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Mongolia, Water Scarcity

Mongolia: The Increasing Concern of Water Scarcity in Mongolia

Water Scarcity is a growing concern in Mongolia, but this issue is occurring all over the world in many other countries. This issue is one of the recent effects of climate change. Many countries are majorly affected by this issue. These countries are currently facing water shortages and having difficulties accessing clean water. Mongolia was one of the countries that were bound to face water scarcity, the reason being because of the climate Mongolia already has. Mongolia has what is known as a continental climate where there are very hot and dry summers and very cold winters. This type of climate added with global warming has dried up the majority of the clean accessible water in Mongolia. This has led Mongolia to be considered landlocked, which means that Mongolia is surrounded with an arid landscape and there is little to no direct access to clean water for consumption or for agricultural purposes. This is a major issue for Mongolia as Mongolia heavily relies on their own agricultural practices but the growing concern of water scarcity will force Mongolia to depend on imports for food and their self-subsistence which would put a huge economic strain on this country. Mongolia is already a struggling country that relies on the raising of livestock and a practice of agriculture that is meant to sustain oneself and one's own family, now with water scarcity the people of Mongolia have a lot of meat in their diet with very few vegetables and fruits. Water scarcity will most likely have a major impact on the living conditions of the people and could potentially leave the Mongolian people to be forced to migrate to other countries for their own survival, better living conditions, and hope for new opportunities. This paper will analyze and cover the context of Mongolia, information about the living conditions of families in Mongolia, challenges Mongolia faces, the impact of water scarcity, and possible solutions and recommendations.

Mongolia has a population of an estimated 3.48 million people, which is a surprisingly low amount of people when compared to other countries around the world. Around 31 percent of Mongolia's population lives in rural areas, whereas the rest of the population lives in more urban areas. (Data Commons) The minority or the population that lives in rural areas most likely has experienced the detrimental effects of water scarcity and the desertification of their own arable land. The desertification of arable land is not only costly to farmers that rely on agriculture for self-subsistence but it also impacts farmers that produce crops and produce for profit which would also have an effect on the country's economy as a whole, this idea will be expanded on later throughout the paper. Mongolia has a semi-presidential government, which basically means that the government shares its legislative powers with a Prime Minister and other cabinets. This type of government is very common throughout the world but some countries like Mongolia practice this type of government. Mongolia also has a multi-party representative democracy which is a commonly practiced form of democracy as countries like America also have this system of democracy in place. (Britannica) Mongolia has a sufficient amount of land, but around only one percent of its own land is arable, meaning that Mongolia uses and cultivates crops on one percent of the total land they have. The low amount of arable land is another cause of the dry and majorly warm climate that Mongolia has, this has the potential to limit the amount of food the people of Mongolia have access to which could lead to food insecurity in the near future if this issue is not addressed. (Britannica) The

continental climate allows for only a few crops to grow which are corn, wheat, soybeans, rice, and various other types of vegetables that are capable of withstanding the hot and cold climate of Mongolia. Specifically, Mongolia grows corn, wheat, barley, and potatoes. This is an exponentially low amount of crops produced in Mongolia, which leads to many Mongolians sustaining themselves off a grain-based diet with little to no fresh produce in their diet. (fao.org) One thing that Mongolia specializes in is Nomadic Herding, which means the majority of the rural population of Mongolia graze their livestock on their own land or land around their own homes. Mongolian's diet mainly consists of meat and other dairy products, this is mainly due to the agricultural practices that occur in Mongolia, which is the grazing of animals for self-subsistence in rural areas while the raising of livestock in urban areas is mainly to export meat, dairy products, and other animal products. (United States Trade Representative) Mongolia heavily relies on imports for certain foods such as fresh produce, the amount of fresh produce or other crops imported vary on the season of Mongolia. The average farm size in Mongolia varies from what type of farming is being practiced. A majority of Mongolians either practice Nomadic Herding, commercial farming, or self-subsistence farming but according to data reports Nomadic Herder have access to 617 acres of land, while other farms that are directly for the cultivation of crops on average is around 10 acres of land. (World Bank) This data report is quite vital in understanding how serious the situation is in Mongolia, the more land Mongolia has access to means that people have access to adequate food for the community and the people. The real question is how has farm size been affected by water scarcity, it is obvious that water scarcity is a result of the dry climate and access to clean water. This most likely means that the majority of land farmers own are drying out and experiencing desertification as time goes on. A typical family in Mongolia will have on average three to four children. Culture has a big impact on family size, like many countries Mongolia used to have larger family sizes but as time went on more opportunities arose, education improved, and economies improved causing a smaller family size that can be seen in Mongolia. (ceicdata.com) A typical dwelling that is commonly found in Mongolia is a yurt, a yurt is a circular tent. They are reinforced with wooden structures, yurts have roofs, canvas and felt which surround the yurt to provide installation. The yurt is more of a dwelling that is commonly found in rural areas where the majority of Mongolian people practice nomadic lifestyles. The yurt is quite convenient for the people of Mongolia that live a nomadic lifestyle as they do not take as much effort and time to assemble and disassemble. The typical dwelling in Mongolia does vary from person to person as some factors of this is the location and lifestyle of the residents in Mongolia. For example, the population that lives in rural areas will typically live in a yurt while the population that lives in urban areas will commonly live in modern apartments or houses. (National Geographic) The typical diet for a family in Mongolia consists of a high amount of meat, dairy products, and a lot of animal byproducts with little amounts of vegetables and fruits. Mongolians' diet also includes a lot of bread, noodles, and rice as a popular staple grain grown in Mongolia is wheat. This diet is a direct result of farming practices, insufficient ability to cultivate certain crops, and the increasing concern of water scarcity. (Pullman) The Mongolian people cook there in a few different ways but the most common way Mongolian people cook their food is through boiling their food. This method of cooking food comes directly from culture, there isn't any relative issue that only allows Mongolian people to boil their food. The process of boiling food in Mongolia comes from preference and culture. (Song) The people of Mongolia share similar jobs in the workforce, some of these jobs include construction, mining, oil, and textile production. These jobs are quite labor intensive but these are the major industries that the majority of the Mongolian population take part in. The Mongolian people's average wage is surprisingly very low as the average wage is just \$15,000. The reason behind the low wage is mainly because the economy of Mongolia is not the best, the

