Centre for Social and Economic Progress | CSEP

Independence | Integrity | Impact

DISCUSSION PAPER - 36
JANUARY 2026

Climate–Health Governance in South and Southeast Asia

Neethi V Rao
Priyanka Tomar

THE ASIAN COLLECTIVE FOR HEALTH SYSTEMS

CSEP RESEARCH

Copyright © Neethi V Rao and Priyanka Tomar

Centre for Social and Economic Progress (CSEP)
CSEP Research Foundation
6, Dr Jose P. Rizal Marg, Chanakyapuri,
New Delhi - 110021, India

Recommended citation:
Rao, N. V., and Tomar, P. (2026). *Climate–Health Governance in South and Southeast Asia* (CSEP Discussion Paper 36). New Delhi: Centre for Social and Economic Progress.

The Centre for Social and Economic Progress (CSEP) conducts in-depth, policy-relevant research and provides evidence-based recommendations to the challenges facing India and the world. It draws on the expertise of its researchers, extensive interactions with policymakers as well as convening power to enhance the impact of research. CSEP is based in New Delhi and registered as a company limited by shares and not for profit, under Section 8 of the Companies Act, 1956.

All content reflects the individual views of the authors. The Centre for Social and Economic Progress (CSEP) does not hold an institutional view on any subject.

CSEP discussion papers are circulated for discussion and comment purposes. The views expressed herein are those of the author(s). All rights reserved. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including copyright notice, is given to the source.

Designed by Umesh Kumar

Climate–Health Governance in South and Southeast Asia

Neethi V Rao
Fellow
Centre for Social and Economic Progress
New Delhi, India

Priyanka Tomar
Research Associate
Centre for Social and Economic Progress
New Delhi, India

Table of Contents

List of Tables

Abbreviations

ADB	Asian Development Bank
API	Application Programming Interface
AQI	Air Quality Index
ASCC	ASEAN Socio-Cultural Community
ASEAN	Association of Southeast Asian Nations
ATACH	Alliance for Transformative Action on Climate and Health
BBC	British Broadcasting Corporation
BCA	Building and Construction Authority (Singapore)
BCCP	Bangladesh Centre for Communication Programs
BHS	Barangay Health Stations (Philippines)
BIMSTEC	Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation
CBHC	Community-Based Health Care (Bangladesh)
CBOs	Community-Based Organisations
CCC	Climate Change Commission (Philippines)
CCCOs	Climate Change Coordinator Officers (Thailand)
CCHPU	Climate Change and Health Promotion Unit (Bangladesh)
CDA	Communicable Diseases Agency (Singapore)
CHDs	Centres for Health Development (Philippines)
COP26	2021 United Nations Climate Change Conference
CORE	Communities for Resilience (Philippines)
CRESHCF	Climate-Resilient and Environmentally Sustainable Health Care Facilities
DDSCR	Department of Disaster Science and Climate Resilience (Bangladesh)
DEKSI	Climate-Resilient Healthy Village and Urban Areas (Indonesia)
DGHS	Directorate General of Health Services (Bangladesh)
DHIS2	District Health Information Software 2
DHM	Department of Hydrology and Meteorology (Nepal)
DoE	Department of Environment
DoH	Department of Health
DOH	Department of Health (Philippines)
DoHS	Department of Health Services (Nepal)
DWSSM	Department of Water Supply and Sewerage Management (Nepal)
EDCD	Epidemiology and Disease Control Division (Nepal)
EOHU	Environmental and Occupational Health Unit (Sri Lanka)
FCDO	Foreign, Commonwealth & Development Office (UK)
GCF	Green Climate Fund
GDP	Gross Domestic Product
GEF	Global Environment Facility
GGHH	Global Green and Healthy Hospital
GGHHN	Global Green and Healthy Hospital Network
GHG	Greenhouse Gas
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
HCCO	Health and Climate Change Office (Philippines)

HCWH	Health Care Without Harm
HCWM	Health Care Waste Management
HED	Health Engineering Department (Bangladesh)
HFDB-DOH	Health Facility Development Bureau under the Department of Health
HFDU	Health Facility Development Units (Philippines)
HHAP	Heat-Health Action Plan
HHSWS	Heat-Health Surveillance Warning System (Thailand)
HISP	Health Information Systems Programme
HNAP	Health National Adaptation Plan
HSA	Heat Stress Advisory (Singapore)
IEC	Information, Education, and Communication
IEDCR	Institute of Epidemiology, Disease Control and Research
IESR	Institute for Essential Services Reform
IFC	International Finance Corporation
IHIP	Integrated Health Information Platform (India)
IHMIS	Integrated Health Management Information Section
ILO	International Labour Organization
ILRI	International Livestock Research Institute
IOM	International Organisation for Migration
IPC	Infection, Prevention, and Control
IPCC AR	Intergovernmental Panel on Climate Change Assessment Report
LAPAs	Local Adaptation Plans of Action
LCCAPs	Local Climate Change Action Plans
LCDF	Least Developed Countries Fund
LDCs	Least Developed Countries
LDH	Lead District Hospitals (Bangladesh)
LGD	Local Government Division (Bangladesh)
LGU	Local Government Unit (Philippines)
M&E	Monitoring and Evaluation
MARD	Ministry of Agriculture and Rural Development (Vietnam)
MBDS	Mekong Basin Disease Surveillance
MD	Management Division (Nepal)
MIS	Management Information System
MNDP	Ministry of National Development Planning
MNRE	Ministry of Natural Resources and Environment
MNRES	Ministry of Natural Resources and Environmental Sustainability (Malaysia)
MoCIT	Ministry of Communication and Information Technology (Nepal)
MoE	Ministry of Environment
MoEFCC	Ministry of Environment, Forest and Climate Change
MoEST	Ministry of Education, Science and Technology (Nepal)
MoFE	Ministry of Forests and Environment (Nepal)
MoH	Ministry of Health
MoHFW	Ministry of Health and Family Welfare (Bangladesh, India)
MoHP	Ministry of Health and Population (Nepal)

MONRE	Ministry of Natural Resources and Environment (Vietnam)
MoNRES	Ministry of Natural Resources and Environmental Sustainability
MoPH	Ministry of Public Health (Thailand)
MoU	Memorandum of Understanding
MoWCSC	Ministry of Women, Children and Senior Citizens (Nepal)
MoWS	Ministry of Water Supply (Nepal)
MSE	Ministry of Sustainability and Environment (Singapore)
MSS	Meteorological Service Singapore
MTaPS	Medicines, Technologies, and Pharmaceutical Services
NADMA	National Disaster Management Agency (Malaysia)
NAP	National Adaptation Plan
NAPA	National Adaptation Programme of Action (Nepal)
NAPCCHH	National Action Plan on Climate Change and Human Health (India)
NCCC	National Committee on Climate Change
NCCRA	National Climate Change Risk Assessment (Singapore)
NCCRF	National Climate Change Resilience Framework (Singapore)
NCCS	National Climate Change Secretariat (Singapore)
NCDC	National Centre for Disease Control (India)
NCD	Non-communicable Diseases
NDC	Nationally Determined Contribution
NDCU	National Dengue Control Unit (Sri Lanka)
NDRRMA	National Disaster Risk Reduction and Management Authority (Nepal)
NEA	National Environment Agency (Singapore)
NEHAP	National Environment Health Action Plan (Malaysia)
NHEICC	National Health Education, Information and Communication Center (Nepal)
NHRC	Nepal Health Research Council
NHSPEC	National Strategic Plan for Health, Environment, and Climate Change (Sri Lanka)
NHTC	National Health Training Centre (Nepal)
NParks	National Parks Board (Singapore)
NPHAP	National Planetary Health Action Plan (Malaysia)
NSP	National Strategic Plan (Bangladesh)
OHP	One Health Partnership
ONEP	Office of Natural Resources and Environmental Policy and Planning
PDRF	Philippine Disaster Resilience Foundation
PHACCP	Public Health Adaptation to Climate Change Plan (Thailand)
PHC	Primary Health Care
PHO	Provincial Health Office (Indonesia)
PIB	Press Information Bureau
PIDSR	Philippine Integrated Disease Surveillance and Response
PM	Particulate Matter
PSI	Pollutant Standards Index
PUB	Public Utilities Board (Singapore)
RFD	Rainwater-for-Drinking
RHUs	Rural Health Units (Philippines)

RLED	Registration, Licensing and Enforcement Division (Philippines)
SAARC	South Asian Association for Regional Cooperation
SAPCCHH	State Action Plan on Climate Change and Human Health (India)
SECA	Smart Energy and Climate Action (Thailand)
SELCO	Solar Electric Light Company
SFA	Singapore Food Agency
SIAPIK	Sistem Informasi Aplikasi dan Pelaporan Keuangan
SIKELIM	Sistem Informasi Kelola Limbah Medis
SLCP	Short-Lived Climate Pollutants
TICA	Thailand International Cooperation Agency
ToT	Training of Trainers
UNDP	United Nations Development Programme
UNDRR	United Nations Office for Disaster Risk Reduction
UNFCCC	United Nations Framework Convention on Climate Change
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VAA	Vulnerability and Adaptation Assessment
VBD	Vector-Borne Disease
VBDRTC	Vector-Borne Disease Research and Training Center (Nepal)
WASH	Water, Sanitation, and Hygiene
WBGT	Wet-Bulb Globe Temperature
WHO	World Health Organization

Executive Summary

South and Southeast Asia are among the most climate-sensitive regions in the world, facing some of the greatest projected losses in health, lives, and livelihoods. Countries in the region experience a convergence of dense populations, rapid urbanisation, resource constraints, uneven governance capacity, and high exposure to extreme weather events. These factors make them central to the global climate–health conversation and highlight the need for coordinated, multisectoral responses.

This paper reviews climate–health governance across 10 countries—Bangladesh, India, Indonesia, Malaysia, Nepal, Philippines, Singapore, Sri Lanka, Thailand, and Vietnam—to understand how countries are responding to the complex and growing effects of climate change on health. It maps existing policy responses and actions, uses an analytical framework based on the World Health Organization's (WHO) operational guidance to evaluate climate–health governance, systems, and capacities across the region, and identifies shared regional priorities and opportunities for knowledge exchange. The analytical framework consists of five core dimensions: governance and institutional arrangements; climate–health information systems; climate-resilient health infrastructure and service delivery; workforce capacity; and financing frameworks. Based on this analysis, the paper highlights opportunities for regional collaboration and knowledge exchange in five areas: intersectoral governance innovations, sustainable climate–health financing, integrated climate–health information systems, capacity building, and community accountability and social participation. The findings underscore the urgency of institutional reforms and sustained investment to enable equitable and climate-resilient health systems across Asia.

Climate Change as a Health Crisis

Climate change manifests through a wide array of health and socio-economic risks in the region. Countries across South and Southeast Asia are increasingly recognising the links between climate change and health. Health now appears more frequently in national adaptation plans (NAP), climate strategies, and sectoral policies. Some countries have developed health-focused adaptation plans, while others have incorporated health as a priority within broader climate frameworks. These shifts reflect a growing acknowledgment that climate change is fundamentally a health challenge.

Across the 10 countries reviewed, governments are gradually integrating health into climate adaptation and resilience planning. Coordination among ministries of environment, climate, disaster management, and health is becoming more common as cross-sectoral risks intensify. Many national strategies now identify health vulnerabilities or outline priority areas for action, though the depth and coherence of integration vary widely, as discussed in the paper. In several cases, policies articulate broad goals but lack sustained financing, institutionalised coordination mechanisms, or systems for monitoring and evaluation (M&E).

Development partners have played a catalytic role in supporting climate–health initiatives through technical assistance, pilot projects, and investments in early warning systems and resilience programmes. However, these efforts often remain project-based and time-limited, raising concerns about long-term sustainability and institutionalisation.

Systemic Challenges in Climate–Health Governance

While the integration of climate and health into national policy frameworks is a critical step forward, countries face substantial challenges in translating commitments into action. Several cross-cutting issues emerge consistently across the region.

1. Fragmented Governance and Coordination Challenges

Governance of climate and health is distributed across multiple ministries and agencies. In many cases, ministries responsible for environment or climate policy lead adaptation efforts, while health ministries play a secondary role. This limits health-sector ownership of climate adaptation measures and results in fragmented governance structures.

Coordination challenges are especially pronounced in decentralised governance systems. Subnational authorities often bear significant responsibility for implementation but lack adequate technical capacity, financing, or access to data. Weak horizontal and vertical coordination leads to duplication, gaps, and inconsistent execution of national strategies.

2. Inadequate and Ad Hoc Financing

A major obstacle to climate–health action is insufficient financing. Health systems in many countries already struggle with limited budgets, and climate adaptation requires additional investments across infrastructure, surveillance, workforce capacity, and emergency preparedness.

Most climate finance globally continues to prioritise mitigation, leaving adaptation under-resourced. Only a small share directly supports health-related adaptation. Many countries in the region rely heavily on external financing from development partners, creating a landscape dominated by short-term projects rather than long-term, systemic investments. Without dedicated domestic financing streams, it is difficult to establish durable climate–health programmes.

3. Weak Climate–Health Information Systems

Robust data systems are essential for monitoring climate-sensitive health risks, forecasting outbreaks, and planning targeted interventions. However, climate and health data systems, often managed by different ministries, tend to operate in silos. Limited data sharing, incompatible systems, and unclear mandates impede the development of integrated early warning systems.

Several countries have piloted climate-informed disease surveillance or early warning tools with support from international partners, but these remain fragmented and rarely scale nationally. The absence of standardised climate–health indicators and limited institutionalisation of data systems undermine evidence-based policymaking.

4. Vulnerabilities in Health Infrastructure and Service Delivery

Many health facilities across the region are not designed to withstand climate extremes. Flooding, storms, heatwaves, and power disruptions frequently affect hospitals and primary care facilities. Investments in climate-resilient infrastructure, such as solar power or flood-proofing, are increasing but often focus on tertiary facilities, leaving primary care systems comparatively under-resourced.

Climate impacts also exacerbate existing service delivery challenges, such as workforce shortages, overcrowding, and uneven access. During heatwaves or outbreaks, health systems face surges in demand that exceed capacity. Similarly, supply chains for essential medicines and equipments are also vulnerable to climate-related disruptions.

5. Limited Workforce Capacity for Climate–Health Action

Health workers play a central role in recognising and responding to climate-sensitive health risks, yet workforce training on climate–health issues remains limited. Existing training efforts tend to be short-term and ad hoc, lacking a comprehensive approach to building climate-resilience competencies.

There is a critical need to strengthen health workforce skills in surveillance, risk communication, disaster preparedness, and interdisciplinary collaboration. Integration of climate–health content into formal medical, nursing, and public health education is still nascent across the region.

Opportunities for Regional Collaboration and Collective Action

The challenges described above are shared across South and Southeast Asia, making regional cooperation both necessary and advantageous. Climate impacts and health risks frequently cross borders—vector-borne diseases spread regionally, natural disasters affect migrant populations, and supply chain disruptions ripple across countries. As such, a regional approach can strengthen national strategies and enable more effective and equitable responses.

1. Supporting Financing and Investment for Climate–Health Adaptation

Regional collaboration can enhance countries' ability to mobilise resources by generating shared evidence on adaptation needs, highlighting economic costs, and advocating for increased global financing. A regional financing mechanism could support cross-border initiatives, including regional surveillance networks, joint procurement, and collaborative infrastructure projects.

2. Advancing Interoperable Climate–Health Data Systems

A regional initiative to harmonise climate–health indicators and facilitate data sharing can significantly improve risk forecasting and policy design. A regional observatory or shared analytics platform could support coordinated action on heatwaves, disease outbreaks, and other climate-sensitive health risks.

3. Building a Regional Climate–Health Workforce

Regional training hubs and standardised curricula can build workforce capacity across countries. Cross-country exchanges, mentorship, and collaborative capacity-building programmes can help address gaps in climate–health competencies.

4. Promoting Collaborative Research and Innovation

Joint research initiatives can generate regionally relevant evidence on climate-sensitive diseases, health system vulnerabilities, and cost-effective adaptation measures. Sharing successful pilot models—such as heat action plans, early warning systems, or climate-resilient health facility designs—can accelerate scaling across the region.

5. Enhancing Community Engagement and Accountability

Regional cooperation can help countries integrate community-based approaches into climate–health governance. Civil society organisations, local governments, and community networks play a central role in adaptation, and sharing participatory models can strengthen implementation and accountability.

Conclusion and Way Forward

The intersection of climate change and health represents one of the most urgent challenges facing South and Southeast Asia. While the region has begun to recognise and incorporate health into climate strategies, systemic gaps in governance, financing, data systems, infrastructure, and workforce capacity continue to impede comprehensive action.

Moving forward requires:

- Stronger integration of health into climate policies.
- Clear governance mandates and coordinated inter-ministerial action.
- Sustained financing for long-term climate–health adaptation.
- Investment in resilient health systems and infrastructure.
- Strengthened climate–health information and surveillance systems.
- Enhanced workforce training and institutional capacity.
- Regional cooperation to leverage shared knowledge, financing, and innovation.

Additionally, authors have identified some research questions for guiding future regional work:

- What governance and coordination mechanisms are most effective in sustaining intersectoral climate–health action?
- What resources and financing models are needed to support long-term, equitable climate–health adaptation?
- How can climate variables be systematically integrated into health information and surveillance systems?
- What approaches are most effective for building climate–health capacities across all levels of the health system?
- How can community participation strengthen accountability and inclusiveness in climate–health planning?

By addressing these priorities, South and Southeast Asian countries can better protect their populations, strengthen health systems, and advance a more equitable and resilient regional future. Regional platforms offer an important opportunity to unify national efforts, accelerate progress, and position the region as a leader in climate–health governance globally. By convening policymakers, researchers, civil society organisations, and multilateral institutions, regional networks can foster knowledge exchange, develop shared frameworks, and promote coordinated advocacy.

1. Introduction

The South and Southeast Asian regions are among the most climate-vulnerable regions globally (Asian Development Bank [ADB], 2009; World Bank, 2021) with deep impacts on the health and well-being of individuals and communities living in these countries. Rising temperatures, extreme weather events, and shifting patterns of rainfall are exacerbating a range of health risks including increased cases of infectious disease outbreaks, heat-related illnesses, malnutrition, mental health issues, etc. These climate-related impacts are further complicated by environmental degradation and socio-economic factors such as widespread poverty, increasing urbanisation, rapid population growth, and inadequate healthcare services in these economies. The repercussions of these interconnected health and climate change issues are disproportionately experienced by vulnerable groups including low-income communities, women, children, and rural populations, who often lack the resources to cope with climate-induced shocks. Addressing the nexus of climate and health is becoming a critical priority for governments and other stakeholders in these regions, especially given the urgency of the issue (Anbumozhi et al., 2024). Countries are therefore developing new policies, governance, and administrative mechanisms, as well as piloting projects on the ground to respond to this challenge. However, these are still in early stages with a need for systematic documentation and sharing of lessons from different contexts before policymakers can optimise their policy responses.

1.1 Regional Cooperation in Asia to Address Climate and Health

Regional cooperation and knowledge sharing are increasingly being recognised as valuable in accelerating the response and adaptation to the urgent health challenges presented by climate change. The transboundary nature of the challenge, with shared regional vulnerability as well as the diversity in health system capacities among Asian countries, presents opportunities for shared learning and scaling of successful models.

