



GA4: Environmental Committee

Student Officer: Layan Taher

Issue: The correlation of population growth with chronic water poverty

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Committee: Environmental Committee (GA4)

Issue: The correlation of population growth with chronic water poverty

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I. Introduction

In several countries, the human population is continuing to grow as the world develops and people's standards of living improve. Over the past century, global human population has grown tremendously. Population growth can be correlated with many different factors including the gradual increase in average life expectancy due to widespread improvements in nutrition, public health, medicine and hygiene. The human population is projected at approximately 7.96 billion people, according to the World Population Clock. The world's population growth rate was 1.03% in 2021, whilst studies published by Statistic Times estimate that if population growth continues at this rate, the population will exceed 9 billion by 2037.

Although Earth is wide enough to encompass the whole human population, population growth significantly impacts the environment, economies and societies. Growing populations are often more vulnerable to conflicts as more people means an increased demand for water, food, housing, energy, healthcare and transportation. One of the main issues caused by the rapid growth of the world's population is water scarcity. The correlation of population growth with chronic water poverty is a severe issue, especially in countries in the MENA region that holds 6.3 % of the world's population but only contains 1.4% of the world's renewable fresh water (Roudi-Fahimi, Farzaneh). Water scarcity is not uncommon. In fact, more than two billion people live in countries where water supply is inadequate. Some may argue that water scarcity could be due to numerous factors such as damaged infrastructure, contamination, war, or poor management of water resources. However, the main two factors contributing to chronic water poverty are climate change, and population growth. In the MENA region, water scarcity is not only due to simply not having enough agriculture, but due to the overuse of the inadequate water, for example in agriculture.

Water poverty limits people's access to safe water for drinking, leading to several deaths primarily due to dehydration. Moreover, water is an essential necessity for life, water is needed for practicing basic hygiene, generating energy, maintaining high-quality health-care facilities, agriculture and ecosystems around the world. When water is scarce, sewage systems can give out, increasing the threat of contracting diseases. Also, droughts occur due to chronic water poverty. Likewise, as any other insufficiency, water scarcity raises commodity prices as it causes food shortages. Also, the rapid growth in population has transformed water ecosystems around the world and resulted in a massive loss of biodiversity. Overall, the lack of water may lead to economic decline as well as humanitarian and environmental conflicts. UNICEF



states, “by 2040, roughly 1 in 4 children worldwide will be living in areas of extremely high water stress” (Chambers). If this conflict is not addressed, ecosystems may be irreversibly damaged, endangering the wild-life. This issue must be tackled, through short-term and long-term solutions that address the consequences of chronic water poverty as well as the root of this harsh global conflict.

II. Involved Countries and Organizations

Jordan

Jordan is an Arab country located in the Middle East, sharing borders with Syria, Lebanon, Saudi Arabia, Iraq and Israel. According to UNICEF, Jordan is the second most water scarce country in the world. Moreover, Jordan’s annual renewable water resources are less than 100m³ per person, which is greatly less than 500m³ per person which defines severe water scarcity according to the UN. Jordan’s population in 2022, rose to 11.3 million people, 1.23% more than its population in 2021. The high population growth, climate change and the over consumption of groundwater reserves are likely to exacerbate the water crisis in Jordan in the future. Jordan is trying to find solutions to the chronic water poverty they face through desalination of water from the Red Sea, changing irrigation practices and recycling wastewater (Lindsey). The Jordanian government continues to take action and adopt measures to support farmers, individuals and communities in ways such as subsidizing commodities such as barley along with other products.

Bahrain

Bahrain is a small Arab state located on the southwestern coast of the Persian Gulf. It is listed among the top 10 countries that are likely to suffer from a water crisis in the next 25 years. Bahrain is known to be one of the smallest countries in the world, with an area of 778 km squared. However, the population is growing, reaching 1.8 million in 2022, and water poverty is intensifying. Bahrain contains the lowest endowments of fresh water resources in the world. The annual rainfall is approximately 80mm while the total water loss through evaporation in the atmosphere is around 1850mm. Bahrain does not have any rivers, lakes or streams and, therefore, has a very limited supply of fresh water. Moreover, the country’s freshwater share is under 500m³ per person each year and these levels are expected to decrease significantly due to population growth. Despite their high risks of chronic water poverty, Bahrain’s government claims that 99% of its population has access to safe drinking water sources. Bahrain’s water is secured through desalination processes. Additionally, the government of Bahrain seeks aid from the Water Resources Council of the Kingdom of Bahrain. Bahrain is an example of a state that has a high risk of developing chronic water poverty due to its increasing population, but continues to prioritize water security and is currently able to provide its citizens with safe water through aid and investing in methods of desalination.



