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Somalia, Water Scarcity

Somalia: How Water Scarcity Leads to Food Insecurity

"In Somalia 7.1 million people face acute food insecurity," states the World Food Programme. Somalia is an African country along the Indian Ocean that consists of almost 250,000 square miles ("Land and Climate"). Families typically include parents and five to ten children ("Somali Cultural Guide" p.4). These Somalian's face many challenges, including water scarcity that has negatively affected the whole population. Somalia's lack of water for humans, livestock, and crops has destroyed their economy. Somalia's water scarcity is not unfixable, and with the right solutions, it can be improved tremendously. I recommend using reverse osmosis purifiers on ocean water. Severe food poverty in Somalia is the outcome of their water scarcity.

Somali families are faithful to working as one for their country. With 46% being urban and 54% being rural, the population of Somalia is 12,094,640 ("Population"). They are run by a Parliament Republic. To choose the president, there is a 275 seat House of People and 54 seat Upperhouse ("Government" p.1). The climate is arid and semi-arid with grazing land, bush land, mountains, and a plateau ("Land and Climate" p.1-2). Even though there is almost 250,000 square miles of land, only 1.6% of it is cultivated ("Somalia-Agriculture" p.1). The main crops grown on the small farms of about 19.8 acres are bananas, maize, and sorghum ("Somalia-Economy" p.1). For families to make income, they export goods. Their exports are 40% livestock and 50% bananas ("Somalia-Economy" p.1). Families usually live in huts of mud and tree branches in the rural farm areas. In urban areas they live in homes of cinder blocks and cement floors ("Housing" p.1-5). Their diets consist of imported rice, meat from local markets, bananas, corn, milk, and mangos ("Diet" p.1). Women are in charge of the household tasks and they are in charge of running small businesses and local markets. Men run the farms in rural areas and are in charge of all public services and businesses in urban areas ("Family" p.5-6). The yearly salary is only about $5,470 ("Average Salary in Somalia" p.1). In Somalia, basic needs are not met, especially in rural areas. Very few children in rural areas attend school and get a proper education. Even if there is access to schooling, many families still choose to not have their children attend school ("Education" p.1-3). Healthcare is not accessible or affordable for most rural Somali people, but in urban areas there is healthcare ("Health" p.1). Urban areas also have roads, running water, and electricity. However, in rural area they have dirt paths, no easy access to drinking water, and no electricity ("Transportation and Communications" p.1-2). With little healthcare and a scarcity of clean drinking water, diseases like malaria, tuberculosis, and cholera are common ("Health" p.1). The lives of families in Somalia are harsh.

Water scarcity is a problem all around the world. Water scarcity is "insufficient freshwater resources to meet the human and environmental demands in a given area" ("Water Scarcity" p.1). There are many reasons for water scarcity, but the main reasons for water scarcity are climate change, over-population, water waste, and conflict ("Water Scarcity" p.1). Water scarcity happens all over, though, the majority of water scarce areas are in the Middle East and North Africa ("Finding the Balance" p.1). Water scarcity did not begin in a certain time period; water scarcity will continue to become a bigger problem, until changes are made. Somalia has been immensely impacted by water scarcity. Drought is a key leader to water scarcity, and Somalia is in its worst drought in 40 years ("Somalia: Likelihood of Famine Will Increase by an Estimated 25 Percent if Displaced People Don't Get The Help They Need" p.1). Currently, there are 8.3 million Somali at risk and the number is rapidly growing ("Somalia Situation Report 2022" p.1). The environment has been affected negatively. It has caused everything to dry up, so crops are not able to grow and livestock has less to feed on. This leads to the livestock dying. Without livestock less exports

can be made and rural farmers lose money. In urban areas, rural people are fleeing there to try and get out of their bad environment. Specific groups of people like pregnant women, the elderly, and children are affected the most by the drought. Children in Somalia drink unsafe water and end up dying from diseases that are in the water. For that reason, the under-five mortality rate is 112 deaths per 1,000 live births ("Key Demographic Indicators"). Water scarcity in Somalia causes many issues for all aspects of life.

There are numerous ways to decrease the problem of water scarcity in Somalia. One of which is reverse osmosis purifiers. Reverse osmosis works by the salt water getting pushed through micron sized pores, in order to separate salt, metals, and microorganisms from the new clean water ("Large Reverse Osmosis System RO-600" p.6). Somalia is a coastal country, so water purifiers could pump in salt water from the Indian Ocean through the machines to turn it into fresh water for humans, livestock, and crop lands. There are many positives of this solutions. Reverse osmosis purifiers last forever if taken care of properly, as the only part that would need to be replaced on the purifier is the membrane filter every 2 years ("Reverse Osmosis Frequently Asked Questions" p.10). Also, large systems of reverse osmosis purifiers can purify a great deal of water every day. A SWI can purify almost 700,000 gallons per day ("Seawater Systems"). Although the positives are great, there are negatives of reverse osmosis. Most notably, the purifiers would be incredibly expensive and Somalia would need many purifiers to change the water situation all over the country. Reverse osmosis purifiers could cost up to $24,000 per community ("Water Filtration Systems for Developing Countries"). Another negative is that this solution only helps the people near the coast of the ocean. The purifiers are near the ocean, so the clean water would be there too. Using reverse osmosis to help solve water scarcity in Somalia has many positives and negatives.