Regional action can significantly enhance policy efforts on climate and health in Asia through several key mechanisms. First, it enables knowledge sharing and capacity building across countries facing similar challenges. The WHO South-East Asia and Western Pacific Regional Offices are producing frameworks and guidance for developing Health National Adaptation Plans (HNAPs) that countries can adapt (WHO, 2023a). Secondly, regional cooperation allows for the pooling of resources and expertise to tackle shared issues more effectively. For example, the Association of Southeast Asian Nations (ASEAN) Health Cluster has incorporated climate–health resilience within regional initiatives on disaster risk reduction and cross-border disease surveillance. Similarly, the ADB is promoting climate-resilient health infrastructure across the region as an investment priority (Banzon et al., 2025). Thirdly, regional forums can amplify Asian perspectives in global climate negotiations. The South Asian Association for Regional Cooperation (SAARC) Plan of Action on Climate Change called for integrating risk assessments into national adaptation planning and has become a part of the best global practice (SAARC, 2008). Finally, regional action facilitates harmonisation of policies and standards, such as for climate–health data systems and early warning mechanisms, including those being supported by the United Nations Development Programme (UNDP) Asia Pacific office (UNDP, 2025). By leveraging these collaborative approaches, regional initiatives can accelerate national policy development and implementation on climate and health challenges that transcend borders.

The objective of this paper is to provide a starting point for collaborative work on climate and health issues across the South and Southeast Asian regions, focusing especially on governance, by which we mean the institutional structures and processes to enable effective, sustainable, and inclusive policymaking on health and climate change.

This discussion paper begins by laying out the current climate and health issues in 10 priority South and Southeast Asian countries, with a focus on existing government policies and their implementation. The public policy response to climate–health challenges across these countries was then assessed using a framework based on the WHO Operational Framework for Climate-Resilient Health Systems. Based on this analysis, we identified common challenges and regional priorities to build collective resilience and a coherent agenda on these issues. The paper highlights opportunities for regional collaboration and knowledge exchange in five areas: intersectoral governance innovations, sustainable climate–health financing, integrated climate–health information

systems, health workforce, and community accountability and social participation.

Section 2 outlines the methodology used in the paper. In Section 3, we map the nature of health and well-being challenges associated with climate change for each of the 10 focus countries. Section 4 examines the current status of climate and health policies in these countries. Building on this, Section 5 identifies the shared health challenges, especially from a governance perspective. Section 6 outlines the emerging opportunities for regional action based on the assessment. Finally, Section 7 concludes with the key insights and sets out future directions for research and policy engagement.

2. Methodology

This paper is based on a comprehensive desk-based scoping review of literature and publicly available resources. The primary database used for the literature search was Google Scholar, supplemented by targeted searches based on back-referencing. Policy documents were additionally obtained from the relevant institutional websites. The methodology involved identifying and synthesising information from a wide range of sources, including peer-reviewed journal articles, reports from international organisations, NGO studies, government publications, data from official government websites, technical reports, working papers from universities and independent research groups, and reliable media reports. Sources were selected based on relevance to the research question, credibility as defined by publication in reputed publications such as indexed journals, national newspapers, or government websites, and recentness, privileging the most recent sources. These documents were analysed to extract thematic patterns, analyse policy priorities, and develop insights into policy gaps and implementation challenges. Additionally, we conducted interviews with key individuals in ministries of health engaged in climate and health policymaking and/or country experts in this domain to supplement our document analysis.

We focus on 10 priority countries in the region, namely, Bangladesh, India, Indonesia, Malaysia, Nepal, Philippines, Singapore, Sri Lanka, Thailand, and Vietnam. The 10 countries included in the assessment represent a broad range of exposure and vulnerability to climate-related health hazards with varying health system arrangements and governance capacities. They bridge South and Southeast Asia, with the capacity for diffusion across countries in Asia.

To assess the status of policy development and implementation, we adapted existing WHO guidance on climate-resilient health systems (WHO, 2023a) to develop our assessment framework. Relevant indicators were identified based on their applicability to the Asian context, and data availability. This framework was then utilised to analyse Nationally Determined Contributions (NDCs), National Adaptation Policies, specifically HNAPs, as well as national or subnational policies, or action plans, developed by the focus countries, wherever available in the English language.

The data on policies were then analysed along the five key functions necessary for developing a climate-resilient health system: governance, financing, data systems for climate and health, service delivery and infrastructure, and human resource capacity building. The indicators for the assessment included the following: whether health has statutory adaptation obligations/status of policy instrument (NAP/HNAP), lead agency/nodal body, availability of financing, climate-specific health workforce trainings, subnational implementation arrangements, health sector decarbonisation efforts, and climate–health surveillance. For each of these, we analysed the current status with the objective of identifying lessons for regional exchange. Additionally, we identified shared challenges that comprise possible avenues for future joint research and action.

Limitations: We note that our analysis is limited by the use of a single database in Google Scholar and by not including documents that were not in the English language. However, we have tried to offset this limitation through supplementing our document analysis with interviews of in-country informants, policymakers, and regional experts.

Addressing the Health-Related Impacts of Climate Change

Broadly, the approaches for dealing with health-related impacts of climate change are built around the interlinked strategies of mitigation and health adaptation, building on co-benefits and developing health system resilience.

Within the health sector, mitigation efforts include measures to reduce greenhouse gas (GHG) emissions and improve energy efficiency within health sector operations such that the pace of climate change can be slowed down. For instance, switching from fossil fuels to clean energy sources for health facilities, and monitoring and optimising hospital supply chains and medical waste management will help reduce emissions emerging from the health sector. The global healthcare sector's climate footprint is equivalent to 4.4 per cent of global net emissions (Karliner et al., 2019). However, most of the emissions are in fact from healthcare supply chains rather than direct service delivery functions (Karliner et al., 2019) and therefore, mitigation actions in sectors such as transport, manufacturing of medical devices, and waste management will inevitably bring down the overall health sector emissions.

Multiple benefits to health in the form of supplementary benefits may arise from implementation of climate change mitigation and adaptation policies. These synergistic benefits arise when health and climate change outcomes are aligned and mutually reinforce each other. For instance, implementing climate policies on renewable energy that lead to lower levels of air pollution, green transportation that supports increased physical activity, or healthier diets through sustainable agriculture, will result in co-benefits for health through improved public health and reduced healthcare costs.

Health adaptation measures can improve the capacity of health systems to cope with the adverse effects of climate change, and prevent or minimise potential damages while maintaining the highest level of quality of care and ensuring the continuity of care. Specific adaptation actions within health systems will include strengthening early warning and disease surveillance systems, developing climate-resilient and smart health infrastructure, among others.

Resilience focuses on the capacity of individuals, communities, systems, and institutions to recover quickly from climate-induced shocks and adapt to long-term climate stresses. This approach stresses upon building a resilient health system that can provide care and support during disruptions, including those arising from climate change. Approaches to develop resilience will overlap with both mitigation and adaptation, taking a systematic approach to manage and adapt to climate-related health risks.

3. Overview of Climate and Health Burden in South and Southeast Asia

As per the Intergovernmental Panel on Climate Change Sixth Assessment Report (IPCC AR 6), prominent risks of climate change in the context of Asia include dust storms, heatwaves, extreme rainfall, sea level rise, floods, biodiversity loss, agricultural impact, heat islands, wildfires, and permafrost thawing (IPCC AR 6 WG2, n.d.). These climate risks are impacting health through increased heat-related illnesses, food and water insecurity, displacement, and the rising burden of infectious and non-communicable diseases. Table 1 lays out the mortality and morbidity burden in the focus countries to disaggregate the nature of the climate and health challenges for each of these countries.

Considering a scenario of 4 degrees Celsius global warming by 2100, daily maximum wet-bulb temperatures are predicted to surpass the thresholds of human survivability in most of South Asia (SEforAll, 2022). Out of 489,000 heat-related deaths that happened on average every year between 2000–2019, 45 per cent were in Asia (WHO, 2024a). IPCC estimates suggest that the intensity and frequency of heatwaves are expected to rise in Asia, and by 2080, approximately 940 million to 1.1 billion urban dwellers in South and Southeast Asia could experience extreme heat lasting more than 30 days every year (SEforAll, 2022).

Climate change–induced temperature rise can enhance transmission of infectious diseases like malaria, dengue, etc. For instance, the spread of the dengue vector has increased by 9.5 per cent globally

over the last century and is further expected to rise dramatically, especially in densely populated regions of South Asia (Liu-Helmersson et al., 2019). Additionally, food and water-borne disease concerns are likely to intensify, especially among children. Under an extensive emissions scenario, climate change is likely to cause an additional 48,000 diarrhoeal deaths among children under 15 years of age by 2030. One-third of these deaths are expected to occur in Asia, with a disproportionately higher burden in South Asia (Zain et al., 2024).

Particulate Matter (PM) 2.5 is also likely to increase by 36 per cent between 2045–2049 under the business-as-usual scenario, presenting a huge health risk especially for children in South Asia. Between 2010–2014, 306,800 under-five deaths were attributable to PM 2.5 exposure (Anita et al., 2024).

Projected economic losses from climate change for Asia are significant and will lay additional fiscal strains on Asian economies and health systems. South Asia is expected to lose an equivalent of 1.8 per cent and 8.8 per cent of its Gross Domestic Product (GDP) by 2050 and 2100, respectively (ADB, 2013). The ASEAN countries are likely to lose 37 per cent of their GDP by 2048, with Indonesia, Malaysia, Philippines, Singapore, and Thailand projected to experience an economic loss greater than seven times their total GDP in 2019 (Gray & Varbanov, 2021). Moreover, productivity losses are also significant for the Asian region—due to heat stress alone, South Asia is expected to lose 43 million full-time jobs by 2030 (International Labour Organization [ILO], 2019).

Comprehensive regional estimates of adaptation costs for the entire health systems are currently difficult to predict reliably, due to the data gaps as well as variability in climate–health surveillance and response capacity across countries in the region. However, some disease-specific estimates available for prevention and treatment of diarrhoea and malaria alone over the period 2010–2049 project the need to USD 500 million per year (ADB, 2011).

Table 1: Health Burden Attributable to Climate Change in Select Asian Countries

Countries	Climate-Related Health Impacts Projections
Bangladesh	• **Diarrhoeal Deaths:** By 2030, 8 per cent of total diarrhoeal deaths (for <15 years of age) will be attributable to climate change. • **Malarial Deaths:** By 2070, over 147 million people will be at risk of malaria in Bangladesh. • **Heat-Related Deaths:** By 2080, projected to increase to nearly 30 per 100,000 (for 65+ years of age). • **Floods**: By 2030, 4.2 million additional people may be at risk of river floods annually due to climate change with serious impacts on health. • **Air Pollution:** Women and children are at higher risk. 61 per cent of an estimated 17,100 child deaths due to acute lower respiratory infections is attributable to household air pollution. Women, when compared to men, also form a larger proportion of the total number of deaths from ischaemic heart disease, stroke, lung cancer, and chronic obstructive pulmonary disorder.
India	• 100,000 people die annually prematurely due to climate change in India (Shindell et al., 2024). By 2100, the mortality burden in India is expected to increase tenfold to 1.5 million excess annual deaths Climate Impact Lab (2019). • **Malaria:** India recorded the most malarial cases driven by factors of climate change in South and Southeast Asia in 2022 (Banerjee, 2023). • **Heat-Related Deaths:** 55 per cent rise in deaths due to extreme heat between 2000–2004 and 2017–2021 (British Broadcasting Corporation [BBC] News, 2022). • **Air Pollution-Related Deaths:** 1.24 million deaths (12.5 per cent of total deaths) in 2017 (India State-level Disease Burden Initiative Air Pollution Collaborators, 2019).
Indonesia	• **Malarial Deaths:** By 2070, 308 million individuals are projected to be at risk of malaria. • **Heat-Related Deaths:** By 2080, projected to rise to about 53 per 100,000 people (for 65+ years of age). • **Floods:** By 2030, an additional 269,600 people may be at risk of river floods annually as a result of climate change. • **Air Pollution-Related Deaths:** About 45 per cent of an estimated 25,300 child deaths due to acute lower respiratory infections is attributable to household air pollution.
Malaysia	• **Malaria:** By 2070, 43 million individuals are projected to be at risk of malaria. • **Floods:** By 2030, an additional 85,800 people may be at risk of river floods annually. • **Heat-Related Deaths:** By 2080, projected to rise to about 45 per 100,000 people (for 65+ years of age).
Nepal	• **Vector-Borne Diseases** such as malaria, dengue, chikungunya, Japanese encephalitis, visceral leishmaniasis, and lymphatic filariasis are prevalent in Nepal's lowland Terai region and hilly areas, putting approximately 80 per cent of the population at risk. • **Floods**: By 2030, an additional 199,300 people may be at risk of river floods annually. • **Heat-Related Deaths:** By 2080, projected to rise to about 53 per 100,000 people (for 65+ years of age). • **Air Pollution-Related Deaths:** 58 per cent of an estimated 3600 child deaths due to acute lower respiratory infections is attributable to household air pollution.
Philippines	• **Diarrhoeal Deaths:** By 2030, 7.7 percent of the 1700 diarrhoeal deaths (for < 15 years of age) will be attributable to climate change. • **Malaria:** By 2070, 150 million individuals are projected to be at risk of malaria. • **Floods:** By 2030, an additional 187,300 people may be at risk of river floods annually. • **Heat-Related Deaths:** By 2080, projected to rise to about 31 per 100,000 people (for 65+ years of age). • **Air Pollution-Related Deaths:** 46 per cent of an estimated 12,700 child deaths due to acute lower respiratory infections is attributable to household air pollution.

Countries	Climate-Related Health Impacts Projections
Singapore	• Increase in incident cases of dengue, salmonellosis, diarrhoeal disease, and heat-related illness in the last two decades (Aik et al., 2023).
Sri Lanka	• **Malaria:** By 2070, 24 million individuals are projected to be at risk of malaria. • **Floods:** By 2030, an additional 25,700 people may be at risk of river floods annually. • **Heat-Related Deaths:** By 2080, projected to rise to about 22 per 100,000 people (for 65+ years of age). • **Air Pollution-Related Deaths:** 56 per cent of an estimated 230 child deaths due to acute lower respiratory infections is attributable to household air pollution).
Thailand	• **Malaria:** By 2070, 71 million individuals are projected to be at risk of malaria. • **Floods:** By 2030, an additional 244,100 people may be at risk of river floods annually. • **Heat-Related Deaths:** By 2080, projected to rise to about 58 per 100,000 people (for 65+ years of age). • **Air Pollution-Related Deaths:** 29 per cent of an estimated 750 child deaths due to acute lower respiratory infections is attributable to household air pollution).
Vietnam	• Climate has become increasingly favourable for the transmission of vector-borne diseases, such as dengue and malaria. • **Air Pollution-related Deaths:** In 2020, nearly 34,000 deaths were attributable to PM 2.5 generated from human activities (The Lancet, 2023). • **Heat-Related Health Concerns:** Between 2013 and 2022, infants experienced an average of 12 days of life-threatening heatwaves annually, while adults over 65 years of age faced an average of 13 days per year. Sixteen billion potential labour hours were lost due to heat exposure in 2022, an increase of 16 per cent from 1991–2000 (The Lancet, 2023).

Source: Developed by authors using WHO's Climate and Health Profiles (2015-18 series) except where other literature has been cited (for Vietnam, Singapore, and India).

4. Existing Government Policies and Action on Climate and Health

Countries across the region are reorienting their health system functions to develop resilience toward and preparedness for climate-related challenges. The WHO has developed an operational framework to provide guidance on how the health sector can address the challenges presented by climate change, while minimising its own contribution (WHO, 2023a). It presents the main health system functions that need to be strengthened as part of comprehensive national climate change and health strategies to build resilient and low carbon health systems. Drawing from this operational framework, we developed our own analytical framework for the purpose of this paper to broadly determine the overall status of development and implementation of climate and health policies in our 10 countries. The following are the five key areas that make up our analytical framework: governance and planning; financing; service delivery and infrastructure; human resources and capacity building; and climate and health surveillance/data systems. Table 2 presents the current status of countries' response along these five areas, while noting limitations related to data availability and accessibility. More details about the specific policies on climate and health in each of the focus countries are listed in Appendix 2.

Table 2: Status of Development and Implementation of Climate-Resilient Health Adaptation and Mitigation Strategies for Climate Change in Select Countries (for the full forms of abbreviations, see Table footnotes)

Countries	Governance and Planning		Financing	Service Delivery and Infrastructure	HR Capacity-Building	Climate & Health Surveillance Systems
	Existence of HNAP/ Climate–Health Policies	Nodal Agency or Department for Implementing Climate–Health Policies/ Coordination Mechanisms	Proposed Budgets/ Funds Earmarked for Climate–Health Programs and Initiatives			
Thailand	HNAP Phase I (2021–2030); developed in collaboration with Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ). HNAP focus areas: community resilience; multi-sectoral integration; public health preparedness and risk management; health system development.	Public Health Adaptation to Climate Change Plan (PHACCP) Steering Committee develops policies, measures, and recommendations for the National Committee on Climate Change (NCCC), the nodal agency for meeting United Nations Framework Convention on Climate Change (UNFCCC) requirements.	Not available.	• Ministry of Public Health (MoPH) implementing Green and Clean Healthy Hospitals. • Focus on solarisation of health facilities, part of MoPH's Smart Energy and Climate Action (SECA) initiative.	Department of Health (DoH) Training Session on "Climate Change and Health Adaptation," in coordination with Thailand International Cooperation Agency (TICA) and ASEAN.	Part of Mekong Basin Disease Surveillance (MBDS) network.
Nepal	HNAP (2016–2021), integrated into NAP (2021–2050); updated HNAP (2023–2030) informed by Vulnerability and Adaptation Assessment (VAA).	A dedicated thematic group under Ministry of Health and Population (MoHP) has been established, and Ministry of Forests and Environment (MoFE) participates in the steering committee and technical working groups for the updated HNAP.	USD 4,750 million budget (approximately USD 160 per capita) estimated in NAP for health, drinking water, and sanitation sector.	• Upgrade 280 healthcare facilities to be low-carbon and climate-resilient by 2035. • Manage healthcare waste in 2,800 facilities using non-burn technologies.	National Health Training Centre (NHTC) under MoHP has developed training manuals and conducts Training of Trainers (ToT) programmes, subnational trainings on climate-resilient Water, Sanitation, and Hygiene (WASH) and integrates climate content into environmental health curriculum. Training of 500 health service providers, policymakers, and managers annually budgeted in the HNAP.	A Memorandum of Understanding (MoU) between the Department of Health Services (DoHS) and the Department of Hydrology and Meteorology (DHM) for data sharing. Piloting District Health Information Software 2 (DHIS2) for Climate and Health, primarily focused on dengue surveillance and climate-informed early warning.

