

# Climate Change in India

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## ABSTRACT

When we talk about climate change, we're talking about the gradual alteration of Earth average weather patterns. A variety of internal and external variables contribute to this. In recent decades, climate change has emerged as a major issue for people all around the world. Moreover, these climatic shifts have distinct effects on terrestrial life. The ecosystem and ecology are being affected in a variety of ways by the changing climate. Many plant and animal species have disappeared because of these shifts. Human activity has been influencing the climate for a very long period, but we just learned about this fact in the past century. Humans have been more aware of the consequences of a changing climate during the last century. We delved into the topic of climate change and learned that the greenhouse effect is to blame for the planet's increasing average temperature. Earth's surface warming is the root of many issues, including ozone depletion, disruptions to our food and water supplies, and difficulties with transportation.

**Keywords:** climate, global warming, pollution, greenhouse effect

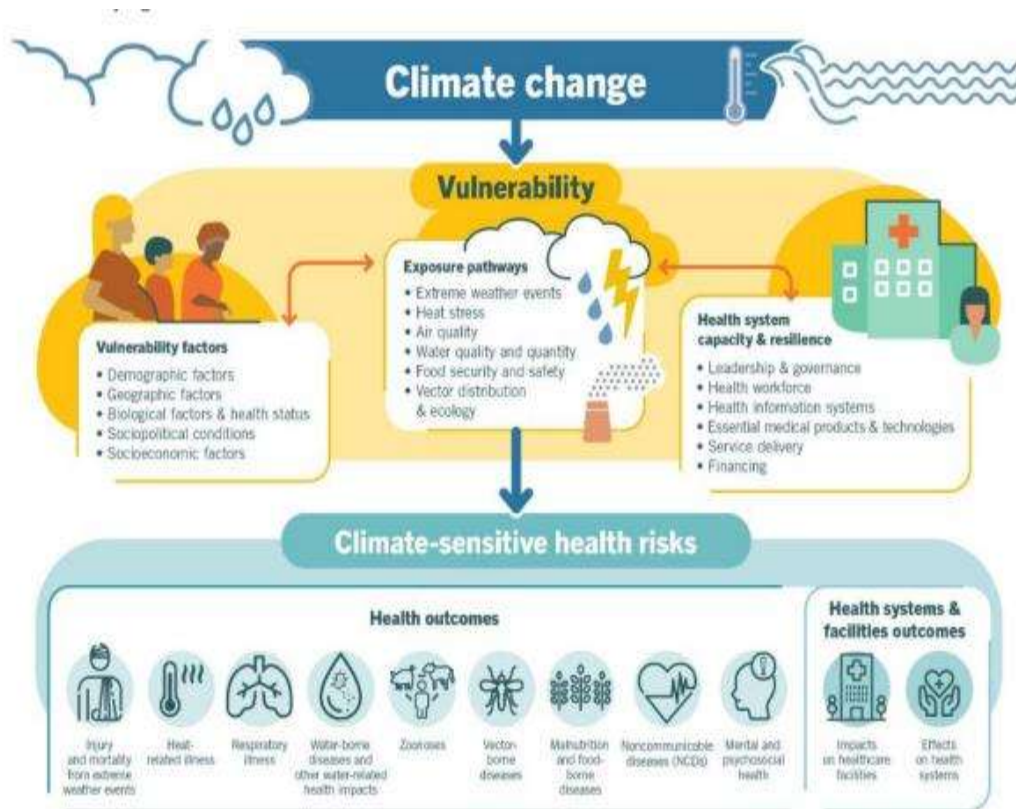
## I. INTRODUCTION

What we call "climate change" really describes gradual changes to average global temperatures and weather patterns. These changes might have a natural origin, like the sun's cyclical changes. But human actions, especially the combustion of fossil fuels like coal, oil, and gas, have been the dominant cause of climate change since the 1800s. Greenhouse gas emissions, such as those produced by the combustion of fossil fuels, operate like a blanket that traps the sun's heat and raises global temperatures.

Carbon dioxide and methane are two examples of the greenhouse gases that humans are emitting and changing the climate. These are produced when, say, gasoline is used to propel a vehicle or coal is burned to provide thermal energy for a home. Carbon dioxide may also be released when land and forests are cleared. Methane emissions from waste dumps are significant. Many other sectors, including energy production, manufacturing, transportation, construction, agriculture, and urbanization, contribute to pollution.

The current levels of greenhouse gases are the greatest they've been in 2 million years. And the number of emissions keeps going up. It's because of this that the planet is now around 1.1 degrees Celsius warmer than it was in the late 1800s. Since records have been kept, the previous decade (2011-2020) has been the hottest in history. Warmer temperatures are often cited as the principal symptom of climate change. However, an increase in temperature is merely the beginning. Due to the interconnected nature of the Earth's systems, changes in one region may have far-reaching effects. Droughts, water shortages, wildfires, floods, increasing sea levels, melting polar ice, catastrophic storms, and the loss of species are only some of the current effects of climate change.

Health, food production, housing, security, and economic opportunities are all vulnerable to the effects of climate change. People in underdeveloped countries and those living on islands are already more susceptible to climate change's effects. Whole villages have forced to evacuate due to worsening conditions such as sea-level rise and saltwater intrusion, and prolonged droughts are placing people at danger of starvation. The number of people who flee their homes because of climate change is projected to increase.



### Human causes of climate change

The emission of carbon dioxide and other greenhouse gases into the atmosphere is the primary human contributor to climate change. Atmospheric carbon dioxide levels are at their highest point in at least 2 million years. Carbon dioxide levels increased by 40 percent between 1900 and 2010.

