CLIMATE SECURITY IN MAINLAND SOUTHEAST ASIA: A SCENARIOS-BASED ASSESSMENT

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A satellite image of Nam Nao National Park and the surrounding regions in Phetchabun Province in northern Thailand.

Image courtesy Landsat/Copernicus via Google.
Introduction and Summary

The states of Mainland Southeast Asia—Burma, Cambodia, Laos, Thailand, and Vietnam—are extremely vulnerable to climate change impacts, owing to their geographic situation and heterogeneous levels of internal development. Regional populations are already experiencing the first order physical consequences of a changing climate, including an increased frequency of extreme weather events, higher mean temperatures, decreased weather predictability, and rising sea levels.

Beyond these immediately observable consequences, an array of cascading second order effects is likely to emerge over the coming years, as the region’s inhabitants are forced to cope with unstable agricultural conditions, declining freshwater availability, and increasing energy costs. The future of Mainland Southeast Asia’s development, as well as its overall stability and security, will be determined in large part by the vulnerabilities and resilience of its constituent states, as well as the willingness of governments in the region to work together and with global partners to mitigate climate risks before consequences are imminent and unavoidable.

This paper posits four “climate security scenarios” built on analyses of two key determinants of insecurity: state governance capacity and social and economic inequality.

The four hypothetical scenarios are as follows:

1. Paralyzed States, Vulnerable Populations: Little is done to address inequality or build state capacity amid growing environmental and climatic threats, and simultaneous crises lead to acute instability and insecurity at the regional level.
2. **Governing Against the Grain:** Governments with the resources to do so take steps to build capacity and prepare for climate challenges, but inequality—within and among states—remains unaddressed, exacerbating the situation of the most vulnerable when crises overwhelm state capacities.

3. **Growing Economies, Lagging Capacity:** Economic recovery helps reduce social and economic inequality, but regional policymakers fail to build state capacity to manage climate and environmental threats or enable regional cooperation, leaving sub-state communities to fend for themselves in the face of developing challenges.

4. **Building Resilience, Strengthening Communities:** Governments take steps to build state capacity to manage climate risks, while at the same time implementing policies to lessen inequality, so that when major crises emerge, communities are resilient to initial impacts and authorities more capable of acting quickly to address priority needs.
1. **Key Findings and Recommendations**

Through analysis of these four hypothetical scenarios, we have developed six key findings and recommendations for external stakeholders seeking to support climate resilience in states in the region:

1. Social and economic inequality within states can undermine initiatives to improve climate resilience, so external stakeholders should support policies aimed at improving economic security and mitigating inequality as part of their climate-focused efforts;

2. Climate risks are complex and transnational in nature, so diplomatic and security service cooperation—among states in the region and with global partners—will be critical to improving overall regional resilience;

3. Efforts should be made to coordinate cooperation on climate risk mitigation via ASEAN and other regional fora to help overcome the challenges posed by an increasingly antagonistic relationship between Washington and Beijing;

4. Regional security services should be engaged to take into account their expertise, enable cooperation and joint planning, and to encourage the responsible and humane use of their considerable political clout to promote domestic policy reforms that support climate resilience;

5. Technical data sharing and capacity building have been well-received in the region and could and provide an opening for engagement with security services that are often hesitant to meet with external stakeholders on sensitive matters; and
6. Amid a growing crackdown on civil society in states across the region, external stakeholders should encourage governments to respect and partner with domestic civil society and non-governmental organizations that promote climate resilience.

**Methodological Note: Scenario Planning to Inform Analysis and Policy**

The scenario analysis method for assessing threats across time and geography provides a tool to anticipate and prepare for future developments and prevent unwanted consequences. Scenarios consist of assumptions for the future, grounded in the natural and social sciences, designed to highlight hidden or under-recognized risks and opportunities and provide a basis for insightful planning. Thoughtfully applied, scenarios can help leaders prepare their organizations, stakeholders, and communities for a future marked by dispersed and non-linear systemic threats.

Our methodology for constructing these scenarios involved:

- Developing a snapshot of expected natural (physical) climate change impacts over the next 10 years; and
- Convening a diverse group of regional experts to discuss the likely implications of these impacts on the issues they cover.