unemployment rate is large, and lack of resources all play a role in the low wage Mongolian people make. (Trading Economics) In Mongolia the access to education is free for grades one through twelve. This makes it very affordable for many families to allow their children to gain access to an adequate education which can potentially leave them with many opportunities. A reason why education is free is because the majority of Mongolia does not have the infrastructure to pay for their children's education, especially those who practice a nomadic lifestyle. (Saiesha) Mongolia also provides access to free healthcare, allowing the people of Mongolia to have access to many resources without the limitations of money. (Thelwell) Only thirty percent of Mongolia's population has access to clean drinking and usable water. That is an unbelievably low amount as the majority of people that have access to clean water live in urban areas. This low percentage demonstrates how serious and concerning water scarcity is becoming in Mongolia. (MacroTrends) Half of the population of Mongolia does not have access to a toilet in their own home, this means they most likely have to travel to designated areas just to use the bathroom properly. This could be a result of the low access of water as toilets use an abundant amount of water in everyday life. (Brooks) Majority of the population has access to electricity, but a small percentage of Mongolia's population most likely does not have access to electricity because of their living conditions in rural areas. The people of Mongolia also have access to telephones and the internet to communicate with their community and even people outside of their country, lowering the distance decay in Mongolia. (WorldBank) The infrastructure of Mongolia gives access to transportation, Mongolia also has local markets that are accessible to the people of Mongolia. Mongolia's harsh climate, physical landscape, limited resources, and spread of diseases acts as a major barrier for the people of Mongolia to live a healthy lifestyle and also can hinder the accessibility of nutritious foods. (peacecorps.gov)

The present status and severity of water scarcity is still ongoing, water scarcity in Mongolia is projected to continuously worsen over the years and even possibly run out of water in 2030. This projection could be avoided only if Mongolia takes the necessary actions to limit water scarcity and increase the access of water. As conditions in Mongolia worsen and the climate continues to dry out the wetlands Mongolia will inevitably run out of access to water. (Bazarraghchaa) The warm climate plays a major role in the desertification of land as well the drainage of the wetlands in Mongolia which is why Mongolia is considered to be landlocked. Water scarcity affects the whole population of Mongolia but in particular it lessens the accessibility of fresh produce which increases Mongolia's dependence on imported foods. (WorldWildlifeFund) The topic of water scarcity affects the whole population the same, everyone experiences the effects of water scarcity which is the economic decline, inability to grow crops, and dehydration. This topic in particular affects the minority of the population which is the poor and the population that live in rural areas. The poor are unable to afford any kind of healthy water which usually makes them inclined to drink and use water that is unhealthy and considered dirty. The usage of unhealthy water for consumption can have various effects on one's health as well as their physical body. People that live in rural areas do not have access to clean water as well, without water they cannot raise livestock or cultivate crops. This could lead to people in rural areas to either pay high prices for water or even have to go out of their way just to find usable water which can potentially deplete their own resources. (iwmi.org) Water scarcity also has quite a huge impact on the physical landscape and the environment of Mongolia, the absence of water has a huge impact on ecosystems without the sufficient amount of water for native ecosystems they become dehydrated and ultimately die without the consumption of water. An impact on the ecosystem like this will cause a reduction in biodiversity and even force many species of animals out of their own native country to seek other areas with sufficient living conditions. (WorldWildlifeFund)

