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## CLIMATE CHANGE: CHANGE IN THE ENVIROMENTAL CONDITIONS AND ITS IMPACT

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### ABSTRACT

*"Investing in a Livable Planet"*

Firstly, it is important to understand what climate change is, the average weather of a particular area over a long period of time. For example, in India, the time of winter, summer and rain is roughly fixed. When its pattern changes, summer winter or rain becomes excessive. It starts coming before the fixed time or comes late its time and becomes shorter or longer. This kind of change is called climate change. This is happening all over the world. Weather records are being broken all over the world. Somewhere there is floods, somewhere there is havoc of heat and somewhere there are forest fires. Climate change is being held responsible for these tragic incidents. It refers to long term change in temperature, weather patterns and other atmospheric conditions on earth. Human activities are the main driver of climate change. Due to the burning of large no. of waste material like plastic, fossil fuels like coal and gas. Burning fossil fuels generates greenhouse emissions. The main green house that are causing climate change include CO<sub>2</sub> and CH<sub>4</sub>. These come from using driving a car or coal for heating. Cutting down the forests can also release CO<sub>2</sub>. Increasing global temperatures, combined with changes in precipitation, impacts ecosystems and biodiversity. The frequency and severity of extreme weather events impacts habitats, species range, and the equilibrium within ecosystems. The melting of polar ice caps and glacial ice poses a risk to marine ecosystems, while simultaneously raising sea levels. Children will inherit the long-term consequences of climate change, including resource shortages and environmental instability. Experiencing climate related disaster can lead to stress, anxiety and trauma. Climate change threatens biodiversity, leading to habitat loss and increased extinction rates for many species. Altered weather patterns disrupt migration, breeding and feeding patterns of wildlife, impacting food webs. Climate change exacerbates health issues by increasing heat-related illnesses and vector-borne diseases. The economic impacts of climate change can be devastating, costing billions in disaster recovery, infrastructure damage and health costs. Climate change being one of the most pressing challenges of the 21st century poses significant risks not only to the environment, human health and food security, but also economic development. Use of

renewable energy will lead to stop affects that is caused by climate change .The another very crucial solution of climate change is education and awareness. Lack of education and awareness will result in the hazardous effects of climate change .

*keywords:*

Global warming, Renewable energy, Climate change,

Green house emissions

## INTRODUCTION-

*‘ ‘ THERE’S ONE ISSUE THAT WILL DEFINE THE CONTOURS OF THIS CENTURY MORE DRAMATICALLY THAN ANY OTHER, AND THAT IS THE URGENT THREAT OF CHANGING CLIMATE.’ ’*

-Barack Obama

Climate change represents a change in long term weather patterns. Climate change is a major global in modern time and the world is becoming Challenge more vulnerable to this change . climate change refers to the change in earth’s temperature and weather patterns. Climate change has an adverse effect on the environment, ecosystem and biodiversity . A recent report from United Nations predicted that the average global temperature could increase by 6 degrees Celsius at the end of century . The factors that influence climate change include the sun’s cycles, volcanic eruptions, tectonic shifts of continents, as well as human-driven factors. Carrying out daily activities across the globe emits greenhouse gases leading to global warming , while natural processes help to regulate it. The effect of climate change has recently been seen in some cities of India like Delhi, Hyderabad, and especially Chennai where the city was facing water crises and was relying on alternative water sources such as distant, unreliable public water pumps, and costly private water tanker.<sup>1</sup>

Climate change is one of the most important global environmental challenges facing by many countries . This issue is increasing day by day thus ,harming our environment and causing health problems like anxiety , depression. According to **India Meteorological Department**, the temperature increase in India is lower than the global average rise in temperature.

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1-<https://byjus.com> ; What is climate change ?

