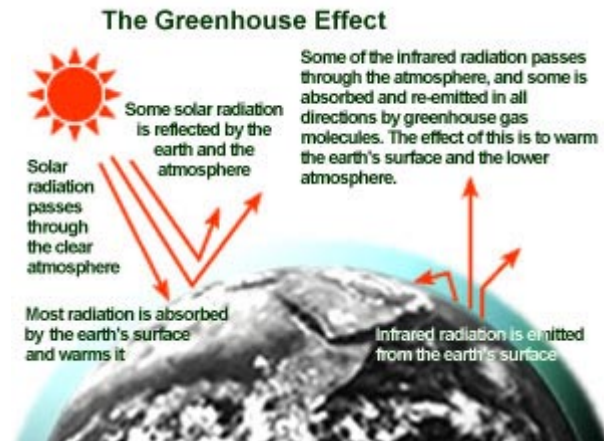


Topic B: Global Climate Change

Statement of the Problem

Global warming may be the chief and most complicated environmental problem to potentially affect our planet. The climate has been warming fast since the Industrial Revolution, because human activities are altering the composition of our atmosphere.

The mechanics behind global warming may be described in the following way:



All of energy on Earth comes from the sun in form of solar radiation. This energy is then radiated back into space. However, the atmospheric gases work to trap some outgoing heat, not unlike panels of a greenhouse, warming the planet and its inhabitants. Without this effect, life on earth would not be possible. The problem at hand, however, is the continued increase in the concentration of these “greenhouse gases”, a group of substances that mainly consist of carbon dioxide, methane, and nitrous oxide. As the amount of these chemicals in our atmosphere increases, they retain more

and more heat inside the atmospheric level, making the planet warmer.

Carbon dioxide has always been emitted in large quantities by plant decomposition and respiration; however terrestrial vegetation and oceans absorbed it, keeping a balance. Much of today’s CO₂ is produced by burning fossil fuels, which are used for heating, running cars, and powering factories.

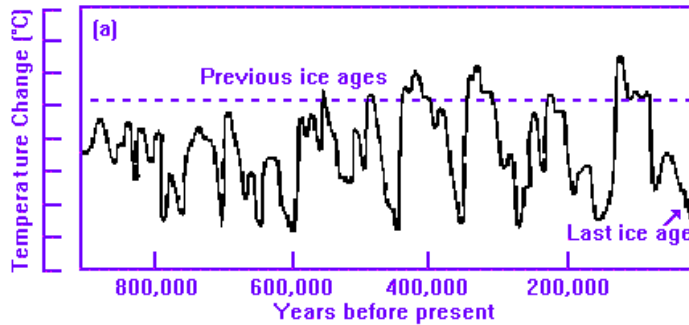
Methane and nitrous oxide also occur in nature, but some very powerful greenhouse gases like hydrofluorocarbons (HFC’s) and perfluorocarbons (PFC’s) are produced only in industrial processes. They are the most heat-absorbent substances in the atmosphere.

Most environmentalists are concerned that global warming is a potential danger for life on earth. Some of the possible outcomes are changes in weather patterns and increase in extreme climate events, such as drought, floods, and storms. This would result in decreased agricultural output, increase in disease and other health risks. Less developed nations are the most vulnerable to these changing conditions, because it would be more difficult for them to adapt.

There are many counterarguments to the environmentalist perspective. Although a consensus exists on the reality of the phenomenon, opinions differ on several issues. Some scientists argue that global warming is a natural phenomenon; therefore the suggested cutbacks in energy use are useless and ineffective. The accuracy of some of the more pessimistic predictions is questioned, since there are different ways of measuring the amount of emissions. Lastly, there is the political controversy about who should pay the price for emission reduction, and its potential detrimental effect on the economy.