A second solution to help solve water scarcity in Somalia is placing large barrels and tubs around. The barrels could be placed on houses, in village centers, and around the farm land. This will result in the tubs filling up when it does rain. The water collected in these tubs could be used as water for human usage or watering the livestock, whereas the rain would normally be mostly wasted. This technique was used in Mexico City in 2009 and was successful ("How Capturing Rain Could Save Mexico City" p.4-6). The first of many positives is that it can help people all over Somalia because people can place the barrels where ever they need. The distance people travel to find clean water could become very convenient. The barrels can be placed around farms for the livestock to drink, so the livestock will not die of dehydration and the export numbers will rise. Another positive of this is that it does not need constant monitoring and is a solution Somali can run for themselves. If it does not need monitoring and constant aid, the likeliness of people to help with increase because it would be easy to. Regardless, there are negatives of this. The most obvious of the downfalls is that the barrels are only helpful for a period of time after it rains. Somalia does not get rain all year and it is clumped into one month, so this is not an all year solution. Also, there would need to be people to go to Somalia to set these barrels up and money to ship the large barrels to Somalia, which would be expensive. There are positives and negatives to placing large barrels for human and livestock use.

The final solution to improve Somalia's water scarcity problem is digging contour trenches in farmland. Digging contour trenches throughout the cultivated land would have have one main benefit. Doing this would increase the amount of crops grown, because the soil would be richer than it was before. The trenches allow water to stay and the water would soak into the soil. Increasing the amount of crops would lead to more food for the rural people of Somalia. Also, this is the most cost efficient and simplest solution because digging the trenches could be done by the people on the farm. The only cost would be the equipment to dig and most farmers already own equipment. However, there are negatives to farmland contour trenches. Digging the trenches, even just on small farms, and keeping up with the trenches would be hard work and it would consume a lot of time and labor. Also, this solution would not directly help the people of Somalia like the other solutions do. Trenches help the crops, but do not give the people clean water for personal use. A similar solution was used in the Vietnamese district of Ninh Phuoc in 2007 and 2008. The communities vegetation growth increased dramatically ("Outward Appearance or Inward

Significance? On Experts' Perspectives When Studying and Solving Water Scarcity" p.11). Digging contour trenches to help fix water scarcity in Somalia comes with positives and negatives.

All three solutions would help the water scarcity in Somalia and lead to less food poverty, but I believe one in particular is the most beneficial. I recommend using the first solution, large reverse osmosis salt water purifiers. This solution will help all the reasons Somalia is hurt by the drought, even though it would be the most expensive. Using this approach will help Somalia's economy, because they could export livestock. The livestock can drink the purified water their owners give them because it will be consistently given to them at all times of the year. Once the economy is improved, people will start making more money and be able to buy food. The biggest issue with this solution is that it would only help people along the coast, but there is a way to fix this problem. To get the clean and purified water to the whole country, trucks could take loads of water farther inward. Also, trucking would create jobs for people. Funding the large reverse osmosis water purifiers would be very expensive, though many people could help in different ways. The government could help fund transportation, the trucks that carry and deliver water all over the country. Organizations like World Food Programme could promote and be in control of the water purifiers. One way, especially in recent years, to promote the devastating issue in Somalia to the rest of the world would be through social media. Anyone could donate after seeing it on social media, which would lead to more money to buy the purifiers. If the World Food Programme could replace the filters every two years and check up on how everything was running periodically, it would be sustainable and maintained. But, the most reasonable solution to funding the high costs of the reverse osmosis water purifiers would be a combination. The whole goal is for Somalia to become self-sufficient and independent over time. Somalia could ask for a loan from another country and later pay back. They would have the money to pay the country back after being able to grow and sell crops and livestock with the addition of the new purifiers. In addition to a loan, there are "solar powered water pumps" ("Water Filtration Systems for Developing Countries"). Somalia is in the desert and has high amounts of sunshine all year long. Solar power could help with the costs of running the purifiers all along the coast.

In conclusion, servere food poverty in Somalia is the outcome of their water scarcity. The water scarcity affects Somalia in many different ways. The affects include little clean water for human usage, a small crop supply, and less livestock to export. Food poverty is then caused by the economically poor country. However, Somalia can be helped in numerous ways. Specifically, by running reverse osmosis salt water purifiers to produce large amounts of usable water. If Somalia does not get sufficient help, the rising number of food insecure people will continue to grow.

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