

International Journal of Scientific Research and Reviews

Climate Change and Humans Life

Sweety singh

Department of Botany, Narain College Shikohabad, Firozabad-283135, India
Email: dr.ssingh08@rediffmail.com

ABSTRACT

The mad rat race among nations over the globe for development jeopardized the health of man itself. Progress in agriculture and industry resulted into unlimited exploitation of every bit of natural resource. Such activities of man had adverse effect on all forms of living organisms in the biosphere. Unlimited exploitation of nature by man disturbed the delicate ecological balance between living and non-living components of the biosphere. Climate change has brought about possibly permanent alterations to Earth's geological, biological and ecological systems. Climate change affects the social and environmental determinants of health—clean air, safe drinking water, sufficient food and secure shelter. Climate change may lead to dramatic increases in prevalence of a variety of infectious diseases. Beginning in the mid-'70s, there has been an “emergence, resurgence and redistribution of infectious diseases”. Reasons for this are likely multicausal, dependent on a variety of social, environmental and climatic factors, however, many argue that the “volatility of infectious disease may be one of the earliest biological expressions of climate instability”. Though many infectious diseases are affected by changes in climate, vector-borne diseases, such as malaria, dengue fever and leishmaniasis, present the strongest causal relationship. Observation and research detect a shift of pests and pathogens in the distribution away from the equator and towards Earth's poles.

KEY WORDS: Climate, Resource, Greenhouse, Global and Ecological

***Corresponding author:**

Sweety singh

Department of Botany,

Narain College Shikohabad,

Firozabad-283135, India

Email: dr.ssingh08@rediffmail.com

INTRODUCTION

Any external force, substance or condition which surrounds and effects the life of an organism in any way, becomes a factor of its environment. These factors have been variously named as environmental factors, ecological factors or simply factors. Both, living and living and non-living elements of environment are dynamic in nature and show temporal as well as spatial variations. Changes occur slowly or suddenly in lithosphere, modifying the nature of landforms. This is the pattern of circulation of air and water in atmosphere that brings about changes and local fluctuations in weather, there may also occur long-term changes in the physical elements of the environment. Changes in the environment are responsible for the evolution of life on this planet including man about one million year's ago¹. Climate change is one of the complex problems facing mankind today. The overriding complexity of the problem is attributed to its deeper global ramifications on a vast range of issues impacting the very survival of life on Earth². Understanding such a complex issue with vast and varied dimensions and implications, assumes greater significance for all stakeholders, especially for our policy makers. There are varieties of perceptions regarding the exact size and consequences of climate change. Yet, it is no secret that risks emanating from climate change are indeed profound, which call for urgent itigation. There is now strong evidence that climate change is a reality. Today, it has been scientifically established that significant global warming is occurring. Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice and rising global average sea level. There is no denying the fact that the problem exists and it is assuming alarming proportions, each passing day. Therefore, there is an imperative need to take urgent and strong measures in the interest of calibrating an appropriate response to meet the emerging challenges of climate change. Climate change refers to the variation in the Earth's global climate or in regional climates over time. It describes changes in the state of the atmosphere over time scales ranging from decades to millions of years. Climate change has been defined by many in many ways³.

The atmosphere of the Earth contains small quantities of carbon dioxide, methane and nitrous oxide (collectively called greenhouse gases (GHGs)). However, increase in the emission of these GHGs due to human activities causes the Enhanced greenhouse effect. Global GHG emissions due to human activities have grown since pre-industrial times, with an increase of 70% between 1970 and 2004. Apart from the three natural GHGs (carbon dioxide, methane and nitrous oxide), the increased emission also includes several "man-made" gases including chlorofluorocarbons (CFCs), hydro fluorocarbons (HFCs), per fluorocarbons (PFCs) and sulphur hexafluoride (SF₆). Increase in the concentration of these GHGs tends to increase the surface temperatures. This rise in the average temperature of the Earth is called

global warming, which is likely to lead to unprecedented climate changes on a global scale threatening the ecosystems of the entire world⁴.