History of the Problem

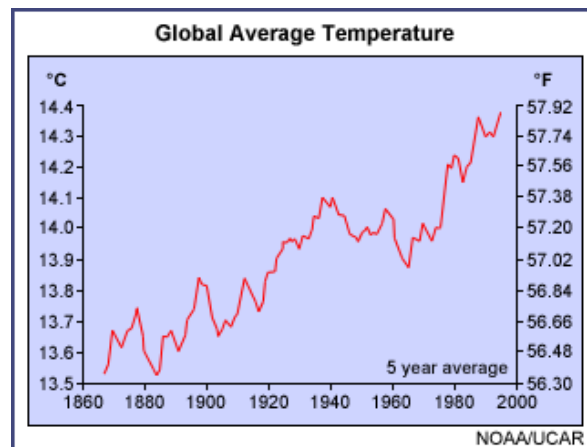
The history of this problem dates back to the beginning of Earth itself, as there have always been changes in the global climate. As one can see from the chart below, major ice ages occur roughly every 100,000 years, with a temperature change as little as 5° Celsius from the present-day average of 15°C (represented by the dotted line).



There are also shorter cycles of less dramatic temperature change. The most recent drop in temperature, called the “Little Ice Age,” occurred from 1500 to 1700 C.E. During this period, glaciers advanced in Europe, and rivers such as the Thames in England froze solid in winter, which does not happen now. This was the result of less than 1°C drop in average temperature.

Advances in data gathering and measurement allow scientists to be more certain about their estimates of past climate periods. The geological record of carved mountain valleys, scratched bedrock, and glacial debris are all commonly used to estimate climate conditions of the past several millions of years. Ice core samples, some as long as 2000 meters, have been taken from the Vostok Station in Antarctica. These ice cores contain bubbles of air, and the ratio of oxygen in the air shows the average air temperature at the time the bubble was formed. The deeper the bubble in the core sample, the longer ago it was formed.

Data from air bubbles in the ice cores show that a greater amount of carbon dioxide in the air is consistent with higher temperatures. Since the 1800’s, the industrialized world has been burning vast quantities of fossil fuels, releasing billions of metric tons of CO₂. Correspondingly, according to ship and land records from 1850, the world is warmer now than it was in the 19th Century (see graph below). This record is somewhat questionable due to changes in measurement and observation techniques, but borehole and glacier records uncovered by geologists also back up the claim.



Depending on one's perspective, the recent global warming, given the history of global climate change, is either extremely troubling or merely another period of temperature shift in a historically unstable climate. Whatever the cause, it is clear that increasing temperatures, even just a couple of degrees Celsius, could have a potentially devastating effect on the world. Rising sea levels and floods from increased precipitation and melting snow have already come into effect. According to the director of the United Nations Environmental Program, the higher temperatures could mean fewer crops, as studies have demonstrated, leaving millions to go hungry.

Governments and public interest groups became increasingly aware of the global warming phenomenon during the mid-1980s. In 1988, the United Nations General Assembly passed resolution 43/53, entitled "Protection of global climate for present and future generations of mankind." The United Nations also set up the Intergovernmental Panel on Climate Change (IPCC) in 1988, to assess the scientific, technical and socio-economic information relevant for the understanding of the risk of human-induced climate change. It does not carry out new research, nor does it monitor climate related data. It bases its assessment mainly on published and peer reviewed scientific technical literature. The most important step, some may argue, in combating global warming came in 1997 with the Kyoto Protocol, committing the industrialized nations to specified, legally binding reductions in emissions of six greenhouse gases. Since then significant obstacles have arisen, most notably the rejection of the treaty by U.S. President George W. Bush.

Past UN Action

As was stated previously, 1988 was a milestone year for combating global climate change. Over the next couple of years, the IPCC declared human-induced global warming a serious problem in need of immediate attention, and the UN General Assembly responded by setting up the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change (INC). On May 9, 1992, the INC adopted the United Nations Framework Convention on Climate Change. Today, 186 countries are parties to the convention. These countries meet regularly at the annual Conference of the Parties (COP). The Kyoto Protocol was established in 1997, with the goal of reducing greenhouse gas emissions in industrialized nations to 5% below 1990 levels by 2012. At the 4th Convention of the Parties (COP 4) in 1998, parties adopted the "Buenos Aires Plan of Action" to further outline the implementation issues of Kyoto. Subsequent COPs have all attempted to address various concerns with the Protocol. The most recent Convention in Marrakesh, Morocco, resulted in lesser punishments for countries that fail to meet the Kyoto targets. This was among many concessions that now have rendered implementation of the treaty very likely, even without US backing; countries that make up more than 55% of greenhouse emissions need to ratify the treaty for it to become legally binding among all industrialized Annex I nations.

