



UNITED NATIONS ENVIRONMENTAL PROGRAM JUNIOR

Study Guide

**Agenda: Discussing the Global Water crisis
and research on mechanisms to combat it**

ANNUAL WORLD SUMMIT 2024



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Letter from the Executive Board

Dear delegates,

As the Executive Board of the United Nations Environment Programme (UNEP), we are committed to fostering an inclusive and dynamic committee environment that promotes meaningful dialogue and collaborative problem-solving. We hope that committee sessions are filled with professionalism, mutual respect, and inclusiveness.

In running the committee, we encourage delegates to actively engage in discussions, contribute constructively to debates, and seek common ground to address the complex issues before us. We value diversity of perspectives and encourage delegates to approach discussions with an open mind, fostering an atmosphere where all voices are heard and respected.

Kindly do not limit your research to the areas highlighted herein, but ensure that you logically deduce and push your research to areas associated with and in addition to the issues mentioned. This guide provides a skeletal overview of the agenda.

Furthermore, I welcome discussions on the interpretation and application of existing laws, as well as the exploration of potential legal frameworks to address emerging human rights challenges. In addition to the topics outlined in the study guide, I invite delegates to propose additional legal aspects, laws, and treaties for discussion during committee sessions. Our goal is to explore a wide range of legal perspectives and consider innovative approaches to uphold human rights standards and promote accountability.

Best regards,

UNEP Junior Executive Board

Chairperson: Samikaa Bansal

Vice-Chairperson: Dev Khetan

Moderator: Anaya Gupta



Introduction to the Committee

The United Nations Environment Programme (UNEP) is the leading global environmental authority. UNEP's mission is to inspire, inform, and enable nations and people to improve their quality of life without compromising that of future generations. For over 50 years, UNEP has worked with governments, civil society, the private sector and UN entities to address humanity's most pressing environmental challenges - from restoring the ozone layer to protecting the world's seas and promoting a green, inclusive economy. UNEP's work is focused on helping countries transition to low-carbon and resource-efficient economies, strengthening environmental governance and law, safeguarding ecosystems, and providing evidence-based data to inform policy decisions. UNEP's mandate is to find solutions to the triple planetary crisis of climate change, nature and biodiversity loss, and pollution and waste.

UNEP originated from the Stockholm Conference on the Human Environment and was officially formed on December 15 through the adoption of Resolution 2997. The first conference took place at the Palais des Nations in Geneva, but its official headquarters were later relocated to Nairobi, Kenya, following complete facility preparations. The organization initially had a staff of 300, including 100 professionals from various fields of study. The United States initially committed \$40 million, with the remaining \$60 million pledged by the other 57 member states.

According to the resolution, the Governing Council UNEP has several primary functions and responsibilities, including:

- Facilitating international cooperation in environmental matters and recommending policies as needed.
- Providing overarching policy guidance for directing and coordinating environmental programs across the United Nations system.
- Review periodic reports from the Executive Director on the implementation of environmental programs within the UN system.



Introduction to the Committee

- Monitoring the global environmental situation to ensure emerging environmental issues of international significance receive due attention from governments.
- Encouraging the involvement of relevant international scientific and professional communities in acquiring, assessing, and exchanging environmental knowledge and information, and assisting with technical aspects of environmental program formulation and implementation within the UN system.
- Continuously assessing the impact of national and international environmental policies on developing countries, as well as addressing the additional costs these countries may face in implementing environmental programs and projects, ensuring compatibility with their development plans and priorities. The council also reviews and approves the Environment Fund's resource utilization program.

Environmental activities undertaken by UNEP encompass various areas, including: - Early Warning and Assessment

- Environmental Policy Development and Legislation
- Technology, Industry, and Economics
- Environmental Policy Implementation
- Regional Cooperation
- Environmental Conventions
- Coordination of the Global Environment Facility

From the very beginning of its establishment, the committee has achieved other significant milestones, including sponsorship of solar loan programs, the implementation of Marshland projects in the Middle East, and the initiation of its International Environmental Education Program. UNEP has been particularly engaged in funding and executing initiatives focused on environmental development.