A new UN report says that health risks related to climate change are on the rise worldwide. At the same time, coordinated international responses can help prevent some of the worst impacts of climate change on health. Youssef Nassef, Director of the Adaptation Programme of the UNFCCC secretariat, says: “the report clearly highlights the need for the UN and partners to continuously strengthen their actions to support governments to build climate resilience, including measures to protect human health.”

EFFECT ON HUMANS LIFE

The influences of weather and climate on human health are significant and varied. They range from the clear threats of temperature extremes and severe storms to connections that may seem less obvious. For example, weather and climate affect the survival, distribution, and behavior of mosquitoes, ticks, and rodents that carry diseases like West Nile virus or Lyme disease⁵. Climate and weather can also affect water and food quality in particular areas, with implications for human health. In addition, the effects of global climate change on mental health and well-being are integral parts of the overall climate-related human health impact⁶.

A useful approach to understand how climate change affects health is to consider specific exposure pathways and how they can lead to human disease. The concept of exposure pathways is adapted from its use in chemical risk assessment, and in this context describes the main routes by which climate change affects health. Exposure pathways differ over time and in different locations, and climate change related exposures can affect different people and different communities to different degrees. While often assessed individually, exposure to multiple climate change threats can occur simultaneously, resulting in compounding or cascading health impacts. Climate change threats may also accumulate over time, leading to longer-term changes in resilience and health⁷.

Climate change poses a host of threats to the survival of mankind. The debilitating impact of climate change has broadened the sphere of discourse much beyond the traditional concern like environment or development. The far reaching consequence of climate change has forced policymakers and planners to look at every possible aspect of human survival. Arguably, it has catastrophic effects on human health. Each year, about 800,000 people die from causes attributable to air pollution, 1.8 million from diarrhea resulting from lack of access to clean water supply, sanitation, and poor hygiene, 3.5 million from malnutrition and approximately 60,000 in natural disasters. A warmer and more variable climate would result in higher levels of some air pollutants, increased transmission of diseases through unclean water and through contaminated food. Climate change has a direct impact on human health. For

example, the warmer the climate the likelihood of its impact on human health becomes worse. Available studies suggest that there will be an increase in health problems. It is anticipated that there will be an increase in the number of deaths due to greater frequency and severity of heat waves and other extreme weather events. Climate change and the resulting higher global temperatures are causing increasing frequency of floods and droughts leading to the risk of disease infections⁸. By 2090s climate change may bring a doubling in the frequency of extreme drought events. Many more million people are projected to be flooded every year due to sea-level rise by the 2080s. Lack of freshwater during droughts and contamination of freshwater supplies during floods compromise hygiene, thus increasing rates of diarrhea disease. Endemic morbidity and mortality due to diarrhea disease primarily associated with floods and droughts are expected to rise in East, South and South-East Asia due to projected changes in hydrological cycle. Flooding also creates opportunities for breeding of disease carrying insects such as mosquitoes. Areas affected by frequent floods and drought conditions also witness large scale migration of populations to relatively stable regions leading to overcrowding and unhygienic conditions resulting in transmission of diseases like Japanese Encephalitis and malaria. Climate change is a major factor in the spread of infectious diseases. Diseases, confined to one specific geographic region spread to other areas.

The World Health Organization (WHO) in their studies have indicated that due to rising temperatures, malaria cases are now being reported for the first time from countries like Nepal and Bhutan. It has also been predicted that an additional 220-400 million people could be exposed to malaria- a disease that claims around 1 million lives annually. Dengue fever is already in evidence at higher levels of elevation in Latin America and parts of East Asia. Climate change could further expand the reach of the disease. Studies suggest that climate change may swell the population at risk of malaria in Africa by 90 million by 2030, and the global population at risk of dengue by 2 billion by 2080s. Rising temperatures and changing patterns of rainfall are projected to decrease crop yields in many developing countries, stressing food supplies. This will ultimately translate into wider prevalence of malnutrition/ under nutrition. In some African countries, yields from rain-fed agriculture could be reduced by up to 50 per cent by 2020. Emission of the Green House Gases has been responsible for the depletion of ozone layer, which protects the Earth from the harmful direct rays of the sun. Depletion of stratospheric ozone results in higher exposure to the ultra violet rays of the sun, leading to an increase in the incidents of skin cancer. It could also lead to an increase in the number of people suffering from eye diseases such as cataract. It is also thought to cause suppression of the immune system. The projections by WHO and IPCC suggest that the negative effects of climate change on health are greater. In addition, the negative effects are concentrated on poor populations that already have compromised health prospects, thus widening the inequality gap between the most and the least privileged. The balance of

positive and negative health impacts will vary from one location to another, and will alter over time as temperatures continue to rise.

