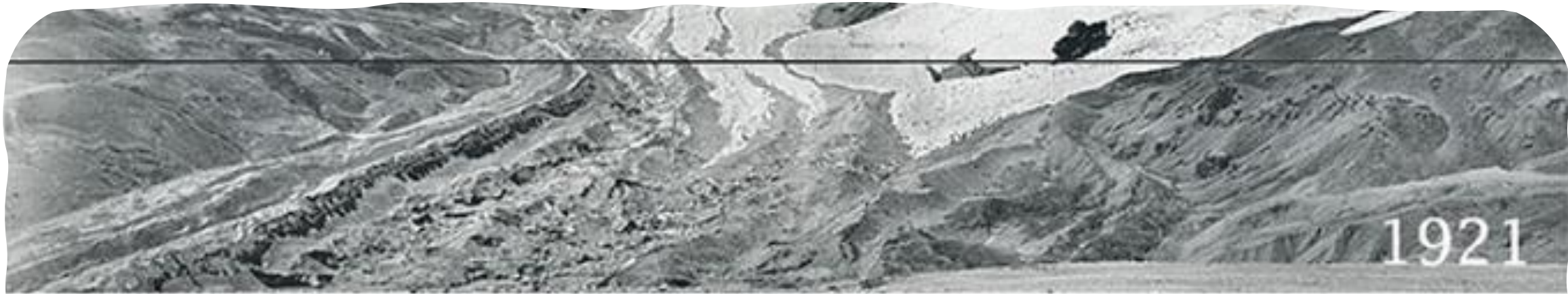


Title: A Scoping Review of Climate Impacts on Human Health in Nepal

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Background



Melamchi river

Picture Courtesy: Online khabar.com, Google

- Nepal's diverse geography makes it susceptible to a range of climate change impacts.
- Floods are a common occurrence in the Terai region, while landslides pose a threat in hilly areas, exemplified by events such as the Barun Khola landslides in 2017 and the June 2021 Melamchi flood and landslide, as well as floods along the Mahakali river.
- The Himalayas experience avalanches and glacial lake outburst floods (GLOFs), as seen in the Bhoté Koshi region.

Background



NEPAL'S STANDING AT COP28

The Minister Pushpa Kamal Dahal has called for increased climate financing, highlighting the urgency of addressing the \$100bn shortfall, at the COP28 conference being held in Dubai. United Nations Secretary-General António Guterres acknowledged Nepal's climate plight, urging collaborative efforts. Meanwhile in Nepal, the government sought solidarity among mountainous nations to combat the impacts of climate change, especially in the face of rapidly melting glaciers—a distress call that must be addressed collectively.

PRATIK GHIMIRE
reports from Dubai, on pg. 2

PC: Google

- Nepal's economy faces vulnerability, with projections indicating a potential loss of 2.2% of annual GDP by 2050 due to climate change.
- Nepal's Second National Communication to the UNFCCC (2014) acknowledges that the energy, agriculture, water resources, forestry, biodiversity, and health sectors are most vulnerable to the impacts of climate change.
- There is a global focus on climate actions, as evidenced by discussions in international forums such as the Conference of the Parties (COP).
- The status of climate change and its effects on human health in Nepal is under-researched, as indicated by the available evidence.

Objectives

- The primary goal of this research is to thoroughly evaluate the health consequences of climate change in Nepal, considering the intricate backdrop of geopolitical tensions, economic instability, and the lasting impacts of the COVID-19 pandemic.
- **Specific Objectives:**
 1. Identify deficiencies in existing knowledge regarding the health effects of climate change.
 2. Analyze the content of current policy documents related to climate change and health.
 3. Critically evaluate suggested public health measures and interventions in response to climate change.

Methodology

A scoping review - review of articles

Data collected from 2013 to 2023

Databases utilized: CINAHL, Embase, Global Index Medicus, PubMed, and Google Scholar

Targeted keywords: "climate", "health", "non-communicable disease", "infectious disease", "neurosensory system", "Nepal"

Retrieved 147 articles, screened 67 abstracts, and identified 31 full-text articles meeting inclusion criteria

Methodology



Exclusions: Non-peer-reviewed articles, conference abstracts, editorials, non-English studies without translations



Quality assurance methods: Database validation, meticulous documentation, use of Zotero and Endnote for data management

Results



Climate-related disasters in Nepal surged sixfold between 2000 and 2021.



