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GLOBAL WARMING: AN EMERGING THREAT

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ABSTRACT

Global warming refers to the rising average temperature of earth's atmosphere and oceans due to natural or anthropogenic climate change. Global warming is closely linked to the enhanced greenhouse effect which is an increase in the concentration of greenhouse gases(GHG) in the atmosphere leading to an increase in the amount of infrared or thermal radiation near the surface. The enhanced greenhouse effect is leading to rising temperatures, referred to as global warming. Measurements show a global temperature increase of 1.4 °F (0.78 °C) between the years 1900 and 2005. However, for thousands of years now, emissions of GHGs to the atmosphere have been balanced out by GHGs that are naturally absorbed. As a result, GHG concentrations and temperature have been fairly stable. This stability has allowed human civilization to develop within a consistent climate

KEY WORD: Global warming, atmosphere, oceans, climate change, greenhouse gases(GHG), etc.

INTRODUCTION :

Decades have spent figuring out what is causing global warming. They have looked at the natural cycles and events that are known to influence climate. But the amount and pattern of warming that's been measured cannot be explained by these factors alone. The only way to explain the pattern is to include the effect of greenhouse gases (GHGs) emitted by humans.There are several greenhouse gases responsible for warming, and humans emit them in a variety of ways. Most come from the

combustion of fossil fuels in cars, factories and electricity production. The gas responsible for the most warming is carbon dioxide(CO_2). Other contributors include methane released from landfills and agriculture (especially from the digestive systems of grazing animals), nitrous oxide from fertilizers, gases used for refrigeration and industrial processes (CFC), and the loss of forests that would otherwise store CO_2.

Different greenhouse gases have very different heat-trapping abilities. Some of them can even trap more heat than CO_2. A molecule of methane produces more than 20 times the warming of a molecule of CO_2. Nitrous oxide is 300 times more powerful than CO_2. Other gases, such as chlorofluorocarbons (which have been banned in much of the world because they also degrade the ozone layer), have heat-trapping potential thousands of times greater than CO_2. But because their concentrations are much lower than CO_2, none of these gases adds as much warmth to the atmosphere as CO_2 does.In order to understand the effects of all the gases together, scientists tend to talk about all greenhouse gases in terms of the equivalent amount of CO_2.

CAUSES OF GLOBAL WARMING:

Carbon dioxide emissions from fossil fuel burning power plants:

Our ever increasing addiction to electricity from coal burning power plants releases enormous amounts of carbon dioxide into the atmosphere. Every day, more electric gadgets flood the market, and without widespread alternative energy sources, we are highly dependent on burning coal for our personal and commercial electrical supply.

Carbon dioxide emissions from burning gasoline for transportation:

With our population growing at an alarming rate, the demand for more cars and consumer goods means that we are increasing the use of fossil fuels for transportation and manufacturing.

Methane emissions from animals, agriculture such as rice paddies and Arctic sea beds:

Methane is another extremely potent greenhouse gas, ranking right behind CO_2. When organic matter is broken down by bacteria under oxygen-starved conditions (anaerobic decomposition) as in rice paddies, methane is produced. The process also takes place in the intestines of herbivorous animals, and with the increase in the amount of concentrated livestock production, the levels of methane released into the atmosphere is increasing. Another source of methane is methane clathrate, a compound containing large amounts of methane trapped in the crystal structure of ice. As methane escapes from the Arctic seabed, the rate of global warming will increase significantly.

Deforestation, especially tropical forests for wood, pulp, and farmland:

The use of forests for fuel (both wood and for charcoal) is one cause of deforestation, but in the first world, our appetite for wood and paper products, our consumption of livestock grazed on former forest land, and the use of tropical forest lands for commodities like palm oil plantations contributes to the mass deforestation of our world. Forests remove and store carbon dioxide from the atmosphere, and this deforestation releases large amounts of carbon, as well as reducing the amount of carbon capture on the planet.

Increase in usage of chemical fertilizers on croplands:

In the last half of the 20th century, the use of chemical fertilizers(as opposed to the historical use of animal manure) has risen dramatically. The high rate of application of nitrogen-rich fertilizers has effects on the heat storage of cropland (nitrogen oxides have 300 times more heat-trapping capacity per unit of volume than carbon dioxide) and the run-off of excess fertilizers creates 'dead-zones' in our oceans. In addition to these effects, high nitrate levels in groundwater due to over-fertilization are cause for concern for human health.

Threats of global warming:

The effects of global warming are the ecological and social changes caused by the rise in global temperatures.

Rise in sea levels worldwide

Scientists predict an increase in sea levels worldwide due to the melting of two massive ice sheets in Antarctica and Greenland. However, many nations around the world will experience the effects of rising sea levels, which could displace millions of people.

1. Ongoing sea level rises have already submerged several low-lying islands in the Sundarbans.
2. Villagers in India's North Eastern state of Meghalaya are also concerned that rising sea levels will submerge neighbouring low-lying Bangladesh, resulting in an influx of refugees into Meghalaya.

Extreme climate events

The severity of storms such as hurricanes and cyclones is increasing.It come up with the firmest evidence so far that global warming will significantly increase the intensity of the most extreme storms worldwide. The maximum wind speeds of the strongest tropical cyclones have increased significantly since 1981, according to research published in Nature. And the upward trend, thought to be driven by rising ocean temperatures, is unlikely to stop at any time soon.

Precipitation (rain and snowfall) has increased across the globe, on average.

Massive crop failures

Higher temperatures, altered precipitation and transpiration regimes, increased frequency of extreme events, and modified weed, pest, and pathogen pressure. In general, low-latitude areas are at most risk of having decreased crop yields. According to recent research, there is a 90% chance that 3 billion people worldwide will have to choose between moving their families to milder climes and going hungry due to climate change within 100 years. Climate change is expected to have the most severe impact on water supplies. Shortages in future are likely to threaten food production, reduce sanitation, hinder economic development and damage ecosystems.

Widespread extinction of species:

According to research published in Nature, by 2050, rising temperatures could lead to the extinction of more than a million species. And because we can't exist without a diverse population of species on Earth, this is scary news for humans.

Ocean acidification:

About one-third of the carbon dioxide emitted by human activity has already been taken up by the oceans. As carbon dioxide dissolves in sea water, carbonic acid is formed, which has the effect of

acidifying the ocean, measured as a change in pH. Furthermore, as the temperature of the oceans increases, they become less able to absorb excess CO2.

Disappearance of coral reefs:

Coral populations will collapse by 2100 due to increased temperatures and ocean acidification. The 'bleaching' of corals from small but prolonged rises in sea temperature is a severe danger for ocean ecosystems, and many other species in the oceans rely on coral reefs for their survival.

Oxygen depletion

The amount of oxygen dissolved in the oceans may decline, with adverse consequences for ocean life.

Summary

Global warming is the burning issue worldwide now a day. The evidence that humans are causing global warming is strong. The causes are mainly from us, the human race, and the effects on us will be severe. Global warming effects are real, global, and measurable. With the increasing population, technology and progressive nature of human being there is increase in power needs. All these result in increase in concentration of greenhouse gases in the environment leading to global warming. It will not affect the health, food chain, and ecosystem but may lead to extinction of life on the planet.

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