



# CLIMATE RISKS TO PEACE AND SECURITY IN SOUTHEAST ASIA

A BASELINE REPORT

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## LIST OF ABBREVIATIONS

<b>Abbreviation</b>	<b>Full form</b>
ACWC	ASEAN Commission on the Promotion and Protection of the Rights of Women and Children
AHA Centre	ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management
AICHR	ASEAN Intergovernmental Commission on Human Rights
AMCAP	ASEAN Minerals Cooperation Action Plans
AQ	Al-Qaeda
ASCC	ASEAN Socio-Cultural Community
ASEAN	Association of Southeast Asian Nations
ASEAN-IPR	ASEAN Institute for Peace and Reconciliation
ARF	ASEAN Regional Forum
ASPA-WRM	ASEAN Strategic Plan of Action on Water Resources Management
BARMM	Bangsamoro Autonomous Region in Muslim Mindanao
BNPB	Badan Nasional Penanggulangan Bencana or National Agency for Disaster Countermeasure
BRN	Barisan Revolusi Nasional or National Revolutionary Front
CPS	Climate, Peace and Security
DRR	Disaster Risk Reduction
EEZ	Exclusive Economic Zone
FAO	Food and Agricultural Organization
FPIC	Free, Prior, Informed Consent
GAM	Gerakan Aceh Merdeka or Free Aceh Movement
GBV	Gender-Based Violence
IDP	Internally Displaced Person
IEZ	Inshore Exclusion Zoners
IP	Indigenous People
IRBM	Integrated River Basin Management
ISIS	Islamic State of Iraq and Syria
IUU	Illegal, Unreported, and Unregulated
IWRM	Integrated Water Resource Management
Jl	Jemaah Islamiyah
LMB	Lower-Mekong Basin
LMC	Lancang-Mekong Cooperation
LRC	Legal Rights and Natural Resources Center
MCS	Monitoring, Control, and Surveillance
MRC	Mekong River Commission
NAP	National Action Plan
NDC	Nationally Determined Contributions
OPM	Organisasi Papua Merdeka or Free Papua Movement
OSEC	Online Sexual Exploitation of Children
PSN	Proyek Strategis Nasional or National Strategic Plan

REE	Rare-Earth Elements
SADDD	Sex-, Age-, and Disability Disaggregated Data
SLR	Sea-level Rise
SPPP	Salween Peace Park Programme
TCI	Temperature Condition Index
TIWA	Timor Island Watershed
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
UNHCR	United Nations High Commissioner for Refugees
UXO	Unexploded Ordnance
VCI	Vegetation Condition Index
VHI	Vegetation Health Index
WEFE	Water-Energy-Food-Environment
WHO	World Health Organization
WPS	Women, Peace and Security

# 1. OVERVIEW

## 1.1 Introduction: Climate Change, Peace, and Security in Southeast Asia

Southeast Asia stands at the intersection of accelerating climate risks and complex peace and security challenges. As one of the world’s most climate-vulnerable and conflict-prone regions, it faces intensifying environmental pressures alongside persistent socio-political tensions, uneven development, and governance constraints. Within this context, climate change is no longer viewed solely as an environmental or developmental concern but is increasingly recognised as a multidimensional security issue that affects stability, resilience, and peace.

Central to this understanding is the concept of climate change as a “*threat multiplier*.” Rather than directly causing armed conflict or violent extremism, climate change exacerbates existing vulnerabilities and structural weaknesses within societies. It amplifies pressures related to livelihoods, resource availability, governance capacity, and social cohesion; conditions that, when left unaddressed, can heighten the risk of instability. This framing is particularly relevant for Southeast Asia, where political, economic, and social disparities intersect with environmental stress in complex and context-specific ways.

ASEAN has identified climate change as well as peace and security as among the region’s key challenges that need to be addressed to secure the future of ASEAN and its peoples, as stated in the *ASEAN Community Vision 2045*.<sup>1</sup> In this regard, one critical objective under the Vision’s ASEAN Socio-cultural Community (ASCC) Strategic Plan is “[t]o achieve a resilient Community that promotes human security and increases people’s resilience in responding to future health emergencies, crises, disasters, and impacts from climate change”. The ASCC Strategic Plan unequivocally states the necessity to “[e]nhance mitigation and adaptation to climate change and reduce vulnerability by promoting climate resilience and adaptive capacity...<sup>2</sup>

The Plan likewise envisions the critical importance of creating an enabling environment that ensures fair access to resources, opportunities, and protection measures—especially for the unemployed, the poor, and people in precarious situations—to reduce their susceptibility to violent extremism, security threats, and transnational crimes such as human trafficking, people smuggling, and the misuse of social media. As the complex impacts of climate change increasingly undermine efforts to create an enabling environment, non-state actors and criminal or extremist networks can exploit underlying political, social and economic fault lines.

This report, hence, argues that climate change impacts interact with existing fault lines and vulnerabilities, exacerbating security risks, while the dynamics between climate change and inherent grievances may create new challenges to peace and security in Southeast Asia. Droughts, floods, and

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<sup>1</sup> ASEAN, *ASEAN 2045: Our Shared Future* (Jakarta, ASEAN Secretariat, May 2025).

<sup>2</sup> ASEAN Socio-Cultural Community Strategic Plan in ASEAN, *ASEAN 2045*.

rising sea levels can intensify competition over land, water, and economic opportunities, while also straining state capacity to deliver aids and respond effectively to crises. In settings where governance is uneven or trust in institutions is already weak, these pressures may deepen perceptions of neglect or exclusion, potentially contributing to social fragmentation. Importantly, this does not imply a linear or deterministic relationship between climate change and conflict, but rather highlights how environmental stressors mould the conditions under which insecurity may emerge.

Climate, peace, and security captures climate-related security risks—that affect peacebuilding efforts, and how conflict undermines climate action. Climate impacts can intensify resource scarcity, heighten socioeconomic instability, and increase the risk of conflict. These dynamics, in turn, can deepen climate exposure, drive displacement, weaken governance, and reverse development gains.<sup>3</sup>

Conversely, conflict constrains climate adaptation and mitigation by damaging infrastructure and diverting financial and institutional resources away from climate priorities. Addressing the climate–peace–security nexus therefore requires a strategic emphasis on innovative, integrated approaches that link climate action with peacebuilding and conflict prevention efforts.<sup>4</sup>

This understanding also aligns with the broader *comprehensive security framework* long promoted within ASEAN. Comprehensive security recognises that peace and stability are not solely dependent on military strength, but are deeply interconnected with economic development, social cohesion, political legitimacy, and environmental sustainability.<sup>5</sup> Within this framework, climate change constitutes a non-traditional security challenge that cuts across sectors and borders, requiring coordinated and preventive approaches rather than reactive responses.

From a comprehensive security perspective, climate change affects conflict prevention and resolution mechanisms, water security, sustainable use of scarce resources, migration patterns, and gender rights—all of which have implications for both national and human security. When these pressures converge, they can undermine public trust in institutions and weaken social contracts, particularly in contexts marked by inequality or limited state presence. Addressing climate risks therefore becomes inseparable from efforts to strengthen governance, promote inclusive development, and sustain peace.

Peacebuilding provides a critical lens through which to understand this relationship. Traditionally associated with post-conflict recovery, peacebuilding increasingly encompasses preventive measures aimed at reducing structural inequalities and strengthening social cohesion before violence emerges. Climate-informed peacebuilding recognises that environmental stress can interact with

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<sup>3</sup> UN Development Programme, “What is climate security and why is it important?” UNDP, 1 September 2023, <https://climatepromise.undp.org/news-and-stories/what-climate-security-and-why-it-important>.

<sup>4</sup> Ibid.

<sup>5</sup> Mely Caballero-Anthony, “Reclaiming ASEAN’s Comprehensive and Cooperative Security,” *East Asia Forum*, 13 June 2023, <https://eastasiaforum.org/2023/06/13/reclaiming-aseans-comprehensive-and-cooperative-security/>.

political and economic grievances, making it essential to integrate climate considerations into conflict prevention and governance strategies.<sup>6</sup>

ASEAN's comprehensive security framework provides a useful foundation for aligning climate adaptation, development planning, and peacebuilding efforts by recognising climate change as a cross-cutting risk affecting multiple dimensions of security. In doing so, it moves beyond narrow threat-based approaches toward a more holistic understanding of stability in an era of climate uncertainty.

## 1.2 Key Climate, Environmental, and Security Risks in Southeast Asia

Southeast Asia's exposure to climate-related risks is among the highest globally, making the region particularly sensitive to the security implications of environmental change. The region faces escalating threats from rising temperatures, sea-level rise, intensified monsoon patterns, and increasingly frequent extreme weather events. These hazards interact with demographic pressures, rapid urbanisation, and uneven development, creating complex risk environments across both mainland and maritime Southeast Asia.

Many countries in the region depend heavily on climate-sensitive sectors such as agriculture, fisheries, and forestry. Rural livelihoods, in particular, remain highly exposed to shifts in rainfall patterns, prolonged droughts, and extreme weather events. Coastal and delta regions, home to large populations and major economic hubs, face mounting risks from sea-level rise, coastal erosion, and saltwater intrusion. These environmental pressures threaten food security, income stability, and long-term development prospects, particularly for marginalised communities.

- **Sea-level rise:** One of the world's longest coastlines is located in Southeast Asia, and sea levels are rising significantly higher than the global average (3.1 mm/year) at approximately 4 mm/year. Sea-level rise is an existential threat to the large portions of the region comprising low-lying areas and islands, with widespread flooding occurring in coastal areas.<sup>7</sup>
- **Extreme weather events:** Southeast Asia is highly exposed to cyclones and typhoons, with countries such as the Philippines, Vietnam, Thailand, and Myanmar among the most susceptible to increasingly frequent and unusually intense storms. As extreme weather events intensify, millions of people are likely to be affected each year, heightening risks to livelihoods, infrastructure, and human security. These impacts are also expected to drive rising levels of climate-induced migration and displacement across the region.
- **Higher temperatures and water scarcity:** Across Southeast Asia, average daily maximum temperatures are projected to rise by at least 1.1°C and up to 4.1°C. With every passing year, the problem of extreme heat is growing more severe. In the past two years (2024-2025), most of the

<sup>6</sup> Florian Kampe, "Climate Change, Peacebuilding and Sustaining Peace," *SIPRI Policy Brief*, June 2019, [https://www.sipri.org/sites/default/files/2019-06/pb\\_1906\\_ccr\\_peacebuilding\\_2.pdf](https://www.sipri.org/sites/default/files/2019-06/pb_1906_ccr_peacebuilding_2.pdf).

<sup>7</sup> Sinead Barry, et al., *Climate, Peace and Environmental Resilience in the Asia-Pacific Region* (Berlin: adelphi global gemeinnützige GmbH, 2025).

Southeast Asian countries reported prolonged heat waves.<sup>8</sup> Climate and environmental impacts on rivers will jeopardise water availability and food security for millions. Reductions in water availability will see critical impacts on the approximately 65 million people living in the lower Mekong Basin, many of whom rely on the river to sustain livelihoods in agriculture and fisheries. The Mekong Delta contributes 15 percent of global rice exports, and climate and environmental hazards could compromise rice production reliant on the river, undermining food security in the region and beyond.<sup>9</sup>

- **Conflict over fish stocks:** Rising temperatures, environmental degradation, and resource exploitation are likely to intensify competition over fish stocks and occurrence of Illegal, Unreported, and Unregulated (IUU) fishing in Southeast Asia's resource-rich marine ecosystems, including the South China Sea. Disputes over fisheries have long occurred in this area, with Malaysia, Indonesia, Vietnam, the Philippines, and China competing—and at times clashing—over fishing activities. As warming seas contribute to declining fish stocks, competition among claimant states is expected to increase further, heightening the risk of tension and confrontation.<sup>10</sup>
- **Critical minerals extraction:** Southeast Asia is rich in critical mineral resources essential to the green energy transition, particularly nickel, rare earth elements, and tin. Indonesia is the world's largest producer of nickel—followed by the Philippines—and the second-largest producer of tin. Myanmar has also emerged as a key source of two highly sought-after heavy rare earth elements. However, the extraction of critical minerals can undermine food and water security through its impacts on land use and ecosystems, adversely affecting fish stocks, water quality, and local environments. Many mining areas are located in conflict-affected regions and are home to ethnic minority communities, where mining activities have been associated with local resistance, violent confrontation, and intimidation linked to perceived environmental and social risks.<sup>11</sup>

There will also be a recurrent case study throughout this report: the 2025 Cyclone Senyar, which claimed thousands of lives and predominantly affected Indonesia, Thailand, and Malaysia in November 2025, triggering severe flash floods, strong winds, and landslides across the region.<sup>12</sup> This event was particularly unusual, as tropical cyclones rarely form near the Equator.<sup>13</sup> As such, Cyclone Senyar serves as a timely and illustrative example of how climate-induced extreme weather events are becoming less predictable, placing unprecedented strain on governance, disaster response capacities,

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<sup>8</sup> Viktor Tachev, "The 2025 Heatwave in Southeast Asia: A Window Into the Future," Climate Impacts Tracker Asia, 7 May 2025, <https://www.climateimpactstracker.com/2025-heatwave-in-southeast-asia/>.

<sup>9</sup> Mekong River Commission (MRC), *State of the Basin Report 2023* (The Mekong River Commission: Vientiane, Lao PDR, 2024).

<sup>10</sup> Sinead Barry, et al., *Climate, Peace and Environmental Resilience*.

<sup>11</sup> Prapimphan Chiengkul, "The Human and Environmental Costs of Critical Mineral Mining," *Fulcrum*, 2 December 2025, <https://fulcrum.sg/the-human-and-environmental-costs-of-critical-mineral-mining/>.

<sup>12</sup> Kiki Siregar, "The real reasons Cyclone Senyar turned deadlier in Indonesia than elsewhere," *CNA*, 8 December 2025, <https://www.channelnewsasia.com/asia/indonesia-sumatra-floods-cyclone-senyar-climate-change-5563616>.

<sup>13</sup> Ang Qing and Shabana Begum, "ST Explains: Cyclone Senyar was rare for S-E Asia – Could a storm like it ever hit Singapore?" *The Straits Times*, 5 December 2025, <https://www.straitstimes.com/singapore/environment/st-explains-cyclone-senyar-was-rare-for-se-asia-could-a-storm-like-it-ever-hit-singapore>.

and regional stability. Its transboundary impacts and cascading humanitarian consequences demonstrate the growing relevance of climate risks as a peace and security concern, particularly in Southeast Asia.

### 1.3 Objectives

The primary objective of this report is to provide a holistic assessment of climate, peace, and security dynamics in Southeast Asia, with a particular focus on how climate change interacts with existing political, social, and security challenges in the region. Guided by ASEAN’s comprehensive and cooperative approach to security, and building on a 2023 RSIS study that scanned regional climate, peace, and security (CPS) dynamics in Southeast Asia,<sup>14</sup> the report is structured around four key questions:

- *What* existing and emerging peace and security challenges in Southeast Asia are likely to be exacerbated by the impacts of climate change?
- *How* do indirect or compounding climate impacts translate into peace and security risks on local, national, and regional levels?
- *What* governance gaps constrain effective responses to climate-related security risks, and *how* might they be addressed through comprehensive and inclusive approaches?
- *How* can ASEAN strengthen and better align its existing climate, peace and security frameworks to enhance regional cooperation and collective capacity in addressing interconnected climate-related risks?

The report examines a range of regional security challenges and their interaction with climate-related vulnerabilities, including (1) armed conflicts and violent extremism, (2) water insecurity, (3) competition over natural resources, (4) forced migration and displacement, and (5) issues related to women, peace, and security. This report also develops several potential future scenarios exploring the implications of the intersection between climate change and security dynamics from 2026 to 2050. These CPS challenges are deeply interconnected and mutually reinforcing, rather than occurring in isolation. They are selected for analysis because of their enduring nature and the emergence of new and evolving risks—particularly in the context of a changing climate and shifting regional dynamics across Southeast Asia.

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<sup>14</sup> Mely Caballero-Anthony, Julius Cesar Trajano, Alistair Cook, S Nanthini, Jose Ma Luis Montesclaros, Keith Paolo Landicho and Danielle Lynn Goh, *Climate Change and Its Impact on Peace and Security in Southeast Asia* (Singapore: RSIS, 2023).

## 2. KEY CLIMATE-LINKED PEACE AND SECURITY ISSUES: EXISTING AND FUTURE RISKS

### 2.1 Climate Change Interacting with Existing Armed Conflicts

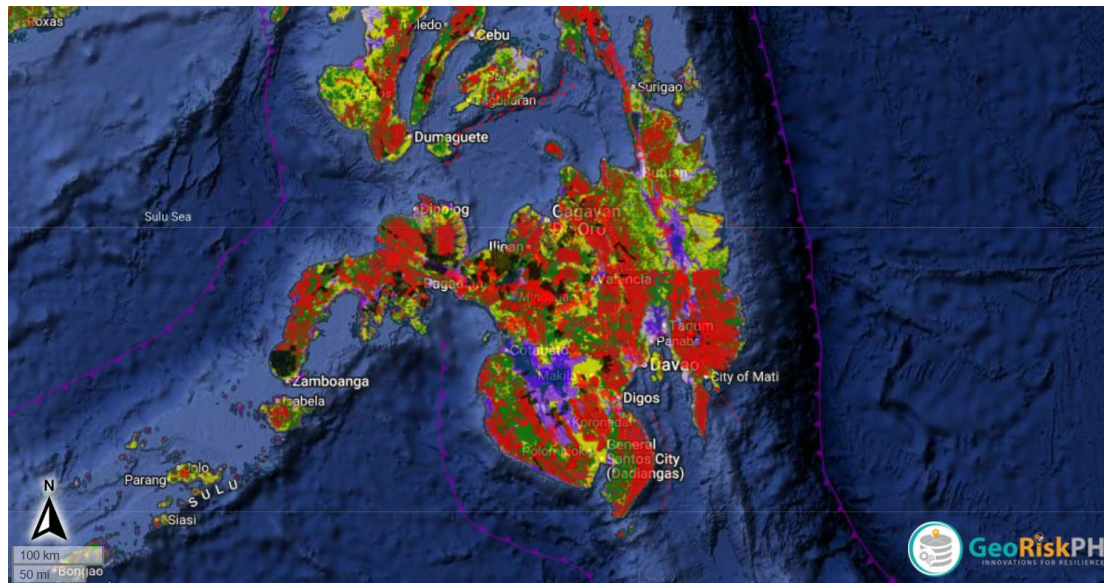
Extreme weather events have imposed additional burdens on conflict-prone communities whose adaptive capacity have long been compromised. Thousands have been temporarily displaced due to extreme weather events, particularly in areas with pre-existing tensions in Southeast Asia. Climate change is not the direct cause of existing internal conflicts in the region. However, the combined effects of climate change and internal armed conflict pose escalating risks to human security, particularly for internally displaced persons (IDPs) and marginalised communities. These pressures not only threaten livelihoods, environmental integrity, and fundamental rights, but also intensify existing conflicts and create conditions for new ones. At the same time, overlapping climate shocks and protracted violence can exceed the response capacities of governments and supporting organisations. Without more coordinated and preventive approaches, these dynamics risk forming a self-reinforcing cycle of instability. In Southeast Asia, growing environmental stress is likely to increase competition over resources, amplify governance challenges, and deepen social and political fault lines, contributing to greater displacement and heightened conflict risks across the region.

#### 2.1.1 Climate Change and Conflicts in Mindanao, the Philippines

Climate change in Mindanao (southern Philippines) is deeply intertwined with long-standing socio-political conflicts rooted in a complex mix of historical, political, socio-economic, and identity-based factors, as well as persistent disputes over land and natural resources. These conflicts involve a wide range of actors—including rebel and extremist groups, rival political families and clans, and the military and police—with alliances that frequently shift over time. Within this context, local communities and their livelihoods remain the most exposed to both climate-related risks and institutional weaknesses. Climate impacts further exacerbate the state's limited capacity to ensure livelihood security and deliver effective governance in conflict-affected areas.

While the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM) is undergoing a fragile transition toward peace, it remains highly exposed to climate change impacts—including flooding, droughts, and extreme weather events—which disproportionately affect agriculture-dependent communities and risk exacerbating societal tensions (see Figure 1 and Table 1). Emerging conflicts and security risks continue to threaten the full implementation of the peace agreement. Within the BARMM, climate change, conflict, and human mobility are closely intertwined. Although the evidence does not point to a direct linear causal relationship, it highlights a profound interconnectedness that influences the lived realities of local communities. In this context, the convergence of environmental risks, economic pressures, and governance gaps further intensifies persistent violence and displacement.

**Figure 1: Climate Hazard Map of Mindanao<sup>15</sup>**



**Purple to dark blue land areas indicate moderate to very high flood susceptibility; Red to dark red areas indicate high vulnerability to rain-induced landslides and/or storm surges.**

**Table 1. Climate Risk Levels in BARMM Provinces and Sulu<sup>16</sup>**

BARMM Provinces	Floods	Droughts	Sea-Level Rise	Storm Surge	Landslides	Key Risk Drivers
<b>Basilan</b>	Medium	Medium	High	High	Medium	Small-island exposure, coastal flooding
<b>Sulu (not part of BARMM)</b>	Medium	Medium	High	High	Low	Sea-level rise, storm surge
<b>Tawi-Tawi</b>	Low–Medium	Medium	High	High	Low	Low-lying islands, coastal inundation
<b>Lanao del Sur</b>	Medium	Medium	Low	Low	Medium	Lake flooding, upland slopes
<b>Maguindano del Norte</b>	High	Medium	Medium	Medium	Low	River flooding (Rio Grande de Mindanao)
<b>Maguindano del Sur</b>	High	Medium	Medium	Medium	Low	Floodplains, seasonal inundation

<sup>15</sup> GeoRisk Philippines, HazardHunterPH / GeoRiskPH National Hazard Platform, <https://hazardhunter.georisk.gov.ph/map#>, accessed 4 March 2026.

<sup>16</sup> Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA), Flood Hazard Maps and Storm Surge Hazard Maps, Department of Science and Technology, Government of the Philippines, <https://www.pagasa.dost.gov.ph/products-and-services/flood-hazard-maps>, accessed 16 December 2025; Mines and Geosciences Bureau (MGB), Geohazard Maps: Flood and Landslide Susceptibility Maps, Department of Environment and Natural Resources, Government of the Philippines, <https://experience.arcgis.com/experience/c48f83f81f1548bdb0a76c61638d52d6>, accessed 16 December 2025; Philippine Institute of Volcanology and Seismology (PHIVOLCS), Landslide Hazard Mapping and Assessment, Department of Science and Technology, <https://www.phivolcs.dost.gov.ph/landslide-hazard-maps/>, accessed 16 December 2025; GeoRisk Philippines, HazardHunterPH / GeoRiskPH National Hazard Platform, <https://hazardhunter.georisk.gov.ph/map#>, accessed 16 December 2025.

Climate and environmental stressors intersect with long-standing political and social tensions in the Cotabato River Basin, where recurrent climate hazards coincide with protracted conflict and unreliable public sector mechanisms. The basin—an important agricultural and fishing area in Mindanao—is highly exposed to flooding, drought, land-use change and river siltation, which directly undermine livelihood security. These climate pressures overlap with persistent socio-political conflicts and limited public sector capacity, constraining adaptation and response and deepening everyday livelihood insecurity.<sup>17</sup>

In communities marked by perceived political illegitimacy and weak representation, climate-related livelihood losses can amplify social tensions and increase the risk of violence, particularly among Muslim communities and Indigenous Peoples. For example, in a conflict-affected town in Lanao del Sur, heavy rainfall in 2023 damaged a key irrigation channel, reducing rice production from three cropping cycles to one. Inadequate government responses eroded trust in state institutions—an outcome that local research associates with a higher likelihood of violent mobilisation.<sup>18</sup> Earlier drought during the 2015–2016 El Niño similarly triggered farmer protests in central Mindanao over delayed assistance, which later escalated into confrontations with security forces. Together, these cases illustrate how climate shocks, when combined with governance and capacity gaps, can translate environmental stress into social unrest and heightened conflict risk.

Climate impacts in Mindanao are exacerbating already dire conditions for Muslim and Indigenous populations, heightening the risk of recruitment into armed movements. These groups are often perceived as more dependable sources of support and protection in the face of social and environmental threats, including climate-related disasters—a perception reinforced by widespread allegations of corruption and political violence within local governments. Extreme weather events damage crops and undermine livelihoods, further eroding trust in government when disaster responses are delayed. Historical grievances over land and resource exploitation persist and are now exacerbated by climate change. Insufficient state support, corruption, and unmet expectations arising from the BARMM transition contribute to local disillusionment, making localised armed groups appear more reliable than government institutions.<sup>19</sup>

Furthermore, the combined pressures of climate change and weakened peacebuilding efforts increasingly undermine social cohesion within BARMM communities. Climate impacts and the degradation of natural resources further intensify these challenges, as livelihoods dependent on land and aquatic ecosystems become more precarious. As a result, competition over access to farmland, fishing grounds, and other essential resources has escalated, heightening local tensions and increasing the risk of conflict. In communities marked by deep-seated political, ethnic, or religious divisions, this

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<sup>17</sup> Laurence L. Delina, Nicolo Paolo P. Ludovice, Jon Gaviola, and Rufa Cagoco-Guiam, “Living with Climate and State Fragility in a ‘Chaotic Paradise:’ Securitized Livelihoods in the Philippines’ Cotabato River Basin,” *Climate Risk Management* 42 (2023): 100558, <https://doi.org/10.1016/j.crm.2023.100558>

<sup>18</sup> Leonardo Medina, et al., *Community voices on climate, peace, and security: Mindanao, Philippines* (CGIAR FOCUS Climate Security, 2024); Leonardo Medina, Adam Savelli and Mark Anthony Torres, *Climate, peace and security: Mindanao, Philippines* (CGIAR Climate Security, 2025).

<sup>19</sup> *Ibid.*

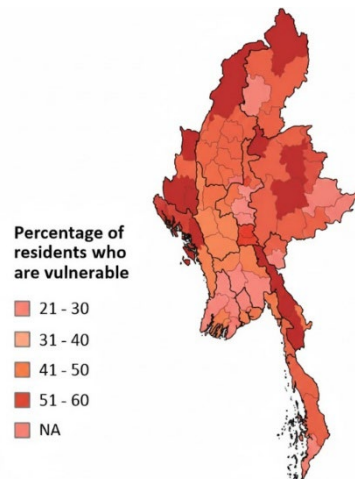
has led to a rise in inter- and intra-communal disputes over land, coastal zones, and agricultural territories. The scarcity of viable economic opportunities also contributes to the growth of shadow economies, including illegal extraction, trafficking, and other illicit activities that undermine peacebuilding and state legitimacy.<sup>20</sup>

### 2.1.2 Climate Change and Conflicts in Myanmar

Similar to the southern Philippines, climate change is not the main driver of existing internal armed conflicts in Myanmar, but it can constrain development progress, weaken economic and livelihood security, exacerbate the humanitarian consequences of ongoing civil war, and disrupt fragile peace processes.

Since a 2021 military coup toppled the elected government of Aung San Suu Kyi and reignited a civil war in Myanmar, a myriad of pro-democracy armed groups and ethnic rebel armies have joined forces to fight against military rule. Myanmar has over 1,000 armed groups, including the People's Defence Force and Ethnic Armed Organisations, fighting the Myanmar military (*Tatmadaw*) and junta-backed militias. As a result of escalating conflict, Myanmar is experiencing a humanitarian crisis that is exacerbated by the effects of climate change (see Figure 2). As of 2025, an estimated 21.9 million people face pressing humanitarian needs and 28 percent of the population is food insecure.<sup>21</sup> The coup has displaced almost four million people, killed at least 6,800 civilians and more than 22,000 people remain arbitrarily detained, said the United Nations High Commissioner for Human Rights Volker Turk in 2025.<sup>22</sup>

**Figure 2. Estimated Percentage of Armed Conflict-vulnerable Population by District in 2021<sup>23</sup>**



<sup>20</sup> Edwin Hernandez, "Think tank monitors surge in violence with rise in heat index in BARM," *Inquirer.net*, 4 June 2024, <https://newsinfo.inquirer.net/1948164/think-tank-monitors-surge-in-violence-with-rise-in-heat-index-in-barm>.

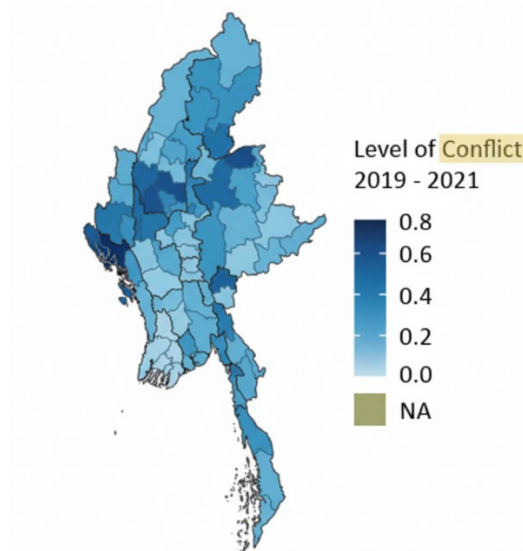
<sup>21</sup> United Nations Office for the Coordination of Humanitarian Affairs, "Myanmar: Humanitarian Needs and Response Plan 2025, Quarter 4 Dashboard (Jan - Dec 2025)," 27 February 2026, <https://www.unocha.org/publications/report/myanmar/myanmar-humanitarian-needs-and-response-plan-2025-quarter-4-dashboard-jan-dec-2025>.

