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# The Hague International Model United Nations

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**Forum:** G77

**Issue:** Addressing the existential threats of rising sea-levels

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## Introduction

Climate change poses one of the greatest threats to our world, and sea level rise is a crucial indicator of the effects of climate change and the potential dangers posed by this pressing issue. Sea level rise poses one of the most significant existential threats to coastal communities and low-lying areas worldwide. As global temperatures continue to increase due to anthropogenic climate change, the rate of sea level rise is accelerating, threatening millions of people, critical infrastructure, and ecosystems. As a result, there is a pressing need to examine the causes, impacts, and potential solutions to address the challenges posed by rising sea levels.

The urgency of addressing sea level rise cannot be overstated. Current projections indicate that by 2100, global mean sea level could rise by 0.43 to 0.84 meters under a moderate emissions scenario, with some estimates suggesting even more dramatic increases of up to 2 meters in high-emissions scenarios. This seemingly small change in sea level has profound implications, potentially displacing hundreds of millions of people, submerging vast tracts of coastal land, and causing trillions of dollars in economic damage.

The complexity of this issue lies in its far reaching impacts, from physical and environmental consequences to socio-economic and geopolitical implications. Sea level rise does not respect national boundaries, making it a truly global challenge that requires coordinated international action. It intersects with numerous other global issues, including food security, water resources, migration, and international law, particularly concerning maritime boundaries and the potential loss of statehood for some island nations.

It is important to note that the impacts of sea level rise are not distributed equally. Island nations and low-lying coastal areas, particularly in developing countries, are disproportionately affected, despite often contributing the least to global greenhouse gas emissions. This inequity underscores the need for a global response rooted in principles of climate justice and shared responsibility.

As we confront this existential threat, it becomes clear that our approach must be multifaceted, combining mitigation efforts to reduce greenhouse gas emissions with adaptation strategies to protect vulnerable communities and ecosystems. This will require technological and infrastructural solutions in conjunction with innovative policy frameworks, financial mechanisms, and international cooperation on an unprecedented scale.

## Definition of Key Terms

### Climate Change

Climate change is the term used to describe a long-term change in global temperatures and weather patterns, mostly brought on by human activities like industrialization, deforestation, and the burning of fossil fuels. By generating greenhouse gases like carbon dioxide and methane, the activities trap heat and modify natural climate patterns. Climate change has a wide range of consequences, including rising global temperatures,

melting ice caps, sea level rise, extreme weather events, and ecosystem and

**Research Report** | Page 2 of 10

**The Hague International Model United Nations 2025** | 27th January 2025 – 31st January 2025

**The Hague International Model United Nations 2025** – 27<sup>th</sup> January 2025 – 31<sup>st</sup> January 2025

biodiversity changes. Although natural forces may have a role in climate variability, human activity is mostly responsible for the dramatic changes in climate that have been documented since the 20th century.

### Sea Level Rise

Sea Level Rise refers to the increase in the average height of the ocean's surface, measured from the center of the Earth. This phenomenon is primarily driven by two main factors: the melting of glaciers and ice sheets, and the expansion of sea water as it warms.

### Coastal Erosion

The wearing away of land, or the removal of coastal areas by wave action, tidal currents, wave currents, which may be exacerbated by rising sea levels.

### Low-Elevation Coastal Zone

A low-elevation coastal zone refers to areas hydrologically connected to the sea and no more than 10 meters above mean sea level, making these areas particularly vulnerable to rising sea levels and flooding.

### Calving

Ice calving, or glacial calving, occurs when ice chunks break off from the terminus, or end, of a glacier. The intact chunks of ice are discharged to the ocean, and exposed to warmer waters, may melt and contribute to sea level rise.

### Saltwater Intrusion

The location of the freshwater-saltwater line, known as the 'salt front,' may progress further inland as sea levels rise. Drought, lower precipitation, and changes in water use and demand may worsen this advancement. Saltwater intrusion can result in the need for water utilities to increase treatment, relocate water intakes, or development of alternate sources of freshwater.

