

Addressing the impact of climate change on the spread of diseases

United Nations Framework Convention on Climate Change (UNFCCC)



Empowering Future Generations: Cultivating Global Literacy and Enlightenment



Forum: United Nations Framework Convention on Climate Change (UNFCCC)

Issue: Addressing the impact of climate change on the spread of diseases

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Introduction

The impact of climate change on the spread of diseases is a crucial and an increasingly urgent global issue. The direct impacts of climate change include more frequent occurrence and increased magnitude of extreme weather events, as well as changing temperatures and precipitation patterns. Climate change indirectly affects the spread of disease, as environmental conditions are altered and are suitable for the survival and multiplication of pathogenic micro-organisms and bacteria. However, the sensitivity to the harmful effects of climate change is not only the outcome of the interaction of environmental factors, but also of human, social and economic factors.

Definition of Key Terms

Climate change

Climate change refers to long-term changes in temperatures and weather patterns. Such change can be natural, due to changes in the sun's activity or large volcanic eruptions, nevertheless human activities have been the main driver of climate change, mostly due to the burning of fossil fuels like coal, oil and gas.

Global warming

Global warming is a climate change phenomenon characterized by a general increase in the Earth's average temperatures, which brings about significant changes in weather patterns and is directly linked to an increase in greenhouse gases in our atmosphere, exacerbating the greenhouse effect.

Vector-borne Diseases

Vector-Borne Disease is a disease that results from an infection transmitted to humans and other animals by blood-feeding humanoids, such as mosquitoes, ticks, and fleas. Examples of vector-borne diseases include Dengue fever, West Nile Virus, Lyme disease, and malaria.



Malaria

Nearly 250 million people are infected with malaria every year - and it kills nearly 620,000 people. It is one of the deadliest diseases affecting humans. Malaria is transmitted through the bite of a female mosquito infected with a malaria-causing parasite. In addition, as the climate warms, it gives the mosquito a longer period to live and breed, and possibly expand its habitat.

Mitigation

In a climate change context, it is the reduction of the greenhouse gases which trap heat into the atmosphere. The process involves things like cutting down from power plants, factories or cars.

Displacement

The forced movement of people caused by factors such as natural disasters, famine, diseases, or conflict. In this context, displacement occurs slowly as it is based and reliant on how the environmental conditions of a place worsen or change.

General Overview

Climate change began influencing the spread of diseases notably in the late 20th century. By the 1980s and 1990s there were noticeable increases in Vector-borne diseases. Rising temperatures, changing rainfall and an increase in extreme weather events have extended the habitats and breeding seasons of disease vectors such as mosquitoes and ticks. Diseases such as malaria, dengue, Lyme disease and Zika virus saw increased transmission rates and expanded into new areas as vectors thrived in warmer and wetter conditions. For instance, in the 1990s, the mosquito range carrying dengue began to spread beyond the tropics into subtropical and more temperate regions. More fundamentally, climate shocks and growing stresses such as changing temperature and precipitation patterns, drought, floods and rising sea levels degrade the environmental and social determinants of physical and mental health. In addition, 3.6 billion people already live in areas particularly vulnerable to climate change. Despite contributing little to global emissions, low-income countries and small island developing states (SIDS) suffer the harshest health impacts. In vulnerable regions, the death rate from extreme weather events in the last decade was 15 times higher than in less vulnerable regions.

WHO data indicates:

- 2 billion people lack safe drinking water
- 600 million suffer from foodborne illnesses annually
- children under 5 bearing 30% of foodborne fatalities

Climate stressors heighten waterborne and foodborne disease risks. Climate change affects food availability, quality and diversity, exacerbating food and nutrition crises.