Countries	Governance and Planning		Financing	Service Delivery and Infrastructure	HR Capacity-Building	Climate & Health Surveillance Systems
	Existence of HNAP/ Climate–Health Policies	Nodal Agency or Department for Implementing Climate–Health Policies/ Coordination Mechanisms	Proposed Budgets/ Funds Earmarked for Climate–Health Programs and Initiatives			
Bangladesh	HNAP Action Plan (2018–2023), led by the Institute of Epidemiology, Disease Control and Research (IEDCR) and WHO.	Coordination of HNAP led by Ministry of Health and Family Welfare's (MoHFW) Climate Change and Health Promotion Unit (CCHPU). Two units exist: advisory group and technical working group.	USD 1.038 million (approximately USD 0.006 per capita) needed for implementing activities of HNAP.	• Piloting green hospital(s). • Solar-powered health facilities—pilot project implemented integrates renewable energy in refugee health centres.	Training of health administrators and professionals (district and upazila-level health managers) by Bangladesh Centre for Communication Programs (BCCP) and ToT model. Certificate courses by CCHPU in collaboration with Department of Disaster Science and Climate Resilience (DDSCR) and international development partners like United Nations Population Fund (UNFPA), Foreign, Commonwealth & Development Office (FCDO), etc.	Generation of climate-resilient health data from routine Management Information System (MIS) (CCHPU and United Nations Children's Fund [UNICEF]).
Sri Lanka	Health key priority in NAP (2016–2025).	Not available.	LKR 431 million/ approximately USD 1.404 million (approximately USD 0.064 per capita) proposed for health sector in NAP.	• Solar facility upgrades in select hospitals with grant from Japan.	A 2024–2026 International Organisation for Migration (IOM) project is developing a climate health risk communication strategy and cascading training to public health officers and community leaders to engage vulnerable communities.	Piloting a Climate Health Platform using DHIS2—integrating climate data; multiple stakeholders involved.

Countries	Governance and Planning		Financing	Service Delivery and Infrastructure	HR Capacity-Building	Climate & Health Surveillance Systems
	Existence of HNAP/ Climate–Health Policies	Nodal Agency or Department for Implementing Climate–Health Policies/ Coordination Mechanisms	Proposed Budgets/ Funds Earmarked for Climate–Health Programs and Initiatives			
Vietnam	Health Sector Climate Change Response Action Plan for the period 2019–2030, with a vision to 2050.	Several ministries role identified in the action plan—details in Appendix 2.	Estimated budget – VND 2,000 billion/ approximately USD 75.9 million (approximately 0.751 USD per capita).	• Solar-powered facilities (pilot).	Continuous training programmes by Ministry of Health (MoH) designed for intersectoral central-level leaders, for local health leaders, and for specialised health officials.	Integrated surveillance plan for dengue fever, zika virus, and chikungunya in Vietnam 2017–2020.
Indonesia	HNAP (2020–30) with WHO's support; MoH also issued MoH Regulation no. 1018/2011 on Climate Change Adaptation Strategy in Health and MoH Regulation no. 035/2012 on the Identification of Disease Risk Factors related to Climate Change.	The MoH Regulation no. 532 of 2019 establishes the Technical Team for Adaptation to the Impacts of Climate Change in the Health Sector.	Not available.	Renewables or cold chain pilots are being promoted (project-level with UNDP support).	Not available.	Developing a web-based application called Climate Change Adaptation on Health (SIAPIK Application) to assess and monitor the hazard, risk, exposure, and vulnerability of diarrhoea, dengue, malaria, and pneumonia based on the climate variability; Daily Disease Outbreak Reporting System (DHIS).

Countries	Governance and Planning		Financing	Service Delivery and Infrastructure	HR Capacity-Building	Climate & Health Surveillance Systems
	Existence of HNAP/ Climate–Health Policies	Nodal Agency or Department for Implementing Climate–Health Policies/ Coordination Mechanisms	Proposed Budgets/ Funds Earmarked for Climate–Health Programs and Initiatives			
Philippines	NAP (2023–2050) identifies health as a priority area; key strategies identified along with implementing lead and support agencies. Developing a Health and Climate Change Roadmap and Action Plan with clear short, medium and long-term targets.	Climate Change Commission (CCC) and DOH report collaboration on integrating climate adaptation into health sector planning and hospital guidance; Health and Climate Change Office (HCCO) established in January 2025—focal point for climate–health programming and coordination.	Not available.	DoH's Green & Safe Health Facilities.	DOH, in collaboration with United States Agency for International Development (USAID) Medicines, Technologies, and Pharmaceutical Services (MTaPS), conducted Training-of-Trainers on Infection, Prevention, and Control (IPC) and Health Care Waste Management (HCWM) for Centres for Health Development (CHDs) (Registration, Licensing and Enforcement Division [RLED], Health Facility Development Units [HFDU], environmental programme staff), provincial DOH offices, waste management and IPC officers—later cascaded to DOH, Local Government Unit (LGU), and private hospitals through face-to-face and eLearning modules.	Dengue surveillance via Philippine Integrated Disease Surveillance and Response (PIDSR) system.

Countries	Governance and Planning		Financing	Service Delivery and Infrastructure	HR Capacity-Building	Climate & Health Surveillance Systems
	Existence of HNAP/ Climate–Health Policies	Nodal Agency or Department for Implementing Climate–Health Policies/ Coordination Mechanisms	Proposed Budgets/ Funds Earmarked for Climate–Health Programs and Initiatives			
India	NAP in progress; National Action Plan on Climate Change and Human Health (NAPCCHH)—framework for climate–health action; state-level plans in place.	MoHFW—National Centre for Disease Control (NCDC) leads the Climate Change & Health Cell.	INR 1.99 billion/ approximately USD 22.49 million (approximately USD 0.015 per capita) proposed for implementation of NAPCCHH.	• Solarising public health care facilities—e.g. with Solar Electric Light Company (SELCO) foundation in northeastern states.	District and State nodal officers training; community-level training module developed.	Integrated Health Information Platform (IHIP) integrating climate-sensitive diseases.
Singapore	No dedicated HNAP available online.	Whole of government climate risk framing approach; health actions are embedded across multiple agencies (MoH, National Environment Agency [NEA], Ministry of Sustainability and Environment [MSE]).	Not available.	• Solar deployment in hospitals as part of Solar Nova program and GreenGov.SG.	Guidance & sector advisories exist (e.g., haze health advisories hosted by MoH; workplace heat stress management guidance via Workplace Safety and Health [WSH] Council).	Vector-Borne Disease (VBD) surveillance especially for mosquito control: Project Wolbachia—Singapore, started in 2016 by NEA. Bio surveillance programmes—involving various OneHealth agencies—Communicable Diseases Agency (CDA), NEA, National Parks Board (NParks), Singapore Food Agency (SFA), and Public Utilities Board (PUB).

Countries	Governance and Planning		Financing	Service Delivery and Infrastructure	HR Capacity-Building	Climate & Health Surveillance Systems
	Existence of HNAP/ Climate–Health Policies	Nodal Agency or Department for Implementing Climate–Health Policies/ Coordination Mechanisms	Proposed Budgets/ Funds Earmarked for Climate–Health Programs and Initiatives			
Malaysia	No dedicated HNAP; NAP in process with Green Climate Fund (GCF) and UNDP support; National Environment Health Action Plan (NEHAP).	NEHAP Steering Committee, Technical Committee and Thematic Working Groups.	Not available.	MoH's green hospital targets set concrete milestones (e.g., green certification targets for hospitals by 2025; Carbon-Neutral Healthcare Blueprint toward 2045.	Not available.	Early warnings for haze and dengue.

Note: Public Health Adaptation to Climate Change Plan (PHACCP); National Committee on Climate Change (NCCC); Ministry of Public Health (MoPH); Smart Energy and Climate Action (SECA); Department of Health (DoH); Thailand International Cooperation Agency (TICA); Association of Southeast Asian Nations (ASEAN); Mekong Basin Disease Surveillance (MBDS); Vulnerability and Adaptation Assessment (VAA); Ministry of Health and Population (MoHP); Ministry of Forests and Environment (MoFE), Nationally Determined Contribution (NDC); National Health Training Centre (NHTC); Training of Trainers (ToT); Memorandum of Understanding (MoU); District Health Information Software (DHIS2); Institute of Epidemiology, Disease Control and Research (IEDCR); Climate Change and Health Promotion Unit (CCHPU); Bangladesh Centre for Communication Programs (BCCP); Department of Disaster Science and Climate Resilience (DDSCR); Ministry of Health (MOH); Health and Climate Change Office (HCCO); Climate Change Commission (CCC); Medicines, Technologies and Pharmaceutical Services (MTaPS); National Environment Agency (NEA); Ministry of Sustainability and Environment (MSE); Public Utilities Board (PUB); Communicable Diseases Agency (CDA); National Parks Board (NParks); Singapore Food Agency (SFA); Health and Climate Change Office (HCCO); Infection Prevention and Control (IPC); Health Care Waste Management (HCWM); Registration, Licensing, and Enforcement Division (RLED) of Centers for Health Development (CHDs); Health Facility Development Units (HFDU); National Action Plan on Climate Change and Human Health (NAPCCHH); National Centre for Disease Control (NCDC); Philippine Integrated Disease Surveillance and Response (PIDSR); Green Climate Fund (GCF); International Organisation for Migration (IOM); National Environment Health Action Plan (NEHAP); Sistem Informasi Aplikasi Pencatatan Informasi Keuangan (SIAPIK). Limited information in case of Malaysia, Indonesia and Thailand as policy documents were not readily available in English language.

Source: Nepal: (Bhandari et al., 2024; Dhimal et al., n.d.; Gentle & Mainaly, 2024; Khanal et al., 2025; MoHP, 2015, 2022, 2023, 2024, n.d.; MoFE 2021), Sri lanka: (Arudpragasam, 2025; CCS, 2016; Dailymirror, 2025; DHIS2 Community, 2025; Ministry of Environment [MoE] 2021; Fernando 2023, UNDP Climate Promise 2023), Philippines: (Cotejar, 2025; DoH 2020; Health Facility Development Bureau under the Department of Health [HFDB-DOH], n.d.; USAID MTaPS Program, 2023; CCC and DENR Philippines, 2023), Thailand: (DoH, n.d.; Health Care Without Harm [HCWH] Southeast Asia, 2012, n.d.; Limsaku et al., 2025; Phommasack et al., 2013; PreventionWeb, 2025; Chandak 2023; MoPH a,b, n.d.; MNRE, n.d.), Bangladesh: (Ahmad 2021; Chowdhury et al., 2022; Directorate General of Health Services Bangladesh, 2018; Hasan et al., 2024; Nahian, 2023; Islam 2020, MoEFCC 2022; MoHFW 2018, 2023, n.d.), Singapore:(Aik et al., 2023; Kwa, 2023; MSE, n.d.(a), n.d.(b), n.d. (c); NEA, n.d.(a), n.d.(b); National Climate Change Secretariat [NCCS], n.d.(a), n.d.(b)), Indonesia: (Alliance for Transformative Action on Climate and Health [ATACH], n.d. (c); Daulay et al., 2023; Inayah et al., 2025; Sari et al., 2020; Wu, 2024; MoH, n.d.; Institute for Essential Services Reform [IESR], 2022, Ministry of National Development Planning [MNDP] 2019, Ministry of Natural Resources and Environmental Sustainability [MNRES], n.d., Orissa International, 2022), Malaysia: (Jaafar et al., 2021; MoH n.d.; NAP Global Network, 2025; Ministry of Natural Resources and Environmental Sustainability [MoNRES] n.d.; Bernama, 2024; Chandak 2024), Vietnam: ATACH, n.d., (b); Tran et al., 2023; UNDP, n.d.; World Health Organization Vietnam, n.d.; International Livestock Research Institute [ILRI], n.d., Ministry of Natural Resources and Environment [MNRE], 2024; Cong, 2023a, 2023b; Thuvienphapluat.vn, 2025a, 2025b; Trường, 2025), India: (ClimaHealth, 2023; Jamwal, 2025; MoHFW 2018, 2025; Press Information Bureau [PIB], n.d.). For multiple countries: ATACH n.d. (a).

5. Cross-Country Analysis of Climate–Health Policy

Across the 10 countries studied, climate–health adaptation has gained policy recognition, but governance structures, institutional arrangements, and coordination mechanisms to implement sustained, equitable measures remain relatively uneven. While institutional capacity and intersectoral coordination remain the most consistent governance bottlenecks across South and Southeast Asia, financing constraints, weak climate–health data systems, and limited workforce readiness are equally critical in many contexts. The relative weight of these constraints varies by country, but in combination, they form a mutually reinforcing set of barriers that hinder sustained climate–health action. We classify the key findings of our analysis, focusing on potential learning opportunities and shared areas of need under the five health systems domains that make up our analytical framework below. Table 3 summarises this analysis.

5.1 Governance and Planning

Role of Non-Health Stakeholders in Agenda-Setting Around Climate and Health

All of our focus countries have identified health as a significant priority within their overarching strategies to address the impact of climate change, and the development of policies is influenced by requirements of the UNFCCC process that now requires countries to submit NAPs. The agencies involved in drafting the UNFCCC submissions are typically from outside the health sector, who thus play a key role in the framing of health priorities also. Ministries of Environment are typically the main convenors of taskforces or committees that develop the national submissions to UNFCCC processes or domestic climate change strategies, with health as one among multiple sectors (e.g., Ministry of Environment, Forest and Climate Change [MoEFCC] in India, Ministry of Natural Resources and Environment [MONRE] in Vietnam, Office of Natural Resources and Environmental Policy and Planning [ONEP] in Thailand, Climate Change Secretariat in Sri Lanka etc.). Multilateral development partners such as GIZ, UNDP and others are also often involved in the process of developing national climate change policies and thus likely influence how health is integrated as part of the overall agenda on climate change within these countries. Private sector and civil society efforts are either misunderstood or accounted for in government policies beyond the nominal recognition that they have critical roles to play.

Limited Integration of Climate in Health Policy

Countries differ in the level of detail and their degree of integration of climate-related action with ongoing health policy. Nepal has been an early leader in the region in identifying climate and health as a priority with detailed plans for mitigation and adaptation (HNAP Nepal, 2017–2021). Sri Lanka does not have a separate climate and health policy, integrating its health-related actions within its overall climate change response plan. Nevertheless, the country has specifically identified its funding needs for health adaptation (NAP Sri Lanka 2016–2025). Singapore has a much more distributed approach led by local government action, relying on its well-developed health service delivery system to manage and respond to the additional burden emerging from climate change. Broadly, countries have moved further towards embedding health within their climate policies as opposed to the other way around, highlighting a need for more forceful mobilisation of the health system and professionals on climate-induced health impacts. This also means that climate considerations are rarely central within national or subnational public health policies or programmes and often lack dedicated resource allocations. Policymakers repeatedly raised the need for technical support towards building climate literacy and capacity strengthening for planners within ministries of health to develop well-integrated policies. Implementation efforts in turn are typically through projects that are not well integrated or institutionalised within the health policy ecosystem, raising questions about their sustainability and effectiveness, as we see in the next section.

Poor Institutionalised Capacity for Multisectoral Coordination

Current policy actions are relatively fragmented with different sets of actors involved in policy development and implementation around the different health impacts of climate change. Health departments and institutions do not always have the necessary oversight or ownership over the various pilot programmes, raising potential concerns about effectiveness and accountability over the long term. Even in countries like the Philippines, which have long adopted interagency bodies to consider cross-sectoral issues (for e.g., "Cabinet Cluster on Climate Change,

Adaptation, Mitigation and Disaster Risk Reduction"), coordination on the ground remains highly variable and subject to local constraints of capacity and finances (World Bank, 2013). The Department of Health in the Philippines is now exerting its leadership by setting up a new Office of Health and Climate Change directly reporting to the Secretary of Health. Nepal is another possible exemplar in this area, adopting an integrated approach driven by the MoHP. Nepal's multisectoral coordination committee under MoHP meets regularly to ensure close coordination of activities under its NAP, applying an intersectoral lens. These structures need to be further strengthened through legal mandates that include budgetary authority and enforcement capacity.

Strengthening Subnational Coordination in Decentralised Settings

In federal or decentralised systems such as India, Indonesia, Nepal, and the Philippines, subnational governments bear responsibility for implementing climate and health policies. However, coordination between central and subnational agencies is often uneven, and local governments frequently lack technical guidance, adequate funding, and access to data systems to meaningfully integrate climate and health policies. For instance, in the Philippines, while LGUs are legally mandated to prepare Local Climate Change Action Plans (LCCAPs) under the Climate Change Act of 2009, health considerations are often underemphasised, and cross-sectoral coordination tends to focus more on disaster preparedness than on long-term resilience planning (LGA, 2017). To address these gaps, the Philippine government has initiated programmes like the Communities for Resilience (CORE) Capacity Building Training Program, which aims to enhance the capabilities of LGUs in integrating climate change considerations across sectors (CCC, n.d.). India similarly has leveraged the presence of state disaster management authorities and their experience in working cross sectorally to set up coordination committees that include nodal persons from across departments to support intersectoral implementation at the provincial (state) and local levels. While this has been effective under crisis conditions, such as during a heatwave or floods, long-term coordination has been relatively poor. This is in large part because of the lack of understanding and thus prioritisation of integrated climate preparedness by policymakers at subnational levels. Singapore, by contrast, employs a "whole-of-government" strategy, with the NCCS providing central leadership to integrate climate and health priorities across various agencies. There are several joint efforts as part of NCCS on urban heat risk assessment, vector-borne disease preparedness and sustainable urban infrastructure, etc. However, this approach may be challenging to replicate in contexts with lower capacity. Mechanisms of capacity building and feedback that extend not just top-down but also bottom-up are both necessary to encourage innovations and accelerate the development of practical solutions suitable for Asian contexts.

5.2 Financing Climate and Health

Lack of Dedicated Adaptation Financing

Even though health is a key priority in almost all NAPs, few countries have substantially augmented their health budgets to provide for climate change adaptation. Existing health sector budgets are currently falling short in many countries, even to meet traditional health needs and priorities with many governments spending less than 5 per cent of their GDP as recommended by WHO. Addressing climate change–induced health challenges therefore presents a considerable additional fiscal strain, especially for the low and middle-income countries.

International finance for health-related climate adaptation is relatively small compared to mitigation funding, and the overall availability of climate finance is already constrained by the poor translation of commitments by donors in high-income countries. Only about 2 per cent of climate adaptation finance, and roughly 0.5 per cent of total multilateral climate funding, is directed toward initiatives that explicitly seek to protect or enhance human health (WHO 2021).

Early efforts are being undertaken by multilateral development partners and philanthropies, including through the Development Bank Working Group for Climate–Health Finance (World Bank, 2024). WHO and UNDP are currently in the process of developing a GCF project proposal titled: "Climate and Health Co-Investment Facility Coordination Programme," with participation from five countries in the region—Indonesia, Sri Lanka, Thailand, Bhutan, and Nepal. The Programme will support the design, operation, and coordination of a multi-partner co-investment facility to promote climate-resilient, low-carbon investments by leveraging public and private capital.

Donor Dependency

Health systems in many of these countries are resource-constrained and have several multifaceted competing priorities. Countries at present are largely relying on international funding and donor support, but the majority of international financing is available for mitigation efforts, within which health remains a low priority (ASEAN Socio-Cultural Community [ASCC], 2024; Martinus & Jiahui, 2022). There is an over-reliance on projects supported by development partners that are typically top-down and not necessarily reflective of the felt needs of populations. Appendix 1 lists an illustrative snapshot of projects across the region in priority areas determined by the development partners supporting them. Such projects often suffer from a lack of local ownership that prevents sustainable health system integration and scaling up. This is especially true in lower-income countries like Bangladesh, Nepal, Sri Lanka or even parts of Indonesia and India. Adequate financing is often the binding constraint for the implementation of health and climate change policies in these geographies.

5.3 Health and Climate Information Systems

Siloed Data Systems

Without integrated climate–health intelligence (linking meteorology, environmental monitoring, and health surveillance), governments cannot carry out effective risk forecasting or prioritisation. While Ministries of Health often maintain disease surveillance systems (e.g., for dengue, malaria, or respiratory illness), these are not yet linked to climate data from meteorological departments or environment ministries. Departments of health, however, do not yet have a mandate or mechanism to routinely obtain data from other departments or to expand data collection across a variety of cross-sectoral parameters. This prevents early warning systems from functioning effectively and limits the ability of governments to conduct predictive risk assessments or target interventions.

