Cleveland Council on WORLD AFFAIRS

United Nations Environment Programme

Background Guide

Written by: *Lelia Durand, Case Western Reserve University*

The UNEP was established in June 1972 after the first United Nations Conference on Human Environment in Stockholm to link social issues to environmental policies and programs. The committee represents the UN's voice on environmental issues, sets the global environmental agenda, provides leadership, and encourages partnership in caring for the environment. The UNEP also acts as a catalyst, advocate, educator, and facilitator in promoting sustainable development of the global environment and enabling nations and peoples to improve their quality of life without compromising that of future generations. The primary work conducted by the UNEP includes assessing global, regional, and national environmental trends and conditions, developing international environmental instruments, as well as strengthening institutions for wiser management of the environment.

I. Preventing Conflicts Over Water Scarcity

Statement of the Issue:

Water is one of the most important natural resources on the planet. It is crucial for the survival of plants, animals, and human beings and serves as an integral part of agriculture, industrial processes, and domestic activities. Though water makes up 71 percent of the earth's surface, only 3.5% is drinkable for humans.[1] In many parts of the world, water resources have become so depleted or contaminated that they are unable to meet ever-increasing demand, caused by the rapid increase in world population, industrialization, and urbanization since the 1960s.[2] Agriculture and food production consumes the largest proportion of water used

[1] "How Much Water Is on Earth?," *NASA Space Place*, NASA Science, March 26, 2020, How Much Water Is on Earth? | NASA Space Place – NASA Science for Kids. (accessed June 23, 2021).
[2] "Challenges of Water Scarcity," UNEP Finance Initiative, UNEP, January 2005, UNEPWater36pp100105REVISE (unepfi.org). (accessed June 17, 2021).

worldwide at 72 percent.[3] Water withdrawals - defined as freshwater taken from ground or surface sources, either permanently or temporarily, and conveyed to a place of use - have more than doubled globally and show no signs of slowing down.[4] This has put immense pressure on water resources, both surface and groundwater, especially in developing countries. Even in regions with adequate water resources, such as Europe, the imbalance between water demand and water supply has brought about increased water scarcity. Insufficient supplies and inadequate infrastructure have further contributed to the increase in nations that are water stressed. Additionally, water stress worldwide will likely be exacerbated by climate change, as rising global temperatures lead to more unpredictable weather and extreme weather events, including floods and droughts.[5] The effects of climate change can be seen in India where the length of droughts has increased and the frequency of heavy rains has increased. Water scarcity can also be caused by unnatural sources, including dam-building, water pollution, water wastage, and deforestation.

With roughly one third of groundwater considered under threat, water scarcity is increasingly affecting large parts of the world. 17 countries (with ¼ of the world's population) face "extremely high" levels of baseline water stress, where irrigated agriculture, industries, and municipalities withdraw more than 80% of their available supply on average each year.[6] Saudi Arabia, for example, which relies on ground water for roughly 98% of its water supply, is expected to run out of water in the next decade.[7] 44 countries (with ⅓ of the world's population) face "high" levels of stress, where on average between 40% and 80% of available supply is withdrawn each year.[8] Researchers at MIT projected that roughly 52 percent of the world's estimated 9.7 billion people will live in water-stressed regions by 2050.[9]

Water scarcity can cause many problems, especially in developing countries, emerging economies, and already volatile regions. While large-scale water wars are unlikely to happen in the next decade, water-related challenges including fresh water shortages, crop failures, and

