

Global Warming and Green House Effect



Greenhouse Effect:

Greenhouse effect is the process by which radiation from the sun are absorbed by the greenhouse gases and not reflected back into space this insulates the surface of the earth and prevents it from freezing.

Greenhouse effect is the process of heating of the surface of earth till the troposphere it happens because of higher concentration of carbon dioxide, water vapor, methane and other gases.

Sunlight heats up Earth's surface and subsequently the earth energy is reflected back to space in the form of infrared radiation. In the greenhouse effect the, concentrated gases absorb the energy, thereby increasing the global temperature. Hence, greenhouse effect and global warming are correlated.



The concentration of gases that led to trapping of heat in the atmosphere is known as **greenhouse gases**. Greenhouse gases include:-

- Carbon dioxide
- Methane
- Nitrous oxide
- Fluorinated gases like halons, hydro chlorofluorocarbons, chlorofluorocarbons, nitrogen trifluoride, sulphur hexafluoride, etc. However dimension of scale of these greenhouse gases varies leading to differences in its concentration in atmosphere.

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Causes of Greenhouse effect

The major causes of the greenhouse effects are:

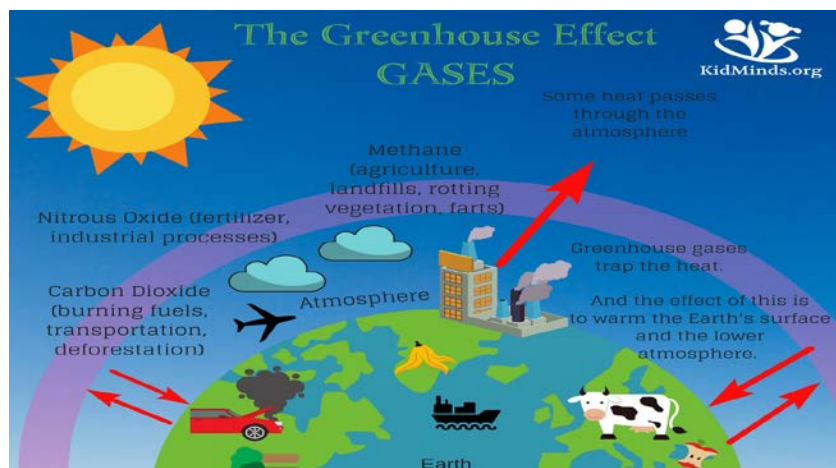
Burning of fossil fuels: Burning of fossil fuels release carbon dioxide. With the increase in population, the utilisation of fossil fuels has increased. This has led to an increase in the release of greenhouse gases in the atmosphere.

Deforestation: Plants and trees takes in carbon dioxide and release oxygen. Due to the cutting of trees there is a considerable increase in the greenhouse gases which increases the earth temperature.

Farming: Nitrous oxide used in fertilizers is one of the contributors to the greenhouse effect in the atmosphere.

Industrial waste and landfills: Industries and factories produce harmful gases which are released in the atmosphere. Landfills also release carbon dioxide and methane that adds to the greenhouse gases.

Population increase: Population explosion in different parts of the world has cause enormous pressure on existing resources, which is finite. Higher demand has caused a substantial increase in manufacturing, causing greater emission of harmful gases.



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Effects of Greenhouse Effect

Global warming: It is a phenomenon of a gradual increase in the average temperature of the Earth's atmosphere. The main cause for this environmental issue is the increased volumes of greenhouse gases such as carbon dioxide and methane released by the burning of fossil fuels, emissions from the vehicles, industries and other human activities.

Depletion of ozone layer: Ozone layer protects the Earth from harmful ultraviolet rays from the sun. It is found in the upper regions of the stratosphere. The depletion of the ozone layer results in the entry of the harmful UV rays to the Earth's surface that might lead to skin cancer and can also change the climate drastically.

The major cause of this phenomenon is the accumulation of natural greenhouse gases including chlorofluorocarbons, carbon dioxide, methane, etc.



Smog and Air Pollution: Smog is formed by the combination of smoke and fog. It can be caused by both natural means and man-made activities. In general, smog is formed by the accumulation of more greenhouse gases including nitrogen and sulphur oxides. The major contributors to the formation of smoke are automobile and industrial emissions, agriculture fires, natural forest fires and the reaction of these chemicals among themselves.

Acidification of Water bodies: Increase in the total amount of greenhouse gases in the year has turned most of the world's water bodies acidic. The greenhouse gases mix with the rainwater and fall as acid rain. This leads to the acidification of water bodies.

Also, the rainwater carries the contaminants along with it and falls into the river streams and lakes thereby causing their acidification.

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Consequences of Greenhouse Effect

- Melting of polar ice caps
- More droughts and floods
- More terrible storms
- More hot days
- More diseases like malaria, dengue
- Forests may disappear
- Decrease in biodiversity
- Increase in heat stress, mortality and diseases



Preventive Measures for Green House Effect

Plant more trees: Trees absorb carbon dioxide and give off oxygen. In this way carbon dioxide in atmosphere can be reduced.

Use Public transportation: Transportation accounts for nearly 30 percent of the greenhouse gas emissions. So, use public transportation like buses, trains, walk or ride to reduce air pollutants. Reduce plane travel as much as possible, as airplane exhaust adds pollutants to the atmosphere.

Save electricity: Greenhouse gas emissions takes place to a large extent in the production of electricity from power plants that rely on fossil fuel consumption. So, save electricity to reduce that need for its generation.

