UNEP United Nations Environment Programme

VANMUN 2023

"Climate change and its effects in the 21st century"

Letter from the Executive Board

Honorable Delegates,

It is my honor to be serving as your chair alongside our amazing chairs Abejo and Moumita. I hope to bequeath you a positive MUN experience that will leave you itching to learn more, challenge yourself, and become a global citizen.

We are excited to meet all of you, and spend 4 days of intense debate and great social events together. During your time in the conference, we will strive to provide you with the best experience possible.

The chosen agenda of the UNEP is of great significance for the global community. We are excited to hear a broad range of inputs on these pressing issues, and hope that all of you will live the MUN spirit of collaboration and dedication in order to reach a strong resolution on the topics.

This study guide will hopefully support you in your research and streamline your preparation for the conference. It is however strongly encouraged for you to **go beyond the content of this guide** - find out about your country's position and learn all you can about the matters at hand. The better prepared you are, the more fun you will have debating with your fellow delegates at VANMUN!

Remember, when I say you, I don't mean just the country you represent. I mean you, the person behind the screen taking the time to read through my letter; I mean you, the ones preparing to debate this hurricane of a topic. Climate Change will continue to affect us without a call to action. I'm wishing you luck in your preparation, and look forward to seeing y'all at the first session of VANMUN'23.

In case you have any questions about the conference or the committee, please do not hesitate to contact anyone in the EB! We wish you all the best in your preparations and look forward to seeing you at the conference!

Sincerely,

Shreyas, Chairperson, shreyas.07.sathish@gmail.com Abejo Michael, Guest Chairperson, <u>mabejo2005@gmail.com</u> Moumita, Vice Chairperson, moumita1062008@gmail.com

Glossary

Palais Des Nations: The Palace of Nations (French: Palais des Nations) is the home of the United Nations Office at Geneva, located in Geneva, Switzerland. It was built between 1929 and 1938 to serve as the headquarters of the League of Nations. It is also the location where the first UNEP Governing Council was held in June 1973.

Maurice Strong: The first executive director of UNEP, from Canada. **Inger Anderson:** The current executive director of UNEP, from Denmark.

Capacity-building: Capacity-building is defined as the process of developing and strengthening the skills, instincts, abilities, processes and resources that organizations and communities need to survive, adapt, and thrive in a fast-changing world

Montreal Protocol: An international treaty established with UNEP's involvement to phase out the production and consumption of Ozone-Depleting Substances and protect the ozone layer. The Montreal Protocol is signed by 197 countries – the first treaty in the history of the United Nations to achieve universal ratification – and is considered by many the most successful environmental global action.

United Nations Framework Convention on Climate Change: The convention sets out the basic legal framework and principles for international climate change cooperation with the aim of stabilizing atmospheric concentrations of greenhouse gasses (GHGs) to avoid "dangerous anthropogenic interference with the climate system."

Kyoto Protocol: The Kyoto Protocol operationalizes the United Nations Framework Convention on Climate Change by committing industrialized countries and economies in transition to limit and reduce greenhouse gasses (GHG) emissions in accordance with agreed individual targets. The Convention itself only asks those countries to adopt policies and measures on mitigation and to report periodically.

IPCC (Intergovernmental Panel on Climate Change): An international body of climate scientists that assesses scientific research on climate change and its impacts.

Vulnerable communities: Populations that are disproportionately affected by the impacts of climate change due to socioeconomic factors or geographical location.

Intergenerational equity: Fairness in decision-making that considers the needs and rights of future generations. The principle of intergenerational equity holds that, to promote prosperity and quality of life for all, institutions should construct administrative acts that balance the short-term needs of today's generation with the longer-term needs of future generations.

Saltwater intrusion: Saltwater intrusion occurs when saline (salty) water is drawn into a freshwater aquifer. Saltwater intrusion can affect one well, or multiple wells in an aquifer, making the water non potable

Mitigation: Mitigation is the reduction of something harmful or the reduction of its harmful effects. It may refer to measures taken to reduce the harmful effects of hazards that remain in potentia, or to manage harmful incidents that have already occurred.

