Forum: Environment Commission

Issue: Preventing the acceleration of climate change

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Position: Chair of Environment Commission

Introduction

As described by the United Nations, climate change is one of the major challenges our current ecosystem and environment faces, adding considerable stress to our societies and to the natural world that surrounds them. From shifting weather patterns that threaten food production, to rising sea levels that increase the risk of large scale floods, the impacts of climate change are globally recognised and miraculous in scale. Without drastic changes in actions and solutions today, it is believed that adapting to these impacts in the future will be more difficult and costly than ever before.

Despite the fact that a vast majority of countries and organisations have gone to high measures to prevent the acceleration of climate change during the past few decades, the impacts of climate change continue to increase and leave an ample percentage of the population and environment in poor conditions; from the increase in deforestation and greenhouse gases to the massive floods and typhoons occurring around the globe, there a many factors that drive climate change and increase the risk of drastic events, for example, the Hurricane Katrina in August 2005, which killed over 1000 lives.

The United Nations Framework Convention on Climate Change (UNFCCC), established June 1992, was brought together with the United Nation entity task of supporting the global response to the threat of climate change; since 1992, the UNFCCC secretariat provides technical expertise and assists in the analysis and review of climate change with the largest aspect being the annual Conference of Parties, assessing the overall review of the current situation with climate change, and to negotiate solutions to prevent its acceleration. The UNFCCC is currently a main contributor in preventing the acceleration of climate change.

Definition of Key Terms

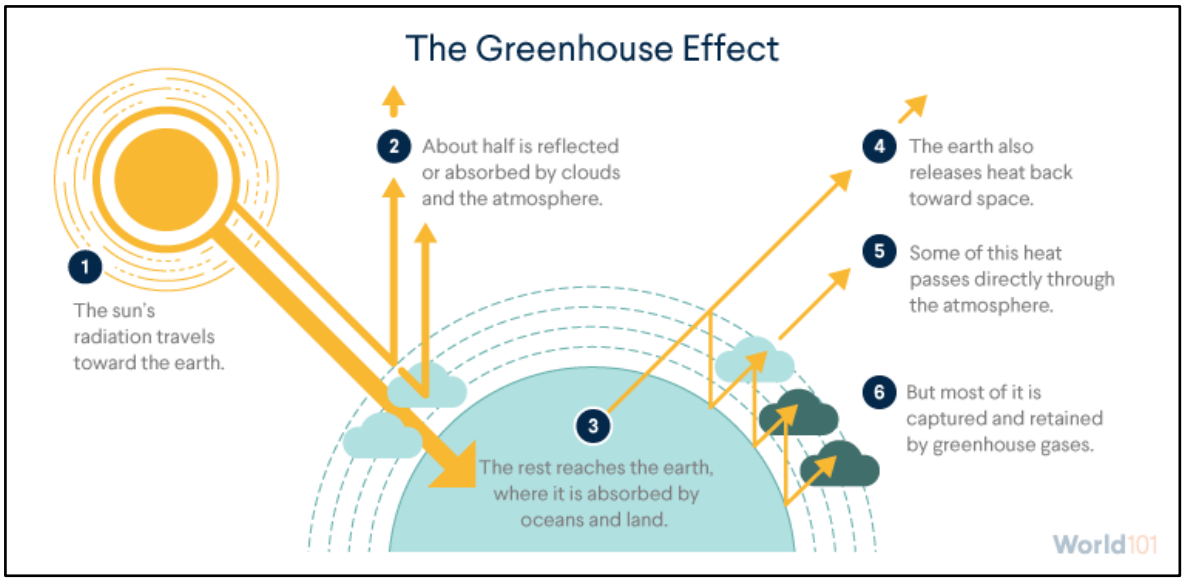
Climate change: A change in the statistical distribution of weather patterns when that change lasts for an extended period of time

Secretariat: A permanent administrative office or department (eg. UNFCCC)

General Overview

Climate change causes

It is agreed upon most scientists that the main cause of the current climate change is the human expansion of the "greenhouse effect" - that results when the atmosphere traps heat radiating from earth toward space.



A diagram showing "The Greenhouse Effect"

Greenhouse gases

Certain gases in earth's atmosphere block heat from escaping. These gases remain semi-permanently in the atmosphere and do not respond physically or chemically to changes in temperature, described as "forcing" climate change. Gases that contribute to the greenhouse effect include:

Water vapor

Being the most abundant greenhouse gas water vapor acts like a feedback to the climate, increasing as the earth's atmosphere warms.

