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Maldives, Water Scarcity

Maldives Scarcity of Clean Water Using Water Filters

The Maldives are located in South Asia in the Indian Ocean. It is made up of around 26 atolls (a subsided island) and 1,000 coral islands, with the highest point on all of those islands and atolls being only 3.3 feet above sea level (The Maldives). The Maldives base most of their economy on tourism, but it is also a leading use of freshwater (Moosa). The Maldives are surrounded by water yet the locals are still parched for freshwater. The scarcity of potable water is due to factors such as population growth, unsustainable water extraction practices, pollution, and climate change-induced sea level rise. This major issue must be fixed soon or there will not be a homeland for the people of the Maldives to continue their culture.

Living in the Maldives has two very different lifestyles, rural and urban. The main city and capital of the Maldives is called Malé. This city is overpopulated for its size and overrun by tourists. Thus the reason most native Maldivians live in rural areas. Many people work in the fishing industry, but this is closely followed by mining and tourism. (Maldives Employment). While adults work, children attend school. In the Maldives primary school takes 7 years and children start at the age of 6. Then they attend secondary school which takes 3 years (Freeman).

Since more than half of the Maldivian culture lives in a rural location (GLAAS). The transportation of water costs families in rural areas lots of money, and a basic life necessity should not cost money. In the past ten years, the National Disasters Management Center in Malé had to send emergency shipments of water to about half of the 186 inhabited islands during the dry season, an expensive solution that sometimes can take up to two weeks to arrive (UN-Water Global Analysis). Also, according to Pacific Water, Maldivians depend mainly on rainwater for drinking and groundwater for most other domestic needs. Rainwater is tapped from roofs and collected and stored in various types of tanks. All the islands have some individual household barrels as well as community tanks. This shows their high desperation for rainwater. According to the Maldives Meteorological Service, the southern atolls, on average, receive about 87 inches of rainfall annually, while the annual rainfalls over central and northern atolls are 77 and 70 inches. In comparison, Central Minnesota receives on average, about 28-34 inches of rain in a year (MN DNR State Climatology Office). Even though the Maldives are receiving over 2 times the amount we do, they are forced to live off the amount they receive.

Lack of clean water is also causing diseases that are affecting the citizens of the Maldives. As a result of poor water security, many children and adolescents are exposed to waterborne diseases (Orion Australia). But, the Maldives healthcare is free, it covers everything from testing to ER visits (Cost of Living in the Maldives).

The Maldives is desperately facing a lack of clean water. And, climate change is at the forefront. Among the countless effects climate change is having on the Maldives, a few are the reduction of land size leading to minimal underground water, and less rainfall creating a longer dry season. This issue is most prominent in the northern islands, while the southern islands are receiving opposite effects from climate change such as flooding (UNDP Climate). Clean water scarcity is mostly affecting the people who live in rural areas. Rural areas depend mostly on rainwater collection for their water throughout the year. But for the highly populated areas, water is processed through desalination plants. This makes it extremely hard for those who live on far atolls from the main islands to receive emergency water when needed. Water transport can sometimes take up to two weeks to arrive by boat. Human safety can be at risk if the lack of

clean water is a true emergency. Also, the use of groundwater on the islands is not an option because they have not updated the septic systems since the tsunami in 2004, causing pollution into groundwater and making it unable to be used (Orłowska).

This situation is worsening as climate change progresses. “The regions where temperatures are rising and populations increasing . . . for instance, in South Asia, the average temperature is projected to rise four to six degrees Celsius in the next few years and it is the most populous region on earth” (Mastoor 6). This issue is fairly new, and it is not improving yet. Scientists believe that some of the Maldives atolls could be fully submerged by the mid-21st century. Climate change in the Maldives has had many effects on the environment. Some were mentioned before, they include and are not limited to, higher air temperatures, rising sea levels, flooding, and less availability of freshwater. Climate change is affecting the environment, but the current water desalination is too. To produce clean water, a desalination plant also produces waste called brine from the excess water. The brine contains copper, chlorine, and high levels of salts (Williams). This waste goes into the oceans causing oxygen levels to plummet. Overall, the Maldives are struggling to supply the people with clean water. Their current practices are not fully working or they are very harmful to the environment and ocean wildlife.

To help improve the issue of water scarcity, I propose two possible solutions to supply water to citizens. The first option for water scarcity in the Maldives is to supply all houses with larger water collection barrels. Some families collect only enough water to supply their personal needs. With my method of larger rain barrels, neighboring families can supply large families with extra water in times of drought. Some families do not have enough storage barrels, forcing them to let the rest of the rain overflow and be wasted. Back in 2010, only about 27.8% of all the rainwater was harvested for drinking, leaving the rest to waste (Moosa). There have been large improvements since then, but there is still more to be made. If we supply them with a greater source of storage, they can then last through the dry season easier than before. One issue that has arisen from the water barrel storage system is that the barrels contain bacteria inside.

The other solution to water scarcity is to supply all houses and living spaces with a water filter. They would be easy to use, and if supplied, they would be accessible to all. Many portable water filters are already being made in the United States for activities such as camping. Some are personal straw types and some have a bag attached to hold water that is then filtered called a gravity filtration system. Both would work, but I plan to use the gravity system because less would be needed to supply a large family.

The use of a gravity filter would be beneficial to treat the surface water that can be found after rainfall, the collected water that could contain debris. There are many advantages to using a gravity water filter system. Some included no electricity required, low maintenance cost, and effective filtration (USA Berkley Filters). As much as this type of filtration seems great, there are still some issues with it. Those include a slow filtration rate and a manual refilling tank, which doesn’t fully eliminate the water of bacteria and viruses. This is an issue that could cause further sickness, but using the filter to begin with will eliminate most bacteria. Also, due to the high use of fresh rainwater, the likelihood of bacterial and viral sickness is minimal.

An issue that arises when we try and implement these solutions is ways to pay for them. Since the water barrels and water filters are not free, funding is needed. I suggest applying for grants from nonprofits to offset costs. These grants should be able to offset most of the cost, and users would then only have to pay a small charge to cover the rest. From 2017-2023, the United Nations worked alongside the Green Climate Fund to add integrated water supply systems to rural atolls. (United Nations Development Programme). During the 6-year project, GCF donated over 23 million dollars. These improvements helped significantly, but people continue to struggle. Due to this issue still standing, The United Nations is at the center to help these people and is the best possible financial plan. The UN could partner up with

GCF once again but this time on a much smaller scale. Other possible donors could be the Global Environment Facility and the Global Water Partnership.

If these solutions were used, water scarcity would be minimal in the Maldives. With the use of water collection barrels, people would have water easily accessible. Applied with the use of filtration systems, the water would be much healthier to drink and use. Living in rural areas will no longer have to worry about water availability, or how much it would cost to transport emergency water. Water filters and larger barrels are two easy solutions to help these people live in peace knowing they will have drinkable water at all times.

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