<sup>22</sup> Vibhu Mishra, "Myanmar human rights crisis deepens as aid collapses, attacks intensify," *UN News*, 27 June 2025, <https://news.un.org/en/story/2025/06/1165041>.

<sup>23</sup> Myanmar Information Management Unit, *Climate, Environmental Degradation and Disaster Risk in Myanmar: A MIMU Analytical Brief* (Yangon: MIMU, 2022).

Four years since the coup, the junta has largely failed to execute ASEAN’s Five-Point Consensus,<sup>24</sup> and the country remains mired in conflict as multiple armed actors compete for territorial control. Almost all districts in Myanmar are in varying levels of armed conflict (see Figure 3). Significant areas are under the control of ethnic armed organisations, including the Kachin Independence Army, which holds numerous townships in the north, and the Arakan Army in western Rakhine State. Civilian resistance forces have also seized territory from the military.<sup>25</sup>

**Figure 3. Level of Armed Conflict by District from 2019 to 2021<sup>26</sup>**



Flooding is the most common hazard in Myanmar, causing the greatest overall impact on both people’s safety and property. Myanmar is also exposed to cyclones and typhoons, that typically caused deadly floodings in conflict-affected region. An estimated 28 million people live in districts where at least part of the area is considered at high risk of flood exposure (see Figure 4).<sup>27</sup> The country has experienced a major flood event caused by Cyclone Wipha, impacting eastern Bago, Kayin, and Mon regions and displacing 130,000 residents in July 2025.<sup>28</sup> In September 2024, Typhoon Yagi made landfall in mainland Southeast Asia, bringing strong winds and heavy rainfall to Myanmar. This resulted in severe flooding and landslides, affecting an estimated one million people across 70 townships in nine

<sup>24</sup> The 5PC consists of the following: immediate cessation of violence; constructive dialogue to seek a peaceful solution; mediation for a dialogue facilitated by a Special Envoy of ASEAN; humanitarian assistance from ASEAN; and meeting by the Special Envoy with all parties concerned in Myanmar.

<sup>25</sup> May Wong, “Will Manila pave the way for the Myanmar junta to return to ASEAN?” *The Straits Times*, 15 January 2026, <https://www.straitstimes.com/asia/se-asia/will-manila-pave-the-way-for-the-myanmar-junta-to-return-to-asean>.

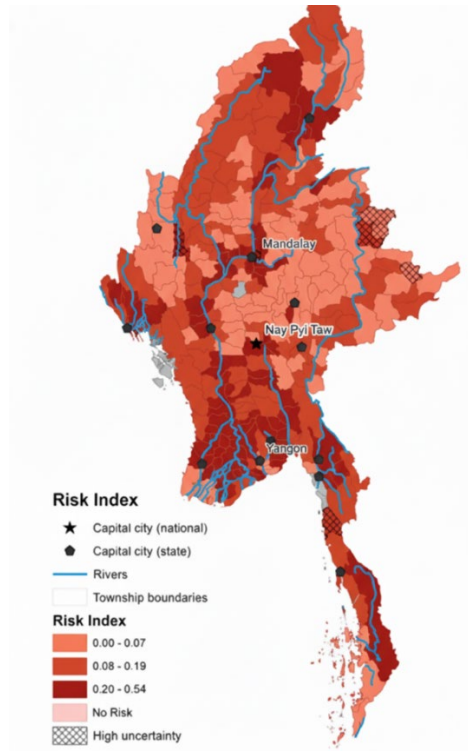
<sup>26</sup> Myanmar Information Management Unit, *Climate*.

<sup>27</sup> ACAPS, “Myanmar: Exposure to seasonal hazards in earthquake-affected areas,” *ACAPS Thematic Report*, 22 April 2025, [https://www.acaps.org/fileadmin/Data\\_Product/Main\\_media/20250422\\_ACAPS\\_Thematic\\_report\\_Myanmar\\_Exposure\\_to\\_seasonal\\_hazards\\_in\\_e\\_earthquake-affected\\_areas.pdf](https://www.acaps.org/fileadmin/Data_Product/Main_media/20250422_ACAPS_Thematic_report_Myanmar_Exposure_to_seasonal_hazards_in_e_earthquake-affected_areas.pdf)

<sup>28</sup> Asian Disaster Reduction Centre, “Myanmar: Flood, Cyclone,” 22 July 2025, [https://www.adrc.asia/view\\_disaster\\_en.php?NationCode=104&Lang=en&Key=2769](https://www.adrc.asia/view_disaster_en.php?NationCode=104&Lang=en&Key=2769).

states and regions of Myanmar.<sup>29</sup> In 2023, Cyclone Mocha brought destructive storm surges, heavy rainfall, and flooding to Myanmar, affecting up to 1.2 million people.<sup>30</sup>

**Figure 4. Flood Risk by Township in Myanmar<sup>31</sup>**



Armed conflict and political instability have significantly weakened community resilience to climate shocks in Myanmar by disrupting livelihoods, public services and environmental protection, while accelerating resource extraction and environmental degradation following the 2021 military takeover. As conflict and divided territorial control expand, particularly in Ayeyarwady Region, Magway Region and Mandalay Region, communities face increasing barriers to humanitarian assistance and basic services due to clashes, checkpoints and air strikes. These access constraints are compounding the impacts of recent floods and severe monsoon events (the 2024 monsoons and Typhoon Yagi), especially in areas controlled by armed resistance groups where aid is restricted. Together, conflict dynamics and governance breakdown are intensifying food insecurity and deepening everyday insecurity for already deprived communities.<sup>32</sup>

A key challenge as a result of converging impact of extreme weather events and conflicts is the limited state capacity in disaster preparedness and response, despite the country experiencing annual

<sup>29</sup> ACAPS, “Myanmar: Exposure”.

<sup>30</sup> Ibid.

<sup>31</sup> Myanmar Information Management Unit, *Climate*.

<sup>32</sup> ACAPS, “Myanmar: Exposure”; Kyungmee Kim, et al., “Climate, Peace and Security Fact Sheet: Myanmar,” NUPI and SIPRI, May 2024, [https://www.sipri.org/sites/default/files/2024-05/01\\_sipri-nupi\\_fact\\_sheet\\_myanmar\\_may\\_0.pdf](https://www.sipri.org/sites/default/files/2024-05/01_sipri-nupi_fact_sheet_myanmar_may_0.pdf).

monsoon seasons.<sup>33</sup> Military-imposed restrictions and insecurity issues also constrain humanitarian capacity. There is limited information on which areas are currently affected by heavy rains and are at high risk of further monsoons and cyclones.<sup>34</sup>

### *When Landmines and Climate Change Intersect*

Mines and unexploded ordnance (UXO) left by past and ongoing hostilities become more dangerous under increasingly erratic weather patterns: heavy rainfall can displace or bury unexploded devices, flooding can spread contaminated sediment and debris, and droughts can push communities closer to hazardous areas in search of water and arable land. In 2025, Myanmar recorded the world's highest number of landmine casualties for the second consecutive year, with 2,029 casualties—double the total reported in 2024—making it the most dangerous country globally for landmine-related harm.<sup>35</sup>

As of October 2025, Shan State has the most townships with suspected contamination over the 1999 to 2025 period. Between 2021 and 2024, Shan State has the highest total number of reported casualties.<sup>36</sup> Floodings also affect townships in Shan State, such as in mid-2025 when heavy rainfall across three townships in Shan State—Yatsauk, Aungban, and Kalaw—triggered widespread flooding.<sup>37</sup> This indicates a convergence of climate and conflict risks for marginalised Shan communities. Flooding can dislodge landmines and UXO, raising the risk of accidental explosion, exposing displaced people moving to unfamiliar areas to heightened risks of injury or death.<sup>38</sup>

During Typhoon Yagi in 2024, flooding in conflict-affected areas of Myanmar displaced landmines and unexploded ordnance (UXO), turning previously safe areas into new danger zones. As landmine use has expanded nationwide since the 2021 coup, the combined effects of flooding and conflict have significantly increased risks for communities—particularly children and internally displaced persons, who are less familiar with local terrain and contamination sites.<sup>39</sup>

### **2.1.3 Climate Change and Conflicts in Indonesia**

Building on earlier discussions of climate change and conflicts in southern Philippines and Myanmar, the Indonesian experience further reinforces the assessment that climate change should be understood as a risk multiplier rather than a direct driver of conflict. In Indonesia, long-running separatist

<sup>33</sup> Ibid.

<sup>34</sup> Vibhu Mishra, "In Myanmar, conflict and floods collide as UN warns of deepening crisis," *UN News*, 31 July 2025, <https://news.un.org/en/story/2025/07/1165549>.

<sup>35</sup> European Commission's Directorate-General for European Civil Protection and Humanitarian Aid Operations, "Myanmar - World's largest number of landmine casualties," *ReliefWeb*, 4 December 2025, <https://reliefweb.int/report/myanmar/myanmar-worlds-largest-number-landmine-casualties-international-campaign-ban-landmines-echo-daily-flash-4-december-2025>.

<sup>36</sup> Myanmar Information Management Unit, "Insights on Suspected Landmine/ERW Contamination (1999 - 2025) and Casualties (2020 - 2024)," 21 November 2025, <https://themimu.info/landmine-erw-insights>.

<sup>37</sup> The Nation Thailand, "Over 2,000 people evacuated due to floods in Shan State," 30 July 2025, <https://www.nationthailand.com/blogs/news/general/40053294>.

<sup>38</sup> ACAPS, "Myanmar: Impact of the southwest monsoon," *ACAPS Briefing Note*, 27 August 2024, [https://www.acaps.org/fileadmin/Data\\_Product/Main\\_media/20240827\\_ACAPS\\_Myanmar\\_-\\_Impact\\_of\\_the\\_southwest\\_monsoon\\_01.pdf](https://www.acaps.org/fileadmin/Data_Product/Main_media/20240827_ACAPS_Myanmar_-_Impact_of_the_southwest_monsoon_01.pdf).

<sup>39</sup> ACAPS, "Myanmar: Exposure".

movement, most notably in West Papua and historically, Aceh, reflect deep-seated ideological, political, historical, and governance-related grievances, shaped by centre-periphery relations and contested state authority. Additionally, pressures linked to climate change are increasingly intersecting with these pre-existing conditions in ways that intensify exposure and vulnerability, reinforce marginalisation, and make peace and security initiatives more difficult, especially in regions that are already fragile and on the periphery.

Indonesia's exposure to climate risks is among the highest in Southeast Asia. As an archipelagic state with extensive coastlines, forested interiors, and reliance on climate-sensitive livelihoods such as agriculture, fisheries, and forestry, the country faces rising threats from extreme rainfall, flooding, drought, sea-level rise, landslides, and human-made environmental degradation in general. In West Papua, insurgency linked to the Free Papua Movement (OPM) has persisted for decades. Papua, formerly known as Irian Jaya prior to its renaming by the Indonesian government in 2002, constitutes Indonesia's easternmost region and is rich in natural resources namely gold, copper, timber, and nickel.<sup>40</sup> Enduring grievances over political integration, self-determination, inequitable resource extraction, and human rights concerns continue to drive Papua's unresolved independence struggle, which has persisted since the mid-1960s.<sup>41</sup>

Climate change does not account for either the origins or the persistence of the conflict in Papua. Nevertheless, climate-related risks restructure the broader context in which communities experience insecurity. Unlike the previous two case studies, where conflict dynamics intersect primarily with what are conventionally understood as naturally occurring climate hazards, the West Papua case illustrates how human-induced environmental degradation, particularly deforestation and land-use change, reinforce underlying political and institutional grievances, contributing to greater instability. This does not mean the province is unaffected by other climate-related risks, but it shows that human actions are playing a bigger role in defining peace and security than natural events alone

Since taking office in 2024, Indonesia's new president, Prabowo Subianto, has moved to revive the transmigration programme while overseeing an acceleration of deforestation in West Papua. Under President Widodo, the province was incorporated into his administration's wider National Strategic Project (PSN).<sup>42</sup> Formally known as the Merauke National Strategic Project, it is part of a broader national development initiative aimed at advancing food security, bioenergy independence, and agribusiness development.<sup>43</sup> The project was officially designated as a National Strategic Project under Regulation of the Coordinating Minister for Economic Affairs (Permenko) No. 8 of 2023, which revised

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<sup>40</sup> Malcolm Gault-Williams, "Organisasi Papua Merdeka: The free Papua movement lives," *Bulletin of Concerned Asian Scholars* 19, no. 4, 1987, <https://www.tandfonline.com/doi/pdf/10.1080/14672715.1987.10409792>.

<sup>41</sup> Mariel Verroya, "West Papua: The Struggle for Independence," *United Nations Association of Australia*, 7 March 2020, <https://www.unaa.org.au/2020/03/07/west-papua-the-struggle-for-independence/>.

<sup>42</sup> Presidential Advisory Council of the Republic of Indonesia, "Proyek Strategis Nasional Baru," 12 March 2025, <https://wantimpres.go.id/en/2025/03/proyek-strategis-nasional-baru/>.

<sup>43</sup> Pusaka, "SN Merauke II: Land Grabbing, Deforestation and the Threat of Ethnocide," accessed 19 January 2026, [https://pusaka.or.id/en/riset\\_investigation/brief-paper-psn-merauke-ii-land-grabbing-deforestation-and-the-threat-of-ethnocide/](https://pusaka.or.id/en/riset_investigation/brief-paper-psn-merauke-ii-land-grabbing-deforestation-and-the-threat-of-ethnocide/).

Permenko No. 7 of 2021 concerning the national PSN list.<sup>44</sup> It spans more than two million hectares across Merauke Regency in South Papua Province.

The designation of West Papua under the PSN has raised concerns, as the land in question is neither vacant nor underutilised. It represents one of Papua's most ecologically significant tropical landscapes, with exceptionally high levels of biodiversity. The proposed development would convert large tracts of this area for the expansion of oil palm, sugarcane, and cassava plantations to support fuel and bioethanol production.<sup>45</sup> A report by PUSAKA highlights the extensive deforestation associated with large-scale land allocations in Merauke. The findings indicate a high degree of concentration in land ownership, with a limited number of companies holding concessions over a substantial area. Specifically, ten corporate entities, with only three major names associated with them, collectively control approximately 563,661 hectares, representing nearly 28 per cent of the total land area designated under the Merauke National Strategic Project, which spans 2,289,255 hectares.<sup>46</sup> With economic power concentrated in the hands of a small group of business elites, the project reflects a highly unequal economic structure that constrains transparency and weakens effective accountability.

Deforestation can significantly contribute to rising global temperatures by releasing large amounts of carbon stored in dense tropical forests.<sup>47</sup> When forests are cleared for infrastructure development, extractive industries, or agricultural expansion, the carbon stored in trees and forest soils is released into the atmosphere as carbon dioxide, thereby increasing greenhouse gas emissions.<sup>48</sup> The project also raises broader environmental concerns, particularly due to its potential to further increase greenhouse gas emissions and intensify existing ecological pressures. These impacts appear inconsistent with Indonesia's current climate commitments, including its pledge to reduce emissions by 41% by 2030 under its Nationally Determined Contribution (NDC) and the Low Carbon Development Initiative (LCDI).<sup>49</sup>

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<sup>44</sup> Database Peraturan Republik Indonesia, "Peraturan Menteri Koordinator Bidang Perekonomian Nomor 8 Tahun 2023," 14 November 2023, <https://peraturan.bpk.go.id/Details/286704/permenko-perekonomian-no-8-tahun-2023>.

<sup>45</sup> KompasTV, "Prabowo Speaks About Energy Self-Sufficiency: Papua Must Be Planted with Oil Palms," *Youtube*, 16 December 2025, [https://youtu.be/\\_pnjgMgfRk?si=0wg6VesRUKha3ige](https://youtu.be/_pnjgMgfRk?si=0wg6VesRUKha3ige).

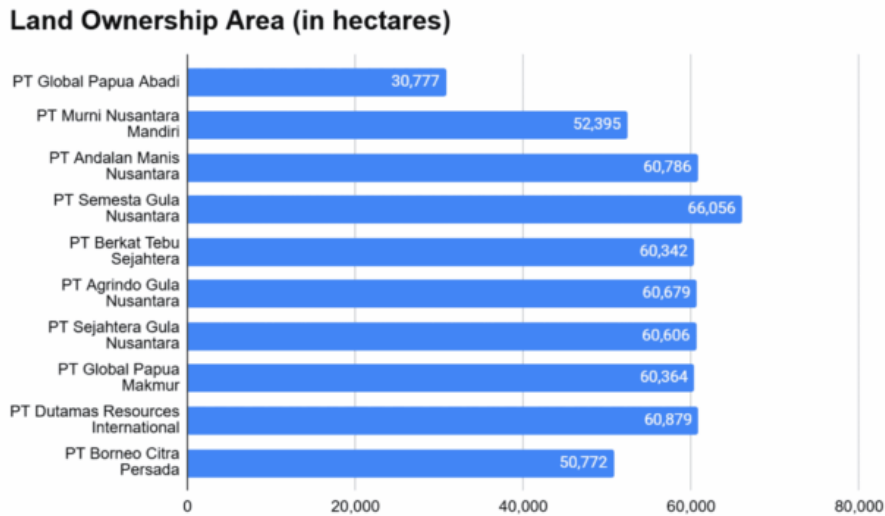
<sup>46</sup> Pusaka, "PSN Merauke II."

<sup>47</sup> Climate Council, "Deforestation and Climate Change," accessed 8 March 2026, <https://www.climatecouncil.org.au/deforestation/>.

<sup>48</sup> Ibid.

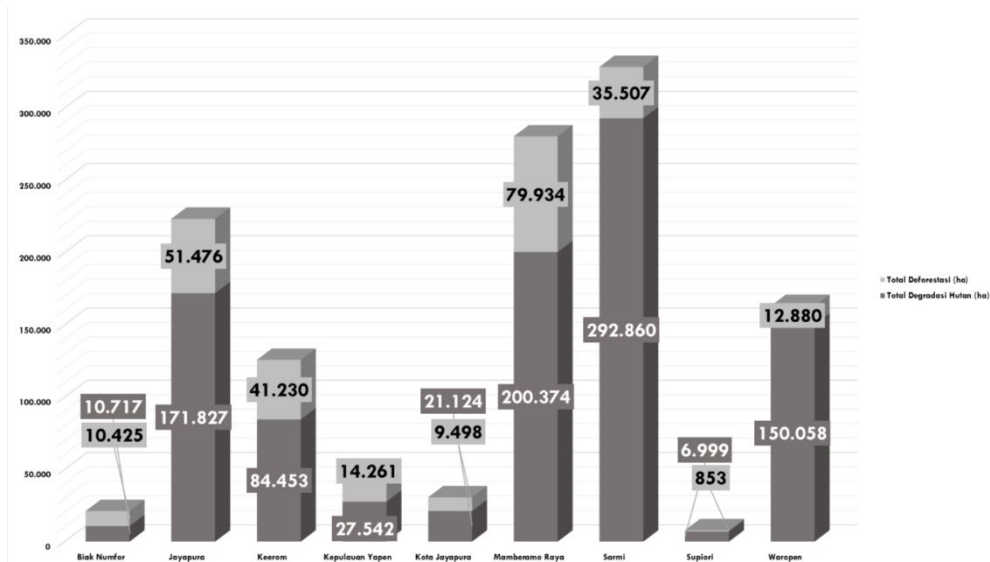
<sup>49</sup> Pusaka, "PSN Merauke II."

Figure 5. Company Name and Sugarcane Plantation Area in West Papua<sup>50</sup>



To date, West Papua has already experienced extensive deforestation and forest degradation. As illustrated in the graph below, the period from 1990 to 2022 saw substantial forest loss across the region. These activities have resulted in cumulative emissions of approximately 368,305,343 tonnes of CO<sub>2</sub>, with average annual emissions estimated at 11,509,542 tonnes of CO<sub>2</sub>.<sup>51</sup> The destruction of Merauke is set to release over 780 million additional tons of CO<sub>2</sub> into the atmosphere.<sup>52</sup>

Figure 6. Deforestation and Forest Degradation Graph from 1990-2022<sup>53</sup>



<sup>50</sup> Pusaka, "PSN Merauke II."

<sup>51</sup> Eka Febi Selvandy, et al., "Dynamics of deforestation and degradation of forest in Papua," *Cassowary* 7, no. 2 (2024): 30-41.

<sup>52</sup> Media Wahyudi Askar, "Vanishing Forests and Rising Emissions: How the Merauke Food Estate Speeds Up the Climate Crisis," *CELIOS*, December 2024, <https://celios.co.id/wp-content/uploads/2024/12/Vanishing-Forests-and-Rising-Emissions-How-the-Merauke-Food-Estate-Speeds-Up-the-Climate-Crisis-1.pdf>.

<sup>53</sup> Eka Febi Selvandy, et al., "Dynamics of deforestation."

Deforestation and land-use change contribute to environmental degradation, which in turn intensifies disasters and drives displacement. Local communities, particularly Indigenous Peoples, whose ancestral lands are being seized for large-scale projects, have ultimately felt these impacts. West Papuan youth and affected landowners have voiced their concerns through protests, carrying banners in Indonesian, English, and Yei; the language of one of several Indigenous groups in southern West Papua threatened by the sugarcane project. Slogans such as “West Papua is Not an Empty Land,” “PSN Out of Our Lands,” and “Save Forests, Stop Sugarcane” highlight both the environmental and social grievances at the heart of these mobilisations.<sup>54</sup>

Both the OPM and the Indonesian government—the two principal actors in this protracted conflict—have become entangled in a self-reinforcing cycle of conflict. On the one hand, the Indonesian government has often labelled opponents of the project as OPM members, with the organisation now designated as a terrorist group. On the other hand, the OPM has leveraged perceived economic injustices, as well as the social and environmental impacts of large-scale development projects, as part of its resistance strategy.<sup>55</sup> This dynamic illustrates how disputes over land use, particularly those with long-term climate-related consequences, can perpetuate conflict, as each side draws on grievances to justify its actions. In the absence of meaningful dialogue and inclusive planning, these tensions are likely to continue restructuring both the security environment and the social fabric of West Papua.

#### 2.1.4 Climate Change and Conflicts in Southern Thailand

No discussion of conflict in Southeast Asia would be complete without addressing Southern Thailand. In the provinces of Pattani, Yala, and Narathiwat, the deep south is home to roughly 80 per cent of Thailand’s Muslim population within an otherwise predominantly Buddhist state.<sup>56</sup> Many Thai Muslims in this region, whose identities are intricately linked to ethnic and religious affiliations, perceive national integration into the Thai state as a loss of religious and cultural autonomy.<sup>57</sup>

This long-standing ethno-religious conflict has, over decades, contributed to the emergence of Barisan Revolusi Nasional (BRN, or the National Revolutionary Front). Although founded earlier, the group re-emerged prominently in 2004 as an insurgent movement seeking the establishment of an independent Islamic state.<sup>58</sup> After a period of relative dormancy, BRN began conducting a sustained

<sup>54</sup> Igor O'Neill, “West Papuan Protest Against Merauke Sugarcane Nat. Strategic Project,” *Greenpeace*, 19 December 2025, <https://www.greenpeace.org/southeastasia/press/68202/merauke-sugarcane-protest/>.

<sup>55</sup> Jason MacLeod, “The Struggle for Self-Determination in West Papua (1969-present),” *International Center on Nonviolent Conflict*, March 2011, <https://www.nonviolent-conflict.org/struggle-self-determination-west-papua-1969-present/>.

<sup>56</sup> Imtiyaz Yusuf, “The Southern Thailand Conflict and the Muslim World,” *Journal of Muslim Minority Affairs* 27, no. 2, p. 323, August 2007, doi:10.1080/13602000701536232.

<sup>57</sup> Ibid.

<sup>58</sup> Termsak Chalermpananupap, “Changing Separatist Struggle in Thailand’s Deep South?” *ISEAS Commentaries*, 29 August 2019, <https://www.iseas.edu.sg/media/commentaries/changing-separatist-struggle-in-thailands-deep-south-by-termsak-chalermpananupap/>.

campaign of attacks and bombings in the early 2000s, met by heavy-handed counter-insurgency measures from Bangkok.<sup>59</sup> Ultimately, civilians have borne the greatest human cost of the violence.

Like other parts of Southeast Asia, Thailand's deep south is increasingly affected by climate change, as rising global temperatures intensify climate-related disasters. The region faces recurring flooding, sea-level rise, the degradation of coastal and marine resources, weak natural resource governance, and mounting pressures from industrial development.<sup>60</sup> These environmental stressors intersect directly with existing grievances by further constraining livelihoods and exposing long-standing gaps in state capacity.

At the 2025 Melayu Raya event, the largest annual gathering in Thailand's southern border provinces, a timely theme, "Green Melayu, Suci Patani," was adopted.<sup>61</sup> This signalled a notable shift, highlighting the increasingly visible linkage between environmental stewardship and long-standing social, cultural, political, and historical concerns in the region. A wider wave of environmental mobilisation across Thailand and Southeast Asia guided the framing of the event, reflecting growing public frustration with unsustainable development practices and state inaction.<sup>62</sup> These emerging environmental narratives also sit alongside more structural pressures linked to livelihoods and resource access, which have direct implications for conflict dynamics in these Muslim provinces.

Unlike other groups, whose activities have been linked to declining livelihood security, such as loss of income from agriculture or fishing, or the depletion of renewable resources like food and water, which can increase both the risk of conflict onset and the intensity of violence, the BRN reflects a more specific dynamic.<sup>63</sup> Climate change impacts for the BRN are less directly linked to broader political mobilisation against the government and more closely tied to the group's own long-term survival and well-being. The behaviour is driven by three tactical motivations: first, the use of violence as a coping mechanism to secure food supplies for the group; second, its role as a recruitment strategy; and third, opportunistic exploitation of local environmental conditions.<sup>64</sup> In agriculture-dependent areas affected by drought, insurgent groups may escalate violence against civilians to safeguard their own food security. This pattern has been observed among BRN insurgents, where fighters have forcibly displaced local farmers to gain control over arable land and agricultural resources for their own use.

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<sup>59</sup> Human Rights Watch, "Thailand: New Insurgent Attacks on Civilians Despite Pledge," 29 May 2025, <https://www.hrw.org/news/2025/05/29/thailand-new-insurgent-attacks-civilians-despite-pledge>.

<sup>60</sup> Stratsea, "The Malay Identity and Environmental Challenges in Southern Thailand," 8 August 2025, <https://stratsea.com/the-malay-identity-and-environmental-challenges-in-southern-thailand/>.

<sup>61</sup> Ibid.

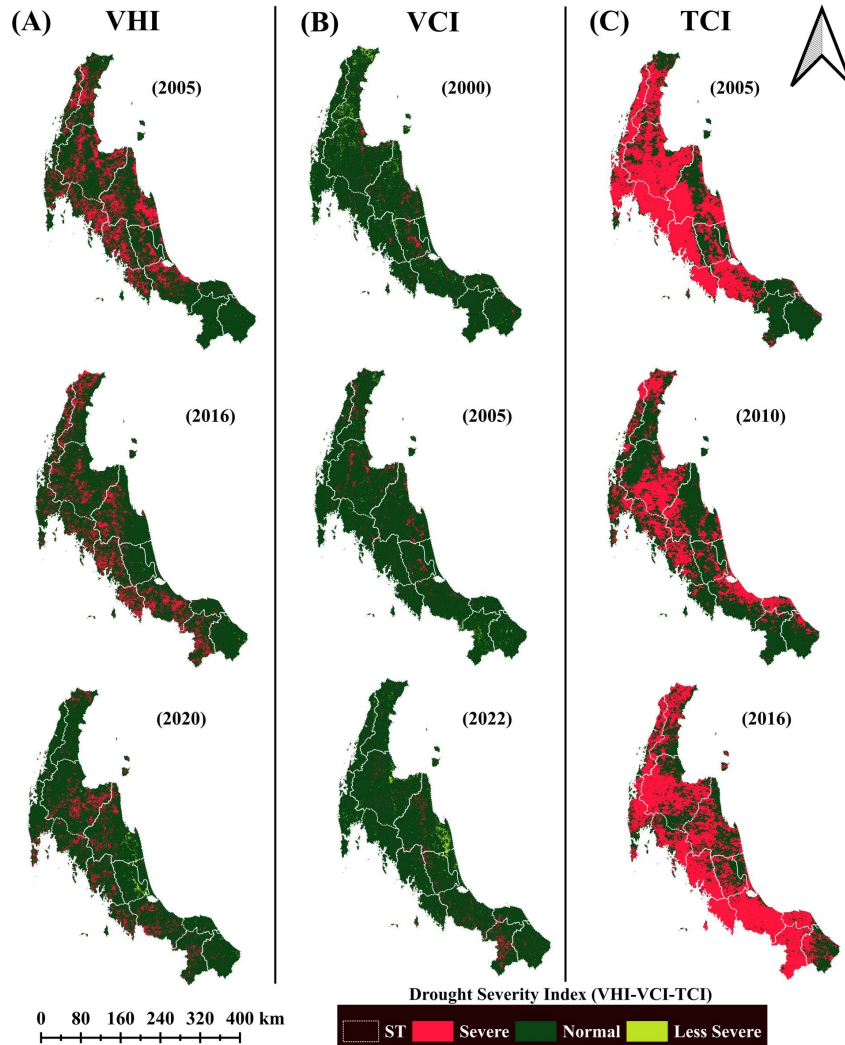
<sup>62</sup> Ibid.

