



## CLIMATE CHANGE AND ITS IMPACT ON HUMAN LIFE

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### ABSTRACT

Climate change is the long term shift in the Earth's average temperature and weather conditions. It includes increase in global average temperature and its wider impact on Earth's climate system. Rise in global temperature is driven by human activities especially burning of fossil fuels like coal, oil and natural gas, industrial revolution is another reason. The world has been warming quickly over the past 100 years or so, and weather patterns are changing. Earth's atmosphere now roughly has 50% more carbon dioxide the main gas during global warming. Since 1980, each decade has been warmer than the previous. Climate change is recognized as the single biggest health threat facing humanity expected to cause roughly 2,50,000 additional deaths annually between 2030 and 2050 from heat stress, malnutrition, malaria and diarrhoea. The world health organization calls climate change one of the biggest threats to global health in the 21<sup>st</sup> century. Climate change increases the intensity and frequency of extreme weather events. Things are likely to worsen in the coming decades, but scientists argue urgent actions can still limit the worst effect of climate change. The year 2024 was Earth's hottest ever recorded, with climate change mainly responsible for the high temperature. Climate change affects wider social networks, socio economic and environmental factors of health and health systems. Climate changes produce serious problems for human beings to maintain sustenance, protection, survival, and for the improvement of general standard.

**KEYWORDS:** Climate, Impact, Human Life

Climate change is the long term shift in the Earth's average temperature and weather conditions. It has a significant impact on both physical and social components of the environment. The environment consists of four major inter-connected components the atmosphere (air), lithosphere (land and soil), hydrosphere (water) and biosphere (living organisms). These are generally classified in to biotic (living) and abiotic (non-living/physical) factors alongside human made elements like infrastructure and social systems, which together sustain life and ecological balance.

Today almost all harm to nature is caused by human beings, and man suffers the most as a result. Increase in global average temperature causes wider impact on Earth's climate system. Due to industrialization, population growth, and deforestation, quality of air is declining day by day. Higher AQI values signify greater pollution and higher health risks with 100 acting as the general threshold for unhealthy air.

Rise in global temperature is driven by human activities especially burning of fossil fuels like coal, oil and natural gas, another reason being the industrial revolution. Land and soil are other most important factors which are seriously affected by climate change. Deforestation always results into soil erosion which is the major cause of landslides and other natural calamities.

Human activities and industrialization lead to water pollution – Water is the most important and determining factor for climate change. Pollution caused by substances on which biotic and abiotic agencies of decomposition are ineffective is a unique kind of pollution. Biotic factors include the influence of living organisms – both plants and animals upon the vegetation. Biotic factors may affect the climate directly or indirectly; The effect may be useful to the plant or harmful depending on the extent. Man also effects vegetation in many ways like replanting trees. Cross breeding experiments are being performed to invent new varieties of plants that give high yield as well as disease resistant varieties. Farmers are successful in destruction of weeds that eliminates competition among the plants.

The world has been warming up quickly over the past 100 years or so and weather patterns are changing – there is clear indication that the temperature of Earth has increased slightly during the past 50 years. Earth's radiation after receiving warmth from sunlight warms the lower atmosphere. Earth's atmosphere now roughly has 50% more carbon dioxide - the main gas during global warming. The main cause of climate change is greenhouse gases emitted from deforestation, industrialization, urbanization, and various land use methods. Since 1980, each decade has been warmer than the previous one. During the last two decades there has been tremendous growth of industries in the world; These

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industries release toxic gases, chemicals and effluents in huge quantities into the environment. This industrial waste produces many harmful effects and ultimately disturbs the ecosystems – these toxic gases and effluents released in the environment cause pollution of air, water and soil. World's eleven warmest years on record have all happened since 2015 (World's Meteorological Organisation). Six major gases which target global warming are carbon dioxide, methane, nitrous oxide, hydrofluorocarbon, perfluorocarbon and sulphur hexafluoride.