Qatar

Qatar's population reached 2.8 million people as of March 2022, according to the Planning and Statistics (PSA) data. Qatar is a relatively small country which has an area of only 10,360 km². Moreover, Qatar's population continues to rapidly increase as the results from 2015 indicate a 7.2% annual average increase in the total population, according to WorldData.info. Qatar's population is growing due to the growing foreign workforce and the country's economic development. However, the population growth is worsening Qatar's water poverty. Qatar experiences severe water stress as a result of lacking natural renewable water sources, and therefore the average rainfall ranges between 50 and 80mm every year. Qatar is known to be one of the world's wealthiest countries, as it is rich in oil and natural gas. But, the country's water shortage impacts its environment, society and economy. Qatar's government plans to create cost effective solar desalination plants to provide water for agriculture. The current demand of 1.4 billion liters of water is expected to increase by at least 50% in the next year.

Lebanon

Lebanon is another Arab country in the middle east that is suffering from chronic water poverty. The UN states that more than 70% of Lebanon's population faces critical water shortages. Lebanon's case is more harsh as Lebanon has been experiencing a harsh economic collapse since 2020 after the Beirut port explosion. Lebanon lacks several resources other than water as well such as fuel. Lebanon's population increased significantly up until 2020, the biggest decrease in 2021 with -0.82%, as citizens are migrating due to the conditions in the country. Even though the water crisis in Lebanon is not caused by population growth, it is another country in the MENA region that is in desperate need of water.

Eritrea

Eritrea is a northeast African country on the Red Sea coast. It shares borders with Ethiopia, Sudan and Djibouti. It is one of the world's poorest countries. The current population of Eritrea is 3.6 million. The population is growing rapidly and increases about 2.35% every year. Eritrea's population is growing due to the extremely high fertility rates of 4.13 births per woman as of 2019, this is a sign of being a developing country. Eritrea's growing population and lack of fresh water sources led to 80.7% of the population lacking basic water services. Eritrea's government is working with UNICEF to enhance citizen's drinking water and help solve the water crisis.

United Nations International Children's Emergency Fund (UNICEF)

UNICEF works in more than 190 countries to reach the most disadvantaged children and adolescents – and to protect the rights of every child, UNICEF plays a great role in providing support and



help to countries in the MENA region experiencing chronic water poverty. For example in Jordan's case, UNICEF is supporting the Ministry of Water and Irrigation to create an action plan to address water scarcity, as well as working with young people, including university students, to design and test innovative solutions to water security issues and working with marginalized communities to provide families with water security and safe sanitation.

UN Water

UN Water coordinates the efforts of UN entities and international organizations on water and sanitation issues. This organization aims to help solve chronic water poverty and take action regarding the issue. The organization mainly works to help achieve the UN Sustainable Development goal #6 which is Clean Water and Sanitation. Moreover, UN-Water has taken measures in MENA as well, as it has been publishing reports about chronic water poverty in the region and helped establish the Agenda for Sustainable Development which focuses on preventing water scarcity from impacting future growth and stability in the Middle East and North Africa.

III. Focused Overview of the Issue

1. Population growth

The world's population is constantly changing as birth rates and mortality rates change. In 2022, the human population is projected at around 7.96 billion people, according to the World Population Clock. Over the past century, the human population has grown tremendously. Population growth can be correlated with many different factors including the gradual increase in average life expectancy due to widespread improvements in nutrition, public health, medicine and hygiene. The world's population growth rate was 1.03% in 2021, whilst studies by Statistics Times estimate that if population growth continues at this rate, the population will exceed 9 billion by 2037. Populations increase or decrease based on a country's development. Nowadays, more economically developed countries (MEDs) have aging populations. An aging population is one in which the percentage of individuals over the age of 65 is rising. Declines in fertility rates and gains in health and longevity are driving population aging. This is not the case in the MENA region, many of the countries in the MENA region are still developing. These countries have relatively high fertility rates and over the years, life expectancy is increasing as well, therefore the countries are experiencing rapid population growth that is impacting the environment, society, and economy.