<sup>63</sup> Pernilla Nordqvist and Florian Krampe, "Climate Change and Violent Conflict: Sparse Evidence from South Asia and Southeast Asia," *SIPRI Insights on Peace and Security*, September 2018, p. 5, <https://www.sipri.org/publications/2018/sipri-insights-peace-and-security/climate-change-and-violent-conflict-sparse-evidence-south-asia-and-south-east-asia>.

<sup>64</sup> Ibid, p. 6.

Southern Thailand has a long history of prolonged droughts. As illustrated in Figure 7, periods of severe vegetation stress occurred in 2005 and 2016, with analysis indicating that elevated temperatures played a significant role in degrading vegetation health across the region.<sup>65</sup>

**Figure 7. Drought Severity Index in Southern Thailand Based on Vegetation Health Index (VHI), Vegetation Condition Index (VCI), and Temperature Condition Index (TCI)<sup>66</sup>**



A 2005 report by Thailand's Ministry of Interior documented a sharp increase, nearly 90 percent, in the number of villagers killed in Songkhla during the 2004 drought.<sup>67</sup> The report further noted that acts of extreme violence against farmers, including beheadings, hangings, and beatings, became increasingly common during this period.<sup>68</sup> These attacks were linked to insurgent perceptions that drought conditions significantly reduced civilian labour productivity and that the continued

<sup>65</sup> Kaleem Mehmood et al., "Exploring vegetation health in Southern Thailand under climate stress from temperature and water impacts between 2000 and 2023," *Scientific Reports* 15, no. 30491, 20 August 2025, <https://www.nature.com/articles/s41598-025-16293-x>.

<sup>66</sup> Kaleem Mehmood et al., "Exploring vegetation health in Southern Thailand."

<sup>67</sup> Thailand Ministry of Interior, "Civilians Attached and Villages Raided by BRN-C in Songkhla in 2004," July 2005, p. 1065, as cited in Benjamin E. Bagozzi, Ore Koren and Bumba Mukherjee, "Droughts, Land Appropriation, and Rebel Violence in the Developing World," *Journal of Politics* 79, no. 3, 4 May 2017, pp. 1062-1063, <https://www.benjaminbagozzi.com/uploads/1/2/5/7/12579534/droughtjop.pdf>.

<sup>68</sup> Ibid.

presence of civilians on appropriated farmland intensified competition over scarce, stockpiled food resources, thereby exacerbating food insecurity.<sup>69</sup>

In response, farmers in Rattaphum, Na Mom, and Bang Klam in Songkhla reportedly discussed forming local defence associations during the 2004 drought to deter the BRN from seizing their rice fields.<sup>70</sup> The emergence of such self-defence initiatives posed a direct challenge to insurgent efforts to capture and control agricultural land in the area. Given projections of more frequent and severe droughts under future climate change scenarios, these observed linkages between environmental stress, civilian exposure, and peace and security dynamics carry important implications for national policy.

### Potential Future Scenarios

This section examines potential future scenarios of climate, peace and security in Southeast Asia. These scenarios consider how environmental stress, resource pressures, and governance shortfalls could amplify societal instability and conflict risks and may be exploited to exacerbate tensions. One scenario ponders how insufficient climate funding could intensify political and social disputes.

#### **Scenario 1: Weaponised Environment and Climate Hazards**

In this scenario, the transition from localised tension to violent conflict or mass displacement is shaped by the convergence of three primary catalysts: environmental and climate risks (such as resource scarcity and disasters), socio-economic vulnerabilities, and limited public sector capacity. Under these conditions, the BARMM in the southern Philippines, Myanmar, and Indonesia's West Papua risk becoming trapped in a cycle in which armed conflict progressively undermines climate resilience over the coming decades.

Recent developments mirror the Myanmar military's response to Typhoon Yagi (2024) and the 2025 monsoons, where both state and non-state actors have used checkpoints and airstrikes to obstruct humanitarian assistance to contested areas. Violence and mistrust further erode the capacity for coordinated climate adaptation planning, such as the development of community flood defences or shared irrigation systems. In some cases, environmental disasters are deliberately exploited as "force multipliers" to weaken resistance-controlled communities.

This scenario may emerge in the absence of a comprehensive approach to climate change and conflict management, whereby environmental and climate risks will continue to be treated as isolated disasters rather than security threats. As climate-induced weather events intensify, socio-economic stressors may push marginalised communities to the brink. As conflict episodes increase, farmers and fishers shift from formal livelihoods to informal or illicit violent activities in order to survive, such as unlicensed logging, smuggling, piracy, or local skirmishes over land rights. Without government interventions to mediate resource competition, localised social tensions over land, livelihoods, and water may frequently reach the tipping point into violent conflict. This may result

<sup>69</sup> Benjamin E. Bagozzi, Ore Koren and Bumba Mukherjee, "Droughts, Land Appropriation, and Rebel Violence in the Developing World," *Journal of Politics* 79, no. 3, 4 May 2017, pp. 1062-1063, <https://www.benjaminbagozzi.com/uploads/1/2/5/7/12579534/droughtjop.pdf>.

<sup>70</sup> *Ibid.*, p. 1065.

in a cycle of protracted forced displacement, weakening social cohesion and creating a permanent class of climate-displaced persons, thereby making the region increasingly difficult to stabilise.

### **Scenario 2: Scarce Climate Financing: A Driver of Conflict and Political Contestation**

One critical aspect often overlooked in discussions on the nexus of climate, peace, and security is the role of climate financing. In contexts of prolonged armed conflict such as ones in Southeast Asia, access to climate finance is often limited by weak institutional capacity, security risks, and donor concerns over financial accountability. Delicate governance environments can struggle to meet the technical, reporting, and monitoring requirements attached to international climate funds, resulting in reduced inflows or delayed disbursement. As a consequence, communities most exposed to climate impacts are frequently those least able to access adaptation financing, reinforcing cycles of deprivation. In prolonged conflict settings, climate finance therefore tends to be insufficient not because of a lack of need, but because insecurity constrains both state capacity and donor willingness to engage at scale.

At the same time, the scarcity of climate finance in conflict-affected areas can heighten its political and strategic significance. When funding is limited, decisions over allocation become highly visible and contested, shaping perceptions of inclusion, legitimacy, and control. Poorly governed or centralised financing mechanisms may exacerbate grievances by reinforcing perceptions of neglect or favouritism, particularly where communities already distrust state institutions. In such contexts, climate finance risks becoming a source of political tension rather than a stabilising force, especially if projects are perceived as serving elite or external interests rather than local resilience.

Yet climate finance also carries the potential to act as a confidence-building instrument if deployed in a conflict-sensitive and inclusive manner. Carefully designed financing frameworks, emphasising transparency, local participation, and equitable benefit-sharing, can help rebuild trust between communities and governing authorities. When climate projects visibly address everyday forms of insecurity, such as food insecurity or inadequate disaster preparedness, they may reduce the appeal of non-state armed actors who exploit governance gaps. However, this stabilising effect is contingent on implementation: the same funds that foster cooperation can, if mismanaged, deepen divisions, attract targeting by armed groups, or be instrumentalised for political leverage.

## **2.2 Climate Change and Violent Extremism**

Southeast Asia has long faced challenges related to violent extremism and terrorism, driven by both transnational jihadist networks such as affiliates of Al-Qaeda (AQ) and the Islamic State of Iraq and Syria (ISIS) and locally embedded organisations, including Indonesia's Jemaah Islamiyah (JI), the Abu Sayyaf Group in the Philippines, and other new splinter groups.<sup>71</sup> Over several decades, these actors have employed a diverse repertoire of tactics, ranging from bombings and targeted assassinations to

<sup>71</sup> Noor Huda Ismail, "The Evolving Threat Landscape in Southeast Asia After the Disbandment of Jemaah Islamiyah," *CO24122*, 23 August 2024, <https://rsis.edu.sg/rsis-publication/rsis/the-evolving-threat-landscape-in-southeast-asia-after-the-disbandment-of-jamaah-islamiyah/>.

kidnappings and extortion, reflecting both ideological motivations and strategic adaptation to local political and security environments. Collectively, their activities have contributed to enduring patterns of instability, particularly in areas marked by limited state presence and oversight, protracted conflict, and socio-economic marginalisation across parts of Southeast Asia and beyond.

While no universally agreed definition of terrorism exists, policymakers and analysts in the region commonly understand the term to refer to acts that involve serious violence, aim to influence the public or state institutions, deliberately target or intimidate civilians, and involve non-state actors.<sup>72</sup> In this context, terrorism is clearly distinct from both ordinary violent crime and the previously discussed armed conflict. Although terrorist acts involve violence, they do not constitute armed conflict, as they lack the recognised legal status, command structures, and regulatory frameworks that govern warfare under international humanitarian law.<sup>73</sup> At the same time, terrorism cannot be addressed solely as ordinary crime because it is driven by explicitly political objectives, including coercing governments, intimidating societies, and undermining political authority and social order.<sup>74</sup>

Even though terrorism is often described as being in decline in Southeast Asia,<sup>75</sup> isolated incidents—such as the Jakarta school mosque bombing in November 2025, which injured more than 50 people—demonstrate that the threat remains persistent and consequential.<sup>76</sup> Even limited-scale attacks continue to inflict significant human and societal costs. At the same time, climate change, evident in rising temperatures, more frequent extreme weather events, sea-level rise, and shifting rainfall patterns, is shifting economic and environmental conditions across the region. Given that both climate change and violent extremism present serious challenges to peace and security, policymakers and researchers have increasingly explored how these dynamics intersect.<sup>77</sup> While no direct causal relationship between climate change and terrorism has been established, this report identifies a range of indirect linkages and compounding stressors that may steer the regional security environment.

### 2.2.1 Narrative Framing: Climate Stress and Socio-economic Vulnerability

One of the principal themes in the literature is the idea that climate degradation can amplify pre-existing socio-economic stresses that are also relevant to social cohesion, governance, and security. In Southeast Asia, countries with significant rural populations, heavy dependence on agriculture and fisheries, and limited adaptive capacity are especially exposed to environmental shifts. Declining agricultural yields, damaged infrastructure from extreme weather, and disrupted livelihoods can erode economic stability, nurturing conditions that are also cited in broader research as common stressors in environments where

<sup>72</sup> Gregory Rose and Diana Nestorovsha, “Towards an ASEAN Counter-Terrorism Treaty,” in the Singapore Year Book of International Law and Contributors (2005), p. 160, accessed 16 December 2025, <http://www.commonlii.org/sg/journals/SGYrBkIntLaw/2005/13.pdf>.

<sup>73</sup> Ibid.

<sup>74</sup> Ibid.

<sup>75</sup> S. Rajaratnam School of International Studies, “A Declining but Persistent Threat in Southeast Asia and Beyond,” accessed 15 December 2025, <https://rsis.edu.sg/ctta-newsarticle/a-declining-but-persistent-threat-in-southeast-asia-and-beyond/#>.

<sup>76</sup> Jerome Wirawan and Aleks Philips, “More than 50 people injured in blast at mosque in Jakarta school complex,” *BBC*, 7 November 2025, <https://www.bbc.com/news/articles/clykgdg3l42o>.

<sup>77</sup> E.g., Krampe, Florian, and Cedric de Coning, “Climate Change, Environmental Peacebuilding, and Preventing and Countering Violent Extremism,” in *Resilience, Peacebuilding, and Preventing Violent Extremism*, pp. 186-206, Routledge, 2025.

violence and social unrest can escalate.<sup>78</sup> While these dynamics are not unique to terrorism, they are part of a mosaic of social stress and instability that influence the broader security ecosystem.

The erosion of economic opportunities and increased competition for scarce resources can, for example, contribute to internal migration, swelling informal urban settlements, and stretch state capacity consequently compounding national challenges. These problems can heighten local grievances around access to water, land, or employment; grievances that may be exploited by extremist actors as part of their recruitment or narrative framing. The lack of resilient alternative livelihoods and increased economic uncertainty could make some individuals more susceptible to illegal activity or encourage them to join groups that promise economic or social support.

In Indonesia, long considered as one of the region's persistent hotspots for terrorism, recent data suggest a shift in the underlying motivations driving individual involvement in extremist networks. Evidence indicates that participation is increasingly influenced not solely by ideological or doctrinal commitment, but also by economic insecurity. Indonesian authorities have reported that, over the past five years, at least 35 individuals were arrested in Aceh by Detachment 88 for alleged involvement in terrorist networks, with recruitment reportedly linked to promises of employment, logistical support, and financial stability.<sup>79</sup>

This dynamic is occurring within a broader context of environmental and economic stress. Aceh, an agriculturally dependent province known for palm oil, rubber, coffee, spices, as well as oil and gas production, has experienced growing climate-related pressures, including altered rainfall patterns, increased drought frequency, and flooding. In December 2025, severe floods and landslides across Sumatra, including Aceh, North Sumatra, and West Sumatra, resulted in 921 fatalities, with 407 deaths reported in Aceh alone, over 4,300 injuries, and 31 individuals still missing.<sup>80</sup> These overlapping economic, environmental, and security pressures show how climate-related stressors may intersect with existing drivers of social instability, potentially moulding the broader conditions within which extremist recruitment occurs, without implying a direct causal relationship.

## 2.2.2 Recruitment and Operation: CPS and Community Grievances

A foundational pillar of peace and security is the perception of fairness, inclusion, and equitable access to resources within communities. Climate-induced stressors can undermine these perceptions by disrupting access to essential livelihoods such as water, arable land, and coastal fisheries and by again, exacerbating pre-existing socio-economic inequalities. Research by the National Consortium for the Study of Terrorism and Responses to Terrorism (START) indicates that extremist groups may exploit

<sup>78</sup> Food and Agriculture Organization (FAO), "The Impact of Disaster and Crises on Agriculture and Food Security," 2021, accessed 20 December 2025, <https://openknowledge.fao.org/server/api/core/bitstreams/30c0d98d-1c21-48ef-b5d9-8d988e6fa6f2/content>.

<sup>79</sup> Dialeksis, "Motif Ekonomi di Balik Rekrutmen Teroris: Ancaman Baru di Aceh, Dua ASN Ditangkap Densus," 6 August 2025, <https://dialeksis.com/polikum/motif-ekonomi-di-balik-rekrutmen-teroris-ancaman-baru-di-aceh-dua-asn-ditangkap-densus/>.

<sup>80</sup> Rikhul Jannah, "Data Terbaru Banjir Aceh-Sumatra: 921 Jiwa Meninggal, 962 Ribu Orang Masih Mengungsi," *NU Online*, 7 December 2025, <https://www.nu.or.id/nasional/data-terbaru-banjir-aceh-sumatra-921-jiwa-meninggal-962-ribu-orang-masih-mengungsi-sk54N>.

grievances and insecurities intensified by climate pressures, particularly by framing narratives of marginalisation, exclusion, and relative deprivation to facilitate recruitment and mobilisation.<sup>81</sup>

Environmental degradation or livelihood loss does not in itself generate violent extremism. However, in rural and coastal areas where state presence is limited and economic diversification is weak, such pressures can deepen perceptions of neglect and injustice. In these contexts, extremist actors may capitalise on limited state presence by portraying state institutions as ineffective or indifferent, thereby translating local dissatisfaction into broader political mobilisation. This underscores a key insight of CPS: climate impacts rarely operate in isolation but become embedded within existing political, economic, and social conditions that influence community resilience, mobility, and individual decision-making.<sup>82</sup>

Building on this narrative, terrorist groups may increasingly exploit climate-induced risk factors through more direct forms of service substitution. This can include providing environmental or disaster-related services in areas where the state is unable or unwilling to respond; demonstrating perceived crisis-response superiority by delivering faster or more visible assistance than government authorities; and asserting symbolic environmental authority by using such service provision to cultivate local legitimacy while simultaneously eroding confidence in state institutions.<sup>83</sup>

Comparable patterns have been observed among groups such as the IS, AQ and its affiliates, Hamas, and Hezbollah in contexts including Iraq, Syria, Somalia, Yemen, Gaza, and Lebanon.<sup>84</sup> As early as 2010, for instance, Osama bin Laden, founder of AQ, explicitly referenced climate change in a message broadcast by Al Jazeera, attributing environmental degradation to industrialised nations and condemning the United States for its role in driving global environmental harm.<sup>85</sup>

Similar pattern can be observed in IS. Beyond its military apparatus, the group developed a dual governance structure consisting of two principal civilian-oriented departments. The first was an administrative department responsible for education, law enforcement, recruitment, and religious affairs. The second was the Department of Muslim Services, which oversaw the provision of public goods, including humanitarian assistance, sanitation, infrastructure, healthcare, food distribution, and the management of water and electricity.<sup>86</sup>

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<sup>81</sup> Samuel Henkin, Marcus A. Boyd, and Madeline Romm, "A Climate of Terror? Part I: Approaches to the Study of Climate Change and Terrorism," *START*, 2022, [https://www.start.umd.edu/pubs/Climate\\_Change\\_Overview\\_FINAL.pdf](https://www.start.umd.edu/pubs/Climate_Change_Overview_FINAL.pdf).

<sup>82</sup> Samuel D. Henkind and Madeline Romm, "Climate Security in Southeast Asia," *START*, 2023, <https://www.start.umd.edu/publication/climate-security-southeast-asia>.

<sup>83</sup> Ashton Kingdon, "The Darkest Shade of Green: Climate Change, Terrorist Organizations, and the Battle for Environment Legitimacy," *Studies in Conflict & Terrorism*, 2025, <https://doi.org/10.1080/1057610X.2025.2575469>.

<sup>84</sup> *Ibid.*

<sup>85</sup> Jonathan Landay, "Bin Laden called for Americans to rise up over climate change," *Reuters*, 2016, <https://www.reuters.com/article/world/bin-laden-called-for-americans-to-rise-up-over-climate-change-idUSKCN0W35MS/>.

<sup>86</sup> Eelco van Dongen, "A comparative content analysis of the extremist magazines 'Dabiq' (IS) and 'Inspire' (AQAP)," *Universiteit Leiden*, 2016, <https://studenttheses.universiteitleiden.nl/access/item%3A2665869/view>.

In Iraq, this services-oriented branch, often dismissed as propaganda, was actively promoted through IS's flagship publication *Dabiq*, which repeatedly highlighted the group's ability to deliver water and food supplies and portrayed IS as a capable and legitimate service provider.<sup>87</sup> This strategy was particularly significant given IS's acute awareness of water as a strategic resource and its demonstrated willingness to weaponise it. By simultaneously controlling water infrastructure and advertising service provision, IS sought to consolidate authority, cultivate local legitimacy, and reinforce its governance narrative alongside coercive control.<sup>88</sup>

Although such concrete example has not yet clearly materialised in Southeast Asia, they represent a plausible emerging risk as climate pressures intersect with existing deficits in local governance and security challenges in the region.

### Potential Future Scenarios

Building on the preceding analysis, existing scholarship on the nexus between terrorism, climate change, and environmental exploitation has largely concentrated on how climate-induced displacement, resource scarcity, and localised grievances create permissive conditions for radicalisation and recruitment. While these dynamics will remain relevant, such a framing risks overlooking a more consequential development. Looking ahead, terrorist groups are likely to move beyond opportunistic exploitation of environmental stressors and instead increasingly and deliberately instrumentalise environmental instability as a strategic tool. In future scenarios, these actors may seek to undermine state authority by exploiting governance and regulatory shortcomings in climate adaptation and resource management, positioning themselves as alternative providers of order, protection, and access to resources in contexts where state capacity remains limited or absent.<sup>89</sup>

#### Scenario 1: Environmental Terrorism and Ecoterrorism

One possible future scenario, though no confirmed cases have yet been observed in Southeast Asia, is that the intersection of terrorism and climate change could plausibly manifest in two distinct forms: environmental terrorism and ecoterrorism. Environmental terrorism refers to acts in which environmental assets or environmentally related infrastructure are deliberately targeted to advance political or ideological objectives that are not themselves environmental in nature. In this sense, the environment functions as a means or instrument of violence rather than the cause, with perpetrators resembling conventional terrorist actors who adopt unconventional targets.<sup>90</sup> By contrast, ecoterrorism involves attacks directed at industries or infrastructure associated with resource extraction, motivated by a perceived need to protect ecosystems from destruction attributed to human exploitation, overconsumption, or corporate greed. Unlike environmental terrorists,

<sup>87</sup> Kingdon, "The Darkest Shade of Green."

<sup>88</sup> Erin Cunningham, "Islamic State jihadists are using water as a weapon in Iraq," *The Washington Post*, 2014, [https://www.washingtonpost.com/world/middle\\_east/islamic-state-jihadists-are-using-water-as-a-weapon-in-iraq/2014/10/06/aead6792-79ec-4c7c-8f2f-fd7b95765d09\\_story.html](https://www.washingtonpost.com/world/middle_east/islamic-state-jihadists-are-using-water-as-a-weapon-in-iraq/2014/10/06/aead6792-79ec-4c7c-8f2f-fd7b95765d09_story.html).

<sup>89</sup> Ibid.

<sup>90</sup> Elizabeth L. Chalecki, "Environmental Terrorism Twenty Years On," *Global Environmental Politics* 24 (1), 2024, [https://doi.org/10.1162/glep\\_a\\_00728](https://doi.org/10.1162/glep_a_00728).

ecoterrorist actors frame their violence as serving environmental preservation rather than opposing it.<sup>91</sup>

In Southeast Asia, none of these concepts have yet translated into sustained or systematic forms of environmental terrorism or ecoterrorism. However, structural conditions in the region suggest plausible pathways through which they could happen. Southeast Asia exhibits acute exposure and sensitivity to climate impacts, high dependence on natural resources, and uneven governance across peripheral and conflict-prone areas. Infrastructure such as dams, coastal facilities, and energy installations is increasingly critical for economic survival, yet often poorly protected in remote regions. In such contexts, environmental terrorism could emerge as an opportunistic tactic, with armed groups or insurgents targeting water systems, plantations, or extractive infrastructure to pressure governments or disrupt state authority. Separately, ecoterrorism-like actions could arise at the margins of environmental activism, particularly where communities feel excluded from decision-making processes around mining, logging, or large-scale development projects and where peaceful avenues for protest are perceived as ineffective.

The potential appeal of ecological narratives also lies in their capacity to resonate across ideological boundaries. In Southeast Asia, where environmental degradation directly affects livelihoods tied to agriculture, fisheries, and forests, grievances linked to land dispossession, pollution, and climate-induced loss could be selectively incorporated into extremist's insurgent messaging. Rather than producing new forms of violence outright, ecological framing may serve as an alternative, broadening the moral vocabulary through which violence is justified, legitimising attacks on infrastructure, or enabling armed actors to present themselves as defenders of communities and ecosystems against negligent or predatory states.

### **Scenario 2: Efforts in Reforming Counter-Terrorism Measures**

A central, yet often overlooked, dimension of the terrorism-climate nexus lies not with non-state violent actors alone, but with how states and international coalitions respond to terrorism. In Southeast Asia, traditional counter-terrorism strategies frequently emphasise kinetic approaches such as large-scale ground operations.<sup>92</sup> While these tactics may degrade militant capabilities, their environmental and climate costs are substantial. Warfare and military operations have profound effects on the natural environment; damaging ecosystems, contaminating soil and water, releasing greenhouse gases, and degrading critical infrastructure.

Recognising these unintended consequences, policymakers in Southeast Asia have increasingly sought to reform counter-terrorism measures to balance security objectives with environmental and social sustainability. For instance, Indonesia and the Philippines have explored strategies that emphasise intelligence-led operations, targeted law enforcement actions, and community-based initiatives to reduce militant influence without extensive ecological disruption.<sup>93</sup> These reforms aim

<sup>91</sup> Ibid.

<sup>92</sup> Olli Suorsa, "Growing Role of the Military in Counter-Terrorism in Southeast Asia," *ISEAS*, 2 November 2018, [https://www.iseas.edu.sg/wp-content/uploads/pdfs/ISEAS\\_Perspective\\_2018\\_69@50.pdf](https://www.iseas.edu.sg/wp-content/uploads/pdfs/ISEAS_Perspective_2018_69@50.pdf).

<sup>93</sup> Aisyah Llewellyn, "How 'war on terror' was fought and won in Southeast Asia – for now," *Aljazeera*, 15 September 2023, <https://www.aljazeera.com/news/2023/9/15/how-war-on-terror-was-fought-won-in-southeast-asia-for-now>.

to minimise the destruction of forests, agricultural lands, and coastal ecosystems, thereby limiting carbon emissions and preserving the natural resources upon which local communities depend.

Reforming counter-terrorism measures in this way addresses a critical paradox: short-term tactical gains achieved through kinetic operations can inadvertently exacerbate environmental degradation and climate vulnerability, particularly in regions reliant on fragile ecosystems. By integrating environmental considerations into security planning, through careful operational design, reduced reliance on heavy munitions, and post-operation ecological restoration, Southeast Asian states are attempting to ensure that counter-terrorism efforts support both immediate security goals and longer-term climate resilience.

## 2.3 Climate-induced Water Insecurities

### 2.3.1 Varying Water Stresses and CPS

As a low-lying region, Southeast Asia faces intensifying water-related pressures driven by climate change. ASEAN has acknowledged climate change contributing to a “significant increase” in hydrometeorological disasters across the last 50 years in the region,<sup>94</sup> where interconnected issues of sea-level rise (SLR), changing rainfall patterns, prolonged droughts, and expanding hydropower projects for clear energy purposes generate insecurities across rural and urban areas.

Rural areas are exposed to several of the most severe climate-induced water pressures in the region. Region-wide, livelihoods tied to agriculture, fishing, and forestry together employ roughly one quarter of the region's population.<sup>95</sup> While stable and predictable water flows are critical for livelihoods to be sustained, interrelated issues of land losses, soil erosion, and salinisation present active and growing threats to issues including water access, food security, and economic security. Presently, major agricultural zones are exposed to these threats.

Key impacted zones include the low-lying Mekong Delta and the Red River Basin in Vietnam, the Ayeyarwady River and Dry Zone of Myanmar, the Chao Phraya River in Thailand, and Java, Indonesia. Similar climactic pressures affect Southeast Asia's large fishing sector. Most notably, climate change and hydropower dams have altered water flows in Cambodia's Tonlé Sap within the Mekong River system, contributing to an 88 percent decline in fish populations between 2003 and 2019.<sup>96</sup> These pressures intensify during El Niño years. During the 2023-2024 El Niño event, interrelated effects of typhoons, floods and droughts negatively affected crops and water availability across large areas of Southeast Asia, including Java, the Philippines, and the Mekong River. Together, these expanding pressures interplay with limited resilience and adaptive capacities in rural communities across Southeast

<sup>94</sup> ASEAN, “Changing Disaster Risk Landscape due to Climate Change in ASEAN,” ASEAN Socio-Cultural Community Trend Report No. 10, 2025, [https://asean.org/wp-content/uploads/2025/04/20240324\\_Trend-Report\\_DM-10-2025.pdf](https://asean.org/wp-content/uploads/2025/04/20240324_Trend-Report_DM-10-2025.pdf), 4.

<sup>95</sup> Elyssa Ludher, and Paul Teng, “Outlook for Agriculture and ASEAN's Role in Southeast Asia's Food Security,” *ISEAS Perspective* 2025/59, 18 August 2025, <https://www.iseas.edu.sg/articles-commentaries/iseas-perspective/2025-59-outlook-for-agriculture-and-aseans-role-in-southeast-asias-food-security-by-elyssa-ludher-and-paul-teng/>.

<sup>96</sup> Mathieu Chevalier et al., “Long-term data show alarming decline of majority of fish species in a Lower Mekong basin fishery,” *Science of the Total Environment* 891 (2023): 164624.

