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## Climate change and its impact on world

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**Abstract:**Climate change is one of the main environmental challenges facing the world today. Several countries facing several problems. Climate change is associated with various adverse impacts on agriculture, water resources, forest and biodiversity, health, coastal management and increase in temperature. Decline in agricultural productivity is the main impact of climate change on India. A majority of population depends on agriculture directly or indirectly. Climate change would represent additional stress on the ecological and socioeconomic systems that are already facing tremendous pressure due to rapid industrialization, urbanization and economic development. This abstract also analyses the impact of climate change and its various aspects in the Indian and world context.

Global warming also shifts the global climate, main five factors atmosphere, biosphere, cryosphere, hydrosphere and lithosphere interacted with natural cycles of cooling and warming and climate change occurs.

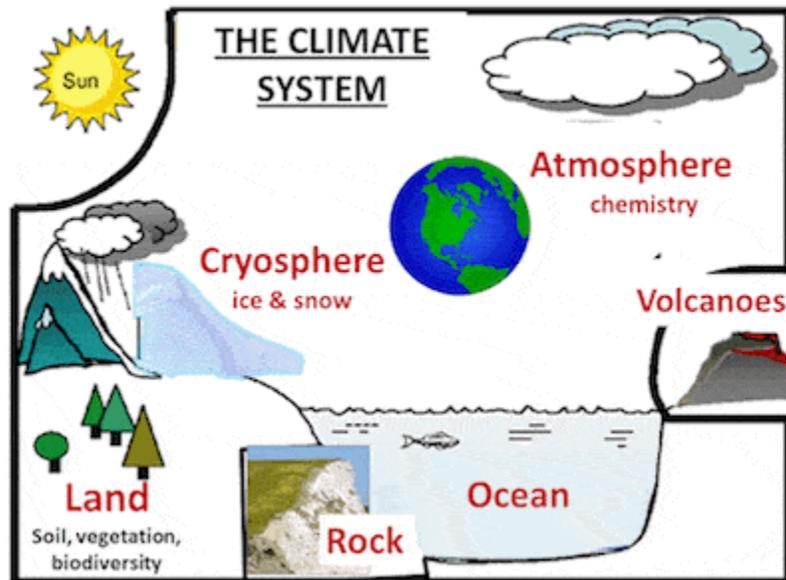
### **Introduction:**

Climate change is significant, long-term changes in the global climate.

### **The Climate System**

The global climate is the connected system of sun, earth and oceans, wind, rain and snow, forests, deserts and savannas, and everything people do, too. The climate of a place, say New York, can be described as its rainfall, changing temperatures during the year and so on.

A description of the global climate includes how, for example, the rising temperature of the Pacific feeds typhoons which blow harder, drop more rain and cause more damage, but also shifts global ocean currents that melt Antarctica ice which slowly makes sea level rise until New York will be under water. It is this systemic connectedness that makes global climate change so important and so complicated.



(Source: US Environmental Protection Agency)

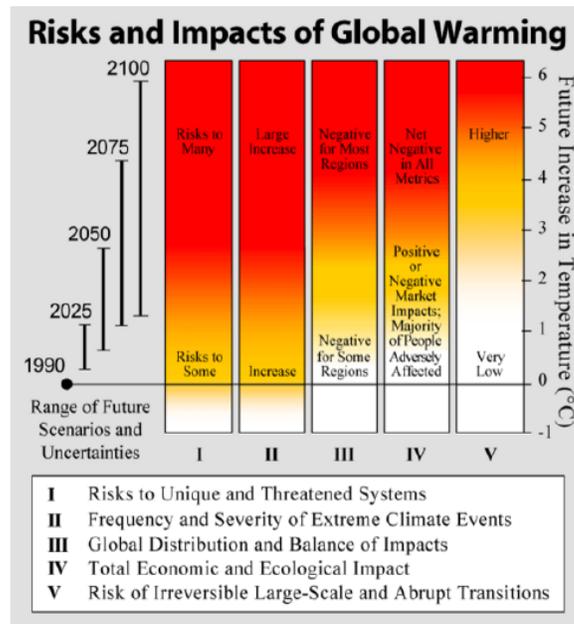
#### Factors affecting the global climate:

- Global warming
- Greenhouse gases
- Effect of living style of living beings.

**1.Global warming:**Global warming is the slow increase in the average temperature of the earth's atmosphere because an increased amount of the energy (heat) striking the earth from the sun is being trapped in the atmosphere and not radiated out into space.