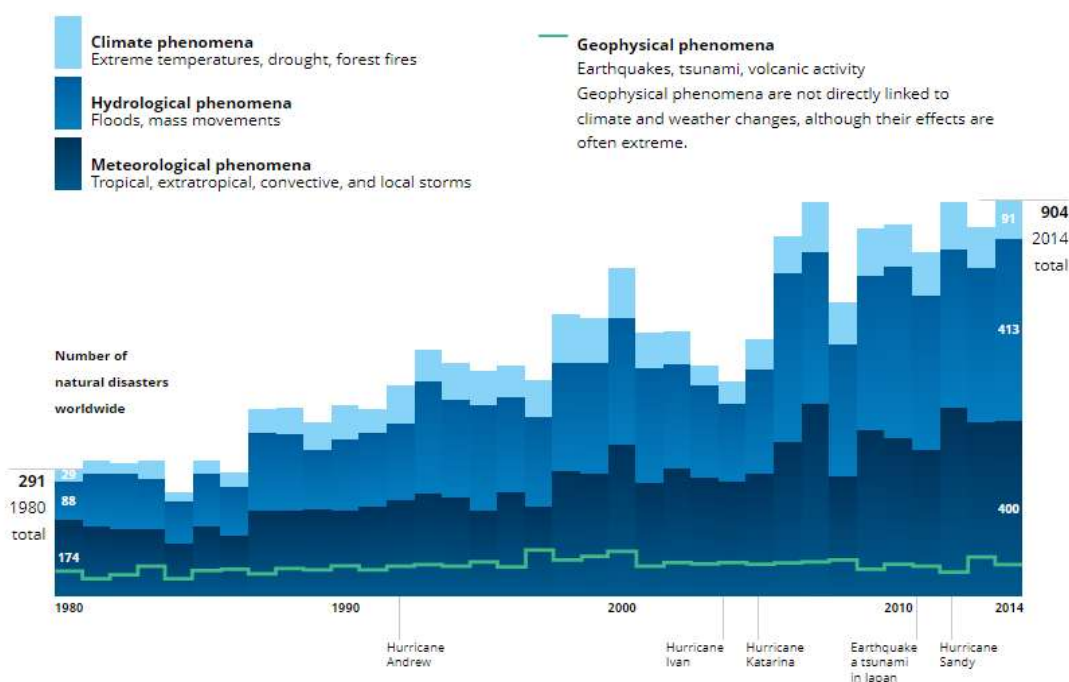
Parties Involved

Intergovernmental Panel on Climate Change (IPCC)

The Intergovernmental Panel on Climate Change (IPCC) is a United Nations body established in 1988 by the World Meteorological Organization (WMO) and the United Nations Environment Program (UNEP). The IPCC has helped address climate change by providing reliable scientific evidence, raising global awareness and supporting international agreements, such as the Kyoto Protocol (1997) and later the Paris Agreement (2015), which aim to reduce global greenhouse gas emissions.

World Wide Fund for Nature (WWF)

The World-Wide Fund for Nature (WWF) works on climate change and disease prevention by



focusing on protecting the environment and promoting sustainable practices. By conserving ecosystems and supporting the reduction of deforestation and wildlife trade, WWF reduces the risk of zoonotic diseases, while promoting strategies to combat climate change by making these environments safer for both humans and animals.

White House Office of Domestic Climate Policy

The White House Office of Domestic Climate Policy, established in 2021 has taken several steps to address the intersection between climate change and public health, including the spread of diseases such as reducing Greenhouse Gas Emissions, Promoting Climate-Resilient



Infrastructure, Supporting Clean Energy and Reducing Pollution and Developing Public Health Preparedness Initiatives.

