

Chapter 1

Changing Climate: Threat to Human Health

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ABSTRACT

Earth is endowed with sufficient reserves to meet all of our needs. It is the fact that all living organisms use the planet's resources to the extent that they require them. Humans, on the other hand, are the only creatures on the planet who enjoy and even exploit resources beyond their necessity. To be more precise, due to population surge, rapid industrialization, and urbanization, there is a need to meet both the demands and luxuries. The Earth's species are dependent on the ecosystem service functions which are driven by climate stability. Climate-triggered health illnesses are currently showing new trends and are expected to increase in the future if the current climate disturbances persist. In brief, climate instability (warming or cooling) undeniably provides suitable ground for vector and zoonotic life cycles. Climate-related morbidity and mortality are developing public health concerns that, if not addressed properly, will have serious corollaries. This chapter summarizes the various factors responsible for climate variability-induced health impacts.

DOI: 10.4018/978-1-7998-9414-8.ch001

INTRODUCTION

The economy of any country is dependent on its residents' well health. The underlying health disparities can be reduced by strengthening each country's essential public health services and policies. Specific exposure mechanisms influence climate and health. These pathways can be divided into two categories: (a) direct exposure through extreme weather events such as heat waves or heavy rain; and (b) indirect exposure through ecological changes that alter disease vectors and transmission.

The amount of damage that climate change could inflict and the costs of adaptation are linked to a country's baseline health (World Bank Report, 2010). As a result, climate change's potential dangers and consequences differ from country to country. Droughts, floods, cyclones, heat and cold waves, severe storms, and other natural catastrophes have caused 80-90 per cent of reported disasters worldwide in the last ten years (WHO). The normal functioning of the earth's ecosystems will be affected by even minor changes in global temperature. . In July/August 2021 drought due to the failure of the southwest monsoon has severely affected the state of Gujarat. Several animals including cattle and desert species died due to extreme water scarcity, heat, and drought. Drought elicits a series of health impacts via wildfires, pollution (air, Water and soil), malnutrition, population displacement, psychological stress etc. and also lead to low river flows, accumulating water-borne effluent pathogens (Hofstra, 2011, Semenza and Menne, 2009). According to the India Meteorological Department, Ahmedabad, 30 districts in Gujarat received deficient rainfall in 2021 (Down to Earth, August 2021). The districts Surendranagar, Gandhinagar, and Aravalli received largely deficient rainfall between June and August 2021.

Some alarm bells ringing in the 21st century include increased annual summer monsoon precipitation with enhanced interannual variability over Southeast Asia. Glacier run-off in the Asian mountains will increase up to the mid-21st century and subsequent run-off may decrease due to the loss of glacier storage (The Hindu, 2021). Climate change has the potential to alter the seasonality of some infectious diseases. Vector-borne diseases, such as dengue fever, chikungunya, malaria, and other mosquito-borne infectious virus epidemics, are examples. Because of their inability to respond to variations in climate variability, some florae may die or become extinct. Some species can adapt to changing circumstances. Changes in food production, rural hardship, and socio-economic difficulties are among the other prominent effects of climate change. Table 1 shows some environmental changes, disease outbreaks that resulted from them, and the several mechanisms that generate infectious diseases in people.

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