



ASEAN Socio-Cultural Community POLICY BRIEF

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EXECUTIVE SUMMARY

- Human-induced action (e.g., unsustainable economic development) increases climate change threats. Climate change impacts (e.g., rising temperature) continuously contribute to the rising burden of adverse health outcomes and disrupt the health delivery systems.
- As one of the regions highly and unevenly at-risk from climate-related hazards, ASEAN must prepare for the rising threats of climate change in the health sector by establishing climate-resilient health systems. Accordingly, enacting and improving climate change mitigation and adaptation in the health sector is essential to achieve this goal.

POLICY RECOMMENDATIONS

- Establishing mitigation policies in the health sector requires integrating cognitive capacity and flexibility into ASEAN Member States' health system by conducting capacity-building programmes to increase relevant stakeholders' understanding and involvement, identifying existing initiatives, and measuring the results of existing initiatives for climate mitigation in the region.
- Strengthening adaptation policies in the health sector involves enhancing the six building blocks of the health system to cope with climate-induced hazards by ensuring the achievement of the ten key components of a climate-resilient health system in the building blocks.

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Integrating Climate Lens Into The Health System: Regional Mitigation and Adaptation

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Introduction

Climate-related hazards contribute to the rising burden of adverse health outcomes and disrupt the continuity of health systems (WHO, 2021). This condition calls for evidence-based policies to mitigate and manage the health impacts of climate change in Southeast Asia (SEA).

This policy brief will explore the adverse effects of climate change on health and strategic actions that ASEAN can implement. The discussion encapsulates information from the 2nd ASEAN Public Health Emergencies (PHE) Webinar: 'Are ASEAN Health Systems Prepared for Climate-Related Health Threats?' The conceptual framework in Figure 1 elaborates the possible policies for the health sector to address climate change hazards.

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The Rising Climate Change Threats: Relationship with Health

WHO has mentioned that climate change is humanity's most significant health threat. Conversely, the health system is a considerable emitter that drives climate change. This section will explore these paradoxes.

Human activities, such as unsustainable development practices (e.g., exploitation of resources generating waste and pollution damaging ecosystems), have unequivocally caused increases in greenhouse gas (GHG) concentrations (Boylan et al., 2018). Global average concentrations of GHGs (CO₂, CH₄, and N₂O) in 2019 increased by about 47%, 156%, and 23%, respectively, above levels in 1750 (pre-industrial era) (IPCC 2021, p.676). Meanwhile, the ASEAN Centre for Energy (ACE) predicts that the region's GHG emissions will increase by 147% between 2017 and 2040 (ACE, 2020, p.22).

Various sectors contribute to these emissions, including health. The global healthcare sector had a climate footprint of two gigatonnes of CO₂e in 2014, equivalent to 4.4% of global net emissions (HCWH, 2019, p.19). O'Hara et al. (2022) noted that if worldwide healthcare were a country, the healthcare system would be the fifth largest emitter of GHG. In ASEAN, based on 2014-2015 data, Health Care Without Harm (HCWH) showed that healthcare systems in ASEAN still emit high emissions, with Viet Nam, Indonesia, Thailand, and the Philippines ranked 20, 21, 24, and 36 out of 68 countries (Enano, 2021).

This increase in emissions can reverse the positive impact on the health sector because the accumulation of these emissions will lead to a greater impact of climate change on all sectors, including health, directly and indirectly (see Figure

1). The rising emission also may create a cause-and-effect loop between the health sector and climate change.

Reports show that the healthcare sector was affected during these events in two ways: increasing disease incidence and health facility disruption. For example, Malaysia faces a 76% increase in flood risk to public health centres (ASEAN, 2021b, p.45). Furthermore, the flood has caused an increased incidence of dengue fever, malaria, and other food-borne and waterborne diseases (ibid.).

The community's vulnerability and social capacity will determine the level of climate change impacts. Climate change will disproportionately affect socially, culturally, and economically vulnerable groups and individuals who may lack the basic capabilities, social networks, and resources for building the adaptive capacity to respond (Boylan et al., 2018, p.4; see Figure 1). In summary, AMS must integrate climate change mitigation and adaptation into health actions. As part of the emitters that drive climate change, the health system can also be affected by climate change.