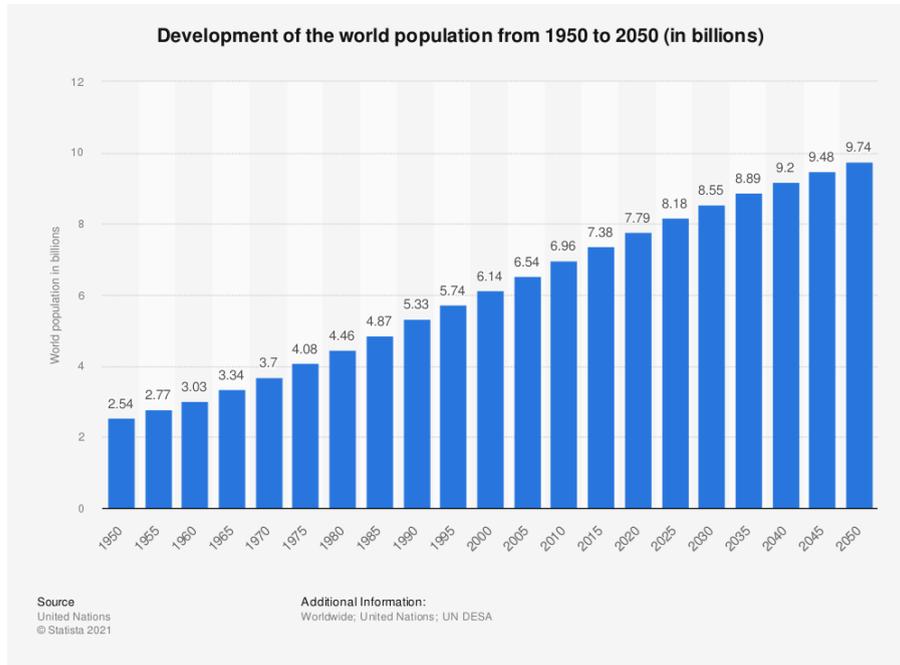
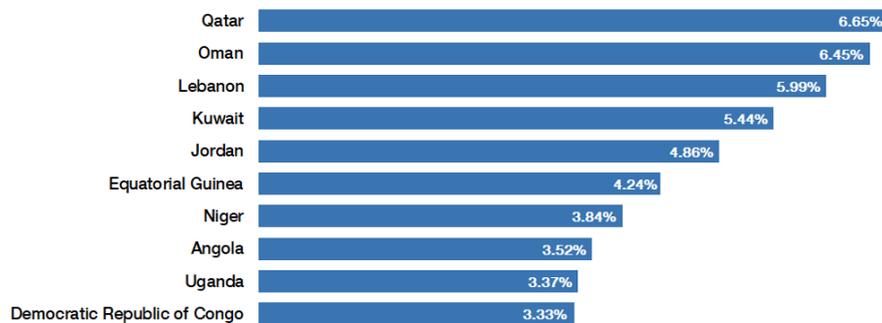


Image 1: Graph of the development of the world population from 1950 to 2050 in billions

The graph above shows the world population's gradual increase and signifies that world population gradually increased and is expected to continue to grow at this rate. Moreover, this graph supports several arguments made by other studies that estimate rapid population growth in the future. In April 2019, UNICEF reported that by 2050, half of the countries in MENA are projected to experience population increases of at least 50 per cent from their 2015 levels – with Iraq, Sudan and the State of Palestine experiencing approximately a doubling of their population in the 35 years between 2015 and 2050. ("MENA Generation 2030 - UNICEF DATA")

These are the world's fastest-growing populations

Percentage growth 2010-2015



Source: World Population Prospects 2017

Image 2: Graph of the fastest-growing populations between 2010-2015, proving that countries in the MENA region have rapidly growing economies



The graph above shows how countries in the MENA region have experienced rapid population growth between the years 2010 and 2015. It shows how Qatar's population has increased by 6.65% in 5 years, which is an extremely high rate. The graph additionally conveys how almost all Middle Eastern countries faced population growth over the course of 5 years.

