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Global warming: Its effects and solution

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Abstract
The continuous rise in temperature of the planet is really upsetting. The root cause for this is global warming. Global warming begins when sunlight reaches the Earth. The clouds, atmospheric particles, reflective ground surfaces and surface of oceans then sends back about 30 % of sunlight back into the space, whilst the remaining is absorbed by oceans, air and land. This consequently heats up the surface of the planet and atmosphere, making life feasible. As the Earth warms up, this solar energy is radiated by thermal radiation and infrared rays, propagating directly out to space thereby cooling the Earth. However, some of the outgoing radiation is re-absorbed by carbon dioxide, water vapor's, ozone, methane and other gases in the atmosphere and is radiated back to the surface of Earth. These gases are commonly known as greenhouse gases due to their heat-trapping capacity. It must be noted that this re-absorption process is actually good as the Earth's average surface temperature would be very cold if there was no existence of greenhouse gases.

Keywords: global warming, greenhouse gases

Introduction
Global warming is primarily a problem of too much carbon dioxide (CO2) in the atmosphere trapping heat and warming the Planet. Global Warming is nothing but the increase of Earth's average surface temperature due to the effect of greenhouse gases, such as carbon dioxide and methane emissions out of human activities such as burning fossil fuels or from deforestation. Global warming occurs when carbon dioxide and other air pollutants collect in the atmosphere and absorb sunlight and solar radiation that have bounced off the earth's surface. Normally, this radiation would escape into space but these pollutants, which can last for years to centuries in the atmosphere, trap the heat and cause the planet to get hotter. As we burn fossil fuels like coal, oil and natural gas for energy or cut down and burn forests to create pastures and plantations, carbon accumulates and overloads our atmosphere. Certain waste management and agricultural practices aggravate the problem by releasing other potent global warming gases, such as methane and nitrous oxide. Increasing rainfall also leads to larger amounts of agricultural pollution, as heavy rains wash manure and fertilizer off of farm fields and into our streams and lakes. These gases can trap heat in the atmosphere, causing steady increase in temperatures.

Objectives
1. To know about the causes of global warming.
2. To educating people about the effects and solutions of global warming.

Data base and research methodology
The present study is based entirely on secondary data. Therefore, the required data is collected from various researches, books, articles and published journals on the above subject. In the present research I have tried to evaluate the causes, effects.

Greenhouse Gases and Effects
A greenhouse gas (GHG) is a gas in an atmosphere that absorbs and emits radiation and the ability of these gases to trap heat is what causes the greenhouse effect. Carbon dioxide, Methane, Nitrous Oxide, Fluorinated Gas and Chlorofluorocarbons are examples of greenhouse gases. So, the more greenhouse gases you have in the atmosphere, the more heat stays on Earth. There are two ways that a greenhouse gas can enter our atmosphere. One of them is through human activities. The main human sources of GHG emissions are fossil fuel use, deforestation, intensive livestock farming, use of synthetic fertilizers and industrial processes. Since the Industrial Revolution, which began in the 18th century, human activities have been a major source of all forcing greenhouse gases. The other is through natural processes like animal and plant respiration. Greenhouse gases keep the earth warm through a process called the greenhouse effect. The natural process between the sun, the atmosphere and the Earth is called the Greenhouse Effect. The exchange of incoming and outgoing radiation warms the earth is often referred to as the greenhouse effect. Energy radiated by the sun coverts to heat and when it reaches the earth some of the heat is reflected back through the atmosphere, while some observed by atmospheric gases and radiated back to the earth. "A phenomenon in which the atmosphere of a planet traps radiation emitted by its sun, caused by gases such as carbon dioxide, water vapor, and methane that allow incoming sunlight to pass through but retain heat radiated back from the planet's surface".

Effects of Greenhouse Gases
Global warming is changing our world and it is a global threat with real implications for everyone no matter where you live. As global warming alters weather patterns across the globe such as scorching hot summers and extreme unpredictable weather are expected to become the norm. This will result in more droughts as well as more floods and increasing uncertainty in the existing climate to the future. As temperatures rise, air quality problems worsen and would lead to increased asthma and other health impacts

would be significant. Severe allergies can also lead to missed days of work and school, and an overall lower quality of life. Wildlife and trees will feel the impacts as well. Greenhouse gases are a group of compounds that are able to trap heat (long wave radiation) in the atmosphere, keeping the Earth's surface warmer than it would be if they were not present.

1. These gases are the fundamental cause of the greenhouse effect. The ability of these gases to trap heat is what causes the greenhouse effect.
2. Increase in the amount of greenhouse gases in the atmosphere enhances the greenhouse effect which is creating global warming and consequently climate change. Greenhouse gases allow sunlight (short wave radiation) to pass through the atmosphere freely.
3. Some of the energy radiated by the sun bounces back out towards space as heat. Of the heat emitted back to space, some is intercepted and absorbed by greenhouse gases in the atmosphere and then re-emit it towards the earth which increases global temperatures.
4. Forcing greenhouse gases like carbon dioxide, methane, nitrous oxide and fluorinated gases take many years to leave the atmosphere as are all well-mixed gases in the atmosphere. They do not react to changes in either temperature or air pressure and thus do not get removed easily like water that condenses to become rain or snow. Their long atmospheric lifetime allows them to have a lasting effect on global warming and climate change.
5. Water vapor is a highly active component of the climate system that responds rapidly to changes in conditions by either condensing into rain or snow, or evaporating to return to the atmosphere.
6. Greenhouse gases greatly affect the temperature of the Earth and without them; surface temperatures would be on an average about 32.5°C colder.

