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Water Scarcity

## **Uganda: Water Crisis**

Uganda is located in Eastern Africa and has a population of approximately 44.27 million people. 16.44% of the country is urban, leaving 83.56% as rural (Trading Economics, n.d.). Uganda is a presidential republic where the president is head of the government and also the state. (State House, n.d.). Currently, only 35% of the land is being cultivated, even though 80% is arable. The main crops and exports of Uganda include corn, beans, millet, plantains, cassava, sweet potatoes, coffee, cotton, tea, and tobacco (Country Studies, n.d.). The farm size in Uganda averages to around 2.5 hectares, which can be compared as only 3% in large-scale agriculture (Future Pump, 2019). Uganda is considered a warm tropical climate and has temperatures that vary between 77-84 degrees Fahrenheit. Uganda is mainly a plateau and consists mainly of rolling hills and low mountains (World Travel Guide, n.d.).

The typical family size in Uganda usually ranges from 4 to 5 members and most families live in a detached house or rented huts. Many people from Uganda, especially in the rural areas, live in small villages which consist of houses that are made of mud and either a thatched-grass or corrugated iron roofs. These houses are quite compact as most of them are under a couple hundred square feet (Children of the Nations, n.d.). Throughout the day many Ugandans have a diet which mainly consists of plantains, starchy roots such as sweet potatoes, and some cereals like maize or millet (Nutrition Country Profiles, n.d.). The families in Uganda obtain their food by growing it, and the meals are usually prepared by women and girls by cooking the food on an open fire and using wood for fuel. However, many families only consume 2 meals a day (Peace Corps, n.d.). There are multiple different types of jobs that the Ugandan people pursue. However, about 73% of the population is employed in the Agricultural sectors which makes most of them farmers, ag consultants, and more. In addition, the average median wage of someone who works in Uganda is 3,905,133 UGX per month, when this is translated into United States money it comes out as only \$1,063.59 which is not very much (Salary Explorer, n.d.). The majority of Ugandan families have access to education, yet the school system is not very effective. Despite the access that most families have to schooling, nearly one in five children in Uganda go uneducated because they had to abandon their education in order to help pay for their family expenses. The health care in Uganda is not accessible and many, especially in Northern Uganda, have to travel long distances to receive some medical care (Every Culture, n.d.). More than 23 million people in Uganda still do not have clean water, and on average eight in ten Ugandans do not have a clean toilet accessible to them (Water Aid, n.d.). Furthermore, only 26.7% of the population in Uganda was reported to have electricity in 2016 (Trading

Economics, n.d.). Despite this though, tons of people in Uganda have 2 or more cellphones because it can be very tricky to reach them so they give whoever they want to contact multiple numbers in hopes that one will be able to get a hold of them (The Durango Herald, 2013). Uganda's roads are the poorest in all of East Africa, which is very detrimental to the country because it is restricting the amount of growth, regional trade, and development that Uganda can sustain. These bumpy roads cause a lot of problems in Uganda including trouble getting health care to citizens, difficult travel, less job opportunities, and more. Also because of the state that the roads are in many people that live in rural areas in Uganda do not have access to local markets, and whenever they do go to a market it is a struggle (Development and Cooperation, n.d.). Poverty, lack of infrastructure, and ill-suited personnel are the major barriers to the health of children in Uganda. The countries' northeastern region is very arid and is the most affected by malnutrition because the land is too dry to produce an adequate amount of food. Because of this they are more likely to experience more food shortage issues in their country (Humaniam, n.d.).

Water scarcity is something Uganda heavily struggles with this and currently ranked number one for the world's worst drinking water. The available water resources cannot meet the demands of this country and is a very serious topic. About 51% of the Ugandan population does not have access to clean water. This status nearly triples the global average (Water.org, n.d.). Without clean water the people of Uganda are stuck in a cycle of poverty and are unable to live a healthy lifestyle. The trends of this crisis are worsening because the water in Uganda is unequally distributed throughout the country and is being increasingly exploited (DROP4DROP, 2017). Many factors contribute to the contamination of the Ugandan water supply, but the main factor is runoff. Whenever there is rainfall the water collects in the nearest lakes and rivers that the Ugandans use as their water sources. Along the way this water collects many harmful additives such as many different kinds of filth, feces, oil spills, pesticides from agricultural fields, and heavy metals like zinc and lead. All of these substances end up contaminating the water and make it unsafe for the citizens to drink without getting sick (Circle of Blue, 2011). In Uganda, Northern Uganda struggles the most with the water crisis and getting clean water. The majority of people who are affected by the lack of water are the rural areas because they have to travel for 30 minutes, an hour, or even more to get their water, which can end up being a three or four mile trip. This causes the rural population to have it harder than the urban population which already has a more reliable water source. This topic impacts mainly the women and children in Uganda because they are the ones who have to walk many miles several times a day to fetch water from a dirt source in order to have one of the main necessities for their families at home (DROP4DROP, 2017).