As stated before, population growth is a situation that is caused by having high fertility rates as well as high life expectancy and low migration rates. In the MENA region, birth rates are still high due to the population's cultural beliefs, lifestyles, and sometimes lack of education about family planning and the use of contraceptives. But at the same time, as the countries develop, the quality of health-care increases, allowing for people's standards of living to improve and hence allowing them to live longer. This is what allows a population to grow. Other factors such as migration or having a foreign workforce lead to population growth. Overtime, fertility rates are decreasing, even in the MENA region, but not as harshly as other MEDCs.

2. Impacts of population growth

Growing populations negatively impact the environment in numerous ways. As the population grows, more of everything is needed such as food, water, and other commodities. With a larger population to feed and take care of, people start to take on measures that harm ecosystems and natural habitats such as intensive farming or deforestation to create new farm lands. With the world food crisis, the demand on agriculture is greater than ever. In fact, agriculture is responsible for about 80% of deforestation worldwide, destroying habitats, disrupting ecosystems and threatening biodiversity. Deforestation reduces the ability of capturing CO₂, so it increases the greenhouse gasses in the atmosphere, contributing to global warming and climate change.

Furthermore, population growth is one of the main causes of Eutrophication, which is the presence of excessive nutrients in bodies of water. This causes dense growth of plant life that takes in oxygen, resulting in the death of aquatic animals. Moreover, although there is a great deal of water on planet earth, it is a scarce resource. Only 2.5% of water resources are fresh water, and just a small part of that is unpolluted and safe for drinking. A byproduct of rapid population growth has been greater demand on freshwater supplies. Studies show that about 40% of the world's population struggle with water scarcity, and it is estimated that the demand for water will increase by 50% by 2030. Moreover, other studies claim that 2/3 of the world's population will be living with water shortages by 2025. Population growth is most prominent in the MENA region, and therefore they are the most at risk of facing chronic water poverty, if they aren't already.

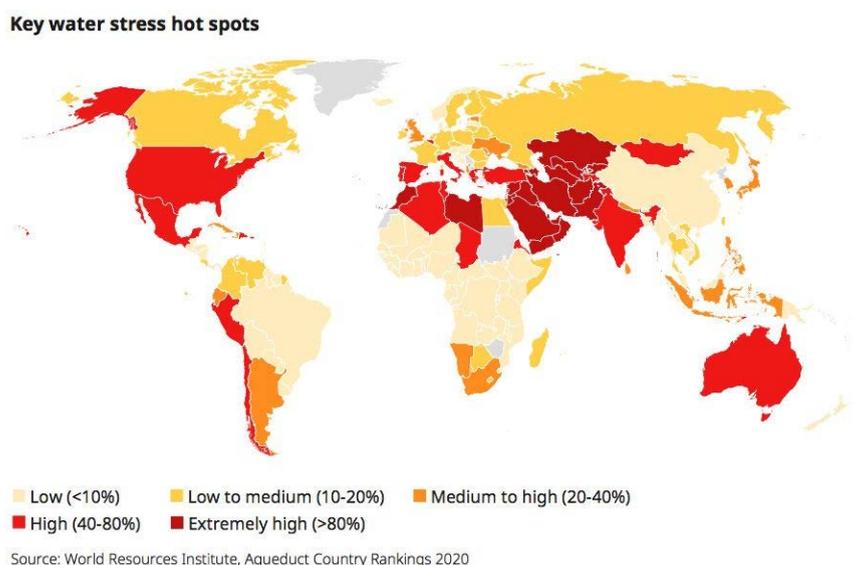
Undoubtedly, population growth has a huge impact on economies and societies. Larger populations have more potential to increase economic activity. The more people available, the more work is done, the



more profit is created. Although tax revenues may increase, this allows for the improvement of public health-care facilities and environmental projects. At the same time, rapid population growth can lead to overcrowding, political turmoil, increased pollution, inequality and low quality lives. Whilst, in countries with growing populations or overpopulation, unemployment rates increase and job opportunities decrease. It becomes more difficult for the working class or low-income individuals to afford the high commodity prices especially, when there is a shortage in resources such as food or water. Growing populations often experience shortages. For example in Jordan, the population is increasing about 1.23% each year and it is the second most water scarce country in the world.

