THE GREENHOUSE EFFECT AND ITS IMPACT ON AN ENVIRONMENT

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INTRODUCTION :

Climatologist believe that increasing atmospheric concentration of carbon dioxide and other "greenhouse gasses" released by human activities, such as burning of **fossil fuels** and **deforestation**, are warming the Earth. The mechanism is commonly known as the " **The Greenhouse Effect "** is what makes the Earth habit

The human activities have altered the chemical composition of the atmosphere through the build-up of greenhouse gases-primarily

Carbon dioxide, methane, and nitrous oxide.

Rise in environmental temperature and changes in related processes are directly connected to increasing greenhouse gas (GHG) emissions in the atmosphere.

The concentrations of carbon dioxide, methane, and nitrous oxide are all known to be increasing and in recent year, so their greenhouse gases, principally **chlorofluorocarbons (CFCs**), have been added in significant quantifies to the atmosphere

Aims:

To study the green house effect and its impact on the environment .

Objects:

To introduce what is greenhouse and its impact on environment.

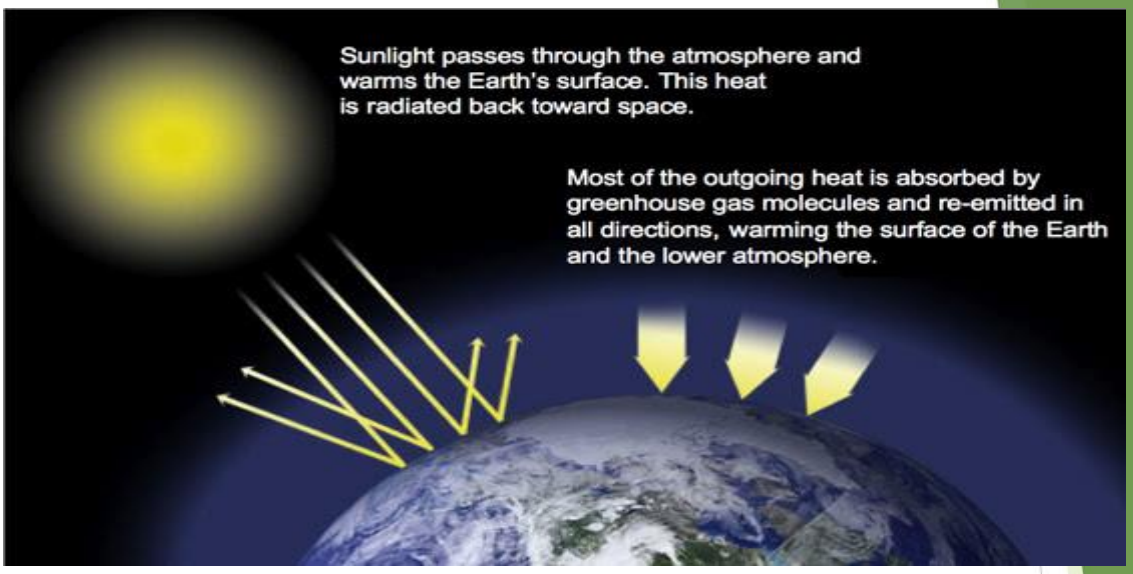
To introduce how it causes for global warming.

How to overcome on its bad effects.

Review on literature:

Bjorn Ulsterman et al. (2007), has published paper on Modelling carbon cycles and estimation of greenhouse gas emissions from organic and conventional farming systems. It gives information on carbon (C) and nitrogen (N) fluxes in the system soil–plant–animal–environment. The model couples the balancing of C, N and energy fluxes with the target to estimate the climate-relevant CO2, CH4 and N2O sources and sinks of farming systems. For the determination of the net greenhouse effect, calculations of C sequestration in the soil, CO2 emissions from the use of fossil energy, CH4 emissions from livestock keeping and N2O emissions from the soil have been made. The results were converted into CO2 equivalents using its specific global warming potential (GWP)

Y.R.Dhumal et al; (2013) has published paper on (Green House Automation using Zigbee and Smart Phone). In this paper we have discussed about Greenhouse Monitoring and Control System Based on Zigbee Wireless Senor Network using ARM controller and is accessible to the user through the Internet. They have discussed about Green House environment monitor technology implementation based on android mobile platform, which uses android mobile phone as the monitoring terminal. In this paper parameters in the greenhouse are monitored on the PC as well as the android mobile phone from anywhere in the world as it is connected to the internet through the team viewer software.



A layer of greenhouse gases – primarily water vapor, and including much smaller amounts of carbon dioxide, methane and nitrous oxide – acts as a thermal blanket for the Earth, absorbing heat and warming the surface to a life-supporting average of **59 degrees Fahrenheit (15 degrees Celsius).**

Most climate scientists agree the main cause of the current global warming trend is human expansion of the "greenhouse effect"[1] — warming those results when the atmosphere traps heat radiating from Earth toward space.

