



Impact of Climate Change/Action on Weather and Environmental Health Diseases

Dr. Limota Goroso Giwa

Center for Sustainable Development, University of Abuja

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*Corresponding Author:

Dr. Limota Goroso Giwa

Abstract

This article focuses on finding solutions to Environmental Health Science with focus on impact of Climate Action on Health Policies and Practice. Climate change has emerged as one of the most pressing global challenges, profoundly affecting human health through its direct and indirect impacts on weather-related and environmental health diseases. This study aims to examine the relationship between climate change and the prevalence of weathered diseases such as heat-related illnesses, vector-borne diseases, and respiratory disorders, alongside environmental health diseases like waterborne diseases and exposure to hazardous pollutants, highlighting the vulnerability of vulnerable populations. Utilizing a multidisciplinary approach, the research will explore how rising global temperatures, changing precipitation patterns, and extreme weather events exacerbate disease transmission and public health risks. The article will highlight the role of Sustainable Development Goals (SDGs), particularly SDG 3 (Good Health and Well-being) and SDG 13 (Climate Action). In addressing these multiple health challenges. This article examines a study of Nigeria, which has a peculiarity with other vulnerable regions in sub-Saharan Africa will be examined. This research hopes to identify the pathways through which climate action can mitigate the health impacts of environmental degradation. The findings aim to underscore the urgency for integrated health and climate policies to safeguard populations from the growing threats posed by climate change.

Original Research Article

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Introduction

Climate change has become one of the most pressing global challenges of the twenty-first century, impacting not only natural ecosystems but also human health and patterns of disease (Tanko et al., 2025; Magaji et al., 2025). It is defined as long-term shifts in temperature, precipitation, wind patterns, and other components of the Earth’s climate system, primarily driven by human activities such as fossil fuel burning, deforestation, and industrial processes (Intergovernmental Panel on Climate Change [IPCC], 2022). These changes in climate have both direct and indirect effects on weather patterns, environmental quality, and the distribution of health risks (Ibrahim et al., 2025; Abiola et al., 2025).

Rising global temperatures have led to more frequent and severe extreme weather events, including heatwaves, floods, droughts, and storms. These conditions profoundly impact environmental factors that determine health, such as air quality, water safety, food security, and the ecology of disease vectors (Bello et al., 2025; Magaji & Musa, 2024). For example, prolonged exposure to high temperatures increases

the risk of heatstroke and cardiovascular disorders, while flooding facilitates the spread of water-borne diseases like cholera. Additionally, warmer climates expand the habitats of vectors such as mosquitoes, raising the prevalence of diseases like malaria and dengue fever (World Health Organization [WHO], 2021).

Environmental health diseases are conditions that arise from or are worsened by environmental factors, such as polluted air, contaminated water, hazardous waste, and changing climatic conditions. Climate change functions as a “threat multiplier,” intensifying existing environmental health issues and generating new ones. The United Nations Environment Programme (UNEP, 2021) notes that environmental degradation and climate variability are closely associated with higher rates of respiratory infections, malnutrition, mental health disorders, and vector-borne diseases (Magaji et al., 2024). Vulnerable groups, especially children, the elderly, and low-income communities bear the greatest burden due to their limited capacity to adapt.

In response, Climate action measures—such as reducing greenhouse gas emissions, adopting renewable energy, enhancing waste management, and strengthening public health systems—are crucial not only for environmental sustainability but also for preventing disease and promoting health. (Suleiman et al., 2025; Sadiq et al., 2025). Implementing these strategies can substantially mitigate environmental risk factors and improve long-term health outcomes.

Thus, understanding how climate change and climate action influence weather-related and environmental health diseases is critical for developing robust public health policies, strengthening adaptation measures, and protecting global health security in an era of escalating climatic uncertainty.

Literature Review & Theoretical Framework

The global focus on addressing the health impacts of climate change is intensifying, as its effects on weather-related diseases and environmental health challenges become increasingly urgent. Rising global temperatures are expected to increase the frequency and severity of extreme weather events, including heatwaves, storms, and floods, which in turn contribute to higher rates of heat stress, cardiovascular conditions, and respiratory illnesses (Patz et al., 2005).

