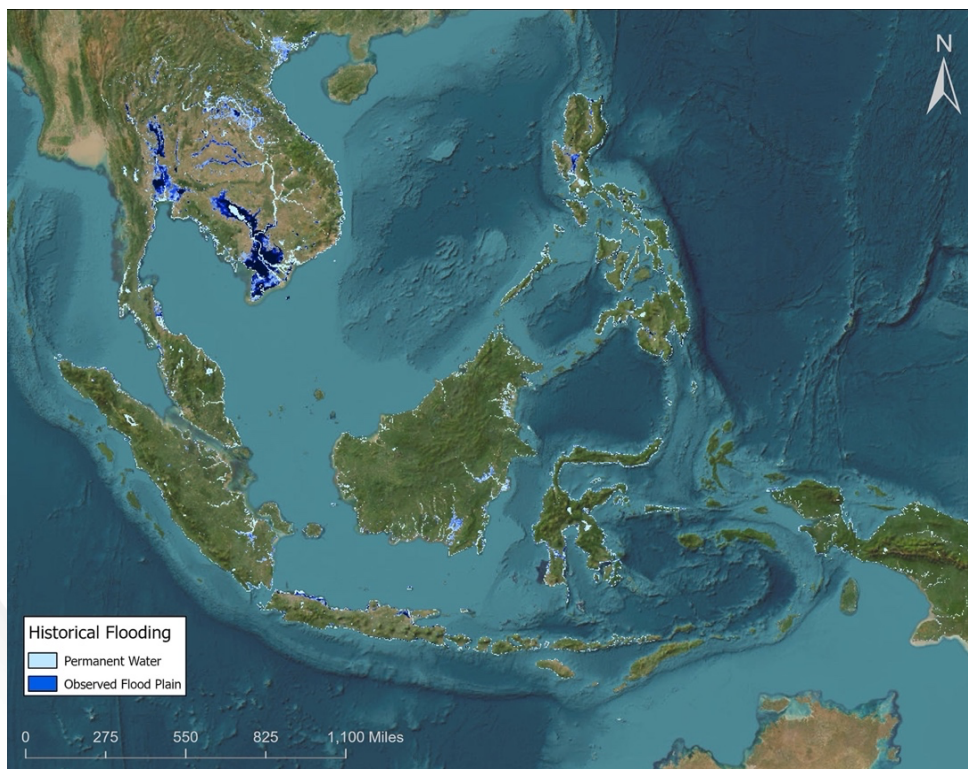


The ongoing gravity of stresses on the global climate system is increasingly understood as “unequivocal” and “unprecedented” as rapid and widespread climatic variability occurs.<sup>i</sup> Moreover, accelerating rates of anthropogenic environmental change engender novel human security threats. Increased severity and frequency of natural disasters, land degradation, diminishing biodiversity, extreme weather, and other environmental insecurities pose significant societal risks.

The United Nations (UN) Intergovernmental Panel on Climate Change (IPCC) warns that Southeast Asia is one of the world’s most at-risk regions regarding climate change’s impact. The region faces rising sea levels, more frequent and severe heat waves, more extreme weather patterns (rainstorms, typhoons, floods), and significant environmental degradation. Moreover, existing vulnerabilities, like low-lying urban centers and low levels of coping capacity, are likely to compound and increase the impact of climate change-related risks and hazards.

The 10 states comprising the Association of Southeast Asian Nations (ASEAN) are highly ecologically and culturally heterogeneous. Yet, their geographic proximity and scope of regional integration demand increasing coordination concerning climate change-related risks and hazards.

## Flooding Insecurity in Southeast Asia



## KEY DISCUSSION POINTS

1. There is great urgency to address climate security in Southeast Asia. Climate change is increasingly perceived as one of the region’s top three challenges, alongside COVID-19’s threat to public health and the risk of economic recession.
2. The Philippines, Indonesia, and Myanmar have the highest risk of compounding climate change-related risks in Southeast Asia.
3. Climate security in Southeast Asia is innately tied to water security. The climatic characteristics of Southeast Asia and intensifying impacts of climate change have engendered opposing environmental water insecurities—heatwaves and drought and their opposite storm flooding and sea level rise—and a range of corresponding impacts.

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Of significance to the United States, ASEAN boasts the third-largest population globally and the fifth-largest economy globally. Correspondingly, ASEAN serves as the top destination for U.S. investment in the Indo-Pacific and is the United States' fourth-largest trading partner. The negative consequences of climate change in Southeast Asia will likely reverberate globally, serving as a strategic challenge for the U.S. and its allies. Yet, research on climate change-related security risks and hazards in the region is lacking.

Our aim, then, is to address this gap and demonstrate how climate security in Southeast Asia can be better practiced, and begin to consider what types of indicators, measures, and scientific practices can be used to understand its complex relations.