The year 2024 was Earth's hottest ever recorded, with climate change mainly responsible for the high temperature. Climate change is predicted to have devastating long term effects on human health and safety. Climate change includes:

1. Abrupt ecosystem shift.
2. Species extinction.
3. Reduced snow cover.
4. Risk of flood.
5. Reduced agricultural output.
6. Intense prolonged heat waves.
7. Increased droughts.

Climate changes produce serious problems for human beings' existence, protection, survival and for the overall improvement of living standards.

Climate change is recognized as the single biggest health threat facing humanity, expected to cause roughly 2,50,000 additional deaths annually between 2030 and 2050 from heat stress, malnutrition, malaria and diarrhoea. It causes risks through extreme weather, food insecurity, air pollution and the spread of infectious diseases, disproportionately impacting vulnerable populations.

Global increase in the temperature of Earth will have serious consequences on human society, agriculture, plants and animals. Some important ones are as follows;

1. Water level rise: Global warming is likely to result in a rise in sea levels that could threaten many coastal areas around the world. It will also melt glaciers, especially around Greenland. Sea level changes will complicate life in many coastal regions.
2. Increase in the flow of rivers and change in rainfall patterns.
3. Occurrence of more cyclones and hurricanes.
4. Fresh water will be contaminated with the salty water of sea.
5. Human health is adversely affected by the sudden change in climate. In a warmer climate, people will get sick more frequently. Other tropical diseases

including dengue fever, yellow fever and encephalitis may spread into new regions.

6. It is evident that when persons move from low temperature to high temperature, there will be a rise in incidents of allergies and respiratory diseases.

The magnitude of climate change is such that even if we effectively reduce global emissions, it will continue to impact our lives. Flooding, droughts, heat waves, and other climate related hazards are becoming more intense, a lot longer and more frequent. These hazards carry significant health and economic impacts. Extreme weather events like storms, heat waves and flooding account for 85,000 to 1,45,000 fatalities per year.

Environmentalists have known for decades that climate change adversely affects human health via excessive heat, poor air quality index, water borne diseases, risking food safety, as well as by diseases transmitted by pests like fleas and mosquitoes, and mental stress. The new studies thoroughly improve our current understanding of these impacts. Though climate and weather changes are disruptions to various ecosystems, here are some effects crucial to human health:

1. Death and Illness Caused by Temperature Rise: Climate warming in the future could cause up to hundreds and thousands of additional deaths from heat in the summer and disturbed chronic cardiovascular and respiratory diseases.
2. Air Quality Impact: The future working conditions of offices and schools are going to worsen due to exacerbated ground level smog from modified weather patterns, airborne pollen and longer pollen seasons.
3. Water Related Illnesses: Chances of illness increases with the influence of temperature and extreme rain fall events on the growth survival spread and toxicity of water borne pathogens and toxins.
4. Nutrition and Food: When temperature rises, extreme weather results in contamination, spoilage, and disruption of food distribution. When carbon dioxide level rises, nutritional value of crops declines while plant growth boosts up.
5. Extreme Weather Conditions: Whenever there are natural calamities like extreme precipitation with climate change such as tsunamis, and more recently El Niño, fatal injuries with infrastructure damage are very prominent.
6. Mental Health and Well-Being: There develops a kind of insecurity and fear with exposure to disasters, worsened by ill-health.

7. Social Impacts: People feel isolated when adverse climatic situations develop because they are then bound to live in a limited area.

Climate change is exacerbating both water scarcity and water related hazards such as floods and drought. Burning fossil fuels, cutting down forests and farming livestock influence the climate and Earth's temperature. This adds enormous amounts of greenhouse gases to those naturally occurring in the atmosphere, thus increasing the greenhouse effect and global warming.

Increasing temperature disrupts precipitation patterns and the entire water cycle, moving entire living population into a dry well.

According to recent updates of weather, Varanasi in UP reached about 47.2 degree beating a 140 years' record (Times of India, May 29, 2024); Similar is the case with Jhansi at 49 degrees and Delhi around 50 degrees.

About two billion people worldwide do not have access to safe drinking water today (SDG2022), and roughly half of the world's population is experiencing severe water scarcity for at least part of the year. These numbers are expected to increase, aggravated by climate change and population growth.

