Climate Change Mini-Simulation: Background Guide

United Nations

The United Nations (UN) is an international organization founded in 1945 after the Second World War by 51 countries committed to creating a better and safer world for all people. Today, the UN has 193 member countries. The UN has 4 main purposes:

- To keep peace throughout the world;
- To develop friendly relations among nations;
- To help nations work together to improve the lives of poor people, to conquer hunger, disease and illiteracy, and to encourage respect for each other's rights and freedoms; and
- To be a center for harmonizing the actions of nations to achieve these goals.

Committee: United Nations Environmental Programme (UNEP)

The UNEP was established in 1972 to serve as the UN's main body for environmental education and awareness. UNEP focuses on climate change, disasters, ecosystem management, environmental governance, harmful substances, and resource efficiency. UNEP reviews national and international environmental policies, assesses the global environmental situation, and provides guidance in setting environmental policies. It is based in Nairobi, Kenya.

The UNEP Governing Council has 59 members who serve four-year terms. Member states are elected by the General Assembly and are selected to represent each region of the world. The Governing Council meets each year at the Global Ministerial Environmental Forum to address important environmental concerns. It may also convene in special sessions.

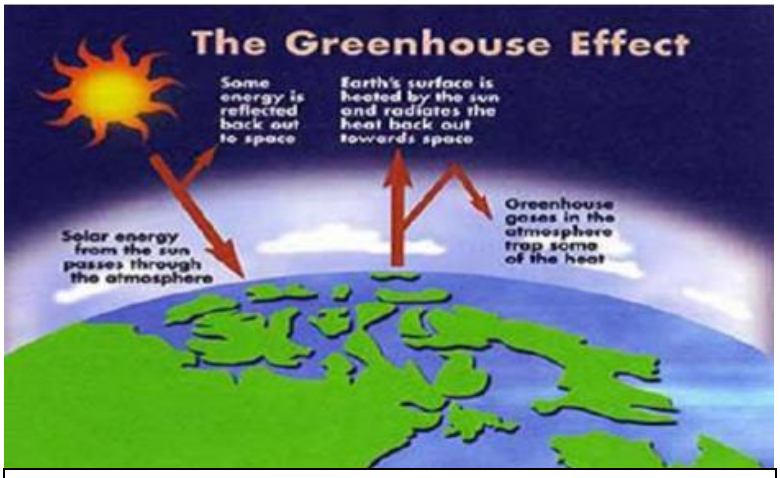
Background

Although Earth's **climate**[1] naturally changes over time, it is currently changing in ways that most scientists agree are not natural. Instead, human activity is the cause. The evidence for today's rapid climate change includes sea level rise, global temperature rise, warming oceans, shrinking ice sheets, declining Arctic sea ice, glacial retreat, extreme weather events, and **ocean acidification**[2].

[1] **Climate** – Climate refers to average weather conditions in a place over many years. People refer to regional climates, the climate in one area of the world, and global climate, which is the average climate around the world.
[2] **Ocean acidification** – Decrease in the pH of the earth's oceans which is caused when the ocean absorbs carbon dioxide from the atmosphere. Coral reefs, fish, and many marine creatures cannot survive in a more acidic environment.

Statement of the problem

Earth's air, water, and land are all inked together to create the climate. When one aspect of climate is affected, the others are eventually affected as well through a chain reaction. A change to the temperature of the air can cause a change in the temperature of the water, which can have effects on the land. Scientists agree that human activity is causing climate change, which is often called **global warming**[3]. Many scientists and academics prefer to use the term *climate change* instead of *global warming* because there are more effects than just a rising temperature. Shrinking glaciers, melting Arctic ice, longer and more intense heat waves, and accelerated sea level rise can already be seen around the world. Climate change is defined as the increase in Earth's temperature due to human activity by way of greenhouse gas emissions. Additionally, the UN International Panel on Climate Change (IPCC) reports that scientists expect to see a number of other possible changes that could potentially be disastrous to the planet; these changes vary from region to region. In Africa, for example, increased **water stress**[4] will decrease agricultural productivity. Floods, heat waves, and an increase of malaria will cause a higher death rate. North America can expect to see decreased snow pack in the mountains and an increase in the duration and intensity of heat waves. These heat waves would be even more intense in cities that already experience heat waves.



Gases in the Earth's atmosphere help trap the sun's heat. This keeps the Earth from getting too cold. However, with all of the extra gases released by humans, the Earth is getting too hot.

Human activity is causing the global climate change. More than 100 years ago, people started burning large amounts of **fossil fuels**[5] (coal, oil and natural gas) to power their homes, factories, and vehicles. Around the world, people continue to burn more and more fossil fuels to meet modern energy needs. Burning fossil fuels releases carbon dioxide into the atmosphere. Carbon dioxide, along with other greenhouse gasses, stays in the Earth's **atmosphere**[6] and warms the planet. Earth needs these to help keep it warm enough for plants and animals to live. However, humans are releasing more gases than ever before, which is casing climate change.

