



THAILAND

CLIMATE CHANGE AND HEALTH SYSTEM RESPONSE

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The main objective of the study was to gather evidence on climate change and its impacts on health in South Asia (SA), South-East Asia (SEA), and the Pacific Islands (PI). The study was conducted in collaboration with esteemed partner— Asia Disaster Preparedness Centre (ADPC).

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TABLE OF CONTENTS

TABLE OF CONTENTS

Introduction.....	6
Challenges.....	7
Good Practices	9
Health System Response	11
Recommendations	12
References	14





INTRODUCTION

Thailand is recognized as highly vulnerable to climate variability and change due to increasing natural hazards, such as heavy rainfall, floods, and droughts, as well as sea level rise impacts on the country's coasts [1]. Under a high emissions scenario, and without large investments in adaptation, an average of 2.4 million people is projected to be **affected by flooding due to sea level** rise every year between 2070 and 2100 [2]. Damage to manufacturing facilities following a disaster and loss of labour productivity will also have cascading economic consequences. All these impacts will indirectly result in adverse health outcomes for Thailand.

More direct impacts of climate change on public health in Thailand include **heat related illnesses**, altered patterns of infectious diseases, and health impacts of climate change induced extreme events. Heat-related morbidity in the country has increased by more than six times in two years [3] between 2013 and 2015 from 0.77 per 100,000 population to 5.17 per 100,000 population. Particularly, heat-related deaths among the elderly are predicted to increase to about 58 deaths per 100,000 by 2080 in comparison to 3 deaths per 100,000 annually between 1961 and 1990 [4].

Climate change induced alterations in **infectious disease** patterns is another emerging health risk for the population of Thailand. The mean relative vectorial capacity for dengue fever transmission in Thailand is projected to increase from 0.75 during baseline to 0.8 by 2070, under

the high emission scenario of RCP 8.5. It is projected that by 2070, nearly 66 and 71 million people will be exposed to malaria assuming low and high emission scenarios respectively [4].

Additionally, **climate change risk to food and nutrition security** in Thailand is also becoming a major public health challenge for the country. Rain-fed rice yields are projected to reduce by 10% by 2080 under the RCP 8.5 emissions pathway and crop water productivity to reduce by 29% by 2080 under the same emissions pathway [5]. Lack of food availability in Thailand by the year 2050 under RCP8.5, could lead to approximately 44.68 climate-related deaths per million population [6].

This policy brief throws insights on climate change implications on human health, challenges associated and country priorities with regards to these risks, their health systems response and perspectives to build resilience in the health sector. The opportunities and recommendations hereby mentioned are the outcome of a desk review and stakeholder consultation with officials, civil society, and multilateral representatives. The findings indicate a mix of knowledge available in the public domain as well as information sought locally.

CHALLENGES

Weak Surveillance Systems: Weak surveillance systems for climate sensitive diseases in particular results in evidence gaps, lack of information and knowledge for planning as well as monitoring and evaluation of interventions. One of the main causes of weak surveillance systems is lack of infrastructure as well as challenges of availability and accessibility to technology.

Human Resources for Health (HRH): The HRH in Thailand is inadequate and mal-distributed for effective planning and management of an efficient health system response to climate change. Moreover, the existing workforce does not possess sufficient skill mix desired for such a response. In addition, there is an issue of high turnover of health workforce.

Weak Primary Healthcare (PHC) in Urban Areas: Poor and middle-income people in Thailand mostly rely on primary healthcare services [7], however, 95% of local health centres lack a physician [8]. The health centres in urban areas operate under great pressure and the population remains underserved in terms of healthcare services. The Bangkok Metropolitan Authority for instance, has 69 primary care centres serving nearly 8 million citizens along with 3 million domestic and 1 million international migrants [9]. This constraint in primary healthcare service, both in terms of quality and quantity, adversely impacts the adaptive capacity of the people living in urban areas. In case of a climate emergency, these centres get overcrowded with patients slowing down the health system response in such situations.





Shrinking Fiscal Space: The country currently spends 3.90 percent of its GDP on health, which is expected to be 4.10 percent in 2027. As per the estimates, the spending on public healthcare in 2032 in Thailand will be 480 billion baht or more [10]. The extra cost produced by climate-induced illnesses is yet to be quantified but will likely further burden public finances.

Overlapping Institutional Authority: With the establishment of the National Health Security Office (NHSO) in 2002, National Health Commission Office (NHCO) in 2007 and Emergency Medical Institute of Thailand in 2008, the Ministry of Public Health (MOPH) is no longer the sole health actor. Independent public agencies, local government agencies, and non-state actors are increasingly active health actors. The MOPH has, therefore, to learn how to work constructively and engage with all relevant stakeholders, in a network manner, to contribute to

the achievement of national health goals and fulfil its mandate as the national health authority.

Research and Data Gaps: Globally studies suggest that climate change and associated increases in climate variability are creating new health risks, exacerbating the existing health disparities and weakening the health systems. However, such evidence is lacking in most developing nations including Thailand partly due to limited research on this subject and partly due to availability and accessibility of the data required. Without such evidence, the country cannot frame informed policies to address climate change related public health risks.