3. The correlation population growth with chronic water poverty

Chronic water poverty is defined as a situation where a nation or region cannot afford the cost of sustainable clean water to all people at all times. (Feitelson, Eran) With the intense population growth around the world, the demand for fresh water is rising and water poverty is increasing. Groundwater resources are increasingly being exploited to meet this growing demand. With so many people in an area, demand for resources is high, and water being an essential necessity is often hard to access. Known countries that are scarce in water are Jordan, Lebanon, Qatar, Kuwait, Eritrea and Libya. These countries have relatively dry environments, and most can be classified as deserts. With minimal rainfall and limited-if any at all-fresh water sources (such as lakes or streams), these countries are unable to provide clean and safe water for all of their citizens. On top of that, their growing populations are intensifying this issue.



Picture 3: Map indicating key water stress hot spots



The map above shows the degree to which the world is suffering from water stress. While it shows how the countries around the middle east, and other countries with growing populations are the ones with extremely high water stress.

For example, Eritrea, a country in northeast Africa, is one of the world's poorest countries with a growing population that increases about 2.34% every year. The current population of Eritrea is 3.6 million. Eritrea's population is growing due to the extremely high fertility rates of 4.13 births per woman as of 2019. Eritrea's growing population and lack of fresh water sources led to 80.7% of the population lacking basic water services. 80.7% of the population do not have access to water, they are unable to live comfortable, sanitary and healthy lives. Another example is Jordan, an Arab country in the middle east, where the annual renewable water resources are less than 100m³ per person, which is greatly less than 500m³ per person which defines severe water scarcity. Jordan's population in 2022, rose to 11.3 million people, 1.23% more than its population in 2021. The high population growth, climate change and the over consumption of groundwater reserves are likely to exacerbate the water crisis in Jordan in the future. Jordan is trying to find solutions to the chronic water poverty they face through desalination of water from the Red Sea, changing irrigation practices and recycling wastewater (Lindsey).

4. Ocean-Water Desalination

Countries suffering from chronic water poverty and population growth tend to move towards using desalination processes. The process of desalination is the process of removing salts and other minerals to create safe water for human consumption and other uses. Several countries are dependent on desalination of water to access clean water, this does solve their problem and grants them water which is a basic necessity. However, Desalination can negatively impact the environment. The process can be energy intensive, and leaves a significant amount of brine waste which poses a potential threat to marine life and water quality. Also, desalination can increase fossil fuel dependence, greenhouse gas emissions, and intensify climate change. Moreover, the process works by withdrawing great amounts of seawater through large pipes, so it poses a threat to marine life as mature fish, larvae, and other wildlife can be injured or killed if trapped or forced into the pipes. So although it does solve the issue of water poverty, it leaves a negative impact on the planet's ecosystems.

5. Impacts of chronic water poverty (Facts and Statistics)

Water is an essential necessity for life, water is needed for maintaining health, practicing basic hygiene, generating energy, maintaining high-quality health-care facilities, agriculture and ecosystems around the world. 785 million people in the world lack access to clean drinking water. In addition, more than 800 children die from dirty water every day, as a result of poor unclean water, sanitation, and hygiene.



Women and children are more vulnerable to the diseases caused by dirty water as they often are responsible for transporting water to their family in LEDCs. Water poverty leads to deaths as it limits people's access to safe drinkable water. According to UNICEF, "Four billion people — almost two thirds of the world's population — experience severe water scarcity for at least one month each year". While, "half of the world's population could be living in areas facing water scarcity by as early as 2025". (Esteve)

When water is scarce, sewage systems can fail, increasing the threat of contracting diseases. Also, droughts occur due to chronic water poverty. Likewise, as any other insufficiency, water scarcity raises commodity prices as it causes food shortages. The rapid growth in population has transformed water ecosystems around the world and resulted in a massive loss of biodiversity. Overall, the lack of water may lead to economic decline as well as humanitarian and environmental conflicts. If this conflict is not addressed, ecosystems may be irreversibly damaged, endangering the wild-life. This issue must be tackled, through short-term and long-term solutions that address the consequences of chronic water poverty as well as the root of this harsh global conflict.

IV. Key Vocabulary

Climate Change: Climate is defined as the long-term pattern of weather and temperature in a particular area. While changes in these long-term patterns are referred to as climate change. Climate change has been driven by human activities such as burning fossil fuels like oil, coal, and gas. Climate change is a factor that contributes to water scarcity. This is because due to global warming, the earth is warmer than it's ever been, being able to evaporate water easily and hold in a great amount of moisture in its atmosphere (Buonocore).