Specifically, the group was asked:

*Given this snapshot of expected physical climate change effects, what are the key socio-political, economic, technological, demographic, diplomatic, criminal, and military drivers that will shape the climate security risk landscape in Mainland Southeast Asia over the next ten years? Specifically, what are the most important and most uncertain drivers?*

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1 Because of the political nature and security focus of many of the questions raised by this project, many officials from regional governments and representatives of Civil Society Organizations (CSOs) were hesitant to join our roundtable discussion. In the future, continued efforts should be made to engage representatives from civil society, security services, and the diplomatic corps of regional states to understand their views and concerns around the impact of climate change on security and how and to what extent the region is vulnerable to climate crises.
From the drivers identified during the discussion, two of those highlighted by participants as most important and most uncertain (state governance capacity and social and economic inequality) were selected as the axes of a matrix. Each axis is envisioned as a force or condition with opposing extremes and combining the drivers in the matrix produces the four possible futures shaped by the interaction of the drivers.

We do not make a judgment as to which scenario is most likely, nor are the scenarios mutually exclusive. The exercise, rather, helps avoid the trap of single-line projection by illustrating how wide-ranging possible futures could plausibly look by showing how the interaction of just two drivers can produce very different outcomes. Thus, scenario analysis can help identify the indicators policymakers and practitioners should monitor as they prepare today to manage the climate security risks of tomorrow.

1.1. Near-Term Regional Climate Trends and Implications

Increased experience of temperature extremes, threatening:

- Viability of agricultural production
- Human health, in terms of both heat stress and increased disease incidence
- Surging energy demand for cooling

Uncertainty of timing and intensity of precipitation, resulting in:

- Fewer “wet days,” but greater intensity of precipitation events
- Increased risks of flash floods and mudslides
- Declining predictability, negatively impacting agriculture

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See Annex 1
Rising sea levels, risking:

- Significant damage to coastal infrastructure, including in major urban centers
- Flooding in low-lying areas, particularly during extreme weather events
- Advancing saline intrusion and concurrent impacts on agriculture and aquaculture

Greater frequency and intensity of extreme weather events, costing:

- Human lives due to flooding and landslides
- Livelihoods as farms, fisheries, and even factories face major disruptions
- Capital to repair critical infrastructure

Complicating human development factors, including:

- Rapid urbanization, accelerated by climate challenges to rural populations
- Poor infrastructure, leaving cities unprepared and incapable of absorbing new migrants
- Damming of the Mekong River, threatening to disconnect and undermine vital ecosystems
- Lack of regional strategic planning, leading to inefficient allocation of capital and weak connectivity throughout the region
1.2. **Key Drivers: State Governance Capacity; Social and Economic Inequality**

Our exercise identified *state governance capacity* and *social and economic inequality* as two fundamental components of the climate security equation for Mainland Southeast Asian states.

- **State Governance Capacity** is a broad category which we define as the ability of state authorities to respond to near-term crises and to implement effective policies for the long-term management of climate and environmental risks. This category also references governments’ capacities to engage diplomatically with partners in the region and around the world, while maintaining legitimacy in the eyes of their respective domestic constituents.

- **Social and Economic Inequality** are narrower indicators that assess vulnerabilities emanating from growing social and economic divisions within and between states. Though not the only indicators of a society’s vulnerability, within the context of Mainland Southeast Asia, social and economic inequality are uniquely pertinent measures, given their increasing prevalence across the region and historical role in driving political and civil unrest.

Based on these two drivers, we developed the following aforementioned hypothetical scenarios:

1. Paralyzed States, Vulnerable Populations
2. Governing Against the Grain
3. Growing Economies, Lagging Capacity
4. Building Resilience, Strengthening Communities
Improving Equality

Growing Economies, Lagging Capacity
- Widespread displacement due to storms complicates efforts to ensure food security after poor harvest
- Some communities invest in resilience, able to weather storms; others see outmigration
- Water-borne illnesses rise without adequate infrastructure
- Poor regional coordination limits aid efficacy

Improving State Capacity

Declining State Capacity

Paralyzed States, Vulnerable Populations
- Agricultural output and fisheries crippled, leading to acute food insecurity, lost livelihoods, & migration
- Migration increases illicit human and narcotics trafficking—cross-border tensions ensue
- Food export restrictions disrupt trade and raise prices
- Major powers compete for influence, complicating regional and international diplomacy