## CAUSES OF CLIMATE CHANGE-

### 1-HUMAN- INDUCED CAUSES-

Climate change is primarily caused by human activities, including the burning of fossil fuels like coals etc., and also the emission of greenhouse gases and deforestation. GHGs trap heat in the earth's atmosphere, leading to the greenhouse effect and resulting in global warming.<sup>2</sup> Carrying out daily activities across the globe emits ,greenhouse gases leading to global warming ,while natural processes help to regulate it . The industrial reverberation across the globe since the mid-20<sup>th</sup> century has an unprecedented effect on the climate system.

Industrial activities , including manufacturing and cement production also released greenhouse gases into the atmosphere. Certain agricultural practices ,such as stubble burning ,livestock farming and use of fertilizers, contribute to greenhouse gases. Urbanization and land use changes are also responsible for the climate change because they are expanding cities, reduce vegetation and contribute to heat island effects.

### 2- NATURAL CAUSES-

The climate is secondly caused by natural causes, including the volcanic eruptions, solar variability, ocean currents etc. Large eruptions release dust and gases like sulfur dioxide, temporarily cooling the earth by blocking sunlight. Changes in solar radiation influence the earth's climate cycle over countries. Water vapor and naturally occurring CO<sub>2</sub>

help to maintain earth's temperature but can fluctuate over time.<sup>3</sup>

Volcanoes can impact climate change during major explosive eruptions huge amounts of volcanic gas , water vapor, dust particles, and ash are injected into the stratosphere.<sup>4</sup>

## **GREEN HOUSE GAS EFFECT-**

The greenhouse gas effect is a process that occurs when gases in earth's atmosphere trap the sun's heat . This process makes earth much warmer than it would be without an atmosphere. The greenhouse effect works much the same way on earth. Gases in the atmosphere such as carbon dioxide , trap heat just like the glass roof of a greenhouse . These heat trapping gases are called greenhouse gases <sup>5</sup>

change since Greenhouse gases from human activities are the most significant driver of observed climate the mid-20<sup>th</sup> century.<sup>6</sup>

## **EFFECT OF CLIMATE CHANGE-**

Climate change is a big problem affecting our planet. Here some major effect of climate change that are as follows

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3-<https://www.studyiq.com/articles/climate-change/>

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4-<https://pwnonlyias.com/us-notes/climate-change-ar6/>

6-IPCC.2021. Climate change2021 .[www.ipcc.ch/assessment-report/](http://www.ipcc.ch/assessment-report/)

## **1-EFFECT ON ENVIRONMENT-**

\* **Rise in sea level** – The rise in sea level results in global warming. Thermal expansion of ocean and melting of glaciers and polar ice sheets and increase in sea level . The sea level increases at the rate of 1 to 2

mm/year during 20<sup>th</sup> century. Increases by 3 degrees Celsius would increase the sea level by 0.2 to 1.5 meters over the next 100 years.<sup>7</sup>

This rise in sea level leads to negative impact on fisheries, agriculture, and coastal ecosystems.

**\*Rise in temperature and extreme events** – The impact of climate change will lead to increase heat waves, extreme temperature in India and other countries and it also increase frequency of hot days and natural disaster. It noted that the heat wave conditions have been observed most in the months of May and June and it has also been noted that the central part of India hotter than other part of the India like Delhi. The increase in greenhouse gas concentrations has led to significant rise in global surface temperature.

2024 is confirmed by the “Copernicus climate change service “ to be the warmest year on record globally.

**\*Water resources-** Rising water temperature intensify pollution and negatively affect habitats. Increased evapotranspiration leads to the shrinking of some water bodies . India has rich water resources with uneven distribution and the spatial and temporal shortage. Lower rainfall and more evaporation would lead the dire consequences of

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7-<https://blog.ipleader.in/climate-change-and-its-impact-on-the-environment>

substantially changing the availability of fresh water in the watersheds, decline of soil moisture and the level of aridity of hydrological zones. The average annual runoff in the river Brahmaputra will decrease by 14 percent.

**\*Impact on forest** - The climate change is likely to have a significant impact on forest ecosystem. It is likely that climate is the greatest

determinant of global vegetative patterns and has a major effect on forest distribution, structure and ecology.