Bloc positions

Annex I (42 countries):

These are states that are responsible for most of the global emissions, and would be required to start reducing them under the Kyoto Protocol. Besides the European Union, Annex 1 includes Japan, Australia, the United States, and Russia. The most important disagreement rests between the United States and the European Union. The United States recently declared that the Kyoto Protocol is not acceptable as it will harm the country's economy and make it vulnerable to, for example, China, who would not be required to decrease emissions under KP. So, the US will not sign the protocol unless some developing countries also commit to reducing their greenhouse gas output. The EU, on the other hand, argues that developed countries need to begin dealing with emission reduction before tying developing countries into a binding agreement.

Non-Annex 1 (153 countries):

OPEC countries: Eleven countries that are oil-exporters. They fear that reduced use of fossil fuel will lower the oil revenues, negatively impacting the economy.

AOSIS (38 countries): Association of Small Island States, who are the strongest proponents of deep and binding cuts in global greenhouse gas emissions. Global warming is most dangerous to these islands that are vulnerable to hurricanes, storms, and fluctuating weather patterns.

Asia, Latin America, and the Caribbean: countries that are concerned with economic development opportunities that may be upset when industrialization limits will be put in place. China especially fears caps of growth in the future.

A new group has formed in June 2000 by Mexico, Republic of Korea, and Switzerland. These three states promote the environmental integrity in the Kyoto Protocol.

Possible Solutions

Since the inception of these environmentalist concerns, many protocols and agreements have been ratified to prevent dangerous interference with the climate system, only to lack proper measures to enforce the agreed upon rules. While developing nations focus on scientific concerns of severe floods, droughts, and an increase of malaria and other respiratory diseases, developed nations are concerned with the economic impact of the high standards set. Current resolutions and protocols remain at a standstill largely in part over disputes of non-compliance and the ever-present debate concerning economic burdens.

A recent and controversial protocol, the Kyoto Protocol of 1997, calls for the economic and environmental burden to be placed on industrialized nations with the intent of allowing a greater degree of freedom for economic development in developing nations. The Protocol requires signatory nations to reduce net emissions with a target level of 5% less than 1990 levels. This standard obviously hits hardest the industrialized nations, leading up to the withdrawal of the United States from the Protocol.

A recent debate over the Protocol is the dispute over the penalty if a nation fails to comply. Politicians in Bonn, Germany, last July voiced concerns over the Protocol and agreed that any country that did not meet its target should face an automatic forfeit in the next compliance period. Furthermore, the non-complying country would be barred from trading emissions in that period.

One of the positive impacts resulting from the Protocol is that it creates a new market, that being emissions trading. Companies are lining up to be the middlemen of these transactions. This procedure generally involves one country buying emissions production of another country to give corporations, mostly energy producing, a higher emissions limit.

Aside from political agreement among States, a different means to a solution would involve shifting the responsibility of emissions reduction from governments to corporations. The argument behind such a move focuses on the emitters of greenhouse gases. Corporations would bear the burden of drafting agreements with other corporations and governments. The problem with this method is that large corporations may strong-arm developed nations which lack a strong infrastructure to take on financial mammoths.

The economic costs of such environmentally related resolutions are difficult to estimate, since accounting procedures and international trade rules for greenhouse gasses have yet to be finalized. Also, forecasting technological changes and public response to it under various pricing scenarios is an inexact science. The sector that will feel the greatest impact is the energy industry because energy resources are used to produce most goods and services. Higher energy prices can have an adverse affect on the economy's production potential. Thus, the ramification of higher energy prices will flow through to the entire economy, businesses and consumers, unavoidably changing the way of life.

On a macroeconomic level, the ultimate impacts of emissions policies on the economy will be the interaction of supply and demand, affecting monetary and fiscal policy decisions.

Although this paints a bleak outlook for the economy, its path is not yet determined. Long-term affects of high-energy costs could result in less energy-intensive sectors, encouraging energy conservation.

The obstacle in mitigating the negative consequences of global warming does not stem from ignorance of the full impact of global climate change. Instead, the agreement and implementation of resolutions largely remain dependent on the economic responsibilities of signatories. It is your challenge, as delegates of the United Nations Environmental Programme, to resolve the economic and environmental concerns of participating nations. Is such a resolution possible? If not, should the Kyoto Protocol take into effect?