### Small Island Developing States (SIDS)

The Small Island Developing States (SIDS) are a distinct group of 39 States and 18 Associate Members of United Nations regional commissions that face unique social, economic and environmental vulnerabilities. The three geographical regions in which SIDS are located are: the Caribbean, the Pacific, and the Atlantic, Indian Ocean and South China Sea (AIS). Events such as sea level rise pose an existential threat to small island communities, and requiring drastic measures. These may include relocation of populations, and the related

challenges this poses. Challenges such as limited institutional capacity, scarce financial resources and a high degree of vulnerability to systemic shocks exacerbate the difficulties faced by SIDS.

Research Report | Page 3 of 10

The Hague International Model United Nations 2025 | 27th January 2025 – 31st January 2025

The Hague International Model United Nations 2025 – 27<sup>th</sup> January 2025 – 31<sup>st</sup> January 2025

## Background Information

Sea level rise is largely caused by the accelerated melting of the Antarctic and Greenland ice sheets, as a result of rising global temperatures induced by climate change. Furthermore, as the seawater heats up, it expands, elevating the sea level. This rise in sea level is therefore a crucial indicator of climate change, holding a substantial impact on ecosystems, economies, and coastal communities worldwide.

### Projected Rates of Sea Level Rise

Sea level rise is expected to be one of the most expensive and permanent consequences of climate change, impacting communities worldwide. Since 1900, data shows that the global mean sea level has risen by approximately 20cm, and is continuously rising at increasing rates of over 3mm per year. The *Special Report on the Ocean and Cryosphere in a Changing Climate (SROCC)*, published by the Intergovernmental Panel on Climate Change (IPCC), has further proven the predominant role of anthropogenic climate change in historical sea level rise and in the acceleration over recent decades. Currently, projects on global sea level vary between 40cm and 2.5m rise by the end of the 21st century.

### Causes of Sea Level Rise

Sea level rise is primarily driven by two factors related to global warming:

**Melting of Ice Sheets and Glaciers:** The melting of land-based ice, particularly in Greenland and Antarctica, contributes significantly to rising sea levels.

**Thermal Expansion:** As ocean temperatures increase, seawater expands, occupying more volume and leading to sea level rise.

### Storage of Carbon Dioxide

Historically, data has shown that glaciers and ice sheets can also play a critical role in the storage of carbon dioxide. Glaciers and ice sheets cover around 11% of Earth's land surface and hold around 70% of its freshwater. The UN's Surging Seas report revealed that since 1971, 90% of excess heat in the Earth's system caused by rising greenhouse gas emissions has been absorbed by oceans. Crucially, giant stores of ice, including glaciers and ice sheets, hold organic carbon, and as they melt, carbon accumulated in new snow and ice is released. Studies have shown that the release of this carbon will only speed up as the Earth warms due to climate change, contributing to a vicious cycle in which the released carbon dioxide, contributing to

accelerated global warming.

Worldwide, glaciers and ice sheets contain about 6 billion tonnes of organic carbon, most of it stored away in the Antarctic ice sheet. As ice melts, or large chunks break off, the carbon gets released. New studies estimate that around 15 million tonnes of extra organic carbon will be lost from melting glaciers over the next 35 years in the form of tiny dissolved particles. This extra organic carbon is 47% more than we could expect without climate change.

**Research Report** | Page 4 of 10

**The Hague International Model United Nations 2025** | 27th January 2025 – 31st January 2025

**The Hague International Model United Nations 2025** – 27<sup>th</sup> January 2025 – 31<sup>st</sup> January 2025

## Impacts of Sea Level Rise

Data from the World Economic Forum shows that over 410 million people across the globe could be at risk from rising sea levels by 2100 as a result of the climate crisis. The effects of Sea Level Rise are far-reaching, impacting coastal communities, ecosystems and economies worldwide. These impacts are becoming more pronounced and more severe as global temperatures continue to rise.

### *Environmental Impacts*

Sea level rise has caused, and will continue to cause, huge environmental damage in coastal areas worldwide. Primarily, sea level rise causes coastal erosion, where the accelerated erosion of shorelines, beaches, and cliffs can impact natural habitats. Damage to coastal areas such as mangroves, coral reefs, and salt marshes can cause ecosystem disruption in these areas which provide critical habitats for numerous species. Below ground, saltwater can seep into freshwater aquifers as sea levels rise, causing saltwater intrusion. When the saltwater mixes with the fresh groundwater, the water becomes unusable for drinking and agriculture.