Thankfully there are some organizations that are working towards helping the Ugandan people throughout this ongoing water crisis. One of them is water.org, which is an organization that helps provide families in Uganda with rain water storage tanks. These tanks are a great solution because they provide multiple families with clean water that is collected whenever it rains and

can last them for a couple months. Plus the rain water storage tanks are literally right next to the family's house so it eliminates the travel almost completely, unless the tank is shared between multiple families or groups. Also water.org has many partners which are implementing WaterCredit which is when the bank allows people to take out loans for the rain water storage tanks so that they can be able to afford it (Water.org, n.d.). However, many people still do not want to invest in these tanks because it is simply too much money for them to spend while living on such a low income. They would rather save their paychecks for other expenses in their life than paying for clean water when they have been drinking the contaminated water all their lives. There is not much this organization can do to help this though because they have to make some money to keep producing the tanks so they cannot just give away the tanks which leaves them with families that they are not able to support. One approach that could lower the cost of the rain water storage tanks would be for the government to offer a tax credit. This could help out the Ugandans tremendously because if someone in Uganda purchased a tank, the cost of the tank would be reduced from their taxes. This is smart because more people would be interested in buying a tank and it would provide many more Ugandans with a source of clean water. On the downside, involving the government can add some additional barriers and regulations to the process. The government may deny providing a tax credit on this project in fear of reduced tax revenue.

Another solution that has been implemented in Uganda to try and help out the Water Project. This organization is working to build wells all around Uganda. Uganda has almost perfect conditions for digging wells, which allows the Water Project teams to dig close to all the wells by hand. The wells depth ranges from 50 to 100 feet and they reinforce the walls throughout the entire process. This may take longer but it makes the wells more efficient and last for a longer time. After finding an adequate amount of water for the wells they cap it off and add a hand pump for easy use. The Water Project teams then teach local communities how to operate and take care of the wells. This organization even takes time to gather an audience and teach them important things about sanitation and hygiene through skits, songs, comedy, and drama which is very important because with a lack of water unfortunately also comes with a lack of cleanliness. Most of the citizens they teach have not learned about these lessons that many people in other countries have known since they were little, which makes it very helpful so that they can start making a change in their lifestyle. (The Water Project) This organization provides a great solution and helps lots of Ugandans obtain clean water and adds the bonus of teaching them valuable information. There is a weakness to this solution though. Even though the teams are constantly working to build wells, the process simply does not go fast enough so overall doesn't have a huge impact. With their process to be efficient they are not able to get to tons of communities, but are helpful to the ones that they do reach. Also with a well travel is not completely eliminated for some. Depending on where you live, you would still have to travel to the well and haul the water you collect back to your home. For some this could be a shorter trip than normal, so it all depends on the citizens and their different lifestyles.

These solutions would provide a cleaner and a more reliable resource for the population of

Uganda to use, but they will need more options to purify their water. Many families have very different life styles in Uganda so two solutions might not be helpful to everyone and suit their day to day way of life. Another solution to the Ugandan water crisis that would help get rid of diseases in the water is using powdered chlorine. Chlorine powder could be a beneficial option to many Ugandan. Many researchers have found that by adding chlorine to water, it kills the germs and can effectively disinfect drinking water (Centers for Disease Control and Prevention, 2015). Chlorine can be harmful to humans in high dosages, but when they are mixed with the water the chemicals spread out and the water dilutes the toxicity of the chlorine and lowers the levels of chemicals which makes the water safe to drink while fighting off the water-borne diseases. For this solution to work a chemical company that already produces the chlorine powder, or sodium hypochlorite solution, should be consulted about the issue in Uganda and influenced to partner up with a group that is already doing work to help the water issues going on there. With this partnership, the company would make a private arm to the organization that is helping Uganda and should give them the chlorine as a donation or at a very reduced price. One possible example of this could be that the chemical company BASF, Baden Aniline and Soda Factory, partners up with the drop4drop organization and provides them with the chlorine. Since the company already produces this solution they would not have to create something new just for this project. If this solution was to take place it would work very effectively because the drop4drop organization is always working in Uganda and in their work they do presentations to the Ugandans to teach them about the proper sanitation and the necessity of having clean water. In addition to doing this they could explain how to use the chlorine powder as another option to purify their water and teach them how it works. The drop4drop organization should give out a certain amount of chlorine to each family that attends their discussion, depending on the family the amount could vary but this would have to be decided by the organization. This way each family will have some of the chlorine solution accessible in their homes if they could not use another source to purify their water.

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