After heavy amounts of research on the causes, impacts, and challenges of water scarcity, it is very obvious how dire some solutions to water scarcity are for Mongolia. One type of solution is the development of water filtration systems; much water found in Mongolia is actually undrinkable and unfit for human consumption. Mongolia needs to implement large-scale filtration systems to ensure the well-being of their nation. Water filtration system goes through a process of filtering and removing harmful substances such as bacteria and metals. Many tap waters have different metals in their water systems like lead, chlorine, and even copper. The use of filtration systems can filter these metals and other bacteria so the use of tap water can become more healthy and sustainable. (budmatthews.com) As useful as this solution is, the implementation of large-scale filtration systems is quite expensive, these systems need to be maintained often also. This would be quite hard to implement in Mongolia as it is not anywhere near a wealthy country but with funds, big corporations management, and donations this solution has the potential to go a long way for Mongolia. (visserssales.com) Another solution that can be used to decrease water scarcity in Mongolia is the implementation of water reservoirs. The implementation of water reservoirs or artificial lakes created through the use of a dam can be quite effective in Mongolia. Water reservoirs allow for the reduction of damage floods can have, increases the flow of water, and allows for a greater access to fresh water. The use of water reservoirs also have the potential to create economic opportunities for Mongolia. (Naeringsliv) Water reservoirs are a great way of reducing water scarcity but as other solutions this would be a very costly operation, water reservoirs can possibly destroy habitats resulting in the decrease of biodiversity. This option might not be the greatest for Mongolia as the precipitation for Mongolia is quite low, but areas that have wetlands in Mongolia can allow water reservoirs to be effective. (prezi.com) One last recommendation for solutions to water scarcity is implementing water recycling plants. This can be very beneficial to the people but specifically for the farmers that cultivate and harvest crops. Water recycling plants in Mongolia would allow the creation of irrigation systems, agriculture, and can even allow for the practice of hydroponics. Water recycling plants would definitely increase agricultural productivity and even allow for more crops to be grown all over Mongolia. (lacs.org) Some of the cons that come with water recycling plants are that they are expensive, each solution costs a lot of money and an abundant amount of maintenance to keep these operations running. (sciencing.com) Majority of these solutions listed would meet all the needs for the people of Mongolia such as use of clean water for consumption, use for bathing, use to cultivate crops, and for many other purposes that would improve the living conditions for the people of Mongolia. The water recycling plant would be more for the improvement of agriculture and cannot be used for drinking and other purposes besides agriculture. Based on the different solutions recommended to solve this challenge, the best to recommend would be the development of filtration systems. The reason this solution is the best is because it is the most useful and needed in Mongolia's situation. Filtration systems would improve living conditions and can even be used to advance the agricultural practices in Mongolia. In order to make this solution there needs to be a plan of action. A plan that is highly recommended is to create funding systems for these solutions which would be from major corporations, supranational organizations, and donation systems. The United Nations would be the best choice to manage and lead this project, the reason being is that the United Nations was developed to promote better living standards for people throughout the world. The United Nations would address the situation Mongolia is facing and promote fundraising for Mongolia which is precisely why the United Nations would be the perfect choice to lead and manage this project. The World Bank and other non-profit organizations would be the main contributors to the funding of this project. The World Bank is considered to be one of the largest sources

of world funding, they particularly work with developing countries which makes the World Bank the best choice for funding. This project would definitely be very sustainable as in the near future people would have greater access to clean healthy water. Filtration systems would allow for tap water to be drinkable without any concerns for the well-being of people. This project would also allow for the residents of Mongolia to finally not have to worry about filtering their own tap water, filtering tap water on your own is definitely tedious and would take quite some time.

Overall, the development of water filtration systems would have a great impact on Mongolia and can decrease the continuous concern of water scarcity for the future of Mongolia. Filtration systems will bring an increased access of water to the entire population of Mongolia. Mongolia would see better days with the use of filtration systems as the potential for the increase of agricultural production can limit food insecurity and would allow Mongolia to undergo economic prosperity. Mongolia has the potential to put a stop to the reliance of the exports of food which would be greatly beneficial to the country. Filtration systems would improve the living conditions of Mongolians, make life easier, and more sustainable.

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