**Forum:** Environment Commission

**Issue:** Measures to alleviate the global water crisis

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Introduction

In contrast to the fact that 71% of Earth’s surface area is covered by water, the fresh and clean water that is consumable for humans is extremely limited. According to the Water Consumption Statistic report made by PRB, only 3% of the world's water is freshwater, while 2.5% of that water is frozen, only leaving 0.5% of the water that is consumable for humans. On the other hand, a tremendous amount of water is used by humans, not only for human consumption but also in major industries such as agriculture and manufacturing. The average annual water consumption just by drinking is 690 liters per person, and about twice as much water is used for basic sanitation and hygiene. In total, around 4 trillion cubic meters (1 cubic meter equals 1000 liters) of fresh water are used annually. As the world population is steeping and the size of agricultural and industrial sectors are rapidly enlarging, increased world consumption of water is inevitable, leading to the emergence of the issue of water scarcity. Currently, more than 1/10 of the world's population lack access to clean water, and about 300,000 children are under threat to their life due to lack of water. The World Life Organization estimates that 2/3 of the world's population may face a lack of access to water merely in a decade, recognizing that water scarcity is indeed the most urgent environmental issue that humans are facing right now, hence requiring imminent responses from nations.

The global water crisis involves socioeconomic aspects including health, poverty, and education issues which are deeply connected to the fundamental reasons and severe impacts of water scarcity. Consumption of unsafe water causes transmission of numerous diseases, often causing mortality in countries without proper medical infrastructures. In nations where people have to walk and supply water, the economy and education are the major problems. It is estimated that women and children spend an average of 200 million hours collecting water every day, worldwide. This means that they are given less opportunity and time to spend on the development of major industries, which will aggravate the poverty in those regions.

As humans are using more water over time, water sources like rivers and lakes are drying up, impacting the ecosystem. According to the United Nations Office for the Coordinations of Humanitarian Affairs (OCHA), major rivers of Africa such as Niger, Nile, and Volta had below-average water flow. Along with the issue of global warming and climate changes which are accelerating desertification, the water source of all of the organisms will possibly dry up in the near future, eventually harming the whole Earth and humans ourselves.

Definition of Key Terms

Water Scarcity

Water scarcity is defined as a lack of safe and clean water supplies. Since water supply is directly related to our survival and hygiene, the impacts of water scarcity on humans are huge and damaging. The countries that are experiencing the most severe water scarcity are mainly African nations, due to their dry climates and rapid population growth.

Climate Change

Climate change refers to a long-term alternation in usual weather patterns and conditions. Recently, the occurrence of extreme climate events had become more frequent, more unpredictable, and more severe due to climate change. These events are deeply interconnected with the issue of water scarcity because extreme climate events disrupt the water cycle and pollute water while water scarcity affects the ecosystem and might intensify climate change.

Water Stress

Water stress occurs when the water demand exceeds the available amount of water at a certain time. Around 17 countries are suffering from extremely high water stress currently, and it is predicted that even developed countries might experience it in the near future if the trends of water scarcity continue.

Water Pollution

Water pollution refers to the contamination of water sources by substances that make the water unusable for consumption. Water pollution mainly comes from the disposal and waste from factories and farms. It is not only one of the main human-induced factors of water scarcity, but also a huge damage to the ecosystem. Hence, it is necessary to resolve this in order to deal with the global water crisis.

Waterborne diseases

Waterborne diseases are illnesses caused by poor sanitation and contaminated water.

Background

Causes of Water Crisis

Water scarcity is caused by complicated and varied reasons, but it can be categorized by human-induced factors and environmental factors. Some human activities such as agriculture, industry, urbanization, and pollution result in a water crisis, and these human activities can be sorted as human-induced factors. On the other hand, the water crisis is also caused by irregular and unpredictable natural factors such as extreme climate events and natural disasters.

***Human-Induced Factors***

Human activities are often major factors inducing water crisis. To this day, the world population has increased to 7.88 billion, and it is estimated to reach 8 billion in a few years. As the number of people on the Earth increases, the amount of water needed is significantly increasing. Not only the amount of water consumed by human’s basic needs will increase, but also the amount of water needed in the main industry will be raised in a huge gap, as more people need to be fed. In overpopulated areas such as India, they are already experiencing large water scarcity problems. The fact that the speed of population increase is much more significant in developing areas, the areas having water scarcity, is another concern as well.