Asia, contributing to increased economic inequality, resource competition, unemployment, and human mobility. These risks disproportionately affect ethnic minorities who are often concentrated in rural and high-exposure areas.<sup>97</sup>

Rising threats are also visible across urban areas in the region. As visualised in Table 2, several regional low-lying coastal cities, including Bangkok, Ho Chi Minh City, Jakarta, and Manila are exposed to escalating flood risks from effects of SLR, coupled with intensified rainfall and land subsidence from groundwater extraction. Presenting a threat both through sudden-onset disasters and long-term challenges pertaining to limited water access, risks of social crises and instability arise. The 2019 Manila water crisis highlights these risks, where an El Niño-induced drought exposed limited government control over water resources, causing severe water shortages and rationing, fuelling public health and sanitation concerns.<sup>98</sup>

**Table 2. Projected Sea-Level Rise in Selected Southeast Asian Areas**

Affected Location	Approximate Sea-Level Rise Rates	Additional Notes
<b>Jakarta</b>	4.2mm/year <sup>99</sup>	With more than 40% of city below sea-level, plans of relocating the capital city to Borneo are ongoing
<b>Ho Chi Minh City/Mekong Delta</b>	3.5-4.5mm/year <sup>100</sup>	40-45% of Ho Chi Minh City is located less than a metre above sea level, <sup>101</sup> Delta submerging likely to affect millions of people in the upcoming decades
<b>Bangkok/Chao Phraya Delta</b>	4mm/year <sup>102</sup>	Sea-level rise further exposes large flooding risks from the effects of extensive land subsidence
<b>Manila</b>	1.12-metre sea-level rise by 2100 under SSP2-4.5 <sup>103</sup>	
<b>Yangon</b>	0.71-metre sea-level rise by 2100 under the SSP2-4.5 (“middle of the road”) scenario <sup>104</sup>	
<b>Hanoi/Red River</b>	3-3.5mm/year <sup>105</sup>	

<sup>97</sup> International Labour Organization (ILO), “Climate change, environmental degradation and labour mobility in the ASEAN region,” August 2025, [https://www.ilo.org/sites/default/files/2025-08/Climate%20change%20environmental%20degradation%20and%20labour%20mobility%20in%20the%20ASEAN%20region\\_0.pdf](https://www.ilo.org/sites/default/files/2025-08/Climate%20change%20environmental%20degradation%20and%20labour%20mobility%20in%20the%20ASEAN%20region_0.pdf)

<sup>98</sup> Halim Lee et al., “Sustainable water security based on the SDG framework: a case study of the 2019 Metro Manila Water Crisis,” *Sustainability* 12, no. 17 (2020): 6860.

<sup>99</sup> Owen Mulhern, “Sea Level Rise Projection Map – Jakarta,” *Earth.Org*, 30 June 2020, [https://earth.org/data\\_visualization/sea-level-rise-by-the-end-of-the-century-alexandria-2/](https://earth.org/data_visualization/sea-level-rise-by-the-end-of-the-century-alexandria-2/)

<sup>100</sup> Minh Hai Nguyen, Sylvain Ouillon, and Vinh Vu Duy, “Sea-level rise in Hai Phong coastal area (Vietnam) and its response to ENSO-evidence from tide gauge measurement of 1960-2020,” *Vietnam Journal of Earth Sciences* (2022): 109-126.

<sup>101</sup> Owen Mulhern, “Sea Level Rise Projection Map – Ho Chi Minh,” *Earth.Org*, 24 June 2020, [https://earth.org/data\\_visualization/sea-level-rise-by-the-end-of-the-century-ho-chi-minh/](https://earth.org/data_visualization/sea-level-rise-by-the-end-of-the-century-ho-chi-minh/)

<sup>102</sup> Kenneth R. Olson, and William Kreznor, “Managing the Chao Phraya River and Delta in Bangkok, Thailand: Flood control, navigation and land subsidence mitigation,” *Open Journal of Soil Science* 11, no. 4 (2021): 197-215.

<sup>103</sup> Trina Ng et al., “Past and Future Sea Level Change,” in *Singapore’s Third National Climate Change Study: Climate Change Projections to 2100*, eds. Aurel Florian Moise et al., Meteorological Service Singapore, 2024, [https://www.mss-int.sg/docs/default-source/v3\\_reports/v3\\_science\\_report/v3\\_science\\_report\\_chapter\\_12.pdf](https://www.mss-int.sg/docs/default-source/v3_reports/v3_science_report/v3_science_report_chapter_12.pdf).

<sup>104</sup> Ng et al., “Past and Future.”

<sup>105</sup> Hai Minh Nguyen, Sylvain Ouillon, and Vinh Duy Vu, “Sea level variation and trend analysis by comparing Mann–Kendall test and innovative trend analysis in front of the Red River Delta, Vietnam (1961–2020),” *Water* 14, no. 11 (2022): 1709.

<b>Singapore</b>	0.63-metre sea-level rise by 2100 under SSP2-4.5 <sup>106</sup>	
<b>Timor-Leste</b>	5.5mm/year <sup>107</sup>	Dili, the low-lying coastal capital city of Timor-Leste, is highly flood-prone

When water pressures arise and coincide with limited governance capacity, intensified competition over water tends to surface, heightening local grievances. In Mindanao, water disputes between communities are a growing challenge, exacerbating already precarious conditions among marginalised populations including ethnic and religious minorities.<sup>108</sup> These pressures risk undermining existing progress towards peace made in the last decade. Growing water scarcities from prolonged droughts has seen local-based protests and clashes in Cambodia,<sup>109</sup> Laos,<sup>110</sup> and Indonesia,<sup>111</sup> drawing frustration towards governments over a perceived lack of attention towards intensified on-the-ground pressures.

The large-scale impacts of water-related pressures became evident in 2025, when a hard-hitting typhoon season attributed to rising temperatures caused severe destruction across Southeast Asia, including the Philippines, Vietnam, Thailand, Malaysia, and Indonesia. Late November floodings triggered by Cyclone Senyar in the latter three countries led to over 1,400 fatalities and one million people displaced.<sup>112</sup> Inadequate preparation and slow responses drew criticism in both Indonesia and Thailand, with reports of food and water shortages as well as lootings, placing pressure on respective governments.<sup>113</sup> <sup>114</sup> With the province of Aceh particularly hard-hit, grievances against the central government resurfaced including an isolated incident in which military personnel confronted a humanitarian-aid convoy after it flew flags of now-defunct separatist group Free Aceh Movement (GAM).<sup>115</sup> In the Philippines, where 70 per cent of its total population are in coastal areas,<sup>116</sup> a national

<sup>106</sup> Ng et al., “Past and Future.”

<sup>107</sup> Government of Timor-Leste, “Nationally Determined Contribution Timor-Leste 2022-2030,” UNFCCC, [https://unfccc.int/sites/default/files/NDC/2022-11/Timor\\_Leste%20Updated%20NDC%202022\\_2030.pdf](https://unfccc.int/sites/default/files/NDC/2022-11/Timor_Leste%20Updated%20NDC%202022_2030.pdf)

<sup>108</sup> Arizza Ann Nocum, Mc Erschad D. Pabillan, and Anisah U. Lingga, “Climate, Conflict, Collaboration in the Philippines: The Impact of Climate Change, Environmental Degradation, and Conflict on Marginalized Youth in the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM),” *Kofi Annan Foundation*, November 2024, <https://www.kofiannanfoundation.org/wp-content/uploads/2024/11/CS-YOUTH-CLIMATE-PEACE-Philippines-2.pdf>.

<sup>109</sup> Radio Free Asia, “Hundreds block Cambodian highway to protest irrigation water shortage,” 21 January 2025, <https://www.rfa.org/english/cambodia/2025/01/21/cambodia-villagers-demand-water/>.

<sup>110</sup> Oulayvanh Sisounonth, “Vientiane Residents Demand Action Amid Ongoing Water Shortages,” *Laotian Times*, March 17 2025, <https://laotiantimes.com/2025/03/17/vientiane-residents-demand-action-amid-ongoing-water-shortages/>.

<sup>111</sup> Yvonne Kunz, Jonas Hein, and Mokh Sobirin, “Beyond protection, toward respect: Struggle for environmental justice in the Kendeng mountains,” *Society & Natural Resources* 37, no. 5 (2024): 826-844.

<sup>112</sup> Vibhu Mishra, “Deadly storms sweep South and Southeast Asia, leaving over 1,600 dead,” *United Nations (UN)*, 4 December 2025, <https://news.un.org/en/story/2025/12/1166516>

<sup>113</sup> Panarat Thepgumpanat and Chayut Setboonsarng, “Thailand floods hit PM Anutin's popularity ahead of snap polls,” *Reuters*, 1 December 2025, <https://www.reuters.com/business/environment/thailand-floods-hit-pm-anutins-popularity-ahead-snap-polls-2025-12-01/>

<sup>114</sup> Pablo Foley Elias, “Indonesia flood crisis: Delayed disaster status draws anger,” *Deutsche Welle (DW)*, 3 December 2025, <https://www.dw.com/en/indonesia-flood-crisis-delayed-disaster-status-draws-anger/video-75002357>

<sup>115</sup> Apriadi Gunawan and Yericai Lai, “Anger over Indonesian government's slow disaster response triggers display of separatist flags,” *Asia News Network*, 29 December 2025, <https://asianews.network/anger-over-indonesian-governments-slow-disaster-response-triggers-display-of-separatist-flags/>

<sup>116</sup> ASEAN Secretariat, “ASEAN Migration Outlook – Second Edition,” August 2024, [https://asean.org/wp-content/uploads/2024/09/ASEAN-Migration-Outlook-SECOND-edition\\_Final.pdf](https://asean.org/wp-content/uploads/2024/09/ASEAN-Migration-Outlook-SECOND-edition_Final.pdf).

corruption scandal believed to have compromised flood control systems became the primary driver of persistent government protests in the second half of 2025. While largely peaceful at the outset, a series of widespread anti-corruption protests later escalated into scattered clashes between police and demonstrators, resulting in at least one fatality and hundreds of arrests.<sup>117</sup> The events in 2025 highlight how climate-induced water stresses, when interacting with significant governance constraints, can fuel socio-political instability and unrest, and erode state legitimacy.

Hydropower construction greatly exacerbates security risks. While increasingly critical to states' transition towards clean energy, water infrastructure occupies large physical space and alters natural flows of water. These factors disrupt ecosystems vital for agriculture and fishing due to unnatural water levels, while blocking the movement of sediments and fish vital for downstream livelihoods. In the Tonlé Sap and wider Mekong River, the large prevalence of dams, as visualised in Table 3, have negatively impacted food availability and production,<sup>118</sup> where water alterations from human activity interplay with climate change.

**Table 3. Types of Dams on the Mainstream and Tributaries of the Mekong Basin in 2024<sup>119</sup>**

Country	Hydropower	Water Supply	Mixed Use	Total
<b>China</b>	49	77	4	130
<b>Myanmar</b>	1	0	0	1
<b>Laos</b>	93	19	0	112
<b>Thailand</b>	12	312	0	324
<b>Cambodia</b>	6	31	3	40
<b>Vietnam</b>	48	90	0	138
<b>Total</b>	209	529	7	745

Consequently, hydropower constructions highlight diverging local-state interests with threats to peace and security. Across the region, displacement from their constructions have been noted, as evidenced in Table 4. Tensions have repeatedly sparked, including in 2011 when the Myanmar government's multi-year Myitsone Dam construction plans contributed to the displacement of communities by the Ayeyarwady River, drawing large-scale public backlash over perceived top-down decision-making which ignored local livelihood impacts, ultimately halting the plans.<sup>120</sup> Similar tensions are actively visible in present and prospective dam constructions along the Salween River (Southeast

<sup>117</sup> Marian Shenawy, "One Dead, Hundreds Arrested in Philippine Anticorruption Protests," *Organized Crime and Corruption Reporting Project (OCCRP)*, 22 September 2025, <https://www.occrp.org/en/news/one-dead-hundreds-arrested-in-philippine-anticorruption-protests>

<sup>118</sup> International Crisis Group, "Dammed in the Mekong: Averting an Environmental Catastrophe," Report No. 343, October 7 2024, <https://www.crisisgroup.org/asia/south-east-asia/cambodia-thailand-china/343-dammed-mekong-averting-environmental-catastrophe>.

<sup>119</sup> Stimson Center, "All Dams Map of the Mekong Basin," May 2024, <https://www.stimson.org/2024/all-dams-map-of-the-mekong-basin/>

<sup>120</sup> Rachel Harvey, "Burma dam: Why Myitsone plan is being halted," BBC, 30 September 2011, <https://www.bbc.com/news/world-asia-pacific-15123833>.

Asia's only undammed river),<sup>121</sup> the Red River,<sup>122</sup> and the Mekong River,<sup>123</sup> drawing protests and resistance from local communities and civil society actors. Following pressure from civil society, Thailand reversed its approval in 2025 of the Sanakham Dam project along the Laos-Thailand border.<sup>124</sup> Together, these effects highlight heightened local grievances, livelihood losses, and displacement patterns which unaddressed contribute to domestic instability.

**Table 4 Examples of Displaced Populations from Dam Constructions in Southeast Asia**

Name	River/tributary	Year	Estimated Displaced Population	Notes
<b>Sanakham Dam</b>	Mekong River	2025-	62,500 <sup>125</sup>	If pursued
<b>Nam Theun 2 (NT2) Dam</b>	Mekong River	2004-2010	6,700 <sup>126</sup>	
<b>Myitsone Dam</b>	Ayeyarwady River	2009-2011	12,000 <sup>127</sup>	During planning stage; construction stalled
<b>Moby Dam</b>	Salween River	1974-2013	12,000 <sup>128</sup>	

### 2.3.2 Transboundary and Regional Peace and Security Implications

With climate change, water has emerged both as a critical resource and source of geopolitical tension in Southeast Asia. Several major rivers in Southeast Asia are transboundary, including the Mekong River (flowing through six states), Red River (three), and Salween River (three). Yet, contending state interests, where balancing clean energy ambitions with food and water needs, has fuelled interstate tensions.

The Mekong River has been directly impacted by these tensions. A majority of the approximately 65 million people in the Lower Mekong Basin (LMB) directly depend on the river for agricultural and fishing activities.<sup>129</sup> Data from 2021 found the LMB containing 88 active hydropower projects in operation and another 15 under construction,<sup>130</sup> in addition to 11 hydropower dams and 95

<sup>121</sup> Tyler Roney, "The Salween explained: Asia's last great undammed river," *Eco-Business*, 4 April 2024, <https://www.eco-business.com/news/the-salween-explained-asias-last-great-undammed-river/>.

<sup>122</sup> Linh Pham, "China hydropower puts pressure on Red River communities," *Dialogue Earth*, 28 May 2021, <https://dialogue.earth/en/energy/china-hydropower-red-river-communities-vietnam/>.

<sup>123</sup> Dustin Barter, and Mory Sar, "Hydropower hegemony: Examining civil society opposition to dams in Cambodia," *The Journal of Development Studies* 59, no. 7 (2023): 961-979.

<sup>124</sup> Nation Thailand, "Thailand to ask Laos to reconsider Sanakham dam location," 30 April 2025, <https://reliefweb.int/report/viet-nam/policy-and-data-insights-lower-mekong-subregion-acting-human-mobility-changing-climate>

<sup>125</sup> Ibid.

<sup>126</sup> Bounsouk Souksavath, and Mikiyasu Nakayama, "Reconstruction of the livelihood of resettlers from the Nam Theun 2 hydropower project in Laos," *International Journal of Water Resources Development* 29, no. 1 (2013): 71-86.

<sup>127</sup> Bernard Minn, "Dams and the Displaced: Lessons from the Myitsone Dam in Myanmar," *Global-is-Asian*, 20 April 2020, <https://lkyspp.nus.edu.sg/gia/article/dams-and-the-displaced-lessons-from-the-myitsone-dam-in-myanmar>.

<sup>128</sup> Nilanjan Ghosh, "Dams as displacers: A heavy social cost to incur," *Observer Research Foundation*, 4 July 2022, <https://www.orfonline.org/expert-speak/dams-as-displacers-a-heavy-social-cost-to-incur>

<sup>129</sup> MRC, "Mekong River Basin," n.d., <https://www.mrcmekong.org/mekong-river-basin/>.

<sup>130</sup> MRC, "Sustainable Hydropower Development Strategy," 2022, <https://www.mrcmekong.org/wp-content/uploads/2022/06/Sustainable-Hydropower-Development-Strategy-A-Basin-wide-Strategy-for-a-Changing-Mekong-River-Basin.pdf>, 19.

tributary dams in the most-upstream part of the river in China.<sup>131</sup> Hydropower presently provides a vital energy source, generating a majority of energy in Laos, Cambodia, and Myanmar.<sup>132</sup> Nonetheless, food and economic security linked to the river's well-being remain key national interests, in particular for Cambodia through the Tonlé Sap and Vietnam through the Mekong Delta, where the latter accounts for up to 90 percent of the country's rice exports and 60 per cent of its seafood.<sup>133</sup> Major confrontations since the 2010s highlight a growing problem for regional cohesion, including Vietnam's objections to Cambodia's Funan Techo Canal project and Thailand's reversed support for the Laotian Sanakham dam project. These cases highlight threats to the well-being of states and regional harmony.

With both Singapore and Malaysia importing hydropower from LMB states, and fish and rice exports from the Mekong plays a major role as staple food,<sup>134</sup> the well-being of the wider region is affected. A deteriorating Mekong highlights issues of energy insecurity and food import price hikes—shocks which previously have increased economic hardship for Southeast Asia's populations, including during the 2007-2008 global food crisis where governments displayed concerns of being exposed to nationwide riots.<sup>135</sup>

### 2.3.3 The Mekong River Commission

Within Southeast Asia, the Mekong River Commission (MRC) represents the region's sole inter-governmental organisation in water management. Consisting of Laos, Thailand, Cambodia, and Vietnam, the MRC contains a technical and dialogue-based framework. Its rich database allows for the creation of objective, scientific solutions on issues including water quality, water flow, sediment levels, and is assisted by a mandatory consultative process for all prospective hydropower projects.<sup>136</sup> Its framework has successfully incentivised state participation and eased tensions.

Nonetheless, the MRC's soft power approach has significant limitations. Its limited enforcement capacity has been unable to mitigate hydro-infrastructure advancements, while the absence of upstream Myanmar and China constrains basin-wide cooperation. With China in 2016 launching its own development-centred *Lancang-Mekong Cooperation* (LMC) framework, Chinese influence and funding in the Mekong region has increased, yet often sidelined environmental effects central in the MRC agenda.<sup>137</sup> The MRC's state-centric model has also drawn criticism for limited civil

<sup>131</sup> Brian Eyler, Regan Kwan, and Courtney Weatherby, "Mekong Reservoirs in Yunnan Province, China," *Stimson*, 7 July 2020, <https://www.stimson.org/2020/mekong-reservoirs-in-yunnan-province-china/>.

<sup>132</sup> Enerdata, "Power grids and market integration as a milestone for energy security and transition," 14 December 2023, <https://www.enerdata.net/publications/executive-briefing/asean-energy-connectivity.html>.

<sup>133</sup> Ministry of Agriculture and Environment of the Socialist Republic of Vietnam, "Mekong Delta: From rice bowl to sustainable green region," April 14 2025, <https://en.mae.gov.vn/mekong-delta-from-rice-bowl-to-sustainable-green-region-8832.htm>.

<sup>134</sup> ILO, "Climate change".

<sup>135</sup> Prapimphan Chiengkul, "Climate Emergency and Food-Energy Conflicts in Southeast Asia," *ISEAS Perspective* 2022/93, 20 September 2022, [https://www.iseas.edu.sg/wp-content/uploads/2022/08/ISEAS\\_Perspective\\_2022\\_93.pdf](https://www.iseas.edu.sg/wp-content/uploads/2022/08/ISEAS_Perspective_2022_93.pdf).

<sup>136</sup> MRC, "Procedures for Notification, Prior Consultation and Agreement," August 2024, <https://www.mrcmekong.org/wp-content/uploads/2024/08/Procedures-Notification-Prior-Consultation-Agreement.pdf>.

<sup>137</sup> Hoang Thi Ha, "China's Statecraft through the Lancang-Mekong Cooperation: Building a Sino-Centric Regional Order," *The National Bureau of Asian Research (NBR)*, November 13 2025, <https://strategicspace.nbr.org/chinas-statecraft-through-the-lancang-mekong-cooperation-building-a-sino-centric-regional-order/>.

society and local actor engagement,<sup>138</sup> constraining accurate and comprehensive responses to local water stresses.

### 2.3.4 Water Management on Regional, National, and Local Levels

Domestically, water management frameworks vary across Southeast Asian states. A key challenge observed in the Philippines,<sup>139</sup> Thailand,<sup>140</sup> and Vietnam<sup>141</sup> is the fragmented and poorly coordinated response to water-related issues, marked by overlapping agency mandates and institutional gaps that weaken effective governance.

ASEAN's entry point stems from its *2005 ASEAN Strategic Plan of Action on Water Resources Management* (ASP-WRM).<sup>142</sup> While key ASP-WRM peacebuilding provisions exist, including the formation of stakeholder forums and River Basin Organisations, and a Water Data Management and Reporting System, they nonetheless remain underdeveloped.<sup>143</sup> Nonetheless, achievements have been made through the ASEAN Integrated Water Resource Management (IWRM) framework which has established guidelines, performance indicators, and reporting initiatives for member states. From these guidelines and the Water-Energy-Food-Environment (WEFE) Nexus which integrates all four domains in solutions, ASEAN's 2023 launch of the *Integrated River Basin Management* (IRBM) project highlights recent advancements in tracking effects of climate change and capacity-building.<sup>144</sup> Nonetheless, water remains mainly framed as exclusively as a socio-cultural issue, rather than an issue tied to ASEAN's political-security community.

On the bilateral level, both Malaysia and Thailand's Golok River cooperation, existing since 1979, and Indonesia and Timor-Leste's recent launch of the *Timor Island Watersheds (TIWA) Project* highlight successful governance mechanism. Incorporating community voices, flood mitigation efforts, water-release transparency, and climate risk analysis through multi-stakeholder engagement, the two cases demonstrate proactive efforts to combat insecurities tied to water resources.<sup>145</sup> Moreover, the local-level *Salween Peace Park Programme (SPPP)* conducted by the Indigenous Karen community in conflict-affected Myanmar has successfully implemented water conservation measures and enriched debates

<sup>138</sup> Suwit Laohasiriwong, and Mikio Oishi, "Managing the Mekong River Conflicts: Political Stability at the Cost of Local Communities," in *Managing Conflicts in a Globalizing ASEAN: Incompatibility Management Through Good Governance*, ed. Mikio Oishi (Springer, 2020), 143-164.

<sup>139</sup> The Republic of the Philippines, "Philippine Development Plan 2023-2028," January 2023, <https://pdp.depdev.gov.ph/wp-content/uploads/2023/01/PDP-2023-2028.pdf>.

<sup>140</sup> Carolyn Cowan, "Thailand tries nature-based water management to adapt to climate change," *Mongabay*, 7 December 2023, <https://news.mongabay.com/2023/12/thailand-tries-nature-based-water-management-to-adapt-to-climate-change/>.

<sup>141</sup> Ha Tan Linh et al., "Assessing Water Governance Trends and Challenges at a Local Level—An Application of the OECD Water Governance Framework in Soc Trang Province, Vietnam," *Water* 17, no. 3 (2025): 320.

<sup>142</sup> ASEAN, "ASEAN Strategic Plan of Action on Water Resources Management," October 2005, <https://oicwater.sesric.org/img/ASEAN-Strategic-Plan-of-Action-on-Water-Resources-Management.pdf>.

<sup>143</sup> *Ibid.*, p. 2, 19-20.

<sup>144</sup> ASEAN, "ASEAN Integrated River Management Project launched in Manila," 17 February 2023, <https://environment.asean.org/news/detail/asean-integrated-river-management-project-launched-in-manila>.

<sup>145</sup> David J. Devlaeminck, "Perspectives and Prospects for International Water Law in the ASEAN Region: Is There an ASEAN Way to Transboundary Water Cooperation Under International Law?," *Journal of Current Southeast Asian Affairs* 44, no. 1 (2025): 135; Inovasi Tangguh Indonesia (InTI), "Indonesia and Timor-Leste Unite to Protect Shared Watersheds: The Launch of the TIWA Project," 23 May 2025, <https://inovasitangguhindonesia.org/read/86/en/indonesia-and-timor-leste-unite-to-protect-shared-watersheds-the-launch-of-the-tiwa-project.html>.

over hydro-projects, highlighting the importance of local knowledge and inclusivity in water-based solutions.<sup>146</sup> These examples highlight critical engagement areas needing translation into wider regional water management efforts.

### Potential Future Scenarios

With signs of intensified climate-induced water insecurities in Southeast Asia, limited state responses produce several risks to the region in the near- and long-term future. Stretching across local levels to the regional security as a whole, a continuation—or worsening—of these trends may produce the following scenarios which interplay with peace and security in Southeast Asia.

#### Scenario 1: Mekong Pressures Fuelling Instability

The Mekong River remains a hotspot where rising food insecurity, livelihood losses, and human mobility is anticipated, threatening stability. By 2030, the Tonlé Sap faces up to 40-57 per cent losses in production.<sup>147</sup> Crop declines are also anticipated in the Mekong Delta from SLR, flooding, and extreme rainfall patterns, where by 2050 rain-fed rice production may decline by up to 36.5 per cent.<sup>148</sup> The World Bank's projection of 3.3 to 6.3 million climate migrants from the LMB by 2050 highlights the severity if unaddressed.<sup>149</sup> Without proactive engagement and comprehensive governance, eroded state trust and populations lacking access to stable livelihoods may, at worst, spark nation-wide crises and undermine the stability of the Mekong states.

#### Scenario 2: Displacement and Tensions from Hydro-construction

While constructed to comply with national energy needs and the global energy transition, hydro-constructions will continue increasing insecurities when advanced without proper planning, transparency, and regional coordination. If advanced, the prospective Sanakham Dam on the Mekong River risks displacing up to 62,500 people in Thailand and Laos,<sup>150</sup> while reduced agricultural and fishing productivity is predicted to arise from Cambodia's Funan Techo Canal project and the Luang Prabang dam construction in Laos.<sup>151</sup> The scale of future projects highlights severe security implications, where displacement, protests, and interstate tensions may intensify. With at least seven proposed dam projects along the Salween River,<sup>152</sup> renewed interest in

<sup>146</sup> Kyungmee Kim, "Grassroots resistance against hydropower dams: Community campaigns and civilian-rebel cooperation in Myanmar," *Environment and Security* 3, no. 3 (2025): 319-341.

<sup>147</sup> WWF, "Risk or Reward", p. 27.

<sup>148</sup> Jiang Ze, et al., "Future changes in rice yields over the Mekong River Delta due to climate change—Alarming or alerting?" *Theoretical and Applied Climatology* 137, no. 1 (2019): 545-555.

<sup>149</sup> Viviane Clement et al., "Groundswell Part 2: Acting on Internal Climate Migration," *World Bank*, 2021, 52.

<sup>150</sup> Radio Free Asia, "Laos: More than 62,000 people at risk of displacement due to new Mekong dam," *Business & Human Rights Resource Centre*, 30 December 2024, <https://www.business-humanrights.org/en/latest-news/laos-more-than-62000-people-at-risk-of-displacement-due-to-proposed-mekong-dam/>.

<sup>151</sup> Ng Wai Mun, "Luang Prabang dam and hydropower pursuits along the Mekong: Should banks finance them as 'clean energy' projects?," *Eco-Business*, 4 December 2024, <https://www.eco-business.com/news/luang-prabang-dam-and-hydropower-pursuits-along-the-mekong-should-banks-finance-them-as-clean-energy-projects/>.

<sup>152</sup> Gerald Flynn, "Specter of dams and diversion looms over Southeast Asia's Salween River," *Mongabay*, 19 June 2025, <https://news.mongabay.com/2025/06/specter-of-dams-and-diversion-looms-over-southeast-asias-salween-river/>.

Myanmar's Myitsone Dam project, and expanding hydropower plans in Malaysia<sup>153</sup> and the Philippines,<sup>154</sup> a region-wide threat to riparian communities is emerging. Without strengthened governance mechanisms, tensions between riparian communities and governments are likely to intensify.

### **Scenario 3: Frustration with Governance Failures to Address SLR and Floods**

Across key agricultural areas and many of Southeast Asia's largest cities—including Bangkok, Ho Chi Minh City, Jakarta, and Manila—the combined effects of SLR and groundwater extraction are undermining water accessibility and increasing flood risks. Limited governance responses, including inadequate flood control, water distribution systems and climate adaptation measures, risk heightening vulnerabilities and fuelling public grievances. The severe 2025 floods across Southeast Asia highlighted the direct impacts on millions of people and generated large-scale instability that has eroded government legitimacy.