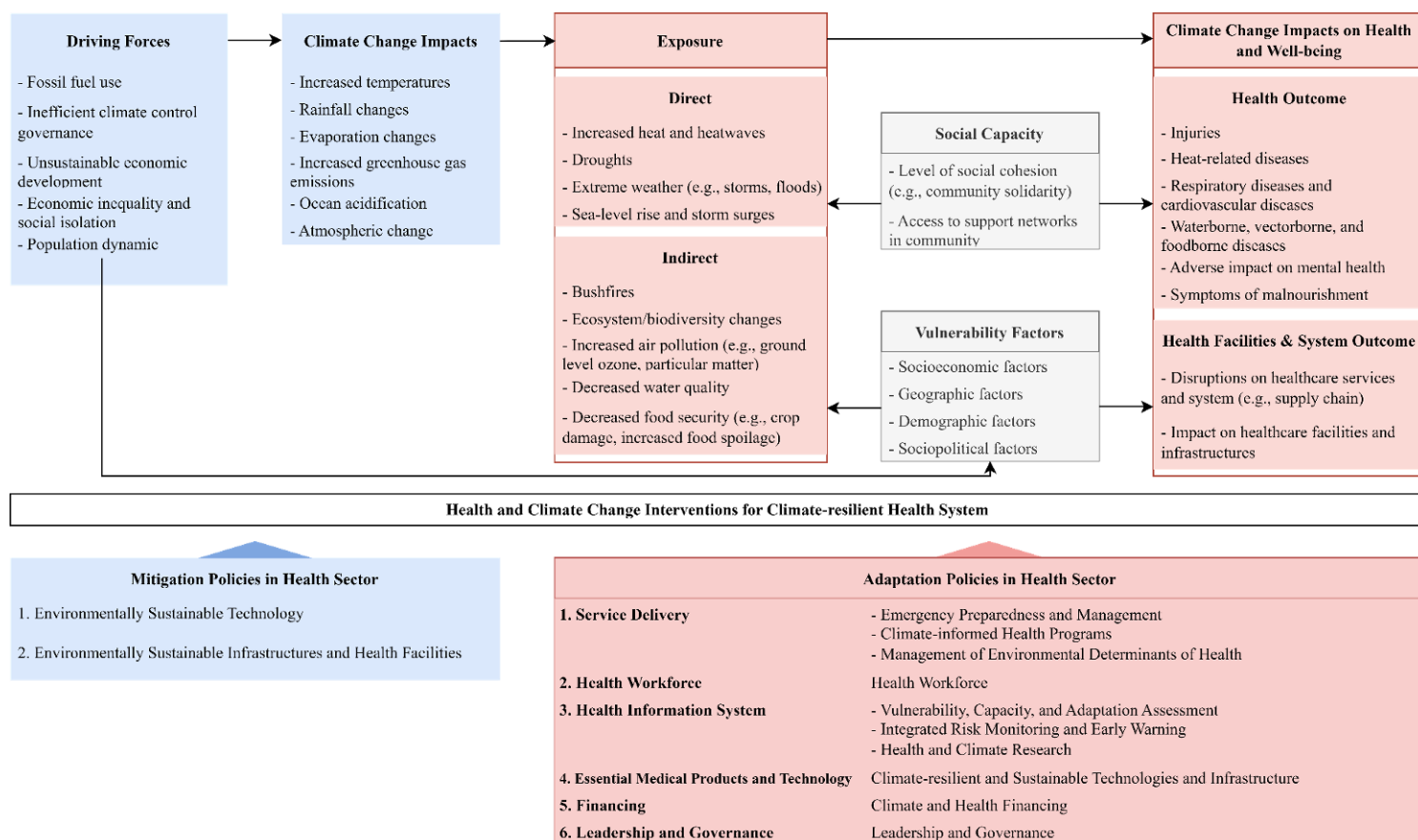
Integrating Climate Lens into Health Actions

Integrating the climate lens into health systems is crucial to promote climate-resilient actions and the ability to recover from the effects of hazardous events in a timely and efficient manner (IPCC, 2014, p.1108). A climate-resilient health system can anticipate, respond to, cope with, recover from, and adapt to climate-related shock and stress. It also aims to ensure sustained improvements in the population's health despite the rise of climate-related hazards (WHO, 2015, p.6).

Based on the conceptual framework illustrated in Figure 1, actions supporting climate-resilient health systems encapsulate: (i) Mitigation policies, intervention actions to reduce sources or increase the absorption of GHG (IPCC, 2001a) in health sectors; and (ii) Adaptation policies, a process

of adjustment to climate change (IPCC, 2001b), to ensure health systems can cope with climate-related hazards. Each policy will encompass several initiatives, adapted from the WHO Operational Framework for Building Climate-resilient Health Systems (2015) and information from the 2nd ASEANPHE Webinar.

Figure 1. Conceptual Framework for Climate Change Impact on Health and Well-being¹



¹ Adapted from Boylan et al., 2018, p.4; WHO, 2015, p.12; WHO, 2021; and Balbus et al., 2016, p.30

Mitigation Policies in Health Sector

To ensure the sustainable development of health systems in the region, AMS must mitigate and address climate-induced threats by reducing GHG emissions in the health sectors. In ASEAN, several AMS are trying to adopt this action. For example, Thailand's GREEN and CLEAN hospitals programme is a set of benchmarks to address their energy use, chemical consumption, food use, and waste production (HCWH, 2016). Almost all healthcare facilities under the Ministry of Health in Thailand have participated in this programme. The Philippines' Department of Health is also developing a green health facilities programme to create a climate-resilient and environmentally sustainable hospital (Law, 2022, p. 14).