Certain gases in the atmosphere block heat from escaping. Long-lived gases that remain semi-permanently in the atmosphere and do not respond physically or chemically to changes in temperature are described as "forcing" climate change. Gases, such as water vapour, which respond physically or chemically to changes in temperature, are seen as "feedbacks."

The consequences of changing the natural atmospheric greenhouse are difficult to predict, but certain effects seem likely:

On average, Earth will become warmer. Some regions may welcome warmer temperatures, but others may not.

Warmer conditions will probably lead to more evaporation and precipitation overall, but individual regions will vary, some becoming wetter and others dryer.

A stronger greenhouse effect will warm the oceans and partially melt glaciers and other ice, increasing sea level. Ocean water also will expand if it warms, contributing further to sea level rise.

Meanwhile, some crops and other plants may respond favourably to increased atmospheric CO_2, growing more vigorously and using water more efficiently. At the same time, higher temperatures and shifting climate patterns may change the areas where crops grow best and affect the makeup of natural plant communities.

The role of human activity

In its Fifth Assessment Report, the Intergovernmental Panel on Climate Change, a group of 1,300 independent scientific experts from countries all over the world under the auspices of the United Nations, concluded there's a more than 95 percent probability that human activities over the past 50 years have warmed our planet.

The industrial activities that our modern civilization depends upon have raised atmospheric carbon dioxide levels from 280 parts per million to 400 parts per million in the last 150 years. The panel also concluded there's a better than 95 percent probability that human-produced greenhouse gases such as carbon dioxide, methane and nitrous oxide have caused much of the observed increase in Earth's temperatures over the past 50 years.

Solar irradiance

It's reasonable to assume that changes in the sun's energy output would cause the climate to change, since the sun is the fundamental source of energy that drives our climate system.

Indeed, studies show that solar variability has played a role in past climate changes. For example, a decrease in solar activity is thought to have triggered the Little Ice Age between approximately 1650 and 1850, when Greenland was largely cut off by ice from 1410 to the 1720s and glaciers advanced in the Alps.

But several lines of evidence show that current global warming cannot be explained by changes in energy from the sun:

Since 1750, the average amount of energy coming from the sun either remained constant or increased slightly.

If the warming were caused by a more active sun, then scientists would expect to see warmer temperatures in all layers of the atmosphere. Instead, they have observed a cooling in the upper atmosphere, and a warming at the surface and in the lower parts of the atmosphere. That's because greenhouse gases are trapping heat in the lower atmosphere.

Climate models that include solar irradiance changes can't reproduce the observed temperature trend over the past century or more without including a rise in greenhouse gases.

IMPACT ON ENVIRONMENT OF GREENHOUSE EFFECT

Global Warming

Increase of greenhouse gases concentration causes a reduction in outgoing infrared radiation, thus the Earth's climate must change somehow to restore the balance between incoming and outgoing radiation. This "climatic change" will include a "global warming" of the Earth's surface and the lower atmosphere as warming up is the simplest way for the climate to get rid of the extra energy. However, a small rise in temperature will induce many other changes, for example, cloud cover and wind patterns. Some of these changes may act to enhance the warming (positive feedbacks), others to counteract it (negative feedbacks). Using complex climate models, the "Intergovernmental Panel on Climate Change" in their third assessment report has forecast that global mean surface temperature will rise by 1.4℃ to 5.8℃ by the end of 2100. This projection takes into account the effects of aerosols which tend to cool the climate as well as the delaying effects of the oceans which have a large thermal capacity. However, there are many uncertainties associated with this projection such as future emission rates of greenhouse gases, climate feedbacks, and the size of the ocean delay.

Conclusion:

The greenhouse effect is a natural process where the atmosphere traps some of the sun's energy, warming the Earth enough to support life. Although the greenhouse effect is a nature cycle, humans have greatly increased the concentrations of greenhouse gases, thus causing a significant increase in the overall greenhouse effect. A number of gases are involved in the human caused enhancement of the greenhouse effect. These gases include: carbon dioxide (CO2); methane (CH4); nitrous oxide (N20); CFC's and ozone (03) Out of all these gases the most important is carbon dioxide which accounts for around 55% of the change in the intensity of the Earth's greenhouse effect. The consequence of the greenhouse effect is that there will a rise in the sea levels around the world, there will be dramatic climate changes, and agriculture will suffer from the fluxes of the weather. However, it's not too late to cut back on greenhouse gas emissions, some effective ways to reduce emissions it to: use cleaner fuels, use energy efficient machines, develop alternative sources for energy and to plant more trees.

Suggestion:

Stop deforestation and plant more trees so that we can control carbon dioxide present in our atmosphere

Time to time maintenance of vehicles and pollution test of vehicles so that pollution should be in control and as possible avoid vehicles for shorter distance.

Government should start investing on the production of electric solar vehicles.

Shift to the water solar or wind source of energy production and use solar home appliances in our daily use.

Inspection of companies carbon emissions if it's more because of faulty or old equipment ask to replace it.

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