

STUDY GUIDE

United Nations Development Program (UNDP)

TOPIC A: The rising water crisis and its effects on global peace and development. Majorly focusing on an international Trans-boundary water sharing, glacier melting, floods and changing crop trends due to climate change.



Introduction:

Water is such an essential component of life on Earth that one would assume that it would be highly prioritized in conservation efforts. However, it appears that modern society has taken a passive approach in its attempts to look after this natural resource. It is thought that the sheer enormity of the resource itself has misled people to believe that Earth's water supply is limitless, due to the fact that water accounts for 71% of the Earth's surface. Of this, however, 97% of water is held in oceans leaving only 3% available as freshwater, of which a further 2% is locked up in icecaps and glaciers. This leaves a meager 0.8% of all water on Earth available for human consumption.

On the 22nd of March every year, world water day is celebrated in order to raise awareness of the importance of water and of keeping water available to humans to meet our demand in a

sustainable way. Recently, water scarcity has become of utmost importance to governments everywhere as organizations begin to draw attention to the need to sustainably manage water sources. Currently, 1.2 billion people (almost one-fifth of the world's population) live in areas of physical scarcity and the number is quickly advancing. At the moment, one-third of the world's populations live in countries where water is scarce in quantity and quality. If we are not careful, this is to rise to two-thirds by 2025. Joint with growing demand due to an increasing population, the need to manage water sources could not be more reiterated. What is important to note is that there is enough water on the planet for 7 billion people; the problem is that it has been so unevenly distributed and ineffectively managed that water scarcity is a problem in many world regions. The importance of water goes beyond sustenance but also stretches to other areas affecting education, health and even poverty. Increasing population and demand among other factors means that there is an urgent need to alleviate water scarcity through effective solutions. There have already been several attempts to do so but the battle against water scarcity is far from over and the lives of over a billion people who live in physical scarcity are a reminder of the need for urgency.

Water, simply put, makes the existence of the human race on this planet possible. With a few exceptions, water has always been a natural resource that people take for granted. Today, the situation has changed. The World Bank reports that 80 countries now have water shortages and 2 billion people lack access to clean water. More disturbingly, the World Health Organization has reported that 1 billion people lack enough water to simply meet their basic needs.

Population growth and groundwater depletion present the two most significant dangers to global water stability. In the last century, the human population has increased from 1.7 billion people to 6.6 billion people, while the total amount of potable water has slightly decreased. Much of the population growth and economic development experienced in the last fifty years has been supported by subterranean water reserves called groundwater. These nonrenewable reserves, an absolutely essential aspect of the modern world, are being consumed at an unsustainable rate.

History and Importance:

Why is a global cooperation on just water management important? Due to the increasing demand for water, conflicts between local communities are already arising. Not only has the growing

world population needed water, but also the industry. Clean water is eminent for every human being, for animals and for the economy. As a result, it becomes clear that a “just” water management is crucial to satisfy everyone’s need to a justified extent. A factor of demanding importance is the security aspect. Water conflicts can easily become armed conflicts and destabilize regions or even whole states. Cooperation on water management can prevent conflicts from arising and act as a peace building measure. History and experience have shown that cooperation is mutually beneficial: when water resources are cooperatively shared and managed, peace, prosperity and sustainable development are more likely to be achieved. This entails taking into account the various users’ respective needs, points of view and cultures in order to allocate water equitably. Experts also say that the access to clean drinking water is the key to poverty eradication, social equity and gender equality.

Water crisis:

Let us first define global water crisis. A general definition of global water crisis is an excess of humans worldwide not having safe, potable water. There are around 800,000 people globally without access to water. People don’t have water because they can’t afford systems to convey and treat water or they live in locations where water is physically scarce. The global water shortage is compounded by effects of climate change, population growth, human migration, pollution, and competition. Climate change could result in longer periods of drought or intense flood events and people, even those living in the United States, will experience water supply variability. Population growth and human migration, pollution from factories and homes, and competition between water users will further limit available water resources even in the United States.

Causes of water crisis:

The main causes of water crisis include the increasing world population, urbanization and industrialization. The world population is expected to reach 9 billion by 2040. An increasing population means increase in demand for food. Agriculture is the biggest user of water, accounting for 70% of all water withdrawals. According to the FAO, while the daily drinking water need of humans is very small - four liters per person - the water required to produce a

person's daily food is much higher: it varies between 2000 and 5000 liters. Increasing affluence also increases the demand for water; as people get richer, they tend to use more water through their household devices e.g. washing machine or simply through a more luxurious lifestyle e.g. taking a bathtub bath instead of a shower. Also, water pollution arising from fertilizers, pesticides, etc. reduces the amount of water available for human use. Inefficient management of water sources may also be a cause of water scarcity as it results in waste of water available for human use; this could also cause economic water scarcity. Furthermore, climate change is increasing aridity thus affecting supply of water. This is because climate change leads to potential effects including: reduced precipitation, higher evapotranspiration, increased pollution of water sources due to increased flooding and reduced water supplies and consequently increases costs due to silting which is caused when there are lower stream flows but higher evaporation rates. The causes of water scarcity are, therefore, partially human and partially physical. The abundance of the causes of water scarcity perhaps increases the difficulty in solving the global water shortage as different solutions tackle different causes.

