

Global Warming : Causes and Consequences

Dr. ALPNA JYOTI

Assistant Professor / Guest Faculty
Deptt. of Geography, Marwari College, Darbhanga
LNM University, Darbhanga (Bihar)
Email Id – alpnajyoti1987@gmail.com

- **GLOBALWARMING :-**

- The act of warming the globe is called Global warming.
- Warming the global along with its surrounding due to several factor is known as Global warming.
- The increase of existing temperature of global surface and surrounding atmosphere due to several causes is known as Global warming.

The earth's atmosphere has always acted like a greenhouse to capture the sun's heat, ensuring that the earth has enjoyed temperatures that permitted the emergence of life forms as we know them, including humans.

Without our atmospheric greenhouse the earth would be very cold. Global warming, however, is the equivalent of a greenhouse with high efficiency reflective glass installed the wrong way around.

The best evidence of this may come from a terrible cooling event that took place some 1,500 years ago. Two massive volcanic eruptions, one year after another placed so much black dust into the upper atmosphere that little sunlight could penetrate. Temperatures plummeted. Crops failed. People died of starvation and the Black Death started its march. As the dust slowly fell to earth, the sun was again able to warm the world and life returned to normal.

Today, we have the opposite problem. Today, the problem is not that too little sun warmth is reaching the earth, but that too much is being trapped in our atmosphere.

So much heat is being kept inside greenhouse earth that the temperature of the earth is going up faster than at any previous time in history. NASA provides an excellent course module on the science of global warming.

- **Responsible Gasses for global warming:**

Chloro Fluoro carbon (CFC-12)

Carbon dioxide (CO₂)

Methane (CH₄)

Nitrous oxide (N₂O)

Ozone (O₃)

The most common and most talked about greenhouse gases is CO₂ or carbon dioxide. In fact, because it is so common, scientists use it as the benchmark or measure of things that warm the atmosphere.

Methane, another important GHG, for example, is 28-36 times as warming as CO₂ when in the upper atmosphere therefore, 1 ton of methane = 28-36 tons eCO₂ or CO₂ equivalents. Human activity since the Industrial Revolution, mainly extracting and burning fossil fuels, has increased the amount of greenhouse gases in the atmosphere. This CO₂, methane, tropospheric ozone, CFCs, and nitrous oxide has increased radiative forcing.

- **Causes of global warming :**
- **Deforestation:-**

When trees are cut down and burned or allowed to rot, their stored carbon is released into the air as carbon dioxide. And this is how deforestation and forest degradation contribute to global warming. The loss of trees and other vegetation can cause climate change, desertification, soil erosion, fewer crops, flooding, increased greenhouse gases in the atmosphere, and a host of problems for indigenous people.

- **Black carbon :-**

Black carbon (BC) is tiny particles of carbon released as a result of the incomplete combustion of fossil fuels, biofuels and biomass. These particles are extremely small, ranging from 10 µm (micrometres, PM₁₀), the size of a single bacterium to less than 2.5 µm, one thirtieth the width of a human hair and small enough to pass through the walls of the human lung and into the bloodstream.

Agriculture is the second most important source (animals – cows and pigs), feed production, chemical intensive food production, and flooded paddy rice production, as well as deforestation driven by the desire to expand cultivated areas.

Uses of Chemical fertilizer :-

The use of **chemical fertilizers** is a significant source of greenhouse gas emissions and contributes greatly to **climate change**, Greenpeace said today during the Philippine launch of the report Cool Farming: **Climate** impacts of agriculture and mitigation potential. degradation, and intensive animal farming.

Increases of Vehicles :-

Our personal **vehicles** are a major cause of **global warming**. Collectively, **cars** and trucks account for nearly one-fifth of all US emissions, emitting around 24 pounds of carbon dioxide and other **global-warming** gases for every gallon of gas.

Uses of Supersonic jet :-

Concern among **environmental** groups is that **supersonic jets** burn much more fuel per passenger than conventional **jets**. The International Council on Clean Transportation estimates the new **supersonic jets** will consume as much as five to seven times as much fuel per passenger as subsonic **aircraft** on the same routes.

Uses of Pesticides :-

With a longer growing season and a warmer climate, weeds and insect pests will proliferate, most likely leading to more pesticide use – which is itself responsible for harmful emissions that further exacerbate climate.

Effect of global temperature :-

Green House Effect : -

The greenhouse effect is defined as when the Earth's atmosphere becomes thick with gases and substances which trap the sun's radiation, making the Earth warmer. The greenhouse effect is the process by which radiation from a planet's atmosphere warms the planet's surface to a temperature above what it would be without this atmosphere. Radiatively active gases in a planet's atmosphere radiate energy in all directions.

Glaciation :-

Melting ice of pole / mt. peaks or deglaciation : -

Melting glaciers, early snowmelt, and severe droughts will cause more dramatic water shortages and increase the risk of wildfires in the American West. Rising sea levels will lead to coastal flooding on the Eastern Seaboard, especially in Florida, and in other areas such as the Gulf of Mexico. Forests, farms, and cities will face troublesome new pests, heat waves, heavy downpours, and increased flooding.

Increasing of sea level :-

Sea level continues to rise at a rate of about one-eighth of an inch per year. The two major causes of global sea level rise are thermal expansion caused by warming of the ocean and increased melting of land-based ice, such as glaciers and ice sheets.

End of fossils :-

According to the U.S. Energy Information Administration, the burning of **fossil fuels** was responsible for 76 percent of U.S. greenhouse gas emissions in 2016. These gases contribute to the greenhouse effect and could lead to potentially catastrophic changes in the Earth's climate.