Water pollution is a major factor causing a lot of water sources unavailable for human consumption. Pollution is mainly caused by the disposal from agriculture and industry, and it was not strongly mitigated until the 2000s. Especially during the industrial revolution period, a lot of water source was contaminated mostly because of industrial waste and dumping. Nowadays, most nations have strong regulations on water pollution and the UN is also highly encouraging all of the nations to reduce it with the establishment of Sustainable Development Goals (SDGs).

Some other small factors induced by humans are the destruction of water infrastructures due to conflicts and wars. In fact, in Syria, due to the civil war, most of the water infrastructures are destroyed and the citizens are not accessible to water. In some cases, those water sources are the main target of the opponents to cut off the water supplies. Also, the water that is wasted in our daily life is not neglectable. Indeed, the amount is not remarkable compared to other factors, but it seems extremely important for every government to have proper strategies to deal with more severe water scarcity that might happen in the future.

Environmental Factors

Water scarcity is occasionally aggravated due to unpredictable factors: natural disasters and extreme climate events. For example, the natural disaster with the most detrimental damage is drought, a prolonged period of abnormally low precipitation rate. Currently, from 2020-2023, North America is experiencing a severe drought and the agricultural sectors are heavily impacted. Also, extreme climate events like floods, earthquakes, and tornados accompany the large possibility of polluting the water source. Some harmful substances such as chemicals, fuels, and animal wastes would easily be added to the water sources if farms or factories are destroyed, resulting in serious water pollution.

Global warming also involves a huge influence on the global water crisis. Global warming is a rise in the temperature of the atmosphere and oceans, mainly caused by heat trapped due to the greenhouse effect. From 1880 to 2012, the global average temperature increased by 0.8, and it is expected to increase by 1.5at the end of the century, according to an NOAA report. Higher surface temperature raises the rate of evaporation of clean waters, reducing the amount of freshwater even faster. Furthermore, global warming is the main cause of desertification, which diminishes the lands to deserts.

Impacts

Humanitarian Issues

Water scarcity and unsafe water cause about 1 million deaths each year. Most of the deaths are due to diseases in unsafe water, in which diseases transmitted through water account for 80% of the world's diseases, according to UN-Water. Diseases such as cholera, diarrhea, and typhoid are the most common diseases caused by poor sanitation and contaminated water. The symptoms of these diseases vary in severity, but they might cause long-term damage and even death, in the worst-case scenario. Waterborne diseases can be easily spread while bathing, drinking, and consuming water; hence, people without proper sanitation are completely exposed to these diseases.

As climate change is becoming more substantial, it is projected that 50% of the world's population will be living in water-stressed areas, where low-income families will be the most disadvantaged ones. This means that a tremendous amount of people will be exposed to the threats to their lives due to water scarcity, highlighting the urgency of this issue.

Impacts on the Economy and Education

As stated in the introduction of this report, women and children spend 200 million hours merely to transport water from the water source to their residents. This involves huge opportunity costs for both the economy and education. Currently, tremendous time and physical effort are spent just for carrying and delivering water, and it is extremely less productive, compared to other nations with adequate water supply. Due to this fact, the economic and educational gap between the MEDCs and LEDCs might be more aggravated, countering the goal of an equal and equitable future. When the problem of water supply is solved in these regions, it will allow more industrial and educational opportunities for most of the families, even possibly approaching solving the poverty issue.

Impacts on the Ecosystem

The declining amount of available water is not only threatening to humans but also hazardous to the world's ecosystem. Since 1900, about half of the wetlands have been destroyed and it significantly disrupted and damaged the whole food chain and animals within the ecosystem. Mammals, birds, fishes, and plants that survived in wetlands have lost their habitats, and most of these animals are under threat of becoming extinct. As wetland accounts for a huge portion of rice cultivation, this change also has an effect on humans. On the other hand, desertification possesses vast negative impacts on the ecosystem. Every year, 12 million hectares of land are desertified, and this means that all of the species in those areas have to live in worse conditions or even lose their habitat, in the worst case. Thus, desertification will result in the loss of biodiversity, which is a detrimental impact on the Earth.