At the core of UNEP's work are the 17 Sustainable Development Goals (SDGs), unanimously adopted by all United Nations Member States in 2015



Introduction to the Committee

These goals serve as a collective blueprint for fostering peace and prosperity for both people and the planet, both now and in the future. The SDGs constitute an urgent appeal applicable to all countries, emphasizing the interconnectedness of ending poverty and other deprivations with strategies that enhance health and education, reduce inequality, stimulate economic growth, and address climate change for sustainable ecosystems.

UNEP has restructured its operational framework into six key areas, guided by scientific evidence, its mandate, and input from global and regional forums. These areas are as follows:

1. CLIMATE CHANGE: UNEP takes a leadership role in assisting countries to incorporate climate change responses by emphasizing adaptation, mitigation, technology, and finance. It concentrates on facilitating the shift towards low-carbon societies, enhancing climate science understanding, promoting renewable energy development, and increasing public awareness.

2. POST-CONFLICT AND DISASTER MANAGEMENT: UNEP conducts environmental evaluations in countries facing crises and aids in establishing improved environmental management legislative and institutional frameworks. Notable activities include environmental assessments in post-conflict zones like Afghanistan, Côte d'Ivoire, Lebanon, Nigeria, and Sudan.

3. ECOSYSTEM MANAGEMENT: UNEP promotes ecosystem management and restoration aligned with sustainable development principles and advocates for the utilization of ecosystem services. The Global Programme of Action (GPA) for the

Protection of the Marine Environment from Land-Based Activities is an exemplary initiative.

4. ENVIRONMENTAL GOVERNANCE: UNEP assists governments in establishing, implementing, and reinforcing the necessary processes, institutions, laws, policies, and programs to achieve sustainable development at various levels, while also integrating environmental concerns into development planning.



Introduction to the Committee

5. HARMFUL SUBSTANCES MANAGEMENT: UNEP endeavours to mitigate the environmental and human health impacts of harmful substances and hazardous waste. It engages in negotiations for global agreements, such as on mercury, and implements projects addressing mercury and the Strategic Approach to International Chemicals Management (SAICM) to reduce associated risks.

6. RESOURCE EFFICIENCY/SUSTAINABLE CONSUMPTION AND PRODUCTION: UNEP focuses on regional and global initiatives to promote environmentally friendly production, processing, and consumption of natural resources. The Marrakech Process, for instance, supports the development of a 10-year Framework of Programs on sustainable consumption and production.

UNEP's primary goal is to catalyze action on the environment and promote solutions to the triple planetary crisis of climate change, nature and biodiversity loss, and pollution and waste.

UNEP's work helps humanity to live more in harmony with nature and move beyond the unsustainable consumption and production practices that are pushing the planet to breaking point. This is essential for realizing the Sustainable Development Goals, the world's blueprint for long-term peace and prosperity.

In the five decades since its founding, UNEP's convening power, rigorous scientific research and public advocacy have helped to boldly advance the global environmental agenda. In particular, UNEP has led efforts to counter climate change, protect endangered species, end deforestation, repair the hole in the ozone layer and phase out toxic leaded fuels.



Introduction to the Agenda

Water is a finite resource in growing demand. As the global population increases, and resource-intensive economic development continues, many countries' water resources and infrastructure are failing to meet accelerating demand.

Water scarcity is a relative concept. The amount of water that can be physically accessed varies as supply and demand changes. Water scarcity intensifies as demand increases and/or as water supply is affected by decreasing quantity or quality. Even in countries with adequate water resources, water scarcity is not uncommon. Although this may be due to a number of factors- collapsed infrastructure and distribution systems, contamination, conflict, or poor management of water resources, it is clear that climate change, as well as human factors, are increasingly denying children their right to safe water and sanitation. About 2 billion people lack safe drinking water, according to UN-Water, and about 5.4 billion don't have access to safely managed sanitation services.

Water scarcity limits access to safe water for drinking and for practicing basic hygiene at home, in schools and in health-care facilities. When water is scarce, sewage systems can fail and the threat of contracting diseases like cholera surges. Scarce water also becomes more expensive. Water scarcity takes a greater toll on women and children because they are often the ones responsible for collecting it. When water is further away, it requires more time to collect, which often means less time at school. Particularly for girls, a shortage of water in schools impacts student enrolment, attendance and performance.