Carbon dioxide

Carbon dioxide is released through natural processes such as respiration, volcanic eruptions and through human activities such as deforestation, and burning fossil fuels (eg. vehicles).

According to the NASA Global Climate Change site, humans have increased atmospheric CO2 concentration by more than a third since the Industrial Revolution began, and with the mass population burning CO2 in this modern century, carbon dioxide levels are only going to increase and continue to warm the atmosphere.

Methane

Methane, CH4, is a hydrocarbon gas produced both through natural sources and human activities, including the decomposition of wastes in landfills, agriculture, and especially rice cultivation, as well as the ruminant digestion and management of domestic livestock.

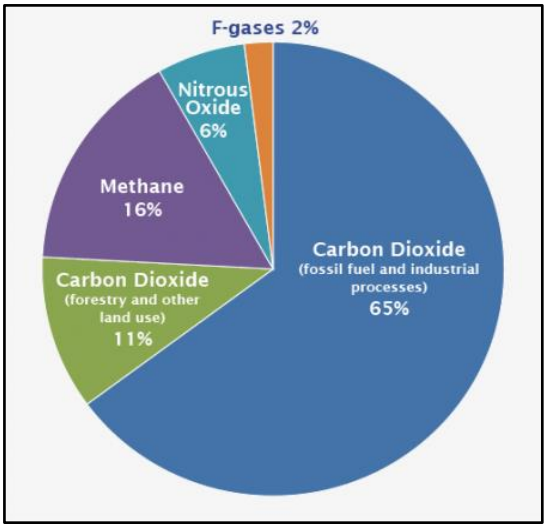
Methane is a far more active greenhouse gas than carbon dioxide, however is one which is much less abundant in the atmosphere.

Nitrous oxide

Produced by soil cultivation practices, particularly the use of commercial and organic fertilizers, fossil fuel combustion, nitric acid production, and biomass burning, nitrous oxide is a powerful greenhouse gas that is emitted into earth's atmosphere.

The consequences of emitting high volumes of greenhouse gases into the atmosphere are difficult to predict, however there are certain effects that seem likely such as the melting of glaciers and other ice, and rising sea levels; more impacts are shown in the 'Climate change impacts' below.

Human activities are changing the natural greenhouse in earth's atmosphere; burning fossil fuels like coal and oil over the past century has increased the concentration of atmospheric carbon dioxide. This happens when the burning of fossil fuels combines carbon with oxygen in the air to make CO2. To a lesser extent, the clearing of land for agriculture, industry, and other human activity has increased the concentrations of other greenhouse gases



Global greenhouse gas emissions by gas

The diagram above shows what percentage of each greenhouse gas is emitted into the atmosphere, clearly showing that over 75% of greenhouse gas emissions is carbon dioxide through both industrial activity and land usage. F-gases, otherwise known as fluorinated gases (2%), are man made gases that have the ability to stay in the atmosphere for centuries and contribute to the global greenhouse effect.

Climate change impacts

Global climate change has already had noticeable impacts on the environment, heavily affecting a high percentage of the human population. A loss of seas ice, accelerated rise in sea levels and longer, more intense heat waves are only just a few ways climate change is changing the environment.

The Intergovernmental Panel on Climate Change (IPCC), which contains more than 1,300 scientists from the United States and other countries, predicts that the global temperature will rise from 2.5 to 10 degrees celsius over the next century creating a number of issues for both the environment, and the global population. The IPCC also believes there will be some long-term primary effects occurring within the next century as well.

Rising temperatures

Previously stated, the IPCC predict that the global temperature is to rise 7.5 degrees celsius within the next century, and according to an ongoing temperature analysis conducted by scientists at NASA's Goddard Institute for Space Studies (GISS), the average global

temperature on Earth has increased by 0.8 degrees celsius since 1880. Ever since, the temperature has been rising at rate of roughly 0.15-0.20 degrees celsius per decade.

The increase of droughts and heat waves

Due to the rapid increase in temperature, summer temperatures are projected to continue rising with a reduction of soil moisture, causing intense heat waves and droughts in much of western and central U.S. summers. Droughts in these areas in the second half of the 21st century could be drier and longer than any drought ever experienced by humans over the past 1,00 years, according to a NASA study published in Science Advances on February 2015.

It is projected that by the end of this century, the currently once-in-20-year extreme heat days are to occur every two to three years over most of the nation; frequent extreme heat waves and droughts cause insufficient water supply and infertile soil to grow produce on, generating yet another issue being the lack of resources of a country's population.