## CLIMATE SECURITY PRIORITIES IN SOUTHEAST ASIA

In the most recent *State of Southeast Asia Survey (2022)*, which gauges the perceptions and views of Southeast Asians regarding key regional affairs, “climate change and more intense, frequent weather events” is considered one of the top three challenges facing Southeast Asia.<sup>ii</sup> In another recent regional climate-focused survey, 90.4 percent of respondents expressed deep concerns about climate change, with about 46 percent of respondents identifying climate change as a “serious and immediate threat to the wellbeing of my country.”<sup>iii</sup> Respondents in the Philippines (64.3%), Myanmar (59%), Laos (50.8%), Vietnam (47.9%), and Indonesia (47.7%) feel the strongest sense of urgency to address climate change-related risks.<sup>iv</sup> The two most serious climate change impacts identified by respondents were floods and heat waves.

Mounting pressures to implement more sustainable water management and water security practices in the region stem from growing concern over climate change-related impacts and transformative changes to the built environment (e.g., dam building). Often described as the “hydrologic backbone” or “current of life” of mainland Southeast Asia, the Mekong River Basin is exceptionally rich in natural resources and is vital in supporting the livelihood of over 260 million people.<sup>v</sup> In 2022, the lower Mekong states continued into their fourth year of drought, impacting 65 million people who rely on the Mekong River and its estuaries for their livelihoods (e.g., fishing and agriculture).

In the near future, 96 percent of the ASEAN region will likely face increasing drought conditions, while 64 percent will be affected by extreme drought.<sup>vi</sup> Intensifying droughts in the region also impose immense challenges to regional crop production, which has global implications for food security. Failure to consider coordinated climate security practices concerning the changing dynamics of the hydrological regime in mainland Southeast Asia can lead to environmental degradation and worsening political outcomes, like geopolitical tensions among transboundary states vying for diminishing water resources.

Southeast Asia also sustains massive coastal populations in archipelagic states that face immediate risk from sea-level rise and extreme weather flooding.<sup>vii</sup> The region's vulnerability to sea level rise, compounded by sinking subsidence, will dramatically change how tens of millions of urban residents live in Indonesia, Thailand, Vietnam, the Philippines, and Singapore. Over half of Indonesia's current capital, Jakarta lies below sea level and is prone to increased flooding and sinking, prompting plans to move the capital to Indonesian Borneo (Kalimantan).<sup>viii</sup> Ho Chi Minh City, Vietnam, is one of the fastest-growing cities in Southeast Asia and faces consistent flooding from increased intensity and duration of heavy rainfall and upstream discharges from reservoirs. The low-lying capital of Thailand, Bangkok, is built on marshlands and is shrinking three centimeters per year.<sup>ix</sup> Similar phenomena impact offshore islands and the coastline near the capital city of Manila in the Philippines.<sup>x</sup> More than three million people were affected when Tropical Storm *Nalgae* (local name *Paeng*) made landfall in the Philippines in October 2022. In Singapore, compounding climatic hazards, like heavy rainfall coinciding with high tides, can lead to even more devastating flash floods than Singapore already experiences.<sup>xi</sup> The scale of climate change-related impacts in Southeast Asia has the potential to be massive. Climate change threatens the livelihoods of tens of millions, water and food security, economic growth, and Southeast Asia's already fragile political and social stability. The growing significance of addressing climate security in Southeast Asia coincides with a range of compounding complex security concerns that will vary substantially across the region.

<sup>i</sup> IPCC, 2021: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (eds.)]. Cambridge University Press. In Press.

<sup>ii</sup> Seah, S. et al., *The State of Southeast Asia: 2022* (Singapore: ISEAS-Yusof Ishak Institute, 2022)

<sup>iii</sup> Seah, S. et al., *Southeast Asia Climate Outlook: 2022 Survey Report* (Singapore: ISEAS - Yusof Ishak Institute, 2022)

<sup>iv</sup> Ibid.

<sup>v</sup> Hudson-Rodd, N. & Shaw, B. J. (2003). *Mekong River Development: Whose Dreams? Which Visions?* *Water International*, 28(2), 268-275

<sup>vi</sup> Horton, Benjamin. 2020. *Earth Observatory of Singapore at Nanyang Technological University*. <https://www.dw.com/en/are-southeast-asian-nations-meeting-their-climate-commitments/a-59637765>

