

## Climate Change and Its Present Scenario

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### **Introduction:**

Environmental pollution is the major threat to the very existence of living beings on this planet. It is the major challenge to be faced by the present and the future generation. Important environmental concerns and environmental pollution problems are water pollution, air pollution, noise pollution, land pollution, ozone layers' depletion, genetically engineering, marine pollution and global warming etc.

International issues such as global warming, rise the earth's average global temperature, caused by man-made emissions of greenhouse gases, are more complex as they may cause irreversible damage worldwide. Various detrimental effects of global warming include rise in sea levels, changes in agriculture productivity and health hazards, which may trigger several other socio-economic problems all over the world.

### **Objectives:**

To understand what is climate change and to examine the data.

### **Methodology:**

The data collection of this work is secondary sources from various sources like periodicals, journals, books, reports and, websites etc.

### **Climate Change:**

Climate change is a change in average weather conditions which would last for an extended period of time. The reasons causing it, may vary presuming the geological factors, time and weather. Changes that were recently were observed due to radiation, plate tectonics and volcanic eruptions. Human activities have also been considered, as we are primly responsible for global warming, which further brought changes in climate.

Climate change is a normal part of the earth's natural variability and also human induced. Earth's natural variability due to interactions among the atmosphere, ocean and land, as well as changes in the amount of solar radiation reaching the earth and human induced changes leading to increased green-house gases, certain naturally occurring gases, such as

carbon-di-oxide (CO<sub>2</sub>) and water vapour (H<sub>2</sub>O), trapped heat in the atmosphere, causing a green-house effect. Human induced climate change is due to burning of fossil fuels, like oil, coal, natural gas and industrial pollution is adding CO<sub>2</sub> to the atmosphere.

The United Nations Framework Convention on Climate Change (UNFCCC) defines Climate Change as “a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to other natural climate variability that has been observed over comparable time periods”. Climate change is a process that manifests in a number of ways, such as global-warming, change in rainfall patterns leading flood and droughts, desertification, natural disasters and the melting of glaciers and the polar ice-caps, resulting in rise in sea levels and coastal erosion.

#### **Present Scenario of Climate Change:**

Since the United Nations Framework Convention on Climate Change was established in the United Nations Conference on Environment and Development in 1992, the world has begun to cooperate on combating climate change. The core of mitigating climate changes is reducing Greenhouse gases (GHG) emissions by anthropogenic activities, stabilizing the GHG concentration in atmosphere and controlling the temperature rise on the earth surface to protect the earth’s ecological security and the sustainable developments of humans.

The Inter-governmental Panel on Climate Change (IPCC) reviews and assesses the most recent scientific, technical and socio-economic information produced world-wide relevant to climate change. The IPCC in its Fifth Assessment Report (AR5) published in 2014 has observed that there has been an increase in trend in the anthropogenic emissions of greenhouse gases since the advent of industrial revolution.

IPCC AR5 has estimated that temperature increase to remain below 2° C of pre-industrial levels the world can emit only about 2900 Giga tonnes (Gt) of CO<sub>2</sub> from all sources from industrial revolution till 2100. Till 2011, the world has emitted 1900 Gt of CO<sub>2</sub>. Out of the budget 2900 Gt only 1000 Gt remain to be used between now and 2100. The World Resource Institute estimates that if emissions continue unabated the remaining budget will last only thirty more years.

Scientists have made major advantages in the observations, theory and modelling of earth’s climate system; and these advances have enabled them to project future climate

change in increase in confidence. If there were no technological or policy changes to reduce emission trends from their current trajectory, then further warming of 2.6 to 4.8° C (4.7 – 8.6° F) in addition to that which has already occurred would be expected during the 21<sup>st</sup> century.

The World Resources institutes on CAIT Climate Data Explorer reveals that the top ten GHG emitters as China, the European Union (EU), US, India, Russia, Japan, Brazil, Indonesia, Canada, Mexico, Iran, South Korea, Australia, Saudi Arabia, South Africa, Turkey, Ukraine and Thailand. The top three GHG emitters - China, the European Union and the United States—contribute more than half of total global emissions, while the bottom 100 countries only account for 3.5 percent. Collectively, the top 10 emitters account for nearly three-quarters of global emissions. The world can't successfully tackle the climate change challenge without significant action from these countries.

### **Climate change and India**

India's greenhouse gas emissions rose by an alarming 4%, the report released by Netherlands Environmental Assessment Agency is that the US saw a decline of 2% and even China reported a decrease of 0.3%.

The good news is that global carbon dioxide emissions, which is the primary greenhouse gas, have remained flat in the past two years registering only marginal increases. The report attributed the downward trend to falling coal consumption and a shift towards cleaner fuels. India, however, bucked this trend as well, with coal consumption rising by 4% in 2016.

By 2030, India has vowed to reduce its emissions intensity by 35% of 2005 levels and spectacularly expand its renewable energy capacity. The nation aims to have 100 GW of installed solar capacity by 2022.

Greenhouse gases include not just carbon dioxide but also methane, nitrous oxide and fluorinated gases, which constitute 28% of all GHG emissions, and in India contribute to over 30%. Increase in these gases was one of the major causes for GHG rising in India. Methane is the most important non-CO<sub>2</sub> greenhouse gas. The biggest emitter of methane is cattle, which contribute to almost a quarter of global methane emissions. India has the largest number of cattle in the world, with around 300 million of them. Cattle farts and

belches contain methane. Methane is a more potent greenhouse gas than carbon dioxide, causing more warming over the long term. The top emitters of GHG remain China (26%), U.S. (13%), India (7%). India has pledged to cut down the rate at which it emits greenhouse gases by a third over the next fifteen years.

### **Would the Earth surface cool if climate returns to the conditions of thousand years ago if the GHG emissions stop?**

Climate Change threatens food production, rise in sea level and global warming. Adaptation to climate change in developing countries is important and has urgent priority. The developed economies have to take the major responsibility to reduce its emissions. Even in many developing economies there is significant knowledge and information available on strategies and plans to implement adaptation activities. However, developing countries has limitations like human capacity and financial resources.

No, even if emissions of greenhouse gases were to suddenly stop, Earth's surface temperature would not cool and return to the level in the pre-industrial era for thousands of years. If emissions of CO<sub>2</sub> stopped altogether, it would take many thousands of years for atmospheric CO<sub>2</sub> to return to 'pre-industrial' levels due to its very slow transfer to the deep ocean and ultimate burial in ocean sediments. Surface temperatures would stay elevated for at least a thousand years, implying extremely long-term commitment to a warmer planet due to past and current emissions, and sea level would likely continue to rise for many centuries even after temperature stopped increasing.

### **Conclusion:**

Climate change is the one of the major challenges to the world economy. Political awareness on the issues of environmental pollution and sustainable development both in the international arena and on the domestic front has risen considerably. In spite of measures taken by the Government, Industries, NGOs, local bodies the problems of pollution continue. It is important to create awareness among the community, stake holders, public and others in various spheres about the environment degradation and its adverse effect on the mankind. All the economies should try to reduce and regulate emissions and, to meet the environmental standards for sustainable development.

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