GOOD PRACTICES

BANGKOK HOSPITAL, CHIANG MAI

1. Established an environmental management system in accordance with the environmental management system standards.
2. In compliance with the directive to become a “Green Hospital” for executives, doctors, and staff members at all levels.
3. Goal: The environment will be cooperatively protected, taken care of, and maintained by using environmental management system standards (ISO 14001).
4. Engage with organizations, communities and stakeholders to work together, in order to foster sustainability in environmental stewardship.





Other examples of green hospital initiatives in Thailand include:

1. Phimai Hospital

- 90-bed hospital from the NakornChaiBuRin Region of Nakhon Rachasima Province that recycles paper and food wastes into organic fertilizers distributed to the hospital personnel for their organic gardens.

2. Buayai Hospital

- Treats waste water of over 180 cubic meters per day and uses Biogas resulting in significant reduction in demand for LPG from 16 tanks to 8

3. Namphong Hospital

- Practices waste recycling & reduction and had Solar panel installed with support from Mitsubishi Motors (Thailand) Co., Ltd.

HEALTH SYSTEM RESPONSE

In 2002, after 30 years, through **incremental investment in health-service delivery infrastructure**, Thailand has reached the goal of Universal Health Coverage. Out-of-pocket spending (OOP) has declined from 27% in 2002 to 10.5% in 2020 [10]. Thailand's per-capita health budget increased from 57 USD in 2002 to 305 USD in 2020 [11]. Between 2001 and 2010, the public finance sources of total health expenditure in Thailand increased from increased from 56% to 75% [11].

The **National Climate Change Master Plan** includes three main components; one of which is adaptation where health is a major area. The document provides a comprehensive guideline of the activities necessary to strengthen health systems, namely research, dissemination, anticipatory action, efficiency and community knowledge. Monitoring and alert systems are being established across the country and data is being integrated into a national database shared among different ministries and authorities.

Since the 2003 SARS epidemic, there have been substantial efforts to enhance preparedness through **training and capacity building**. Early action protocols have been established across ministries and local structures to respond to major disasters, particularly floods, triggered by early warning systems and shared surveillance information.

Under the **National Adaptation Plan**, public awareness has been one of the key objectives. To reduce risks, increase adaptive capacity and ensure participatory approach, the framework prioritizes community-based education and remedial mechanisms.



RECOMMENDATIONS

- 1. Bottom-Up Approach:** As regional inequalities in healthcare access, contributes towards increased vulnerability to climate change, a greater emphasis should be directed towards participatory and inclusive local solutions by building greater local capacities and increasingly engaging communities. In this context, traditional knowledge systems should also be explored in form of nature based solutions. For instance, using indigenous plants to control mosquito population, or making provision of traditional fish ponds from malaria control, and restoring wetlands to provide habitat for natural predators of vectors can prevent spread of VBDs in the area.
- 2. Improved Surveillance:** Improved surveillance systems and environmental monitoring for climate sensitive diseases is important for efficient data collection that can further facilitate planning for addressing climate change risks to public health. In addition, the surveillance helps address the data gaps, promotes research and supports informed policy and decision making that is based on knowledge that is country specific and not the global findings. This data also enables monitoring and evaluation of the interventions implemented.
- 3. Early warning system:** Early warning systems aid in communication of information about impending risks to vulnerable people before the actual occurrence of a hazard event strengthening climate resilience of the group/s and/or system/s. The robust early warning systems are an important pillar of a resilient health system. There is a need to implement effective early warning systems against infectious diseases, extreme events, heatwaves, air pollution, and other climate threats. These systems should further be expanding to other sectors (such as agriculture to ensure food and nutritional security and safeguard the livelihoods of farmers) and should have improved spatial coverage to help people in vulnerable areas in minimising their exposure to climate change related hazards.
- 4. Smart Health Care:** Health care sector should not only be focussed upon from adaptation perspective but should also be considered for mitigation actions and co-benefits. Thai government can plan to focus on building health system resilience through adaptation as well as decarbonising the health sector.
- 5. Capacity Building:** Building capacities in terms of infrastructure as well as skilled workforce is extremely crucial for Thailand to develop an effective health system response to climate change risks in the country. This would require sufficient funding to support infrastructural capacities as well as to improve medical curriculum, and support training and capacity building of human resource in health sector in terms of climate preparedness.
- 6. Vulnerability Assessments:** Certain sections of the Thai society have weaker capacities to cope and adapt to health risks of climate change. This increased vulnerability of certain groups is due to



related to their gender (women), age (children and elderly), socio-economic status (poor with limited access to health and basic services such as clean water, electricity, clean fuel) as well as their ethnicity (indigenous communities). There is hence need for periodic **climate and health vulnerability assessments** to

understand the urgency areas and groups that need support. In addition, **vulnerability assessments of the healthcare facilities** should also be conducted regularly to help build their resilience.

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