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# CLIMATE CHANGE AND ITS EFFECTS ON HUMAN HEALTH

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## Abstract

Climate change will also affect human health. The frequency of infectious diseases like diarrhoea, dysentery, cholera and typhoid fever will increase. According to the report of the World Health Organisation, there will be an increase in respiratory and heart related diseases due to climate change. Human health is impacted by climate change both directly and indirectly. Direct harm, disease, and even death can be brought on by extreme heat waves, increasing sea levels, changes in precipitation that lead to flooding and droughts, and powerful hurricanes. Via environmental changes, the consequences of climate change can also have an indirect impact on health. For instance, respiratory and cardiovascular problems may be negatively impacted by worsening air pollution levels. Temperature and precipitation variations can affect the survival, dispersal, and behaviour of insects and other animals, which can modify the transmission of infectious diseases. Changes in precipitation, storm surge, and sea temperature may cause an increase in illnesses associated with drinking water. In addition to affecting food safety, climate change exposes people to tainted foods that can cause foodborne illnesses.

Since temperature and rainfall play an important role in the multiplication and spread of disease vectors, mosquito-borne diseases such as malaria, filariasis, dengue fever, chikungunya, yellow fever, and Japanese encephalitis are common in South America, Africa, and Southeast Asia. The death rate from these diseases will increase due to the increase in the incidence of fever. Apart from this, these diseases will also spread in the continents of North America and Europe.

There is a definite and direct effect on the climate and environment around us. It is also true that the human body adapts itself according to its environment and it also has its limits. After a limit, the changes in the atmosphere and climate start exerting their definite effects on the human body. The changing climate of the earth has attracted the attention of every section in the last few decades. This study is focused on impact of climate change on human health.

**Keywords:** Climate change, Infectious diseases, Temperature, Rainfall, Environment

## Introduction

Hot climates have more adverse effects on health than extremely cold climates. As the temperature of the surrounding environment increases, the body tries to maintain normal body temperature by its internal actions. This includes sweating, increased heart rate, and dilation of blood vessels. In the elderly, the ability to sweat decreases anyway, and secondly, the capacity of their blood flow system also decreases, due to which the elderly suffer the most due to the hot environment. The elderly and children account for the most number of patients who die of heat stroke. Malaria, dengue, yellow fever, encephalitis, respiratory diseases etc. spread rapidly in moist and hot climate. Today, the ever-increasing number of patients suffering from these diseases is a testimony to the fact that the changing climate is showing its effect on human health. Kim, K. H., Kabir, E., & Ara Jahan, S. (2014).

The direct and indirect effects of climate change on human health are becoming increasingly clear. Direct effects include exposure to extreme weather events such as heat waves. Indirect effects include disruption to economic and social activity, which can affect health if, for example, it reduces people's ability to earn a livelihood. Other health impacts result from environmental degradation, diseases carried by vectors, food and waterborne infections, changes in food safety, and effects on mental health. In some cases there may be health benefits, but in most observed and predicted cases, the health effects of climate change are negative. McMichael, A. J. (2013).

Climate change could lead to increased transmission of diseases such as malaria and dengue fever, or significant impacts on mental health. This can reduce the availability of drinking water, and affect the production of food, whether from growing crops or raising livestock;

While crops have been positively affected in some areas, yields have fallen in others, and some crops have been found to produce less nutritious food. Russell, A. G. (2009).

The health impacts of climate change are becoming a growing concern for the international public health policy community. Studies have shown that communication on climate change is more likely to engage the public if it is framed as a health concern rather than simply an environmental matter. Health is one part of how climate change affects humans, along with aspects such as displacement and migration, security and social impacts. Sarofim, M. C. (2016).

**Increase in areas affected by diseases**

Due to the increase in the temperature of the atmosphere, many diseases, which were not found earlier in some areas, can also spread in those areas. For example, the mosquitoes that spread dengue fever were not usually found in places higher than 3,300 feet above sea level, but now due to global warming, they are also found in places up to 7,200 feet in Colombia.

Diseases spread by insects, mosquitoes and flies, diseases spread by rats, which were not found in abundance in the continent of Europe and America, now their number is continuously increasing there as well. Malaria is also nowadays making people its victims even in those mountainous areas, in which earlier it was considered impossible, such as Himachal Pradesh, Nagaland, and mountainous areas of Indonesia etc. According to an estimate, by the year 2070, favorable conditions will be created for malaria to flourish in 60 percent of the world. Semenza, J. C. (2014).

**Emergence of new diseases**

Changes in climate can cause such changes in microbes, in germ vectors, which can cause completely new types of diseases, about which we will not even have information, then there is no question of having medicines to deal with them. . These diseases can be as simple and less dangerous as a cold or as dangerous as AIDS. It can remain confined to any one corner of the world or it can become an epidemic and engulf the whole world. Hughes, N. L. (2010).

Due to the changes in the climate, such coincidences can also be created, due to which very little-known diseases can engulf a large population of the world. Casenur forest disease, a virus-borne disease of Karnataka state of India. The spread of yellow fever in Kenya, the

increasing number of Rift Valley fever patients in Egypt are living examples of such potential threats. Sauerborn, R. (2012).

Destruction of fertile land due to inundation of seawater, desertification and industrial agriculture is bound to reduce agriculture. Apart from this, due to the changing climate, drought, excessive rain, hailstorm, etc. will further affect this yield, and the ever-increasing population on it. In such a situation, the problem of food shortage and filling the stomach will emerge as a worldwide problem, which will result in malnutrition and starvation, which will affect the poor, underdeveloped and developing countries the most. Tackling this worldwide problem will not be easy. Singh, P. K., & Dhiman, R. C. (2012).