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[3] "Water Scarcity," *UN Water*, United Nations, Scarcity | UN-Water (unwater.org). (accessed June 17, 2021).
[4] "Water Withdrawals," *OECD Data*, Water - Water withdrawals - OECD Data. (accessed June 20, 2021).
[5] Claire Felter and Kali Robinson, "Water Stress: A Global Problem That's Getting Worse," *Council on Foreign Relations*, Water Stress: A Global Problem That's Getting Worse | Council on Foreign Relations (cfr.org). (accessed June 17, 2021).
[6] Rutger Willem Hofste, Paul Reig and Leah Schleifer, "17 countries, Home to One-Quarter of the World's Population, Face Extremely High Water Stress," *World Resource Institute*, August 6, 2019, 17 Countries, Home to One-Quarter of the World's Population, Face Extremely High Water Stress | World Resources Institute (wri.org). (accessed June 17, 2021).
[7] "Saudi groundwater 'will run out in 13 years'", *Arabian Business*, February 11, 2016, Saudi groundwater "will run out in 13 years" - Arabianbusiness. (accessed June 17, 2021).
[8] Hofste, Reig and Schleifer, "17 countries."
[9] "Global Changes," *MIT Joint Program on the Science and Policy of Global Change*, Massachusetts Institute of Technology, Spring 2014, Spring 2014 Newsletter Final.pdf (mit.edu). (accessed June 8, 2021).

sanitation are already increasing small-scale conflict and instability within and across countries. For example, in Yemen where half of the population, roughly 14 million, struggle to find enough clean water to drink or grow food and poor infrastructure prevents household access to fresh water, water scarcity exacerbates armed conflict between people, communities, and nearby countries.[10] Water scarcity can also have far-reaching consequences including increased concentration of harmful pollutants, elevated risk of wildfires and dust storms, and increased likelihood of contact between humans and wildlife and the disease-carrying insects they host.[11]

Water scarcity can also lead to massive migration flows, exacerbate the political situation, and are the cause of armed clashes and wars especially in countries with high population density, lower per capita income, unfriendly attitudes, and more. Furthermore, many of the regions expected to have high population growth are already water stressed, such as India and China. Water scarcity is relevant to all countries, not merely those directly impacted as it has several spillover effects, including mass migration, crop failure, energy crises, and economic and governmental instability. 700 million people worldwide could be displaced by intense water scarcity by 2030, further exacerbating water-related conflicts and related spillover effects.[12] It is in the interest of all countries to find innovative and collaborative ways to address water stress.

History:

Across the world, many nations and regions have experienced conflicts that scholars attribute to water scarcity. One such case is between China and India, where the two countries have disputed over the location of the de facto border along the Himalayan mountains for more than four decades. The border straddles one of the most important reservoirs and the single largest source of freshwater on the Indian subcontinent, exacerbating the conflict. The most recent skirmish was in January 2021, which left soldiers on both sides injured; a clash in June 2020 was the first fatal confrontation since 1975.[13] The Middle East and North Africa (MENA) has also experienced numerous water-related conflicts as it is the most water-stressed region in

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[10] Frederika Whitehead, "Water scarcity in Yemen: the country's forgotten conflict," *The Guardian*, April 2, 2015, Water scarcity in Yemen: the country's forgotten conflict | Working in development | The Guardian. (accessed June 17, 2021).
[11] Josie Garthwaite, "Stanford researchers explore the effects of climate change on water shortages," *Stanford News*, Stanford University, March 22, 2019, The effects of climate change on water shortages | Stanford News. (accessed June 17, 2021).
[12] "Water Scarcity," *UN Water*.
[13] "India-China dispute: The border row explained in 400 words," *BBC News*, January 25, 2021, India-China dispute: The border row explained in 400 words - BBC News. (accessed June 17, 2021).

the world, with 12 out of 17 of the most water-stressed countries being in MENA.[14] The region is hot and dry so water supply is low and growing demands push countries further into extreme stress. MENA has also had the greatest expected economic losses from climate-related water scarcity, estimated at 6-14% of GDP by 2050.[15]

The UNEP has taken an active role in promoting long-term economic, social, and environmental prosperity. As water scarcity has become a more pressing issue and the spillover effects have greatly increased, the UNEP has focused on reducing water scarcity at the local and global level. The Sustainable Development Goal (SDG) 6, adopted by all UN member states in 2015 as part of the 2030 Agenda for Sustainable Development, seeks to "ensure availability and sustainability management of water and sanitation for all."[16] In 2018, the UNEP partnered with the DHI Centre on Water and Environment to improve management of freshwater resources at the local and global level. The two manage an integrated water resource management (IWRM) data portal that offers a comprehensive collection of national implementation progress data drawn from global country progress surveys. Currently, 54 percent of countries have implemented IWRM; to help cope with droughts, which will increase in prevalence due to climate variability and change, countries should develop water storage and water transfer infrastructure, prevent pollution of water sources, control demand, and increase efficiency in water use.

