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### **World Food Prize: Water Scarcity in Malawi**

Water scarcity is an increasing problem around many parts of the world. It is usually most common in third world countries that don't have easy access to fresh water. In some countries there is just not water to be accessed. Some countries have many fresh water sources, but have no easy way to gain access to the water, making the water scarce to the people that live there. Water scarcity can be a problem in some countries because of climate. An example would be little rainfall or hot temperatures. When we think of conserving water we don't think of what some people have to do just to be able to get a little water. Most of us simply turn on a faucet and water is instantly available to us. In Malawi, it is unfortunately, not that simple. Malawi is a landlocked country located in Africa, and has some large cities, but 85% of the population lives in rural areas. Malawi is very agricultural growing crops such as tobacco, sugar cane, corn, and potatoes. With so many crops needed to be grown if water is scarce it causes a problem.

Malawi is mostly an agricultural country. Families in rural areas and even most urban areas have their own plot of corn for food and to feed any livestock they may have. A family's house is usually made of sticks and mud. Sometime the houses will be built very close to each other. The typical household has rooms for sleeping, a room for cooking, and a room for storage. Bathing is done outside, because houses in rural areas do not have pipes or any areas to bathe. Water is usually carried from far away lakes, rivers, or wells. It can be hard to carry just enough water to cook dinner, let alone water the crops the family may have like corn. Most of the water they gather is used for cooking and bathing. A family is usually somewhat large because it includes the parents, grandparents, and children. Farms are usually owned and used by the family that owns them. Farms can be large, but because of the lack of rain and water scarcity most families do not have enough water to support a large farm. The families stay together through generations to make sure the younger generations will take over the farm, or be able to do work to support the household. Arranged marriage is the typical way of marriage, especially in rural areas. English is widely spoken, but the language usually associated with Malawi is Chichewa. Education is free in some areas of Malawi. In Malawi most people today are literate, even though the literacy rate has fallen slightly. People from Malawi hardly attend college, and vocational training is also rare. Families are often very poor, 70% of families in Malawi are below the national poverty line. Most Malawi families are only food secure ten months out of a year, because 40% of Malawi families do not have enough money to buy the food they need. In the two months when there is very little food, it is because crops from the previous growing season have run out and because of weather there has not been any planted. Members of the family are often left with only being able to eat two small meals a day instead of three normal sized meals. The lack of food is so severe that one in every five children die before the age of five because they do not have enough food or proper nutrition.

Water is gathered using a kiosk. A kiosk is a very safe way of bringing water to places with many people, and even places that are not as crowded. A kiosk, in retrospect, is like a faucet or a sink in the kitchen. It has water available and the handle is turned to let the water run. A member of the family that gets the water usually carries it from the kiosk in a bucket back to the home. This can be a problem, because the amount of water needed may not be able to be gathered. Wells cannot be dug in crowded areas because of waste contaminating the water and because there is nowhere to build one in crowded areas. Not much water can usually be taken at one time, because there are so many people who need water. Rural communities have an even harder time getting water. There may not be a kiosk in a convenient location close to them, and a well will not always have water because it does not always rain.

When there is not enough water available it becomes increasingly difficult to water the many crops grown that a family may have. Which in turn can lower the income the family collects, because they do not have good enough crops to sell or even feed themselves. Not just having well enough crops, but there could even be the threat of not enough. Nutrition also becomes a major problem. Water is a key factor in good nutrition and having a healthy diet. With water not being always available, people will not have a good, healthy diet, and will become dehydrated. Water is used for cooking a lot. Without plenty of water the family cannot grow as many crops, weakening their diet in that way too.

Malawi is not in a severe danger zone for water scarcity, but it is at a high enough level to be watched. The water is not so scarce that the environment is suffering. It is at a level that affects mostly rural farm areas and small cities. The larger cities are not as in much danger, because they either have more pipes and running water. They also just have more access. Malawi has many lakes and rivers, but even so projections have been made that by the year 2025 the environment will suffer. Then water will be at a dangerous scarcity level.