The **UN Report (2017)** highlights some major groups for human impact are as follows⁹.

1. Certain groups have higher susceptibility to climate-sensitive health impacts owing to their age (children and elderly), gender (particularly pregnant women), social marginalization (associated in some areas with indigenous populations, poverty or migration status), or other health conditions like HIV. The socioeconomic costs of health problems caused by climate change are considerable.
2. Many infectious diseases, including water-borne ones, are highly sensitive to climate conditions. Figure 1 illustrates the correlation between temperature and diarrhea. A main concern in both developed and developing countries was the increase in and increased geographical spread of diarrheal diseases, the report found.
3. Climate change lengthens the transmission season and expands the geographical range of many diseases like malaria and dengue. For example, the conditions for dengue transmission are likely to expand significantly across the globe.
4. Climate change will bring new and emerging health issues, including heat waves and other extreme events. Heat stress can make working conditions unbearable and increase the risk of cardiovascular, respiratory and renal diseases. Additionally, it is estimated that 22.5 million people are displaced annually by climate or weather-related disasters, and these figures are expected to increase in the future. Climate-induced human mobility has a socioeconomic cost and can affect mental and physical health.
5. Malnutrition and under nutrition were highlighted as a concern for a number of developing countries in Africa, Asia and Latin America, which discussed the impacts of climate change on food security, particularly in relation to floods and drought.

CONCLUSION

The above discussion clearly indicated that if we never concentrate on the climate change issues than we will create our bad future like water deficiency, lots of diseases, natural resource destruction, deficiency of oxygen etc. Sustainability is essentially about maintaining Earth's ecological and other biophysical life-support systems. If these systems decline, human population wellbeing and health will be jeopardized. Technology can buy time, but nature's bottom-line accounting cannot be evaded. We must live within Earth's limits. The state of human population health is thus a central consideration in the transition towards sustainability (WHO 2003)¹⁰.

ACKNOWLEDGEMENTS: *Author is thankful to Dr. A.N. Singh.*

REFERENCES

1. Sharma PD. Environmental Biology: Environment – Elements and processes. 1st ed. Rastogi and company Publication: Meerut; 1994; 06-09.
2. Martens WJ, Slooff R, and Jackson EK. Climate change, human health and sustainable development. Bull World Health Organ. 1997; 75(6): 583–588
3. Agnihotri VK. Climate Change: Challenges to sustainable development in India research unit (Larrdis) Rajya Sabha Secretariat New Delhi. 2008.
4. Fabian Gaioli and Gautam Dutt. Coping with Climate Change. Economic and political weekly. Oct, 2007; 42(42): 20.
5. Crimmins A, Balbus J, Gamble JL, *et al.* Impacts of Climate Change on Human Health in the United States: A Scientific assessment. Eds. U.S. Global Change Research Program. 2016.
6. Luber G, Knowlton K, Balbus J *et al.* Eds. U.S. Global Change Research Program. 2016
7. Balbus J, Crimmins A, Gamble JL *et al.* The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment. U.S. Global Change Research Program, Washington, DC. Introduction: Climate Change and Human Health. 2016; 25–42.
8. Allan R 2011. Climate change: Human influence on rainfall. Nature. 2011; 470: 344–345.
9. UN Report. Climate Change Impacts Human Health New UN Report Highlights Risks, Opportunities and Solutions Report. 12 Apr, 2017.
10. WHO 2003. Climate change and human health-risks and responses. Summary. ISBN 9241590815.