Analysis:

With the rising number and severity of people and countries who are water stressed, the need for a coordinated global effort to mitigate water related conflicts and spillover effects is crucial. There are many challenges to preventing water scarcity and ensuring all countries have adequate access to clean water. To begin, there is little info on how much groundwater is left in the world's largest basins. This information would help nations determine how imminent a risk water scarcity poses and would aid the international community in determining which regions need critical aid. Additionally, water disputes are a complex issue because water sources are often transboundary and water rights are often disputed. For example, China has been involved in several regional conflicts with Southeast Asian nations who are downstream from China over

[14] "RELEASE: Updated Global Water Risk Atlas Reveals Top Water-Stressed Countries and States," *World Resource Institute*, August 6, 2019, RELEASE: Updated Global Water Risk Atlas Reveals Top Water-Stressed Countries and States | World Resources Institute (wri.org). (accessed June 17, 2021).
[15] Ibrahim Al-Zu'bi, "Water scarcity is a growing problem across the Middle East. Is this how we solve it?," *World Economic Forum*, March 29, 2019, Water scarcity is a growing problem across the Middle East. Is this how we solve it? | World Economic Forum (weforum.org). (accessed June 17, 2021).
[16] "Integrated water resource management," *UN Water*, United Nations, Indicator | SDG 6 Data. (accessed June 22, 2021).

the diversion of their water from Chinese dams. A resolution should provide a dispute settlement mechanism while keeping in mind concerns over state sovereignty.

Inadequate infrastructure for water storage and water transfer and lack of technology to improve the efficiency of water usage also serves as a limitation for many nations to reduce water stress. As the impacts of climate change, especially water scarcity, are expected to lead to substantial employment cuts, particularly in water-dependent jobs, improving the efficiency of water usage could decrease the amount of job cuts. Cooperation between developing countries and developed countries to share technology and strategies could prove useful in reducing water stress, including reusing wastewater to generate a new source of clean water.

Conclusion:

Industrialization, urbanization, and the rapid increase in world population have significantly increased worldwide water demand, putting immense pressure on water resources. As water is crucial for human survival, the ecosystem, and the global economy, ensuring that all individuals have access to freshwater is a core mission of the UNEP. Without a coordinated global effort to improve the efficiency of water usage and support already water stressed countries, water scarcity could have far reaching effects. Reducing water scarcity will improve the lives and prospects of people everywhere, while also reducing the prevalence of water-related conflicts and other spillover effects of water scarcity.

Questions:

1. What can your country do to assist other nations experiencing water shortages and to avoid being water stressed or to reduce water-stress?
2. What international systems can be put in place to mitigate water stress and help resolve water conflicts?
3. How are the many competing interests involved in water being balanced?
4. What measures should be put in place to protect water resources and increase water supply? Which institutional and legal set-ups are the most appropriate for ensuring adequate coordination across nations?

II. Managing Plastic Waste Disposal

Statement of the Issue:

Plastic has quickly become an essential material in today's world and its convenience has enhanced the quality of life everywhere. It is durable, lightweight, resistant to degradation, and easy and inexpensive to produce. Plastic also has many uses, including for surgical instruments in the health sector and for innovation in cutting-edge technology. It has, however, become one of the world's greatest environmental challenges due to inadequate waste disposal. Each year, at least 8 million metric tons of plastic, ranging from plastic bags and bottles to tiny microbeads of plastic that get broken down from larger sources, are dumped into the ocean.[17] This is especially concerning as plastic remains in the environment for centuries since it is nearly impossible for nature to fully decompose; rather, it sticks around indefinitely, destroying marine ecosystems, clogging sewers, causing floods, and breeding disease.