Stronger hurricanes/typhoons

Since the early 1980s, the intensity, frequency and duration of North atlantic hurricanes have all increased. It is still uncertain as to whether the relative contributions of human and natural causes create these increases, however hurricane and typhoon-associated storm intensity and rainfall rates are predicted to increase as the climate proceeds to warm up.

Rising sea levels

Global sea levels have risen around 8 inches since reliable recording began in 1880, being an average of 0.058 inches per year. It is now being projected to rise another 1-4 feet before 2100. This is a result of added water from melting land ice and the expansion of seawater as the climate warms. However, rising sea levels will continue past 2100 because oceans take a long duration of time to adapt to warmer conditions at earth's surface, meaning sea levels will continue to rise for centuries at rates similar or faster to the current century.

If storm surges and high tides were to combine with the rising sea levels and land subsidence, flooding in many regions may increase, provoking horrific events that have previously caused huge amounts of damage.

The growing of crops

While some crops and several plants may respond favourably to the increase in greenhouse gases and the rising of the earth's temperature which are growing more vigorously and using water more efficiently, higher temperatures and changing climate patterns may shift the areas where crops grow the best and affect the growing of natural plant communities.

Non-profit organisations

With the acceleration of climate change being significantly noticed within the past century, many organisations, charities and institutions have been created to help prevent or slow down the current situation at hand.

WeForest

WeForest is a non-governmental organisation (NGO) that was founded in 2009 by Bill Liao and Marie-Noëlle Keijzer. The organisation has a goal to successfully transform 250,000 hectares of forest landscape by 2021 by restoring 25,00 ha of forests in different ecosystem. Currently they are undergoing seven missions throughout countries: Brazil, India, Zambia, Tanzania, and Ethiopia.

Whilst gaining and building upon corporate and scientific partnerships, WeForest has created a missions to empower communities to sustainably advance and implement high standard, and long-lasting solutions to restore forest landscapes.

Green Gas

Green Gas, another non-profit organisation, aiming to reduce the volume of carbon pollution present earth's atmosphere. The organisation has created their green gas card, a card used to remove the carbon emitted whilst driving.

Stated on their official website: "Every gallon of gas you use to drive emits almost 9 kilograms of carbon pollution into the air". Using the green gas card, every gallon of gas that is bought with it, the green gas card removes around 9 kilograms of carbon pollution the air by donating $0.10/gal to certified clean air projects, eliminating a car's emissions for the air.

The Green Gas Movement

Movement: "Inspire and harness funding for climate solutions to restore carbon balance and accelerate a fossil free future"

According to the official website, the Green Gas Movement is working to build a worldwide network of communities and natural ecosystems that are harmoniously connected.

Kiss the Ground

Kiss the Ground, founded by Ryland Engelhart and Finian Makepeace, was created with one goal: share with the world that building healthy soil can be a solution to the climate crisis. The organisation specialises in three areas of preventing climate change: the education, farmland, garden, and collaboration with other businesses about the positive impacts that soil brings to the environment.

Teamed with Life Lab, Kiss the Ground has developed a middle school curriculum for students to understand how important soil is, and the vital role it plays on earth. The curriculum itself teaches about the carbon cycle, photosynthesis, soil science, and a few other topics that allow younger generations to learn the dangers and impacts that climate change carries. Middle school education is only one aspect of Kiss the Ground; the organisation provides assistance and contribution in many other ways to help prevent climate change.

Restore the Earth Foundation

The Restore the Earth Foundation is a non-profit corporation, aiming to restore one million acres in the Mississippi River Basin, North America's Amazon to allow the areas to grow into their original sizes and states. However their overall mission is to restore the earth's essential forest and wetland ecosystems.

The founders of Restore the Earth were triggered to begin the company after the devastating events that occurred from Hurricane Katrina. Since 2008, the corporation has secured over $40 million in funding to reforest over 50,000 acres along the Gulf Coast damaged by Hurricane Katrina with over 30,000 volunteers mobilized.

UN Involvement, Relevant Resolutions, Treaties and Events

From the IPCC to the Fifth Assessment, the United Nations has gone to many extents to record the causes and impacts of climate change, constructing and organising solutions to help prevent the

acceleration of the current climate issue. Aside from secretariats such as the United Nations Framework Convention for Climate Change (UNFCCC) and the Intergovernmental Panel on Climate Change (IPCC), other reports, agreements and events have been established to help support countries and governments with the issue of climate change.

The Fifth Assessment Report

Created and produced by the IPCC in 2008, the Fifth Assessment Report is a comprehensive and detailed assessment about the impacts and causes of climate change, providing specific statistics within topics such as the rising of sea levels, and estimates CO2 emissions since pre-industrial times.