**Effects of Climate Change on Human Health**

**Increase in diseases due to damage to the ozone layer:** Ozone in the upper layers of the atmosphere acts as a shield for the earthlings against the harmful ultraviolet rays of the sun, but in the atmosphere near the surface of the earth, ozone is a pollutant. When inhaled into the lungs, it causes serious damage to the cells of the respiratory system, causing serious obstruction in the exchange of gases inside the lungs.

Apart from this, they also increase the side effects of other pollutants and sulfur dioxide on the lungs. Due to this, there is a huge decrease in the immunity of the body. Due to the increase in the amount of ultraviolet radiation reaching the earth day by day, the incidence of various skin diseases and skin cancer is increasing. Due to excessive heat, deaths and physical problems due to problems like heat stroke can increase. Chang, H. H., & Liu, Y. (2017).

**Increase in diseases due to lack of clean drinking water:** Continuous availability of clean drinking water is a very important requirement for world health. Due to the rise in sea level, the supply of drinking water in the coastal areas will be badly affected due to the filling of saline water in the coastal areas, in addition to this, when the displaced people from the coastal areas submerged in the sea come and settle in the already settled places, then those places will be destroyed. But the already existing problem of drinking water will become more serious. Yokohata, T., & Masui, T. (2016).

Due to less availability of clean drinking water, there will definitely be an increase in diseases like diarrhea, cholera, typhoid fever, meningitis etc. spread by contaminated water. These diseases may take the form of epidemics.

**Increase in mental diseases due to population displacement:** More than half of the world's population today lives within sixty kilometers of the sea coast. As a result of the warming of the earth, when the water level of the oceans will rise, then these areas will either be completely submerged in sea water or will not be habitable due to water filling. Delta of Nile River, delta of rivers like Ganges and Brahmaputra in Bangladesh, countries like Maldives, island groups like Marshall Islands will be the first to be hit by it. Vinod, J., & Vaishali, J. (2012).

At such a time, where on one hand the displaced population will be coming under the grip of famine, starvation, social disparities, mental anguish and mental diseases, on the other hand, this population will create problems for them by sharing their limited resources at the resettlement places. Russell, R. C. (1998).

**Respiratory diseases:** As the temperature of the atmosphere increases, air pollution also increases, due to which the problems of breathing increase. Due to the reasons for which carbon dioxide increases in the atmosphere, along with carbon dioxide, carbon particles, lead fumes, sulfur dioxide and dust particles also increase in the air. These pollutants are also the cause of the ever-increasing number of asthmatic patients. In addition, they can cause respiratory diseases and lung problems in normal individuals. Lead fumes adversely affect the developing brain of growing children, which can lead to mental retardation. Kolstad, E. W., & Johansson, K. A. (2011).

Research done at many places has shown that the carbon particles present in the air, when inhaled, thicken the blood and increase inflammation in the lungs, besides causing lung diseases. In a research paper published in the Journal of Occupational and Environmental Medicine, scientists found that human disease-resistant cells, blood cells and lung cells exposed to these microscopic carbon particles for a long time cause blood to thicken and disease. - Resistant cells begin to die. From this it is concluded that the microscopic particles of carbon present in the air can also cause a decline in the immunity of human beings. Rahman, H. A. (2009).

**Human health in winter:** In extremely cold weather, the body temperature decreases. Being isothermal or warm blooded, the human body tries to maintain normal body temperature by making many internal adjustments. If the ambient temperature is too low, these efforts to maintain normal body temperature fail and the body temperature starts falling rapidly. This condition is called hypothermia. This is usually seen only in homeless, destitute people who are forced to spend the night in the open in winter. In this situation, the bodily functions slow down and sometimes the death of the patient can also happen if proper treatment is not given. Quéméré, E., &Chikhi, L. (2017).

**Effect on infectious diseases:** Global climate change has resulted in widespread impacts on the spread of infectious diseases. Like other climate change impacts on human health, climate change exacerbates existing inequities and challenges in managing infectious diseases. It also increases the potential for some types of new infectious disease challenges. Infectious diseases whose transmission may be affected by climate change include dengue fever, malaria, tick-borne diseases, leishmaniasis, Ebola. There is no direct evidence that the spread of COVID-19 has worsened or been caused by climate change, although investigations are ongoing., F., & Ouborg, N. J. (2010).

Documented infectious disease effects of climate change include increased malaria and dengue, which are expected to worsen as global climate change directly results in more extreme weather conditions and higher temperatures. Not only will this accelerate their spread, but climate change will likely introduce new infectious diseases, and change the epidemiology of many existing diseases. Sheffield, P. E., &Landrigan, P. J. (2011).

**Conclusion**

Many such policies and agreements have been made by our society, country and the world to control climate change, but the level at which they should have worked is somewhere due to human-induced activities that promote climate change. It is less in comparison, although efforts are being made at the national and international level, but the society will also have to come forward in all this because people's participation also plays an important role in climate change.

We have seen the problems faced by the people affected by climate change and we also know how many people are affected by it, but there is no talk about how many living beings are

affected by climate change. It doesn't only do this, when the number of humans being affected is so much, then you can also guess how much it will affect the living beings.

In the coming times, the calamities caused by climate change will become one of the biggest reasons for destroying our society and the world, for which the humans living in this society will be responsible, which has already started because we have only heard about the mythological period. We have read only about "natural disasters" but in today's modern society we all have seen natural as well as "man-made disasters".

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