Impacts of water crisis:

Careful attention has been paid by the UN on the effect of water scarcity on the poor and the marginalized in the society. When people have limited access to adequate and clean water, other aspects of their lives are affected. Water affects health as many diseases are water-borne such as cholera. Access to water can also increase food security and even break the vicious cycle of poverty as better access to water results in more secure yields and healthier people. This results overall in a more productive society as the people are able to work rather than if they were sick. This represents an increase in quality of life. This increase in quality of life further results in an increased standard of living if the individual is able to earn a more secure income. According to the UN Human Development Report of 2006, water insecurity “violates some of the most basic principles of social justice” including fair distribution and equality of opportunity. Fair distribution is a problem in countries with high disparities in wealth as “water usually runs downhill, but it always runs uphill to money” according to an article in the Scientific American called ‘Facing the fresh water crisis.’ If this unequal distribution festers, there is a loss of equality of opportunity as access to water, as simplistic as it sounds, affects other key elements of life i.e. health and income. Water scarcity can also lead to sanitation problems which can

further affect health. There many also be a relationship between access to water and education as in many developing regions, girls have to get up early to fetch water (sometimes walking long distances) before they go to school. Improved access to water means the children do not walk such long distances and consequently are not worn out by fetching water. Shorter distances also mean they are more likely to get to school earlier.

Challenges in solving water crisis:

Clearly one of the biggest challenges is creating an efficient cooperation to reach across borders. Not only national states must cooperate with one another, but also international players like INGOs, which currently help in organizing regional projects and have important expertise in that matter. Another challenge is the increased competition for water and water privatization. The need for water is constantly increasing. Not only do people have to satisfy their need for water, but also the economy and industries for their production, energy and domestic uses. That is why, priorities have to be set in order to ensure a peaceful coexistence of different users. Furthermore, due to the climate change local water conflicts may worsen as well. With this being said, one can point out four crises, which arise at the moment and could be ceased with a just water management|

Distribution

Although water is required globally, its natural distribution does not naturally reflect the demand for water. The majority of freshwater comes in the form of lakes and rivers. The water supplies of Brazil, Russia, Canada, Indonesia, China, and Colombia account for half of the Earth's freshwater supply. The fact that six countries alone dominate the world's freshwater supply can be a source of concern, but also presents them with both power and responsibility. Internal distribution of water is also a relevant consideration. As a basic human necessity, it is inevitable that water shortages in local areas within a country can be a source of instability. Although this might appear to be a wholly internal problem, the risk of unrest, violence and even state failure can have regional and cross-border ramifications. In addition, many rivers tend to decrease in volume as they flow downstream, without any replenishing of water from tributaries. This raises two issues. Firstly, by default, users at the end of the river are able to access a smaller quantity of freshwater than those further upstream. Second, upstream countries effectively control a source of freshwater for downstream countries, putting downstream countries in a position of reliance and upstream

countries in a position of greater power where water may be used as a diplomatic weapon for other ends.

Agricultural crisis

Water is a key element of agricultural production. Water scarcity can cut production and badly impact food security worldwide. The brutality of the water crisis has prompted the United Nations (UNDP, 2007), to conclude that it is water scarcity, not deficiency in arable land that will be the most important limitation to increased food production over the next few decades. According to the International Food Policy Research Institute (IFPRI), if current water consumption trends continue, by 2025 the agricultural sector will experience serious water shortages. The IFPRI estimates that crop losses due to water scarcity could be as high as 350 million metric tons per year, slightly more than the entire crop yield of the U.S. This massive water crisis will be caused by water contamination, diverting water for industrial purposes, and the depletion of aquifers. Climate change may also play a part. The Himalayan glaciers, which feed the rivers that support billions of people, are shrinking in size every year. Their disappearance would cause a major humanitarian disaster.

The greatest danger to global food security comes from aquifer depletion. Aquifers are an essential source of water for food production, and they are being overdrawn in the western U.S., northern Iran, north-central China, India, Mexico, Australia, and numerous other locations. Additionally, many aquifers are contaminated each year by pollution and seawater intrusion.

Despite their importance, data on underground water reservoirs remains imprecise. There is little evidence regarding how many aquifers actually exist, and the depth of known aquifers is often a mystery. However, it is clear that water from these sources takes centuries to replenish, and that they are being consumed at a highly unsustainable rate.