Rising temperatures have led to the melting of glaciers and decreased snowfall, affecting livestock and irrigation systems.



Health consequences encompass vector-borne diseases, waterborne illnesses, foodborne ailments, cardiorespiratory disorders, malnutrition, injuries, and mental health disorders.



- Vector-borne diseases (VBDs) are increasingly reported in non-endemic areas of Nepal, including mountainous regions, with mosquito populations found at altitudes surpassing 2,000 meters.
- Mosquitoes are extending their geographical range by approximately 6.5 meters annually.
- A rise of 1°C in minimum and mean temperatures is associated with a 27% and 25% increase in malaria incidence, respectively.
- Relative humidity plays a crucial role in determining the occurrence of malaria.

- Nepal faces a growing threat from the Zika virus, particularly in the high altitudes of the Hindu Kush Himalaya (HKH) region.

- Environmental factors contribute to the occurrence and spread of scrub typhus, a disease transmitted by mites.

- Outbreaks of Nairobi fly dermatitis have been reported in various regions of Nepal.

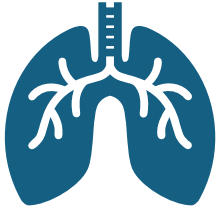
- Climatic factors contribute to increased incidence of diarrhea and childhood diarrhea.



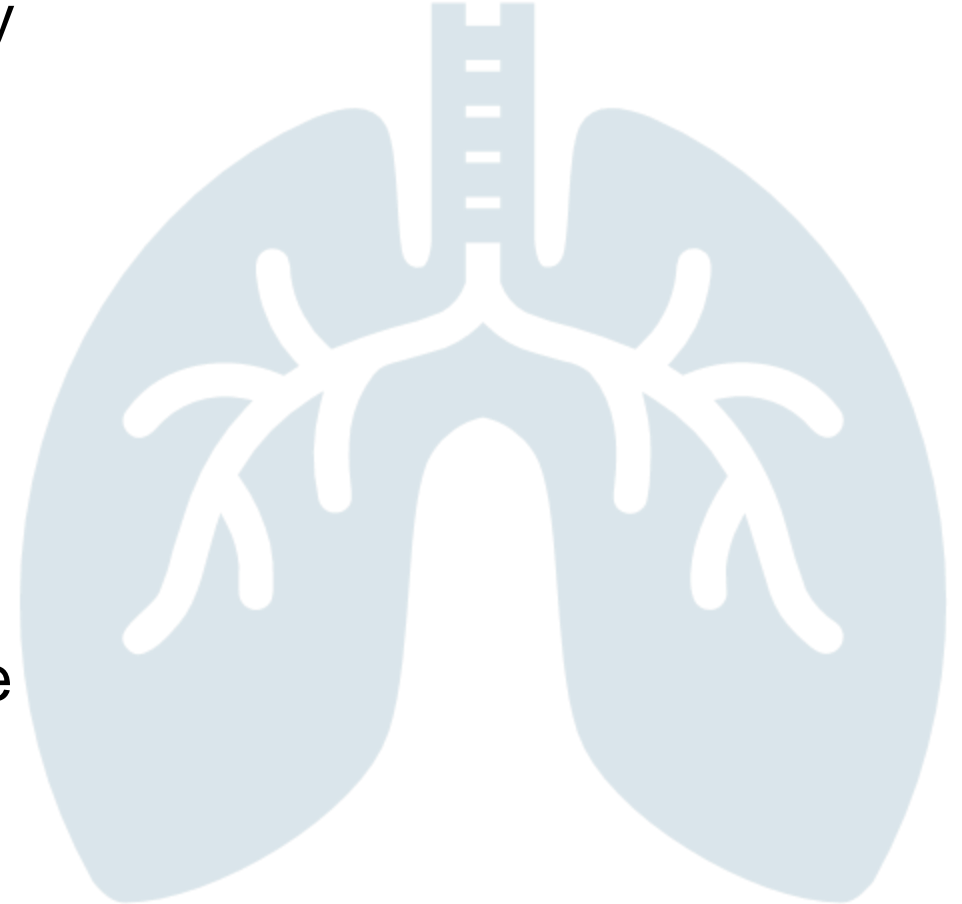


- Kathmandu's air quality was ranked as the worst out of 180 countries (2018 Environmental Performance Index), Nepal is 3rd most polluted country.
- Our annual average air pollution concentration is 5 times above the World Health Organization (WHO) air quality guidelines.
- 133 out of 1,000,000 deaths each year are related to air pollution, There was a 50% surge in deaths attributed to ambient air pollution from 1990 to 2019.

