling areas of the world.

One thing to be considered while carrying out this plan is that Ghanaians don’t trust outsiders until they get to know the person and their motives (“Cultural Information”). To be considerate of their feelings toward outsiders, the people that will be setting up these bins and demonstrating the “sack solution,” should communicate with the Ghanians and let them know they are there to help. The water storage containers would ensure that locals always have clean water to use for cooking, farming, and cleaning themselves. Children in school would no longer experience stomach pains from the unsanitary water, which will increase their focus in school. The sack solution will also free up farmers’ time because they will not be re-watering their crops as frequently.

For this project to be successful, it will require the participation of the communities where it is being implemented. If these people continually use these methods and share them with other neighboring communities, not only will the success rate rise greatly for agricultural yields, but also the quality of life for Ghanaians will be improved. The government also plays a large role in maintaining this method by helping with the infrastructure of the plan. Laying a foundation of rules can help ensure that the water bins are being used for their intended use of farming and cooking needs. This solution can only be sustainable if the community and government work together to keep teaching other area farmers the “sack solution,” and making sure the bins keep their intended uses.

Compared to other alternatives, these solutions are the most affordable and sustainable options. The government could install pipelines that transfer water from Southern Ghana to Northern Ghana, but the cost and labor would be very exorbitant. The distance from Southern to Northern Ghana would also be quite far to install water pipelines. There is disparity in water traveling through a city to a house, and water traveling thousands of miles to a small town by pipes.

The climate is not going to change anytime soon in Ghana. The people cannot control when it will rain to fulfill their agricultural needs. For this very reason, it is essential for the “sack solution” along with the water storage containers; to be implemented in more areas throughout Northern Ghana. Without these newfound techniques, farmers will be unable to maintain their livelihood.

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