## 2- EFFECT ON HUMAN –

**\*Health-** Climate change poses significant health threats, including increased air pollution, disease spread, and mental health challenges. It is linked to approximately 13 million deaths annually due to environmental factors. **According to world bank report**, child stunting is projected to increase by 35 percent by 2050 due to climate change .Malaria, vector-borne diseases, and diarrheal infections are likely to spread into new areas as temperature.<sup>8</sup>

**\*Education-** Disruption from floods, storms, and droughts can close schools or force children to drop out to help their families.

**\*Psychological impact-** Experiencing climate-related disaster can lead to stress, anxiety, and trauma.

**\*Future challenges-** Children will inherit the long-term consequences of climate change ,including resource shortage and environmental instability.

**\*Poverty and displacement-** Climate change increased poverty with

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8-<https://www.drishtias.com/blog/climate-change-policies-and-india> 6

natural disasters displacing millions and destroying livelihood. According to the ‘’**State of India’s Environment-2022**’’ report, India is the 4<sup>th</sup> worst hit country in the world when it comes to climate change induced migration, with more than three million people forced to leave their homes in 2020-21.

CONSTITUTIONALIZATION OF ENVIRONMENTAL ISSUES-

**Article 48A** which mandates environmental protection and **Article 51A(g)** which promotes wildlife conversation , implicitly, guarantee a right to be safeguarded from climate change.

These articles are important sources of the right to a clean environment and the right against the adverse effects of climate change.

In **MC Mehta Vs Kamal Nath case**<sup>9</sup> , the SC stated that the right to a clean environment is an extension of the right to life.

In the case of **MC Mehta Vs Union of India**<sup>10</sup> , the supreme court on Thursday (April 3) passed an order imposing a year-long storage of firecrackers in the Delhi-national capital region. The court observed that imposing such a ban only for a period of 3-4 months worsening air quality of the national capital.

In case of **Virendra Gaur Vs State of Haryana (1995)**<sup>11</sup> , it was held that protection and preservation of the environment, ecological balance free from pollution as part of Article 21.

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9- ; AIR 2000) 6 SCC213

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10 – AIR 2025 SC ; 11- AIR(1995) 2 SCC 577

## SOLUTIONS-

**\*Sustainable development-** It is an approach to growth and human development that aims to meet the needs of the present without compromising the ability of future generations to meet their own need.<sup>12</sup>

**\*Energy Efficiency-** promote energy efficient appliances, building, and industrial processes. Implement stricter energy standards and adopt smart technologies to optimize energy use.

**\*Reforestation and Afforestation** –Plant trees to act as carbon sinks, absorbing CO<sub>2</sub> from atmosphere. Restore degraded forests and protect existing ones to preserve biodiversity and carbon storage capacity. **National Adaptation Fund for Climate Change** supports projects in agriculture ,forestry ,and water resources.

**\*Renewable Energy-** Investing in renewable energy sources like solar and wind power to reduce reliance on fossil fuels. **Faster Adoption and Manufacturing of Electric Vehicles (FAME)** promotes EVs for reducing carbon emissions.

**\*International cooperation-** Working with other nations to address climate change through international agreements and collaboration.

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12- United nation general assembly(1987) Report of the world commission on environment and development. Our common future, transmitted to the general assembly as an annex to document A/42/427-development and international Co-operation, Environment.

## CONCLUSION-

Climate change is the one of the serious issues in India. It is the major challenge for developing countries . The impact of climate change is affecting most of the environment and animal. India’s goal to achieve net zero emissions by 2070 is ambitious given the energy demands and development agenda. The human wellbeing is expected to be affected in

a lot of ways by climate change including capital, ecosystem, disease and migration . While even the importance of the issue is not clear. Climate change had actually helped in the evolution of earliest human ancestors. This is the finding of a leading researcher, Mark Maslin. By understanding the causes ,impacts and solutions, we can work towards a more sustainable and resilient future for all. The time for action is now and the stakes are high.