Stakeholders: Individuals, groups, or organizations with a vested interest in or affected by a particular issue or decision.

Non-renewable resources: Natural resources that are finite and cannot be replenished within a human lifetime, such as minerals and fossil fuels.

Quarrying: The process of extracting stone, rock, or other materials from the Earth's surface for construction or industrial use.

Low carbon transition: The shift towards a low-carbon economy, reducing reliance on fossil fuels and increasing the use of renewable energy sources.

Rare earths: A group of elements used in the manufacturing of high-tech devices, renewable energy technologies, and defense applications.

Introduction to the Committee

In June 1972, the Stockholm Conference on the Human Environment founded the United Nations Environment Programme (UNEP). The first UNEP Governing Council was held a year later in Palais de Nations, Geneva from June 12-22 of 1973. On October 2nd of 1973, the main office of the UNEP moved to Kenya. The headquarters of the UNEP are still located in Nairobi, Kenya today. The first executive director of the UNEP was Maurice Strong of Canada and the current executive director is Inger Anderson of Denmark.

The mission of UNEP is to provide leadership and encourage partnerships in caring for the environment. Its primary goal is to help countries and societies to improve their environmental performance and move towards sustainable development. UNEP aims to support the conservation and wise use of natural resources, promote the adoption of environmentally-friendly policies and practices, and facilitate international cooperation on environmental issues.

UNEP carries out its work through various programs, initiatives, and partnerships. It assists countries in developing and implementing environmental policies and strategies, provides technical expertise and capacity-building support, and facilitates the exchange of information and best practices. UNEP also conducts research, produces reports, and raises awareness on critical environmental challenges, such as climate change, biodiversity loss, pollution, and resource depletion.

One of UNEP's notable achievements is its role in catalyzing and coordinating international environmental agreements and conventions. For instance, UNEP played a crucial role in the establishment of the Montreal Protocol on Substances that Deplete the Ozone Layer, which has been successful in phasing out ozone-depleting substances. UNEP also supports the implementation of the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement, working towards global efforts to address climate change.

UNEP collaborates with governments, civil society organizations, scientific institutions, businesses, and other stakeholders to promote sustainable development and address environmental challenges at global, regional, and national levels. It works closely with other United Nations entities, including the United Nations Development Programme (UNDP) and the United Nations Educational, Scientific and Cultural Organization (UNESCO), to integrate environmental considerations into broader development agendas.

In summary, the United Nations Environment Programme is a vital international organization that leads efforts to protect and improve the global environment. It strives to foster environmental sustainability, support countries in their environmental endeavors, and promote cooperation for a healthier and more sustainable planet.

Problem Statement

Climate change in the 21st century is a pressing global issue with wide-ranging implications for the environment, economies, societies, and human well-being. It refers to long-term shifts in weather patterns, temperature, sea levels, and other aspects of the Earth's climate system, primarily caused by human activities, particularly the burning of fossil fuels that generates the emission of greenhouse gasses into the atmosphere.

Climate scientists have extensively studied the causes of global heating and have reached a consensus that human activities are the primary drivers of the observed increase in global temperatures over the last 200 years. Scientists use various methods, including climate models, satellite observations, ice core samples, and historical temperature records, to analyze past climate patterns and understand the drivers of global heating. These studies consistently show that the rate and extent of global heating observed in recent decades are



unprecedented when compared to natural climate variations over the past two thousand years.

The

Intergovernmental Panel Climate on Change (IPCC), а leading international bodv of climate scientists. has concluded that it is extremely likely that more than half of the observed increase in global average

surface temperature since the mid-20th century is attributable to human influence. It is important to note that natural factors, such as volcanic eruptions and variations in solar radiation, have influenced climate in the past, but their contribution to recent global heating is relatively small compared to human-induced factors.

Climate change is a complex issue with interconnected effects that span across sectors and regions. These effects include disruptions to agriculture, water resources, infrastructure, economies, and social systems. Recognizing the interconnections will allow for a holistic examination of the problem. The impacts of climate change are intensifying, and their consequences are being felt globally. Swift action is needed to mitigate greenhouse gas emissions, adapt to changing conditions, and build resilience in vulnerable communities and ecosystems.