[3] **Global warming** – An increase in the average temperature of Earth's atmosphere
[4] **Water stress** – when the demand for water is greater than the amount that is available
[5] **Fossil fuels** – Fuels that result from the compression of ancient plant and animal life former over millions of years
[6] **Atmosphere:** the alyer of gasses that protects the Earth and make it possible to sustain life..

The gases in the atmosphere are called **greenhouse gases**[7], and they trap heat to make the Earth warmer. This process is known as the **greenhouse effect**[8]. The Earth's atmosphere naturally contains certain chemicals that trap heat from the sun. This trapped heat is what helps warm the planet. Human activity is also contributing to the greenhouse effect by adding more chemicals to the atmosphere. These chemicals are causing the planet to warm more than it would on its own. People are adding and increasing several types of greenhouse gases: **carbon dioxide**[9], **methane**[10], and **nitrous oxide**[11], among others. These gases are primarily released by burning fossil fuels for energy but gases are also released from farms (raising livestock and fertilizing soil), landfills (as trash breaks down over time, methane is released), leaking coolants (from air conditioners and refrigerators), cutting down and burning trees, and some factory methods. People produce more carbon dioxide than any other gas, and it is responsible for most of the warming. Once in the air, these gases move around the world. This means that the concentration of gases is about the same throughout the world. Some countries produce more greenhouse gases than others, but all are equally affected. Climate change is an international problem because the climate is a resource that all nations share and the effects of climate change reach everyone. Immediate attention is required to stop our high levels of greenhouse gas emissions.

Discussion of the Problem

Signs of Climate Change

Source: http://www.epa.gov/climatechange/kids/impacts/signs/index.html

- *Rising temperatures*: The average temperature of the Earth is rising. Temperatures have risen over the past 30 years. The warmest decade on record was 2000-2009.

[7] **Greenhouse gases** – gases that trap the heat of the sun in Earth's atmosphere, producing the greenhouse effect. Major greenhouse gases are carbon dioxide, water vapor, methane, ozone, chlorofluorocarbons, and nitrogen oxides.
[8] **Greenhouse effect** – the process in which greenhouse gases keep the Earth warm. Too many gases in the atmosphere cause the earth to warm up at a faster rate.
[9] **Carbon dioxide** – one of the most common greenhouse gases. It comes from burning fossil fuels and trees.
[10] **Methane** – another common greenhouse gas that comes from livestock, landfills, natural gas and coal
[11] **Nitrous oxide** – another common greenhouse gas that comes from farming

- *Heat waves*: **Heat waves**[12] are becoming more common and lasting for longer periods of time.

- *Changing **precipitation**[13] patterns*: As temperatures rise, more moisture evaporates into the atmosphere, which means more rain and snow. Climate change also causes changes in air and ocean currents which means that this extra precipitation is not spread evenly around the world. Some regions are getting more precipitation while others are getting less.
- *Droughts*: Since 1970, **droughts**[14] have become longer and more extreme around the world. Droughts mean less water is available for drinking, irrigating crops, and making electricity. The can also lead to more wild fires since land that has been dry for an extended period of time is more likely to burn.
- *Flooding*: Too much rain can cause **flooding**[15].
- *Wilder storms*: Warmer air and oceans means that tropical storms are becoming stronger. These tropical storms, along with increased rainstorms and snow storms, can cause flooding, harm crops, and put people in danger.
- *Warmer oceans*: The oceans, especially the top layer, absorb some of the heat from rising air temperatures. This top layer is getting warmer at a rate of 0.2°F per decade. Warmer oceans affect weather patterns, cause more powerful tropical storms, and can impact marine life.
- *Rising sea level*: Over the past 100 years, the average worldwide sea level rose 7 inches. Rising sea levels threaten people that live in low lying areas, like Bangladesh and New York City.
- *Melting sea ice and glaciers*: Melting sea ice and glaciers also contribute to rising ocean levels. Decreasing sea ice also means that less light is reflected back into space (snow and ice reflect a lot of light which keeps the planet from getting too warm). With less ice, the Earth absorbs more heat from the sun and gets warmer.
- *Ocean acidification*: Oceans also absorb carbon dioxide and this added carbon dioxide makes the oceans more acidic. Increased ocean acidity harms fish and coral reefs when species cannot survive in a more acidic environment.