Greenhouse gases are produced in a wide variety of ways:

**Burning fossil fuels** - Carbon dioxide has been essentially “locked up” in the earth for millions of years, and this is what fossil fuels like oil, gas, and coal are made of. We release the carbon dioxide that the earth has been storing in them when we harvest them and burn them.

**Deforestation** - Forests are very effective in absorbing and sequestering carbon dioxide. If trees are cut down, there will be nothing to soak up the excess carbon dioxide in the air. In addition, when we burn trees, the carbon they sequestered is released into the atmosphere.

**Agriculture** - Greenhouse gases of various kinds are released into the air as a byproduct of farming and animal husbandry. Methane, for instance, is produced by animals and is 30 times more potent as a greenhouse gas than carbon dioxide. Nitrous

oxide, which is found in fertilizers, is roughly 300 times more powerful than carbon dioxide and is ten times worse.

**Cement** - Cement manufacturing contributes to global warming by emitting 2% of all carbon dioxide.

## II. REVIEW OF LITERATURE

Even while the Earth’s temperature may fluctuate due to natural climatic cycles, the current shifts are occurring far more rapidly and on a larger scale than anything we’ve ever seen before. We have seen that these cycles have an effect on global temperature for years, and occasionally just months. Changes in the Milankovitch cycles and the amount of solar radiation have a far longer timescale, on the order of thousands of years. There are many factors that contribute to climate change, but the data is overwhelming. Fossil fuel burning and altering land use are two examples of human activities that contribute to global warming. [1]

It has been determined by the Inter governmental Panel on Climate Change (IPCC) that a global temperature increase of less than 1.5 °C is necessary to avoid catastrophic health consequences and save millions of deaths attributable to climate change. Some degree of global temperature increases, and other climatic

impacts is already guaranteed by past emissions. Even if we just warm the planet by 1.5 degrees Celsius, this will already have a significant impact on people's lives and health, and every extra tenth of a degree would be catastrophic. [2]

Everyone is vulnerable to these threats, but those in low-income and disadvantaged nations and communities are hit the worst. In addition to widening already existing health inequities across and among communities, the climate catastrophe threatens to undermine the previous fifty years of gains in development, public health, and poverty reduction. It poses a significant threat to the attainment of UHC in a number of ways, including adding to the current illness load and making it more difficult to get access to health services when they are most needed. Twelve percent of the global population, or more than 930 million individuals, allocate at least 10 percent of their income to health care costs. Since the poor are disproportionately uninsured, roughly 100 million individuals fall further into poverty each year as a result of unexpected medical expenses or other difficulties; the effects of climate change are expected to exacerbate this trend. [3]

### III. DISCUSSION CAUSES OF CLIMATE CHANGE

Since Earth created 4.5 billion years ago, its climate has continuously fluctuating. These shifts had, until recently, been attributed to natural causes. Volcanic activity, variations in Earth's orbit, and changes in the Earth's crust are all examples of natural effects on the climate. Cooler (glacial) and warmer (interglacial) eras have alternated throughout the last million years, creating a succession of ice ages (interglacial). The variations in Earth's orbit around the sun cause the glacial and interglacial eras to repeat about every 100,000 years. The Earth has been in a stable interglacial phase with a consistent temperature for the last few of thousand years. A significantly more rapid rise in global temperature has occurred since the Industrial Revolution of the 1800s. Human activity, particularly the combustion of fossil fuels and the alteration of land use practices, has emerged as a major contributor to climatic change.

#### Greenhouse Gases And The Greenhouse Effect

The Earth's atmosphere contains substances that prevent thermal energy from escaping into space. These gases are referred to as greenhouse gases. The 'greenhouse effect,' in which these gases warm the Earth by trapping radiation, is caused by this phenomenon. Human activity and natural processes both contribute to

atmospheric concentrations of greenhouse gases. As part of Earth's atmosphere, greenhouse gases such as carbon dioxide, methane, and nitrous oxide are present in trace amounts. Some, like chlorofluorocarbons (CFCs), are never found outside of human-made environments. Some of this infrared light is absorbed by the greenhouse gases instead of being sent into space. After then, radiation is released in all directions by the atmosphere, with some of it reflecting back to the surface and warming it up. The 'greenhouse effect' describes this phenomenon. Our whole life depends on the greenhouse effect. Earth would be around 30 degrees cooler without greenhouse gases. The warming impact of greenhouse gases is essential to human survival. On the other hand, ever since the Industrial Revolution, we've started pumping even more greenhouse gases into the air, which acts as a thermal blanket. As a result of the greenhouse effect, the globe is warming at a considerably quicker pace than it would without. The 'increased greenhouse effect' describes this phenomenon, which is a major contributor to global warming.

### IV. CONCLUSION

When we talk about climate change, we're talking about the gradual alteration of Earth's average weather patterns. A variety of internal and external variables contribute to this. In recent decades, climate change has emerged as a major issue for people all around the world. Moreover, these climatic shifts have distinct effects on terrestrial life. The ecosystem and ecology are being affected in a variety of ways by the changing climate. Many plant and animal species have disappeared because of these shifts. It is undeniable that climate change has an effect on human health, but it is still difficult to precisely assess the extent and impact of many health concerns that are sensitive to changes in the environment. Science, however, is increasingly allowing us to trace the rise in death and disease to human-caused warming, and to more precisely define the dangers and size of these health hazards. Population vulnerability, resilience to the present rate of climate change, and the breadth and speed of adaptation will largely decide the health implications of climate change in the short- to medium-term. Long-term outcomes are increasingly dependent on the degree to which radical measures are done right now to cut emissions and prevent the crossing of critical temperature thresholds and perhaps irreversible tipping points.

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