Climate change disproportionately affects the vulnerable population globally. Recognizing and addressing the inequities and injustices associated with climate change is crucial. The problem statement highlights the importance of promoting equity in the allocation of resources, sharing of benefits and burdens, and access to adaptation and mitigation measures. It also emphasizes the need to explore ethical frameworks that guide decision-making, considering issues of intergenerational equity for the ethical treatment of ecosystems and biodiversity.

Achieving sustainability requires integrating ethics and equity considerations into the development of long-term solutions for climate change. This entails designing policies, strategies, and actions that address both environmental objectives and the promotion of social justice. This, therefore, is a call for an inclusive approach that actively engages diverse stakeholders and ensures their meaningful participation in decision-making processes.

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Current Situation

Melting of Polar Ice Caps

As global temperatures rise, glaciers and ice sheets are melting, leading to an increase in sea levels. Rising sea levels pose a significant threat to coastal communities, low-lying islands, and vulnerable ecosystems. It can result in coastal erosion, saltwater intrusion, and increased flooding during storms.

The rise in sea levels and the melting of polar ice caps present critical consequences of climate change that require thoughtful and cooperative consideration. These phenomena have significant implications for coastal communities, ecosystems, and vulnerable regions worldwide. Addressing these effects necessitates international collaboration, concerted efforts to mitigate climate change, and adapt to its impacts.



Sea-level rise, driven by the warming of the Earth's atmosphere and oceans, poses substantial challenges to coastal areas. As sea levels increase. low-lying regions face heightened risks of coastal erosion. inundation. and saltwater intrusion freshwater into sources. These impacts can lead to

habitat loss, infrastructure damage, disrupt delicate ecosystems, and community displacement, particularly in developing nations. These consequences extend beyond the polar regions, affecting global ocean currents, biodiversity, and climate patterns, with potential repercussions for global weather systems and marine life.

Approaching these issues requires a cooperative and collaborative approach, recognizing that climate change is a global challenge that demands collective

action. Encouraging open and constructive dialogue among nations, stakeholders, and scientific experts is essential for understanding the impacts of sea-level rise and polar ice melting.

Extractive Industries

Extractive industries refer to sectors involved in the extraction and processing of natural resources from the Earth's crust. These industries extract non-renewable resources such as minerals, fossil fuels, and timber. The primary purpose of extractive industries is to obtain raw materials for various economic activities, including energy production, manufacturing, construction, and agriculture. The industrial processes for extracting minerals include drilling and pumping, quarrying, and mining.

These industries contribute to greenhouse gas (GHG) emissions, deforestation, habitat destruction, and other environmental impacts, which in turn exacerbate climate change. Fossil fuel extraction and combustion release substantial amounts of carbon dioxide (CO2), methane (CH4), and nitrous oxide (N2O) into the atmosphere. As of 2010, 24% of the global GHG emissions traced back its source to fossil fuel extraction.



Extraction of natural resources has increased markedly in the past several decades and this growth is projected to grow. Indeed, while the extraction of fossil fuels needs to be rapidly, deeply halved (IEA, 2021; IPCC, 2021), The low carbon transition is also projected to result in increased dependencies on certain metals, including aluminum, cobalt, copper and other rare earths. This is likely to result in an increased number of mining operations, hence additional pressures on biodiversity and ecosystems.

Deforestation and Habitat Destruction: Extractive industries often require clearing forests and other ecosystems to access natural resources. Deforestation reduces carbon sinks, releases stored carbon, and disrupts habitats and biodiversity, hindering ecosystem resilience to climate change. The world's forests influence climate through physical, chemical, and biological processes that affect planetary energetics, the hydrologic cycle, and atmospheric composition. These complex and nonlinear forest-atmosphere interactions can dampen or amplify anthropogenic climate change. Tropical, temperate, and boreal reforestation and afforestation attenuate global warming through carbon sequestration. Biogeophysical feedback can enhance or diminish this negative climate forcing.

