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United Kingdom: No Rain Means Pain

Droughts are a rare phenomenon that is usually associated with arid regions. The United Kingdom has recently experienced droughts in the past few years, the United Kingdom is usually known for its temperate and rainy climates as it's not close to the equator, however, droughts have become a serious problem in the past few years. The occurrence of dry spells and water scarcity has become a growing concern for the country and these events challenge not only the country's water resources but also its ecosystems, agriculture, and overall resilience in the face of changing weather patterns. This article will delve into the dynamics and impacts of droughts in the United Kingdom, shedding light on a climate-related issue that has gotten worse in the United Kingdom. Solutions to the drought could be to start harvesting rainwater and drip irrigation.

In 1933 the United Kingdom experienced high temperatures of 40.3 degrees Celsius or 104.5 degrees Fahrenheit which are higher than the highest temperatures recorded to date. (British Red Cross, 2022). Then, in 2022, the United Kingdom experienced an extremely dry spring and winter which caused most of the soil to dry up to the point where it wasn't able to soak up all of the rainwater that had fallen in September (British Red Cross, 2022). Even with the high amounts of rainfall, the dryness of the soil limits the ability of the rainwater to soak into the ground.

The United Kingdom has an area size of 243,610 kilometers squared or 94,059 miles squared, of this land, 71% of it is cultivated which makes about 172,963.1 kilometers squared or 66781.89 miles squared of the United Kingdom's land cultivated (WorldData, 2022). The average farm size in the United Kingdom is about 250 acres compared to the United States average farm size of 445 acres. The farms are relatively small. On the farms, they grow plants like wheat, barley, rapeseed, sugar beets, and assortments of fruits and vegetables (UK.Gov, 2021). Those foods farmers grow are picked and sent to supermarkets and grocery stores where locals buy them for their families. The United Kingdom is an island continent and is also made up of part of Northern Ireland, not including Ireland and it is about 1091 kilometers or 678 miles away from the nearest country which is France. While it is an island continent it has a maritime temperate and moist climate. The United Kingdom is covered with rugged hills and low mountains, there is also level to rolling plains in the east and Southeast (WorldData, 2022). They are very dependent on their farms which is where most of their fresh grains come from which is what they need to survive or else they will need to depend on imports from other countries to survive.

A Constitutional Monarchy, The United Kingdom is run by a parliamentary system, which means that they are led by a Prime Minister who oversees the operation of the Civil Service and government agencies, they also appoint members of the government and there are principal government figures in the House of Commons. The Prime Minister is in charge of The Cabinet which is made up of 22 Cabinet ministers and 99 other ministers which is a total of 122 ministers in the Cabinet (UK Parliament, 2022). The United Kingdom also includes the King of England King Charles the Third. He was recently appointed the king after the passing of his mother Queen Elizabeth the Second. The government sets the tax prices, they are the ones who choose what they should spend the public money on, and they decide the

best way to deliver public services (UK.Gov, 2022). The people of the United Kingdom are dependent on their government who are the ones that make the final decisions on how to help the communities.

The total population is over 67 million. 17% of that population lives in rural areas and the remaining 83% live in urbanized areas (Statistics Rural, 2021). The typical family size is 2.4 people per household or around 2-3 people in each household (Global Data, 2021). The United Kingdom has detached, Semi-Detached, and terrace households. A detached house is when it's not joined together with another house. A Semi-detached house is a house that can house two families but is divided by a wall with the next house. Finally, a Terrace house is a house that is in a row with similar houses that are joined together by their side walls (Portable Wife, 2021). The families of the United Kingdom get their food and produce from local supermarkets, that are supplied by local farmers, and they cook the food on gas ovens and gas stoves. The average diet for British people consists of curry, fish, vegetables, and fruits which all can be bought at their local supermarkets (Allen Jae, 2021). The most common job there is a business analyst, which makes around 36,000 British pounds a year, about \$38384.44 (Aditi Sharma, 2022). More than 95% of families in the United Kingdom have access to clean drinking water, toilets, basic utilities, and local markets. Education costs around €11,400 - €38,000 for undergraduate tuition. Healthcare insurance costs around €12,200 or \$13,035 which makes it fairly affordable (British Council, 2022). The people depend on their farms and the droughts limit what they can get from their farms, it's not only the farms they depend on they also need fresh water, and with the droughts causing the rainwater to become runoff it damages the sanity of their water.