History:

From the 1950s to the 1970s, small amounts of plastic were produced, making plastic waste relatively manageable.[18] By the 1990s, plastic production had more than tripled as a result of economic development and population growth. This rise has continued and has coincided with a shift towards single-use plastics, designed to be used and discarded quickly. This shift was accelerated as a result of the coronavirus pandemic as demand for single-use personal protective equipment such as masks and gloves skyrocketed and food vendors and grocery stores shifted to using disposable bags, plates, and cutlery. Today, roughly half of all plastic produced is single-use. The use of medical grade plastics in medical instruments, plastic that is sold by someone who operates under a physician license, has also significantly increased as it offers many advantages to the healthcare industry including versatility, easy sterilization, and cost-effectiveness.

Though plastic has significantly improved quality of life, less than 14 percent of it is recyclable. The remaining 86 percent is incinerated or accumulates in landfills, dumps, or oceans. Plastic waste that ends up in the oceans poses an existential threat to marine ecosystems, marine wildlife, fisheries, and tourism. It is estimated that damage to marine

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[17] Anastasia Pantsios, "8 Million Metric Tons of Plastic Dumped Into World's Oceans Each Year," *EcoWatch*, February 16, 2015, 8 Million Metric Tons of Plastic Dumped Into World's Oceans Each Year - EcoWatch. (accessed July 8, 2021).

[18] "Our planet is drowning in plastic pollution - it's time for change," *UNEP*, United Nations, #BeatPlasticPollution This World Environment Day (unep.org). (accessed July 8, 2021).

ecosystems is responsible for roughly $13 billion annually, including losses to the fishing industry and tourism and efforts to clean up beaches.[19] Once in the ocean, plastic is broken down into microplastics, small plastic pieces less than five millimeters long, and ingested by marine wildlife; it is then easily transferred up the food chain and gets consumed by humans and other animals and can damage organs and leach dangerous hormone-disrupting chemicals that affect immune systems, growth, and reproduction.[20]

Prior to 2018, China managed almost half of the world's recyclable waste. However, this waste was often contaminated, overwhelming Chinese processing facilities and threatening their environment. In 2018, the Chinese government banned the import of most plastics and other materials for recycling. Imports to Thailand, Malaysia, and Vietnam grew significantly, though by 2020 they had also banned imports of plastic scrap and plastic waste. These restrictions on exporting waste places pressure on waste exporting countries to develop updated waste strategies and to invest in domestic waste-handling capacity. However, these investments take time and thus countries have also increasingly used landfills and incineration to deal with excess plastic waste.

The UNEP has made several efforts to reduce plastic waste and improve plastic waste disposal. In 2017, they launched the Clean Seas Campaign to help curb the flow of marine litter and plastic waste entering lakes, waterways, and oceans.[21] The campaign highlights the role of both governments and businesses and emphasizes the use of a human rights-based approach when taking action to protect the oceans and seas. Its goal is to eliminate microplastics from personal care products, ban or tax single-use plastic bags, and reduce other disposable plastic items by 2022. Currently, sixty-two member states that cover 60 percent of the world's coastlines are part of this campaign and have made ambitious pledges and commitments.

The UNEP has also partnered with the Ellen MacArthur Foundation on the Global Commitment to the New Plastics Economy to foster cooperation between the private and public sectors in reducing plastic use and enhancing recycling and composting systems. At the most recent Basel Conference of the Parties in 2019, governments amended the Basel Convention, a multilateral agreement regarding the disposal and transboundary movements of hazardous waste negotiated under UNEP beginning in 1988, to include plastic waste in a legally-binding

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[19] Gaelle Gourmelon, "Global Plastic Production Rises, Recycling Lags," Worldwatch Institute, January 27, 2015, Global-Plastic-Production-RisesRecycling-Lags.pdf (plastic-resource-center.com). (accessed July 8, 2021).
[20] Helle Abelvik-Lawson, "Why is there so much plastic in the ocean?," *Greenpeace*, June 10, 2020, Why is there so much plastic in the ocean? | Greenpeace UK. (accessed July 8, 2021).
[21] "Clean Seas Campaign promotes the right to a healthy environment, including plastic-free oceans," *UNEP*, United Nations, June 9, 2021, Clean Seas Campaign promotes the right to a healthy environment, including plastic-free oceans (unep.org). (accessed July 8, 2021).

framework.[22] The intention is to make global trade in plastic waste more transparent and better regulated. There is also a similar framework for regulating the transboundary movement of hazardous waste amongst members of the Organization for Economic Cooperation and Development (OECD).

