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Bahrain, Factor 2, Water Scarcity

Water Scarcity heading to Bahrain?

Imagine being a country surrounded by water. Sounds like you would never have a problem with water scarcity issues right? Well for Bahrain there is a problem, or there could be. "An estimated 54% of Bahrain's water is sourced from groundwater resources with a further 35.6% from desalination and 9.7% from treated wastewater"(future direct.org). This place one of the most water stressed countries in the world; up to 30 per cent of the population could face water shortages by 2025. This warning comes into play when we are looking at huge potable water quantities and its misuse. Population is increasing due to low cost and lack of awareness among the users in Gulf countries. Limited, sporadic rainfall and high evapotranspiration shows this arid country. Most of the population uses groundwater as their source. The issue is that the groundwater is drying up and it can not replenish itself because of the over usage. Because so many people rely on this source of water it can cause major issues in the future. The World Resources Institute put up a list for "Ranking the World's Most Water Stressed Countries in 2040" (wri.org) and Bahrain is number one. This is a fact that ground waters and also spring waters are quickly being depleted and wells are drying up. The cost of overusing and treating water is increasing. The water around this island is an ocean so it is salt water. The only type of water really used are groundwater, desalinated water, and treated wastewater. The overuse of aquifers has caused a breakdown in groundwater quality in some parts of Bahrain. The amount of groundwater is decreasing and something needs to be done about it like decreasing their use and finding other ways to replenish it.

Almost every home using ground water causes the amount to decrease. If action is not taken in this country they could be out of water. Even though Bahrain only contributes 1% to Gross Domestic Product (GDP), agriculture is a traditional activity. There are almost 200 desert species growing here. Cultivated areas of the island have fruit trees, fodder crops, and vegetables. The kinds of food they eat is one, *machbous* which consists of rice with fish or meat. Then they have other foods that they have is *halwa* and this is a sweet, green dessert filled with spices and nuts.

Agriculture is a part of our world that uses a huge amount of water. Even though Bahrain only has 1% of their country contributing to agriculture, it still puts an impact on the water supply. Agriculture is also a part of daily lives. They all use it. Even though it's not a big farm, people use it for their daily lives. Bahrain is also a big city and need a lot of water to power some of their things.

If these things keep happening it can become a major problem. Most of the things the people do is incorporated with agriculture and you need water to do things like this. Without water not only can the crops die but the people will not have any water to drink. The people will suffer major consequences. The trends in this country are not improving, they continue to use up the groundwater. When there is no more groundwater left to use there will not be enough resources to live off of. At the moment the situation is not very severe.

Even though the situation is not severe does not mean that it will create an even bigger issue in the future. What will we do without the resources we have built up through the years? We need to make sure we

preserve them. In doing this we can make sure that we never lose grip of water supply. Water is the biggest part of our lives. If we lose that we lose everything. Keeping Bahrain safe from this issue is an important issue to focus on. They can not keep living under the impression that the water is okay, they need to start getting together ideas to make sure the country does not fail.

Improving this issue can help them out majorly. In the latter, the agriculture sector accounts for approximately 70 per cent of water withdrawals. Maybe the people in Bahrain could get more involved in agriculture. Instead of it being 1% of people involved in agriculture it can be more. More water can also help smallholder farms not have issue with dried out crops and they could grow more. There are other ways to preserve the environment or the farms. Having issues with the water can lead into more agricultural and health issues.

As population grows more and more people use Bahrain's groundwater and Aquifers. If more of the population begins to use these resources, the other resources being used might be hard to obtain. It is obvious that the trend for this factor is becoming worst and worst. Bahrain has experienced extremely high population growth over the last two decades, due to the discovery of their oil reserves and rising income levels. Growth of population and urbanisation trends have created considerable pressure on Bahrain's natural resource base. Water consumption is higher than any available food demand and natural water sources so far exceeds the production capacity of domestic agriculture. Projected population and income growth will make this problem worst between supply and demand and require the country to find alternative sources of food and water.

Resolving this could really save the people from having future issues in life. This could help build the groundwater backup. The families without water could suffer major consequences. Their well being could be in danger. The world's demand for water is likely to surge in the next few decades and this will cause them to run out of water faster.