Pilot Projects Without Institutional Capacity Building

As many of these countries are already grappling with the increasing burden of vector-borne diseases, adaptation plans are focusing on augmenting existing dengue and malaria surveillance. For instance, Singapore is using predictive models based on existing data to forecast dengue three months in advance (Shi et al., 2015). Countries are also emphasising a One Health approach for integrated surveillance across human, animal, and environmental sectors, such as the *Pestforecast* project in Vietnam and Laos. Countries like Bangladesh, the Philippines, Indonesia, and Sri Lanka are also seeking to leverage digital innovations to improve disaster risk surveillance and early warning systems (Aranda et al., 2022). Challenges remain, therefore, in fully embedding digital tools into national health systems and ensuring their sustainability beyond pilot phases. Even where institutions with the mandate for coordination like the NCDC in India exist, the data infrastructure to support integrated collection and analysis from the bottom up is typically missing.

5.4 Service Delivery Mechanisms and Infrastructure

Overburdened Health Systems

Implementation of climate change health adaptation measures is intrinsically linked to improving traditional healthcare delivery to effectively manage and mitigate the health impacts of a changing climate. More often, traditional healthcare systems in most of these countries, specifically public health infrastructures, are already overburdened and under-resourced to handle the broad range of climate-related emerging health threats such as heat stress, vector-borne diseases, and extreme weather events along with their traditional health concerns (Fernandes, 2022). This gets further complicated as South Asia and Southeast Asia are regions that are also experiencing high levels of climate-induced migration, especially from low-lying coastal areas or regions prone to extreme weather events (Bharadwaj & Huq, 2022). This adds additional burden and pressure on existing urban healthcare delivery systems, often resulting in overcrowding, disruption of continuity of care, and competition for limited resources. Community-based primary care models that are potentially critical for climate resilience in such contexts have so far not been adequately emphasised in policy action. Local civil society and private sector actors likely also have key roles that are underexplored.

Infrastructure Focus

Resilience efforts are meant to focus on improving health systems performance and competence to absorb and recover from the impacts of climate change. In practice, however, the emphasis is often

on disaster resilience of physical infrastructure—for instance, climate-adapted designs and layouts which are designed to handle disruptions like power outages, water shortages, or increased patient demand during emergencies. In Vietnam, tele-health solutions under the "Doctor for Everyone" initiative is being utilised in highly vulnerable coastal areas including the low-lying Mekong Delta (UNDP, n.d.) to ensure continued care for vulnerable populations even in times of adversities like natural calamities and extreme weather events (World and Vietnam Report, 2023). India's telemedicine solution, e-Sanjeevani, is also being shared with the governments of Fiji and the Philippines (Sood & Verma, 2024) to facilitate disaster resilience. Despite this, healthcare facilities across the region are lacking in climate-resilient infrastructure—such as flood-proof construction, heat mitigation technologies, or backup energy systems—making them highly vulnerable during climate events. Moreover, the health supply chain, especially for temperature-sensitive items like vaccines or essential medicines, is highly susceptible to power outages and transport breakdowns. Efforts such as solarisation and disaster-resilient infrastructure rebuilding are underway in most countries but are not necessarily keeping pace with the urgency of the demand.

Emissions Reduction

Reflecting on the focus on mitigation among international development partners, many countries are moving towards reducing GHG emissions from the health sector—switching to renewable energy sources like relying on solar energy for powering health facilities, efficient cooling, increasing usage of LEDs, etc. For example, 746 hospitals and 3,099 subdistrict hospitals are part of Thailand's CLEAN and GREEN hospitals programme which aims to make operations of healthcare facilities more sustainable by reducing their energy usage, chemical consumption, and waste production (HCWH, 2023). This programme is spearheaded by Thailand's Ministry of Health and forms part of the Global Green and Healthy Hospitals Network (GGHHN) (HCWH, n.d.(a)). Development partners are also beginning to support projects related to passive cooling measures, improving waste management systems, and routine monitoring of emissions from health facilities. While these projects are still in early stages, they offer tremendous potential to be scaled up regionally. A flip side to the proliferation of these technical projects is that community-based, primary health care that is led by frontline workers, and is low-emissions, has the risk of being overlooked.

5.5 Climate-Resilient Health Workforce

Fragmented Training

Health workforce capacity building initiatives are being undertaken by multiple countries, reflecting its importance as a key priority agenda (Table 2). To prepare future healthcare professionals for dealing with increasing health risks posed by climate change, there were early efforts to integrate climate change in the medical curriculum in the Philippines (CCC & Republic of Philippines, 2019). Most in-service trainings have focused primarily on specific technical areas such as vulnerability assessments, disease surveillance, and early warning systems. While important, this narrow focus often overlooks the broader competencies required across all levels of the health workforce to respond effectively to climate-related health risks. Health professionals need to adopt interdisciplinary roles and also need to serve as advocates and educators—raising awareness, promoting community participation to ensure climate resilience. In addition, strong operational skills will be critical, especially for managing healthcare delivery and addressing challenges such as supply chain disruptions during climate-related crises (Baca et al., 2024). There is thus a critical need to move beyond siloed, project-based trainings and establish a foundational set of climate–health competencies for all health workers, regardless of their specialty or practice settings (Jagals & Ebi, 2021; Sorensen et al., 2023b).[1]

Absence of Systematic and Contextual Monitoring and Assessment

Despite the growing number of initiatives aimed at building climate-resilient health systems (Appendix 1), a significant gap remains in assessing their efficacy towards enhancing the health workforce capacity and awareness. Since climate–health knowledge, practices, and tools are still evolving, there is a need for a systematic framework of continuous training and assessment. This is different from traditional health

[1] There are several frameworks like Global Consortium on Climate and Health Education, Centre for Sustainable Healthcare Networks UK, Planetary Health Education Framework developed by Planetary Health Alliance, etc. which focus on integrating climate education in medical curriculum.

workforce capacity building and cannot be undertaken by external partners since the capacity building will have to be tailored to local contexts, subnationally. While climate–health policies do often include resources dedicated to capacity building such as under the NAPCCHH in India, the delivery of training is devolved to external experts or consultants. Often these trainings are conducted in settings that are far away from the practice settings of the workforce cadres and do not combine experiential learning with simulations, field exercises, and peer exchange that is necessary for interdisciplinary climate–health capacity building.

6. Opportunities for Regional Action

Across South and Southeast Asia, countries face common structural and operational gaps that could be addressed more effectively through regional cooperation. While local contexts vary, several priority needs emerge from our analysis and expert consultations. These shared needs underscore that no single country can independently address the full spectrum of climate–health challenges it faces. Regional cooperation provides the platform to avoid duplication, share costs, standardise approaches, and strengthen collective resilience (Khan et al., 2023; Rao et al., 2025).

Table 3: Analysis of Climate–Health Governance and Implementation Across South and Southeast Asia

Domain	Shared Gaps and Challenges
Governance and Planning	• Limited role of health actors in climate agenda–setting; framing led by environment ministries or development partners. • Weak integration of climate into national health policies; climate rarely central to public health planning. • Poorly institutionalised multisectoral coordination; lack of mandates, budgets, or accountability. • Weak subnational coordination; local governments lack guidance, funds, and data access.
Financing	• Absence of dedicated budget lines for climate–health adaptation. Over-reliance on donor-driven, short-term project funding with weak local ownership. • Health adaptation finance remains marginal in global climate finance flows.
Information System	• Siloed data systems between meteorology, environment, and health sectors; limited data-sharing mandates. • Pilot projects not institutionalised or scaled; limited domestic capacity for data analytics and integration.
Service Delivery and Infrastructure	• Health systems already overburdened and under-resourced; climate shocks exacerbate strain. • Focus on hard infrastructure rather than integrated service resilience. • Low-emission, community-based primary healthcare models under-prioritised.
Health Workforce	• Training programmes fragmented and project-based; limited interdisciplinary learning. • Lack of systematic monitoring or locally tailored capacity-building frameworks. • Over-reliance on external consultants for training delivery.

Source: Identified by authors.

6.1 Institutional Strengthening and Policy Coherence

Ministries of health, environment, and disaster management often operate in parallel with limited formal mechanisms for coordination. Even when climate–health linkages are acknowledged in policy documents, they rarely translate into binding inter-ministerial mandates, resulting in fragmented action. Regional cooperation offers opportunities for harmonising governance models, establishing common coordination protocols, and enabling peer learning among policymakers confronting similar institutional challenges.

Additionally, heightening the priority of climate–health issues in existing multilateral forums like ASEAN, SAARC, and Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) ministerial meetings as well as UNFCCC processes through regional health cooperation can support domestic prioritisation and enforcement of climate–health commitments.

6.2 Regional Pooled Adaptation Financing Mechanisms

National budgets rarely allocate sufficient, dedicated funds to climate–health programmes. Reliance on short-term donor grants undermines sustainability, while the absence of pooled financing mechanisms limit economies of scale. A regional financing facility could draw on contributions from member states, development banks, climate bonds, and private sector financing to support cross-border initiatives such as regional disease surveillance systems or joint procurement of climate-resilient medical supplies.

Regional convenings and coordination can also present opportunities to advocate for earmarked funds for climate–health programmes within existing disaster and climate funds, internationally and domestically. Co-investment mechanisms at regional or bilateral levels can also be used to support cross-border pilot projects and scalable innovations.

6.3 Data Interoperability and Regional Climate–Health Observatory

There is greater recognition of the need to improve public health surveillance and develop regional cooperation for health information systems in the aftermath of COVID-19 as demonstrated by efforts like the ASEAN BioDiaspora (ASCC et al., 2022). Despite this recognition, progress towards interoperable climate–health data systems has remained poor with siloed meteorological, environmental, and health datasets. The absence of common data standards hinders early warning, risk modelling, and evidence-based policy. Early efforts are already underway but offer considerable scope for cross-country learning and exchange to accelerate the process. Regional interoperability of data systems could amplify existing national systems without requiring major new infrastructure. Regional cooperation can set shared standards for data interoperability, facilitate secure cross-border data flows, and integrate climate variables into disease surveillance—critical in a region where climate-driven outbreaks can spread rapidly across borders. Countries in the region can collaborate based on their specific climate issues—for instance, Bangladesh, India, Nepal, Thailand, Vietnam, Indonesia, and the Philippines could develop regional flood forecasting and warning systems on waterborne diseases linked to floods; India, Bangladesh, Sri Lanka, Thailand, Vietnam, and Indonesia face severe heatwaves and could potentially develop regional heatwave action plans and work on developing regional initiatives to reduce heatwave mortality and improve community awareness.

6.4 Workforce Development and Capacity Building

The health workforce often lacks training in climate-sensitive disease management, environmental health, and risk communication. Curricula reform and continuous professional development programmes remain underdeveloped. Regional collaboration could yield a standardised curriculum for climate–health competencies, coordinated training hubs, and exchange programmes that strengthen capacity across member states.

6.5 Joint Research and Innovation

Investment in research on climate-sensitive health outcomes is uneven, with many countries lacking the resources to conduct long-term studies. Multi-country collaborative research could generate robust evidence on adaptation interventions, regional disease dynamics, and the economic impacts of climate–health risks. By pooling expertise and resources, regional partnerships can produce policy-relevant findings that are applicable across multiple jurisdictions. These joint studies can produce evidence tailored to the realities of Asian health systems, ranging

from estimating economic costs, identifying cost-effective adaptation interventions, and assessments of innovative governance arrangements.

7. Conclusions and Future Directions

Across South and Southeast Asia, formal recognition of climate–health risks in national plans are now widespread—an important normative shift. Our review of recent developments based on published literature, government websites, and policy documents for 10 South and Southeast Asian countries has helped identify the nature of challenges for public health and health systems induced by climate change in this region. We find that heat, air pollution, vector-borne diseases, and disasters form the key common climate-related concerns across countries. Strategies to minimise air pollution usually precede the mainstreaming of climate-related issues and typically fall under the ambit of environmental policies.

The next phase of policy progress must focus on predictable financing, integration of climate data into health surveillance, resilient primary health care, and governance arrangements that bridge health, environment, and development sectors. Our review identified early innovations and pilot projects that illustrate potential solutions in this vast and urgent emerging area of need. Countries with strong data systems and governance (Singapore, parts of India, and Vietnam) show how evidence can drive targeted interventions; countries with strong disaster experience (Bangladesh and the Philippines) demonstrate how early warning and community preparedness save lives. We find, however, that currently many of these initiatives are led by stakeholders outside the ministries of health and not well integrated into ongoing health system functions, leaving core systemic and institutional challenges.

Lessons from regional disaster management cooperation, pandemic preparedness, and environmental governance show that collective action can reduce costs, accelerate innovation, and amplify the effectiveness of national measures (Gilfillan, 2018; Rahman-Shepherd et al., 2025; United Nations Office for Disaster Risk Reduction [UNDRR], 2023). Regional cooperation thus offers an opportunity for countries to share knowledge and best practices, pool financial and technical resources, harmonise standards, and coordinate responses to transboundary crises, building collective resilience.

The priority for the South and Southeast Asian regions now is to develop the necessary institutional and governance arrangements for addressing health and climate change issues sustainably and across all levels of the health system, enable them to designate resources, develop capacity, build data systems, and institutionalise accountability at subnational levels to implement the policies and roadmaps that governments across the region are developing.

These policy priorities thus translate into the following potential workstreams for regional platforms to pursue joint inquiry and future action:

- *Intersectoral Governance Innovations*

Regional platforms can catalyse the development of a regional working group on climate and health that includes representatives from health, environment, and finance ministries to promote intersectoral coherence and cross-country sharing of policy experiences. The nascent experiences of different countries that are trying to institutionalise cross-sectoral coordination can be systematically documented and shared as part of cross-country exchanges. The key governance parameters for comparative analysis include the presence of legal mandates, the institutional architecture, degree and effectiveness of intersectoral coordination, associated subnational capacity (especially for decentralised health systems), financing/budgetary mechanisms, and monitoring or accountability. These can then be used to inform regional policy dialogues to develop a template or framework for how countries in the region can mandate intersectoral coordination with legal and budgetary authority. The policy dialogue can be geared towards answering the following key question: What are the systemic and administrative innovations necessary to enable intersectoral convening and coordination across the various governmental and non-governmental stakeholders to ensure sustainability and accountability for effectively addressing climate and health issues?

Table 4: Building Regional Pathways for Integrated Climate–Health Action: Areas for Collective Regional Action and Inquiry on Climate and Health in Asia

Workstream	Objective/Rationale	Key Actions/Research Questions	Expected Outputs/Regional Value
1. Intersectoral Governance Innovations	Strengthen coordination between health, environment, and finance sectors to institutionalise climate–health governance.	• Establish a regional working group on climate and health. • Document cross-country experiences and governance models (legal mandates, coordination mechanisms, subnational capacity, financing). • Key question: *What systemic and administrative innovations enable sustained intersectoral coordination and accountability?*	• Framework/template for intersectoral coordination. • Evidence base for regional policy dialogues. • Enhanced institutional coherence.
2. Sustainable Climate–Health Financing	Ensure predictable, equitable, and sustainable funding for climate–health actions.	• Map domestic and international funding sources. • Estimate regional resource needs for adaptation. • Key question: *What additional resources and capacities are required, and what are the equity implications of current financing mechanisms?*	• Regional resource needs assessment. • Guidance for integrating health into climate finance negotiations. • Advocacy tools for a unified Asian position.
3. Integrated Climate–Health Information Systems	Strengthen climate-informed surveillance and planning across borders.	• Support development of interoperable early warning and data systems. • Promote regional data-sharing standards. • Key question: *How should health information systems be restructured to integrate climate variables for decision-making?*	• Regional interoperability framework. • Improved early warning and forecasting. • Policy insights for system design and institutionalisation.
4. Regional Capacity-Building for Health Workers and Policymakers	Build climate competence across all levels of the health system.	• Develop regional training modules and standards. • Support regional centres of excellence. • Focus on systematising competencies across levels—from policymakers to community health workers. • Key question: *How can the region strengthen capacity among policymakers, planners, and providers to respond to climate–health challenges?*	• Shared training resources and curricula. • Standardised competencies. • Enhanced regional self-sufficiency in workforce development.
5. Community Accountability and Social Participation Mechanisms	Strengthen bottom-up engagement and civil society participation in climate–health governance.	• Engage non-governmental organisations and civil society in policy design and monitoring. • Document models of participatory policymaking. • Key question: *How can social participation improve accountability and inclusivity in climate–health planning?*	• Regional frameworks for participatory governance. • Stronger civil society coalitions. • Amplified Asian voice in global negotiations.

Source: Developed by authors.

- *Sustainable Climate–Health Financing*

A key goal is for countries to secure predictable and sustainable financing that is aligned with equity considerations. There are already early indications that current sources of financial support are either inadequate or unsustainable or both. Countries thus need to identify additional sources of funding, but whether these sources are international or domestic, the first step would be for countries to quantify their resource needs. A regional estimate of the resources necessary for meeting countries' adaptation goals can provide a negotiating lever to a putative Asian bloc at international climate forums. Joint research can thus be undertaken to answer the following key questions: What additional resources and associated capacities are needed to support this process, while ensuring equity? Relatedly, what are the sources and equity implications of the financing mechanisms that are currently available for long-term management of climate and health issues?

- *Integrated Climate–Health Information Systems*

We find in our analysis that countries are already moving towards embedding climate variables into health surveillance systems. Currently, this effort is geared towards the development and institutionalising of early warning systems for climate-related events such as heatwaves and epidemic outbreaks, which is a key common priority. As outlined above, regional forums can be supported to lead the development of interoperable systems and regional standards to enable cross-border data sharing.

Over the long term though, climate–health data systems will also be necessary to support planning and policymaking processes across climate impacts. Regional collaboration can help stimulate policy thinking around how health information systems ought to be (re)designed and institutionalised across countries in the region to ensure that they can meaningfully support policy and planning.

- *Regional Capacity Building of Health Workers, Planners, and Policymakers*

Building a climate-competent workforce is an immediate and urgent need but given the current workforce shortages, it is clear that countries will fall short on building these capacities on their own. The development of regional resources for training and capacity development of human resources at all levels of the health system—from policymakers, and programme implementers to healthcare providers and community-based cadres—to understand and adapt responsively to the challenges of climate change would thus constitute a key public good. Regional institutions can facilitate the development of these resources as well as support centres of excellence to standardise climate–health competencies and training curricula over the long term.

- *Community Accountability and Social Participation Mechanisms*

Our analysis of policy documents found civil society and community representatives to be under-represented in the current system of largely top-down policymaking on health and climate change. But advocacy and coalition building by non-governmental actors have been a key part of global climate–health negotiations since the Paris Agreement. Civil society and non-governmental actors can also support the amplification of Asian perspectives in multilateral negotiations. Further, our mapping of various country initiatives also points to non-governmental organisations as key implementing partners on important priority areas like solarisation of health facilities and trainings for health professionals. Social participation is known to be a key strategy necessary to ensure accountability and sustainable adoption of policies with many countries in the region having demonstrated success in participatory policymaking for other health priorities. Cross-country dialogue and convening can help countries translate those lessons for meaningful social participation in health and climate change policy and planning at national, regional, and global levels.

Collaborative convening and close engagement with partners who understand the specific contexts and challenges associated with each of these areas will be essential to validate and further refine areas of joint research and practice. A regionally grounded research agenda on climate and health, based on shared public health priorities and institutional realities, will be key to advancing effective, equitable, and sustainable responses.