Analysis:

The current rate of plastic consumption is unsustainable and the world's waste management system is unable to process it all. Action is needed to both reduce the amount of plastic produced, especially single-use, and to improve the waste disposal management systems. All nations, regardless of income level, can take action to ban or regulate single-use plastics. For example, Rwanda was a pioneer in banning single-use plastic bags in 2008; in addition to saving money by reducing costs of paying government workers to clean up the plastic waste, its greener environment has led to an increase in tourism.[23] The European Commission (EC) has also implemented new regulations on the export, import, and intra-European Union (EU) shipment of plastic waste.[24] Governments can further motivate businesses and individuals to recycle plastic by offering financial incentives and imposing financial penalties. In addition to promoting the 3Rs, reduce, reuse, and recycle, Japan incentivizes citizens to properly dispose of waste by charging higher amounts to discard solid waste versus glass or plastic bottles.[25]

In addition to outright bans or restrictions on the use of plastic, technology offers a potential solution to both reducing the amount of plastic waste and to improving waste management in a cost-effective way. As 86 percent of plastic waste is not recyclable, investments into sustainable plastic that can be recycled could reap massive economic profits while also reducing the world's plastic waste problem. Additionally, increasing the use of waste-to-energy (WTE) incinerators, which burn municipal solid waste (MSW), or garbage or trash, to produce steam in a boiler that is used to generate electricity offers an alternative to dumping plastic in landfills or in the ocean. These plants efficiently combust waste while lowering levels of air pollution because they have advanced smokestack filtration technology to eliminate toxic emissions; they are most cost-efficient when the cost of other sources of electricity accounts for the social cost of carbon, unlike in the United States. As global plastic production continues to increase, doubling every 11

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[22] "Overview," Secretariat of the Basel Convention, Overview (basel.int). (accessed July 8, 2021).
[23] Meghan Werft, "Eliminating Plastic Bags in Rwanda Saved Lives and the Economy," *Global Citizen*, September 22, 2015, Eliminating Plastic Bags In Rwanda Saved Lives and the Economy (globalcitizen.org). (accessed July 8, 2021).
[24] "Plastic waste shipments: new EU rules on importing and exporting plastic waste," *European Commission*, European Union, December 22, 2020, Plastic waste shipments: new EU rules on importing and exporting plastic waste (europa.eu). (accessed July 8, 2021).
[25] Chisato Shizume, "Recycling in Japan: Improving waste management," *Zenbird*, March 26, 2020, Recycling in Japan: Improving waste management | Sustainability from Japan - Zenbird. (accessed July 8, 2021).

years, reducing production of plastic waste and implementing an improved global waste management system is crucial to the health of the marine ecosystem, wildlife, fishery and tourism, and humans.

Conclusion:

The world is generating more plastic waste than it is able to recycle and adequately dispose of, posing an existential threat to the marine ecosystem and health risks to humans and animals. If the rate of plastic consumption is to continue as it currently is, by 2050 the plastic industry could account for 20 percent of the world's total oil consumption and the world's oceans could contain more plastic than fish. The UNEP has worked hard to reduce plastic waste and improve disposal methods. However, without additional action by countries, international agreements, businesses, and individuals, plastic will continue to be dumped in landfills, oceans, or be incinerated and will have irreversible negative impacts on the environment.

Questions:

1. Who should pay for potential investment in technology to improve waste management or recyclable plastic?
2. Who is responsible for each nation's waste management?
3. Is there a way to regulate the import of plastic waste so that the importing nation's environment is not seriously impacted and that they are fairly compensated for it? Should countries be able to export waste at all?