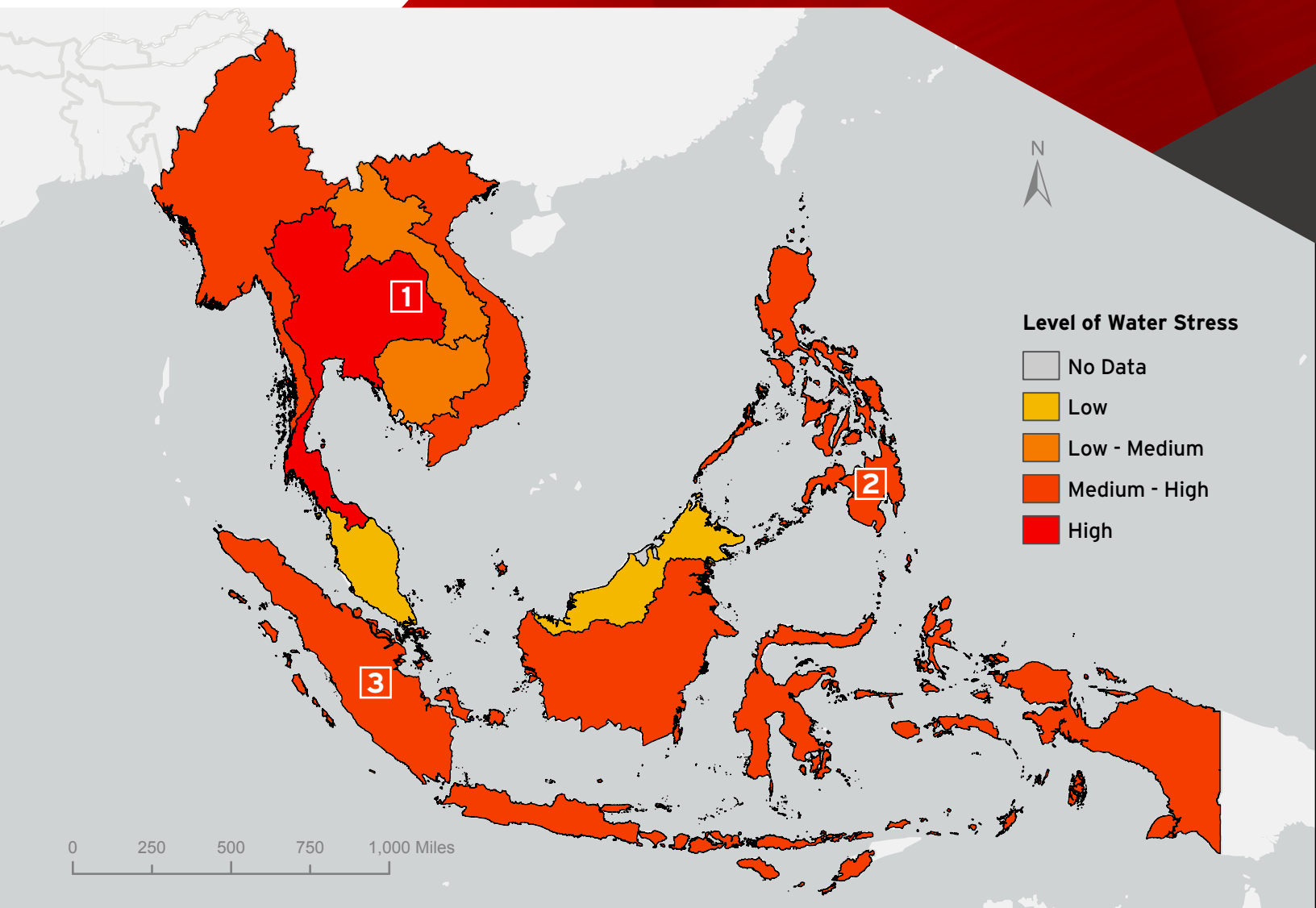
<sup>vii</sup> Ibid.

<sup>viii</sup> Ibid.

<sup>ix</sup> ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management (AHA Centre), *ASEAN risk monitor and disaster management review*, 2nd edition, 2020, ARMOR, 2020, 3e.

<sup>x</sup> Ibid.

<sup>xi</sup> Ibid.



**1 The Mekong Region**—Thailand, Laos PDR, Cambodia, and Myanmar—faces significant levels of water stress due to environmental changes, like severe drought, and human activity, like dam building and overfishing. While climate change is projected to change seasonal trends substantially across the region, the impacts will be unequally distributed. Climate security in the Mekong Region must address transboundary and local water resource management and sustainability of water use.

**2 The Philippines** face significant social and environmental challenges threatening its economic and political stability. In Mindanao, where there is a long history of violent conflict, environmental challenges stemming from changing climatic patterns causing severe drought and increasingly intense storms threaten to undermine already strained political stability.

**3 Indonesia** is one of the world's most populous and natural disaster-prone countries, facing worsening water stress concerns. With its extensive coastline and millions of people living on low-lying land just above sea level, Indonesia is among the world's most vulnerable to rising sea levels. Also, increasingly intense natural disasters such as storms, landslides, and drought have degraded forests and coastal ecosystems, leading to losses of life, ecosystem services, and livelihoods.