

Climate Change

How should the international community address the issue of climate change?

“Climate change is a direct threat in itself and a multiplier of many other threats -- from poverty to displacement to conflict. The effects of climate change are already being felt around the world. They are dangerous and they are accelerating.”

-Antonio Gutierrez, *Secretary General of the United Nations May 2017*

Problem Statement

Climate change refers to major changes in the Earth’s climate, including changes in temperature, precipitation, and wind patterns.

While the earth’s climate is always changing, the recent rapid warming of the global temperatures is the result of an increase in specific gasses known as greenhouse gasses. These gasses create a greenhouse effect, in which heat is trapped inside earth’s atmosphere.

The impact of climate change is already significant, affecting plant, animal, and human life. Successfully addressing this problem will require the global community to consider both the causes and effects of climate change.

Weather: The conditions of the atmosphere at a specific time.

Climate: The average daily weather for an extended time at a specific location.

History

The earth’s climate changes through cycles. In the last 650,000 years, there have been seven glacial cycles. The last cycle ended about 7,000 years ago. Since then, humankind has thrived on a relatively stable and increasingly warm climate. However, since the Industrial Age, which began in the late 1800s and early 1900s, the planet has gotten warmer, and Carbon Dioxide (CO₂) levels have risen rapidly.

In 1896, the chemist **Svante Arrhenius** first proposed the idea of global warming. He knew that CO₂ would trap the heat in the atmosphere and that the burning of coal and oil releases carbon dioxide into the air. While he won the 1906 Nobel Prize in Science for his discovery, his work was not taken seriously at the time.

Climate change began to gain recognition by the international community in the 1950s, when

scientists noticed higher quantities of CO₂ in the atmosphere. Many people believed that the excess gas would be sufficiently absorbed and filtered by oceans; due to this common misconception, governments initially failed to restrict CO₂ emissions. However, by 1957, scientific equipment had advanced enough to determine that seawater could not absorb nearly enough CO₂ to prevent a rise in global temperature. By the 1970s, evidence that CO₂ from human activity created a greenhouse effect which increased global temperatures was widely accepted in the scientific community, leading scientists to first use the term “global warming.”

Global Warming: The rise in earth’s temperatures due to human activity. A major effect of climate change that in turn causes a number of other environmental impacts (for example rising sea levels, and changing wind patterns).

Discussion

CAUSES OF CLIMATE CHANGE



Carbon emissions from electricity are a major source of greenhouse gasses.

Greenhouse Gasses: The most hazardous chemicals released into the atmosphere are Carbon Dioxide (CO₂), Methane (CH₄), Nitrous Oxide (N₂O) and Fluorinated gases (F-gases), which contribute to the greenhouse effect.⁸ Electricity and car use are the primary sources of CO₂. Agricultural activities, waste management, and energy use all contribute to CH₄ emissions, which is the most dangerous gas to the ozone layer.¹¹ Like Methane, N₂O emissions are caused by agricultural activities; however, its effects come from the use of fertilizers. Lastly, F-gases are caused by variety of industrial processes, including refrigeration, and the use of various consumer products. These gases build up in the atmosphere, bond with the O₃ (ozone), and

ultimately destroy the ozone layer. The new bond they create is what traps the heat inside the planet and causes the greenhouse effect. Therefore, the gases not only destroy the ozone layer, but create new chemicals that trap the heat in the Earth’s atmosphere.

EFFECTS OF CLIMATE CHANGE

Natural Disasters: In the past decades, the Earth’s changing weather patterns manifested in an uptick of natural disasters, in addition to increases in temperature. These destructive forces include hurricanes and tornados, which are common in some parts of the world. However, with the progressing change in weather patterns and the rise in atmospheric and water temperatures, natural disasters are becoming more common and more destructive. In addition

to the increasing frequency and the strength of hurricanes and tornados, there is also an increase of these phenomena in previously unaffected regions. Places such as New Orleans, New York, and New Jersey have been affected by hurricanes in the last decade.



Natural disasters resulting from extreme weather will require new and more robust action from the international community.

In addition, countries have recently experienced deadly mudslides, such as Brazil in its capital city, Rio de Janeiro. Rio de Janeiro is made up of hills and is located at sea level, making it vulnerable to both floods and mudslides. Because Rio has a large urban rainforest, Tijuca Forest, in the middle of the city, it receives a high volume of rain throughout the year. In January, 2011, Brazil experienced its worse mudslide to date: nearly 500 people died in 10 inches of rain (normal for a month) in just 24 hours in a town called Teresopolis inside of Rio de Janeiro. The increase in rainfall has been caused by climate change: weather patterns are no longer following their normal ways of rainy winters and hot summers in

Brazil. Now, summers and winters are becoming rainy, which does not allow the soil to completely dry and leads to more frequent mudslides.