Current Situation

Today, 2.4 billion people live in water-stressed countries, defined as nations that withdraw 25 percent or more of their renewable freshwater resources to meet water demand. At least 50 per cent of the planet's population- 4 billion people deal with water shortages at least one month of the year. By 2025, 1.8 billion people are likely to face what the Food and Agriculture Organization (FAO) calls "absolute water scarcity." Hard hit regions include Southern and Central Asia, and North Africa, where the situation is considered critical. Even countries with highly developed infrastructure, like the United States, are seeing water levels drop to record lows.

Globally, 2 billion people (26% of the population) do not have safe drinking water and 3.6 billion (46%) lack access to safely managed sanitation, according to the report, published by UNESCO on behalf of UN-Water and released today at the UN 2023 Water Conference in New York. Between two and three billion people experience water shortages for at least one month per year, posing severe risks to livelihoods, notably through food security and access to electricity. The global urban population facing water scarcity is projected to double from 930 million in 2016 to 1.7-2.4 billion people in 2050. The growing incidence of extreme and prolonged droughts is also stressing ecosystems, with dire consequences for both plant and animal species.

Climate change is warming the planet, making the world's hottest geographies even more scorching. At the same time, clouds are moving away from the equator toward the poles, due to a climate-change driven phenomenon called Hadley Cell expansion. This deprives equatorial regions like sub-Saharan Africa, the Middle East and Central America of life-giving rainwater.



Current Situation

Paradoxically, climate change is also increasing precipitation in other areas, and people who live near rivers and streams have the most to lose. Currently, at least 21 million people worldwide are at risk of river flooding each year. That number could increase to 54 million by 2030. All countries with the greatest exposure to river floods are least developed or developing countries – which makes them even more vulnerable to climate change and natural disasters. This summer, extreme flooding submerged over a third of Bangladesh, claiming over 115 lives and affecting 5.7 million citizens.

It's a simple equation: As populations increase and incomes grow, so does water demand. The world's population, now at 7.5 billion, is projected to add 2.3 billion more people by 2050. How can the planet satisfy their thirst? Growing incomes also exacerbate the water problem, because of the water-intensive products—like meat and energy from fossil fuels—that richer populations demand.

About 30 percent of Earth's fresh water lies deep underground in aquifers. And it's extracted daily for farming, drinking and industrial processes – often at dangerously unsustainable rates. Nowhere is this more evident than India, which guzzles more groundwater than any other country. 54 percent of India's groundwater wells are decreasing, meaning that water is used faster than it's replenished. Unless patterns shift, in 20 years, 60 percent of India's aquifers will be in critical condition.

Unlike an incoming hurricane or a drained lake, the naked eye cannot see when groundwater reserves in aquifers are declining. Global water supplies are susceptible to this hidden and growing threat.

Water supplies stored in glaciers and snow cover are projected to further decline over the course of the century, thus reducing water availability during warm and dry periods in regions supplied by melt water from major mountain ranges, where more than one-sixth of the world's population currently live .

Current Situation



Sea-level rise is projected to extend salinisation of groundwater, decreasing freshwater availability for humans and ecosystems in coastal areas . Limiting global warming to 1.5°C compared to 2°C would approximately halve the proportion of the world population expected to suffer water scarcity, although there is considerable variability between regions.

Water quality is also affected by climate change, as higher water temperatures and more frequent floods and droughts are projected to exacerbate many forms of water pollution – from sediments to pathogens and pesticides.

Climate change, population growth and increasing water scarcity will put pressure on food supply as most of the freshwater used, about 70 per cent on average, is used for agriculture (it takes between 2000 and 5000 liters of water to produce a person's daily . Climate change has made extreme weather events such as floods and droughts more likely and more severe .

Rising global temperatures increase the moisture the atmosphere can hold, resulting in more storms and heavy rains, but paradoxically also more intense dry spells as more water evaporates from the land and global weather patterns change.

Drought and flood risks, and associated societal damages, are projected to further increase with every degree of global warming . The frequency of heavy precipitation events will very likely increase over most areas during the 21st century, with more rain-generated floods. At the same time, the proportion of land in extreme drought at any one time is also projected to increase . Water-related disasters have dominated the list of disasters over the past 50 years and account for 70 per cent of all deaths related to natural disasters . Since 2000, flood-related disasters have risen by 134 per cent compared with the two previous decades. Most of the flood-related deaths and economic losses were recorded in Asia. The number and duration of droughts also increased by 29 per cent over this same period. Most drought-related deaths occurred in Africa .