Historical Background

Early Observations

In the 1860s, physicist John Tyndall recognized Earth's natural greenhouse effect and suggested that slight changes in the atmospheric composition could bring about climatic variations. In 1896, a seminal paper by Swedish scientist Svante Arrhenius first predicted that changes in atmospheric carbon dioxide levels could substantially alter the surface temperature through the greenhouse effect. In 1938, Guy Callendar connected carbon dioxide increases in Earth's atmosphere to global warming. In 1941, Milutin Milankovic linked ice ages to Earth's orbital characteristics. Gilbert Plass formulated the Carbon Dioxide Theory of Climate Change in 1956.

In the famous report by the Club of Rome from 1972 (The Limits to Growth. A Report for the Club of Rome's Project on the Predicament of Mankind.) It is stated that the earth has limited resources that will be used up at some time. Especially under the aspect of climate and the limited amount of carbon negative gasses that can be emitted into the atmosphere. On a foreword of their new climate emergency plan, they state: "Climate change is the most pressing global challenge, constituting an existential threat to humanity" (Club of Rome 2018: 0). This gets underlined by the International Panel on Climate Change (IPCC): "About half of cumulative anthropogenic CO2 emissions between 1750 and 2010 have occurred in the last 40 years" (Edenhofer, O., R et al. 2014: 7). It is expected that the global mean surface temperature will rise from 3.7°C to between 4.8°C to 7.8°C in 2100 (Edenhofer, O., R et al. 2014: 8). The consequences of not acting will be dramatic in economic, ecologic and many more aspects, especially for further generations. Living on earth will be much more difficult than impossible.

Establishment of the Intergovernmental Panel on Climate Change (IPCC)

The Intergovernmental Panel on Climate Change (IPCC) was established by the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO) in 1988 to provide policymakers with regular scientific assessments on the current state of knowledge about climate change. So far, the IPCC has published five Assessment Reports written by the world's most renowned experts on climate change. These are the most comprehensive scientific reports produced about climate change worldwide.Since 1990 these reports have consistently found that the Earth is warming, and that the release of greenhouse gasses by humans is responsible.

In 1990, the First IPCC Assessment Report (FAR) underlined the importance of climate change as a challenge with global consequences and requiring international cooperation. It played a decisive role in the creation of the UNFCCC, the key international treaty to reduce global warming and cope with the consequences of climate change.

The Second Assessment Report (SAR) (1995) provided important material for governments to draw from in the run-up to adoption of the Kyoto Protocol in 1997. The Third Assessment Report (TAR) (2001) focused attention on the impacts of climate change and the need for adaptation. The Fourth Assessment Report (AR4) (2007) laid the groundwork for a post-Kyoto agreement, focusing on limiting warming to 2°C. The Fifth Assessment Report (AR5) was finalized between 2013 and 2014. It provided the scientific input into the Paris Agreement.

The IPCC is currently in its Sixth Assessment cycle where it will prepare three Special Reports, a Methodology Report and the Sixth Assessment Report. The first of these Special Reports, Global Warming of 1.5°C (SR15), was requested by world governments under the Paris Agreement. In May 2019, the IPCC finalized the 2019 Refinement – an update to the 2006 IPCC Guidelines on National Greenhouse Gas Inventories. The Special Report on Climate Change and Land (SRCCL) was in August 2019 and the Special Report on the Ocean and Cryosphere in a Changing Climate (SROCC) in September 2019. The Sixth Assessment Report (AR6) was finalized in March 2023 in time for the first global stocktake at the end of 2023.

Paris Agreement

The Paris Agreement, adopted on December 12, 2015, during the 21st Conference of the Parties (COP 21) in Paris, France, is a landmark international treaty aimed at addressing the urgent issue of climate change. It serves as a global framework for collective action to combat climate change, enhance resilience, and work towards a sustainable future.

At the heart of the Paris Agreement is the goal of limiting global warming to well below 2 degrees Celsius (°C) above pre-industrial levels, and striving to

limit the temperature increase to 1.5°C. This temperature target is vital to prevent the most severe and irreversible impacts of climate change on ecosystems, communities, and economies worldwide.