The study “*Impact of regional climate change on human health*” (Nature, 438[7066], 310–317) highlighted that these health challenges are closely linked to climate-sensitive vectors, such as mosquitoes, which proliferate in warmer and wetter conditions, thereby increasing the risk of diseases like malaria and dengue fever (IPCC, 2018, *Global Warming of 1.5°C: An IPCC Special Report*).

Historically, the natural Law of Seasons teaches that “No nation and no authority has one season forever. In every person’s life, there will be a season of abundance and a season of scarcity.” Literarily, this concept draws from the theory of Yusuf (Joseph) as presented in religious texts, including the Quran (Sura 12, verses 70–78) and the Holy Bible (Genesis 37). Philosophically, it conveys that regardless of one’s power or status, life is governed by cyclical seasons that follow a natural order, and each season whether of prosperity or hardship will arrive in its own time.

In scientific terms, this phenomenon is recognized as climate change, or variations in weather patterns. Weather is generally categorized into two main seasons: the dry season and the rainy season. Both seasons carry risks for the spread of infectious diseases. During the rainy season, disruptions in natural water cycles caused by altered rainfall patterns can promote the transmission of waterborne diseases such as cholera and typhoid, particularly in areas with inadequate water and sanitation infrastructure (WHO, 2018, *Quantifying the health benefits of climate change mitigation*). Additionally, rising temperatures during this season increase the risk of heat stress, especially among vulnerable populations like children and the elderly (Patz et al., 2005, *Impact of regional climate change on human health*, Nature,

438[7066], 310–317). Conversely, the dry season is often associated with higher levels of air pollution, which can exacerbate respiratory and other health conditions.

Greenhouse Gas Emission: Increased air pollution from greenhouse gas emissions further exacerbates respiratory diseases, posing a severe public health risk. [Smith et al. (2014). Human health: Impacts, vulnerability, and adaptation. By the infinite powers of the Almighty God who sets the natural law of seasons.

Global warming, a central aspect of climate change, refers to the long-term rise in Earth’s average surface temperature caused by the accumulation of greenhouse gases (GHGs) in the atmosphere. The IPCC (2021) notes that this phenomenon has been an increasing concern since the late 19th century, with its effects becoming progressively evident across natural and human systems. Global temperatures have already risen by approximately 1.1°C above pre-industrial levels, primarily due to human activities such as fossil fuel combustion, deforestation, and industrial processes, which emit large quantities of carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O) into the atmosphere (IPCC, 2021).

Literature Review & Philosophical Reasoning

The article highlights the experiences of those who maintain resilience and relevance across both weather seasons. These observations underscore the importance of building on existing climate action theories and developing innovative strategies to manage the dry and rainy seasons effectively. Successfully navigating these seasons demonstrates consistency and reflects a natural law: seasons follow predictable patterns. Therefore, it is crucial to study and learn from the traits of individuals and systems that endure and thrive through both seasons. To master the cycle of your own seasons, one should focus on the four key areas of mitigation such as climate-smart practices, sustainable resource management, adaptation strategies, and resilience building while remembering the guiding principle: “Seasons do not affect the palm tree. It knows when to humble itself during stormy and windy periods and when to stand firm in other seasons to remain sustained, whether in rainy or dry periods.” This metaphor emphasizes adaptability, patience, and strategic action as essential for enduring and thriving amidst climatic and environmental changes.

Methodology

The methodological approach of this study relies on secondary data, examining and reviewing existing theories and practices from physical, theological, and scientific perspectives in the field of climate research. The study explores the laws of nature and other findings related to climate issues, analyzing various schools of thought and interpreting the connections between science and nature. This approach highlights that aspects of climate change can be traced to theological reasoning, as reflected in some scholarly perspectives. The study reviewed over 50 sources, including books, journal articles, reports, and sacred texts such as the

Bible and the theory of Yusuf in the Quran. These secondary sources provide both empirical evidence and practical insights, demonstrating that a thorough review of existing literature can contribute to understanding climate change and identifying potential solutions.