However, building a sustainable hospital requires addressing several challenges. The most significant are transforming unsustainable practices (e.g., carbon-heavy supply chain), climate-resilient design, adequate supplies, and a green tax system (WHO, 2022; HCWH, 2016). There is also a lack of research and guidelines to develop standards and operational strategies for sustainable health infrastructures and supply chains. Notably, the region's current mitigation policies and initiatives focus more on intervention in non-health sectors (e.g., the ASEAN Initiative on Environmentally Sustainable Cities). Additionally, the disproportionate burden of climate change impacts on AMS with limited resources for mitigation initiatives and the high-income AMS' relatively greater contribution to GHG generate an imbalance to mitigation policies in the health system among the member states (Rasheed et al., 2021, p.1).

Another challenge is that national climate change mitigation policies or targets, such as the National Determined Contributions (NDCs), rarely include

the health co-benefits of climate mitigation (WHO, 2022, p.4). Conversely, when the NDCs mention the health co-benefits of climate mitigation, they are rarely measured (ibid.).

Recommendation: Realizing the integration between mitigation policies and the health sector requires a comprehensive approach. An important starting point is integrating health sector mitigation measures into the national climate change mitigation policies or targets (e.g., NDCs). This initiative aligns with 50 countries' commitments to developing climate-resilient and low-carbon health systems at the United Nations Climate Change Conference in Glasgow (COP26) in 2021 (WHO, 2021).

ASEAN should prioritize the development of sustainable health infrastructures and supply chains. To effectively implement these policies, AMS should conduct capacity-building programmes on integrating climate lens to health systems building blocks, including service delivery, human resource for health (HRH), health information system (HIS), crucial medical products and technology, financing, and leadership and governance (Foroughi et al., 2022, pp.4-10). These programmes can include lessons learned in procuring environmentally-friendly products and training programmes for healthcare workers. An example is UNDP's Sustainable Health in Procurement Project (SHiPP), a four-year project (2018-2021) aimed to promote accountability for sustainable procurement in the health sector by (i) developing standards; and (ii) strengthening capacity for monitoring and evaluation processes (UNDP, 2022). One of the AMS participating in this programme was Viet Nam, resulting in policies for sustainable procurement, such as the Prime Minister's Directive on reducing plastic waste in the health sector and the public-private sector engagement platform on sustainability in the health sector (Saving Live Sustainably, n.d.).

Notably, the act of reducing emissions in the health system among AMS with limited resources may consider collaborating with other countries or relevant organizations to calculate the carbon footprint in health systems, accelerate the shift to telehealth, reduce overprescribing of drugs and increase non-pharma options, develop visible standards, targets, and public reporting for decarbonized healthcare to further collaboration with potential donors (Rasheed et al., 2021).

Lastly, mitigation co-benefits from the health sector (e.g., the amount of GHG emissions reduced through energy efficiency or renewable energy use in health facilities) or vice versa (e.g., estimation of life expectancy gain or health effects

as air pollution is reduced) should be identified, measured, monitored over time, and included in cost-benefit analyses and policy-making processes (WHO, 2020b, p.8). AMS should include these calculations in the NDCs to drive high ambition and broad acceptance of climate actions and sustainable health policies.

Adaptation Policies in the Health Sector

ASEAN has shown commitment to adopting climate-resilient health systems by establishing guidelines and initiatives, including the planned ASEAN Centre for Climate Change (ACCC). All AMS have also enacted national policies and strategies for climate change adaptation (see Table 1).

Table 1. AMS's Main Policies and Strategies on Climate Change Adaptation

Country	Policy on Climate Change Adaptation
Brunei Darussalam	Brunei Darussalam National Climate Change Policy Volume 1 2020
Cambodia	<ol style="list-style-type: none"> 1. Cambodia Climate Change Strategic Plan 2014-2023 2. National Climate Change Action Plan for Public Health 2020-2024
Indonesia	National Action Plan on Climate Change Adaptation (RAN-AIP)
Lao PDR	Lao PDR National Adaptation Programme of Action to Climate Change
Malaysia	<ol style="list-style-type: none"> 1. Twelfth Malaysia Plan 2021-2025 2. National Policy on Climate Change
Myanmar	Myanmar Climate Change Master Plan 2018-2030
The Philippines	National Climate Change Action Plan 2011-2028
Singapore	<ol style="list-style-type: none"> 1. Climate Action Plan: A Climate-Resilient Singapore, For a Sustainable Future 2. National Climate Change Strategy 3. Singapore's Climate Action Plan: Take Action Today, For a Carbon-Efficient Singapore
Thailand	<ol style="list-style-type: none"> 1. Climate Change Master Plan 2015-2050 2. National Climate Change Adaptation Plan for Health Sector Phase 1: 2021-2030
Viet Nam	<ol style="list-style-type: none"> 1. The National Strategy on Climate Change by 2050 2. National Climate Change Strategy 2011

The discussion below analyzes ASEAN's adaptation policies. The policy is categorized into six health building blocks, encapsulating ten key components of climate-resilient health systems designed by WHO (see Figure 1). It is important to note that the recommendations mentioned in the discussion will need to be detailed further to develop tailored recommendations for each AMS, accommodating existing adaptation goals and climate change impacts in the country.