Relevant Treaties and Conventions

- 1. Convention on the Protection and Use of Transboundary Watercourses and International Lakes as amended, along with decision VI/3 clarifying the accession procedure**
- 2. The Convention for Cooperation in the Protection, Management and Development of the Marine and Coastal Environment of the Atlantic Coast of the West and Central Africa Region (Abidjan Convention)**
- 3. Convention for the Protection of the Mediterranean Sea Against Pollution (Barcelona Convention)**
- 4. Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (Cartagena Convention)**
- 5. Northwest Pacific Action Plan (NOWPAP)**
- 6. Goal 6**



Case Studies

BRAZIL WATER CRISIS:

From 2012 to 2015, Brazil experienced one of the worst droughts in its history. A similar severe drought affected much of the Western Hemisphere- including the United States, Mexico, and Central America during that same period. Several other interrelated external and internal factors also contributed to an unforeseen water crisis in Brazil. Climate change, environmental degradation, poor urban planning, a lack of maintenance of existing infrastructure, corruption, and the chronic mismanagement of water resources all worked together to create a cycle of pollution and waste.

The following study will focus on the 2012–15 drought in the large metropolitan area of the city of São Paulo, located in the southeastern state of São Paulo. Though the city has good water management laws on the books, it is clear that Brazilian officials have played a significant role in exacerbating the water crisis by

ignoring many of these laws and allowing for the poor planning, neglect, and mismanagement of one the nation’s most essential resources.

The next step to understanding Brazil’s water crisis is to examine the interaction between geography and politics and the impact of climate change. The significant geographic differences between Brazil’s regions and demographic pressures account for only part of a complex scenario. Climate also plays a significant role in affecting water resources in these regions, impacting them with cyclical periods of precipitation and drought and other unpredicted climate-related events. Climate change studies by various scientific organizations and universities continue to assess possible consequences and risks in Brazil.



Case Studies

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Alongside global climate change, other climatic factors also affect environmental change in Brazil. The Southern Hemisphere has a different seasonal pattern than the Northern Hemisphere, which has marked seasons. As in most of South America, Brazil's seasons include a rainy period, which typically lasts from October to March, and a dry period, which usually occurs from April to September. However, these two seasons have been subject to increasingly adverse weather patterns known as El Niño and La Niña.

The El Niño and La Niña weather patterns are contrasting periods of the El Niño-Southern Oscillation (ENSO) that are caused by variations in ocean current patterns in the eastern part of the Equatorial Pacific region. During periods that range from 7 to 11 months, warmer currents from the equatorial waters replace the colder Humboldt Currents off the coast of Peru. El Niño brings warmer temperatures and more rainfall than usual in certain areas, while La Niña is responsible for lower temperatures and drier conditions, lasting 9 to 12 months.

During El Niño periods, there is excessive rainfall, especially in southeastern South America, which causes severe flooding in the region.

Rio de Janeiro and São Paulo, the largest cities in South America, are both located in southeast Brazil. Between 2012 and 2015, a particularly severe El Niño aggravated the drought in the historically dry northeast region, but there was no excess of precipitation in the southeast. The rainy season in those years had less rainfall than was expected during the summer months, especially during an El Niño period



Case Studies

There was a simultaneous occurrence of other rare climatic events, including a reduced number of occurrences of the South Atlantic Convergence Zone (SACZ), the most critical mechanism that produces rain in southeast Brazil in the summer, and the strength of South American low-level jet winds.

El Niño brings periods of hot spells to the interior of Brazil, causing elevated temperatures in the southern parts of the country and affecting many large cities in the summer. El Niño also aggravates drought conditions in the northeast region, reducing by up to 50 percent its already low rainfall levels and further straining water supplies, hydroelectricity, power plants, and cocoa and coffee production. In addition to the severity of disruptions caused by El Niño and La Niña, historical evidence shows that both are also occurring more frequently. While previous studies registered the phenomena happening approximately every 20 years, El Niño occurrences are expected to double in this century, with extreme weather-related events eventually taking place once every decade.