Effects on People and the Environment

Source: http://www.epa.gov/climatechange/kids/impacts/effects/index.html

[12] **Heat wave** – a prolonged period of hot weather
[13] **Precipitation** – rain, sleet, hail, snow and other forms of water falling from the sky
[14] **Drought** – a prolonged period of abnormally low precipitation and the resulting shortage of water
[15] **Flood** – and overflow of a large amount of water beyond its normal space

- ***Agriculture***[16] Rising temperatures are affecting when and where crops can grow. Droughts and floods can damage crops.
- *Energy*: Climate change is affecting the amount of energy people use. Air conditioning requires a lot of energy typically from fossil fuels, which release more greenhouse gases. Higher demands for energy supplies can cause power outages.
- *Water supply*: Water supplies worldwide are in danger. Rising temperatures, shifting patterns of rain and snow, and longer droughts will affect the amount of water in lakes, streams, rivers and ground water deposits.
- *Human health*: Extreme weather, like heat waves and storms, can hurt or even kill people. In hot, humid regions, there is an ever increasing risk of infectious diseases (mosquito populations are growing and they transmit **malaria**[17] and **West Nile virus**[18]).
- *Ecosystem changes*: **Ecosystems**[19] around the globe are changing. Arctic ice, glaciers, and tundra are melting. Forests and grasslands are more prone to wildfires. Coral reefs are disappearing.

What is being done?

Climate change is a global issue because the climate is shared by all the world's nations. UNEP works to develop environmental education and awareness as well as promote **sustainable development**[20].

On December 11, 1997 the international community produced the Kyoto Protocol, which introduced legally binding targets for countries to reduce greenhouse gas emissions between 2008-2012. The Kyoto Protocol entered into force on February 16, 2005 after being ratified by 163 countries. Neither the United States nor Australia—two of the world's biggest emitters of greenhouse gases—ratified the Protocol.

The Earth Summit 2012 took place in Rio de Janeiro, Brazil in June of 2012. This was a conference on sustainable development of the environment. Rio+20 highlighted seven issues; jobs, energy, cities, food, water, oceans, and disasters. The United Nations Secretary General, Ban Ki-moon, is encouraging all countries to increase the use of renewable energy sources like hydropower, wind power, and solar power. Cities' main concern is pollution, over-population, and poverty.

In September 2015, the United Nations passed the Global Goals. All of the 17 Global Goals are linked to solving the climate crisis. Global Goal 13, climate action, calls for the international community to combat the impacts of climate change.

[16] **Agriculture** – farming; growing crops and raising livestock for food
[17] **Malaria** – an infectious disease most commonly found in tropical climates, spread by mosquitos.
[18] **West Nile virus** – an infectious disease most commonly found in temperate and tropical climates also spread by mosquitos.
[19] **Ecosystem** – a community of living organisms and the nonliving components of their environments.
[20] **Sustainable development** – when we continue to use resources to meet our needs but preserve the environment while doing so.

At the December 2015 Paris Climate Conference, also known as COP21, there was a landmark decision by the United Nations to cut greenhouse gas emissions. For the first time, 195 Parties to the UN Framework Convention on Climate Change (UNFCCC) agreed to limit emissions and to take common climate action. With this agreement nations signed a goal to keep warming below 2 degrees Celsius and reach net zero greenhouse gas emissions in the second half of the century.10 This will hopefully lead to an increase in clean energy development and usage.

Priorities to be discussed

- Signs and effects of climate change;
- Ways to reduce greenhouse gas emissions;
- Ways to adapt to a changing climate;
- Efforts already underway to curb global warming;
- Responsibility of various nations (developing vs. developed nations);

- The relationship between economic development and carbon emissions; and
- The responsibilities of individuals, governments, and the international community to fight climate change.

Resolutions

Climate change affects every country and has potentially disastrous consequences for the world. Delegates should consider that different countries emit different amounts of greenhouse gases, but people everywhere feel the effects of climate change. Delegates should also realize that countries rely on fossil fuels (oil, coal etc.) for day-to-day life. So, delegates cannot simply pass a resolution banning the use of fossil fuels.

Delegates should carefully consider the effects of climate change that are happening in their country and the amount of greenhouse gases their country releases into the atmosphere. Then, delegates should select one of the following resolutions:

1. Governments must reduce carbon emissions by 10% over the next 5 years.
2. Governments must invest in renewable energy.
3. Governments must pay a tax on carbon usage.

Tasks

- Review the list of priorities and possible resolutions;
- Read the country information on the back of your placard;
- Answer the questions on *Speech Worksheet 1*;
- Prepare a 30-60 second speech about your country's position and the resolution you recommend on *Speech Worksheet 2*;
- Listen to other countries' points of view and debate the resolutions; and
- Vote on the resolutions.

Stakeholders

United States, China, India, Canada, Egypt, Colombia, Norway, Russian Federation, Tuvalu, Japan, Germany, Switzerland, United Kingdom, Indonesia, Iran, Tanzania, Bangladesh

Credit

The content included in this Mini-simulation has been modified from original material provided by the United Nations Association of the National Capital Area.