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A STUDY ON GREEN HOUSE EFFECT AND GLOBAL WARMING

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ABSTRACT:

The paper presents an overview of the various aspects of the green house effect and its potential to contribute to global warming. India experiences extreme weather with temperatures ranging from -15 to 52 degrees Celsius. In the Himalayas, snow is common during winter season, while in the Gangetic plains, summer heat often brings out the hottest temperatures. Areas such as Cherrapunji in the North-East receive around 1100mm of rainfall annually, while arid regions such as Rajasthan get less rainfall. Various aspects of the green house effect, such as the melting of ice, the rise in sea level, and the impact of climate change on human health, have been discussed.

INTRODUCTION

South Asia's second-largest nation with a population of over 1.2 billion, India is located north of the equator. It shares a coast line with Bangladesh, China, Pakistan, Nepal, Burma, and Bhutan. It also has land boundaries with these countries.

Due to its size, India experiences a wide variety of temperatures. Some of these include the extremely hot temperatures in the Thar Desert and the freezing cold weather in the Himalayas. These two regions are responsible for controlling the country's weather. The Himalayas and the Thar desert contribute to this climate phenomenon by preventing cold winds from blowing in. These two regions draw in the summer monsoon winds that are responsible for the majority of India's monsoon season.

Some of the major types of Climate zones found in India are as follows:

1. The Cold Weather Season (December-February)
2. The Hot Weather Season (March-May)
3. The Rainy Season (June-September)
4. The Season of Retreating South-west Monsoon (October-November)

Fig. 1 Map showing Climatic Zone of India

GREEN HOUSE EFFECT

Greenhouse gases are substances in the Earth's atmosphere that absorb and emit radiation. Some of these include carbon dioxide, methane, and chlorofluorocarbons.In order, the most abundant greenhouse gases in Earth's atmosphere are:

i. Carbon dioxide

ii.Chlorofluorocarbons

iii. Methane

iv. Nitrous oxide

The greenhouse gases present in the troposphere and resulting in an increase in the temperature of air and the earth are discussed here:

(i) Carbon dioxide:

Humans contribute about 55% of the greenhouse gases that are contributing to global warming. The main sources of these emissions are burning fossil fuels and deforestation. The concentration of CO2 in the atmosphere has increased by about 1.5 ppm every year since 1990.

(ii)Chloroflurocarbon:

CFCs contribute 24% of the greenhouse gases that humans produce. They can also deplete the ozone layer. Their main sources of emissions are leaking refrigerators and air conditioners. The atmospheric concentration of CFCs is about 0.00225 ppm.

(iii) Methane:

Methane is a greenhouse gas that can be produced by bacteria in moist areas that lack oxygen, such as wetlands, swamps, landfills, paddy fields, and digestive tracts of livestock. The concentration of methane in the atmosphere is 1.675 parts per million.

(iv) Nitrous oxide:

Around 6% of the anthropogenic greenhouse gases emissions are caused by nylon products. These include the burning of biomass and coal, as well as the breakdown of fertilizers in soil, groundwater contamination, and livestock wastes. Its atmospheric concentration is currently 0.3 ppm.

3. Mechanism of Global Warming:

i. The Sun's incoming radiation is mainly visible light. It ranges from 0.2 to 4.1 meters, which is equivalent to the radiative temperature of the Sun.

ii. The Earth's surface absorbs about 50% of the Sun's energy. The rest is absorbed by the atmosphere or reflected back into space.

iii. The greenhouse effect is when the absorbed heat warms the surface. In simple terms, this heat is lost as thermal radiation.

The reduction in the water vapour's concentration in the atmosphere is one of the factors that contributes to the increasing number of radiation energy losses. It is also believed that the greenhouse effect can be applied to a surface in the mid-troposphere.

EFFECTS OF GLOBAL WARMING:

Global Temperature Increase

It is estimated that the earth’s mean temperature will rise between 1.5 to 5.5°C by 2050 if input of greenhouse gases continues to rise at the present rate.

Rise in Sea Level

With the increase in global temperature sea water will expand. Heating will melt the polar ice sheets and glaciers resulting in further rise in sea level. Current models indicate that an increase in the average atmospheric temperature of 3°C would raise the average global sea level by 0.2-1.5 meters over the next 50-100 years.

Effects on Human Health

Changing rainfall patterns due to global warming could affect the transmission of various vector-borne diseases such as malaria and filariasis. Areas that are currently free of these diseases could become breeding grounds for these organisms.

Effects on Agriculture

There are varying views about how global warming will affect agriculture. It can either be positive or negative for different crops depending on the region. Subtropical and tropical regions will be the most affected due to how their average temperature will rise.

Even a rise of 2°C may be quite harmful to crops. Soil moisture will decrease and evapotranspiration will increase, which may drastically affect wheat and maize production. Increase in temperature and humidity will increase pest growth like the growth of vectors for various diseases.

CONTROL MEASURE OF GLOBAL WARMING

There are numerous ways to stop global warming:

Plant More Trees and Stop Contributing to Deforestation:

The easiest way to protect our planet from the effects of global warming is by reducing the concentration of greenhouse gases in the atmosphere.

Switch to Compact Fluorescent Light Bulbs

In addition to contributing to global warming, using inefficient light bulbs is also a contributing factor to the issue. When it comes to reducing carbon dioxide emissions, replacing old bulbs with compact fluorescent lights can help you save up to 60% on energy.

Reuse and Recycle Products

In order to help stop global warming, we should recycle and reuse various products that we use daily. For instance, by reducing the amount of paper that is produced by cutting down trees, we can help prevent greenhouse gases from being released into the atmosphere.

Unplug Appliances

Another way to address global warming is by unplugging all of your electronic devices. Doing so can help cut down on energy consumption by about 20 percent.

Avoid Keeping Electrical Appliances on Standby

An electronic appliance's continuous use on standby can contribute to global warming and loss of energy. Although one may initially believe that a single computer will not make a big difference, millions of people will actually think differently.

Promote the Use of Organic Products

One of the ways to prevent global warming is by promoting organic food production. According to estimates, by utilizing organic farming techniques, we can remove about 600 billion pounds of carbon dioxide from the atmosphere.

Use Vehicles Efficiently

Vehicles are known to release a huge amount of carbon dioxide into the atmosphere. If you want to cut down on pollution, you can try implementing some simple driving tips. These include not turning on the engine at red lights and going at a moderate speed.

Resort to Alternative Sources of Energy

One of the most important factors that people can consider when it comes to addressing global warming is switching to renewable energy sources such as wind and solar power. Doing so will help cut down on greenhouse gas emissions. We can help reduce the amount of energy that goes into production by giving up on unnecessary luxuries.

CONCLUSION

The goal of this study was to examine the effects of greenhouse gases on the global temperature and human health. It also analyzed how these gases affect agriculture and human development. It is believed that the rise of greenhouse gases is the main cause of global warming. It was concluded that by recycling paper, the large-scale felling of trees can be stopped, and these trees can absorb carbon dioxide and help reduce global warming.

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