Disappear of sea animals :-

Oceanwarming will therefore lead to increased species migration, as endangered species look for a more suitable habitat. If a species cannot successfully migrate to a suitable environment, unless it learns to adapt to rising ocean temperatures, it will face extinction.

Increases of Sea Floor :-

Sea level rise is caused primarily by two factors related to global warming: the added water from melting ice sheets and glaciers, and the expansion of sea water as it warms

- **Downward in agriculture :-**

Global warming could lead to an increase in pest insect populations, harming yields of staple crops like wheat, soybeans, and corn. While warmer temperatures create longer growing seasons, and faster growth rates for plants, it also increases the metabolic rate and number of breeding cycles of insect populations.

Evidence :-

Temperature Record

Melting ice of mountain & Continental pole

Temperature of sea water on the basis of earth surface

Rise in sea level

Shrinking of permafrost area due to thawing

Transportation of snow line on mountain

Temporal shifting of seasonal weather phenomena

Impact of Global Warming

Global warming refers to climate change as a result of green houses gasses. we don't make an effort to stop air pollution and the release of greenhouse gases, the climate change from global warming will change the world.

- **Rising Temperatures and Global Warming**

Global warming is the rise of temperatures throughout the Earth. Some examples of global warming include: 8 degrees Celsius increase in the Earth's temperature since pre-industrial times. A global average temperature rise of 2 degrees Celsius or less in coming years. In 2010, 200 nations agreed to limit the global average temperature rise to these levels to try to avoid the dangers of climate change. However, meeting this goal may be difficult as scientists warn that more fossil fuels are being burned and more greenhouse gases are being emitted.

- **The rising of the sea levels throughout the world.**

Widespread decreases in the extent of snow and ice.

Warming of the Earth at high northern latitudes. Some warming is expected to occur over the Southern Oceans and the Northern Atlantic, but most warming will be occurring in Northern areas. The unfreezing and de-icing of the Arctic by September 2037.

- **The melting of the polar ice caps.**

These are the current or expected effects of global warming that some experts observe or predict with reasonable certainty.

- **Global Warming in the Future**

The specific impact of climate change is uncertain. However, future global warming could result in: A continued rise in average global temperatures. Winter in freezing areas in Michigan, South Dakota, Alaska and throughout the world could eventually resemble winters in warm weather climates like Florida. A major rise in sea levels. Manhattan, California and other coastal areas could find themselves under water with homes and buildings destroyed and people displaced. The Golden Gate Bridge, an icon of San Francisco, could be partially underwater as could Manhattan subways and iconic buildings in New York City.

A continued decrease in global production. With people less able to grow food and produce things, overall wealth declines. This tends to have the most dramatic impact on the poorest countries who are reliant on less industrial pursuits and more agricultural pursuits. Trouble for fisherman and those who rely on ocean animals for their livelihood. A reduction in species diversity. This could have untold impacts on the food chain and could result in the loss of plant life with potential medicinal purposes that could save lives.

Conclusion:-

The main conclusions are as follows:

- Measures to reduce emissions of short-lived climate forces such as tropospheric ozone and soot may help in limiting global warming in the near term, but such measures are not sufficient to curb the warming.
- The later global emissions culminate, the lower the probability of the two-degree target being met. In order to meet the two-degree target with a relatively high probability (around 70%), global greenhouse gas emissions must peak over the next 5-10 years, and by 2050 they must have decreased by approximately 50-60% compared to 2000.
- There are different models for how global emission reductions can be distributed between different regions and countries. Such models depend on political and other standpoints.
- Projections based on a convergence of the per capita emissions in different countries to the same level by 2050 and for the two-degree target to be achieved with a probability of around 70% indicate that Swedish emissions need to decrease by approximately 20% by 2020 and by 70% by 2050 compared to 2005.
- A lower temperature target, such as 1.5 degrees, requires far more comprehensive emission reductions and could be unachievable without a temporary overshooting of the required long-term stabilisation of greenhouse gas levels in the atmosphere.
- Projections based on a convergence of the per capita emissions in different countries to the same level by 2050 and for a 1.5-degree target to be achieved with a probability of around 50%, indicate that Swedish emissions need to decrease by approximately 25% by 2020 and by over 90% by 2050 compared to 2005.
- There is uncertainty regarding the climate effects under different temperature targets, but it is well-established that climate effects in certain regions, such as the Arctic, could be extensive even if the two-degree target is reached. Reducing global warming reduces the risk of climate effects.

Reference :-

- Carbon Dioxide Information Analysis Center. 2010. Global fossil-fuel carbon emissions: Graphics. <http://cdiac.ornl.gov/trends/emis/glo.html>. Accessed March 2011.

- Centers for Disease Control and Prevention (CDC). 2009. Climate change and public health: Heat waves. <http://www.cdc.gov/climatechange/effects/heat.htm>. Accessed February 2011.
- CDC. 2010. Reported cases of Lyme disease—United States, 2009. <http://www.cdc.gov/lyme/stats/index.html>. Accessed February 2011.
- Dai, A. 2010. Drought under global warming: A review. Wiley Interdisciplinary Reviews: Climate Change 2:45–65. <http://onlinelibrary.wiley.com/doi/10.1002/wcc.81/pdf>.
- Franks, T. 2005. Cows make fuel for biogas train. BBCNews. <http://news.bbc.co.uk/2/hi/science/nature/4373440.stm>. Accessed February 2011.