1. Service Delivery

Climate change adaptation in service delivery expands traditional healthcare delivery to better cope with climate change impacts. The expansion will enhance emergency preparedness and response (EPR), climate-informed health programmes, and management of environmental determinants of health.

EPR refers to the provision of rapid and coordinated actions during or immediately after an emergency to save lives, reduce health impacts, ensure public safety, and meet the basic subsistence needs of affected people (WHO, 2021). Emergencies can encompass multiple crises happening at the same time, such as extreme weather events during the COVID-19 pandemic. Thus, AMS needs to be equipped adequately against this climate-induced crisis. Recognizing the complex nature of these emergencies, the solutions need a cohesive response from all stakeholders, including the public and health sectors.

ASEAN has taken several actions to enhance EPR capacities, including establishing ASEAN Strategic Framework for Public Health Emergencies, managing the ASEAN Disaster Information Network, and developing ASEAN Emergency Response and Assessment Team. AMS have also made contributions. The Philippines, for example,

created artificial intelligence to build a priority index during disasters and incorporated social media response teams to disseminate information and involve the public in reporting disaster-related data. Additionally, the '5K approaches' or the 'health disaster safety in the hands of the community approach' in the Philippines promotes community-based initiatives to increase the community's capacity and reduce vulnerability to climate change impacts (Law, 2022, p.11). This policy empowers communities to face emergencies as first responders, minimizing the possible damage by equipping them with best practices and training for code of conduct during emergencies.

Several sectors could be improved. First, there is a need to develop the capacity to deal with complex multi-layered hazards catalyzed by climate change (AHA Centre, 2022). Second, ASEAN must address the low awareness of the linkage between climate change, disasters, and public health among the public, government officials, and health workforces (Tran et al., 2021; Rahman et al., 2021).

For the management of environmental determinants of health, scaling up multisectoral public health programmes is necessary. A crucial sector is those ensuring food and nutrition security. The impact of climate change on food security in the region, where many rely on their agricultural sector, is likely to be high as climate change affects the frequency and intensity of extreme events (e.g., droughts, heavy rainfall) directly and indirectly. The impacts of climate change on food security also increase the burden of malnutrition in the region. Smallholder farmers are highly exposed to weather events, making them vulnerable, and could potentially disrupt food security in the region as they produce most of the food consumed. In Indonesia, more than 25 million smallholder farmers provide food security and act as economic drivers (Tan, 2022). Thus, it is crucial to implement

policies targeted toward smallholder farmers, one of which is providing climate-related insurance.

The majority of AMS lack national programmes concerning agricultural insurance. Indonesia, the Philippines, Thailand, and Viet Nam are member states with national agriculture insurance programmes, while Cambodia has NGO pilot programmes supporting agriculture insurance (ASEAN, 2017). In 2017, ASEAN adopted the ASEAN Regional Guidelines for Promoting Climate Smart Agriculture Practices Volume II, covering agricultural insurance, aimed to transfer one of the production risks that farmers face to the private insurance sector. The guidelines provide steps and factors to consider in designing effective agricultural insurance products.

Recommendation: ASEAN can increase EPR capacity by optimizing new technology for detecting and analyzing emergencies to face overlapping crises (AHA Centre, 2022). An example is the UN Satellite Centre's (UNOSAT) FloodAI programme, which provides up-to-date imagery of flood-prone areas to generate flood-extent maps and help decision-makers list the most affected areas, resulting in timely intervention. Currently, Viet Nam, Cambodia, Myanmar, and Thailand are the only AMS trained and operationally ready for this tool. Further feasibility studies and training are required to utilize the tool in other AMS.

EPR can be enhanced by facilitating awareness-building initiatives for the public, health professionals, and the government. Awareness of the connection between climate change, disasters, and health crises will lead to climate-conscious decisions. Raising awareness also includes increasing the public's participation in the EPR system by integrating them as the first respondent. Thus, AMS need to equip them with the knowledge of what to do, how to adapt, and how to contribute during emergencies.

Regarding food security, investment in smallholder farmers will improve their livelihood, eradicate poverty, and enhance regional food security. Hence, national and regional levels need to empower smallholder farmers through accelerating agricultural insurance as well as cross-sector alliances designed to develop scalable business models to support smallholder farmers, including financing solutions and high-quality training.

2. Health Workforce

Health workforces have opportunities to advocate efforts to reduce the health sector's emissions and protect people from climate change's impact. Advocacy may encapsulate lobbying with national leaders to integrate climate and health actions, educating the public and stakeholders to build awareness and motivation for climate-resilient health systems, and leading advocacy for climate-resilient hospitals and climate-informed health programmes (Kotcher et al., 2021). Recognizing this, AMS have taken several steps to underpin health workers' role in climate change. Most national policies listed in Table 1 have mentioned strategies relating to health workforce strengthening and adaptation. Furthermore, ASEAN initiatives also boost health workforces' capacity through training and knowledge sharing, such as the ASEAN Regional Capacity on Disaster Health Management (ARCH) Project and the ASEAN Agreement on Disaster Management and Emergency Response (AADMER) 2021-2025.