The situation shows trends of worsening. Not by a significant amount as of yet, but within the next twenty years it will have a big impact on the country. The environment will suffer from little or no water, which will affect all families in the country. Water scarcity is often measured and based off the climate. Little rain or hot temperatures will bring the level of water scarcity even higher. Water scarcity is also measured by how much fresh water is available or contaminated. If water is contaminated it makes the available water level drop because contaminated or polluted water cannot be used by families to bathe, cook, or water crops. The measurements indicate the level of water decreasing. Malawi does not receive much rain throughout the year. As the average temperature gets higher, water will evaporate quicker. Which makes less usable water for people in Malawi. Along with higher temperatures and less rain, small sources of water, like a small water hole, could even dry up. This could be the only source of water for some families and their farms. As of right now the water situation is steady, but in the near future the situation is predicted to become much worse.

If the water scarcity in Malawi could be solved and no longer be a problem it would help the country in many ways. First, large families would have plenty of water to cook for their whole family and everyone could bathe. Secondly, their farms or small plots of land where they grow crops would not die due to little water. Families would then be able to grow larger farms because they would have enough water to support it. By having a larger farm, families growing the crops would have more to sell and would have a higher income. The more income per family that is had, the poverty rate by default would decrease because of more food available and more money being brought in by the family growing their crops. Families having more money to spend would result in Malawi's economy becoming stronger and richer. The quantity of food would not only be increasing but also the quality of the food. When crops have enough water they can grow much stronger and healthier. Value of crops would also increase because the quality would be better, which means people would spend more money, thus helping the economy.

There are other issues that also affect the status of water scarcity. One issue is climate change, which includes temperature and precipitation. Higher temperatures can result in ponds and lakes drying up and less rain. Lack of rainfall will affect lakes, rivers, and streams because they cannot be "refilled". With population growth there is less food to feed more people. Farms are typically only big enough to support the family who grows them. When there are more people in an area there is also a higher pollution rate. When there is more pollution it becomes difficult to dig more wells for fear of just collecting polluted water. Wells can only be dug in rural areas so contamination from the cities or a lot of people cannot affect it. Wells are dug deep into the ground, as are landfills near cities. Landfills and places to store trash wells cannot be dug in or near cities.

Rural farm families can help the water scarcity problem by finding ways to dig wells to collect more water for their crops and for cooking. Better farm practices could be learned and used to conserve water, and grow more crops. Families could also try to help other families out. If one family is in need of more water and one has more than enough they could trade somehow so they both could have thriving crops. Urban areas could help out by expanding the reach of the pipes from the city to further out in the rural community. Urban areas could also help by building irrigation systems from lakes or rivers to farms or more rural areas. Malawi has around 73% of available fresh water, but there is no access to it. If ways to access this water without ruining the environment were found and developed it would help the water scarcity level.

With 73% of water in Malawi being fresh and usable, all that is truly needed is ways to access the water. People in Malawi need more access to it and a way to keep it clean. If irrigation systems could be made to channel water from rivers or lakes to more populated areas, then families would have easier access to water. Irrigation systems could also lead directly to farms to water the crops. Families would then only need to go and get water for cooking and bathing. Families could also be taught better farm practices that would conserve water and to grow stronger crops. Farm practices such as, what crops grow better in what time of year, or even growing crops that do not require a lot of water could be taken into consideration. If farms could grow crops that do not require a lot of water it would conserve water in Malawi. Another farm practice that would be useful is cycling crops. For example, beans one year, corn the next, so the soil stays fertile. Because Malawi usually only grows corn, or maize, the soil is less and less fertile.

Water scarcity in Malawi could be helped and possibly solved with help from many organizations. Communities in Malawi could help by trying to lessen how much water they use in a day and also try to be more conservative. Research agencies could help by watching the severity of water scarcity so it doesn't get worse and see that it improves. For example if an irrigation system was going to be invested in and built, the United Nations could help Malawi build them. Organizations within Malawi could hire people to research and find solutions to the problem. Organizations within Malawi could also invest in any possible solutions. Irrigation and modern farming practices would be very efficient.

Water scarcity in Malawi is becoming a growing problem and in time will hurt families, urban and rural, and the environment. Once the environment suffers it will be hard for any life, animal or human, to live there. Many factors contribute to the problem, some unable to control. Climate such as rainfall and temperatures cannot be controlled. However, having 73% of fresh water available but unused because of access, could be a problem easily solved. Gaining more access to the water could be done, and finding ways to collect water better when it does rain. Other nations can help Malawi by researching and investing in ways to solve the water scarcity problem. Malawi is not the only country with a water scarcity problem and with help from other nations this problem can be solved all around the world.

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