Environmental crisis

Water scarcity has many negative impacts on the environment, including lakes, rivers, wetlands, and other fresh water resources. The resulting water overuse that is related to water scarcity, often located in areas of irrigation agriculture, harms the environment in several ways including increased salinity, nutrient pollution, and the loss of floodplains and wetlands. Furthermore,

water scarcity makes flow management in the rehabilitation of urban streams problematic. Poor water management approaches can be a driver of this decline, for example, through poorly designed or operated dams disrupting water flows or degradation of soil water retention. Pollution from untreated residential and industrial wastewater and agricultural run-off also weakens ecosystem capacity to provide services such as water. Climate change also has a significant impact on ecosystems. The effect on wetlands and their multiple ecosystem services is expected to be severe. Rising sea levels will threaten biodiversity, while increased frequency and strength of storms and tidal surges will increase damage and variation of sediment transfer in river flows. While these environmental challenges steadily degrade the health of ecosystems and thus the quality of their services, short-term economic and social decisions further threaten sustainability. Over-exploiting forests for timber or firewood, for example, compromises ecosystem health, including its capacity to regulate the level of the water table.

Through the last hundred years, more than half of the Earth's wetlands have been destroyed and disappeared. These wetlands are important not only because they are the habitats of numerous inhabitants such as mammals, birds, fish, amphibians, reptiles and invertebrates, but they support the growing of rice and other food crops as well as provide water filtration and protection from storms and flooding. Freshwater lakes such as the Aral Sea in central Asia have also suffered. Once the fourth largest freshwater lake, it has lost more than 58,000 square km of area and vastly increased in salt concentration over the span of three decades.

Security crisis

The lack of available freshwater has been a cause of concern for international security for some time. Although modern history has rarely seen 'water wars' (military struggles over access or ownership of freshwater resources), freshwater resources have played a role in many military actions. Countries have recognized the importance of freshwater to a state's survival, choosing to destroy freshwater resources and cut off access to freshwater as part of their military campaigns. Dams were routinely bombed by both German and Allied forces during World War II. In 1945 German forces used sewage to pollute a reservoir in Romania. During the Vietnam War, the United States bombed North Vietnam's irrigation systems. More recently, the US Intelligence Community Assessment of Global Water Security acknowledges that freshwater sources could 'contribute to the risk of instability and state failure, and increase regional tensions. In 1967, competition for water along the Jordan River played a central role in causing a war between the

Israelites and Arabs. In 1991, over competition from Sudan and Ethiopia, Egypt threatened to use military force to protect its access to the Nile river basin. Disputes between India and Pakistan have long flared over control of the Indus River Valley. And tensions between China and its neighbors over rivers have increased in recent years, including tensions with India and Myanmar over two proposed hydropower projects on rivers which run into those countries respectively. Not only do states hold exclusive rights to use and fight over water resources, it has long been recognized, given the importance of water to a state that non-state actors, notably terrorists and other extremists, but they may also seek to sabotage dams and other infrastructure. The difficulty of attributing such attacks may make some already tense regions even more unstable. Despite this seemingly dire background, it is largely true that historically, water tensions have led to more water-sharing agreements than violent conflicts. The Mekong River Committee was established in 1957 by Laos, Cambodia, Thailand and Vietnam in order to help manage the Mekong River for all the relevant countries. Similarly, Israel and Jordan have official agreements regarding use of the Jordan River, which even occurred whilst the two countries were still officially at war! Regional stability and peace, therefore, increasingly depends on effective management of the world's 263 shared international water basins.

Related UN resolution:

The United Nations has been thoroughly involved in the global water shortage and the issues that arise with it. This is supported by the numerous conferences that have been organized to discuss the global water shortage. Some of the resolutions relating to water scarcity are listed below:

- Follow-up to and implementation of the Mar del Plata Action Plan of the United Nations Water Conference, 18 December 1979, (A/RES/34/191)
- Proclamation of the International Drinking Water Supply and Sanitation Decade, 10 November 1980, (A/RES/35/18)
- International year of Freshwater, 1 February 2001, (A/RES/55/196)
- International Decade for Action, “Water for Life”, 23 December 2003, (A/RES/58/217)
- The human right to water and sanitation, 28 July 2010, (A/RES/64/292)
- International year of water cooperation, 11 February 2011, (A/RES/65/154)

Question resolution should cover

- Is the UN Current Plan sufficient for a proper solution for the water crisis?
- What solutions are suggested?
- How can awareness be raised about the issue?
- How can the growing demand for water be met?
- What are the scope and conditions for increasing water productivity in different sectors?
- Which tools should be used to enable the more efficient and equitable development and allocation of water?
- How can the best use be made of the water available?
- Which measures should be put in place to protect water resources and increase water supply?

Additional reading material:

- <http://greatist.com/health/27-water-crisis-orgs-follow-right-now>
- <http://www.unwater.org/worldwaterday/about/en/>
- <http://www.circleofblue.org/waternews/2010/world/experts-name-the-top-19-solutions-to-the-global-freshwater-crisis/>
- <http://www.un.org/en/globalissues/water/>
- <http://www.theguardian.com/global-development-professionals-network/2015/apr/02/water-scarcity-yemen-conflict>