Fertility Rates: The fertility rate at a certain age is the number of children born alive to women of that age over the course of a year as a percentage of the average annual population of women of that age. A low fertility rate is a sign of economic development. Higher fertility rates allow populations to grow ("Definition - Fertility Rate | Insee").

Freshwater Resources: Glaciers, lakes, reservoirs, ponds, rivers, streams, wetlands and even groundwater are all sources of freshwater. Although they make up less than 1% of the world's total surface area, these freshwater habitats are home to up to 40% of the known fish species and 10% of all known animals. However, freshwater resources in several countries, such as ones in the MENA region, are not enough to supply safe drinkable water to all the citizens. Lack of freshwater resources can lead to water scarcity ("What Is Freshwater And Where Is It Found?").



Less Economically Developed Countries (LEDCs): Less economically developed countries are countries with low-income that are confronted with considerable structural barriers to long-term growth. Most countries that are facing chronic water poverty are LEDCs.

Life Expectancy: The amount of years a person can expect to live is referred to as "life expectancy." By definition, life expectancy is based on a prediction of the average age at which members of a population group would die. High life expectancy is a factor that causes population growth.

More Economically Developed Countries (MEDCs): More economically developed countries are countries which have high standards of living, large GDP, low birth rates, high literacy rates and do not face as many challenges as LEDCs. These countries can help aid other countries facing water stress. 3

Population: The population of a country or area is all the people who live in it. There are types of populations such as aging populations and growing populations. Growing populations can impact the environment, economy, and society in several ways, mentioned above.

Chronic water poverty: Chronic water poverty is defined as a situation where a nation or region cannot afford the cost of sustainable clean water to all people at all times (Feitelson, Eran). With the intense population growth around the world, the demand for fresh water is rising and water poverty is increasing. Other terms used to define this harsh situation would be "water scarcity".

V. Important Events & Chronology

Date (Day/Month/Year)	Event
2000	The UN member states set Millennium Development Goals (MDGs), including a 2015 target to decrease the amount of people without sustainable access to clean drinkable water by half.
2001	World population is projected at 6.194 billion
23 December 2003	The UN passes resolution "The international decade for action 'Water for Life'", which aims to solve water-related issues by 2015.
2003	UN Water was founded to coordinate issues of sanitation and water access.



2010	MDGs clean water target was achieved 5 years earlier than expected. As a result more than 2 billion people have gained access to clean drinkable water since 1990.
28 July 2010	UN passes resolution “The human right to water and sanitation”.
2005-2015	The UN works on water poverty- The international decade for action “Water for Life.”
2015	Research states 2.6 billion people gained access to safe drinking water in the last 25 years. MDGs set a new target that promises clean water and sanitation for all by 2030
2019	World population is projected at 7.673 billion and is expected to continue to increase
2021	Population is projected at 7.874 billion. Studies state water usage has been growing at more than twice the rate of the population
2022	More than 2.3 billion people face water stress

VI. Past Resolutions and Treaties

There have been several attempts to solve the issue of chronic water poverty due to population growth. The UN has published 35 documents regarding “Water and Sanitation” and 14 regarding “Drinking Water”. Resolutions were passed as well. Examples include:

- Resolution (A/64/L.63/Rev.1)The human right to water and sanitation

http://hrlibrary.umn.edu/resolutions/genres64-right_to_water.html#*

This resolution passed on July 28th, 2010 recognized access to clean water and sanitation. The resolution focuses on declaring the right to safe and clean drinking water and sanitation for all. This resolution did succeed. While it calls upon states and international organizations to provide financial resources and international assistance to developing countries to provide safe, clean accessible and affordable drinking water and sanitation for all. Foreign aid increased, and LEDCs struggling with water scarcity became better supported. Lastly, the resolution welcomes the decision by the Human Rights Council that there will be an annual report to the General Assembly highlighting the



challenges related to safe and clean drinking water and sanitation. These reports raised awareness and highlighted the different aspects of the conflict.