- Climate change increases vulnerability to cardiovascular diseases, respiratory illnesses, and mental health issues.



- Exposure to indoor air pollution linked to acute lower respiratory infections in children and chronic respiratory illnesses in adults.
- Exposure to air pollution increases the risk of COPD, lung cancer, and other respiratory diseases.



Government Response

- Established national indicators of climate : greenhouse gas (GHG) sources and drivers, climate extreme events and climate-induced disasters, impacts and loss and damage (L&D) from such events, exposure, sensitivity, adaptive capacity, and mitigation capacity.
- Nepal integrates climate change concerns into development plans, policies, and programs.

Policy Integration

Nepal Health Sector Programme – Implementation Plan II (NHSP-IP 2) 2010–2015

Climate Change Policy 2011

National Health Policy 2014

Health National Adaptation Plan (H-NAP): climate change and health strategy and action plan (2016–2020)

The Nepal Biodiversity Strategy and Action Plan (2014-2020), Environment-friendly Vehicle and Transport Policy

Nepal embraced the Sendai Framework for Disaster Risk Reduction in 2015, National Adaptation Plan

Paris Agreement, Forest Sector Strategy (2016-2025)

Formulated the National Disaster Risk Reduction Policy and Strategic Plan of Action: 2017-2030

Environmental Protection Act of 2019, a national law outlining “Provisions Relating to Climate Change”

Nepal joined the Adaptation Action Coalition

Key institutions

Environmental Protection and Climate Change Management National Council (EPCCMNC),

Inter-Ministerial Climate Change Coordination Committee (IMCCCC)
for coordination

Federal Level: Thematic Working Groups (TWGs) and Crosscutting Working Groups (CWGs),

Ministry of Forests and Environment (MoFE),

Climate Change Management Division (CCMD),

Ministry of Finance, Sector Ministries, National Planning Commission (NPC),

National Disaster Risk Reduction and Management Authority

Provincial Level: Provincial Climate Change Coordination Committees (PCCCC) ;
Forest, Environment and Climate Change related Ministries