Central to the agreement are Nationally Determined Contributions (NDCs), which outline each participating country's efforts to reduce greenhouse gas emissions and adapt to climate change. While specific emission reduction targets are not imposed, countries are encouraged to set ambitious targets that reflect their national circumstances, capabilities, and development priorities. The agreement recognizes the principle of common but differentiated responsibilities, considering the varying capacities and responsibilities of countries based on their historical emissions and capabilities.

Mitigation, or the reduction of greenhouse gas emissions, is a key focus of the Paris Agreement. While the agreement does not impose specific emissions reduction targets, it urges countries to undertake ambitious efforts to transition towards low-carbon and sustainable economies. This includes the promotion of renewable energy, energy efficiency, and the phasing out of fossil fuel subsidies. Through their NDCs, countries commit to regular reporting on their emissions and progress in implementing their mitigation measures.

The Paris Agreement also underscores the importance of adaptation to the impacts of climate change, especially for vulnerable countries and communities. It recognizes that climate change affects countries differently, and that the most vulnerable, such as the least developed countries and small island developing states, require support to adapt and build resilience. The agreement calls for increased financial resources, technology transfer, and capacity-building to enhance adaptation efforts, particularly in developing countries.

Finance plays a crucial role in supporting climate action and ensuring the implementation of the Paris Agreement. Developed countries reaffirm their commitment to mobilize financial resources to support developing countries in their climate efforts. The agreement sets a collective target to provide \$100 billion per year in climate finance by 2020, with a commitment to further financial flows beyond 2025. The financial support is aimed at assisting developing countries in both mitigation and adaptation activities.

Transparency and accountability are fundamental principles of the Paris Agreement. Participating countries are required to regularly report on their emissions, progress in implementing their NDCs, and the support provided and received. This transparency fosters trust, enhances mutual understanding, and facilitates global monitoring of progress towards the agreement's goals. The agreement also establishes a compliance mechanism to promote and facilitate compliance with its provisions.

The Paris Agreement has garnered significant international support, with 197 parties as of September 2021. It represents a collective effort by the global community to address the existential threat of climate change. While the agreement sets a positive direction, its success lies in the effective implementation of climate actions. Regular monitoring, review, and enhancement of national efforts, along with increased international cooperation, are crucial for advancing the goals of the agreement and ensuring a sustainable and resilient future for all.

It stands as a landmark global response to climate change. By setting ambitious goals, encouraging collective action, and promoting international cooperation, it provides a framework for addressing climate change and charting a sustainable path forward. The agreement represents a historic commitment by nations to protect our planet and future generations from the impacts of climate change. It calls for continuous efforts, collaboration, and innovation to ensure its goals are achieved and a safe and prosperous world is secured for all.

Questions to Consider

- The great melting and eventual sinking: Have we reached the point of no return?
- What are the specific consequences of climate change in different regions and ecosystems?
- What are the main drivers of climate change, and how can they be addressed? How can countries transition to low-carbon and sustainable economies?
- What are the key challenges and opportunities in implementing the commitments under the Paris Agreement? How can ambition be increased to meet the agreement's temperature goals?
- How can finance and technology be mobilized to support climate action, particularly in developing countries? How can barriers to technology transfer and access to finance be overcome?
- How can cities and urban areas become more sustainable and climate-resilient, considering their significant contributions to greenhouse gas emissions?
- What role can education, capacity-building, and knowledge-sharing play in promoting climate literacy and empowering communities to take action?
- How can nature-based solutions, such as ecosystem restoration and conservation, contribute to climate mitigation and adaptation efforts?
- How can the international community collaborate to address the impacts of polar ice caps melting and protect vulnerable ecosystems, such as Arctic and Antarctic regions?
- How can the private sector, civil society, and other stakeholders be actively engaged in climate action? How can partnerships and collaborations be fostered to drive innovation and scale up solutions? What opportunities exist for cross-sectoral collaboration and

partnerships to address climate change, involving governments, businesses, civil society, and academia?

• What lessons from successful climate initiatives and best practices can be shared to accelerate progress and replication in other regions? Ponder upon ways to achieve that.

Resources to kickstart your research

Climate Action Tracker

<u>Think Hazard</u>

Global Facility for Disaster Reduction and Recovery

Disaster Risk Management: Overview

Meet the human faces of climate mitigation