### **Scenario 4: Increased Pressure in Fragile Settings**

Growing water pressures are likely to interact with already fragile systems in Southeast Asia. In conflict-affected Myanmar, water scarcity—combined with limited adaptive capacity in both the Dry Zone and the Ayeyarwady River basin—risks worsening conditions on the ground and pushing individuals towards alternative actors and sources of income, further exacerbating conflict dynamics.<sup>155</sup> In Mindanao, a fragile post-conflict setting is threatened by the dual risks of water scarcity and flooding;<sup>156</sup> under worsening conditions, renewed grievances may weaken prospects for lasting peace. Similarly, the erosion of local livelihoods resulting from climate-induced water insecurity may interact with persistent economic inequalities—an underlying driver of conflict dynamics in southern Thailand.<sup>157</sup>

## **2.4 Competition for Natural Resources**

Climate change represents a dynamic factor that intersects with both natural resources and human activity. Across Southeast Asia, rising resource competition, environmental degradation, livelihood insecurity and criminal activity are entrenching instability in sub-regions already affected by piracy, smuggling and insurgency. This demonstrates how climate change is intensifying both human and traditional security challenges.

<sup>153</sup> Ili Aqilah, "Nengiri Dam won't just destroy Orang Asli villages, activists claim," *Malaysiakini*, 25 February 2024, <https://www.malaysiakini.com/news/697199>.

<sup>154</sup> Mara Cepeda, "A new dam threatens this Filipino tribe. It's just one of the country's stalled China-funded projects," *The Straits Times*, 3 March 2024, <https://www.straitstimes.com/multimedia/graphics/2024/03/chinese-investment-philippines/index.html?shell>.

<sup>155</sup> Kim et al., "Climate, Peace and Security Fact Sheet."

<sup>156</sup> ACAPS, "Philippines: Floods and landslides in Mindanao Island," 16 February 2024, [https://www.acaps.org/fileadmin/Data\\_Product/Main\\_media/20240216\\_ACAPS\\_Briefing\\_note\\_Philippines\\_floods\\_and\\_landslides\\_in\\_Mindanao\\_Island.pdf](https://www.acaps.org/fileadmin/Data_Product/Main_media/20240216_ACAPS_Briefing_note_Philippines_floods_and_landslides_in_Mindanao_Island.pdf).

<sup>157</sup> Sawarai Boonyamanond, and Pappuson Chaiwat, "Poverty and conflict in Thailand's Deep South," *The Economics of Peace and Security Journal* 15, no. 2 (2020).

Two main threats to peace and security emerge as particularly exposed to the effects of climate change in relation with resource management, producing distinct risks. At sea, climate change compounds long-standing maritime governance and security challenges, particularly affecting the South China Sea and the Sulu-Sulawesi Seas. Rising ocean temperatures are jeopardising marine ecosystems and displacing fish stocks from historic fishing grounds, accelerating depletion and intensifying competition over shared resources. In this context, climate-induced fisheries decline interacts with unresolved maritime disputes, weak regulatory coordination, and strategic rivalry, transforming environmental stress into a security risk multiplier. Illegal, unreported, and unregulated (IUU) fishing, exacerbated by climate change, not only undermines food security and coastal livelihoods but also heightens the risk of confrontations between fishing vessels and maritime enforcement agencies. This situation increases the potential for miscalculation and escalation among claimant states.<sup>158</sup>

Meanwhile, the renewable energy transition, though essential for tackling climate change, is rapidly presenting complex challenges for peace and security. Demand for critical minerals—key to the production of clean energy technologies and infrastructure—is projected to increase fourfold by 2040.<sup>159</sup> As the global transition to low-carbon energy accelerates, Southeast Asia—hosting significant deposits of critical minerals—is projected to become a critical node in global supply chains supporting decarbonisation. Nevertheless, their extraction introduces compound risks, combining environmental degradation, social disruption, and heightened geopolitical competition.<sup>160</sup> With many of these minerals located in unstable or conflict-affected regions, intensified mining operations have generated local grievances related to land acquisition, environmental degradation, and uneven distribution of economic benefits. In this regard, trust in national government institutions can erode. Over time, such governance deficits may interact with climate-induced environmental stress to produce compound risks, including social unrest, protests, and resistance to state authority.<sup>161</sup>

#### 2.4.1 IUU Fishing in Warming Seas

The interaction of the problem of declining resources with the impact of climate change seen in the Mekong Sub-region has parallels in the South China Sea. In fact, another source of regional geo-political insecurity in Southeast Asia is declining fish stocks, including in the disputed South China Sea. Two key challenges tied with this issue are the protracted problem of IUU fishing and the worsening impact of climate change on the seas.

##### *Will Climate Change Worsen IUU Fishing in the South China Sea?*

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<sup>158</sup> Madelyn MacMurray and Carolyn Gruber, “Militarized Commons: How Territorial Competition is Weaponizing Fisheries and Destroying the South China Sea,” Stimson Centre, 8 September 2025, <https://www.stimson.org/2025/territorial-competition-weaponizing-fisheries-south-china-sea/>.

<sup>159</sup> United Nations Development Programme, *From crisis to resilience: Climate solutions for positive peacebuilding* (New York: UNDP, 2025).

<sup>160</sup> Han Phoumin, “ASEAN’s Strategic Role in Securing Critical Minerals for Clean Energy and High-Tech Futures,” ERIA, 16 December 2024, <https://www.eria.org/news-and-views/asean-s-strategic-role-in-securing-critical-minerals-for-clean-energy-and-high-tech-futures>.

<sup>161</sup> Hanna Hindström and Ana Celestial, “Mining boom in the Philippines threatens environmental defenders,” *Law and Climate Review*, 21 March 2025, <https://www.landclimate.org/critical-minerals-mining-boom-in-the-philippines-threatens-environmental-defenders/>.

Fish move freely across maritime boundaries, and overfishing can deplete the number of fish available to others. In the South China Sea, in particular, most fishery resources are either shared stocks that migrate across the Exclusive Economic Zones (EEZs) of multiple states or they are highly migratory species such as tuna. Overfishing or regulatory changes within one country's borders inevitably affect other countries. Consequently, it is impossible for states to prevent the depletion of fish stocks without joint management and regulation.

In addition to their importance for export, the fishery products of the South China Sea play a critical role in regional food security, helping to ensure that people have physical and economic access to basic sustenance. For instance, nearly 40 per cent of the animal protein supply in the Philippines comes from fish and seafood, 30 per cent for Vietnam, and over 50 per cent for Indonesia. The consumption of seafood is projected to grow, as more countries in the region are reaching middle-income levels.<sup>162</sup>

One study found that animal and plant species have been moving away from the Equator at around 20cm per hour in the last 40 years, and they are projected to continue doing so until at least the end of this century.<sup>163</sup> Several marine species appear to be exhibiting similar behaviour. Rising ocean temperatures, which means warmer waters in the tropics, including the South China Sea, are driving fish to abandon their historic territories and migrate to temperate and cooler waters. In tropical waters, subtropical fish species have already decreased significantly, following a change in average sea surface temperatures between 1970 and 2000.<sup>164</sup> With a projected continuous rise in temperature, even the typically tropical or warm-water fish species are moving to temperate zones. The climate change impacts on fish stock in tropical waters can be illustrated further in the projected change in catch potential. Climate change impacts are uneven across the South China Sea. One study predicts that between 2005 and 2055, some areas in the South China Sea would lose 5 per cent to 16 per cent in terms of maximum catch potential, while others would experience increase of up to 16 per cent to 30 per cent.<sup>165</sup>

Climate change impacts on coral reefs could also reduce fish stocks in the South China Sea. Warming sea surface temperatures and ocean acidification have affected coral reefs in the South China Sea since the early 1980s. In 2015, Dongsha Atoll in the northern part of the South China Sea saw 40 per cent of its corals bleached due to a 20C sea surface temperature rise during an El Niño event, a mass coral bleaching phenomenon unseen in the last 40 years.<sup>166</sup>

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<sup>162</sup> FAO, "FAO Fisheries and Aquaculture – Fishery and Aquaculture Country Profiles," 2020, accessed 8 November 2023, <https://www.fao.org/fishery/en/facp/search>.

<sup>163</sup> Jim Daley, "Ocean Species Are Shifting toward the Poles," *Scientific American*, 27 March 2020, <https://www.scientificamerican.com/article/ocean-species-are-shifting-toward-the-poles/>.

<sup>164</sup> William W. L. Cheung et al., "Large-scale Redistribution of Maximum Fisheries Catch Potential in the Global Ocean under Climate Change," *Global Change Biology* 16, no. 1 (2010).

<sup>165</sup> Cheung et al., "Large-scale Redistribution of Maximum Fisheries Catch Potential"

<sup>166</sup> Thomas M. DeCarlo et al., "Mass Coral Mortality under Local Amplification of 20C Ocean Warming," *Scientific Reports* 7, no. 44586 (2017), <https://doi.org/10.1038/srep44586>.

Marine environmental degradation could present serious security threats for the region considering the importance of the South China Sea for the well-being of people living in the region's littoral states. Deterioration of marine environments, induced by human activities and climate change, causes economic, food, health and environmental insecurities for communities that depend on the seas for survival. Coral reef fish, seagrass and mangroves are sources of food for more than 100 million people in Southeast Asia and losing them may result in acute food insecurities for the region.

Depleting fish stocks and degrading marine environment in the South China Sea could become a traditional security challenge since depletion of marine resources like fish stocks fuels competition between states and strains inter-state relations. An observation raised during the technical consultation for this report is the potential for warming waters and depleting fish stocks in the South China Sea to exacerbate IUU fishing.<sup>167</sup>

While further scientific studies have yet to be conducted on any direct connection between climate change and IUU fishing in Southeast Asia, the lack of joint efforts among coastal states to protect the marine environment and mitigate IUU fishing can add complications to efforts to address maritime disputes, and even instigate tensions between agents of traditional/state security. It is thus imperative to carry out effective protection of the seas, like curbing IUU and promoting sustainable exploitation of marine resources, to prevent the issue from becoming more threatening to human security and regional peace.

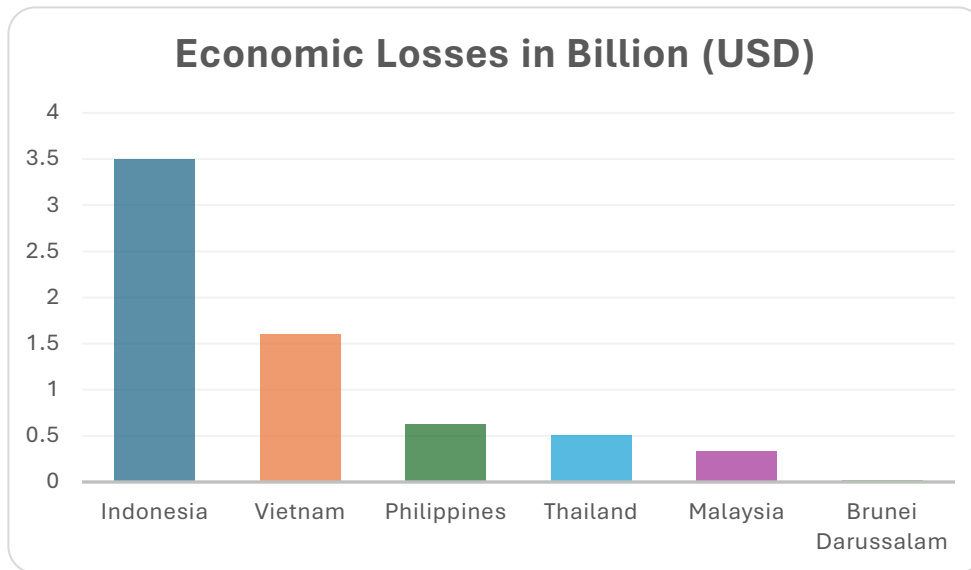
IUU fishing has been identified as one of the major causes of fishing crisis in the South China Sea. Its abundant fisheries resources provide jobs to around 3.7 million people, likely an underestimate given the prevalence of IUU fishing in the region. In the Philippines, 10 out of the 13 designated fishing grounds have been overfished. Consequently, the average daily haul of a Filipino fisherman has fallen to 4.76kg in 2016 from as much as 20kg in the 1970s. In Indonesia, approximately 90 per cent of the roughly 5,400 local and foreign vessels that ply its territorial waters are considered illegal and unregulated.<sup>168</sup>

According to the FAO, IUU fishing generates some USD 6 billion worth of fish catch annually. This translates into substantial economic losses for several ASEAN countries, particularly Indonesia, the Philippines, Vietnam, and Thailand, while also undermining food security, livelihoods, and effective maritime governance across the region.

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<sup>167</sup> Technical consultation, Hanoi, Vietnam, 25 September 2023.

<sup>168</sup> The Straits Times, "South China Sea: Fish Wars," *Inquirer.net*, 3 April 2016, <http://globalnation.inquirer.net/138297/south-china-sea-fish-wars#ixzz55eNcZFpI>.

**Figure 8. Economic Consequences of IUU Fishing in Several ASEAN Member States<sup>169</sup>**

Indeed, IUU fishing undermines both short- and long-term economic, environmental and food and nutrition security in Southeast Asia. The region is a leading fish supplier and consumer, at around 25 per cent of the total world fish production. Indonesia, Thailand, Vietnam and the Philippines are the top fish suppliers of the region. In addition, the fisheries sector is a key source of livelihood, jobs and income in Southeast Asia. For example, in Indonesia, the fisheries sector employs around 2.6 million fishers.<sup>170</sup> It is also a food security issue. IUU fishing results in declining fish stocks in a traditional fishing ground or seriously impairs initiatives to rebuild stocks that might have already been depleted from overfishing.<sup>171</sup>

### Worsening IUU in the Sulu-Sulawesi Seas

Across the Sulu–Sulawesi Seas, porous maritime boundaries between Malaysia, Indonesia, and the Philippines undermine effective monitoring, control, and surveillance (MCS). Fishing vessels from Indonesia, Malaysia, and the Philippines frequently cross into neighbouring waters or operate outside their licensed areas, while foreign-flagged fleets and transnational criminal groups also intrude into the region’s territorial seas. Limited state presence and oversight, together with climate-driven ecological pressures—overfishing, warming waters, and declining fish stocks—and increasingly volatile weather, place artisanal fishers at greater risk and undermine their food and income security. Together, these dynamics drive the persistent and widespread incidence of IUU fishing in the Sulu-Sulawesi Seas.<sup>172</sup>

<sup>169</sup> Wen Chiat Lee and K. Kuperan Viswanathan, “Framework for Managing Illegal, Unreported and Unregulated Fishing in ASEAN,” *Asian Fisheries Science* 33 (2020), <https://www.asianfisheriessociety.org/publication/downloadfile.php?id=1290&file=Y0dSbUx6QXdnemcxT0RNd01ERTFPRFUYTWpnd016RXVjR1Jt>.

<sup>170</sup> Ibid.

<sup>171</sup> Ibid.

<sup>172</sup> Madelyn MacMurray, et al., *IUU Fishing Risk Profile for the Sulu-Sulawesi Seascape* (The Stimson Center, Washington D.C., USA, 2025), <https://www.stimson.org/2025/iuu-fishing-risk-profile-for-the-sulu-sulawesi-seascape/>.

Marine habitats are facing intensified pressure from the impacts of climate change. Rising sea surface temperatures are increasingly triggering coral bleaching in the Sulu–Sulawesi Seas, undermining reef resilience and ecological function. Climate-induced disturbances—such as more frequent and severe storms—further compound these risks by reducing the number of viable fishing days and damaging or destroying fishing gear. Together, these consequences threaten both ecosystem health and the livelihoods of coastal communities dependent on these resources.<sup>173</sup>

The Stimson Center’s 2025 analysis indicates that climate-driven degradation of marine habitats and fish stocks is most severe in the Philippines, classified as high risk, followed by Indonesia at medium–high risk and Malaysia at medium risk.<sup>174</sup> Across the Sulu–Sulawesi Seas, climate stressors and unsustainable fishing practices are amplifying pressures on already fragile marine ecosystems. The Philippines shows the highest exposure in the region, with nearshore fish stocks and offshore stocks enduring the highest risk levels among Sulu-Sulawesi littoral states. An estimated 70 per cent of fishing grounds in the Philippines are already overfished, forcing small-scale fishers to travel farther offshore and expend more effort to locate rapidly declining stocks.<sup>175</sup>

The Philippines is confronting an escalating crisis in its fisheries sector, where IUU fishing continues to proliferate. This surge in illicit activity is eroding the livelihoods of small-scale fishers, accelerating resource depletion, and undermining national food security. As fish stocks decline and competition over dwindling resources intensifies, the combined pressures of IUU fishing and environmental stressors are pushing the country’s coastal communities into increasingly precarious conditions. Recent data from Oceana Philippines and the League of Municipalities of the Philippines reveal a sharp increase in suspected illegal fishing activities. Year-on-year analysis shows a steady upward trend, with the number of fishing vessels illegally operating rising by 9 per cent from 26,295 in 2022 to 28,822 in 2023 and further increasing by 10.5 per cent at 31,843 in 2024. Furthermore, these illegal incursions occur in key hotspots mainly on the Sulu Sea.<sup>176</sup>

This creates potential confrontational events, either with maritime law enforcement agencies of other countries or with fishermen from neighbouring states, heightening resource competition exacerbated by climate change. Meanwhile, Malaysia and Indonesia record comparatively lower stock-related risks—medium–high and medium, respectively—but remain far from secure.

Expert assessments by the Stimson Centre highlight that Vietnamese-flagged IUU vessels pose the most serious threat to the sustainability of Sabah’s fisheries, while Indonesia’s relatively healthier waters have increasingly attracted foreign encroachment. Environmental risk indicators reinforce these patterns: Malaysia and the Philippines show elevated risks linked to the continued degradation of seabed

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<sup>173</sup> Ibid.

<sup>174</sup> Ibid.

<sup>175</sup> Ibid.

<sup>176</sup> Oceana Philippines, “A troubling tide: The problem of illegal fishing and declining catch,” 9 July 2025, <https://ph.oceana.org/press-releases/a-troubling-tide-the-problem-of-illegal-fishing-and-declining-catch/>.

habitats due to trawling and illegal fishing. In the Philippines, coastal development adds further pressure on already stressed marine ecosystems.<sup>177</sup>

In all three countries, both foreign and domestic vessels routinely violate inshore exclusion zones (IEZs) reserved for small-scale fishers, deepening livelihood insecurity. As rising temperatures, habitat loss and stronger storms intersect with widespread IUU fishing and weak regulatory and enforcement capacity, the Sulu–Sulawesi Seas face growing CPS that threaten food security, economic livelihoods, and maritime stability across the subregion.

### Potential Future Scenarios

This section presents two forward-looking CPS scenarios for the South China Sea, examining how climate impacts may interact with geopolitical tensions, maritime livelihoods and regional stability by 2050. It also develops a parallel scenario for the Sulu–Sulawesi Seas, focusing on how climate stress, mobility, and local governance challenges could reshape community security and cross-border cooperation.

#### Scenario 1: CPS and IUU in the South China Sea

In this scenario, the South China Sea becomes a vivid example of how climate-driven resource pressures intersect with geopolitical rivalry to create a destabilising feedback loop. As fish stocks collapse and marine ecosystems deteriorate, coastal states will intensify competition over what remains. National fishing fleets will evolve into quasi-strategic assets, operating not only to harvest dwindling resources but also to assert territorial control. At the same time, governments will allocate additional resources into expanding military outposts rather than conserving fragile ecosystems, further straining environmental resilience.

The lack of a credible, region-wide management framework will accelerate the decline for the next 25 years. Marine resources—already reduced to a fraction of historic levels—become contested to the point where cooperative governance breaks down entirely. With fisheries estimated at only 5–30 percent of their 1950s abundance, coral reefs losing 16 per cent of their cover each decade, and projections indicating that up to 90 per cent of reef ecosystems could vanish by 2050, the environmental emergency cascades into a socio-economic one. In this unfolding scenario, the livelihoods of 190 million people and the food security of coastal communities are placed at severe risk, heightening tensions and eroding regional stability.

Over the next decade, these pressures are likely to intensify, with small-scale fishers continuing to face displacement, economic marginalisation, and greater risk sensitivity to exploitative and forced-labour practices that flourish in an environment of militarised competition and weak regulatory oversight. As a key issue in this scenario, Filipino fishers operating near contested features of the South China Sea will continue to face increasingly hostile encounters with Chinese vessels. With no

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<sup>177</sup> MacMurray, et al., *IUU Fishing*.

political settlement in place to clarify maritime rights or establish cooperative management, each incident risks sparking wider tensions.

Climate stressors worsen the condition. As fish stocks collapse and marine habitats deteriorate, small-scale fishers may be pushed to travel farther into contested zones in search of viable catches. Over the next decade, this combination of ecological decline and persistent geopolitical rivalry may produce a more volatile security environment, with fishing communities becoming frontline actors in a worsening climate–security flashpoint in the South China Sea.

### **Scenario 2: CPS and IUU in the Sulu-Sulawesi Seas**

The Philippines is expected to be the country most severely affected by climate change in the Sulu–Sulawesi Seas. Even with strengthened fisheries management, overall catches are projected to decline as climate-driven shifts in ocean temperature, productivity, and species distribution intensify. A recent scientific assessment by a team of Filipino marine researchers estimates that the abundance of key species will decrease significantly by mid-century (2050–2060). These findings are consistent with a growing body of regional and global studies indicating fishing communities in this sub-region will face sustained declines under a wide range of climate change scenarios. Indigenous small-scale fishers from Mindanao and Palawan in the Philippines, Sabah, Malaysia, and Sulawesi in Indonesia, will continue to be severely affected by increasing presence of IUU fishing. The Sulu-Sulawesi Seas—long marked by piracy, smuggling and insurgent activity—remain among Southeast Asia's toughest waters to police with climate change stressors exacerbating marine environmental degradation.

Another clear manifestation of resource competition in the Sulu-Sulawesi Seas is the increasing displacement of small-scale fishers from municipal waters by commercial fishing vessels. As industrial operators intrude into nearshore zones, many artisanal fishers return with minimal catch worsened by climate change—sometimes none at all—undermining their livelihoods and deepening socio-economic inequalities. These pressures may heighten community grievances and trigger local tensions, including future clashes between small-scale and commercial fishers over access to dwindling resources. Such confrontations, if left unmanaged, may risk escalating into broader conflicts that further destabilise coastal areas. Compounding this, destructive fishing practices will continue to degrade marine habitats, jeopardising long-term stock recovery and reinforcing the cycle of scarcity and competition.

### **Broader Implications for Regional Stability**

Across Southeast Asia, the failure to address climate-driven resource depletion and IUU fishing carries significant long-term risks. At the interstate level, unresolved competition over transboundary marine resources can strain diplomatic relations, complicate maritime dispute management, and increase the likelihood of miscalculation during enforcement encounters. At the local level, declining fisheries and environmental degradation threaten livelihoods, food security, and social cohesion, particularly among already vulnerable coastal populations.

If current trends persist, these pressures may increasingly translate into domestic political challenges, as affected communities demand greater state support, protection, and accountability. Unaddressed environmental decline and poor governance could intensify public discontent, erode trust in institutions, and, in extreme cases, contribute to instability at the national level.

#### **2.4.2 Securing the Green Transition: Critical Minerals, Community Impacts and Environmental Security Risks**

Broadly defined as scarce and geographically concentrated raw material essential to modern technologies and the energy transition, ASEAN has acknowledged critical minerals as “set to become as indispensable to the world of renewable energy as oil and gas have been to the fossil fuel era”.<sup>178</sup> Yet, the rapid increases in global demand equally presents new challenges relating to the climate-conflict nexus in Southeast Asia.

Southeast Asia’s critical mineral assets include Indonesia’s world-leading nickel industry followed by the Philippines, rare-earth elements (RREs) in Myanmar, and tin in Indonesia and Myanmar, highlighted in Table 5. Resource extraction is rapidly expanding, as exemplified with Indonesia’s nickel mining sector increasing production by 300% in the 2016-2023 period compared to the pre-Paris Agreement period 2009-2015.<sup>179</sup> These developments are coupled with advancements towards unexplored critical mineral reserves in other states including Vietnam, Laos, Cambodia, and Thailand seen in Table 6. However, while critical minerals provide Southeast Asia with a chance to influence the transition towards renewable energy, the speed and form of extraction produce newly distinct peace and security implications for the region.

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<sup>178</sup> Amira Bilqis, Auliya Febriyanti, and Dynta Trishana Munardy, “Critical Minerals as the ‘New Gold’ in ASEAN Energy Transition, ASEAN Centre for Energy, 18 April 2024, <https://aseanenergy.org/post/critical-minerals-as-the-new-gold-in-asean-energy-transition/>.

<sup>179</sup> Heinrich Böll Stiftung, “Treasures and Tragedies: Narratives and Discourses on Critical Minerals in Southeast Asia,” 2025, <https://th.boell.org/en/treasures-and-tragedies>.

**Table 5. Current Key Critical Minerals Mining Locations in Southeast Asia<sup>180</sup>**

Country	Mineral	Primary Location(s)	Estimated Global Production Share (2025)	Estimated Share of Known Global Reserves <sup>181</sup>
<b>Indonesia</b>	Bauxite and Alumina	West Kalimantan, Riau Islands, Bangka Belitung Islands	1-2.5%	10%
<b>Indonesia</b>	Cobalt	Sulawesi, Maluku Islands	14.2%	6.3%
<b>Indonesia</b>	Copper	Papua, West Nusa Tenggara, Maluku Islands, East Java	3% (mine production); 1.4 (refinery production)	2.1%
<b>Indonesia</b>	Nickel	Sulawesi, Maluku islands, West Papua	66.7%	44.3%
<b>Indonesia</b>	Tin	Bangka-Belitung Islands	21%	23.3%
<b>Myanmar</b>	Rare Earth Elements	Kachin State, Shan State	5.6% <sup>182</sup>	Unknown <sup>183</sup>
<b>Myanmar</b>	Tin	Wa State	4.1%	11.7%
<b>The Philippines</b>	Nickel	Mindanao, Palawan, Luzon	6.9%	3.4%
<b>Vietnam</b>	Bauxite and Alumina	Central Highlands	1%	10.7%
<b>Vietnam</b>	Tin	Lạng Sơn, Nghệ An, Cao Bằng, Thái Nguyên	3.8%	0.4%
<b>Vietnam</b>	Tungsten	Thái Nguyên Province	3.5%	3.6%

<sup>180</sup> U.S. Geological Survey (USGS), Mineral Commodity Summaries 2026, February 2026 <https://doi.org/10.3133/mcs2026>.

<sup>181</sup> Estimates reflect known reserves only; limited data and underexplored areas mean actual volumes remain uncertain.

<sup>182</sup> Myanmar is believed to be the origin of a major proportion of global REEs – most is exported to China where it is produced.

<sup>183</sup> Undetermined due to limited data; believed to be a considerable proportion of global reserves.

**Table 6. Selected Under/Unexplored Future Critical Mineral Hotspots in Southeast Asia**

Country	Critical Mineral	Primary Location(s)	Potential Share of Global Reserves
<b>Cambodia</b> <sup>184</sup>	Rare Earth Elements	Andong Meas	Undetermined
<b>Indonesia</b> <sup>185</sup>	Bauxite and Alumina	West Kalimantan, Riau Islands, Bangka Belitung Islands	10%
<b>Laos</b> <sup>186</sup>	Rare Earth Elements	Xieng Khouang, Huaphane	Undetermined
<b>Malaysia</b> <sup>187</sup>	Rare Earth Elements	Terengganu, Kelantan, Pahang	Undetermined; Government estimates indicate rare earth deposits of 16.2 million metric tonnes worth over USD 175 billion
<b>The Philippines</b> <sup>188</sup>	Rare Earth Elements	Palawan, Nueva Vizcaya	Undetermined
<b>Thailand</b> <sup>189</sup>	Rare Earth Elements	Northeast Thailand (Isan), Southern Thailand	Undetermined
<b>Vietnam</b> <sup>190</sup>	Bauxite and Alumina	Central Highlands	10.7%
<b>Vietnam</b> <sup>191</sup>	Rare Earth Elements	Northwest Vietnam, Central Highlands	4.1%

### High-impact Disruptions to Local Livelihoods

While vital for the energy transition, the extraction process of critical minerals carries serious environmental challenges. Toxic waste from critical minerals constitutes a major issue when disposed in or nearby bodies of water. Tests conducted in Thailand and Laos since 2024 have found unsafe levels of toxic chemicals in the Mekong River stemming from illegal and unregulated tin and REE mining in war-torn provinces of Myanmar and from exploratory critical mining in Laos.<sup>192 193</sup> Large-scale deforestation in the sector further drives environmental degradation, increasing the risk of landslides and downstream

<sup>184</sup> 6Wresearch, “Cambodia Rare Earth Metals Market (2025–2031) Outlook,” August 2025, <https://www.6wresearch.com/industry-report/cambodia-rare-earth-metals-market-outlook>.

<sup>185</sup> USGS, “U.S. Geological Survey.”

<sup>186</sup> Esterman, “Rare Earth Mining Expands.”

<sup>187</sup> James Chai, “Malaysia has something great powers want,” *Channel News Asia (CNA)*, 12 September 2025, <https://www.channelnewsasia.com/commentary/malaysia-rare-earths-processing-chips-semiconductors-middle-power-5344161>.