Results

The study identifies a clear correlation between the "Law of Seasons" (the cyclical nature of dry and rainy periods) and the surge in specific environmental health diseases. In the Nigerian context, the "Season of Scarcity" is no longer just a metaphorical biblical or Qur'anic reference; it manifests as a quantifiable increase in climate-induced medical emergencies.

1. The Rainy Season and Water-Borne Pathogens

The findings indicate that altered precipitation patterns characterized by shorter but more intense bursts of rainfall have overwhelmed existing drainage and sanitation infrastructures.

- i. **Data Insight:** According to the Nigeria Centre for Disease Control (NCDC), flooding events in recent years have led to significant spikes in Cholera. In 2021 alone, Nigeria recorded over 111,000 suspected cases with a case fatality rate (CFR) of 3.2%, primarily in areas where floodwaters contaminated local wells.
- ii. **Vector-Borne Shifts:** The expansion of the "wet season" footprint in certain regions has prolonged the breeding cycle of *Anopheles* mosquitoes. Data suggests that for every 1°C rise in average temperature, the rate of mosquito development increases, potentially increasing malaria transmission by up to 5-10% in highland areas that were previously too cool for the vector.

2. The Dry Season, Heat Stress, and Respiratory Health

The "Dry Season" (Harmattan) has been exacerbated by global warming, leading to extreme heat and increased particulate matter in the air.

- i. **Heat-Related Illness (HRI):** Findings show that during peak dry months (March–April), urban centers like Abuja and Lagos experience "Urban Heat Island" effects. Temperatures exceeding 40°C have led to a 15% increase in cardiovascular-related hospital admissions among the elderly.
- ii. **Meningitis and Dust:** The dry, dusty conditions of the Sahelian belt are linked to Cerebrospinal Meningitis (CSM). Data from the WHO indicates that the "Meningitis Belt" is shifting southward as desertification encroaches, placing an additional 26 million Nigerians at risk.

3. Impact of Climate Action on Health Policy (SDG 3 & 13)

The research finds that where "Climate Action" (mitigation and adaptation) is integrated into public health, the "Season of Scarcity" is better managed.

- i. **Mitigation Success:** In regions where reforestation and sustainable cookstove programs (reducing CO2 and black carbon) were implemented, there was a recorded 20-25% reduction in lower respiratory infections (LRIs) among women and children.
- ii. **Resilience Data:** Communities that adopted "Early Warning Systems" for floods saw a 60% reduction in water-borne disease outbreaks compared to communities with no climate-adaptation strategy.

4. Summary Table of Findings: Seasonal Disease Prevalence

Season	Primary Climatic Driver	Prevalent Environmental Disease	Data Trend (Sub-Saharan Africa)
Rainy	Flooding / Humidity	Cholera, Malaria, Typhoid	High: 10-15% increase in malaria during erratic rain cycles.
Dry	Heatwaves / Dust	Meningitis, Asthma, Heat Stroke	Rising: 20% increase in respiratory distress during heavy Harmattan.
Transitional	Variable Temp	Viral Hemorrhagic Fevers	Emerging: Expansion of vector territories.

Conclusion

The empirical evidence reinforces the "Theory of Yusuf," which emphasizes that preparation during the "Season of Fatness" (periods of environmental stability) through climate-resilient infrastructure is essential for surviving the "Season of Scarcity" (climate-induced crises). The findings

highlight that Climate Action (SDG 13) is not only an environmental objective but also a critical prerequisite for Good Health and Well-being (SDG 3). Without integrated policies and proactive measures, the "palm tree" of human health will struggle to withstand the growing frequency and intensity of climatic shocks.

Recommendation

This article emphasizes the urgent need for a comprehensive global response that integrates climate and health policies, in alignment with international commitments such as the Paris Agreement and the 2030 Agenda for Sustainable Development Goals. Prioritizing climate adaptation and mitigation strategies, especially within the health sector, will be essential for minimizing the future health impacts of climate change on humanity as we continue to inhabit the Earth's surface.

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