References

ADB. (n.d.(a)). Regional: Supporting Climate-Resilient and Low-Carbon Health Systems through the Climate and Health Initiative. https://www.adb.org/projects/58085-001/main

ADB. (n.d.(b)). Thailand: Climate-smart Health Services System Enhancement Project. https://www.adb.org/projects/56095-001/main

ADB. (n.d.(c)). Regional: Sustaining Climate and Disaster Risk Resilient and Low Carbon Development in South Asia. https://www.adb.org/projects/46470-003/main

ADB (2009). *The Economics of Climate Change in Southeast Asia: A Regional Review*. https://www.adb.org/sites/default/files/publication/29657/economics-climate-change-se-asia.pdf

ADB. (2011). *Accounting for Health Impacts of Climate Change*. https://www.adb.org/sites/default/files/publication/28976/heath-impacts-climate-change.pdf

ADB. (2013). The Economics of Climate Change in South Asia: Adaptation and Impact Assessment. In *CASA Information Update* [Report]. https://www.adb.org/sites/default/files/publication/39302/casa-update-3-economics-climate-change_2.pdf

Ahmad, T. (2021, December 29). *Importance of establishing climate-smart health surveillance system in Bangladesh*. https://www.banglanews24.com/english/open-forum/news/bd/92874.details

Aik, J., Ang, L., Gunther, S. H., Tang, C., Lee, J. K., & Seow, W. J. (2023). Climate change and population health in Singapore: A systematic review. *The Lancet Regional Health - Western Pacific*, *40*, 100947. https://doi.org/10.1016/j.lanwpc.2023.100947

Anbumozhi, V., Hachiyama, K., Setyawati, C. E. N., & Manickam, N. (2024). *Climate Change Vulnerabilities and Socio-Economic Impacts in Southeast Asia: A Framework for Assessing Vulnerability and Education for Autonomous Adaptation.* Climate Change Vulnerabilities, Social Impacts, and Education for Autonomous Adaptation, 1.

Anita, W. M., Uttajug, A., Seposo, X. T., Sudo, K., Nakata, M., Takemura, T., Takano, H., Fujiwara, T., & Ueda, K. (2024). Interplay of Climate Change and Air Pollution: Projection of the under-5 mortality attributable to ambient particulate matter (PM 2.5) in South Asia. *Environmental Research*, *248*, 118292. https://doi.org/10.1016/j.envres.2024.118292

Aranda, C., Humeau, E., UrbanEmerge, Beavour, A., Fatima, F., Central Insights Unit, Tapnio, C. J., Torres, J. M. V., Zabala, K., Uy, N., Miel-Soliguin, J., Esguerra, S., Tricarico, D., Parsons, O., & Hamilton, Z. (2022). Early Warning Systems in the Philippines: Building resilience through mobile and digital technologies. https://www.gsma.com/solutions-and-impact/connectivity-for-good/mobile-for-development/wp-content/uploads/2022/06/PhilippinesEWS_R_Web.pdf

Arudpragasam (2025). Women in Sri Lanka's North bear the heat. (n.d.). Progressive International. https://progressive.international/wire/2025-05-06-women-in-sri-lankas-north-bear-the-heat/en

ASCC. (2022). Strengthening ASEAN Public Health Emergency Measures. Policy Brief #1. https://asean.org/wp-content/uploads/2023/03/8.-20232001_ASCC_Policy-Brief_Issue-1_AMD-20-Jan.pdf

ASCC. (2024). Integrating Climate Lens into The Health System: Regional Mitigation and Adaptation. ASEAN Policy Brief. In *ASCC Research and Development Platform*. https://asean.org/wp-content/uploads/2024/02/ASCC-RD_Policy-Brief_Health2-2024.pdf

ATACH (n.d. (a)) Developing a climate-based tool to identify dengue and leptospirosis risks in Southeast Asia. https://www.atachcommunity.com/our-impact/case-studies/developing-a-climate-based-tool-to-identify-dengue-and-leptospirosis-risks-in-southeast-asia/

ATACH (n.d.(b)) Local implementation of the climate-resilient and environmentally sustainable health care facilities (CRESHCF) Framework in Viet Nam. (n.d.). https://www.atachcommunity.com/our-impact/case-studies/local-implementation-of-the-climate-resilient-and-environmentally-sustainable-health-care-facilities-creshcf-framework-in-viet-nam/

ATACH. (n.d. (c)). Local leadership drives village health adaptation to climate change in Indonesia. https://www.atachcommunity.com/our-impact/case-studies/local-leadership-drives-village-health-adaptation-to-climate-change-in-indonesia/

Baca, E., Opara, U., Sosa, A. (2024). Empowering the healthcare workforce for a climate-resilient future. Deloitte and Project Hope. Available at https://www.projecthope.org/wp-content/uploads/2024/06/empowering-the-health-care-workforce-for-a-climate-resilient-future.pdf

India State-Level Disease Burden Initiative Air Pollution Collaborators. (2019). The Impact of Air Pollution on Deaths, Disease Burden, and Life Expectancy Across the States of India: The Global burden of disease study 2017. *The Lancet Planetary Health*, *3*(1), e26–e39.

Banerjee, P. (2023). India recorded most malaria cases in South & Southeast Asia in 2022, climate change major driver globally: WHO. Down to Earth. https://www.downtoearth.org.in/health/india-recorded-most-malaria-cases-in-south-southeast-asia-in-2022-climate-change-major-driver-globally-who-93088

Banzon, E., Arora, D., Riley, B., Coghlan, B., Manyari, D. P., Ghosh, U., Mauri, C., & Hurtado Epstein, A. (2025). Climate-Resilient Health Development. In ADB Sustainable Development Working Paper Series. https://www.adb.org/sites/default/files/publication/1065301/sdwp-108-climate-resilient-health-development.pdf

BBC News. (2022, October 26). India heatwave: High temperatures killing more Indians now, Lancet study finds. https://www.bbc.com/news/world-asia-india-63384167

Bernama. (2024). Government Plans Initiatives to Encourage Installation of Solar Systems in Public Hospitals. https://www.bernama.com/en/news.php?id=2292413

Bhandari, D., Bi, P., Sherchand, J. B., Von Ehrenstein, O. S., Lokmic-Tomkins, Z., Dhimal, M., & Hanson-Easey, S. (2024). Climate change and infectious disease surveillance in Nepal: A qualitative study exploring social, cultural, political and institutional factors influencing disease surveillance. *Journal of Public Health, 46*(1), 30–40. https://doi.org/10.1093/pubmed/fdad211

Bharadwaj, R. & Huq, S. (2022). *Climate-induced migration and health issues: A toolkit for policymakers*. IIED, London. https://www.iied.org/21256iied

CCC and DENR Philippines (2023). National Adaptation Plan of the Philippines (2023–2050). https://unfccc.int/sites/default/files/resource/NAP_Philippines_2024.pdf

CCC and Republic of Philippines. (2019). The Climate Change Commission and the Philippine College of Physicians team up to protect health from climate change. https://climate.gov.ph/news/105

CCS Sri Lanka. (2016). National Adaptation Plan for Climate Change Impacts in Sri Lanka (2016–2025). https://unfccc.int/sites/default/files/resource/NAP-Sri-Lanka-2016.pdf

Chandak, P. (2023). Thailand's Public Health Ministry Goes Green with Solar Power Adoption. SolarQuarter. https://solarquarter.com/2023/09/04/thailands-public-health-ministry-goes-green-with-solar-power-adoption/

Chandak, P. (2024, May 23). *Philippine hospitals embrace renewable energy revolution for sustainability*. SolarQuarter. https://solarquarter.com/2024/05/23/philippine-hospitals-embrace-renewable-energy-revolution-for-sustainability/

Chowdhury, Md. A., Hasan, Md. K., & Islam, S. L. U. (2022). Climate change adaptation in Bangladesh: Current practices, challenges and the way forward. *The Journal of Climate Change and Health, 6*, 100108. https://doi.org/10.1016/j.joclim.2021.100108

ClimaHealth. (2023, November 30). "Energy for Health" initiative for renewable energy at 25,000 primary health facilities in India - ClimaHealth. https://climahealth.info/resource-library/energy-for-health-initiative-for-renewable-energy-at-25000-primary-health-facilities-in-india/

Climate Change Commission. (n.d.). Programs and Projects. Government of Philippines. https://climate.gov.ph/our-programs/communities-for-resilience

Climate Impact Lab (2019). Climate Change and Heat-Induced Mortality in India. https://impactlab.org/wp-content/uploads/2019/10/IndiaMortality_webv2.pdf

Công. (2023a, June 15). Viet Nam issues Climate Change Adaptation Plan. https://en.mae.gov.vn:443/Pages/chi-tiet-tin-Eng.aspx?ItemID=8506

Công. (2023b, June 15). Viet Nam presented its updated National Adaptation Plan (NAP) for the period 2021-2030, with a vision to 2050. https://en.mae.gov.vn:443/Pages/chi-tiet-tin-Eng.aspx?ItemID=8486&utm

Cotejar. (2025). *A toolkit for climate-resilient health in the Philippines*. https://pia.gov.ph/a-toolkit-for-climate-resilient-health-in-ph/

Dailymirror. (2025). Climate sustainability in upholding lives of mothers and newborns in Sri Lanka. https://www.dailymirror.lk/print/breaking-news/Climate-sustainability-in-upholding-lives-of-mothers-and-newborns-in-Sri-Lanka/108-313382

Daulay, N., Xu, N., Hakim, A. (2023, December 14). *Ensuring Climate is Well Considered When Planning, Developing, and Reforming PHC. CISDI*. https://cisdi.org/artikel/ensuring-climate-is-well-considered-when-planning-developing-reforming-phc

Department of Health Philippines. (2020). *Philippine health facility development plan 2020–2040*. https://www.atachcommunity.com/fileadmin/uploads/atach/Documents/Country_documents/Philippines_LCSHCF_Roadmap_2020-2040.pdf

Department of Health Thailand. (n.d.). HNAP Phase-1 (2021-2030). https://www.thai-german-cooperation.info/wp-content/uploads/2021/06/09-GIZ-FACTSHEET-9HNAPeng_final.pdf

Dhimal, M., Pradhan, B., Dahal, S., Sah, A., Gautam, I., Dhimal, M. L., Lal, B. K., & Jha, A. K. (n.d.). *Review of existing disease surveillance system in Nepal from climate change perspective*. Nepal Health Research Council

and WHO Nepal. https://nhrc.gov.np/wp-content/uploads/2021/02/Final-review-climate-change-and-survailalcne-in-Nepal.pdf

DHIS2 community. (2025, April 24). Climate–Health Integration in Sri Lanka Using DHIS. https://community.dhis2.org/t/climate-health-integration-in-sri-lanka-using-dhis/64665?utm_=true

Directorate General of Health Services, Ministry of Health and Family Welfare, & Government of the People's Republic of Bangladesh. (2018). *Bangladesh Health–National Adaptation Plan (HNAP)*. https://cdn.who.int/media/docs/default-source/climate-change/hnap-bangladesh.pdf

Eckstein, D., Kunzel, V., & Schafer L. (2021). Global Climate Risk Index 2021. Who suffers most from extreme weather events? Weather-related loss events in 2019 and 2000–2019. Germanwatch. https://www.germanwatch.org/sites/default/files/Global%20Climate%20Risk%20Index%202021_2.pdf

Fernando, A. (2023). *Health Ministry to equip 600 hospitals with solar power*. Latest in the News Sphere | the Morning. https://www.themorning.lk/articles/cOBc1yAeGV8LmtIYUjI8

Fernandes, E. (2022, July 20). South Asia needs an urgent policy on health and climate action. *Times of India Voices*. https://timesofindia.indiatimes.com/blogs/global-health-focus/south-asia-needs-an-urgent-policy-on-health-climate-action/

Gentle, P., & Mainaly, J. (2024). Commitment, actions, and challenges on locally led climate change adaptation in Nepal. *Climate Risk Management, 46*, 100650. https://doi.org/10.1016/j.crm.2024.100650

Gilfillan, D. (2018). Regional organisations supporting health sector responses to climate change in Southeast Asia. *Globalization and Health*, *14*, 80. https://doi.org/10.1186/s12992-018-0388-z

Gray, C., & Varbanov, L. (2021). *The Economics of Climate Change: Impacts for Asia*. Swiss Re Group. https://www.swissre.com/risk-knowledge/mitigating-climate-risk/economics-of-climate-change-impacts-for-asia.html

Gupta, J. (2023, May). India's heat action plans overlook the vulnerable. *Dialogue Earth*. https://dialogue.earth/en/climate/india-heat-action-plans-overlook-the-vulnerable/

Hasan, M. N., Khalil, I., Chowdhury, M. A. B., Rahman, M., Asaduzzaman, M., Billah, M., Banu, L. A., Alam, M.-U., Ahsan, A., Traore, T., Uddin, M. J., Galizi, R., Russo, I., Zumla, A., & Haider, N. (2024). Two decades of endemic dengue in Bangladesh (2000–2022): Trends, seasonality, and impact of temperature and rainfall patterns on transmission dynamics. *Journal of Medical Entomology, 61*(2), 345–353. https://doi.org/10.1093/jme/tjae001

HCWH. (2012). Thailand's Green and Clean. https://asia.noharm.org/news/thailands-green-and-clean

HCWH. (n.d.(a)). Global Green and Healthy Hospitals-Asia. https://asia.noharm.org/global-green-and-healthy-hospitals-asia

HCWH. (n.d.(b)) Inspiring Green and Clean Practices in Thailand. https://asia.noharm.org/news/inspiring-green-and-clean-practices-thailand

HCWH. (2023). Philippine Health Organizations Launch Alliance for Climate and Clean Air. https://asia.noharm.org/news/philippine-health-organizations-launch-alliance-climate-and-clean-air-quezon-city-philippines

HFDB-DOH, Philippines. (n.d.). *DO 2025-0014*. https://sites.google.com/view/doh-hfdb/2025-q1-updates/do-2025-0014

IESR. (2022). Jateng Solar Series – Green Healthcare Forum: Central Java Encourages Solar PV Adoption in Health Facilities. https://iesr.or.id/en/jateng-solar-series-green-healthcare-forum-central-java-encourages-plts-adoption-in-health-facilities/

IFC. (n.d.). Building Climate Resilient Health Systems. https://www.ifc.org/en/what-we-do/sector-expertise/health/building-climate-resilient-health-systems

ILO. (2019). Working on a warmer planet: The impact of heat stress on labour productivity and decent work. https://www.ilo.org/sites/default/files/wcmsp5/groups/public/@dgreports/@dcomm/@publ/documents/publication/wcms_711919.pdf

ILRI. (n.d.). Surveillance and early-warning systems for climate-sensitive diseases in Vietnam and Laos (Pestforecast). https://www.ilri.org/research/projects/surveillance-and-early-warning-systems-climate-sensitive-diseases-vietnam-and

Inayah, A. N., Paliling, V. E. S., & Maskun, M. (2025). The impact of extreme weather phenomena on public health: An analysis of Indonesia national policies on adaptation/mitigation strategies. *BIO Web of Conferences*, *155*, 10007. https://doi.org/10.1051/bioconf/202515510007

IOM. (n.d.). Sri Lanka: Enhancing Community Engagement in Climate Change Adaptation through Climate Health Risk Education. https://shorturl.at/tmQqu

IPCC AR 6 WG2. (n.d.). Figure. https://www.ipcc.ch/report/ar6/wg2/figures/chapter-10/figure-10-faq-10.1.1

Islam, S. (2020, June 16). *Bangladeshi solar installers have $1.5bn plan to light up health centers*. Pv Magazine International. https://www.pv-magazine.com/2020/06/16/bangladeshi-solar-installers-have-1-5bn-plan-to-light-up-health-centers/

Jaafar, H., Azzeri, A., Isahak, M., & Dahlui, M. (2021). The Impact of Haze on Healthcare Utilizations for Acute Respiratory Diseases: Evidence From Malaysia. *Frontiers in Ecology and Evolution*, *9*. https://doi.org/10.3389/fevo.2021.764300

Jagals, P., & Ebi, K. (2021). Core Competencies for Health Workers to Deal with Climate and Environmental Change. *International Journal of Environmental Research and Public Health*, *18*(8), 3849. https://doi.org/10.3390/ijerph18083849

Jamwal, N. (2025, February 18). With climate change-induced hazards aggravating, preparations underway for India's first National Adaptation Plan. Down to Earth. https://www.downtoearth.org.in/climate-change/with-climate-change-induced-hazards-aggravating-preparations-underway-for-indias-first-national-adaptation-plan

Karliner, J., Slotterback, S., Arup, Boyd, R., Ashby, B., Steele, K., & Pichler, P. P. (2019). Health Care's Climate Footprint. In Climate-smart Health Care Series (Green Paper Number One). Health Care Without Harm and ARUP.

Khan, S., Fears, R., McNeil, J. N., Harper, S., Hoe, V. C., & Caussy, D. (2023). Strategic Interventions for Addressing Regional Climate Change and Health Challenges. T20 Policy Brief. https://t20ind.org/wp-content/uploads/2023/05/T20_PolicyBrief_TF6_ClimateChange-Health_New.pdf

Khanal, S., Baral, S. C., & Boeckmann, M. (2025). Exploring barriers and facilitators to integrating health equity into health and climate change policies in Nepal. *BMC Health Services Research, 25*(1), 687. https://doi.org/10.1186/s12913-025-12862-y

Kwa, K. X. (2023). Combating Climate Change through Network Governance in Singapore's and Australia's Air, Land and Water Sectors from 2000 to 2019. *Sustainability*, *15*(5), 4056. https://doi.org/10.3390/su15054056

LGA. (2017). Enhanced LGU Guidebook on the Formulation of Local Climate Change Action Plan. Department of the Interior and Local Government (DILG). Philippines. https://lga.gov.ph/uploads/publication/attachments/1590498028.pdf?utm

Liu-Helmersson, J., Brännström, Å., Sewe, M. O., Semenza, J. C., & Rocklöv, J. (2019). Estimating Past, Present, and Future Trends in the Global Distribution and Abundance of the Arbovirus Vector Aedes aegypti Under Climate Change Scenarios. *Frontiers in Public Health*, *7*. https://doi.org/10.3389/fpubh.2019.00148

Martinus, M. & Jiahui, Q. (2022). "Climate Finance in Southeast Asia: Trends and Opportunities". ISEAS Perspective, no. 9 (2022):1–20.