Timeline of Events

1980	Mosquito-borne diseases and mostly Malaria start to spread in areas previously too cool for mosquito populations, as global temperatures begin to increase dramatically.
1990	Climate change expands the range of vector-borne diseases, like dengue fever, as warmer temperatures allow mosquitoes to thrive in previously unaffected areas.
1996	The World Health Organization (WHO) states that the expansion of disease vectors due to climate change will become a major health risk, predicting rises in diseases like malaria and dengue.
2003	A heatwave in Europe leads to around 70,000 extra deaths. Heat also increases the risk of waterborne diseases and breathing problems.
2013	In Latin America, the Zika virus is raising concerns about how climate change may allow mosquito-borne viruses to spread rapidly in warmer climates. The disease is spreading in the United States as the range of the Aedes mosquito expands due to increasing temperatures.
2016	Cases of Lyme disease are increasing in the US, especially in the Northeast, as warmer winters allow ticks to survive year-round in more areas.
2023	The White House Office of Domestic Climate Policy takes several steps to address the intersection between climate change and public health, including the spread of diseases

Previous attempts to solve the issue

African Union and African CDC Programs

In Africa, where climate-sensitive diseases such as malaria thrive, the mission of the Directorate for Disease Control and Prevention is to build and strengthen the capacity of Member States to prevent and control all types of diseases by identifying, harnessing and integrating existing public health and human resources on the continent to achieve universal health coverage. The department consists of three units, namely the endemic diseases and neglected tropical diseases unit, the non-communicable diseases and mental health unit and the universal health coverage unit.

Europe's Clean Air for Europe (CAFE) Program



The Clean Air for Europe (CAFE) program is legislation published in May 2008 by the EU to improve air quality in Europe and limit exposure to air pollution, which indirectly contributes to solving the problem of the spread of disease due to climate change because improving air quality can reduce respiratory diseases and improve overall health resilience.

Health Climate Action Campaigns

Some governments and NGOs have focused on educating communities in vulnerable areas about climate-related disease risks, prevention strategies and the importance of climate action. This includes promoting awareness of tick-borne and vector-borne diseases in warm regions of the US and Europe.

Possible solutions

Improving water quality and sanitation

By investing in infrastructure to ensure access to clean water, especially in areas prone to climate-related droughts and floods, which can lead to water-borne diseases. Improving sanitation reduces the possibility of outbreaks of diseases such as cholera.

Improving global access to treatments

By ensuring that regions likely to face climate-related outbreaks have affordable and timely access to effective treatments. This requires working with global health organizations to streamline the distribution of medicines to vulnerable populations.

Increasing awareness of climate-related diseases

By educating communities about the risks of climate change-related diseases, especially in recently affected areas. This may include information on preventing tick bites, maintaining clean water and keeping cool during heatwaves.

Bibliography

- National Center for Biotechnology Information. (2021). *Article on climate and health*. NCBI. <https://pmc.ncbi.nlm.nih.gov/articles/PMC8716146/>
- United Nations. (n.d.). *What is climate change?* UN. <https://www.un.org/en/climatechange/what-is-climate-change>
- Solar Impulse Foundation. (n.d.). *Global warming solutions*. Solar Impulse. <https://solarimpulse.com/topics/global-warming-solutions>
- Los Angeles County Department of Public Health. (n.d.). *Vector-borne diseases and public health*. Public Health LA. <http://publichealth.lacounty.gov/acd/vector.htm>



- Gavi, the Vaccine Alliance. (n.d.). *Malaria in the US: How climate change is affecting disease spread*. Gavi.
<https://www.gavi.org/vaccineswork/malaria-us-climate-change-affecting-disease-spread>
- People in Need. (n.d.). *Climate change and humanitarian aid*. People in Need. <https://climate.peopleinneed.net/climate-change>
- World Health Organization. (n.d.). *Climate change and health*. WHO.
<https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health>
- United Nations. (n.d.). *Climate change – A global issue*. UN.
<https://www.un.org/en/global-issues/climate-change>
- World Wildlife Fund. (n.d.). *Climate change and conservation*. WWF.
<https://www.worldwildlife.org/pages/climate>
- Africa Centres for Disease Control and Prevention. (n.d.). *Division of disease control and prevention*. Africa CDC.
<https://africacdc.org/programme/division-of-disease-control-and-prevention/>
- AAC Eurovent. (n.d.). *What is the CAFE directive?* AAC Eurovent.
<https://www.aaceurovent.co.uk/blog/what-is-the-cafe-directive>