- Resolution (A/RES/55/196): The International Year of Freshwater

<http://www.un-documents.net/a55r196.htm>

In 2000, a resolution passed by the General assembly proclaimed the year 2003 as the International year of Freshwater. The resolution calls upon member states, international organizations, the UN and all other actors to use the year to raise awareness about the importance of freshwater and to promote action at local, national, regional and international levels. 2003, was indeed the year of freshwater, it shed light on the conflict of water poverty around the world, and therefore it was effective. It encourages more organizations to take action.

- Report (A/HRC/46/28): “Human rights and the global water crisis: water pollution, water scarcity and water-related disasters”

<https://documents-dds-ny.un.org/doc/UNDOC/GEN/G21/012/23/PDF/G2101223.pdf?OpenElement>

The UN also publishes reports to raise awareness about issues. This report addresses the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment. The report describes the importance of safe and sufficient water as a necessary component of a safe, rightful, clean, healthy and sustainable environment. The Special Rapporteur also focuses on the water crisis and highlights several practices and measures that should be taken to reduce or prevent water pollution, alleviate water scarcity, reduce risks associated with water-related disasters and protect or restore aquatic ecosystems. The report urges states to employ a rights based approach to water governance and urges businesses to support efforts to ensure sufficient water for all.

- Resolution (A/RES/58/217) “The international decade for action ‘Water for Life’”

<http://www.un-documents.net/a58r217.htm>

On 23 December 2003, the United Nations General Assembly passed a resolution which declared the period 2005-2015 as “the International Decade for Action ‘Water for Life’”. It was decided that the main aim of the ‘Water for Life’ Decade was to encourage efforts to fulfill international commitments made on water and water-related issues by 2015. Much progress has been made



over the 10 years. It helped around 1.3 billion people in developing countries gain access to safe drinking water.

- Resolution (A/RES/71/222) International Decade for Action, “Water for Sustainable Development”

<https://documents-dds-ny.un.org/doc/UNDOC/GEN/N16/459/99/PDF/N1645999.pdf?OpenElement>

The United Nations General Assembly passed a resolution in December 2016 declared 2018-2028 as the International Decade for Action “Water for Sustainable Development”. This resolution tackles the issue of water scarcity in many ways as it promotes efficient water usage, increasing education and knowledge about food practices, urges the implementation of water-related goals in coordination with existing initiatives, emphasizes the need for accelerating sustainable action towards developing environmentally safe methods of accessing clean water, and includes several long-term and short-term solutions.

- The UN Watercourses Convention

<https://unece.org/environment-policy/water/un-watercourses-convention>

The UN Watercourses Convention is a global treaty adopted by the UN General Assembly in 1997. It is a convention governing international watercourses. The Convention’s main goal is to strengthen cooperation between states over their shared water sources. This global treaty took many years to get into force in 2014.

- The Water Convention

https://unece.org/sites/default/files/2022-06/UNECE-TheWaterConvention-30Years-A4-150dpi_WEB2.pdf

The Water Convention on the Protection and Use of Transboundary Watercourses and International Lacks is an international legal instrument and intergovernmental platform which aims to ensure the sustainable use of transboundary water resources. It was initiated in 2016. The treaty requires parties to prevent control and reduce transboundary impact and to use waters in a reasonably sustainable way through cooperation. It is a tool that can promote and achieve the objectives of the 2030 Sustainable Development Goals. “85 countries participated in activities on the ground under the programmes of work under the Water Convention in the period 2015–2022. -while approximately 6,000 experts were trained on international water law, water management, climate change



adaptation, the nexus approach, dam safety and other areas through the capacity-building activities led by the Water Convention” (UNECE The Water Convention)

VII. Failed Solution Attempts

Most solutions that address this issue are beneficial in one way or another. But at the same time, they may pose disadvantages on the economy, society or environment in the long-run. For example, In numerous countries, water is treated as a low-cost resource for uses such as irrigation (an attempt to solve the issue of water poverty). However, this is leading to several negative impacts as usage of some increases overboard causing scarcity for others. Governments who continue to decrease the price of water are allowing water to be used less carefully. For example, a great deal of water is going to farmers for growing agriculture, while others are unable to access the water. In addition, other governments tend to subsidize the water of their higher-class citizens, leading to increased waste as the poor continue to struggle to gain access to water. The World Water Development Report 2021, described how if governments placed a clear value on water, misuses and misallocations would decrease and the efficiency of sharing water resources would improve.