Climatologists from Brazil's National Institute for Space Research (INPE) have concluded that a chain of combined climatic mechanisms explains the causes of the 2012–15 drought. One of their models tracked the drought's initiating factor to anomalous rains in the tropical north of Australia, which set off a sequence of processes that connected with the tropical southeast region of Brazil. While their studies did not indicate that the drought was the result of an increase of greenhouse gases in the atmosphere that contributes to global warming, they were able to conclude that the factors most likely responsible for contributing to the water supply crisis in São Paulo were population increase and higher water consumption. São Paulo experienced rapid urbanization during the past century, but inadequate infrastructure planning resulted in a deficient water supply. The combination of rare climate events exponentially accelerated and highlighted the effects of that lack of planning, resulting in a critical situation.



Case Studies

Minamata Japan:

Minamata Disease stands as a grim reminder of the severe consequences of industrial pollution on human health and the environment. This tragic event emerged in the mid-20th century in Minamata City, Kumamoto Prefecture, Japan, and its impact has reverberated through time, influencing environmental policies and corporate accountability worldwide.

The disease was first officially discovered in May 1956 when an abnormal neurological condition affecting the central nervous system was reported among residents of Minamata. However, the roots of this catastrophe trace back to 1932, when the Chisso Corporation, a major producer of acetaldehyde, began discharging wastewater containing methylmercury into the Minamata Bay. This toxic compound is known for its ability to bioaccumulate in marine organisms, posing severe health risks when these contaminated fish and shellfish are consumed by humans.

Affected individuals exhibited a range of debilitating symptoms, including numbness in hands and feet, muscle weakness, loss of peripheral vision, and damage to hearing and speech. In extreme cases, victims experienced paralysis, insanity, coma, and death. The initial outbreak was shrouded in mystery, as the cause of the disease was unknown, complicating efforts to diagnose and treat those affected. This uncertainty, coupled with the disease's severe symptoms, led to widespread panic and confusion within the community.

The local community, particularly fishermen and their families who relied heavily on the local marine life for their livelihood and diet, bore the brunt of the outbreak. The disease not only devastated their health but also triggered severe economic and social repercussions. The fear and stigmatization of the victims further exacerbated the community's suffering, leading to isolation and discrimination against those affected.



Case Studies

The initial response from both the government and the Chisso Corporation was slow and inadequate. It was not until 1968, after extensive research and mounting evidence, that the Japanese government officially acknowledged that Minamata Disease was caused by industrial pollution from the Chisso factory. This belated recognition marked the beginning of a long and arduous journey towards justice and compensation for the victims. The Chisso Corporation eventually provided compensation, but this came only after prolonged legal battles and significant public pressure, highlighting the challenges victims faced in seeking redress.

The environmental and legal repercussions of the Minamata disaster were profound. This tragedy prompted the Japanese government to enact stricter pollution control laws and establish more robust mechanisms for environmental monitoring and public health protection. These regulatory changes aimed to prevent such a disaster from recurring, reflecting a broader shift towards greater environmental awareness and responsibility. Additionally, the Minamata case set a precedent for corporate accountability and environmental justice, influencing similar movements globally.

Minamata Disease remains a stark example of the catastrophic effects of environmental negligence and industrial pollution. It underscores the critical need for sustainable industrial practices and vigilant environmental regulation to protect public health and preserve ecological integrity. The lessons learned from Minamata continue to resonate, serving as a poignant reminder of the delicate balance between industrial progress and environmental stewardship.



Suggested Moderated Caucus Topics

- 1. Exploring modern innovations and technology to combat scarcity of water**
- 2. Addressing water insecurity in Southeast Asia**
- 3. Investment into water security projects in developing countries**
- 4. Implementing methods to prevent countries breaching their water resource limits**
- 5. Alleviating the effect of climate change on water resources**
- 6. Collaborating towards sustainable and long-term management of water resources in agriculture**
- 7. Exploitation of unconventional water sources**
- 8. Development of action plans that address water use and pollution across multiple sectors.**
- 9. Utilization of energy transition minerals to unlock the clean energy age**
- 10. Enhancing water security for indigenous communities**



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