Because of the IPCC's report, we have come to know statistics such as the global temperature from 1880-2012 (0.85 degrees celsius), the global average rise in sea level from 1901-2010 (19cm), and other impacts that are currently contributing to the harsh climate change issue being faced today.

However the report also highlights a number of climate change impacts that could be avoided if the global temperature were to be limited to 1.5 degrees compared to 2 degrees celsius; limiting global warming to 1.5 degrees celsius would require "rapid and far-reaching" transitions in land, energy, industry and many more man-made aspects according to the report, finding that the global net human-caused emissions of CO2 would need to fall by roughly 45% by 2030.

United Nations legal instruments

Kyoto Protocol

In 1997, the Kyoto Protocol had been adopted when countries had launched negotiations to strengthen the global response and action to climate change. The protocol legally binds developed country Parties to emissions reduction aims, creating and producing commitments that are to be aimed within a number of years. There are currently 192 Parties for the Kyoto Protocol.

Paris Agreement

Parties to the UNFCCC reached an agreement to combat climate change and to accelerate and reinforce the actions and investments required for sustainable low carbon

future at the 21st Conference of the Parties (COP) in Paris. The central aim of the Paris Agreement is to strengthen the response to the threat of the climate issue by keeping the global temperature rise below 2 degrees celsius.

The Paris Agreement brings all nations into a common cause to undertake ambitious efforts to combat climate change and adapt to its effect, with intensified support and assistance for developing countries. On Earth Day, April 2016, 175 world leaders signed the Paris Agreement at the United Nation Headquarters in New York, being largest number of countries to ever sign an international agreement on a single day.

Climate Summit 2019

In September of 2019, the United Nation Secretary-General, António Guterres, will convene and host a Climate Summit to bring climate action to the top of the International agenda. According to the official United Nations site, the Summit will mainly be focusing on the sectors that create the most emissions and the areas where building resilience could make the biggest difference.

World leaders will report on their actions towards the issue, and what they furthermore intend to do when they convene in 2020 for the United Nations climate conference.

Timeline of Events

Since the significance of climate change was noticed by society, many events and resolutions have been recorded and constructed to reinstate both the issues and possible solutions the worldwide population should consider and enforce to prevent the acceleration of climate change. Below are only a few examples that show the work that the United Nations and individual countries go through to participate in solving the climate issue, however records of both events and resolutions can be found on official UN sites.

Date	Description of event
1944	Global temperature reaches 0.21 degrees celsius
February 25th-March 7th, 1997	Bonn Climate Change Conference
1998	Global temperature reaches 0.62 degrees celsius

November 26th, 2008	General Assembly adopted resolution A/RES/63/32: Protection of global climate for present and future generations
June 3rd, 2009	General Assembly adopted resolution A/RES/63/281: Climate change and its possible security implications
2016	Global temperature reaches 0.99 degrees celsius, highest recorded
November 6-17th 2017	UN Climate Change Conference
April 30th-May 10th 2018	Bonn Climate Change Conference
September 4-9th 2018	Bangkok Climate Change Conference
December 2-14th 2018	Katowice Climate Change Conference
September, 2019	UN Climate Summit

Possible Solutions

The rapid acceleration of climate change over the past decades has caught the attention of mass majority of the global population. Statistically and visually it is known that if solutions are not put into place soon, both the human race and natural environment will struggle to adapt to the changes of the climate change.

Mitigation

The first solution may be the **mitigation of climate change** which involves reducing the flow of heat-trapping greenhouse gases into earth's atmosphere. This can be done by reducing sources of greenhouse gases; decreasing the use of fossil fuels and using reusable energy sources, not emitting any gases such as carbon dioxide, or enhancing the sources that accumulate and store these gases.

For example, insisting countries to encourage the use of renewable energy towards local and international companies, particularly in the industrial force to help limit the use of fossil fuels.

From the 2014 report on Mitigation of Climate Change from the UN IPCC, mitigation is to "stabilize greenhouse gas levels in a timeframe sufficient to allow ecosystems to adapt naturally to climate change, ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner"

Education

Throughout history, the **education towards the public** is another ideal solution to help spread awareness for issues such as climate change and the rising global temperatures the environment is facing. Whether it is simple leaflets towards the general public, or detailed, professional UN led lessons in public schools worldwide, simple awareness programs are able to inform populations about the impacts and issues of emitting high levels on greenhouse gases into the atmosphere.

For example, encouraging highly developed countries to lead and provide thorough and detailed lessons about impacts and causes of climate change in public schools throughout both developed and developing countries to raise awareness about the current global situation at hand.

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