Declining Equality

Building Resilience, Strengthening Communities
- Worst impacts of food security avoided through contingency planning
- Regional cooperation on mutual challenges, esp. water
- Aid dispersal efforts complicated by regional and global competition
- Proactive engagement on adaptation improves outcomes, though applied unequally

Governing Against the Grain
- Agricultural output diminished, threatening livelihoods, increasing desperation
- Criminal and narcotics networks exploit fragility
- Disparities in subnational relief funding during economic downturn raise domestic political tensions
- Some regional cooperation in addressing challenges, though insufficient
2. Scenario Deep Dives

2.1. Paralyzed States, Vulnerable Populations

Declining Equality, Declining State Capacity

Precipitating Factors

• Drought-induced disruptions to crops place rural populations in Cambodia and Thailand under stress, with food security further exacerbated by a collapse in fisheries in the Tonle Sap and the withholding of water by Chinese dams upstream.

• Farmers and fisherman, no longer able to eke out a subsistence living, migrate towards urban centers—Phnom Penh, Bangkok, and Ho Chi Minh City.

• Cross-border migration leads to an increase in illicit trafficking as well as new diplomatic tensions, as the security situation degrades.

• To ensure domestic food security, surplus producing states impose export restrictions, disrupting cross-border trade and raising prices for staple items throughout the region.

• Major powers compete to maintain influence through aid and engagement, complicating regional diplomacy and intensifying internal debates among political elites over alignment and balancing.

Summary

Despite success in managing the COVID-19 pandemic, regional economies struggle to regain their footing. Chinese lockdowns undermine regional supply chains and a lack of Chinese tourism further constrains economic growth. As interest rates rise in mature markets around the globe, investment is withdrawn and local currencies lose value relative to the dollar, putting downward pressure
on budgets and depleting funds previously allocated for infrastructure development and social services. As Laos plunges into an economic crisis, Thailand and Vietnam commit to further investments in dams along the Mekong mainstream in an attempt to box out encroaching Chinese influence.

During an El Niño year, the region experiences significant drought, as well as disruptive storms that undermine agricultural production. Mekong waters drop to precarious lows as a result of the lack of precipitation and China’s withholding of upstream flows. Fisheries throughout the region come under severe strain, causing the price of fish and protein substitutes to rise significantly, placing vulnerable populations in an acute food security crisis. The drought, storms, and fisheries disruptions threaten livelihoods for the poorest in the region, leading to a significant increase in internal and cross-border migration. This benefits criminal organizations engaged in human and narcotics trafficking that have proliferated in the wake of civil conflict in Myanmar and throughout the Golden Triangle.

The influx of migrants swells populations of major urban areas, pushing both hard and soft infrastructure to the breaking point, and leading to a cascade of negative outcomes vis-à-vis public health and poverty. Amid rising food costs, regional governments impose food export restrictions, further increasing prices for staple goods and worsening food insecurity across Southeast Asia. Recognizing the growing crisis, and sensing an opportunity for expanded influence, major powers advance competing aid and relief packages, complicating regional diplomacy and intensifying debates among elite stakeholders in Bangkok, Hanoi, Phnom Penh, and Vientiane.

Key Indicators

- Continued unchecked development along the Mekong mainstream and key tributaries resulting in steadily declining fisheries production throughout the Mekong River system, but especially within the Tonle Sap
• Large populations internally displaced within Cambodia and rural Thailand, contributing to outmigration and an influx of new arrivals in urban centers

• Growing distrust among neighboring states leading to the implementation of movement control measures, as well as export restrictions on certain staple food items to ensure national self-sufficiency

2.2. **Governing Against the Grain**

**Declining Equality, Improving State Capacity**

Precipitating Factors

1. An extended period of unusually hot weather and concurrent drought conditions undermine crop production across the region, with the impacts being most noticeable among rural subsistence farming communities

2. Conflict and criminal enterprise lead to swelling populations of internally displaced people, especially along Thailand’s borders, as impoverished populations seek safety and declining economic opportunity in their home states

3. Growth in internally displaced peoples (IDPs) precipitates a new regional health crisis, as antimicrobial resistant diseases increase in prevalence and health services are overwhelmed

4. Combined crises risk destabilizing the government in cash-strapped Laos, while political agendas of leaders in Cambodia and Thailand are disrupted as they are forced to redirect resources to address crime and IDPs
Summary