### *Social and Economic Impacts*

Flooding may already cause huge damage to communities worldwide, and sea level rise is only exacerbating these effects. For example, by 2050, moderate high tide flooding, which causes damage to buildings and infrastructure, is expected to occur 3-10 times more frequently than present day. According to new data from the Human Climate Horizons, a collaboration between the Climate Impact Lab and UNDP, increased coastal flooding in this century will put over 70 million people in the path of expanding floodplains. Flood risk exposure is expected to double to impact 10% of the population by 2100. By this time, climate change is also expected to have caused the submergence of over 5% of land, particularly in Small Island Developing States (SIDS).

Rising sea levels and flooding may lead to the loss of land and property, damaging roads, bridges, sewage systems, power plants, and other key infrastructure in the community. The loss of property and livelihoods due to coastal erosion and flooding can have devastating social and economic effects for coastal communities. Flooding also brings health risks, with the potential spread of waterborne diseases due to flooding and

damage to sanitation systems. Additionally, with some communities at risk of becoming uninhabitable, rising sea levels may cause widespread displacement, causing potential forced relocation of millions of people from low-lying areas.

Many coastal communities rely heavily on coastal tourism, fishing, and shipping industries which may be disrupted due to sea level rise. There may also be increased costs for coastal protection measures, such as building sea walls and surge barriers, and repairing damage to infrastructure.

## Disproportionate Effects

Rising sea levels have had disproportionately large effects on coastal communities worldwide, with regional variations. Some areas, particularly along the Gulf of Mexico, the Mid-Atlantic, and the Pacific

**Research Report** | Page 5 of 10

**The Hague International Model United Nations 2025** | 27th January 2025 – 31st January 2025

**The Hague International Model United Nations 2025** – 27<sup>th</sup> January 2025 – 31<sup>st</sup> January 2025

Islands, have seen staggering increases of up to 250% more high-tide flooding days over the past 25 years. Many low-lying regions along the coasts of Latin America, Africa, and Southeast Asia face increasingly severe threats of permanent flooding.

Certain populations around the world are more vulnerable to the impacts of rising sea levels, with disadvantaged groups often at higher risk of isolation and negative impacts. Bangladesh, India, China, and the Netherlands were singled out by the UN in 2023 as being particularly vulnerable to rising sea levels, with almost 900 million people living in low-lying coastal areas with acute danger. They also highlighted the dangers facing the Pacific Small Island Developing States (Pacific SIDS), particularly those in the western tropical Pacific such as Kiribati, Tuvalu, and the Republic of the Marshall Islands. These countries are particularly vulnerable because of high exposure to tropical cyclones and other tropical storms; high shoreline-to-land area ratios; high sensitivity to changes in sea level, waves, and currents; and their many low-lying coral atolls or volcanically-composed islands.

## Major Countries and Organizations Involved

**International Governmental Panel on Climate Change (IPCC):** Provides scientific assessments on climate change impacts, including sea level rise.

**UN Framework Convention on Climate Change (UNFCCC):** Coordinates international efforts to mitigate and adapt to climate change.

**UN General Assembly:** Held a High-Level Meeting on sea-level rise in September 2024 to address its existential threats.

## Past Relevant Resolutions

- Oceans and the Law of the Sea, 5 December 2023 (A/78/L.15)
- Sustainable fisheries, including through the 1995 Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, and related instruments, December 2023 (A/78/L.13)
- Climate change and the potential rise in sea level with their socio-economic impacts and response strategies, 19 October 1995, (Resolution Number)
- Scope, modalities, format and organization of the High-Level Plenary Meeting on Addressing the Existential Threats Posed by Sea Level Rise, 2 August 2024, Adopted Unanimously, (A/RES/78/319)

**Small Island Developing States (SIDS):** Nations like the Maldives, Tuvalu, Marshall Islands, Nauru, Kiribati, and other small island developing states are particularly at risk to the threats posed by rising sea levels. Many of these nations are at risk of becoming uninhabitable by 2100.

**Bangladesh, India, China, Netherlands:** Bangladesh, India, China, and the Netherlands were

Research Report | Page 6 of 10

The Hague International Model United Nations 2025 | 27th January 2025 – 31st January 2025

The Hague International Model United Nations 2025 – 27<sup>th</sup> January 2025 – 31<sup>st</sup> January 2025

singled out by the UN in 2023 as being particularly vulnerable to rising sea levels, with almost 900 million people living in low-lying coastal areas with acute danger.