MNDP Indonesia. (2019). National Adaptation Plan. https://lcdi-indonesia.id/wp-content/uploads/2020/05/Executive-Summary-NAP.pdf

MNRES Malaysia. (n.d.). National Climate Change Policy 2.0. https://www.nres.gov.my/ms-my/pustakamedia/Penerbitan/National%20Policy%20on%20Climate%20Change%202.0.pdf

MoE Sri Lanka. (2021). Updated Nationally Determined Contributions. https://policy.thinkbluedata.com/sites/default/files/Amendmend%20to%20the%20Updated%20Nationally%20Determined%20Contributions%20of%20Sri%20Lanka.pdf#page=48.08

MoEFCC Bangladesh. (2022). National Adaptation Plan of Bangladesh (2023–2050). file:///D:/MY%20DATA/Downloads/National%20Adaptation%20Plan%20of%20Bangladesh%20(2023-2050)%20(1).pdf

MoFE Nepal. (2021). National Adaptation Plan (NAP) 2021–2050. https://unfccc.int/sites/default/files/resource/NAP_Nepal_2021.pdf

MoHFW Bangladesh. (2018). HNAP Bangladesh. https://cdn.who.int/media/docs/default-source/climate-change/hnap-bangladesh.pdf?sfvrsn=dcd84234_3&download=true

MoHFW Bangladesh. (2023). Guideline for climate sensitive disease surveillance, early warning & response system. https://iedcr.portal.gov.bd/sites/default/files/files/iedcr.portal.gov.bd/page/b1dfa518_356c_4acc_8cb5_074929c46748/2024-04-01-04-42-aea96137d4680cbead0d841641f1855a.pdf

MoHFW Bangladesh. (n.d.). Climate Change and Health in Bangladesh. Training curriculum for health managers. https://dghs.portal.gov.bd/sites/default/files/files/dghs.portal.gov.bd/page/a5b182fd_dea0_4512_b0cd_1c9bfe29b436/2022-03-03-10-17-072edab52fdfb00922a587f0203f0197.pdf

MoHFW India (2018). National Action Plan for Climate Change and Human Health. https://ncdc.mohfw.gov.in/wp-content/uploads/2024/04/27505481411548674558.pdf

MoHFW India. (2025). Integrated Health Information Platform. National Programme on Climate Change and Human Health, Government of India. https://ihip.mohfw.gov.in/npcchh-idsp/#!/mandateObjectives

MoH Indonesia. (n.d.). Guidelines for Climate-Resilient Healthy Villages/ Sub-districts (DEKSI).https://drive.google.com/file/d/1Nk6rty2NhyBKvA1FJqkpYbgxe4WWdE9i/view?usp=sharing&usp=embed_facebook

MoH Malaysia (n.d.) Portal Rasmi Kementerian Kesihatan Malaysia. https://www.moh.gov.my/index.php/pages/view/192?utm

MoHP Nepal. (2015). Nepal Health Sector Strategy (2015-20). https://www.nhssp.org.np/NHSSP_Archives/health_policy/NHSS_english_book_2015.pdf

MoHP Nepal (2022). Vulnerability and Adaptation Assessment of Climate Sensitive Diseases and Health Risks in Nepal. https://www.atachcommunity.com/fileadmin/uploads/atach/Documents/Country_documents/Nepal_VA_2022_Assessment_Report-MoHP-2022.pdf#page=83.11

MoHP Nepal (2023). Health National Adaptation Plan. Climate Change Health Adaptation Strategy and Action Plan (2023–2030). https://www.atachcommunity.com/fileadmin/uploads/atach/Documents/Country_documents/Nepal_HNAP_English_2024_FINAL.pdf

MoHP Nepal (2024). Baseline Assessment of GHG emissions of Nepal's Health Sector. https://www.atachcommunity.com/fileadmin/uploads/atach/Documents/Country_documents/Nepal_GHG-HS_2024_Final_Baseline_assessment_of_GHG_emission.pdf

MoHP Nepal (n.d.). HNAP Nepal. Climate Change Health Adaptation Strategies and Action Plans of Nepal (2017–2021). https://www4.unfccc.int/sites/NAPC/Documents/Parties/Nepal%20HNAP.pdf

MoNRES Malaysia (n.d.). Moving Forward on Climate Change: Malaysia's Commitment to a just and Accelerated Transition Towards a Sustainable Future. https://www.prnewswire.com/news-releases/moving-forward-on-climate-change-malaysias-commitment-to-a-just-and-accelerated-transition-towards-a-sustainable-future-302302738.html

MoPH Thailand. (n.d.). Policy discussion on climate change and health in Thailand. In *Policy Discussion on Climate Change and Health in Thailand*. https://shorturl.at/zjvQx

MoPH Thailand. (n.d.(a)). Session 3. Climate Change and Health. https://hia.anamai.moph.go.th/web-upload/12xb1c83353535e43f224a05e184d8fd75a/filecenter/kpi/2566/10/10_aug/4.21/kpi66_aug_4.21_01.pdf

MNRE Thailand. (n.d.(b)). Thailand's National Adaptation Plan. https://unfccc.int/sites/default/files/resource/NAP_THAILAND_2024.pdf

MNRE Vietnam. (2024). Report national adaptation plan for the period 2021–2030, with a vision to 2050. file:///D:/MY%20DATA/Downloads/nap_report_eng_small.pdf

MSE Singapore (n.d. (a)). Public Health. https://www.mse.gov.sg/policies/public-health/

MSE Singapore (n.d. (b)). Ministry of Sustainability and the Environment releases inaugural GreenGov.SG report. https://www.mse.gov.sg/latest-news/press-release-inaugural-greengovsg-report/

MSE Singapore. (n.d.(c)). Climate Game Changer. https://www.mse.gov.sg/policies/climate-change/climate-game-changer/

Nahian, M. A. (2023). Public health impact and health system preparedness within a changing climate in Bangladesh: A scoping review. *Challenges, 14*(1), 4. https://doi.org/10.3390/challe14010004

NAP Global Network. (2025). Malaysia Sets the Course to Enhance Resilience Through Inclusive NAP. https://napglobalnetwork.org/2025/01/malaysia-sets-course-enhance-resilience-formulation-inclusive-nap/

NCCS Singapore (n.d. (a)). Inter-Ministerial Committee on Climate Change. https://www.nccs.gov.sg/who-we-are/inter-ministerial-committee-on-climate-change/

NCCS Singapore (n.d. (b)). Singapore Unveils Latest Plans for Addressing Climate Change. (n.d.).https://www.nccs.gov.sg/media/press-release/singapore-unveils-latest-plans-for-addressing-climate-change/

NEA Singapore (n.d. (a). News. https://www.nea.gov.sg/media/news/news/index/latest-climate-projections-for-singapore-show-intensifying-urban-heat-and-more-wet-dry-extremes?utm

NEA Singapore (n.d. (b)). Dengue Cases. https://www.nea.gov.sg/dengue-zika/dengue/dengue-cases

One Health Partnership (OHP) Master Plan. (2022). Master plan for the one health partnership framework for zoonoses, 2021 – 2025 period. https://shorturl.at/jSMwb

Orissa International. (2022, March 21). *Singapore Hospital commits to achieving Net-Zero carbon emissions by 2050*. https://www.orissa-international.com/business-news/singapore-hospital-commits-to-achieving-net-zero-carbon-emissions-by-2050/

Phommasack, B., Jiraphongsa, C., Ko Oo, M., Bond, K. C., Phaholyothin, N., Suphanchaimat, R., Ungchusak, K., & Macfarlane, S. B. (2013). Mekong Basin Disease Surveillance (MBDS): A Trust-Based Network. *Emerging Health Threats Journal*, *6*, 10.3402/ehtj.v6i0.19944. https://doi.org/10.3402/ehtj.v6i0.19944

PIB. (n.d.) Union Minister of State Shri Kirti Vardhan Singh addresses the Inaugural Session of the National Workshop on India's National Adaptation Plan (NAP) on Climate Change. https://www.pib.gov.in/www.pib.gov.in/Pressreleaseshare.aspx?PRID=2112351

PreventionWeb. (2025, March 27). Thailand: Ways to strengthen Bangkok's resilience amid heat crisis. https://www.preventionweb.net/news/world-bank-and-bangkok-metropolitan-administration-highlight-ways-strengthen-resilience-amid

Rahman-Shepherd, A., Evaborhene, N. A., Berman, A., Amaya, A. B., Boro, E., Dar, O., Ho, Z. J. M., Jung, A.-S., Khan, M., Mohamed-Ahmed, O., Oyebanji, O., Pangestu, T. E., Rashid, S. F., Razavi, A., Riggirozzi, P., Legido-Quigley, H., & Hsu, L. Y. (2025). Establishing the value of regional cooperation and a critical role for regional organisations in managing future health emergencies. *The Lancet Global Health*, *13*(3), e585–e592. https://doi.org/10.1016/S2214-109X(24)00500-X

Rao, N. V., Ramamurthi, P., and Tomar P. (2025). Mapping Global Climate and Health Governance: Exploring India's Role (CSEP Discussion Paper 27). New Delhi: Centre for Social and Economic Progress. https://csep.org/wp-content/uploads/2025/06/Mapping-Global-Climate-and-Health-Governance-Exploring-Indias-Role-1-4.pdf

The Lancet. (2023). The 2023 report of the Lancet Countdown on health and climate change: The imperative for a health-centred response in a world facing irreversible harms. *The Lancet*, *402*(10419), 2346–2394. https://doi.org/10.1016/s0140-6736(23)01859-7.

SAARC. (2008). SAARC Action Plan on Climate Change. https://thimaaveshi.wordpress.com/wp-content/uploads/2009/10/saarc_action_plan.pdf

Sari, P. N., Gusti, A., & Djafri, D. (2020). Public Health Center Capacity in Managing the Risk of Climate Change: A Case Study in The City of Padang, Indonesia.

SEforALL. (2022, March 4). *Latest IPCC report highlights urgent need for sustainable cooling*. Sustainable Energy for All. https://www.seforall.org/news/latest-ipcc-report-highlights-urgent-need-for-sustainable-cooling#:~:text=By%202080%2C%20between%20940%20million,that%20will%20suffer%20the%20most

Shi, Y., Liu, X., Kok, S., Rajarethinam, J., Liang, S., Yap, G., Chong, C., Lee, K., Tan, S. S., Chin, C. K. Y., Lo, A., Kong, W., Ng, L. C., & Cook, A. R. (2015). Three-Month Real-Time Dengue Forecast Models: An Early Warning System for Outbreak Alerts and Policy Decision Support in Singapore. *Environmental Health Perspectives*, *124*(9), 1369–1375. https://doi.org/10.1289/ehp.1509981

Shindell, D., Faluvegi, G., Nagamoto, E., Parsons, L., & Zhang, Y. (2024). Reductions in premature deaths from heat and particulate matter air pollution in South Asia, China, and the United States under decarbonization. Proceedings of the National Academy of Sciences, 121(5). https://doi.org/10.1073/pnas.2312832120

Sood, S and Verma, N. (2024). How Telemedicine is redefining healthcare access. John Hopkins Bloomberg School of Public Health. https://publichealth.jhu.edu/center-for-global-digital-health-innovation/july-2024-how-telemedicine-is-redefining-healthcare-access

Sorensen, C., Campbell, H., Depoux, A., Finkel, M., Gilden, R., Hadley, K., Haine, D., Mantilla, G., McDermott-Levy, R., Potter, T. M., Sack, T. L., Tun, S., & Wellbery, C. (2023b). Core competencies to prepare health professionals to respond to the climate crisis. *PLOS Climate*, *2*(6), e0000230. https://doi.org/10.1371/journal.pclm.0000230

The World and Vietnam Report. (2023). Innovative telehealth "Doctor for Everyone" demonstrates the power of digital in promoting equal access to healthcare in Vietnam. https://en.baoquocte.vn/innovative-telehealth-doctor-for-everyone-demonstrates-the-power-of-digital-in-promoting-equal-access-to-healthcare-in-vietnam-235384.html

Thuvienphapluat.vn. (2025a, July 31). Quyết định 4607/QĐ-BYT 2017 giám sát bệnh sốt xuất huyết Dengue vi rút Zika Chikungunya. THƯ VIỆN PHÁP LUẬT. https://thuvienphapluat.vn/van-ban/The-thao-Y-te/Quyet-dinh-4607-QD-BYT-2017-giam-sat-benh-sot-xuat-huyet-Dengue-vi-rut-Zika-Chikungunya-365844.aspx

Thuvienphapluat.vn. (2025b, August 25). Quyết định 7562/QĐ-BYT 2018 Kế hoạch ứng phó với biến đổi khí hậu giai đoạn 2019 2030. THƯ VIỆN PHÁP LUẬT. https://thuvienphapluat.vn/van-ban/Tai-nguyen-Moi-truong/Quyet-dinh-7562-QD-BYT-2018-Ke-hoach-ung-pho-voi-bien-doi-khi-hau-giai-doan-2019-2030-411430.aspx

Tran, N. Q. L., Le, H. T. C. H., Pham, C. T., Nguyen, X. H., Tran, N. D., Tran, T. T., Nghiem, S., Luong, T. M. L., Bui, V., Nguyen-Huy, T., Doan, V. Q., Dang, K. A., Thuong, T. H., DO, Ngo, H. K. T., Nguyen, T. V., Nguyen, N. H., Cuong, M., DO, Ton, T. N., Dang, T. a. T., Ngyuyen, K., Tran, X.B., Thai, P., & Phung, D. (2023). Climate change and human health in Vietnam: A systematic review and additional analyses on current impacts, future risk, and adaptation. *The Lancet Regional Health - Western Pacific*, *40*, 100943. https://doi.org/10.1016/j.lanwpc.2023.100943

Trường B. N. nghiệp và M. (2025, May 26). WHA78: Viet Nam takes action for health in the climate crisis. https://van.nongnghiepmoitruong.vn/wha78-viet-nam-takes-action-for-health-in-the-climate-crisis-d754971.html

UNDP. (2024). Indonesia Takes Bold, Transformative Step to Build a Climate-Resilient Health System. https://www.undp.org/indonesia/press-releases/indonesia-takes-bold-transformative-step-build-climate-resilient-health-system

UNDP. (2025). Integrated approaches in health climate and energy. https://www.undp.org/sites/g/files/zskgke326/files/2025-02/hce-en.pdf

UNDP Climate Promise, Sri Lanka. (2023, November 24). Sri Lanka: Asia and the Pacific. https://climatepromise.undp.org/what-we-do/where-we-work/sri-lanka#:~:text=Key%20highlights%20from%20the%20NDC,an%20unconditional%20reduction%20of%204%25.

UNDP. (n.d.) Vietnam's Efforts in Building Climate-Resilient Healthcare. (n.d.). https://www.undp.org/vietnam/news/vietnams-efforts-building-climate-resilient-healthcare

UNDRR. (2023, July 3). *Regional cooperation strengthens DRR efforts in the Caribbean.* https://www.undrr.org/news/regional-cooperation-strengthens-disaster-risk-reduction-efforts-caribbean

UNICEF. (2024). UNICEF and the Philippine Disaster Resilience Foundation forge strategic partnership to put children at the center of disaster risk management. https://shorturl.at/oFaAr

United Nations. (2025). United Nations in Vietnam annual results report. https://shorturl.at/j2Ceh

USAID MTaPS Program. (2023). *Improving health care waste management and infection prevention and control at regional and DOH-retained hospitals in the Philippines*. https://www.mtapsprogram.org/wp-content/uploads/2024/11/Tech-Brief-on-CRM-IPC-HCWM-eSC.pdf

WHO (2015-18). Climate and Health Country Profile. https://www.who.int/teams/environment-climate-change-and-health/climate-change-and-health/evidence-monitoring/country-profiles

WHO. (2021). Health and Climate Change Global Survey Report. https://iris.who.int/server/api/core/bitstreams/226cafda-e49b-43b0-aa9a-9bff486e6f12/content

WHO. (2022). Sri Lanka's health sector acts to ward off climate change impact. https://www.who.int/srilanka/news/detail/20-04-2022-sri-lanka-s-health-sector-acts-to-ward-off-climate-change-impact#:~:text=Both%20the%20General%20Hospital%20of%20Kurunegala%20and,and%20biogas%20in%20their%20kitchens%20for%20cooking.

WHO. (2023a). Operational framework for building climate resilient and low carbon health systems. https://iris.who.int/bitstream/handle/10665/373837/9789240081888-eng.pdf

WHO. (2023b). Vietnam: Learning lessons on climate resilient and environmentally sustainable health-care facilities. https://shorturl.at/BVfy5

WHO. (2024a). *Heat and health*. https://www.who.int/news-room/fact-sheets/detail/climate-change-heat-and-health

WHO. (n.d.). Vietnam Ministry of Health and WHO join forces on climate change and health. https://www.who.int/vietnam/news/detail/17-11-2023-viet-nam-ministry-of-health-and-world-health-organization-join-forces-on-climate-change-and-health

World Bank (2013). Getting a grip on Climate Change in the Philippines. https://www.worldbank.org/content/dam/Worldbank/document/EAP/Philippines/Final%20ExReport.pdf?utm

World Bank (2021). Climate Change Action Plan 2021-2025. South Asia Roadmap. https://documents1.worldbank.org/curated/en/262891632949399367/pdf/World-Bank-Group-Climate-Change-Action-Plan-2021-2025-South-Asia-Roadmap.pdf

World Bank (2024, June). Development Banks' Joint Roadmap for Climate-Health Finance and Action. https://thedocs.worldbank.org/en/doc/164f0203d-738919baef24f0a1a2fb788-0140022024/original/Development-Bank-Working-Group-Joint-Roadmap-JUNE-12-2024-FINAL.pdf

Wu, L. (2024). Indonesia Takes Bold, Transformative Step to Build a Climate-Resilient Health System. https://www.sparkblue.org/content/indonesia-takes-bold-transformative-step-build-climate-resilient-health-system

Zain, A., Sadarangani, S. P., Shek, L. P., & Vasoo, S. (2024). Climate change and its impact on infectious diseases in Asia. *Singapore Medical Journal*, *65*(4), 211–219. https://doi.org/10.4103/singaporemedj.smj-2023-180

Appendix 1: Selective Overview of Ongoing Climate–Health Interventions

Primary Focus Areas	Agency Involved	About the Initiative
Health system strengthening	Asian Development Bank	Supporting climate-resilient and low-carbon health systems through the climate and health initiative in Thailand, Vietnam, Bangladesh, India, Indonesia, Nepal, Philippines (2024–2029).
Includes health system strengthening component	Asian Development Bank	Sustaining climate and disaster risk resilient and low carbon development in South Asia in Bangladesh, India, Nepal and Sri Lanka (2018–2025).
Health system strengthening	Global Environment Facility (GEF), WHO, and UNDP	Building resilience of health systems in Asian Least Developed Countries (LDCs) to climate change in Nepal and Bangladesh (2019). Includes components of institutional capacity development, improved surveillance and early warning systems, regional cooperation and knowledge exchange.
Climate-smart health infrastructure	Asian Development Bank	Climate-Smart Health Services System Enhancement project in Thailand—USD 187 million loan. Strategy implementation plan for promoting and incorporating climate change mitigation measures in public hospitals (proposed).
Climate-smart health infrastructure	WHO	Piloting model project on three district hospitals to enhance their climate resilience. Components include: 1) WASH management; 2) capacity building; 3) green energy and efficiency; and 4) improved infrastructure, technology, and products in Vietnam (2021–2023).
Climate-smart health infrastructure	International Finance Corporation (IFC) (sister organisation of World Bank)	Climate-resilient health infrastructure in Thailand.
Climate-smart health infrastructure	UNDP	Developing practical model for solar-powered and climate-resilient commune health stations in Vietnam.
Early warning, low-carbon infrastructure	UNDP, WHO, and GCF	Strengthening and integrating early warning systems for climate-related diseases; to reduce GHG emissions from healthcare facilities.
Cross-sectoral coordination	Several development partners and government ministries	Integrating climate change into Vietnam's One Health efforts on zoonotic diseases prevention and control (2021–2025).
Disaster risk resilience, regional cooperation, social resilience	United Nations Children's Fund (UNICEF) and Philippine Disaster Resilience Foundation (PDRF)	Launched a first-of-its-kind partnership to improve child-centred disaster risk management and resilience building with businesses and communities in East Asia and the Pacific (2024).
Capacity building, community engagement	International Organisation for Migration United Nation	Enhancing community engagement in climate change adaptation through climate–health risk education; capacitate public health officers to ensure that they have skills and tools to effectively communicate climate adaptation (2024–2026) in Sri Lanka.
Advocacy, governance, capacity building	Healthcare Without Harming Southeast Asia	Statement of commitment and call to action—breathing for a brighter tomorrow; health and climate advocates unite for clean air in the Philippines (2023).
Governance, capacity building, Climate-smart infrastructure	Healthcare Without Harming Southeast Asia	First Philippine Virtual Assembly of Global Green and Healthy Hospital (GGHH) members, allies and prospects in 2020; development of a National Framework and Plan of Action for Climate-Smart Hospitals.
Capacity building and workforce development	GIZ	Training programme for healthcare professionals in Thailand.