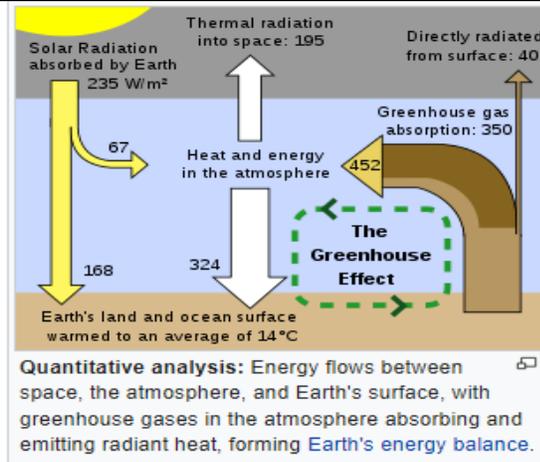
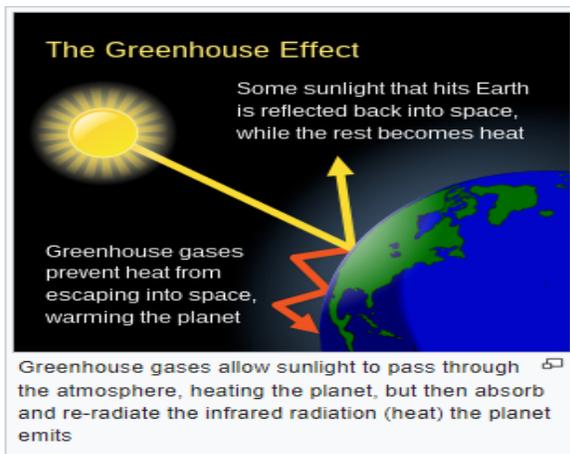
Global warming produces many negative effects some of which are described here. Firstly, extra water vapour which is present in the atmosphere falls again as rain which leads to floods in various regions of the world. When the weather turns warmer, evaporation process from both land and sea rises. This leads to drought in the regions where increased evaporation process is not compensated by increased precipitation. In some areas of the world, this will result in crop failure and famine particularly in areas where the temperatures are already high. The extra water vapour content in the atmosphere will fall again as extra rain hence causing flood. Towns and villages which are dependent on the melting water from snowy mountains may suffer drought and scarcity of water supply. It is because the glaciers all over the world are shrinking at a very rapid rate and melting of ice appears to be faster than previously projected. According to Intergovernmental Panel on Climate Change (IPCC), about one-sixth of the total population of the world lives in the regions which shall be affected by a decrease in melting water. The warmer climate will likely cause more heat waves, more violent rainfall and also amplification in the

severity of hailstorms and thunderstorms. Rising of sea levels is the deadliest effect of global warming, the rise in temperature is causing the ice and glaciers to melt rapidly. This will lead to rise of water levels in oceans, rivers and lakes that can pilot devastation in the form of floods.



**Green House Gases:**

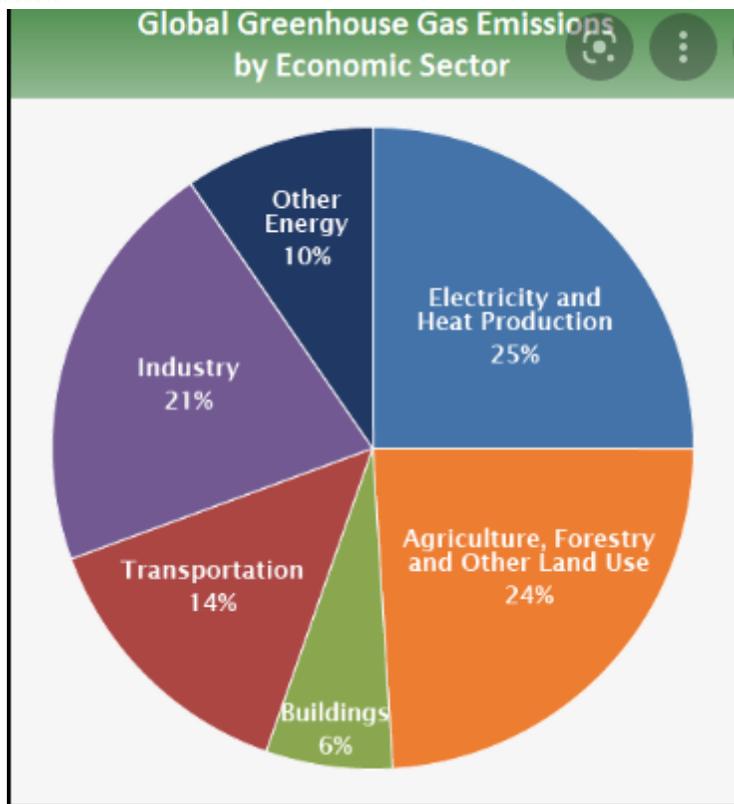
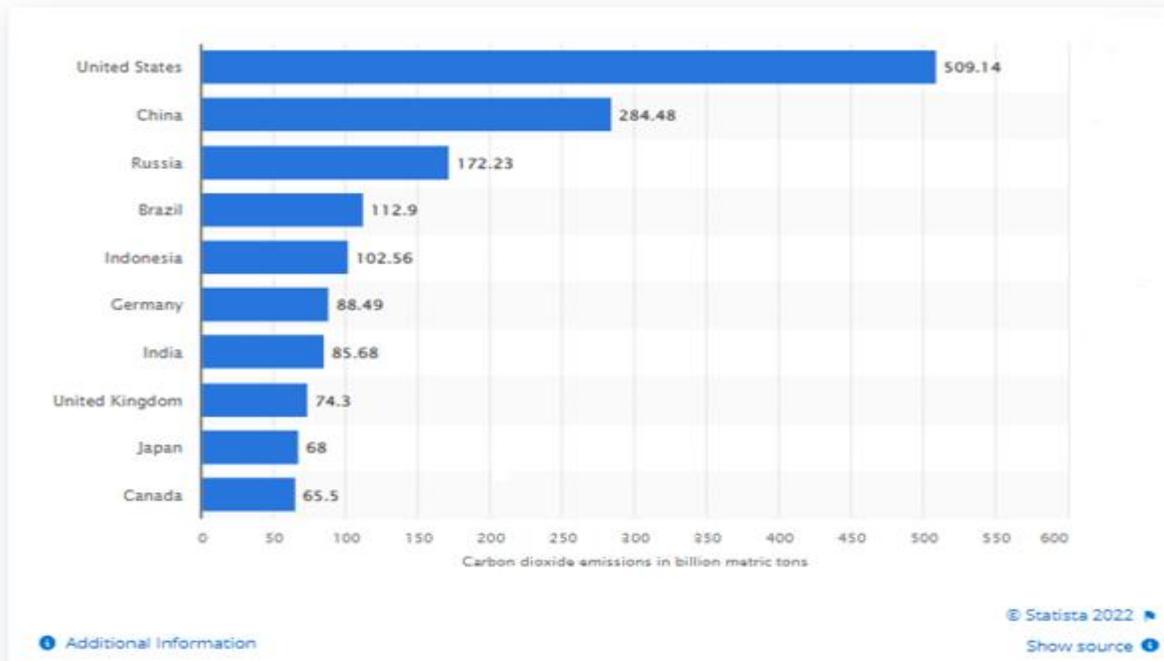
A greenhouse gas (GHG or GhG) is a gas that absorbs and emits radiant energy within the thermal infrared range, causing the effect. The primary greenhouse gases in Earth's atmosphere are water vapor (H<sub>2</sub>O), carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), and ozone (O<sub>3</sub>). Without greenhouse gases, the average temperature of Earth's surface would be about -18 °C (0 °F), rather than the present average of 15 °C (59 °F). The atmospheres of Venus, Mars and Titan also contain greenhouse gases.