Major Parties Involved

United Nations-Water

UN-Water, founded in 2003, is an agency of the United Nations serving as a coordination mechanism for water and sanitation issues. Over the past two decades, UN-Water has coordinated multiple conferences to create frameworks and strategies to deal with the water crisis. The UN-Water officially states that their “role is to ensure that members and partners ‘deliver as one’ in response to water-related issues. UN-Water is constantly and engagingly working on the water crisis by coordinating with other Organizations and Non-Governmental Organizations (NGOs) and proposing improvements in sanitation and socioeconomic issues. UN-Water was significantly involved in The SDG 6 Global Acceleration Framework, which set the future plans and strategies to effectively deal with the problems regarding water scarcity. Until today, the organization continues working on enhancements to the global water crisis. On 22-23 March 2023, UN-Water is holding the first annual World Water Conference, which will presumably become the main center of communication and discussion for the upcoming water-related issues.

Water.org

Water.org is a non-profit organization that visions to help access water all around the world, in safe, accessible, and cost-effective ways. With donations and funds from individuals and organizations, they spend their funds to support the people who do not have access to water by building water suppliers and basic sanitation facilities. They also endeavor to solve poverty issues in those regions by providing education and opportunities to children and women. Bringing people hope and a bright future is the organization’s ultimate goal, and the approach to achieve this is through the water. Water.org currently works in 11 countries over the 4 continents, including India, Philippines, Kenya, and Brazil, the nations where the most severe water crisis is experienced. Until now, 51 million people’s lives have changed with the support of Water.org.

**United Nations – Sustainable Development Goals 6 and 13**

SDGs are the goals established by the United Nations General Assembly in 2015 to create a sustainable future for the next generations. (A/RES/70/2) The goal of SDG 6 is ensuring access to clean and safe water for every world citizen, and it requires international and individual cooperation to achieve it. Currently, major organizations and committees such as GA, ENV, and United Nations Environmental Programme (UNEP) working with national NGOs to tackle the national-level water crisis, while a number of international conferences call for cooperation between the nations through sharing the strategies and knowledge and financial and technological support.

SDG 13 effectively tackles climate change by implementing strong measures to combat it. The measures include: 1. Strengthening capacity for climate-related hazards and natural disasters. 2. Integrating climate change measures into national policies. 3. Improving education and raising awareness. Until 2030, the United Nations aims to achieve these specific goals, with the support of international communities, organizations, and individuals all over the world. SDGs 6 and 13 will be the major key to solving the global water crisis, so the UN’s role is crucial at this point.

**African and Middle East Nations**

African and Middle East nations are the regions that suffer the most from the water crisis. The main reasons are the lack of water sources and infrastructures among these nations. In the Middle East, about 80% of the whole region is desert with below 5mm annual precipitation rate. Whereas, 25% of the whole African continent is made up of the Sahara desert. The available water resources in these areas are extremely less compared to other fertile regions. Moreover, as most of the African and Middle East nations are still developing countries, they do not have enough water infrastructures to provide equal and sufficient access to water to all citizens. This is due to the lack of finance and technology. Countries such as Lebanon, Syria, Niger, and Pakistan are indeed facing the most severe water crisis in our world, but they do not have the capability to resolve the crisis themselves; thus, attention and support from developed countries will be required. Also, lack of governance and corruption is major issues present in the governments of these nations, how the aid will be delivered and distributed equitably is another aspect to consider.

Previous Attempts to Resolve the Issue

**The SDG 6 Global Acceleration Framework**

The SDG 6 global acceleration framework is a framework launched by UN-Water in 2020, aiming to deliver the goals of SDG 6 by 2030. With the UN, Non-Governmental Organizations (NGOs), and individual stakeholders’ support, they are taking the SDG goals to work them in each nation.

**Water for Sustainable Development**

The resolution for water for sustainable development, proposed in 2018, introduces the water action decade 2018-2028 and decides to hold the annual World Water Conference on world water day. The conference calls for improved management of water resources with social, economic, and environmental objectives. UN’s specialized agencies and regional commissions are involved in this project.