Since mid-2022, the United Kingdom has been undergoing a drought that has spread to more than 60% of the land or more than 146,166 kilometers squared of land. The drought started in the summer of 2022 and was caused by a dry winter in 2021 and then a dry spring in early 2022. The drought has not directly affected the population including the marginalized population. Still, the drought has not ended even though there has been a lot of rainfall in the past months. The rainfall is too heavy and comes down in great portions which the dry soil can't absorb causing the drought to continue. The drought has caused farmers to be required to use a limited amount of water leading to a decrease in crop yield. This all leads to farmers losing money and causing the citizens to have less locally grown produce to buy when shopping (Betsy Reed & British Red Cross, 2022).

The first solution to this problem would be to have citizens in the United Kingdom harvest rainwater. This solution is helpful because it has already provided rural and urban areas with water, and reduced the amount of runoff filled with pesticides from farms and other harmful chemicals from traveling throughout the land. Rainwater harvesting is also a great source of water for irrigation. A hesitation in harvesting rainwater is that there is unreliable rainfall which could leave the population with a low amount of water before the next rainfall. The water tanks that are used for storing rainwater also take up a lot of space which is bad because the water tank would likely be a permanent, stationary structure. The last setback would be that it costs a lot of money to install the harvesting systems which is undesirable considering the farmers already have a low income and installing a water harvesting system would cause them to stretch that dollar even further than they already are.

The second solution would be to have farmers use drip irrigation systems. Drip Irrigation systems prevent disease by minimizing water contact with the plants. This method of irrigation saves money, time, and water. It also decreases the amount of labor needed to water crops. Drip irrigation reduces the amount of leaching from the leaves of the plants because the water goes straight to the roots as well. However, this

system does come with challenges too. Drip irrigation has a high initial cost to set up the systems. The heat from the sun can affect the tubing system and cause it to warp. If the system is not installed properly there can be leaks and poor water filtration which is harmful to the plants. Finally, the systems require a lot of studying and tests to make sure everything runs smoothly regularly so the plants get all the water they need.

The third and final solution is to explore crop engineering potential within the United Kingdom. Crop engineering gives crops more nutrients and can make them grow faster. It can make the crops immune to harmful diseases and drought. It can also give them more desirable traits like having more wheat kernels on a head of wheat. Crop engineering challenges are that it can occasionally cause people to have allergic reactions and the plants could undergo unexpected and harmful genetic changes. Crop engineering can also cause new or worse diseases in the world, so scientists need to be cautious with this approach.

The best solution of the three would be large drip irrigation systems for their crops. This solution uses smaller amounts of water and it saves a lot of time and money for the farmers in the long run. It also prevents diseases in plants and makes them nutritious for those who eat them. This project would require support from the World Food Programme, the World Health Organization, and the Food and Drug Administration. These organizations would help this project by making sure the systems work properly and that the plants get the right amount of nutrients they need for human consumption. The project would be funded by the United Kingdom's government. Installing drip irrigation systems would require professional contractors to come to farms and install the drip irrigation systems properly and make sure they work properly. They would also need to winterize them seasonally to make sure the pipes don't burst during the winter. The government would need to increase taxes on citizens so that they can get the money they need to fund the project. This would be equal to the money farmers make due to the increase in crop yields to offset the taxes. The government would also need to make sure that the farmers can afford the project without going bankrupt due to the costs of the irrigation systems by providing grant and loan opportunities or tax write-offs for those looking to move towards sustainable farming practices for the country.

The drought in the United Kingdom is harsh, and while there are many ways to make sure the farmers aren't affected too greatly, these solutions come with their fair share of pros and cons. With the right amount of research, the effects could be leveled out to offer practical solutions to combat the issue. Overall the drought will soon come to an end so that people can go back to living their lives without worrying about the amount of water needed. With properly implemented solutions, farmers can continue to grow their crops with good irrigation to provide food for the country's population.

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