<sup>188</sup> Christine R. Mapa, “Untapped potentials: rare earth elements in the Philippines,” *Manila Observatory*, 16 July 2025, <https://www.observatory.ph/2025/07/16/untapped-potentials-rare-earth-elements-in-the-philippines/>.

<sup>189</sup> Nation Thailand, “Unearthing Thailand’s rare earth treasure: where are they hidden?” 27 October 2025, <https://www.nationthailand.com/news/general/40057375>.

<sup>190</sup> Sudhanshu Singh, “Vietnam’s Critical Minerals Industry and Supply Chain,” Vietnam Briefing, 10 October 2025, <https://rareearthexchanges.com/news/vietnams-rare-earth-awakening-from-sleeping-giant-to-global-contender/>.

<sup>191</sup> Ibid.

<sup>192</sup> Regan Kwan, and Brian Eyler, “Unregulated Mining Along Rivers in Mainland Southeast Asia,” *Stimson Center*, 24 November 2025, <http://stimson.org/2025/unregulated-mining-along-rivers-in-mainland-southeast-asia/>.

<sup>193</sup> Isabel Esterman, “Rare earth mining expands into Laos, threatening entire Mekong River,” *Mongabay*, 27 October 2025, <https://news.mongabay.com/2025/10/rare-earth-mining-expands-into-laos-threatening-entire-mekong-river/>.

floods.<sup>194</sup> In Sulawesi, Indonesia, and in the Philippines, floods and contaminated waters have been attributed to a quickly expanding, yet loosely regulated nickel mining sector.<sup>195</sup>

The environmental degradation caused by mining brings threats to peace and security at the local level. Coupled with limited infrastructural capacity, pollution contaminates water used for drinking, sanitation, and agricultural and fishing. Igniting economic hardship, unemployment, and displacement, grievances among local populations have arisen at key critical mining hotspots in Southeast Asia. Nickel mining near villages in Sulawesi has placed local communities under strain, causing tensions between villagers and mining companies.<sup>196</sup> Experiencing limited support, villagers have performed acts of violence as negotiation tactic.<sup>197</sup> For others, displacement has been coupled with inadequate compensation. Pollution of the Ayeyarwady River, Salween River and Mekong River and its respective tributaries from critical mineral mining in Myanmar has further exacerbated patterns of poverty and displacement.<sup>198</sup>

Beyond pollution, the surge in critical mining has also contributed to land dispossession, fuelling domestic tensions and inducing forced displacement. In the Philippines, loosened mining regulations since 2021 has allowed for the rapid expansion of critical mining with a fifth of the whole country covered in mining leases, reducing land allocated to Indigenous populations.<sup>199</sup> A report by the non-profit Legal Rights and Natural Resources Center (LRC) claimed that 223,000 hectares of land had been signed off for mining in the Philippines in the 2022-2023 period, with an estimated 45,000 Indigenous people affected by human rights abuses, including allegations of arrests, violence, and disappearances.<sup>200</sup> These effects have in particular affected Mindanao, where nickel-abundant areas overlap with Indigenous land. Military deployment to protect mining companies has heightened tensions and reduced space for peaceful resolutions.<sup>201</sup> Instances of illegal land dispossession and forced displacement tied to critical mining have also been noted as part of nickel mining in North Maluku and Sulawesi, Indonesia, and Myanmar.

### Transboundary Tensions

The transboundary impact of critical mining on resources and livelihoods also raises several interstate concerns. In 2025, the effects of illegal and unregulated critical mining was highlighted by both the

<sup>194</sup> Michaela Guo Ying Lo, Jatna Supriatna, and Matthew Struebig, "Weighing the green cost: How nickel mining in Indonesia impacts forests and local communities," *The Conversation*, 16 January 2025, <https://theconversation.com/weighing-the-green-cost-how-nickel-mining-in-indonesia-impacts-forests-and-local-communities-246259>.

<sup>195</sup> Fair Finance Asia, "Unearthing the Hidden Costs: Social and Environmental Considerations in Asia's Transition Minerals and Supply Chains," December 2024, [https://fairfinanceasia.org/wp-content/uploads/2024/12/Report\\_FFA-2024\\_Unearthing-the-hidden-costs-Social-and-Environmental-considerations-in-Asias-Transition-Minerals-Mining-and-Supply-Chains.pdf](https://fairfinanceasia.org/wp-content/uploads/2024/12/Report_FFA-2024_Unearthing-the-hidden-costs-Social-and-Environmental-considerations-in-Asias-Transition-Minerals-Mining-and-Supply-Chains.pdf).

<sup>196</sup> Bambang Hudayana, and A. B. Widyanta, "Communal violence as a strategy for negotiation: Community responses to nickel mining industry in Central Sulawesi, Indonesia," *The Extractive Industries and Society* 7, no. 4 (2020): 1547-1556.

<sup>197</sup> Ibid.

<sup>198</sup> Kwan and Eyler, "Unregulated Mining Along Rivers."

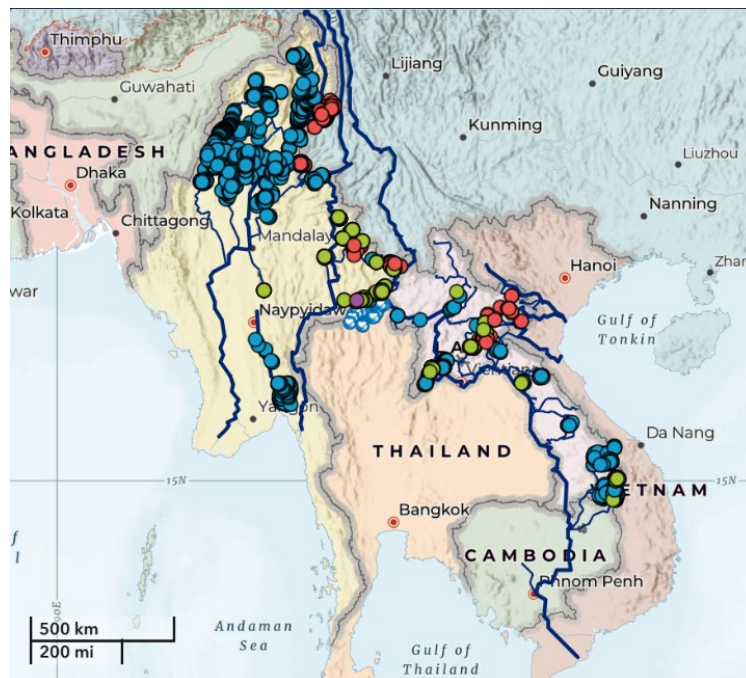
<sup>199</sup> Global Witness, "How the militarisation of mining threatens Indigenous defenders in the Philippines," 3 December 2024, <http://globalwitness.org/en/campaigns/land-and-environmental-defenders/how-the-militarisation-of-mining-threatens-indigenous-defenders-in-the-philippines/>.

<sup>200</sup> The Legal Rights and Natural Resources Center (LRC), "State of Indigenous Peoples Address: 2023 Report," 2023, [https://www.lrcksk.org/\\_files/ugd/dc2292\\_1ccc60a6346b4d849dfb1a4b9d8b3f1a.pdf](https://www.lrcksk.org/_files/ugd/dc2292_1ccc60a6346b4d849dfb1a4b9d8b3f1a.pdf).

<sup>201</sup> Global Witness, "How the militarisation of mining."

government of Thailand and the MRC centred around above-safe toxic levels traceable in the Mekong River.<sup>202</sup> Threatening national food and economic security, the Thai government requested the formation of a joint committee to address the issues.<sup>203</sup> While accepted by the Myanmar junta, the junta's limited control over concerned regions has limited governance responses. With armed actors playing a central role, regulative enforcement is further complicated by supply chains linked to neighbouring China. Similar concerns over transboundary tensions have been raised revolving exploratory mining in Laos linked to investments by Chinese companies.<sup>204</sup> These effects may contribute to contaminated water resources downstream, including the Mekong Delta. The geographical proximity of these dams is visualised in Figure 9, complemented with data on the known number of mines (predominantly critical minerals) located near river basins in mainland Southeast Asia in Table 7.

**Figure 9. Known Mines in Mainland Southeast Asia with Proximity to Rivers as of 2025<sup>205</sup>**



**Blue:** Alluvial Mining (e.g. Gold, Silver, Tin, Copper); **Red:** In-Situ Leaching (e.g. Rare Earth Elements); **Green:** Heap Leach (e.g. Gold, Copper, Nickel, Manganese)

<sup>202</sup> Suebsakun Kidnukorn, "Contradicting Complexities: Heavy Metals Pollution from Mines in Myanmar in Kok, Sai, Ruak, Mekong River," *Heinrich Böll Stiftung*, 21 November 2025, <https://th.boell.org/en/2025/11/21/contradicting-complexities-heavy-metals-pollution-mines-myanmar-kok-sai-ruak-mekong>.

<sup>203</sup> Ibid.

<sup>204</sup> Esterman, "Rare Earth Mining Expands."

<sup>205</sup> Stimson Center, "Mining in Mainland Southeast Asia – River Basins Dashboard," 24 November 2025, <https://www.stimson.org/2025/mining-in-mainland-southeast-asia-river-basins-dashboard/>.

**Table 7. Known Mines Near River Basins in Mainland Southeast Asia as of 2025<sup>206</sup>**

Basin	Number of Mines
<b>Ayeyarwady River</b>	1,432
<b>Mekong River</b>	819
<b>Salween River</b>	126
<b>Sittaung River</b>	26
<b>Bilin River</b>	21
<b>Neun-Ca River</b>	11
<b>Ma River</b>	10

Another transboundary issue is the rising global competition over critical minerals. China has played a central role in Southeast Asia's critical mining and with majority stakes in supply chains either through state-linked enterprises or agreements with local mining actors. Predominantly motivated by economic gains, this has sparked concerns over its influence over procedures where enhanced regulations would constrain its interests.<sup>207</sup> The dynamic is further complicated by the growing attention to the sector among other states. In 2025, the US signed critical mineral deals with Thailand, Malaysia, Cambodia, and Vietnam,<sup>208</sup> while both the US and India have explored critical mineral deals with armed non-state actors in Myanmar.<sup>209</sup> These examples highlight cases where unsustainable critical mineral mining may fuel local and regional tensions.

### Existing Frameworks

Critical mineral governance remains fragile and fragmented in Southeast Asia, with limited attention to its peace and security implications. Since 2023, ASEAN has increasingly acknowledged the vital role of the sector. The ASEAN Minerals Development Vision launched in 2025 underscores the “fast-growing regional and global demand for critical minerals and the need to supply them sustainably”, providing two overarching strategies.<sup>210</sup> Provisions include empowering small-scale mining to boost local livelihoods, enhanced regulations, industry conduct and environmental considerations, and emphasis on inclusivity.<sup>211</sup> The five-year ASEAN Minerals Cooperation Action Plans (AMCAPs) aim to assist with detailed deliverables, where the 2026-2030 AMCAP stresses “accountability and increased transparency to restore public confidence in mining and minerals development”.<sup>212</sup> Nonetheless, its limited addressal

<sup>206</sup> Ibid.

<sup>207</sup> Prapimphan Chiengkul, “The Human and Environmental Costs.”

<sup>208</sup> Reuters, “Trump strikes deals on trade, critical minerals in Southeast Asia,” 27 October 2025, <https://www.reuters.com/world/china/us-sign-trade-deals-with-cambodia-malaysia-trump-says-2025-10-26/>.

<sup>209</sup> Maria Siow, “Why Plans by India and US to Tap Myanmar’s Rare Earths are Fraught with Risks,” *SCMP*, 18 September 2025, <https://www.scmp.com/week-asia/economics/article/3326004/why-plans-india-and-us-tap-myanmars-rare-earths-are-fraught-risks>.

<sup>210</sup> ASEAN, “ASEAN Minerals Development Vision,” October 2025, <https://asean.org/wp-content/uploads/2025/10/ASEAN-Minerals-Development-Vision-AMDV.pdf>.

<sup>211</sup> Ibid.

<sup>212</sup> ASEAN, “ASEAN Minerals Cooperation Action Plan (AMCAP-IV) 2026-2030,” October 2025, <https://asean.org/wp-content/uploads/2025/10/ASEAN-Minerals-Cooperation-Action-Plan-AMCAP-IV-2026-2030-1.pdf>.

of potential tensions between affected actors in addition to major compliance deficits by member states highlight existing shortcomings.<sup>213</sup>

Across various national level governance frameworks, accountability and oversight remain practical challenges. The role of critical minerals in the wartime economy of Myanmar among several actors has limited all forms of regulation, while limited government enforcement of sustainable mining practices remain weak in states where mining operates legally.<sup>214</sup> For example, while provisions relating to Free, Prior, and Informed Consent (FPIC) often exist in relation to land-usage near Indigenous communities, companies' compliance has been limited and exclusive.<sup>215</sup> This is coupled with limited benefit-sharing and compensation packages under current frameworks, leaving affected communities largely helpless. In Myanmar and the Philippines, civil society has been able to pressure critical mineral actors, yet lack comprehensive support in often top-down and militarised conditions.<sup>216</sup> These issues, coupled with limited attention to CPS risk worsening conditions as critical mining continues expanding.

### Potential Future Scenarios

The rapid developments related to critical minerals present considerable peace and security implications for the near future of Southeast Asia, requiring increased awareness and governance responses to be properly mitigated. These forward-looking scenarios anticipate how various external and domestic factors could drive conflict risks, community impacts and regional cooperation around critical minerals in the coming decades.

#### **Scenario 1: Rising Global Competition at the Expense of Local Communities**

Critical minerals will continue to grow in importance over the upcoming decades as vital resource for the energy transition, reconfiguring economic and national security interests. The International Energy Agency (IEA) has projected the need for a six-fold critical mineral input increase by 2040 to support renewable energy advancements in line with the Paris Agreement.<sup>217</sup> With Southeast Asia's reserves gaining strategic importance, rising demand coupled with limited regulatory oversight threatens accelerating unsustainable mining practices.

Already threatening local communities, uncontrolled critical mineral mining expansions would further impact on-the-ground conditions. Livelihood losses and displacement, disproportionately affecting economically insecure communities, including ethnic minorities and Indigenous people, may exacerbate tensions with companies and governments. Drivers include limited compliance with FPIC, lack of benefit-sharing provisions, and limited compensation packages, especially in

<sup>213</sup> Vlado Vivoda, Indra Overland, and Roman Vakulchuk, "Navigating ASEAN's critical materials future: Opportunities, risks and strategic imperatives," *Mineral Economics* (2025): 1-12.

<sup>214</sup> Ibid.

<sup>215</sup> Ibid.

<sup>216</sup> United Nations Interregional Crime and Justice Research Institute (UNICRI), "Crimes Associated with Critical Minerals in Southeast Asia: Trends, Challenges and Solutions," April 2025, <https://unicri.org/sites/default/files/2025-04/Crimes-Associated-with-Critical-Minerals-Southeast-Asia-Apr-2025.pdf>.

<sup>217</sup> International Energy Agency (IEA), "The Role of Critical Minerals in Clean Energy Transitions," 2022, <https://www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions/executive-summary>.

already fragile settings such as Mindanao where nickel mining is projected to expand further.<sup>218</sup> These trends may expand into current critical mineral reserves in countries including Vietnam, Laos, Cambodia, and Thailand, where advancements are currently being explored.

### **Scenario 2: Growth of Informal, Illegal, and Unregulated Mining**

Expanding economic opportunities linked to critical minerals is drawing various actors to engage in the sector. A 2025 UN report highlighted trends of growing informal and illegal critical mining in Myanmar, Malaysia, and Vietnam,<sup>219</sup> signalling a dangerous development for the region where national governments are undermined. Without expanded governance and control over potential critical mineral hotspots, these growing informal and illegal markets may further erode state authority and enable the expansion of illicit economies tied to forced labour, armed smuggling and violence, threatening wider societal stability.

### **Scenario 3: Escalation of Transboundary Tensions**

Mining critical minerals in Myanmar and Laos is actively contributing to polluted transboundary water sources, including the Salween and Mekong River. Calls for action by the Thai government and its establishment of task forces to monitor the polluted water highlights the issue elevated as high-level concern to preserve national interests and respond to domestic protests.<sup>220</sup> A continuation and exacerbation of inadequate regulation and control would threaten key agricultural hubs such as Vietnam's Mekong Delta and the wider 45 million LMB population dependent on Mekong water supplies, potentially sparking widespread instability.<sup>221</sup> With limited signs of the trend reversing, complicated by the involvement of various stakeholders including non-state armed groups and Chinese investments, transboundary tensions may grow considerably in the near future without a comprehensive multi-level governance response.

### **Scenario 4: Growing Foreign Influence, Weakening Internal Control**

The strategic importance of critical minerals for economic and national security as part of the energy transition has accelerated interest in Southeast Asia's reserves. The US' 2025 bilateral agreements with Malaysia, Thailand, Cambodia, and Vietnam in 2025 highlights rising competition, challenging China's majority share in the critical mineral supply chain. Yet, without robust regional governance, these developments threaten undermining domestic control, potentially contributing to illegal mining, critical mineral smuggling, and support of armed actors. The protracted conflict in the Democratic Republic of Congo, where various small-sized armed actors have been sponsored

<sup>218</sup> Amnesty International, "What Do We Get in Return? How The Philippines Nickel Boom Harms Human Rights," 2024, <https://www.amnesty.org/ar/wp-content/uploads/2025/01/ASA3586072024ENGLISH.pdf>.

<sup>219</sup> UNICRI, "Crimes Associated with Critical Minerals."

<sup>220</sup> Nation Thailand, "Thailand faces severe transboundary pollution crisis from rare earth mining in Myanmar," 24 June 2025, <https://www.nationthailand.com/sustainability/40051672>.

<sup>221</sup> Helen Regan, "Global demand for rare earths is wreaking havoc on one of Asia's mightiest river systems," CNN, 26 November 2025, <https://edition.cnn.com/2025/11/25/asia/rare-earth-river-pollution-myanmar-china-intl-hnk>.

by foreign actors to extract critical minerals,<sup>222</sup> highlights a dangerous precedent that may follow, especially in already fragile settings, including conflict-affected Myanmar.

## 2.5 Climate-induced Forced Migration and Displacement

With climate change steadily climbing the list of the most pressing threats to humanity, it is prudent to take into account its effect on drivers of migration in Southeast Asia. Data from the past decade indicates over 75 million internal displacements in the region, primarily driven by extreme weather events.<sup>223</sup> Not only is climate change triggering potential increases in (internal as well as international) displacement through more direct impacts such as disasters, the indirect impacts of climate change are also taking its toll on communities as well. Climate change could have indirect impacts such as rendering homes uninhabitable or livelihoods not sustainable, forcing populations into permanent displacement.

With millions already moving within and outside the region for employment, and refuge, the effects of climate change are likely to influence these pathways. This poses additional risks to irregular migrants who follow more precarious routes and could compound their susceptibility to risks such as human trafficking and forced displacement.<sup>224</sup> Internal displacement is where conflict, poverty and climate collide, hitting the least advantaged the hardest. The latest numbers prove that internal displacement is not just a humanitarian crisis, but a complex crisis involving climate, conflict, developmental and forced migration problems.

The climate change-human mobility nexus has long been observed in Southeast Asia. Climate mobility is an emerging concept that encompasses all forms of human movement—whether forced or voluntary, temporary or permanent, and occurring within or across borders—that may emerge as an adaptation strategy to the impacts of climate change. The concept of climate mobility acknowledges that the “mobility response” choices could be to remain in-situ, or the inability to relocate. There is strong evidence that climate change is already influencing human mobility, with expectations that these movements will grow as climate impacts become more severe and widespread. However, the direct and indirect consequences of climate risk on human mobility are not well understood.<sup>225</sup>

### 2.5.1 Migration as a Coping Strategy

The Philippines faces significant internal displacement due to climate change, primarily driven by extreme weather events like typhoons and floods. Rising sea levels and the country’s high exposure to climate hazards have further intensified displacement, affecting millions each year. Specifically, sudden-onset climatic events, such as super typhoons and flash floods drive human mobility in the forms of

<sup>222</sup> Patrick Anderson, “Cobalt and corruption: The influence of multinational firms and foreign states on the Democratic Republic of the Congo,” *Journal for Global Business and Community* 14, no. 1 (2023).

<sup>223</sup> ASEAN Secretariat, *ASEAN Migration*.

<sup>224</sup> RSIS Centre for Non-Traditional Security Studies, *Climate Change and Its Impact on Peace and Security in Southeast Asia* (Singapore: RSIS, 2023).

<sup>225</sup> ASEAN Secretariat, *ASEAN Migration*.

pre-emptive evacuation and internal displacement. The impacts are severe for coastal populations, especially those in informal settlements, who are disproportionately affected by hazards and have limited ability to recover or prepare. The Philippines has recorded the highest number of internal disaster displacements in East Asia and the Pacific. For example, in 2024, 9.6 million Filipinos were displaced, by climate-induced disasters, violence and conflict according to Internal Displacement Monitoring Centre.<sup>226</sup> As there were 193,000 Filipinos internally displaced due to conflict and violence, the Philippines is second only to Myanmar which has 3.521 million IDPs due to violence and conflict.<sup>227</sup>

It is important to understand the overall trend of displacement in the Philippines in recent years. Between 2014 and 2023, the Philippines recorded nearly 43 million disaster-related displacements, the highest in Southeast Asia and most of which were climate change-related events. Particularly in the Mindanao region, at-risk communities face a dual challenge of ongoing conflict and climate-induced disasters. More than 116,000 people in Mindanao remained displaced as a result of overlapping drivers—including armed conflict, natural hazards, and protracted local crises. Violence linked to the 2017 Marawi siege, clashes among armed groups, and other security operations has uprooted over 95,000 individuals. Meanwhile, extreme weather events such as heavy rains, floodings and landslides, as well as earthquakes have forced nearly 22,000 people from their homes, with particularly acute impacts in Davao de Oro, South Cotabato, and Sultan Kudarat.<sup>228</sup>

In Mindanao's BARMM region, displacement is often rooted in longstanding land disputes, which are intertwined with political rivalries and clan feuds. Recurring armed skirmishes between the Philippine military and extremist groups, along with seasonal flooding and other weather-related disruptions, further intensify these tensions. As a result, displacement in the southern Philippines tends to be cyclical, complex, and frequently prolonged, making durable solutions to climate-migration-security issues difficult to achieve.

In Vietnam, another country that has been significantly affected by climate change, the case of its Mekong Delta region vividly demonstrates how climate change is increasingly altering migration flows. Intense climate-induced environmental and economic pressures have resulted in human mobility changes, with nearly 1.7 million people have left the Mekong Delta in a decade due to climate change impacting agriculture and fisheries in Vietnam's crucial agricultural heartland. In particular, income losses triggered by droughts, floods, and salinity intrusion serve as the chief push factors forcing agricultural households to migrate.<sup>229</sup> In fact, compared to other regions in Vietnam, the Mekong Delta has the lowest immigration rate *into* the province and the highest migration rate *out*, making it the only region in the country with 0 per cent population growth from 2009 to 2024.<sup>230</sup>

<sup>226</sup> Cai U. Ordinario, "PHL sees over 9 million internally displaced by disasters and conflict in 2024, says report," *The Business Mirror*, 13 May 2025, <https://businessmirror.com.ph/2025/05/13/phl-sees-over-9-million-internally-displaced-by-disasters-and-conflict-in-2024-says-report/>.

<sup>227</sup> The Internal Displacement Monitoring Centre (IDMC), *Global Report on Internal Displacement 2025* (GRID), (IDMC, 2025).

<sup>228</sup> UN OCHA, "Philippines: Mindanao Displacement Snapshot as of 19 May 2025," UN OCHA, 20 May 2025,

<https://www.unocha.org/publications/report/philippines/philippines-mindanao-displacement-snapshot-19-may-2025>.

<sup>229</sup> World Bank, *Living or Leaving: Life in the Mekong Delta region of Viet Nam* (Washington, DC: World Bank, 2025).

<sup>230</sup> National Statistics Office of Vietnam, *Internal Migration in Vietnam, 2009 -2024* (Hanoi: Hanoi Publishing House, 2025).

As climate impacts in the Delta intensify, residents are increasingly confronted with a “living or leaving” dilemma, i.e., whether to adapt to new realities within the Delta or to migrate in search of better prospects, often relying on remittances. A significant share of the Delta’s population, particularly younger and lower-income residents, is leaving due to deteriorating agricultural conditions and escalating climate impacts. Older residents and low-income households are especially vulnerable, as they often lack the skills, resources and social safety nets needed to cope with rapid change.<sup>231</sup> This underscores the uneven impacts of climate change across age and income groups, particularly in influencing people’s ability to meaningfully choose between staying and leaving.

Vietnam is projected to see between 1.5 to 3.1 million internal climate migrants (1.5– 3.1 per cent of the country’s population) by 2050 depending on the climate scenario being considered. Most of these migrants will go from low-lying regions such as the Mekong Delta and Ho Chi Minh City to regions such as Hanoi and the Red River Delta.<sup>232</sup> The lower Mekong subregion is projected to see between 3.3 million and 6.3 million new climate migrants between now and 2050 (1.4 per cent to 2.7 per cent of the country population) depending on different scenarios. For this subregion, the high-risk outmigration hotspots include the coastal areas of Vietnam (threatened by sea level rise) and central Thailand and Myanmar (threatened by water scarcity and reduced agriculture productivity).<sup>233</sup>

If adequately managed and prepared, the arrival of displaced persons or climate migrants may create economic growth in host areas. However, if left unaddressed, climate-induced displacement can exacerbate inequalities. With limited resources and fragile systems of protection] may also generate tension between migrant populations and hosting communities.<sup>234</sup>

## 2.5.2 Human Trafficking in Climate-affected Communities

As climate change intensifies the frequency and severity of disasters and drives growing displacement, the convergence of climate impacts and trafficking in persons demands urgent attention and action. The convergence of armed conflict, poverty, and environmental degradation in the Philippines exacerbates vulnerabilities, leaving displaced populations at heightened risk of human trafficking and other forms of exploitation. In the Eastern Visayas and southern provinces of the Philippines, which have been severely battered by climate-induced weather events such as super typhoons and flooding in recent years, trafficking syndicates victimising survivors have proliferated. Climate-related vulnerabilities heighten exposure to various forms of exploitation, including forced labour, hazardous child labour, sex trafficking, and the online sexual exploitation of children (OSEC).<sup>235</sup>

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<sup>231</sup> World Bank, *Living or Leaving*.

<sup>232</sup> Ibid.

<sup>233</sup> Kwan Soo-Chen and David McCoy, “Climate displacement & migration in South East Asia,” Inter Press Service News Agency, 28 February 2023, <https://reliefweb.int/report/viet-nam/climate-displacement-migration-south-east-asia>.

<sup>234</sup> International Organization for Migration (IOM), *Policy and Data Insights from the Lower Mekong Subregion: Acting on Human Mobility in a Changing Climate* (Bangkok: Asia–Pacific Regional Data Hub, 2024).

<sup>235</sup> Marta Furlan, “How climate change increases vulnerability to human trafficking in the Philippines,” UNU Wider, December 2023, <https://www.wider.unu.edu/publication/how-climate-change-increases-vulnerability-human-trafficking-philippines>.

Forced labour linked to climate impacts has been documented across multiple sectors—such as manufacturing, construction, and informal stream gold mining. Informal labourers who shifted into construction work after climate-related disasters reported being compelled to work extremely long hours, without formal contracts, and for low or inconsistent wages. Many noted they were not provided with basic protective equipment, further increasing their risk of harm.<sup>236</sup>

Climate-induced displacement and loss of livelihoods have also pushed Filipino women into precarious domestic work, particularly when migrating to big cities like Cebu and Manila, or in the Middle East states. These conditions heighten their vulnerability to forced labour and other forms of exploitation.<sup>237</sup>

Climate change is increasingly emerging as a major driver of human trafficking in the Mekong sub-region. For instance, Cambodia continues to struggle to combat transnational human trafficking and remains a source, transit and destination country. The trafficking of women and girls in Cambodia takes various forms, including sexual exploitation and forced labour, particularly in domestic servitude in Malaysia. Severe climate-related disasters have further exacerbated existing trends, including the growing recruitment of Cambodians into scam operations for labour exploitation. Cambodia experiences droughts, floods, typhoons, storms and sea-level rise almost every year, disrupting livelihoods—especially in rural areas, where around 80 per cent of the population relies on subsistence agriculture. Over the past decade, disasters have affected an estimated average of 95,000 households each year.<sup>238</sup> For example, during the 2025 floods in mainland Southeast Asia, floodwaters affected 46 districts and towns in Cambodia, impacting a total of 35,651 families. More than 27,000 houses were damaged, and over 2,000 families were displaced.<sup>239</sup>

Anecdotal evidence from fishing and agrarian communities living around Tonlé Sap Lake suggests that climate change is already affecting their villages. A recent report further indicates that drought-affected communities in Cambodia increasingly use migration as a coping strategy in response to natural disasters.<sup>240</sup> One study indicates that climate change is the dominant factor in the decisions of 14.5 percent of migrants leaving the Vietnamese Mekong Delta every year. The decision to migrate was directly proportional to the increase in the influence of climate change.<sup>241</sup> Human trafficking networks operating across the Mekong countries prey on such migrants, who are particularly vulnerable to exploitation. Across multiple sites along the borders of Cambodia, Myanmar, Thailand, Laos and China, it is estimated that tens of thousands of people—primarily from within the Mekong region—are being held against their will. In recent years, many have been forced to operate sophisticated cyber scam

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<sup>236</sup> Ibid.