Sunlight varies day and night, by season, and by distance from the equator. About half of available sunlight is reflected from clouds and from the Earth's surface, depending on their reflectivity. Greenhouse gases vary in effect, time in the atmosphere, and altitude, leading to positive feedbacks. Variations are evened out by Earth's heat engine causing energy flows. Eventually, higher layers of the atmosphere tend to emit about as much energy into space as is arriving from the Sun, forming Earth's energy balance. A runaway greenhouse effect occurs if positive feedbacks lead to the evaporation of all greenhouse gases into the atmosphere, as happened with carbon dioxide and water vapor on Venus.

**Largest contributors to cumulative carbon dioxide emissions from fossil fuels, land use, and forestry from 1850 to 2021.**

(in billion metric tons)





### 3. Effect of living style of living beings.

Transport currently accounts for 34% of a household's carbon footprint. Greenhouse gas (GHG) emissions from transportation account for about 29 percent of total U.S. greenhouse gas emissions, making it the largest contributor of U.S. GHG emissions. Between 1990 and 2020, GHG emissions in the transportation sector increased more in absolute terms than any other sector. The potential negative impacts of transportation on environment can be listed as degradation of air quality, greenhouse gas emissions, increased threat of global climate change, degradation of water resources, noise and habitat loss and fragmentation.

Transportation also leads to noise pollution, water pollution, and affects ecosystems through multiple direct and indirect interactions.

Factory farming intensifies climate change, releasing vast volumes of greenhouse gases. Factory farming is fuelling climate change, releasing vast quantities of carbon dioxide and methane.

Industry releases thousands of different chemicals into the environment. Industrial activities are a source of pressure on the environment in the form of emissions to the atmosphere and water ecosystems, waste generation and resource consumption.

There are an estimated 1.4 billion fridges and freezers in the world today, 1.6 billion air conditioning units, and countless refrigerated lorries, warehouses, containers, medical appliances and other devices that require cooling. Taken together, they represent a major problem for the climate.

The big problem with refrigeration is the coolants used. All refrigeration works on more or less the same principles. A coolant is pumped through a coiled system that harvests heat inside the fridge and moves it to the outside. Most air conditioners are fueled by electricity and use a refrigerant that results in a byproduct of gas emissions that cause climate change and deplete the ozone layer.

#### **Conclusion:**

Humans are facing the problem from climate change today, and the one who are causing these conflicts are from human. It is impossible to stop the global warming, but people still can reduce and slow down this problem. Climate change will affect the basic elements of life for people around the world – access to water, food production, health, and the environment. Hundreds of millions of people could suffer hunger, water shortages and coastal flooding as the world warms. Changing our main energy sources to clean and renewable energy is the best way to stop using fossil fuels. These include technologies like solar, wind, wave, tidal and geothermal power. Switch to sustainable transport. Petrol and diesel vehicles, planes and ships use fossil fuels.



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