Source: ADB (n.d. a, b, c); MoPH Thailand (n.d.); IFC (n.d.); United Nations (2025); OHP Master Plan (2022); WHO (2023b); UNICEF (2024); IOM (n.d.); HCWH (2023); and UNDP (2024).

Appendix 2: Ongoing Government Policies and Actions on Climate and Health

In this section, we briefly expand on Table 2 by listing out the key government policy actions and ongoing projects in our countries of focus on climate and health-related challenges. These provide a sense of policymaker priorities and stakeholder interests in tackling the shared challenges related to climate and health.

Nepal

1. Policy Development and Strategic Planning

- **Health National Adaptation Plan (HNAP)**
  - First HNAP (2017–2021) was prepared and implemented by MoHP.
  - Updated HNAP (2023–2030), aligned with Nepal's NAP 2021–2050.
  - Developed with support from WHO.
  - Vision: *Climate-Resilient Health System*.
  - Strategic objectives: i) awareness raising, ii) human capacity building, iii) disease risk management, iv) climate-resilient infrastructure, and v) mainstreaming adaptation into health policies.
  - Steering Committee (MoHP Secretary, nine members) provides policy guidance and oversight and Technical Working Group (15 members) led by the Chief of the Health Coordination Division (MoHP) established for coordination.
  - Covers 20 major programmes and 62 activities across five objectives.
- **Nationally Determined Contribution (NDC 3.0, 2025–2035)**
  - Upgrade 280 health facilities to be low-carbon and climate-resilient by 2035.
  - Implement non-burn HCWM in 2,800 health facilities.
  - Expand climate-sensitive disease surveillance nationwide.
- **Commitments at 2021 United Nations Climate Change Conference (COP26)**
  - Updating Vulnerability and Adaptation Assessment (VAA, 2022).
  - Preparing new HNAP based on updated VAA.
- **National Adaptation Programme of Action (NAPA), 2010**
  - First comprehensive government response to climate change.
  - Identified nine urgent and immediate priority programmes across six sectors (agriculture, forest, biodiversity, water resources, health, infrastructure, and disaster).
  - Established a coordination mechanism and implementation modality for adaptation.
  - While initially not health-focused, Local Adaptation Plans of Action (LAPAs) provide opportunities to integrate health resilience at the community level.

2. Institutional Strengthening and Capacity Development

- **National Health Training Centre (NHTC)** (established 1993, under MoHP)
  - Key role in capacity building, ToT, subnational training, and integration of climate content into curricula.
  - Five hundred health professionals trained annually (budgeted in HNAP).
  - Manuals on climate change and health, environmental health, WASH, and healthcare waste management.
- **Nepal Health Research Council (NHRC)**
  - Developed training manual on climate and health research.
  - Research focus: vector-borne diseases, diarrhoeal diseases, heatwaves.
- **Surveillance Institutions**
  - Epidemiology and Disease Control Division (EDCD).
  - Integrated Health Management Information Section (IHMIS).

- Using DHIS2 monthly and Early Warning System weekly data.
- Pilot studies show ability to predict dengue epidemics three months in advance.

3. Public Awareness and Cross-Sector Engagement

- National and subnational campaigns through social media, Information, Education, and Communication (IEC) materials, and a dedicated government website on climate and health.
- MoUs for collaboration: MoHP and DHM for climate-sensitive disease data and modelling.
- Cross-sector collaboration with WASH, environment, nutrition, and disaster management.
- Community-based engagement limited in scope; LAPAs largely focus on agriculture, not health (Khanal et al., 2025).
- **Provincial and Local Role**
  - Provincial governments allocate resources, implement activities, and coordinate with stakeholders.
  - At the local level, implementation is led by rural/municipality chiefs, with participation from Community-Based Organisations (CBOs), civil society, educational institutions, media, and multisectoral partners.
- **Implementing Agencies within MoHP as identified in HNAP**
  - Department of Health Services (DoHS).
  - Epidemiology and Disease Control Division (EDCD).
  - Management Division (MD).
  - National Health Education, Information and Communication Center (NHEICC).
  - National Health Training Center (NHTC).
  - Vector-Borne Disease Research and Training Center (VBDRTC).
  - Nepal Health Research Council (NHRC).
- **Supporting Line Ministries and Agencies as identified in HNAP**
  - Ministry of Forests and Environment (MoFE).
  - Ministry of Water Supply (MoWS).
  - Ministry of Education, Science and Technology (MoEST).
  - Ministry of Communication and Information Technology (MoCIT).
  - Ministry of Women, Children and Senior Citizens (MoWCSC).
  - Department of Environment (DoE).
  - Department of Water Supply and Sewerage Management (DWSSM).
  - Department of Hydrology and Meteorology (DHM).
  - National Disaster Risk Reduction and Management Authority (NDRRMA).

4. Monitoring and Evaluation (M&E)

- MoHP leads overall monitoring.
- Steering Committee provides policy oversight.
- Technical Working Group coordinates technical work conducts mid-term and final evaluations.
- Strategic indicators developed for each HNAP objective.
- Use of digital dashboards and integration with DHIS2 for monitoring.

5. Budget and Financing Mechanisms

- Estimated cost for HNAP (2023 prices): NPR 968.5 million (almost USD 7.3 million).
- Short-term (2023–2024) and long-term (2025–2030) activities budgeted.
- Potential sources:
  - Domestic allocations from national, provincial, and local governments.
  - International climate funds: GCF, GEF, Adaptation Fund, and Least Developed Countries Fund (LCDF).
  - Multilateral partners: World Bank, ADB, WHO, GIZ, USAID, and FCDO.

Sri Lanka

1. Policy Development and Strategic Planning

- **NDCs in health sector**
  - NDC 1: Policy initiatives for enhancing the climate resilience of the health sector promoted and integrated to all related sectors (Target: 2030).
  - NDC 2: Improved capacity to manage non-communicable diseases (NCD) and health conditions directly attributable to climate change (Target: 2024).
  - NDC 3: Manage the worsening of undernutrition and malnutrition due to climate change (Target: 2023).
  - NDC 4: Strengthen surveillance and management of climate-sensitive vector and rodent-borne diseases (dengue, malaria, filaria, leishmaniasis, and leptospirosis) (Target: 2024).
  - NDC 5: Reduce morbidity and mortality from extreme weather/climate events (floods, droughts, landslides, and other climate-related emergencies) (Target: 2023).

Sri Lanka's updated NDC outlines multiple climate–health plans and policies to be implemented by 2030, including the following:

- Heat-Health Action Plan (HHAP).
- National Strategic Plan for Health, Environment, and Climate Change (NHSPEC).
- Guidelines for "Green and Healthy Hospitals."
- Health action plan targeting air pollution impacts.

- **National Adaptation Plan for Climate Change Impacts 2016–2025**
  - Identified health as one of the sectors most vulnerable to climate change.

- **Health priority areas:**
  - Climate altering pollutants.
  - Diseases: Spread and outbreaks.
  - Hazardous events: Health impacts.
  - Heat/thermal stress.

- **Health priority actions**
  - Establish a surveillance programme for detection and monitoring of climate-induced diseases.
  - Conduct research studies on impact of climate change prevalence and spread of vector-borne and pathogenic diseases.
  - Develop research institutes' capacity conducting research on health impacts of climate change.
  - Strengthen the mechanisms for sharing information between disaster management and health management agencies.
  - Launch awareness programmes on climate and health risks for healthcare workers and the public.

2. Institutions and Capacity Development for Climate Change and Health

- **Environmental and Occupational Health Unit (EOHU)**
  - Located within the Ministry of Health.
  - Focuses on environmental health risks (water quality, air pollution, waste, sanitation, and occupational hazards).
  - Increasingly engaged with climate-sensitive risks such as heat stress, waste management after disasters, and environmental sanitation.

- **National Dengue Control Unit (NDCU), MoH**
  - Manages vector-borne diseases that are highly climate-sensitive (rainfall, temperature).
  - Works with the Department of Meteorology and local health offices to strengthen surveillance and response.

3. Ongoing Programmes

- **"Enhancing Community Engagement in Climate Change Adaptation through Climate Health Risk Education" (IOM Project, 2024–2026)**

Scope: National level programme.

Objective: Develop a climate–health risk communication strategy and action plan tailored to vulnerable groups.

Activities:

- Conduct in-depth needs assessments and design a national strategy for risk communication.
- Train public health officers and relevant officials to deliver climate–health messaging.
- Cascade training through community leaders for grassroots impact.

- **Climate–Health Platform via DHIS2 (Health Information Unit, MoH)**

Scope: National digital health integration initiative.

Objective: Incorporate climate (e.g., rainfall, temperature), air quality, and environmental data into health surveillance systems to inform decision-making.

Stakeholders:

- Department of Meteorology, National Building Research Organization, Ministry of Environment.
- National Dengue Control Unit, Anti-Malaria Campaign, Leishmaniasis Control Programme, Family Health Bureau, and Medical Statistics Unit.

Current Status: Platform under development; gradually integrating disease programmes using Application Programming Interfaces (APIs) and DHIS2 Climate and Health app; supported by Health Information Systems Programme (HISP) Sri Lanka and the University of Oslo.

- **Climate-Informed Nutrition Surveillance (DHIS2 Initiative)**

Scope: Nutrition-focused epidemiological project.

Objective: Integrate climate data (ERA5-Land, CHIRPS) with nutrition indicators (e.g., wasting, anaemia) in DHIS2 to improve predictive planning and response to malnutrition.

Partners: Family Health Bureau, HISP Sri Lanka, University of Oslo, Department of Meteorology, University of Colombo.

Status: Pilot completed; continuing research, model refinement, dashboard expansion, and scaling of early warning support for nutrition planning.

4. Service Delivery and Infrastructure

- Several hospitals are undertaking green and resilient infrastructure initiatives:
  - Monaragala District Hospital uses renewable energy (biogas, solar), composting, zero carbon emissions, and wastewater treatment.
  - Kalmunai North Base Hospital runs a biogas plant, composting, and solar systems in its rehab unit.
  - Hospitals in Kurunegala and Matale use solar electricity and biogas for cooking (WHO, 2022).

- Supporting Renewable Energy in Maternal & Neonatal Care

With support from UNFPA and the Government of Japan:

- **Nuwara Eliya District General Hospital** installed a 40-kW solar-electric system and a heating system for the maternity ward, ensuring reliable warmer environments critical for newborns.
- **Base Hospital Puttalam** implemented a 20-kW solar setup, securing uninterrupted maternal and neonatal health services.

These installations are projected to generate approximately 66,000 kWh of green energy annually, cut about 86,500 kg of CO_2 emissions, and save over LKR 10 million per month (Dailymirror, 2025).

5. Integrating Climate Data into Health Surveillance (Digital)

- The Ministry's Health Information Unit is piloting a Climate Health Platform using DHIS2:
  - This platform will integrate climate data (e.g., temperature, rainfall) and air quality information into health surveillance systems to enhance early detection and response to climate-sensitive health outcomes.
  - Stakeholders include meteorological departments, NDCU, Anti-Malaria Campaign, Family Health Bureau, and the Medical Statistics Unit.

The Philippines

1. Policy Development

- **National Adaptation Plan (NAP)**
  - The Philippines' NAP (2023–2050) formally recognises public health as a priority sector.
  - Adaptation objectives and actions for health are embedded in the NAP.
  - Developing a Health and Climate Change Roadmap and Action Plan with clear short, medium and long-term targets.

2. Institutions and Capacity Building

- **Coordination Mechanism**
  - The CCC leads NAP development and coordination.
  - The Department of Health (DOH) collaborates with CCC to integrate health into climate policy and hospital resilience programmes.
  - HCCO established in January 2025 focal point for climate–health programming and coordination.
- **Training initiatives** including the following:
  - Manuals and guidance for Green & Safe health facilities.
  - Department of Health–Americares Climate Resilience Toolkit for Health Centers (launched July 2025) to support barangay-level preparedness.

3. Service Delivery and Infrastructure

- **Climate-Smart and Resilient Facilities**
  - DOH's "Green & Safe Health Facilities" guidance establishes standards for resilient design.
  - CCC/DOH Climate-Smart Hospital Framework developed to promote energy-efficient and climate-resilient hospitals.
  - By 2024, 25 per cent of government hospitals had achieved "Green & Safe" recognition, with a target of 50 per cent by 2028.
- **Preparedness for Climate Hazards**
  - DOH has disaster preparedness mechanisms.
  - In March 2025, DOH issued a Department Memorandum No. 2025–0114 (Heat-Health Guidelines) requiring: facility/staff preparedness; cooling centres and hydration stations; public literacy campaigns; and heat-related illness surveillance. However, no comprehensive national Heat Action Plan exists.

4. Priority Climate–Health Risks

- **Heat**
  - 2024–2025 heatwaves caused spikes in illness and deaths.
  - DOH advisories included first-aid, hydration campaigns, and emergency preparedness.
- **Air Pollution**
  - DOH issued advisories on Air Quality Index (AQI) monitoring, recommending protective measures for vulnerable groups.
  - The Clean Air Program (2024) expanded air monitoring for $PM_{2.5}$, NO_2, O_3, and other pollutants.
  - Civil society (e.g., Healthcare for Clean Air Alliance) actively advocates for enforcement and integration into curricula.
- **Vector-Borne Diseases**

National Dengue Prevention and Control Program including the following:

- Surveillance (PIDSR system) aggregates data on all notifiable diseases. PIDSR connects local Rural Health Units (RHUs) and Barangay Health Stations (BHS) to regional epidemiologists and the DOH epidemiology unit, enabling integrated surveillance and prompt feedback loop mechanisms.
- Case management and vector control.
- Health promotion and research.

Malaria strategies include micro-stratification, microscopy centres, and indigenous-focused approaches.

Thailand

1. Policy Development and Strategic Planning

- The HNAP Phase 1 (2021–2030) is being implemented.

  Missions:
  - Formulating national health policies and directions in response to climate change.
  - Creating national excellence on health and climate risk management by enhancing the standards of health promotions, prevention, and strengthening the resilience of people and community.
  - Promoting multisectoral collaborations at national and international levels for resilient public health management that benefits Thailand efficiently and sustainably.

2. Institutions and Capacity Development

- Thailand has established a high-level NCCC chaired by the prime minister, along with climate change coordinator officers (CCCOs) across ministries to foster vertical and horizontal coordination.
- NCCC determines the national policies and ensure the alignment with the international ratification.
- The PHACCP Steering Committee is established to develop policies, measures and provide suggestions to the NCCC.

3. Service Delivery and Infrastructure

- Thailand has implemented the Green and Clean Hospital practice since 2011, aimed at reducing emissions and promoting sustainable sanitation. The GREEN and CLEAN hospitals programme with 746 hospitals and 3,099 sub-district hospital members is an active member of the GGHHN in Thailand (HCWH, n.d.(b)).
- A climate vulnerability assessment report for healthcare facilities (2024) seeks to establish baselines and inform adaptation efforts.

4. Health Workforce Training

- Four days in-person training conducted by Health Impact Assessment Division, Department of Health, Ministry of Public Health, Thailand in partnership with TICA. Included participants from ASEAN countries. This was designed to build capacity among public health and environmental officers across ASEAN and beyond, featuring expert inputs from WHO SEARO and leading Thai universities. Participants also visited a hospital demonstrating low-carbon healthcare and disaster preparedness efforts.

5. Surveillance for Specific Climate Risks

- Thailand lacks a specific heat action plan. Thailand has a national-level heatwave warning system, which does not include targeted measures for vulnerable groups (Gupta, 2023).
- The Department of Disease Control (under MoPH) has analysed heat-related illness data (2010–2013) alongside temperature records, laying the groundwork for a sentinel surveillance system and potential collaboration with the Meteorological Department on heat warnings. Building on this, a Heat-Health Surveillance Warning System (HHSWS) is under development. This involves an Extreme Heat Tool (EHT) that uses local Heat Index (HI) readings.

Bangladesh

1. Policy Development

- Bangladesh adopted an HNAP 2018–2023, developed under the leadership of the IEDCR, MoHFW, with technical support from the WHO.
- Also implemented "National Action Plan on Short-Lived Climate Pollutants (SLCP)" which is estimated to reduce at least 9,000 premature deaths associated with PM 2.5 by 2040.

2. Institutions and Coordination Mechanisms

- Led by the MoHFW through the Climate Change and Health Promotion (CCHP) Unit.
- CCHP Unit houses:
  - Advisory Group → oversight of all climate change & health activities.
  - Technical Working Group → focused on HNAP implementation, and linking with the NAP focal point.

Coordination mechanism builds on existing health sector institutional arrangements to align with national priorities.

A dedicated HNAP Task Force will be established to:

- Update the HNAP.
- Monitor and evaluate progress.
- Ensure cross-ministerial coordination.

- Priority areas identified along with time frames, budgets and leading agencies in HNAP. For instance, Directorate General of Health Services (DGHS), including divisions such as NCDC, Community-Based Health Care (CBHC), Primary Health Care (PHC), Health Engineering Department (HED); IEDCR; NCDC; Local Government Division (LGD); Lead District Hospitals (LDH); Planning Cell, MoH & FW. Also, an M&E plan exists in the HNAP document

3. Health Workforce Training

- BCCP developed multi-module training curricula with WHO's support. This was done for two types of audiences: central-level officials of units under the Directorate of Health and the District & Upazila-level Health Program Manager, including Civil Surgeon and Upazila Health and Family Planning Officer.
- Certificate courses by CCHPU in collaboration with Disaster Science and Climate Resilience and international development partners like UNFPA, FCDO etc.

4. Surveillance

- Current disease surveillance systems are not well integrated with climatic parameters. Limited availability of meteorological and epidemiological data, along with inadequate monitoring of climate-sensitive diseases, restricts the health system's ability to issue early warnings, generate forecasts, and mount timely responses to potential outbreaks (discussed in HNAP).
- In May 2024, MoHFW and WHO organised a national workshop to integrate a One Health approach into the National Strategic Plan (NSP) for Surveillance, Prevention, and Control of Dengue. The goal is to align human health, environmental, agricultural, and municipal sectors for systemic early warning and coordinated response.