* A/RES/73/226

**UNICEF’s Response to Water Crisis**

Recently, UNICEF has been cooperating with the European Investment Bank (EIB), the Development Bank of Southern Africa (DBSA), and other international agencies and organizations to implement appropriate financing models to resolve the current water scarcity issue in Africa. UNICEF coordinated with European Union (EU) to donate 19 million Euros for the construction of a water supply system in Eswatini. In 2018, DBSA donated 150 million Euros to the construction of Lomahasha Water Supply.

**Timeline of Events**

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| Date | Description of event |
| **1993** | The UN General Assembly designated 22 March as World Water Day |
| **2000** | The UN set Millenium Development Goals (MDGs), targeting to halve the number of people without safe and sufficient access to water. |
| **2003** | UN Water was established. |
| **2005 - 2015** | UN-Water coordinated ‘Water for Life’, an international decade to achieve the MDGs by 2015. |
| **2013** | UN designated 19 November as World Toilet Day, highlighting the global issue that billion people not having proper sanitation. |
| **2015** | The 2030 Agenda’s Sustainable Development Goals (SDGs) were set by the UN. SDG 6 aims for clean water and sanitation for all. |
| **2018** | The UN General Assembly launched Water Action Decade 2018 – 2028. |
| **2020** | UN Water launched SDG 6 Global Acceleration Framework. |
| **2023** | UN 2023 Water Conference |

Possible Solutions

* **Supports from MEDCs to LEDCs** – LEDCs would require a lot of financial and technological support to solve their water crisis. Although there had been multiple previous attempts to solve the issue through humanitarian aid, there are still a vast number of countries lacking finance and technology over the world. Short-term solutions can be water trucking and the provision of water purifiers, and these can be used to deal with countries in an emergency of water scarcity. Long-term solutions could be the construction of infrastructures and facilities to provide basic sanitation. Especially in the regions where water supplies are not stable and the infrastructural system is not settled, building basic water facilities such as wells and water purifiers would be the first step. At the same time, work toward enhancing the economy and providing education to children is needed. This will start with building facilities and recruiting volunteers, with the help of the United Nations International Children’s Emergency Fund (UNICEF) and NGOs.
* **Measures to prevent natural disasters** – Both natural disasters and extreme climate events often cause pollution and make water inaccessible to humans. Precautionary measures and a better prediction system for disasters would need to be prepared to reduce the damage. This will require collaboration with organizations and countries such as the United Nations Office for Disaster Risk Reduction (UNDRR), the World Meteorological Organization (WMO), and Japan, the host of the Sendai Framework for Disaster Risk Reduction.
* **Ways to prevent diseases transmitted through water** – The simplest and fastest way to prevent diseases is improving sanitation and hygiene in the area with a high rate of mortality due to diseases transmitted through water. This can be done through the construction of infrastructures and facilities that can purify the water. However, this is a long-term solution with huge financial and technological uncertainties, which might not make the situation of regions suffering from diseases. More research on diseases and viruses and the development of vaccinations and medications can be done to deal with the short-term impacts.
* **Addressing climate changes** – The most fundamental causes of the global water crisis, or possibly all of the environmental issues we are facing right now, are climate change and global warming. Unpredictable and severe natural disasters like drought cause huge damage to the water source, and the fact that natural disasters are becoming more frequent is a huge threat to humans. If human activities continuously accelerate climate change, the issue of water scarcity and its huge impacts will grow beyond human control. Hence, aspects of climate change should be taken into account when discussing this issue, and strong restrictions on human activities causing climate change need to be implemented to reduce the damage of the water crisis in the future.
* **Raising awareness** – A lot of water is wasted by humans. Education and promotions will be needed to raise public awareness of the seriousness of the water crisis and the importance of saving water. Even further, each nation can find a way to manage water most efficiently, implementing that into their policy.

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Appendix or Appendices

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Report on The Sustainable Development Goal 6 Global Acceleration Framework.

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Official website of UN-Water. Provides detailed facts about the global water crisis.