Despite the rising number of initiatives, there is still limited number of assessments on health workforces' capacity and awareness of climate-resilient health system management. Few studies showed gaps in health workers' understanding of climate change and health linkages. A study in the Philippines showed that competencies for cross-sector engagement (e.g., diplomacy and

negotiation) for climate-resilient health systems are usually limited, if not lacking, among health workers (Guinto, 2019). The study in Viet Nam also indicated that health professionals and community workers have a moderately-low level of awareness of climate and epidemic changes (Tran et al., 2021).

Recommendation: Rising health workforces' awareness and capacity for climate change adaptation are crucial for climate-resilient health systems. For this, AMS must first conduct assessments for skilled health workforces' availability and their awareness, capability, or skill level for managing climate-resilient health systems at national and provincial levels. The results will then be used to develop training guidelines and curriculums to enhance capacity. Second, ASEAN must continue to establish collaboration and partnerships supporting the transfer of knowledge and training of health workers (e.g., ARCH Project and Cambodia Climate Change Alliance). Third, ASEAN can support the development of a curriculum and standards for experts in managing climate change adaptation in the health sector, similar to the ASEAN Standard and Certification for Experts in Disaster Management. Fourth, integrating climate change adaptation into health practitioners' school curricula will also support ASEAN's future endeavors in ensuring the availability of climate-resilient health system experts in AMS.

3. Health Information System

AMS have developed and implemented early warning systems (EWS), of which some platforms are linked and integrated into EWS platforms for multi-hazards, and some are standalone. EWS is the primary prevention to combat epidemics and detect preventable infectious diseases and health issues to institute immediate action. For instance, dengue surveillance in Singapore provided early

warning for the outbreak in 2007 and contributed to early activations of enhanced vector control (Lee et al., 2010). Concerning climate-related hazards, a pilot programme is being developed to improve science-policy integration (Renaud et al., 2021, p.19). Additionally, ASEAN has established the ASEAN Risk Assessment and Risk Communication Center to help in disseminating preventive and control measures.

ASEAN is also accelerating evidence-based research on climate change and health by establishing the ASEAN Centre of Climate Change in Brunei Darussalam. The centre is expected to become a hub for research, scientific data, and capacity building (Bakar, 2022). At the national level, Singapore also largely invested in launching the Climate Impact Science Research (CISR) Program (National Environment Agency, 2022). This programme aims to deepen an understanding of the long-term impact of climate change on Singapore as a benchmark for future health and climate strategies. The research will focus on sea level rise, water resources and flood management, biodiversity and food security, human health and energy, and cross-cutting research to bridge science-policy translation (ibid.).

Recommendation: Challenges in advancing integrated risk monitoring, EWS, and research in climate and health still need to be addressed. Among these challenges is the difference in priorities of each AMS such as in the direction and speed of data and analysis development. ASEAN needs to increase research activity and funding to develop evidence-based initiatives to address the mentioned gaps. Coordinating research efforts with national and regional goals is also necessary to enhance the research output and knowledge sharing between AMS. ASEAN should also plan and organize capacity-building and knowledge-sharing forums to help AMS implement adaptation

plans in the health sector to develop and improve the health system's resilience and healthcare facilities.

4. Essential Medical Products and Technology

With high vulnerability to climate-induced disasters, having a climate-resilient infrastructure is essential in ASEAN. AMS have building or construction codes to achieve resilient infrastructures. However, the safety standards levels, enforcement, and implementation vary widely among AMS. The code must be updated to cope with climate-related hazards, as seen in Lao PDR's dam collapse (Renaud et al., 2021, p.12). The cost of inadequate climate-resilient health infrastructure is astronomical, inducing systemic breakdown and overload of healthcare delivery systems (WHO, 2022). Hence, enforcing resiliency and updating construction codes for health infrastructure is a must. AMS have also taken steps to implement this. A few examples are the Philippines' Heart Center and Diagnostic Center's commitment to working on resilient hospital design and Cambodia's Climate-resilient Water Safety Plans to ensure drinkable water in health facilities.

Effects of climate change on the emergence and re-emergence of diseases and natural disasters also demand technology optimization to minimize climate change's burden on populations' health. As mentioned, AMS are adopting technology to support risk monitoring of climate-related hazards. For example, the ASEAN-Japan Climate Change Action Agenda 2.0 facilitates climate risk mapping and observing extreme weather events through Japanese satellites. ASEAN also pushes for digital health transformation for data sharing and health services to ensure the availability of services even during emergency events. In Singapore, the OneNUHS App has been developed to use diagnostic and predictive systems to diagnose patients through chat.