Lack of water is detrimental to life. Some effects of not having good water is health issues. Some of issues are malaria and dehydration. According to environment 911 they say nearly 20% of deaths to children are because of water related issues. These people need to be provided with not just water, but clean water. A high rate of water consumption has led to too much use from Bahrain's aquifers. Bahrain is one of the world's most water stressed nations and its groundwater abstraction is unsustainable in the mid to long-term.

Research done by *Mohammed Saleh Al Ansari* on Bahrain's water demand found that abstraction of the Damman Aquifer has decreased as alternative sources are made available. Water withdrawals from the *Rus Umm Eradhuma Aquifer* have definitely increased in recent years. I had the idea to help by providing other ways to get water. What they could do is slowly go into the other resources to allow the water to come back to the way it was. As written in my previous paragraphs you can see that they can use treated wastewater and desalinated water. They do not have to use it forever but just enough time to allow the water to rebuild. If they do not attempt to do something about this there will be many issues.

The treated wastewater is a way to use treatments to reduce pollutants. Wastewater is used water. This comes from things like sinks, tubs, toilets, and washing machines. This is also connected to sewage treatment. They also include storm runoff. The issue with this is if the water is not treated properly

disease to rise. Now the desalinated water is where saltwater is turned into freshwater. This is still an early treatment for water. The sun supplies energy for this. These are two other ways to help save the water issue.

If we do not step into action, by 2030 this issue could get so bad that there will be not enough water for everyone. We could start treating salt water the and making it safe for the people to consume. Also we could teach them ways to treat wastewater. Using these ideas could help them have more time to have groundwater. Maybe they could create other ways to obtain water from their environment. There is an urgent need to stop abstraction and save groundwater resources. In order to achieve this, the country will need to expand the production of different water sources, especially the reuse of treated wastewater.

Due to the shortages in freshwater resources and the higher cost of the desalinated water, compared to other conventional water resources, many countries have built a large number of desalination plants, since the early Seventies. These facilities were constructed to bridge the gap between fresh water availability and drinking water demands. These desalination facilities consume huge amounts of fossil energy, mostly natural gas and fuel, and release enormous quantities of CO₂, which has adverse environmental impacts that might lead to an increase in the average temperature and a decrease in precipitation quantities. Rapidly growing populations will drive increased consumption by people, farms and companies. More people will move to cities, further straining supplies. An emerging middle class could clamor for more water-intensive food production and electricity generation.

Using different resources will be hard because it is not it's not clear where all that water will come from. Climate change is expected to make some areas drier and others wetter. The climate changes a lot causing there to be a switch of where we will receive our resources. There are many different techniques though. We can also use just all the resources we discussed because when it comes down to it we can not use rainwater if it does not rain.

If changing the way the water is distributed we could always use the ideas of ways to conserve water. Some examples of this is, turning off the water while brushing your teeth, Not taking very long shower, also they could not leave the water running the whole time while washing dishes. These are all effective ways of making sure the water is not wasted. Not only is this reducing their supply of water but it is also making their bill very costly when it comes to paying for water.

We could always rotate the sources of water through time. Each percent of the population could also just use the two sources. All we need is the water supply to increase. When we do something like this we can switch. When the groundwaters water supply increases we can slowly proceed to allow the people to use it. We just need to create a rotation so that we can easily allow the resources to rebuild. I believe these ideas will create a better tomorrow.

Creating new ideas from other people and the country's opinion might allow us to move forward. We need to improve this issue because the health issues and malnutrition issues will rise without the things that they need to survive. Water scarcity is not an issue we should ignore. These are people's lives that are at risk without water. Without the major nutrients many deaths could happen. Lets try to avoid these issues. Ideas from others will help us.

It is obvious that nothing is free in this world. If you think about it, not even the air we breathe is free. So definitely neither is water. Being able to change the way water is used will not be a simple task. This will also not be an instant fix. We will have to create these resources and distribute them. Another issue is getting the people to agree with our ideas. This will take a lot of time to resolve, but it can happen. Making sure we have plenty of water is crucial to our lifestyle and theirs. Not only will this impact humans but it will impact the animals and also the environment we all live in. Making a plan to help the water rebuild is just another step in helping the world be a safer and healthier place. I believe that we can do this and work together to make sure it all gets done.

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