<sup>237</sup> Ibid.

<sup>238</sup> Puthborey Phon and Rumi Kato Price, “Climate Change, Forced Migration and Trafficking in Persons: Risk of Young Women in Rural Cambodia,” *Journal of Human Trafficking*, 10:2 (2024) 361-367, DOI: 10.1080/23322705.2024.2303263.

<sup>239</sup> ADINET, “Cambodia Flooding in 11 Provinces,” ADINET, 2 October 2025, <https://adinet.ahacentre.org/report/cambodia-flooding-in-11-provinces-20251002>.

<sup>240</sup> Phon and Price, “Climate Change.”

<sup>241</sup> Oanh Le Thi Kim and Truong Le Minh, “Correlation between Climate Change Impacts and Migration Decisions in Vietnamese Mekong Delta,” *International Journal of Innovative Science, Engineering & Technology*, Vol. 4 Issue 8, (August 2017) 111-118, [https://ijiset.com/vol4/v4s8/IJISSET\\_V4\\_I08\\_13.pdf](https://ijiset.com/vol4/v4s8/IJISSET_V4_I08_13.pdf).

operations for Chinese criminal syndicates.<sup>242</sup> However, it is important to note that there is no direct causal link between climate change and trafficking activities, including the proliferation of cyber scam centres.

### 2.5.3 Displaced Stateless Populations

The influence of climate change on Rohingya displacement and migration is becoming increasingly significant. However, a comprehensive report finds that, in key host countries across the region—including Indonesia, Malaysia and Thailand—similar patterns can be observed in Bangladesh, showing that climate impacts do not directly trigger movement among Rohingya communities. Already facing severe humanitarian challenges, Rohingya refugees—particularly in Bangladesh and neighbouring host countries—now contend with additional climate-related pressures. The camps in Cox’s Bazar are highly exposed to extreme weather, underscoring the urgent need for strengthened climate adaptation and disaster risk reduction measures to address threats such as cyclones and landslides.<sup>243</sup>

Because many Rohingyas settle in hazard-prone areas, they are at heightened risk of secondary displacement triggered by climate impacts. At the same time, worsening conditions in the camps—marked by food insecurity, violence, and limited livelihood options—have contributed to a recent rise in dangerous irregular sea movements. While conflict remains the core driver of Rohingya displacement, environmental stressors and deteriorating living conditions are intensifying mobility pressures and increasing the risks associated with these perilous journeys.<sup>244</sup>

Although climate and environmental factors were not explicitly identified as primary reasons for Rohingya movements to or within regional host countries, they clearly worsen the difficult conditions refugees face. These environmental pressures can indirectly influence decisions to relocate by worsening already fragile living and livelihood conditions.

The rejection of recent Rohingya boat arrivals in Aceh, Indonesia, by local communities illustrates emerging tensions between refugees and host communities. Many Rohingyas were forced to live in makeshift tents along the shoreline for prolonged periods, exposed to strong winds, flooding and cyclones. With limited shelter and unreliable access to clean water, health problems quickly emerged, highlighting how environmental stresses compound the hardships faced by displaced populations.<sup>245</sup> Furthermore, while local fishing communities, especially in Aceh, have historically been welcoming of Rohingya boat arrivals, public sentiment has shifted since 2023. Rohingyas are facing hostility from both local residents and students, and some boats have been pushed back to sea. The UN Refugee Agency

<sup>242</sup> Puthborey Phon and Rumi Kato Price, “Mekong drought increases risk of human trafficking,” 360 info, 14 August 2024, <https://360info.org/mekong-drought-increases-risk-of-human-trafficking/>.

<sup>243</sup> Adventist Development and Relief Agency, et al., *Research Report Impact of Climate Change on the Migration and Displacement Dynamics of Rohingya Refugee* (2024), [https://mixedmigration.org/wp-content/uploads/2024/05/334\\_Research-Report-Climate-Change-Rohingya.pdf](https://mixedmigration.org/wp-content/uploads/2024/05/334_Research-Report-Climate-Change-Rohingya.pdf).

<sup>244</sup> Ibid.

<sup>245</sup> Ibid.

(UNHCR) stated that the hostility was partly due to coordinated online disinformation campaigns and hate speech, which included false claims that Rohingyas were demanding land.<sup>246</sup>

In Malaysia, Rohingyas are often living in overcrowded urban spaces, doing labour-intensive work in the informal sector – in factories, agriculture, and construction – exposed to many hazards, some of which are linked to climate change, such as increasing heat and hydroclimatic extremes. There were also reported cases of Rohingyas in Malaysia becoming homeless due to flooding, and community-led responses to provide support to those impacted, in the absence of any formal support from authorities.<sup>247</sup>

### Potential Future Scenarios

By 2050, climate change is expected to become a major driver of population movement and human insecurity across Southeast Asia. These two future scenarios illustrate how climate impacts may alter internal and cross-border migration patterns, livelihoods, and stability in the region over the coming decades.

#### **Scenario 1. Increasing Challenges to Peace and Security from Rural-to-Urban Migration**

Environmental degradation and resource scarcity, intensified by climate change, will continue to drive rural communities—particularly farming and fishing populations—to seek better living conditions elsewhere. In agriculture-dependent rural areas, recurrent droughts and extreme weather events will further reduce crop yields and farming productivity, forcing more people to migrate in search of alternative livelihood opportunities. Countries such as the Philippines, Indonesia, Thailand, and Vietnam will likely see growing numbers of individuals from farming households transitioning into migrant workers in megacities and expanding urban centres.<sup>248</sup>

At the same time, coastal communities will face mounting displacement as sea-level rise, coastal erosion, and ecosystem degradation diminish habitable land and deplete marine resources. Together, these dynamics will accelerate rural-to-urban migration, affect demographic patterns and place increasing pressure on urban infrastructure, social cohesion, and governance systems, with important implications for future security and peace in the region.

Looking ahead, climate change-induced rural-to-urban migration is likely to intensify existing social, economic, and governance pressures in cities, affecting future security and peace outcomes. As growing numbers of climate-affected rural populations move into urban areas in search of livelihoods and safety, unequal access to resources, services, and protection may deepen grievances and strain social cohesion. In this scenario, climate change does not create entirely new security threats; rather, it acts as a threat multiplier that amplifies pre-existing disadvantages, heightens the

<sup>246</sup> Phon and Price, “Mekong drought.”

<sup>247</sup> Adventist Development and Relief Agency, *Research Report*.

<sup>248</sup> Hamdi Muluk, et al., *Climate Change and Human Security in Indonesia* (Jakarta: United Nations Development Programme (UNDP) Indonesia, 2025); World Bank, *Living or Leaving*; the Internal Displacement Monitoring Centre (IDMC), *Global Report*.

risk of violent extremism and transnational crime, and challenges the capacity of urban governance systems to maintain peace and stability.

In this future scenario, the absence of careful and effective land-use management may coincide with rising population density, placing increasing pressure on land, water, and food resources that may already be constrained by climate change. As climate impacts intensify, the needs of incoming migrants will increasingly outpace the hosting capacity of cities, particularly in relation to public infrastructure, livelihood opportunities, and affordable housing. This imbalance may heighten socio-economic stress and deepen inequalities between host communities and migrant populations competing over limited resources. Over time, these pressures will constitute a potential pathway towards peace and security challenges, as rising economic grievances and social tensions translate into political instability. Without timely policy intervention, climate-induced migration may evolve from a humanitarian and development issue into a long-term security concern for Southeast Asian states, undermining social cohesion and governance resilience.

### **Scenario 2. Escalating Security and Peace Risks from Climate-Induced Cross-Border Mobility**

While most climate mobility occurs within a country, there will be growing pressure on national borders as climate change worsens. Such pressure may be expected around land borders within the Greater Mekong sub-region affecting Vietnam, Cambodia, Thailand and Laos. But given the physical geography of the region, cross-border migration by sea may also become a border security issue as the effects of climate change worsen.<sup>249</sup> However, given the region's physical geography, cross-border movement by sea may also increasingly emerge as a border security concern as climate impacts worsen.

Ethnic nationalism is likely to remain a strong force in the region, often reinforced by state policies that accentuate ethnic and regional differences and serve to consolidate and mobilise grievances related to the allocation and distribution of resources. These dynamics may determine how governments and host communities treat foreign labour migrants and their families. Beyond generating climate-related displacement, climate change may also drive significant increases in labour migration to neighbouring countries. However, Southeast Asian states facing mounting domestic employment pressures and social tensions are unlikely to welcome large-scale inflows of foreign workers in the future.

Climate change may further worsen the underlying factors of human trafficking in Southeast Asia. The Mekong Delta, Indonesia, and the Philippines are key hotspots where climate-induced displacement may drive increased trafficking for forced labour and sexual exploitation. While climate change may not directly lead to or be the cause of trafficking-in-persons, refugees, asylum seekers, IDPs, and climate migrants may continue to face severe risks of trafficking for forced labour, sexual exploitation, and, increasingly, involuntary work in online scamming operations.<sup>250</sup>

<sup>249</sup> Soo-Chen and McCoy, "Climate."

<sup>250</sup> US Committee for Refugees and Immigrants, "At Risk Twice Over: Displacement and Human Trafficking In Southeast Asia," *ReliefWeb*, 29 June 2025.

## 2.6 Climate Risks Exacerbating Gender-based Violence and Social Vulnerabilities

### 2.6.1 Impact of Climate Change on Women, Peace and Security (WPS)

The Women, Peace and Security (WPS) agenda occupies a distinct yet deeply interconnected position in the broader climate, peace and security landscape in Southeast Asia. Whereas previous sections have examined climate-related risks through structural and material lenses, such as terrorism, water security, natural resources, and migration, the WPS framework foregrounds the human and social dimensions of peace and security. It shifts analytical attention from physical threats alone to the ways in which power relations, gender norms, and structural inequalities shaped vulnerability, resilience and access to decision-making. In doing so, it highlights that climate change is not experienced uniformly, and that existing social hierarchies and institutional arrangements define its security implications.

Women and children are among those most affected by climate-related stressors due to the social norms assigned to them, yet they remain significantly underrepresented in the political, security, and environmental institutions responsible for determining climate responses. This dual condition, heightened exposure combined with systemic exclusion, makes WPS central to understand the broader climate-security nexus. Rather than treating gender as a peripheral concern, the WPS framework positions gender relations as fundamental to how climate risks translate into insecurity or resilience. In Southeast Asia, where climate pressures intersect with uneven development, fragile governance, and entrenched inequalities, this perspective is particularly critical.

The intersecting climate-related risks disproportionately affect women and children. Globally, women and children are estimated to be up to 14 times more likely than men to die during climate-related disasters, largely due to socially constructed roles that limit mobility, access to information, and control over resources.<sup>251</sup> In the ASEAN region, women remain more likely than men to experience poverty in their prime reproductive years and to shoulder the burdens of water, food, and energy insecurity.<sup>252</sup> Climate change exacerbates these pre-existing vulnerabilities by intensifying environmental stress, worsening inequalities, and limiting women's access to decision-making and adaptive resources, particularly since they rely heavily on natural resources for their livelihood.

Women's disproportionate responsibility for sustaining their households; fetching water, securing food, caring for children and the elderly, means that when climate impacts increase workload and reduce access to key resources, women's burden grow substantially. Girls, in particular, may be pulled from school to help their families cope with worsening conditions, reinforcing cycles of inequality

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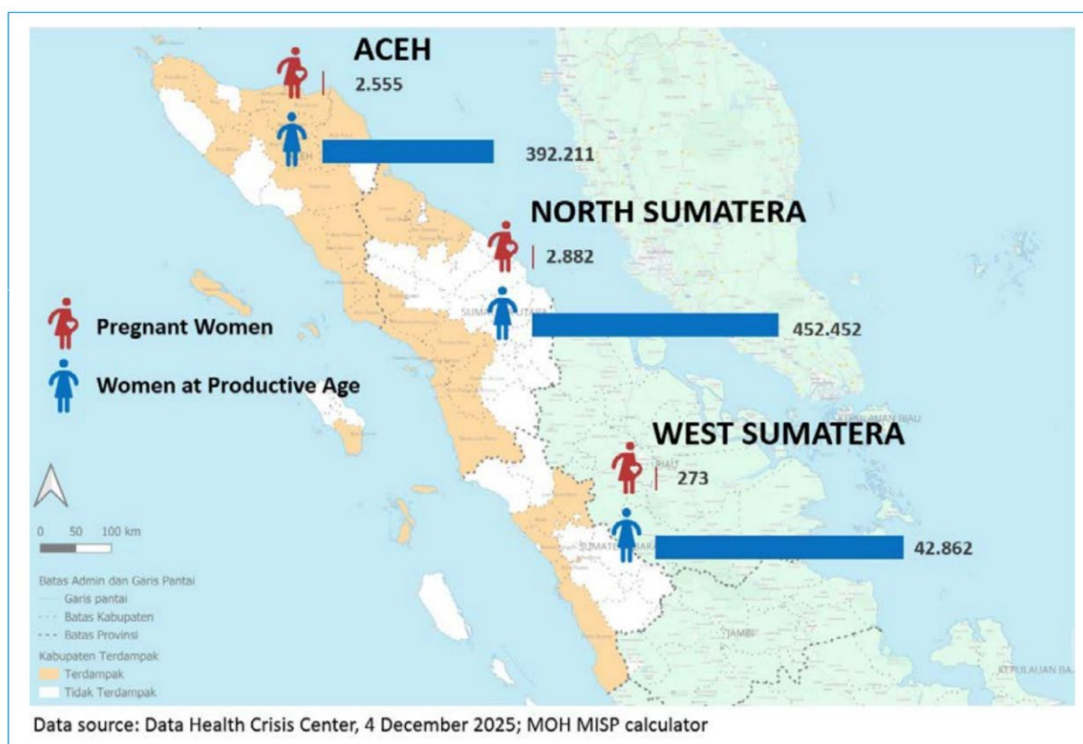
<sup>251</sup> United Nations, "Why women are key to climate action," accessed 24 December 2025, <https://www.un.org/en/climatechange/science/climate-issues/women>.

<sup>252</sup> UN Women, "ASEAN Gender Outlook 2024 highlights climate change threats to women and girls in Southeast Asia, a warning sign for other regions," 27 September 2024, <https://www.unwomen.org/en/news-stories/press-release/2024/09/asean-gender-outlook-2024-highlights-climate-change-threats-to-women-and-girls-in-southeast-asia-a-warning-sign-for-other-regions>.

and limiting long-term empowerment.<sup>253</sup> Despite these realities, women are widely absent from regional and international climate and peace negotiations.

Indonesia provides a pertinent example to this challenge. During the recent Cyclone Senyar which has caused flooding and landslides in Sumatra, the limited availability of sex-, age-, and disability-disaggregated data (SADDD) significantly constrained the ability of responders to design and deliver targeted and appropriate assistance for affected populations with differing needs. Nevertheless, available visual data indicated that women were disproportionately impacted and required urgent, gender-responsive interventions.<sup>254</sup> This pattern aligns with data reported by Indonesia's National Agency for Disaster Management (Badan Nasional Penanggulangan Bencana, BNPB), which indicate that women account for approximately 60–70 per cent of disaster survivors nationwide.<sup>255</sup>

**Figure 10. Disaster-affected Women in Sumatra, Indonesia<sup>256</sup>**



Although initial government assistance, including food and medical supplies, was provided, critical gaps persisted in the provision of adequate shelter, clothing, clean water, and sanitation, particularly for women. Displacement patterns further revealed a higher proportion of women in emergency shelters, raising serious concerns regarding safety and privacy, especially for breastfeeding

<sup>253</sup> UNICEF, “Tackling gender inequality in a climate-changed world,” 22 May 2024. <https://www.unicef.org/blog/tackling-gender-inequality-climate-changed-world>.

<sup>254</sup> Government of Indonesia, Indonesian Society for Disaster Management, UN Women, and United Nations Population Fund, “Gender Alert No.1: Critical Gender and Protection Needs in the Sumatra Emergency,” *ReliefWeb*, 11 December 2025, <https://reliefweb.int/report/indonesia/gender-alert-no-1-critical-gender-and-protection-needs-sumatra-emergency>

<sup>255</sup> *Ibid.*

<sup>256</sup> *Ibid.*

mothers.<sup>257</sup> Preliminary estimates indicate that those affected included approximately 107,500 pregnant women, 108,000 breastfeeding mothers, 106,000 infants, 426,000 toddlers, 496,000 older persons, and 13,000 persons with disabilities, with Aceh accounting for 93 percent of reported cases.<sup>258</sup>

Vietnam provides a particularly illustrative example of how social norms influence climate change responses. Following frequent and extreme flooding that damaged and forced the closure of schools, boys were prioritised over girls when schools reopened, reflecting entrenched gender norms that affect unequal recovery outcomes.<sup>259</sup> At the same time, contrary to common assumptions about women's roles in Southeast Asia, Vietnam demonstrates that women's pre-existing disadvantages arise not from economic inactivity, but from gendered norms that structure unequal roles and expectations.

The Country Gender Assessment of Agriculture and the Rural Sector in Vietnam by the Food and Agriculture Organization (FAO) shows that women comprise 63 per cent of the rural labour force, compared to 57.5 per cent of working men, and are predominantly engaged in subsistence farming, fisheries, and small-scale agricultural activities.<sup>260</sup> Women's heavy involvement in agriculture is intensified by their disproportionate share of unpaid care work, with 22 per cent performing unpaid family labour compared to 10.4 per cent of men.<sup>261</sup> Together, these intersecting productive and reproductive roles increase women's exposure to climate shocks and constrain their ability to recover on equal terms.

## 2.6.2 Climate Change and Gender-based Violence

Gender-based violence (GBV) remains one of the most pervasive and underreported global crises. The interaction between climate change and gender inequality is also evident in the domain of GBV, where climate-related impacts can further intensify existing risks. When climate shocks disrupt livelihoods, displace populations, and place additional strain on household economies, the incidence of GBV tends to increase. For example, one study reported a 28 percent rise in femicide during periods of extreme heat.<sup>262</sup> Climate-related disasters, such as Typhoon Yagi, similarly exacerbate the risk of gender-based violence, as women face heightened caregiving responsibilities alongside economic losses.<sup>263</sup>

Several factors help explain the increase in sexual violence in the aftermath of disasters. Vulnerable groups are often left behind as others seek safety, increasing their exposure to harm. Post-

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<sup>257</sup> Maretha Uli and Apriadi Gunawan, "Women bear brunt of Sumatra floods as basic needs remain unmet," *The Jakarta Post*, 13 December 2025, <https://www.thejakartapost.com/indonesia/2025/12/13/women-bear-brunt-of-sumatra-floods-as-basic-needs-remain-unmet.html>.

<sup>258</sup> Ibid.

<sup>259</sup> Plan International, "Gender-sensitive flood response in Quang Tri, Vietnam," 28 March 2024, <https://plan-international.org/vietnam-en/news/2024/03/28/gender-sensitive-flood-response-in-quang-tri-vietnam/>.

<sup>260</sup> United Nations, "Viet Nam: Typhoon Yagi and Floods – Situation Thematic Update No. 1: Gender and Protection," 23 October 2024, <https://vietnam.un.org/en/281976-viet-nam-typhoon-yagi-and-floods-situation-thematic-update-no1-gender-and-protection>.

<sup>261</sup> Ibid.

<sup>262</sup> Laura Quinones, "Climate crisis driving surge in gender-based violence, UN study finds," *United Nations*, 22 April 2025, <https://news.un.org/en/story/2025/04/1162461>.

<sup>263</sup> UNFPA, "I Thought I'd Lost Everything: A Woman's Journey to Rebuild After Typhoon Yagi," 13 February 2025, <https://vietnam.unfpa.org/en/news/i-thought-id-lost-everything%E2%80%9D-womans-journey-rebuild-after-typhoon-yagi>.

disaster shelters are frequently overcrowded, placing at-risk populations in close proximity to potential perpetrators. Widespread stress and trauma within affected communities can further drive aggressive behaviour and attempts to exert control over others, while chaotic post-disaster conditions create opportunities for violence to occur. Emergencies also severely strain or dismantle basic protective resources and services, weakening safeguards against sexual violence.<sup>264</sup>

In humanitarian settings and displacement camps, we see these risks further amplified, as women and girls often face heightened threats of sexual violence, exploitation, and trafficking when traditional protection systems are weakened. The World Health Organization (WHO) has reported instances in which women and child refugees have been coerced into sexual exploitation in exchange for food or shelter,<sup>265</sup> sometimes resulting in unintended pregnancies, including among adolescents, with longer-term implications for women's health, education, and socio-economic participation.<sup>266</sup>

### 2.6.3 Gaps in Gender-Sensitive Climate Action

As mentioned in the previous section, despite growing international recognition of the gendered dimensions of climate change, peace, and security, persistent and substantive gaps remain in the integration of gender sensitivity across climate adaptation and peacebuilding frameworks globally and in Southeast Asia. These gaps are evident in policy priorities, institutional capacity, data systems, financing mechanisms, and opportunities for meaningful participation, with concrete consequences for both the effectiveness of responses and the equitable distribution of benefits and protections.

Within ASEAN and national climate frameworks, women's representation in key climate and security ministries remains low and their perspective on adaptation and resilience are frequently marginalised.<sup>267</sup> This exclusion is not just a matter of fairness; it undermines the effectiveness of responses. Gender-differentiated knowledge such as women's deep understanding of local ecosystems and informal support networks, offers critical insights for crafting resilient, inclusive solutions, yet these insights often go unheard.

#### Policy and Institutional Gaps

One of the most significant barriers to gender-responsive climate adaptation and peacebuilding is the limited integration of gender priorities into national climate strategies. While many Southeast Asian countries have adopted Nationally Determined Contributions (NDCs) and national climate adaptation plans in line with the Paris Agreement, gender considerations are often included only as high-level commitments without operational mechanisms or accountability structures. A 2023 UN Women analysis found that, although over 80% of countries globally include gender in their NDCs, only a

<sup>264</sup> T Aryanti and A Muhlis, "Disaster, gender, and space: Spatial vulnerability in post-disaster shelters," *IOP Conference Series: Earth and Environmental Science* (447), 2020, <https://iopscience.iop.org/article/10.1088/1755-1315/447/1/012012/pdf>.

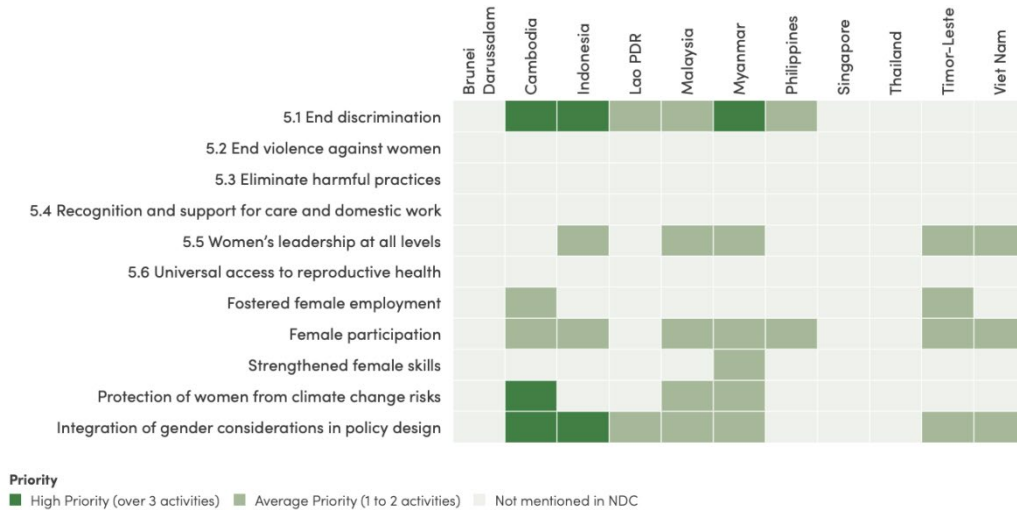
<sup>265</sup> Ibid.

<sup>266</sup> UN Women, "Gendered Impacts of Climate Change: Empirical Evidence from Asia," 20 April 2023, <https://data.unwomen.org/publications/gendered-impacts-climate-change-evidence-asia>.

<sup>267</sup> UN Women, "ASEAN Gender Outlook 2024."

minority demonstrate meaningful gender integration in implementation frameworks and monitoring indicators.<sup>268</sup> In Southeast Asia, as illustrated in Figure 11, three countries, Brunei Darussalam, Singapore, and Thailand, do not include explicit references to gender equality in their NDCs.<sup>269</sup>

**Figure 11. Prioritisation of Gender Equality Goals in Nationally Determined Contributions (NDCs) for 2023<sup>270</sup>**



Policy fragmentation also remains prevalent in the region. Climate policies tend to be developed by environment or development ministries, while gender equality and WPS policies fall under separate social or women’s affairs ministries. This separation often results in parallel strategies with weak coordination, leaving gender considerations insufficiently mainstreamed into core climate adaptation and disaster risk reduction (DRR) planning. For instance, only a limited number of ASEAN member states have explicit provisions that systematically link gender priorities with climate adaptation outcomes in national legislation or institutional mandates.

<sup>268</sup> United Nations Framework Convention on Climate Change, “Technical Guide on Integrating Gender into Nationally Determined Contributions and Long-Term Low-Emission Development Strategies,” June 2025, [https://unfccc.int/sites/default/files/resource/Technical\\_Guide\\_on\\_Integrating\\_Gender\\_into\\_NDCs\\_and\\_LT-LEDS.pdf](https://unfccc.int/sites/default/files/resource/Technical_Guide_on_Integrating_Gender_into_NDCs_and_LT-LEDS.pdf).

<sup>269</sup> UN Women, “ASEAN Gender Outlook 2024.”

<sup>270</sup> UN Women, “ASEAN Gender Outlook 2024.”

**Table 8. Climate Policy Documents in ASEAN Member States<sup>271</sup>**

Countries	Gender-Inclusive Climate Policy	Area(s) with Gender Mentioned	Policy Documents
<b>Brunei Darussalam</b>	Limited to no gender reference	None	Brunei Darussalam Nationally Determined Contribution (NDC) to the UNFCCC 2020
<b>Cambodia</b>	Gender-responsive	Climate change, sex and gender-based violence, agricultural, forestry, fishery	Cambodia's Updated NDC 2020
<b>Indonesia</b>	Gender-responsive	Sex and gender-based violence	Indonesia's Second National Action Plan for Protection and Empowerment of Women and Children in Social Conflict (2020-2025), <sup>272</sup> Updated NDC Republic of Indonesia 2021
<b>Lao PDR</b>	Close to gender-responsive	Public health, climate change (in revision)	Lao PDR's NDC 2021
<b>Malaysia</b>	Gender-responsive	DRR, climate change, pandemics, cyber insecurity, trafficking in persons, violent extremism and sexual and gender-based violence	National Action Plan on Women, Peace and Security 2025-2030, <sup>273</sup> Malaysia's Update of its First NDC 2021
<b>Myanmar</b>	Gender-responsive	DRR and agriculture	Myanmar's NDC 2021
<b>Philippines</b>	Close to Gender-transformative	DRR, climate security, health security, sex and gender-based violence, human rights, transnational justice, and digital peace and security	The Fourth Generation National Action Plan on Women, Peace and Security, <sup>274</sup> NDC Communicated to the UNFCCC 2021
<b>Singapore</b>	Limited to no gender reference	None	Singapore Update of its First NDC and Accompanying Information 2020
<b>Thailand</b>	Gender-responsive	Sex and gender-based violence	National Action Plan for Women, Peace and Security 2568-2570, <sup>275</sup> Thailand's Updated NDC 2020
<b>Timor-Leste</b>	Close to gender-transformative	DRR, cybersecurity, sex and gender-based violence, health security	National Action Plan 1325 on Women, Peace and Security (NAP 1325), <sup>276</sup> Timor Leste's Updated NDC 2022
<b>Vietnam</b>	Gender-responsive	Sex and gender-based violence	National Action Plan on Women, Peace and Security 2024-2030, <sup>277</sup> Updated NDC 2020

<sup>271</sup> Jenny Yi-Chen Han, et al., "State of Gender Equality and Climate Change in ASEAN," *ASEAN*, 2022, [https://asean.org/wp-content/uploads/2022/08/State-of-Gender-Equality-and-Climate-Change-in-ASEAN\\_FINAL-1.pdf](https://asean.org/wp-content/uploads/2022/08/State-of-Gender-Equality-and-Climate-Change-in-ASEAN_FINAL-1.pdf); UN Women, "National Action Plans: Women, Peace and Security," accessed 2 February 2026, <https://asiapacific.unwomen.org/en/focus-areas/peace-and-security/national-action-plans>.