Recommendation: ASEAN and its member states

must accelerate climate-resilient technologies and infrastructure adaptation. Various policies, technologies, and infrastructures developed for the COVID-19 pandemic can be optimized and repurposed to support climate-resilient health systems (e.g., utilizing food-borne disease tracking through COVID-19 tracking systems). Repurposing will be one of the quick-win and cost-effective actions for climate-resilient health system adaptation.

5. Financing

In most regions, health is one of the sectors with unmet demands for climate support (WHO, 2021, p.53). Globally, less than 0.5% of multilateral climate finance cited in the Nationally Determined Contributions to the Paris Agreement mentioned health projects (ibid.). In ASEAN, financing schemes to fund the high cost of climate adaptation are progressively established. These initiatives include Phase 2 of ASEAN's Disaster Risk Financing and Insurance to enhance risk management and risk transfer capabilities. Another example is the Philippines' Universal Health Care (UHC) Act, which supports the implementation of sustainable financing and strategic purchasing for UHC. However, infrastructure and health adaptation are among those underfunded in AMS, with limited support from international donors (Martinus and Jiahui, 2022).

Furthermore, only four AMS mentioned health-specific financing in their main national policies for climate change adaptation mentioned in Table 1. Most AMS developed different financing strategies, outside of those national policies, for each sector affected by climate change (e.g., health and agriculture). This action contributes to the fragmented and complex nature of adaptation financing—funding for climate change adaptation comes from different donors and financing

schemes with diverse and unaligned goals.

Although adaptation financing continues to be developed, AMS face several issues in ensuring funding for climate change adaptation in health. These issues include: (i) the high cost of climate change adaptation; (ii) the difficulty in obtaining finance-related data (ASEAN, 2021b, pp.54-55); (iii) low coverage of disaster insurance, with only 9% of disaster-induced losses insured in Asia (including ASEAN) in 2020 (ASEAN, 2021a, p.46); and (iv) the majority of bilateral financing and donors received are mainly allocated for climate change mitigation compared to adaptation initiatives (ASEAN, 2021b, p.54), causing limited, even lack of, funding for adaptation actions (Martinus and Jiahui, 2022).

Recommendation: AMS must propel ASEAN's partnership by maintaining and strengthening sustainable collaboration to enhance data sharing and gathering on: (i) climate change adaptation; and (ii) financing-related data for climate-resilient health systems. This collaboration will be used to develop sound financing strategies, proposals, and long-term adaptation plans to convince partners and potential donors to invest in fundamental infrastructure and policies for climate-resilient health systems.

6. Leadership and Governance

Climate change leadership and governance come under the jurisdiction of the ASEAN Ministerial Meeting on Environment (AMME) and the ASEAN Senior Officials Meeting on Environment. The ASEAN Working Group on Climate Change (AWGCC) was also established to study climate issues, make policy recommendations, and coordinate positions among AMS. This arrangement, however, is inadequate to address the complex issue of climate change due to AWGCC's limited role based on its environmental

mandates (Seah and Martinus, 2021, p.16).

Over the years, the rising awareness on climate change threats has brought about the emergence of initiatives outside of AMME's domain. ASEAN sectoral bodies are integrating climate change into their strategies to fill this gap, including the integration of climate change into the ASEAN Health Cluster 2 Work Programme. However, a coordinating body that would align climate-resilient adaptation in various sectors and address climate-related hazards is still needed. Optimization of the planned ACCC will help the region handle this issue.

Recommendation: ASEAN must establish a coordinating body to align climate-resilient adaptation in various sectors. Two courses of action can be considered: widening AWGCC's role and optimizing ACCC to coordinate ASEAN's climate change adaptation efforts. To realize ACCC's role as an inter-governmental centre for climate change coordination and cooperation among AMS, ACCC must have the tools and authority to be apprised of every action plan, recommendation, and policy regarding climate change mitigation and adaptation; and empowered to highlight overlaps and gaps and align initiatives created by ASEAN sectoral bodies.

Conclusion

Climate change is an existential threat and one of humanity's most prominent health threats. Increasing unsustainable human activities has raised the population's exposure to climate change threats, impacting the population's health and health system conditions. This is especially true for SEA due to the region's already high and uneven risk of natural hazards. Hence, the integration of climate lenses into the health system through climate change mitigation and adaptation

policies in the health sector is needed. ASEAN and its member states have shown their commitment to climate change mitigation and adaptation in health systems. Nevertheless, there is room for further improvement to face climate change's ever-changing hazards. It is also essential to accelerate and scale up climate change mitigation and adaptation strategy, following WHO's global policies and the Sharm el-Sheikh Implementation Plan as a result of the Conference of the Parties 2020 (COP27).

Establishing mitigation policies in the health sector requires a holistic approach. The first step is to create guidelines and policies. Then, capacity strengthening should be conducted for AMS's health systems by improving the procurement of environmentally-friendly products and conducting long-term capacity-building programmes for stakeholders. AMS should also ensure that existing

mitigation efforts in health sectors are identified, measured, monitored, and included in the cost-benefit analysis and policy-making process.