Singapore

1. Climate and Health Efforts by Government of Singapore

- Singapore folds health-related climate actions into *whole-of-government frameworks* (e.g., GreenGov.SG, National Climate Change Risk Assessment (NCCRA), NEA's environmental health programmes) rather than creating a "health-only" adaptation plan.
  - **National Climate Change Resilience Framework (NCCRF)** under the NCCS → identifies health risks (heat, vector-borne disease, haze, and water security).
  - **MoH** → issues operational guidance on haze episodes, vector control (e.g. dengue), and heat stress advisories.
  - **GreenGov.SG/NCCS Adaptation Strategies** → cover resilience of hospitals, healthcare infrastructure, and emergency preparedness, but again not consolidated into a health adaptation roadmap.
- **Targeted operational focus** → Instead of broad strategies, Singapore has concrete programmes:
  - **Wolbachia-based dengue suppression** (global leader, large-scale).
  - **Haze early warning and advisories** (real-time PM 2.5, Pollutants Standard Index (PSI), and MoH-issued health guidance).
  - **Heat Stress Advisory (HSA)** (national guidance linked to MoH expert panel). Progressively deploying more Wet-Bulb Globe Temperature (WBGT) sensors in other parts of Singapore, including in residential districts. Such sensors will augment the HSA and sector-specific guidelines, and enable the Government to better quantify, track and monitor heat in Singapore. Singapore also developed heatwave response plans for both public and sector-specific populations. Singapore formulated urban heat island workgroup as part of which public health and infrastructure departments would work together to mitigate effects of urban heat islands (Aik et al., 2023).
  - **Green hospital infrastructure pilots** (energy efficiency, renewables, naturally ventilated wards). Case examples show on-site Photovoltaic (PV) and high-efficiency design: Khoo

Teck Puat Hospital (PV installation as part of its energy-reduction plan) and Ng Teng Fong General Hospital / Jurong Community Hospital (Building and Construction Authority [BCA] Green Mark Platinum; large share of naturally ventilated beds).

2. Main Agencies Involved

- **MoH**: Core health system functions; oversees disease surveillance.
- **NEA:**
  - **Air quality monitoring** → PSI, PM 2.5, and haze forecasts, with health risk bands coordinated with MoH.
  - **Vector-borne disease control** → surveillance and control of *Aedes* mosquitoes; NEA's "Wolbachia project" is one of the biggest dengue interventions globally.
  - **Environmental health regulation** → sanitation, waste, pollution control, and water safety.
  - **Climate-related health risk monitoring** → works with NEA's Meteorological Service Singapore (MSS) on heat stress indices (WBGT) and climate projections.
- **Other agencies**
  - **NParks:** Urban cooling and greening (reducing heat island effect).
  - **BCA:** Resilient and energy-efficient healthcare infrastructure.
  - **NCCS:** Sets overall adaptation strategy, including health.

3. Health surveillance

Singapore is enhancing biosurveillance through a multi-agency One Health framework involving the CDA, NEA, NParks, SFA, and PUB to strengthen protection against climate-sensitive vector-borne and zoonotic diseases.

This includes joint monitoring and assessment of emerging threats at the human–animal–environment interface, such as avian influenza, Zika, and leptospirosis.

Indonesia

1. Policies and Planning

- Indonesia developed an HNAP 2020–2030, with technical support from WHO.
- MoH Regulation No. 532 of 2019 formally established the *Technical Team for Adaptation to the Impacts of Climate Change in the Health Sector*.
- Coordination led by the MoH, with WHO and other partners providing guidance and technical support. MoH operationalises health response via Directorate of Environmental Health, *Pusat Krisis Kesehatan* (Health Crisis Centre) and surveillance units.
- The MoH also issued MoH Regulation No. 1018/2011 on Climate Change Adaptation Strategy in Health and MoH Regulation No. 035/2012 on the Identification of Disease Risk Factors related to Climate Change.
- VAA 2023 conducted by MoH.
- Climate-Resilient Healthy Village and Urban Areas (Desa/Kelurahan Sehat Iklim [DEKSI]) Guidelines (2025)—provide instruments for assessing village-level climate–health adaptation capacity.
- Health is a priority identified in the NDC targets submitted to UNFCCC in 2016 and updated in 2021.

2. Service Delivery and Infrastructure

- Renewable energy and cold chain pilots are being promoted in health facilities, supported by UNDP.
- Focus on ensuring health system resilience in delivering immunisation, essential medicines, and climate-sensitive health services.
- Safe Hospital (*Pedoman Rumah Sakit Aman Bencana*) guidance is published by MoH. This formal guidance sets standards for hospital command systems, continuity plans, and surge staffing.

3. Climate & Health Surveillance Systems

- Vulnerability and Risk Mapping— *Sistem Informasi Aplikasi dan Pelaporan Keuangan* (SIAPIK) Platform (currently under maintenance): Indonesia's reporting system for climate-resilient village assessments, connected to the MoH.

- *Sistem Informasi Kelola Limbah Medis* (SIKELIM) Platform to assess and monitor the climate-resilient and environmentally sustainable healthcare facility—in progress of finalisation.

4. Local Implementation: Jambi Province

- Climate-Resilient Healthy Villages (Desa Desi) Initiative (ATACH, n.d. (c)).
    - Early policy advocacy by the Jambi Provincial Health Office (PHO) led to a Government Decree institutionalising climate–health adaptation at the village level.
    - Vulnerability assessments (2022): 11 pilot villages selected.
    - Capacity building (2023): Training for district/village officials, health workers, sanitarians; creation of Village Health Adaptation Task Forces.
    - Community engagement (2024): Participatory planning with youth groups and health volunteers; local adaptation plans developed, focusing on climate-sensitive diseases.
    - Integration (2025): Adopted as a national performance indicator in MoH's Strategic Plan (2025–2029); guidelines and tools issued.
    - Monitoring, Verification, Reporting (ongoing): Villages conduct standardised self-assessments, verified by health officers and uploaded to a centralised system.

Malaysia

1. Policy and Planning

- The National Policy on Climate Change 2.0 (2024) and NAP development materials identify health risks (heat, vector-borne disease, haze) and call for sectoral plans. Malaysia received approval from the GCF on August 22, 2024 to develop the NAP. In the first year, focus on developing the National, Subnational, and Sectoral Adaptation Plans by organising stakeholder consultations at the national, state, and sectoral levels. No separate HNAP exists.
- For broader environment health concerns, NEHAP aims to systematically address environmental health risks—physical, chemical, biological—that affect public health in Malaysia. The MoH Secretariat (Engineering Services Division) coordinates NEHAP. A formal guidance document was published (2015) to guide implementation. NEHAP is designed to be intersectoral, involving not just health ministries but also environment, water, urban planning, local governments, etc. According to National Disaster Management Agency (NADMA), Malaysia is developing the next NEHAP strategic plan for 2026–2030.
- Malaysia is also developing a National Planetary Health Action Plan (NPHAP) to more deeply integrate environmental health, climate change, and sustainability.

2. Initiatives by MoH

- MoH: Health Advisory for Workplaces During Haze.
- Dengue: Routine surveillance, cluster response and vector control are active; research supports climate-informed forecasting.
- MoH and partners report large uptake of green building certification across hospitals, and the government launched a Carbon Neutral Healthcare Facilities Blueprint to push renewables and efficiency (goal: zero-carbon pathways to 2045). Evidence shows dozens of hospitals already green-certified, and targets set for broader coverage.
- Studies and government reports link haze/PM and temperature to respiratory and vector-borne disease outcomes (Jaafar et al., 2021). Meteorological and health agencies collaborate on early warnings (MetMalaysia, MoH advisories). But a fully institutionalised, automated linkage for all climate-sensitive diseases is not evident in public sources—progress appears to be through pilots and research studies.

Vietnam

1. Governance and Planning

- **Policy**
    - Health is recognised in Vietnam's National Climate Change Strategy (2021–2050) as a vulnerable sector requiring adaptation.
    - Vietnam's MoH leads climate–health governance through the National Action Plan for Health Sector Response to Climate Change 2019–2030 (vision to 2050).

- To implement the plan, the MoH proposed tasks and solutions including policies and organisational management; communication; education and capacity building training; developing and scaling up models for responding to climate change and extreme weather events; enhancing scientific research, international cooperation, and social mobilisation; mobilising financial resources; as well as monitoring, supervision, and evaluation.
- Some action plans of the health sector have also integrated climate change adaptation contents such as the Plan to implement the Patriotic Hygiene Movement to protect and improve people's health, the Plan to implement Green–Clean–Beautiful medical facilities, the Action Plan for malaria prevention in the period 2015–2020, the National Action Plan on Nutrition to 2020, and the Action Plan on preparation and response to natural disasters in the health sector in the period 2015–2020.

- **Coordination Mechanisms**
  - The Ministry also assigned specific tasks to departments, institutes, and provincial health departments, and requested coordination with other ministries, agencies, and provincial People's Committees.
  - Coordination is multi-sectoral: MoH collaborates with the MONRE (climate policy), the Ministry of Agriculture and Rural Development (MARD) (vector control, water), and international partners (WHO, UNDP, and GCF).

2. Financing

- Domestic financing mechanisms for health adaptation are still under development.
- A series of priority projects worth more than VND 1,500 billion were also proposed.

3. Service Delivery and Infrastructure

- The MoH, supported by WHO, is piloting climate-resilient and environmentally sustainable health facilities, advancing practical elements of decarbonisation and resilience—examples include solar-powered community clinics.
- The pilot project, led by WHO and the MoH of Vietnam since 2021, tested practical ways to make health care facilities more climate-resilient and environmentally sustainable. Three hospitals in Vinh Long (Mekong Delta), Nghe An (central Vietnam), and Lao Cai (northern mountains) were selected because they face distinct climate risks such as flooding, drought, saltwater intrusion, and water scarcity (ATACH, n.d. (b)).

The pilot focused on four components:

- **WASH and HCWM.**
- **Capacity building and awareness raising.**
- **Energy efficiency and green energy.**
- **Infrastructure, technology and products.**

- **Infrastructure Improvements (ATACH, n.d. (b))**
  - Vinh Long (Mekong Delta): Installed a brackish water desalination system; solar panels and energy efficiency upgrades reduced energy costs by 20 per cent.
  - Nghe An (Central Vietnam): Constructed a dedicated waterline delivering 200 m^3/day to Yen Thanh Hospital.
  - Lao Cai (Northern mountains): Built a rainwater-for-drinking (RFD) system with catchment, storage, and treatment.
  - Cross-cutting: Facilities upgraded handwashing stations, toilets, and waste management technology.
  - Energy and sustainability gains: Renewable energy and efficient systems created financial savings, which hospitals reinvested in quality improvements.

4. Implementation Resources as Identified in the Plan

a) At the Central level

The Department of Health Environment Management is the focal point, coordinating with relevant units under the MoH such as the Department of Medical Examination and Treatment Management, the Department of Preventive Medicine, the Department of Medical Equipment and Construction, the Department of Science, Technology and Training, the Department of Planning and Finance, the Department of Legal Affairs, Institutes under the preventive medicine system, hospitals and other relevant units to implement activities on policy mechanisms,

surveys and assessments of the adaptability of the health system, scientific research and pilot models of response to climate change.

Coordinate with the Department of Emulation and Reward Communications, news agencies, newspapers, ministries, unions and provincial Centers for Disease Control to carry out communication activities, improve the capacity to respond to climate change of the health sector. In addition, there is the participation of Institutes under the preventive medicine system and research institutes under the MoH in research activities, capacity building training, model building, inspection and supervision.

Strengthen coordination with ministries and branches such as the MONRE, the Ministry of Agriculture and Rural Development, socio-political organisations such as the Fatherland Front, Women's Union, Farmers' Association, Youth Union, etc. and mobilise the attention of Party committees at all levels and local authorities to invest in climate change response activities of the health sector.

b) Locally

Activities implemented at the local level mainly rely on the health sector network: At the provincial level are the Department of Health, the Center for Disease Control/Provincial Center for Preventive Medicine, and provincial hospitals. At the district level are the District Health Centers and District Hospitals.

At the commune and village levels are the commune and ward health stations and village health workers.

India

1. Governance and Planning

- The NAPCCHH provides the national framework for climate–health action. A total of 17 climate-sensitive diseases or health issues have been identified for prioritised action and integration within the NPCCHH framework.
- State Action Plan on Climate Change and Human Health (SAPCCHH) are in place to implement adaptation measures at the subnational level.

2. Institutional Mechanism

- The MoHFW oversees climate–health work.
- The NCDC leads through its Climate Change & Human Health Cell, which coordinates planning, monitoring, and capacity building.

3. Financing

- INR 199 crore (approximately USD 24 million) has been proposed for implementation of NAPCCHH.

4. Capacity Building & Training

- Training of District and State Nodal Officers on climate and health adaptation.
- Development of community-level training modules to strengthen grassroots response capacity.

5. Service Delivery and Infrastructure

- Solarising public health facilities to ensure energy resilience, e.g., partnerships with SELCO Foundation in Northeastern states (ClimaHealth 2023).
- Efforts to strengthen health system preparedness for heat, vector-borne, water-borne, and zoonotic diseases.

6. Surveillance & Information Systems

- IHIP established for real-time reporting and monitoring of climate-sensitive diseases (e.g., malaria, dengue, diarrhoea, and heat-related illnesses).
- Improved disease surveillance and integration with climate parameters is ongoing.

About the authors

Neethi V. Rao is a Fellow in the Health and Human Development team at CSEP. She is a health policy and systems researcher with interests in health systems governance and intersectoral public policy at the intersections of environment and health. Her research and practice have involved providing technical support in strategic planning, policy design, implementation, and evaluation including impact assessments for governments and international development agencies. She also develops and delivers online and in-person training programmes on participatory governance, good health research practice and promoting evidence-informed policy. She worked with the health systems governance team at the World Health Organization, supporting research and advocacy towards a World Health Assembly Resolution proposal on social participation for 2024. She is also Adjunct Faculty at the Institute of Public Health, Bengaluru.

Priyanka Tomar is a Research Associate in the Health and Human Development vertical at the Centre for Social and Economic Progress (CSEP). She is a public health researcher with a regional focus on South and Southeast Asia and brings over eight years of experience in policy-oriented research on health systems and human development.

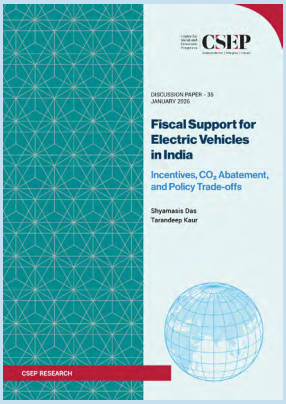
Prior to joining CSEP, she served as an Assistant Professor of Economics at Hidayatullah National Law University, Raipur. She previously worked in the Health vertical at the Indian Council for Research on International Economic Relations (ICRIER), New Delhi, where she contributed to research on health system reforms, the G20 health agenda, food safety regulations, disease prevention, traditional medicine, and migration-related health issues.

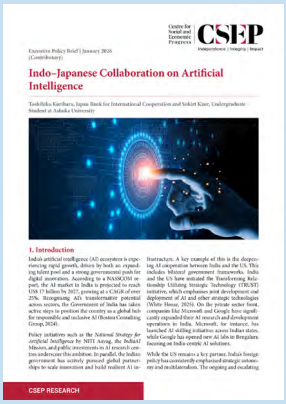
She has co-authored several publications on development and public health policy, particularly in the Asian and G20 contexts. Priyanka holds a Master's degree in Economics from the Gokhale Institute of Politics and Economics, Pune, and a Bachelor's degree in Economics from the University of Delhi.

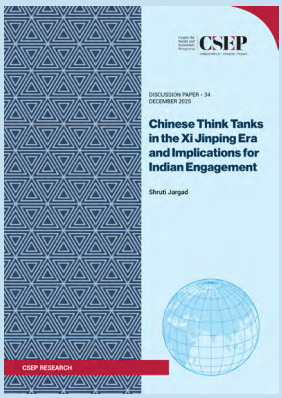
THE ASIAN
COLLECTIVE
FOR HEALTH SYSTEMS

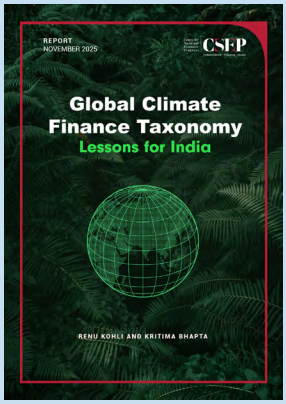
The Asian Collective for Health Systems (TACHS) is a multi-stakeholder platform spanning government, development agencies, academia, and civil society — to strengthen knowledge-sharing and regional collaboration on health in South and Southeast Asia. TACHS is a research initiative and convening platform to engage in discussions on primary healthcare, the intersection of climate, geopolitics and health, with an emphasis on institutions and governance systems. For more details, please refer - https://asianhealthcollective.org/

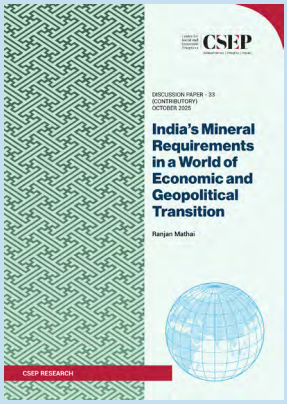
Other publications

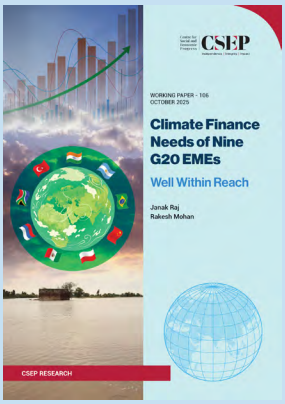


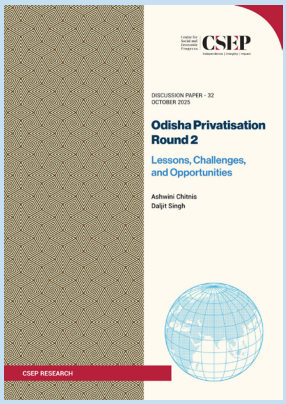


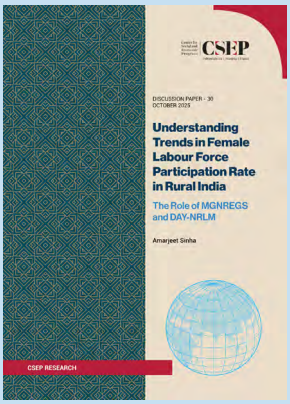


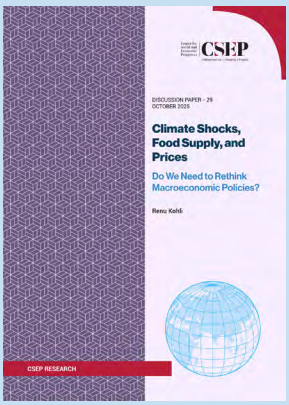


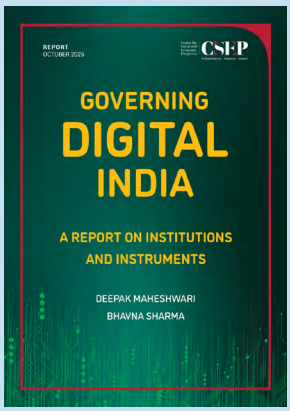


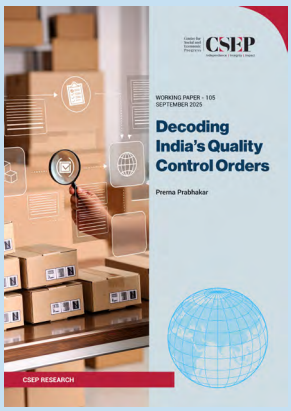


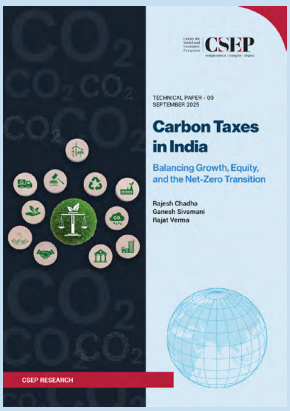












All CSEP publications are available at www.csep.org

Independence | Integrity | Impact

Centre for Social and Economic Progress

6, Dr Jose P. Rizal Marg, Chanakyapuri, New Delhi- 110021, India

Centre for Social and Economic Progress

@CSEP_Org

www.csep.org