Natural disasters can cause the destruction of shelter, and food and water sources. Volatile precipitation patterns, droughts, and flooding, also threaten food and water supplies around the world. As global average temperatures increase, the number and severity of droughts are expected to increase as well. People who are displaced as a result of natural disasters and extreme weather are more susceptible to disease and famine, as it is difficult to find replacement sources of food and water for large numbers of people.

Rising Sea Level: An effect of climate change that has not been given much attention is the rise in sea level. Being a long-term effect that did not appear to be notably drastic, people did not worry about it as much as they did about global warming. Yet, after the relationship between increased temperatures and rising sea levels became clear, the problem was recognized as more urgent. Scientists who study ancient climates have identified a direct relationship between increasing temperatures and sea levels that reaches back over millions of years. Global warming has raised global sea level about 8 inches since 1880, and the rate of rise (in sea level) is accelerating. Rising seas dramatically increase the odds of damaging floods from storms. *Climate Central*, a nonprofit news organization that analyzes and reports on climate science, found that sea level increases from warming has already doubled the odds of having record high rises in sea level.¹ These increases threaten an enormous amount of damage. Across the United States alone, nearly 5 million people live in 2.6 million homes at less than 4 feet above high tide — a level lower than the century flood line for most locations analyzed.

¹ <http://sealevel.climatecentral.org>

Scientists expect this risk will continue to increase: sea levels are projected to rise between 2 to 5 feet this century, depending upon how much more global warming increases.



The international community will need to work together to address the health impacts of climate change.

Human Health: Changes in climate also affect human health in subtle ways. The most common example can be experienced in most cities today. Air pollution of air is a growing problem, currently taking more than 4.3 million lives prematurely each year. According to the World Health Organization, this number could rise to 6.6 million per year by 2050. Changes in weather patterns influence the concentration of pollutants in the air we breathe. Pollutants can include ozone gas, particulate matter, and pollen. High concentrations of CO₂ in the atmosphere cause pollutants to dissipate at slower rates and plants produce more pollen. Prolonged exposure to air pollution negatively affects human respiratory and cardiovascular systems, and high pollen counts increase allergic and asthma episodes. Similarly, changes in climate have a strong impact on

the availability of clean water. Runoff from cities, industry, agriculture, and floods cause the pollution of freshwater and seawater sources and increase chances of exposure to disease causing bacteria and pathogens. Additionally, the increase in water temperature alters the seasonal windows of growth and range of suitable habitats for freshwater toxin-producing algae.

Changes in climate have an overall negative impact on human health. Generally, days that are hotter than the average seasonal temperature in the summer and colder than the average seasonal temperature in the winter cause increased levels of illness and death “by compromising the body’s ability to regulate its temperature.” Weakened immune systems leave one more susceptible to disease. Warmer weather also increases the prevalence of many diseases, including Vector-borne diseases. The seasonality, distribution, and prevalence of vector-borne diseases are influenced significantly by climate factors, primarily temperature extremes and participation patterns. The effects of climate change on health can extend past the physical as well. Stress associated with illness, lack of basic needs, and trauma from extreme weather all have an extremely negative effect on mental health, which can in turn damage physical health.

While these threats to human health affect us all, they can have a disproportional effect on more vulnerable populations. Those most at risk include those with low income, some communities of color, immigrant groups, indigenous peoples, children, pregnant women, older adults, and people with disabilities or preexisting health conditions.



Some animals risk extinction due to the destruction of their habitat.

Plants and Animals: Many people thought that agriculture outputs would actually increase due to climate change, because CO₂ is an input of photosynthesis. However, global warming was found to have detrimental effects on plant growth. Warmer temperatures cause plants to shrink their stomas, which makes it harder for air to flow in and out plants.

Similar to plants, animal habitats are also threatened by climate change, and their destruction has the potential to greatly limit biodiversity of ecosystems. Animals, as we have already seen through migration patterns, have adapted to the warming climate by moving to cooler areas. This process forces many animals to come into contact with human settlements, which further limits their options for inhabitable areas.

International Actions

Climate change is a global challenge that does not respect national borders. Emissions anywhere affects people everywhere. It is an issue that requires solutions that need to be coordinated at the international level, and it requires international cooperation to help developing countries move toward a low-carbon economy.