Simultaneously, ASEAN must strengthen climate change adaptation policies in the health sector by realizing climate-resilient health systems. Policies supporting the realization must incorporate the ten key components of climate-resilient health systems integrated into six health system building blocks designed by WHO (see Figure 1). Figure 2 illustrates several recommendations that ASEAN can implement to enhance climate-resilient health systems. It should also be noted that AMS are at different risks of climate-related hazards. Thus, a more in-depth analysis of climate change impacts on health and evaluation of existing mitigation and adaptation policies in each AMS is required to develop tailored recommendations and strategies for mitigating and adapting climate change in the health system.

Figure 2. Recommendations to Enhance Climate-resilient Health System



Continued

3

Health Information System

- Increasing research activity and funding to develop evidence-based initiatives in developing climate change adaptation in health
- Coordinating research efforts with national and regional goals
- Conducting regional-level capacity-building and knowledge-sharing forums, organized by ASEAN, to help AMS implement the adaptation plan



4

Essential Medical Products and Technology

- Repurposing and maximizing various policies, technologies, and infrastructures developed for the COVID-19 pandemic to support climate-resilient health systems



5

Financing

- Propelling partnership by strengthening continuous collaboration in ASEAN to enhance data sharing and gathering in climate change adaptation and financing-related data for climate-resilient health system to develop financing proposal for potential donors



6

Leadership and Governance

- Strengthening a super coordinating body for climate change adaptation, especially in health sector, by widening AWGCC's role and optimizing ACCC to coordinate climate change adaptation efforts in ASEAN



References

- ACE.** *The 6th ASEAN Energy Outlook (AEO6)*. Jakarta: ASEAN Centre for Energy, 2020.
- AHA Centre.** *ASEAN Risk Monitoring and Disaster Management Review (ARMOR) 3rd Edition*. Jakarta: ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management, 2022.
- ASEAN.** "ASEAN Regional Guidelines for Promoting Climate Smart Agriculture Practices: Volume II". 2017. <<https://asean.org/wp-content/uploads/2012/05/19.-CSA-Guidelines-Vol-2-for-ASEAN-Website.pdf>> (Accessed on 11 October 2022)
- . *ASEAN Disaster Resilience Outlook: Preparing for a Future Beyond 2022*. Jakarta: ASEAN, 2021a.
- . *ASEAN State of Climate Change Report*. Jakarta: ASEAN Secretariat, 2021b.
- Bakar, Rasidjah Hj Abu.** "Brunei to set up ASEAN Centre for Climate Change". 23 June 2022. <<https://thescoop.co/2022/06/23/brunei-to-set-up-asean-centre-for-climate-change/>> (accessed on 13 October 2022)
- Balbus, John, Allison Crimmins, and Janet Gamble.** "Ch. 1: Introduction: Climate Change and Human Health". In *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment*, pp.26-42. Washington, DC: U.S. Global Change Research Program, 2016.
- Boylan, Sinead, Kathleen Beyer, David Schlosberg, Anastasia Mortimer, Neil Hime, Benjamin Scalley, Robyn Alders, Carlos Corvalan, and Anthony Capon.** "A Conceptual Framework for Climate Change, Health and Wellbeing in NSW, Australia". *Public Health Research and Practice* 28, no. 4 (2018):1-6.
- Enano, Jheset.** "Healthcare Sector Urged to Lower Carbon Footprint". 14 June 2021 <<https://newsinfo.inquirer.net/1445642/health-care-sector-urged-to-lower-carbon-footprint>> (accessed 17 October 2022)
- Guinto, Ramon.** *Local Health System Response to Climate Change: Lesson from Coastal Municipalities in the Philippines*. Boston, Massachusetts: Harvard University, 2019.
- HCWH.** *Health Care's Climate Footprint: How the Health Sector Contributes to the Global Climate Crisis and Opportunities for Action*. HCWH and ARUP, 2019.
- . "Global Green and Healthy Hospitals - Asia". Health Care Without Harm, n.d. <<https://noharm-asia.org/issues/asia/global-green-and-healthy-hospitals-asia>> (Accessed 28 July 2022)
- IPCC.** *The Physical Science Basis*. Cambridge and New York: Cambridge University Press and Cambridge, 2021.
- . *Climate Change 2014: Impacts, Adaptation, and Vulnerability*. Cambridge and New York: Cambridge University Press and Cambridge, 2014.
- . *Climate Change 2001: Mitigation*. Cambridge: Cambridge University Press, 2001a.
- . *Climate Change 2001: Impacts, Adaptation, and Vulnerability*. Cambridge: Cambridge University Press, 2001b.
- Kotcher, John, Edward Maibach, Jeni Miller, Eryn Campbell, Lujan Alqodmani, Marina Maiero, and Arthur Wyns.** "Views of Health Professionals on Climate Change and Health: A Multinational Survey Study". *Lancet Planet Health* 5 (2021):e316-23.
- Law, Ronald.** "Climate-Smarter Health System: Strategic Actions to Mitigate and Adapt to Health Risks from Climate Change and Disaster Threats, ASEAN Public Health Emergency Webinar, 6 September 2022". 2022. Oral Presentation.
- Lee Kim-Sung, Yee-Ling Lai, Sharon Lo, Timothy Barkham, Pauline Aw, Peng-Lim Ooi, Ji-Choong Tai, Martin Hibberd, Patrik Johansson, Seow-Poh Khoo, and Lee-Ching Ng.** "Dengue Virus Surveillance for Early Warning, Singapore". *Emerging Infectious Diseases* 16, no.5 (2010):847-9.
- Martinus, Melinda and Qiu Jiahui.** "Climate Finance in Southeast Asia: Trends and Opportunities". *ISEAS Perspective*, no. 9 (2022):1-20.
- National Environment Agency.** "\$23.5 Million Climate Impact Science Research (CISR) Programme Launched to Support Long-Term Climate Change Adaptation Planning". 9 July 2022. <<https://www.nea.gov.sg/media/news/news/index/23.5-million-climate-impact-science-research-cisr-programme-launched-to-support-long-term-climate-change-adaptation-planning>> (accessed on 13 October 2022)