## Timeline of Events

Date	Description of event
1850s	Sea levels begin to rise more rapidly, coinciding with the Industrial Revolution
1988	Intergovernmental Panel on Climate Change (IPCC) established to assess climate change science and provide regular scientific assessments on the implications and impacts of climate change.
May 9, 1992	United Nations Framework Convention on Climate Change (UNFCCC) adopted at the Rio Earth Summit, negotiating an agreement to limit climate change.
April 22, 2016	The Paris Agreement is signed, aiming to limit global warming and address climate change effects.

September 24, 2019	The IPCC publishes the Special Report on the Ocean and Cryosphere in a Changing Climate, reporting the effects of climate change on the world's seas, sea ice, ice caps, and glaciers.
September 25, 2024	The UN General Assembly held a High-Level meeting to address the existential effects posed by sea-level rise. The meeting focused on “building common understanding, mobilizing political leadership, and promoting multisectoral, multi-stakeholder collaboration and international cooperation towards addressing the threats posed by sea-level rise.”
January 28th, 2025	THIMUN begins!

## Previous Attempts to Solve the Issue

The World Economic Forum's *Global Risks Report 2024* highlights 'Critical Change to Earth Systems' as one of the top two global threats over the next decade, with sea level rise from collapsing ice sheets identified as a major factor. The report stresses the importance of adaptation but warns that current efforts are insufficient, citing a funding gap of \$194 billion to \$366 billion annually.

Despite this, countries and cities worldwide are implementing adaptation strategies. In New Zealand, public housing policies are being developed to avoid areas vulnerable to climate hazards. Several countries, including Denmark, Germany, and the United Kingdom, are implementing coastal defences, constructing and reinforcing sea walls and sea barriers. South Korea and the Maldives are exploring floating homes, while China and India are experimenting with new innovations to capture and reuse stormwater. Fiji has taken more drastic measures, with the government planning to relocate entire villages due to rising sea levels. Over the next 5-10 years, 42 villages are scheduled for relocation, and 6 villages have already been moved to safer locations.

**Research Report** | Page 7 of 10

**The Hague International Model United Nations 2025** | 27th January 2025 – 31st January 2025

**The Hague International Model United Nations 2025** – 27<sup>th</sup> January 2025 – 31<sup>st</sup> January 2025

Vanuatu, a Pacific island country that is extremely vulnerable to sea level rise, has brought a case to the International Court of Justice in The Hague, asking judges to weigh in on what requirements international law places on states to act on climate change, as well as the consequences for states that harm the climate through actions or omissions. The hearing is part of a movement arguing that current actions by nations to address climate change, including UN conferences like the recent COP29 summit, are critically deficient and inadequate. The opinion from this case is expected sometime in 2025, and while not legally binding, could reinforce the case for linking human rights and climate change in international legal proceedings, potentially providing a greater opportunity for climate litigation around the world.

## Possible Solutions

As climate change and the emission of greenhouse gases are primarily responsible for rising sea levels, many



mitigation strategies will focus on addressing the climate crisis. This may involve transitioning to renewable energy sources, improving energy efficiency in buildings and transportation, and enhancing natural carbon sinks through conservation and restoration of coastal habitats like mangroves and wetlands. Implementing economic policies such as carbon pricing or industry emissions caps may also contribute to emissions reduction efforts.

As many of the largest impacts of rising sea levels impact low-lying coastal areas, adaptation strategies should focus on protecting coastal areas and communities from the impacts of sea level rise. This may include constructing flood barriers such as levees, dikes, and seawalls to protect critical infrastructure. Improving pumps for backflow prevention in wastewater systems and implementing saltwater intrusion barriers may also prove crucial. Additionally, managed retreat, involving the relocation of communities from hazardous zones, is becoming increasingly important to protect vulnerable populations.

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**Research Report** | Page 8 of 10

**The Hague International Model United Nations 2025** | 27th January 2025 – 31st January 2025

**The Hague International Model United Nations 2025** – 27<sup>th</sup> January 2025 – 31<sup>st</sup> January 2025

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