Climate change has made extreme weather events such as floods and drought more likely and severe. Water related disasters have dominated the list of disasters over the past 50 years and account for 70% of all deaths related to natural disasters (World Bank).

Pollution also plays a major role in controlling the temperature of the environment. The atmosphere is deemed to be polluted if the concentration of any constituent increases or decreases drastically to cause harmful effect on human body or his environment. Air is never found clean in nature due to natural and manmade pollution. Gases such as carbon dioxide, sulphur dioxide and hydrogen sulphide, nitrogen oxide are continuously being released in the environment through natural activities like volcanic activity, vegetation decay and forest fires. Hazardous chemicals all around us not only pollute the environment but also raise its temperature, resulting not only in climate change but also causing irreparable harm to our body such ways as asthma, allergies, skin lesions tumours and many type of cancers.

The major sources of air pollution in India are traffic congestion, vehicular emissions, fuel adulteration and biomass burning. Large-scale burning of the crop residues is a common sight in agricultural fields during the winter and autumn seasons. This burning, which serves as a low-cost alternative to the expensive

mechanical drilling process, leads to plenty of smog, smoke and pollution.

UNFCCC which stands for the United Nations' Framework Convention on Climate Change, is an international treaty adopted at the Earth Summit in Rio de Janeiro in 1992 and entered in to force in 1994. It aims to address climate change and its impacts by promoting international cooperation and action to stabilize greenhouse gas concentrations in the atmosphere that prevents dangerous human interference with the climate system. Countries should strengthen their nationally determined contributions (NDCs) to reduce greenhouse gas emissions.

Climate change is major threat to people's health. Climate impacts are already harming health, through air pollution, disease, extreme weather events, forced displacement, pressure on mental health, and increased hunger and poor nutrition in places where people cannot grow or find sufficient food.

### Solutions and Way Forward

1. The most important solution to climate change is the use of alternative sources of energy like wind power.
2. We must depend upon green buildings which are free from fossil fuels.
3. Methane is a greenhouse gas that contributes to the worsening of climate change; upgrading the equipment used in transferring, storing and producing oil and gas can limit methane leak.
4. Use of sustainable modes of transportation like walking, cycling or switching to electric vehicles.
5. Reduce food wastage and preserve water.
6. Urgent need of protecting ecosystems such as the rainforests of Amazon and the oceans which absorb carbon dioxide and supporting reforestation efforts.
7. There is an urgent need of three 'R's i.e., Reduce, Reuse, and Recycle.
8. Individuals should adopt climate friendly policies like lowering travel, moderating use of air conditioners, and most importantly switching to alternative energy resources.
9. There is a need of switching to vegetarian food and lowering meat consumption.
10. There is no need to collect loads of things in the home, follow 'Buy less, Repair more' policies.

### CONCLUSION

Climate change affects the physical environment as well as all aspects of nature and human life. It also affects social economic conditions and health systems of the society. Climate conditions such as storms, extreme heat, floods, drought and wildfires affect health both

directly and indirectly, thus increasing the risk of death, non-communicable diseases, spread of infectious diseases and health emergencies.

One in every six persons on this planet lives in India; This means approximately 18 percent of the world's population lives in India. The challenges at this level are staggering and complex. There is need to develop and modernise in less wasteful ways. Poverty within the population and environment are inter-related issues as long as India is recognized as a rich land with poor people.

Climate crisis threatens to slow down fifty years of progress in development, global health, poverty reduction and health inequalities between and within population. As is evident from WHO data which indicates that two billion people presently lack safe drinking water, and data showing that over 600 million people suffer from food-borne illnesses annually with children under five bearing thirty percent of such fatalities, it becomes increasingly important to undertake urgent action to reverse harmful health impacts and prevent millions of climate change related deaths.

The world must limit temperature rise to 1.5 degrees; Global heating of even 1.5 degrees is not considered safe, however every minor rise in temperature will take a serious toll on people's lives and health. (WHO report 12 October, 2023)

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