- O'Hara, Aprelle, Amelia Miller, Hailey Spinks, Alexandria Seifert, Tirzah Mills, and Amy Tuininga.** "The Sustainable Prescription: Benefits of Green Roof Implementation for Urban Hospitals". *Frontiers in Sustainable Cities* 4 (2022):798012.
- Rahman, Md Siddikur, Hans Overgaard, Chamsai Pientong, Mayfong Mayxay, Tipaya Ekalaksananan, Sirinart Aromseree, Supranee Phanthanawiboon, Sumaira Zafar, Oleg Shipin, Richard Paul, Syasavanh Phommachanh, Tiengkham Pongvongsa, Nathasane Vannavong.** *Knowledge, Attitude, and Practices on Climate Change and Dengue in Lao People's Democratic Republic and Thailand. Environmental Research* 193 (2021):110509.
- Rasheed, Fawzia, Jerome Baddley, Poornima Prabhakaran, Enrique Falceto De Barros, K. Srinath Reddy, Nelzair Araujo Vianna, and Robert Marten.** "Decarbonising Healthcare in Low and Middle Income Countries: Potential Pathways to Net Zero Emission". *British Medical Journal* (2021):n1284.
- Renaud, Fabrice, Lauriane Chardot, Perrine Hamel, Emilie Cremin, Denny K. S. Ng, Thorsten Balke, David Lallemand, Richard Friend, Xiaogang Shi, Janice Ser Huay Lee, Ng Lik Yin, Viknesh Andiappan, Hue Le, Riyanti Djalante, Cecilia Tortajada, Laura Ebeler, and Benjamin Horton.** *Adaptation and Resilience in ASEAN: Managing Disaster Risks from Natural Hazards.* London and Singapore: COP26 ASEAN Climate Policy Report Series, 2021. Saving Live Sustainability. "Sustainable Health in Procurement Projects: SHiPP", n.d. <<https://savinglivesustainably.org/shipp/shipp.html>> (Accessed 21 September 2022)
- Seah, Sharon and Melinda Martinus.** *Gaps and Opportunities in ASEAN's Climate Governance.* Singapore: ISEAS-Yusof Ishak Institute, 2021.
- Tan Cherie.** "Health and Nutrition for a Better Future Role of Private Sector Engagement, ASEAN Public Health Emergency Webinar, 6 September 2022". 2022. Oral Presentation.
- Tran Bach, Trang Ha Nguyen, Dung Tri Phung, Long Hoang, Hai Quang Pham, Giang Thu Vu, Huong Thi Le, Carl Latkin, Cyrus SH Ho, Roger C.M. Ho.** "Gaps in Awareness of Climate Variability and Its Impacts on Society among Health Professionals and Community Workers in Vietnam: Implication for COVID-19 and Other Epidemic Response Systems". *International Journal of Disaster Risk Reduction* 59, no.1 (2021):102212.
- UNDP.** "The Sustainable Health in Procurement Project (SHiPP)". 2022. <<https://www.undp.org/sites/g/files/zskgke326/files/migration/tz/undp.-tz.IGfactsheet-SHiPP2022.pdf>> (accessed 12 October 2022)
- WHO.** *Joint External Evaluation of IHR Core Capacities of Brunei Darussalam: Mission Report, 28 October-1 November 2019.* Geneva: WHO, 2020a.
- . *Health in National Determined Contributions (NDCs): a WHO Review.* Geneva: WHO, 2020b.
- . "Countries Commit to Develop Climate-smart Health Care at COP26 UN Climate Conference". 9 November 2021 <<https://www.who.int/news/item/09-11-2021-countries-commit-to-develop-climate-smart-health-care-at-cop26-un-climate-conference>> (accessed 17 October 2022)
- . *Health System Resilience Toolkit.* Geneva: WHO, 2022.

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