Additionally, donor programs to an extent address the issue of chronic water poverty. Giving water pumps, training of maintenance engineers or subsidies to government water systems are often go-to solutions, but they are all temporary. Donor programs have exacerbated the issue by eliminating the opportunity for the development of sustainable solutions.

As mentioned before, a common effective solution being implemented by several countries in the MENA region is desalination. Desalination does solve their problem and provides them safe water. Yet, desalination can negatively impact the environment. The process can be energy intensive, and leaves a significant amount of brine waste which poses a potential threat to marine life and water quality. Also, desalination can increase fossil fuel dependence, greenhouse gas emissions, and intensify climate change. Moreover, the process works by withdrawing great amounts of seawater through large pipes, so it poses a threat to marine life as mature fish, larvae, and other wildlife can be injured or killed if trapped or forced into the pipes. So although it does solve the issue of water poverty, it leaves a negative impact on the planet's ecosystems.

VIII. Possible Solutions

Chronic water poverty due to population growth has been a harsh issue that has been impacting the world's economies, environment and societies. Both the root causes of the conflict, as well as the impacts



of it, need to be addressed in order to provide solutions that can work and help improve the situation. Moreover, both long-term and short-term solutions are needed to address the impacts of the crisis as quickly as possible, and find ways to prevent it from worsening and find ways to improve the situation over time, as it will not be fixed immediately.

Desalination is the most effective and efficient way for countries who lack fresh water resources to access clean drinking water. To avoid the negative environmental impacts of regular desalination methods, green desalination processes should take place. Investing in green desalination will reduce or eliminate the carbon footprint of seawater desalination plants. A workshop in 2016 explored this topic, and brainstormed the ways the important process of desalination can be enhanced. An example would be the desalination plant in Israel, called Sorek, the world's largest desalination plant that is gradually being improved over the years exploring the potential for reducing the carbon footprint of its facility.

Another way to help tackle chronic water poverty in growing populations is to initiate conservation projects. These conservation projects can be attracted to a LEDC through tax exemptions to promote investment. Conservation projects may invest in better infrastructure such as toilets, sewage systems, wastewater treatment facilities, and urban distribution and sanitation systems.

Awareness campaigns about the scarcity of water in certain areas will help increase education about the scarcity of water. By raising awareness about the importance of water, the scarcity of water and the struggles a great number of people are facing, people will be more careful with their water usage and avoid wasting water. Awareness about the good practices or the easy ways one can save water can play a role in conserving the essential resource. Raising awareness could lead to behavioral changes that conserve water such as installing showerheads, investing in floor restriction faucets, ensuring to turn off taps while brushing teeth or rinsing dishes...etc.

Governments can also contribute to solving the water crisis by implementing laws and regulations regarding the usage and waste of water. For example, having water consumption limits per day, per household or per person will help reduce over-consumption of water. Moreover, governments could fine those who are over-consuming water. Also, governments should implement policies which work on improving rationing systems. This would help distribute water more equally around countries to ensure that all of the population has access to clean water rather than having some people who misuse water, and others who cannot access it.

Overall, there are several ways chronic water poverty due to population growth can be addressed. Organizations, countries and individuals must take action and tackle the conflict before it is too late.



IX. Useful Links

- <https://www.unicef.org/jordan/water-sanitation-and-hygiene>

This link will provide you with an example of a country that struggles with water poverty and a growing population. UNICEF has been heavily involved attempting to help and support Jordan to overcome this issue.

- <https://www.unicef.org/jordan/press-releases/unicef-promotes-water-conservation-children-through-out-jordan-world-water-day#:~:text=UNICEF%20and%20partners%20are%20supporting,marginalized%20communities%20to%20provide%20families>

This website will provide you with information about previous attempts and solutions done to help countries in the MENA region that face chronic water poverty due to population growth.

- <https://solarimpulse.com/water-scarcity-solution>

This website will allow you to explore several new modern and creative inventions and projects that work to help solve the ongoing issue of water scarcity. This source should help delegates expand their knowledge and get inspirations for their resolutions.

- <https://www.seametrics.com/blog/water-organization-issues/>

This source includes numerous organizations that contributed to solving chronic water poverty around the world. Delegates can use this source to further research what these organizations achieved.

X. Works Cited

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