Local Level: Infrastructure and Environment Management Sections

Policy and Research in Climate and Human Health

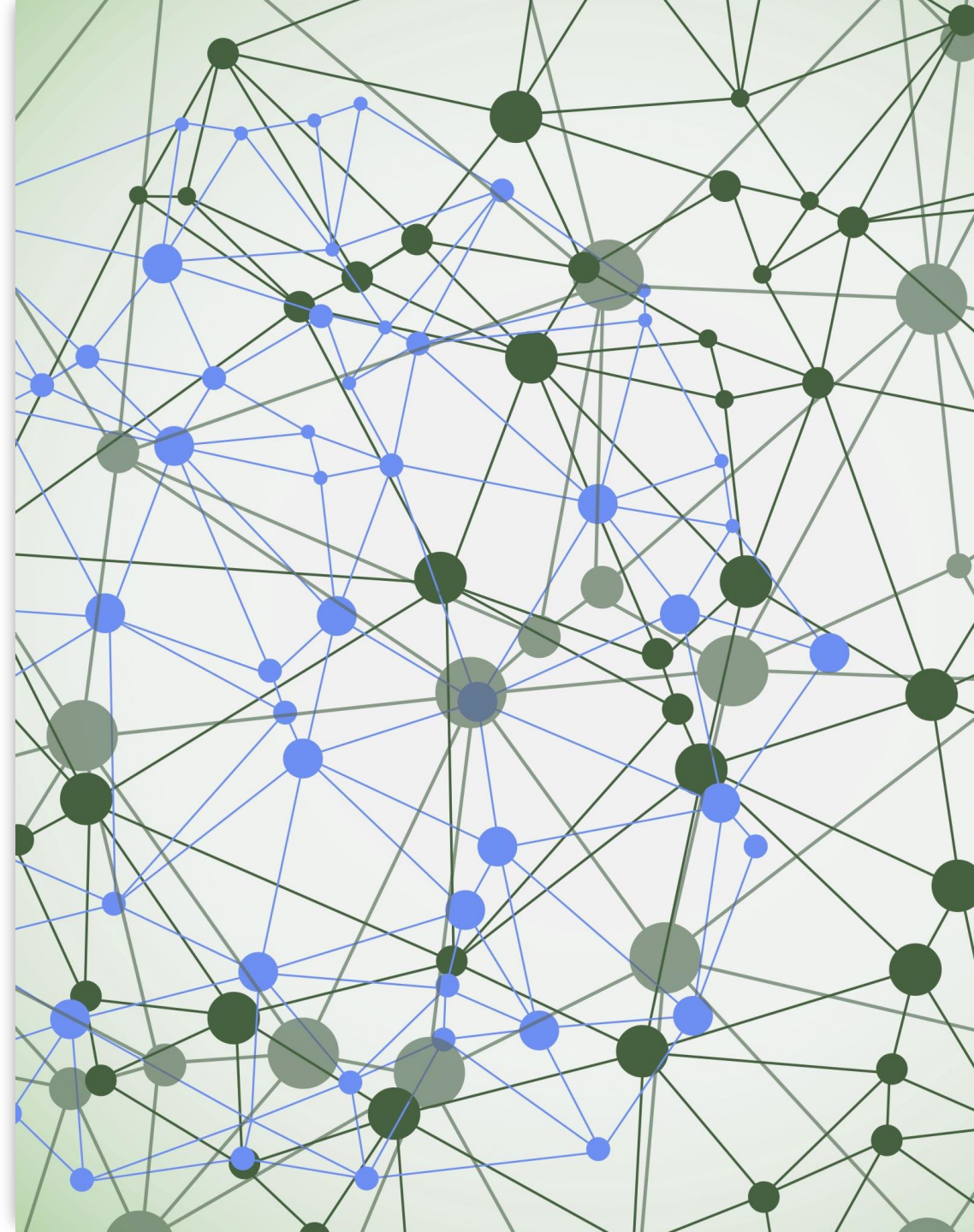
A total of 48/83 health related research reports had recommendations.

Of the 35/48 studies were found to be used in the policy making process.

Out of 21 plans and policies 7 incorporated recommendations from research.

Identified Gaps

- Challenges persist in translating policies into tangible actions in real-world settings.
- Communication barriers between researchers and policymakers impede the utilization of evidence.
- Human resource shortages and surveillance challenges further compound the difficulties in effectively implementing climate change adaptation measures.



Recommendations



There is a pressing need to establish units dedicated to synthesizing evidence and generating actionable messages.



The social context significantly influences policy formulation, underscoring the importance of collaborative approaches.



Holistic One Health Approach, Early Warning Systems for Diseases, Research on NCDs and Climate, Climate-Based Early Warning Systems, Leveraging Achievements for Climate-Smart Growth, Optimizing Machine Learning for Surface Water Extraction for Himalayan region, Enhancing Health Data Accessibility and Overcoming Meteorological Data Barriers are keys to mitigate and adapt climate change

Conclusion

- Climate change should be recognized as a significant factor exacerbating the risk of vector-borne disease (VBD) epidemics, as well as childhood diarrheal diseases, especially in mountainous regions.
- Women, children, the elderly, and marginalized communities are particularly vulnerable to climate-related health risks.
- It is essential to develop strong early warning systems, regularly assess risks, and adopt climate-resilient healthcare practices.
- Investments in improved healthcare infrastructure, such as well-equipped health centers and an adequate supply of essential medical items, are crucial.
- Collaborative efforts are urgently needed to mitigate and adapt to the effects of climate change.



Take Home Message

- Recognize climate change's role in exacerbating health risks, especially for vulnerable populations. Urgently implement robust early warning systems and invest in resilient healthcare infrastructure to mitigate climate-related impacts.

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