The United Nations Framework Convention on Climate Change (UNFCCC) came into force in 1994. It is an international environmental agreement on climate change. With 196 Parties, the UNFCCC has near-universal membership. Parties meet annually at the Conference of the Parties (COP) to negotiate multilateral responses to climate change.

Paris Climate Conference (COP21) was the first time in over 20 years of the UN negotiations to achieve an agreement on climate, with an aim to keep global warming below 2 degrees Celsius. One hundred ninety-six world leaders met at the COP21 in Paris, France to establish and commit to the climate pact referred to as **The Paris Agreement**. The countries presented, discussed, and committed to an agreement in which individual states make their own plans to reduce carbon emissions.

Components of the Paris Agreement: The long-term goal of the Paris Agreement is to keep the overall temperature rise below 2 degrees Celsius, while making efforts to limit increase to 1.5 degrees Celsius (from pre-industrial levels). Countries are expected to reduce their own greenhouse gas emissions. Every 5 years, there will be a review to set more ambitious targets for



Signers of Paris Agreement agreed to reduced carbon emissions within their countries.

each country in terms of climate change, and the Paris Agreement holds countries liable for reporting their progress. Momentum is high in regard to making the Paris Agreement a success, and many are eager to see the end results of this treaty.

The Significance Paris Agreement: It is essential that we cut down on carbon emissions and limit global warming to 2 degrees Celsius; if not, it will mean more severe and extreme weather events, disruptions in sea level elevation, and water shortages. The impacts of the global temperature rising beyond 2 degrees Celsius could have devastating impacts and leaves the international community with the potential of running the risk of reaching “run away” climate change. To limit global warming, we will need to cut back on carbon emissions by at least 6% each year until the end of the century. Paris’ COP21 allows each country to set its own goals for limiting carbon emissions. This is significant because as opposed to a “one size fits all” structure for vastly diverse countries, each country now has its own unique map with the same ending destination.

BLOCK POSITIONS

North America: The North American Climate, Clean Energy, and Environment Partnership was announced by Canadian Prime Minister Justin Trudeau, United States President Barack Obama, and Mexican President Enrique Peña Nieto on June 29, 2016, at the North American Leaders Summit in Ottawa, Canada. The Action Plan identifies the deliverables to be achieved and activities to be pursued by the three countries as part of this enduring Partnership. However, in spring 2017, US President, Donald Trump stated that the United States would leave the Paris Agreement. This represents a major change from the Obama administration. As of 2017, the North American position is now divided.

Latin America: The countries in South America vary in how much they have implemented clean energy technology. Brazil has taken the lead in flex-fuel cars and is self-sufficient in ethanol production. Most other countries in South America do not have the financial or technological resources to produce or implement these technologies and are struggling to maintain any sort of development. However, Brazil’s large landmass emits about 2.5% of the world’s carbon dioxide and other pollution gases, according to the United Nations data. In the last decade, Brazil has achieved significant emissions cuts, thanks to efforts to reduce deforestation in the Amazon and increase in the use of energy from hydropower and other renewable sources, including wind, solar and biomass. Brazil intends to cut carbon emissions by 30% in order to keep the Amazon intact.

Europe: The European states have made an effort to become more “green” and increase their use of clean energy technologies. Many European countries are making an effort to reduce greenhouse gas emissions whenever possible. The European Union was the first major economy in the world to begin to seriously address the issue of climate change, but since The Paris Agreement, some European leaders have been fervently debating the bloc’s climate pledge and argue that other countries could be more aggressive in reducing future pollution. The EU intends to cut down its carbon emissions by 40% by the year 2030.

Africa: Many African nations are still developing and do not have the financial or technological resources to implement clean energy technology. In order for countries in Africa to maintain the Paris Agreement, more developed countries have pledged to invest \$120,000 per year to aid the African states in maintaining their ambitious goals.

Asia: Countries in Asia have very different views on sustainable development and vary in terms of levels of greenhouse gas emission. For example, China is going to be investing heavily in clean energy, India is committed to promoting clean energy generation and clean energy consumption by the year 2030.

Organization of Small Island Nations: Because of the way in which extreme weather, like hurricanes, and rising sea levels have a severe effect on small island nations, countries as far away as Jamaica and the Maldives have joined together to express their common concerns on the issue of climate change.

Questions to Consider

1. How should the international community work to reduce the causes of climate change, especially after the Paris Agreement?
2. How should the intentional community address the effects of climate change on plants and animals?
3. How should the international community address the effects of climate change on humans, especially keeping in mind health issues, and the impact of natural disasters, and rising sea levels?

Source

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