<sup>272</sup> The Republic of Indonesia, "Coordinating Minister for Human Development and Cultures Regulation Number 5 of 2021 Concerning National Action Plan for Protection and Empowerment of Women and Children in Social Conflicts for 2020-2025," accessed 2 February 2026, [https://asiapacific.unwomen.org/sites/default/files/2024-08/permenko-pmk5-tahun-2021-ttg-ran-p3aks\\_english-version.pdf](https://asiapacific.unwomen.org/sites/default/files/2024-08/permenko-pmk5-tahun-2021-ttg-ran-p3aks_english-version.pdf).

<sup>273</sup> Ministry of Women, Family and Community Development, "National Action Plan on Women, Peace and Security 2025-2030," accessed 2 February 2026, <https://asiapacific.unwomen.org/sites/default/files/2025-10/malaysia-national-action-plan-on-women-peace-and-security2-b.pdf>.

<sup>274</sup> Office of the Presidential Adviser on Peace, Reconciliation and Unity, "Philippine National Action Plan on Women, Peace and Security 2023-2033," accessed 2 February 2026.

<sup>275</sup> Office of Women's Affairs and Family Development, "แผนปฏิบัติการด้านสตรี สันติภาพ และความมั่นคง คท (พ.ศ. 2568-2570)," accessed 2 February 2026, <https://www.dwf.go.th/storage/91175/b59e7c85-b3b2-4ea6-bd00-7d21f3a6bf89-document-16363.pdf>.

<sup>276</sup> UN Women, "National Action Plan United Nations Security Council Resolution 1325 (2000) on Women, Peace and Security (2024-2028)," accessed 2 February 2026, <https://asiapacific.unwomen.org/en/digital-library/publications/2024/02/nap-uns-1325-2024-2028/>.

<sup>277</sup> Socialist Republic of Vietnam, "Quyết định số 101/QĐ-TTg của Thủ tướng Chính phủ: Phê duyệt Chương trình hành động quốc gia về Phụ nữ, hòa bình và an ninh giai đoạn 2024 - 2030," 25 January 2024, <https://vanban.chinhphu.vn/?pageid=27160&docid=209603>.

Note: **Limited to no gender reference:** contains minimal or no engagement with gender issues and lacks explicit consideration of gender norms, discrimination, and inequalities; **Gender-responsive:** recognises and addresses gender-specific needs shaped by existing norms and inequalities; **Gender-transformative:** seeks to challenge and change the structural factors that produce and sustain gender inequality.<sup>278</sup>

Additionally, peacebuilding frameworks frequently overlook climate dimensions, and vice versa. Several Southeast Asian governments have developed National Action Plans (NAPs) on Women, Peace, and Security to operationalise gender and peace priorities. Yet few NAPs incorporate climate change as a distinct factor in their risk assessments, strategic objectives, or resourcing plans. This oversight signals a critical disconnect: while climate change is recognised as a threat multiplier in many regional security dialogues, it remains tangential in gender-peace frameworks, reducing opportunities for coordination action.

### Data and Evidence Gaps

Effective gender-responsive adaptation and peacebuilding require robust evidence on how climate impacts intersect with gendered risk factors and capacities. Yet significant data gaps persist. Sex-disaggregated data are often unavailable or inconsistent in national reporting systems, particularly regarding climate impacts, displacement, livelihoods, and security outcomes. The absence of SADDD undermines the ability to identify which groups are most affected and to tailor interventions accordingly.

At the regional level, there are few systematic efforts to harmonise gendered climate data across countries, limiting comparative analysis and regional learning. Global mechanisms, such as the UNFCCC gender action plan, call for improved data collection and analysis, but implementation at the national and subnational levels remains uneven. Without reliable gendered climate indicators, policymakers are often forced to rely on proxy or anecdotal evidence when designing adaptation interventions, which weakens the evidence base for planning and limits accountability.

### Participation and Leadership Gaps

A third critical gap is the underrepresentation of women in decision-making spaces related to climate adaptation and peacebuilding. Decision-making bodies at local, national, and regional levels including climate councils, DRR platforms, and security task forces, continue to be male dominated. In many ASEAN member states, women occupy a significantly lower share of leadership positions in ministries responsible for environment, natural resources, disaster management, and defence. While exact figures vary by country, findings from the Global Gender Gap Report 2024 indicate that women's representation

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<sup>278</sup> Jenny Yi-Chen Han, et al., "State of Gender Equality and Climate Change in ASEAN," ASEAN, 2022, [https://asean.org/wp-content/uploads/2022/08/State-of-Gender-Equality-and-Climate-Change-in-ASEAN\\_FINAL-1.pdf](https://asean.org/wp-content/uploads/2022/08/State-of-Gender-Equality-and-Climate-Change-in-ASEAN_FINAL-1.pdf).

in environmental decision-making bodies remains below parity globally, a trend reflected in Southeast Asia.<sup>279</sup>

Underrepresentation limits the diversity of perspectives in policy debates and constrains the inclusion of gender-responsive solutions. Women’s experiential knowledge such as local coping strategies, informal support networks, and community-based early warning systems, is rarely integrated into formal planning processes. This weakens policy design and reinforces the perception that climate adaptation and security are technical or sectoral issues rather than social and political ones. Meaningful participation also requires more than numerical representation; it demands that women from diverse backgrounds, including marginalised and Indigenous communities, have genuine influence in agenda-setting and resource allocation, not merely token seats at the table.

### Implementation and Accountability Gaps

Finally, there are significant gaps in implementation and accountability mechanisms for gender-sensitive adaptation and peacebuilding. Even when gender commitments are articulated in national strategies or regional frameworks, there is often no clear roadmap for translation into action or mechanisms for tracking progress. Monitoring frameworks may lack gender indicators, and reporting cycles may not require disaggregation of outcomes by sex, age, or other relevant categories. Without such systems, it is difficult to assess whether policies are delivering real improvements in women’s resilience, leadership, or protection.

Accountability mechanisms such as parliamentary oversight, civil society monitoring, and public reporting are also weak in many contexts. This allows gender priorities to be sidelined when competing political interests or crises emerge. For example, in disaster response, gender checklists may be developed, but there are few consequences when they are not applied in practice. Similarly, National Action Plans on WPS may lack enforcement provisions, reducing incentives for ministries to integrate their objectives into operational planning.

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<sup>279</sup> World Economic Forum, “Global Gender Gap 2024,” *Insight Report*, June 2024. [https://www.weforum.org/publications/global-gender-gap-report-2024/in-full/key-findings-e7709cd964/?gad\\_source=1&gad\\_campaignid=22228224717&gbraid=0AAAAoVy5F4mLofKliv74J8JYFWfSSFB0&gclid=Cj0KCQiA-YvMBhDtARIsAHZuUzIWPX6iyiEW\\_GcaGTrsH5dVXUaGUshM7sSK5DCU5bfu4n-8kKUOEhgaAg4sEALw\\_wcB](https://www.weforum.org/publications/global-gender-gap-report-2024/in-full/key-findings-e7709cd964/?gad_source=1&gad_campaignid=22228224717&gbraid=0AAAAoVy5F4mLofKliv74J8JYFWfSSFB0&gclid=Cj0KCQiA-YvMBhDtARIsAHZuUzIWPX6iyiEW_GcaGTrsH5dVXUaGUshM7sSK5DCU5bfu4n-8kKUOEhgaAg4sEALw_wcB).

## Potential Future Scenarios

The following scenarios illustrate how climate impacts intersect with informal social systems to shape community resilience and stability in Southeast Asia. They highlight the often-overlooked roles played by women in absorbing shocks and sustaining peace, while also revealing the limits of these mechanisms under intensifying climate stress.

### **Scenario 1: Women’s Livelihoods Become Informal “Shock Absorber” to Ensure Community Stability**

In many communities in Southeast Asia, household income is suddenly lost when climate impacts such as floods, droughts, or heatwaves disrupt farming, fishing, or wage labour. Formal safety nets are often slow, limited, or even absent. In this event, women’s informal livelihoods quietly absorb the impact of the shock, much like a shock absorber in a vehicle reduces the force of a bump. This can look like women taking on small food businesses when crops fail; processing and selling dried fish, or home-grown produce after disasters; or using savings groups or rotating credit schemes to keep household afloat. These activities rarely make households better off, but they prevent sudden collapse such as hunger, forced migration or conflict over money.

Because these coping strategies are informal and often invisible to policymakers, they are fragile. A flood that wipes out market access, a heatwave that reduces food supply, or repeated disasters can quickly overwhelm women’s capacity to cope. When this happens, tensions rise; first within households, then between families competing for work, aid, and resources.

From a peace and security perspective, this matters because many conflicts do not begin with violence, but with prolonged economic stress. Women’s livelihood delay or reduce that stress, buying time for recovery and maintaining social stability. When these informal “shock absorbers” fail, communities become more exposed to unrest, exploitation, displacement, and conflict.

### **Scenario 2: Women-led Local Mediation Weakens under Repeated Climate Stress**

In rural or peri-urban areas, everyday disputes are very unlikely to be resolved through courts or police, but through informal negotiation. Women often play a central role in this process because they are seen as socially connected, trusted, and less threatening. Mediating disputes over communal resources, negotiating tensions after aid distribution, and acting as intermediaries between households and local leaders are some notable examples on how women have led mediation strategies in the region. These mediation roles, again, are rarely formalised, unpaid, and often invisible, but they are critical to preventing small disputes from escalating into bigger conflict, especially after climate-related events.

As climate shocks become more frequent, however, these informal peacebuilding roles are stretched thin. Repeated disasters reduce available resources and increase competition, making mediation more difficult and less effective. When women mediators lose influence or legitimacy due to exhaustion or exclusion from formal decision-making, unresolved disputes can accumulate. This erosion of local conflict-management capacity demonstrates how climate stress can gradually undermine peace from the ground up.

### 3. PATHWAYS FOR PEACEBUILDING AND CPS ACTIONS IN SOUTHEAST ASIA

Climate change is increasingly reshaping the peace and security landscape in Southeast Asia, interacting with existing political, social and environmental stressors to heighten the risk of resource-related tensions and localised conflict. In this context, climate action cannot be treated as a purely environmental or technical issue. Rather, it should be understood as a core peacebuilding and conflict prevention challenge requiring coordinated responses at the regional, national and local levels. ASEAN and its member states are therefore at a critical juncture in translating existing peace and security architectures into mechanisms that can effectively address climate-related risks.

Effective pathways forward will depend on clearly identifying and empowering key stakeholders across multiple levels of governance. Regional institutions, national ministries, local authorities, civil society organisations, women's groups and Indigenous communities each play distinct yet complementary roles in addressing the climate–peace–security nexus. Ensuring coordination among these actors is essential to advancing conflict-sensitive climate action and adaptation strategies that reduce marginalisation without exacerbating existing inequalities or grievances.

While ASEAN and its member states have made progress through sectoral initiatives and dialogue platforms, significant gaps remain. The evolving nature of climate-related security risks raises questions about whether existing policy frameworks and institutional mechanisms are sufficient, or whether new approaches are needed to better integrate climate, peace and security objectives. This section therefore outlines key recommendations to strengthen conflict-sensitive climate action, enhance conflict prevention, and advance regional and national policy frameworks that support sustainable peace and comprehensive security in Southeast Asia.

#### 3.1 Adopt Policy Frameworks and Strategies on Linking Peacebuilding and Climate Actions

At the regional level, ASEAN policymakers should urgently begin concrete initiatives to address CPS risks at the system level. It will require strong political will, consistent funding and the foresight to develop anticipatory approaches to tackling climate-related security risks in Southeast Asia. ASEAN institutions on peace and security, including the ASEAN Institute for Peace and Reconciliation (ASEAN-IPR), ASEAN Commission on the Promotion and Protection of the Rights of Women and Children (ACWC), ASEAN Intergovernmental Commission on Human Rights (AICHR) and the ASEAN Coordinating Centre for Humanitarian Assistance on disaster management (AHA Centre), could help reimagine a regional approach to conflict prevention and peacebuilding, including through policy frameworks to address climate change and conflict prevention and resolution. ASEAN member states can consider boosting the mandate and capacity of these institutions to mainstream climate

change, peace and security assessments and identify potential security risks emanating from climate-induced crises and challenges.

Furthermore, ASEAN could consider establishing institutionalised regional mechanisms, such as the formation of a CPS Expert Group, that serve as platforms for climate, development, humanitarian, and security experts to engage systematically with one another, helping to break down silos. Such Group could be modelled on the ASEAN Regional Forum (ARF) Group of Experts, a specialised working group within the ARF that focuses on security issues, confidence-building measures, and cooperative initiatives among member states. This could be supported through stronger coordination across ASEAN's three Community pillars, integrating climate-related security risks and opportunities for peace into regional peace and stability discourses. ASEAN's existing peacebuilding and conflict prevention frameworks, alongside national and Indigenous mediation practices, provide an important foundation for mitigating climate-related conflicts.

At the national level, states can advance the agenda through incorporating climate adaptation and mitigation measures into all existing and future peacebuilding efforts. With climate change presenting an active threat to various human needs, including water, food, health, and overall livelihood security, these risks must be appropriately and proactively identified and addressed to build climate-resilient livelihoods, while ensuring that adaptation policies are inclusive and participatory. When climate responses address inequalities and enhance community resilience, they can help reduce the risk that environmental pressures translate into social unrest or political instability. Conversely, poorly designed or unevenly implemented climate policies may inadvertently reinforce existing grievances.

Community engagement and ownership are critical. CPS measures must be crafted and implemented *with*, not for, local, vulnerable communities. Participatory CPS governance that involves Indigenous peoples, women, youth and marginalised groups produce impactful and sustainable outcomes. Local-aware solutions entail strong communication with local actors, context-sensitive approaches, and utilising local knowledge and leadership in building climate-resilient communities. This will ensure that CPS initiatives are suitable to the capacities, needs and interests of local populations.<sup>280</sup>

Countries facing protracted internal conflicts can consider national action plans and strategies aimed at strengthening climate resilience among conflict-prone communities and marginalised groups. A stable transition to peace necessitates a comprehensive approach which limits issues relating to inter-related aspects of water, food, health, economic and livelihood insecurities. Participatory approaches that engage both former combatants and local communities in resource management and which show foresight to climate impacts thus constitutes a key pillar to peacebuilding. Community-based mediation and arbitration mechanisms, drawing on Indigenous knowledge and practices, grassroots leaders, local officials, and other community representatives can mitigate social tensions while building local resilience. Accordingly, state agencies, in collaboration with humanitarian and development

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<sup>280</sup> United Nations Development Programme, *From crisis to resilience*.

organisations, should integrate climate change and peacebuilding objectives into local climate action and resilience-building efforts in conflict-affected settings.

Leveraging climate adaptation measures, disaster risk reduction, environmental protection initiatives, and sustainable resource management projects as peacebuilding entry points can help rebuild trust and relationships among competing actors—such as between the state and ethnic minority groups, or among different ethnic communities—while strengthening social cohesion and long-term stability. Acknowledging the complex interplay between climate change stressors and existing insecurities at the community level is a crucial step towards adopting comprehensive strategies that promote social stability, cohesion, the rule of law, and climate resilience in conflict-affected settings. Integrated approaches that address both climate change adaptation and the underlying drivers of conflict offer a pathway to mitigating overlapping climate and conflict risk factors. Policies should institutionalise inclusive and conflict-sensitive decision-making mechanisms to broaden the participation of vulnerable groups, particularly smallholder farmers and fisherfolk, Indigenous Peoples, internally displaced persons (IDPs), women, and youth.

### 3.2 Institutionalise Water Management as a Tool for Peace and Multi-level Cooperation

Water insecurity does not solely constitute a threat to peace and security; Southeast Asia must instead utilise water management as peacebuilding mechanism. Scholars and think tanks alike, in addition to the UN and ASEAN,<sup>281</sup> have emphasised the potential of water diplomacy as a tool for peace and cooperation, noting that increased interactions over water management strengthens conditions for stability and long-lasting peace on domestic and inter-state levels.<sup>282 283</sup>

In the Mekong River and across Southeast Asia, institutionalised water management frameworks must strive to move beyond a state-centric focus towards inclusive, multi-stakeholder engagement. A re-directed primary attention towards ecological and livelihood preservation, including through multinational projects, allows water management to function as confidence-building measure, helping address existing trust deficits. These engagements would help harmonise interstate relations while simultaneously ease existing tensions arising between local communities and state actions.

Through improved connectivity between involved actors and through its existing comprehensive technical knowledge, the MRC should prioritise improving transparency and communication channels to affected communities through enhanced information sharing about dam and climate risks, with preparation and capacity-building for both sudden-onset and slow-onset climate events. Transparency can also be enhanced through implementing mandatory community consultation

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<sup>281</sup> Global Water Partnership Southeast Asia (GWP), “Fostering Water Diplomacy: Advancing ASEAN’s Regional Water Security Agenda,” 25 February 2025, <https://www.gwp.org/en/GWP-South-East-Asia/WE-ACT/keep-updated/News-and-Activities/2025/fostering-water-diplomacy-advancing-aseans-regional-water-security-agenda/>.

<sup>282</sup> Tobias Ide, and Adrien Detges, “International water cooperation and environmental peacemaking,” *Global Environmental Politics* 18, no. 4 (2018): 63-84.

<sup>283</sup> Lynette de Silva, and Aaron T. Wolf, “Water as a Source of Cooperation,” In *Routledge Handbook of Water Diplomacy*, pp. 108-115, Routledge, 2025.

outcome documents accessible to the public, while community voices can be lifted through requiring member states to nominate civil society representatives as part of their national Mekong committees. These advancements would allow the MRC, through continued cooperation with ASEAN, to share a guiding framework for further institutionalised frameworks in the region while emphasising peacebuilding.

ASEAN carries potential to play a central role for water governance in Southeast Asia, where it should work towards exploring and identifying the concept and practice of water diplomacy as a means for reducing and preventing tensions. Crucially, it should strive to update the 2005 ASPA-WRM with further integration of these provisions into the existing IWRM framework, guided by the WEF nexus to comprehensively address inter-related risks arising from climate change. Key priorities should include continued multi-stakeholder engagement through forums and workshops, and the creation of a region-wide water database for enhanced information-sharing and monitoring over climate change, hydropower projects, and water releases. Moreover, with both the IWRM framework and the ASEAN-IPR, ASEAN must seek to move beyond handling water management not only as a socio-cultural issue, but also as a challenge inherently tied to political-security matters. These measures would allow ASEAN to take leadership in promoting water diplomacy and increase engagement with risks interplaying with livelihoods, ecosystems, and political dynamics.

In its engagement with member states, ASEAN should strive to follow a two-pronged approach. First, it should aim to promote a standardised water management system for members to follow. Through the existing expertise found through the ASEAN Working Group on Water Resources Management (AWGWRM), encouraging states to identify national governance bodies for water resource management would address existing fragmented water governance systems found among states in the region. To assist, progress can be monitored through encouraging states to submit National Action Plans, detailing measures which address community impacts of floodings and droughts.

Secondly, ASEAN must ensure that its people-centred vision is translated into local measures which addresses existing and intensifying water stresses on local levels. As part of the regional standardisation of water governance, ASEAN should be a vocal proponent in encouraging member states to implement mandatory community consultation in dam planning and water allocation, and to implement forums for communication to ease community concerns. Through this dual approach, Southeast Asia's collective readiness would be significantly strengthened, enabling water resources to function as pathway towards peace.

### **3.3 Develop Inclusive, Transparent and Accountable Natural Resource Management Systems**

Intensified climate-related stressors and responses are driving growing resource competition in Southeast Asia, particularly in sectors such as IUU fishing and rapidly developing critical minerals.

While these are distinct challenges, coordinated efforts to prevent illegal and unsustainable practices in both sectors can help the region move from rising tensions toward cooperative solutions.

ASEAN member states should strive to improve roadmaps identifying climate trends, environmental degradation, and its ecological, economic, and socio-political effects on local communities. These roadmaps should feed into national risk assessments to inform economic development planning, natural resource management, and security strategies, ensuring that policy responses are anticipatory, coordinated, and context-specific.

Within critical mining, provisions tied to FPIC and benefit-sharing need expanding and full implementation, filling existing gaps. While partially covered under the current ASEAN Minerals Cooperation Action Plan 2026-2030 (AMCAP-IV), enhanced independent monitoring and consultation with local communities is crucial to avoid malpractice and reporting deficits. Across all affected sectors, improved consultation with local communities is needed, where inclusive workshops and, where needed, mediation efforts sensitive to local contexts would help identify and respond to security risks prior to conflict escalation. Finally, where unavoidable, local communities must be provided with comprehensive re-skilling and relocation support to curb tensions emerging from local grievances, as well as risks tied to increased economic shortages, unemployment, and forced migration.

Undeniably, community-level engagement is essential for responsible critical resource development. Clear values are therefore essential to guide community engagement strategies in resource development. Genuine public participation in decision-making and resource management should be embedded throughout project conceptualisation and implementation. Strong accountability and transparency mechanisms can enable communities to monitor how fiscal revenues are managed and invested, helping to build trust and reduce grievances against the state. At the same time, robust environmental protection policies are needed to prevent undue damage to the ecosystems on which communities depend. In addition, it is critical to deal with and overcome structural inequalities by actively engaging marginalised sectors, including ethnic minorities, women and the youth. Adopting such inclusive approaches can help mitigate and prevent grievances related to resource extraction policies. Collectively, these principles prioritise inclusive and fair processes over predetermined outcomes, ensuring that Indigenous stakeholders are genuinely engaged and have ownership over the direction of processes that affect them.<sup>284</sup>

While multiple actors drive resource competition, CPS risks most centrally affect individuals whose livelihoods are in proximity to unsustainable resource extraction and its side-effects. By polling interdisciplinary expertise ranging from environmental studies and geospatial analysis to regional peacebuilding institutions like the ASEAN-IPR, it is possible to reverse trends that currently create tensions at local levels.

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<sup>284</sup> Mely Caballero-Anthony, "Communities matter to natural resources development," World Economic Forum, 13 June 2013, <https://www.weforum.org/stories/2013/06/communities-matter-to-natural-resources-development/>.

### 3.4 Reduce Security Risks by Enabling Safe Migration, Planned Movement, and Community Resilience

Building on proposals from international humanitarian institutions, ASEAN can adopt and institutionalise a regional humanitarian and protection framework covering affected populations forcibly displaced by climate change-induced disasters, conflicts, and other humanitarian crises. Within such a protection framework, ASEAN can establish a system in the region to monitor emerging tensions, systemic weaknesses and protection needs, contributing to the identification of sustainable solutions. A regional protection agenda for displaced people that respects the principle of non-refoulement, protects human rights and serves the shared interests of countries in the region could be one collective response of ASEAN to emerging climate, peace and security challenges.

Importantly, regional cooperation must directly address the climate change–human mobility–security nexus. Such cooperation can complement individual Member States’ responses to the complex challenges arising from this nexus. Recognising the diverse impacts of climate change and domestic migration patterns across Southeast Asia will therefore require equally diverse national policies and responses. ASEAN bodies and relevant national government agencies should work together to strengthen efforts to anticipate climate-related human mobility and associated security implications, while developing approaches that protect the rights of affected populations before, during, and after movement.

#### *For People on the Move (Mobile and Migrant Populations)*

For people already on the move in Southeast Asia—including climate-displaced persons, migrant workers, and those in transit—policies should prioritise access to financial, legal, and essential social services regardless of migration status. Governments and ASEAN mechanisms should strengthen safe and orderly migration pathways through clearer legal frameworks, bilateral labour agreements, and protections against exploitation, trafficking, and abuse. Planned relocation should be treated as a last-resort but necessary option in high-risk areas, guided by rights-based, consultative, and community-centred approaches. In parallel, expanding access to skills development, up-skilling, and re-skilling programmes will be critical to improve employability, reduce vulnerability in urban labour markets, and support migrants’ long-term economic security. Furthermore, important considerations for authorities and migrant protection agencies should include full consultation with all affected parties including prospective relocating, transit, and host communities, ensuring mitigation of potential grievances against migrant population.<sup>285</sup>

#### *For People Who Choose or Are Able to Move.*

For individuals and households considering migration as an adaptation strategy, decision-making should be supported by reliable data on the social, economic, and environmental impacts of both

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<sup>285</sup> ASEAN Secretariat, *ASEAN Migration*.

moving and staying. Governments should invest in data collection, early warning systems, and accessible information platforms to help households make informed mobility choices. At the same time, migration policies should align with the low-carbon transition by promoting green jobs and green skills development, enabling migrants to contribute to emerging sectors such as renewable energy, sustainable agriculture, and circular economy industries. This approach can help transform migration into a proactive adaptation strategy while supporting regional climate and development goals.

***For People Who Stay or Cannot Move.***

For those who are unable or choose not to migrate—often the poorest and most insecure—policies must focus on strengthening in-situ resilience through climate adaptation and mitigation measures. This includes investing in climate-resilient infrastructure, sustainable natural resource management, and disaster risk reduction at the local level. Developing alternative livelihoods and diversified income sources, particularly in climate-sensitive rural and coastal areas, is essential to reduce dependency on disadvantaged sectors. Improved access to data, market information, finance, and appropriate technologies can further empower communities to adapt locally, reduce forced displacement, and enhance long-term human security and social stability.

### **3.5 Treat Women as Key Political Stakeholders in Climate, Peace and Security Discussions, not Peripheral Beneficiaries**

Women should be included in peace and security discussions not simply because of normative commitments, but because they are both embedded within conflict dynamics and positioned to influence them. Women experience insecurity differently, often at the intersection of economic pressure, caregiving responsibilities, social expectations, and exposure to violence. These pressures steer how conflicts evolve at the household and community levels, influencing decisions related to displacement, coping strategies, and engagement with armed or political actors. Excluding women from security discussions therefore produces incomplete assessments of conflict drivers and risks reinforcing policies that fail to address everyday realities.

At the same time, women are not only passive victims of conflict; they are active political actors who can either mitigate or inadvertently sustain conflict dynamics. Women are central to social mobilisation, information dissemination and, and logistical support across state institutions, non-state actors, and informal governance systems. Ignoring these roles limits the effectiveness of peace and security strategies and blocks pathways through which violence can be normalised or resisted. Including women in discussions allows policymakers and practitioners to better understand how grievances circulate, how authority is perceived, and how narratives of legitimacy take hold at the local level.

Practically, inclusion should move beyond representation towards structured participation with influence. This means ensuring that women participating in peace and security dialogues are selected based on their social roles, networks, and knowledge, and that discussion formats allow them to speak

to security, governance, and resource allocation and not only “women’s issues.” It also requires follow-through, where women’s inputs are visibly reflected in policy decisions or programme design. Such an approach recognises women as both part of the problem and part of the solution, strengthening the analytical and practical foundations of peacebuilding efforts.

### 3.6 Enhance Early Warning and Conflict Prevention Mechanisms for CPS

Conflict prevention efforts often rely on formal indicators such as troop movements, political rhetoric, or economic shocks,<sup>286</sup> while overlooking early signals that emerge within households and communities. Non-governmental organizations (NGOs), faith-based organisations, media outlets, and youth networks are often at the frontline in monitoring these subtle changes, documenting grievances, facilitating dialogue, and raising awareness before they escalate into larger conflicts. By engaging these actors, conflict prevention strategies can become more proactive and responsive, capturing the nuanced social and environmental indicators that formal monitoring systems may miss.

Women are frequently among the first to observe changes in food availability, livelihood stress, social tensions, or shifts in behaviour linked to insecurity. These observations, generated by women’s economic and caregiving roles, provide valuable insight into how stressors accumulate before violence escalates. Incorporating women’s perspectives into early warning mechanisms can therefore improve the timeliness and accuracy of conflict prevention efforts.

To operationalise this, existing community-based monitoring or humanitarian response systems can be adapted to systematically integrate women’s assessments of risk and susceptibility. This does not require the creation of new institutions, but rather modest adjustments in data collection, reporting channels, and consultation practices to ensure women’s inputs are solicited and taken seriously. When women’s observations are treated as legitimate security information, early warning systems become more sensitive to everyday forms of instability that formal indicators may miss.

Crucially, recognising women’s roles in early warning should be paired with tangible response pathways. When women flag rising tensions or resource pressures, there must be clear mechanisms for escalation, support, and intervention. Otherwise, participation risks becoming extractive rather than empowering. Linking women’s insights to concrete preventive action not only enhances conflict mitigation, but also reinforces women’s credibility as security actors, embedding their participation within practical governance rather than symbolic inclusion.

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<sup>286</sup> K. V. Walraven, “Conflict Prevention and Early Warning in the Political Practice of International Organizations,” *GSDRC*, 1996, <https://gsdrc.org/document-library/conflict-prevention-and-early-warning-in-the-political-practice-of-international-organizations/>.

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