Major effects of global warming or climate change

Global Warming Affect Rainfall

Global warming is expected to intensify extreme precipitation, but the rate at which it does so in the tropics has remained unclear. With every 1-degree Celsius rise in temperature, the tropical regions will see 10 percent heavier rainfall extremes, with possible impacts for flooding in populous regions.

Increased Melting of Ice

Some of the effects of global warming include increased melting of land ice, faster rises in sea level and increased temperature averages. It also increases the demand for energy and contributes to extreme weather conditions. As the ice melts, it flows into the sea and contributes to increases in the sea level. Global warming disturbs the balance of ecosystems by changing the salinity of ocean waters. Hence, fish and other organisms unable to adapt, die or experience growth or reproductive issues. Global warming also increases the temperatures at and above the ocean surface.

Increase in average temperatures and temperature extremes

One of the most immediate and obvious effects of global warming is the increase in temperatures around the world. The average global temperature has increased by about 1.4 degrees Fahrenheit over the past 100 years, according to the National Oceanic and Atmospheric Administration (NOAA). Extreme weather is an effect of global warming. While experiencing some of the hottest summers on record, much of the United States also has been experiencing colder than normal winters. Global warming may also lead to extreme weather other than cold or heat extremes.

Plants and Animals

Many species of plants and animals are already moving their range northward or to higher altitudes as a result of warming temperatures. They are not just moving north, but they are moving from the equator toward the poles. They are quite simply following the range of comfortable temperatures which is migrating to the poles as the global average temperature warms. This becomes a problem when the rate of climate change velocity is faster than the rate that many organisms can migrate. Because of this, many animals may not be able to compete in the new climate regime and may go extinct.

Social Effects

Agricultural systems will likely be dealt a crippling blow. Though growing seasons in some areas will expand, the combined impacts of drought, severe weather, lack of snowmelt, greater number and diversity of pests, lower groundwater tables and a loss of arable land could cause severe crop failures and livestock shortages worldwide.

Solution

Use of energy efficient products

Energy efficient products like fluorescent bulbs go long way in saving energy and that too at low cost. Energy produced by electronic gadgets at home or industry are largest producer of global warming. Using energy efficient products has vast potential to save both energy and money, and can be deployed quickly.

Adopt to nuclear

Nuclear technology produce low carbon emissions, an increase in the use of nuclear energy could help in reducing global warming. Though, nuclear technology pose serious threat to health and security but its' safe use can help in reducing global warming to great extent.

Passing out fossil fuels

Burning of fossil fuels like wood or coal produces more carbon emissions than other product. Phasing out coal burning power plants and not burning fossil fuels directly will reduce dependence on fossil fuels.

Put off gadgets

Often when we go out and we forget to switch off fans, bulbs, and gadgets when actually there is no use of them. These devices generate heat which in itself contributes to global warming. Switching off these devices will save electricity, lower down electricity bills and reduce global warming.

Stop deforestation

Less trees means less absorption of green house gases which are in itself responsible for more global warming. We can fight global warming by reducing deforestation and reducing forest degradation. Managing forests and

agriculture therefore should be the top priority to reduce carbon emissions.

Use of public transportation
Pollution from vehicles account for major portion of carbon emissions. Usage of public transportation, car pooling and low carbon fuels not only reduce pollution but also reduce vehicular traffic on the road. Public transportation appears to be more cost friendly and does not pinch the pocket in the long run.

Explore renewable sources
Renewable sources like Solar, Wind, Geothermal and Bio-energy would create clean energy and have been in use around the world for many years. These technologies can be deployed quickly, cost-effective and create jobs for millions of people.

Pushing for tough standards
Government should ensure that no subsidies, incentives or commitments are made to new coal-fired plants unless they produce zero emissions.

Developing low carbon technologies
Research and development of low carbon technologies will further help in reducing carbon emissions.

Creation of awareness
Word of mouth is the best way to create awareness among the people to stop carbon emissions. Presentations, Meetings and Discussions over global warming provide information about viable solutions to global warming, and reinforcing the economic benefits available throughout the Midwest from the development of renewable energy and energy efficiency. Further, fossil free heating or cooling of our houses, avoiding fossil driven cars, less use of voyage service, Preferring organic foods, normal usage of meat, purchasing locally produced articles, minimum use of goods and articles, buying quality oriented and used products, preferring eco-friendly products and companies, fossil free investments and savings, engaging environmental movements and emphasizing for clean energy and clean environment are the easy ways and means for reducing global warming.

Conclusion
Climate is reshaping human civilization. But, how we will respond to the climate will determine the future of our species. Ensuring climate stability, establishing protection from storm, assuring sufficient food and availability of sufficient drinkable water are the main elements demand the preservation of climate. Substantial scientific evidence indicates that an increase in the global average temperature of more than 2°F above where we are today poses severe risks to natural systems and human health and wellbeing. Extracting, burning and transporting fossil fuels all carry significant risks to our public health, to the climate and to those directly involved in these archaic industries. Therefore, we should not be using deadly and outdated technology to power our homes, schools, hospitals, and businesses but, we have to keep the majority of known fossil fuel reserves in the ground. The climate and the future of our kids will be saved when all of us are moving in the same direction.

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