Follow the 3R's i.e., Reduce, Reuse, Recycle: Buy products with minimal packaging which will help to reduce waste. Try to reuse and recycle the waste materials.

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Home Coating or Insulation: Apply insulation coatings to your walls and install weather stripping around doors and windows. That will reduce the amount of energy you need to heat and cool your home.

Use energy-efficient products: Home appliances now come in a range of energy-efficient models, and compact florescent bulbs are designed to provide more natural- looking light while using for less energy than standard light bulbs.



Global Warming:

Global warming means the rise in the global temperature. The primary cause for global warming are human activities such as burning fossil fuels to release poisonous gases to our environment and destroying forests from which we cannot get enough oxygen. So, that is why carbon dioxide is necessary in the environment which traps more sunlight and drives up the plant's temperature causing the glaciers to melt, rise in the sea level and forests to dry etc. These are the reasons why we say that the humans are major cause for the global warming.



Causes of Global Warming

Deforestation: Plants are the main source of oxygen .They take in carbon dioxide and release oxygen thereby maintaining environmental balance. Forests are being depleted for many domestic purposes. This has led to an environmental imbalance, thereby giving rise to global warming.

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Uses of vehicles: The uses of vehicles, even for a very short distance results in various gaseous emissions. Vehicles burn fossil fuels which emit a large amount of carbon dioxide and other toxins into the atmosphere resulting in a temperature increase.

Agriculture: Various farming activities produce carbon dioxide and methane gas. These add to the greenhouse gases in the atmosphere and increase the temperature of the earth.

Overpopulation: Increase in population means more people breathing. This leads to an increase in level of carbon dioxide which is the primary gas causing global warming in the atmosphere.



Natural causes of global warming

Volcanoes: Volcanoes are one of the largest natural contributors to global warming. The ash and smoke emitted during volcanic eruptions goes out into the atmosphere and affects the climate.

Water Vapour: It is a kind of greenhouse gas due to the increase in the earth's temperature more. Water gets evaporated from the water bodies and stays in the atmosphere adds to global warming.

Forest blazes: forest blazes or forest fires emit large amount of carbon containing smoke. These gases are released into the atmosphere and increase the earth's temperature resulting in global warming.

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Effects of Global warming:

Rise in Temperature Leading to Ice Melt: Melting glaciers and snow melts will cause severe water shortages and droughts with higher frequencies giving way to heat waves and extreme weather conditions in the mid-latitudes. Thinning ice of the northern seas will make the atmospheric conditions vulnerable to control.

Ecological Risks: Global warming has contributed to the extension of drier climatic zones such as deserts in the subtropics. Mostly ecosystems and animal life will be affected by higher carbon dioxide levels and global temperatures leading to climate change, which will result in the extinction of many species and reduced ecological diversity.



The Threat to Marine Life: Global warming can lead to the destruction of marine and coral life underwater. Higher content of carbon dioxide in the water inflicts damage to valuable natural resources.

Loss of Settlements: Global warming can also lead to Inundation from sea level rise, which can further threaten infrastructure and establishments of human settlements. This severely leads to a decrease in the human population. Droughts, temperature rise, loss of glacial rivers put the state of agriculture on the rampage.

Health Factors: There are various indirect effects such as malnutrition inflicted by crop failures. Scanty rainfall leading to desertification can also cause several diseases due to global warming.

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Flooding in low-altitude regions: Rise in sea level and high flooding tendencies can damage human habitation and cause mass destruction.

Spread of diseases: Global warming leads to a change in the patterns of heat and humidity this has led to the movement of mosquitoes that carry and spread diseases.

Climate Change: Global warming has led to a change in climatic conditions there are drops at some places and floods at some this climatic imbalance is the result of global warming.



Preventive Measures to control Global Warming

- The first thing we should do is stop using or minimize the use of fossil fuels. Instead of this, we can use renewable energy sources like solar, wind, biomass, geothermal, etc.
- We need to minimize our energy consumption. We can help it by using energy-efficient devices like LED light bulbs.
- Transportation is one of the significant reasons for CO_2 emission. We can reduce carbon emission by promoting sustainable transportation like public transportation, carpooling, etc.
- Sustainable infrastructure is also an important measure to fight against global warming. To reduce carbon dioxide emissions from buildings (through various activities like heating, ACs, hot water, etc.), we should opt for new low-energy buildings and renovating the existing constructions.
- Deforestation needs to be controlled if we want to contribute to treating global warming. Stop cutting trees and focus on reforestation and afforestation with proper forest management.

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- We need to limit our consumption (not only food but other uses as well – like clothing, cleaning products, cosmetics, etc.). If consumption is less, it will generate less waste to dispose of.
- Save water to minimize carbon pollution because it takes much energy to pump, heat, and treat water for usage. Hence, try to take shorter showers, turn off the taps while brushing teeth, use your dishwasher & washing machine to full-capacity, etc.
- Simultaneously, focus on saving energy because the more you use the energy, the more carbon in the atmosphere resulting in global warming. Hence, switch off the electronic appliances, gadgets, devices, etc. if you are not using it.
- Make a habit of recycling waste because it helps a lot to cut down the carbon emissions in the atmosphere.
- Try to use cold water instead of hot water for a shower or washing clothes, etc. It also helps to minimize carbon emissions.
- Raise awareness about global warming- how it causes, its effects, and how we can prevent it. You can share information with your family, friends, children, or your colleague about global warming.