After weathering successive COVID-19 waves, economic growth in the region resumes, albeit unevenly and at a slower pace than pre-pandemic. Regional leaders Thailand and Vietnam implement new policies to benefit from diversifying global supply chains and take steps to improve resilience in growing urban centers. Cambodia experiences modest growth as Chinese investors seek greater returns amid a domestic economic lull, while concerns over an internal leadership transition and the potential for sanctions give Western investors pause. Laos and Myanmar, meanwhile, continue to flounder—the former facing significant sovereign debt obligations and weakening domestic currency, while the latter deals with an increasingly violent civil conflict and deteriorating security situation. Regional efforts to harmonize trade and development plans continue to expand, but are faced with significant obstacles owing to differing levels of capacity and economic capability.

A major drought undermines agricultural output and threatens rural livelihoods. While regional governments’ disaster relief preparations enable fast and effective relief to impacted communities, aid funding is finite, and poorer communities that have little wealth to fall back on are left relatively unprotected. Disparities in subnational relief raise domestic political tensions in Thailand, Cambodia, and Vietnam, while in Laos, the Communist Party’s control comes into question for the first time in decades, as internal disputes over economic collapse spill into the open. With governments in Vientiane and Naypyitaw distracted, narcotics traffickers and criminal cartels expand their influence throughout the Golden Triangle region, leading to a thriving drug trade.

While ASEAN eventually steps in to provide additional aid and support, the situations in Laos and Myanmar are such that humanitarian aid provision is nearly impossible. In Cambodia, vulnerable populations face acute food insecurity, while the domestic political environment degrades, and an influx of illicit funding fuels factional infighting. Vietnam and Thailand look to play a supporting role, but are hamstrung by domestic distractions, political instability, and increasing pressure from Beijing and Washington—each hoping to
expand influence via relief efforts. Swelling populations of internally displaced peoples create conditions ripe for the outbreak and spread of endemic diseases, and concerns grow of increasing incidences of antimicrobial resistant versions of malaria and tuberculosis.

Key Indicators

• Growing social and economic inequality between urban and rural populations throughout the region, as well as between developed and less developed states

• Increasing prevalence of narcotics trafficking and other illicit activities, and an expanding influence of criminal organizations over a wider geographic range

• Improving cooperation among regional states on shared challenges, as well as strategic planning with respect to growing climate and environmental risks

• Destabilizing of the domestic political order in states where capacity is overwhelmed by enormity and breadth of challenges
2.3. Growing Economies, Lagging Capacity

**Improving Equality, Declining State Capacity**

Precipitating Factors

- Significant extreme weather events, including successive storms that inundate the Irrawaddy Delta, Central Vietnam, and Southern Laos, create numerous low-grade humanitarian crises
- While investment growth provides an economic buffer for many communities, a lack of preparation and capacity-building overwhelms state resources after a short period
- Water-borne illnesses and food insecurity grow in impacted areas, as governments muddle through uncoordinated relief efforts
- Lack of regional coordination complicates relief efforts by major powers, and U.S. and Chinese missions have negative interactions at various offloading points

Summary

As the global economy stabilizes after a period of recession and instability, governments around the region take steps to reinforce their governing legitimacy by seeking to improve social services and reduce inequality. They raise revenues and seek support from domestic conglomerates and tycoons in response to public outcry over obvious and growing economic inequality. Trade liberalization stalls as a new protectionist fervor emerges. A lack of Western support during the global economic downturn has enabled China to expand its influence throughout the region, except in Vietnam, where the government has leveraged its diplomatic corps to keep a variety of global partners engaged. Joint Thai, Chinese, and Laos law enforcement cooperation, along with tacit support from non-state armed organizations, checks
the expansion of narco-trafficking. ASEAN continues to lack consensus on balancing between Beijing and Washington and is increasingly viewed as an ineffectual platform for engagement.

Following a difficult drought year, the region is rocked by successive tropical storms that inundate the Irrawaddy Delta, Central Vietnam, and Southern Laos, destroying crops, causing mudslides, and creating numerous hazards to human life and health. Though domestic aid efforts have ample funding, the level of destruction in impacted areas is so great that large populations remain displaced indefinitely. Water-borne illnesses begin to emerge in the aftermath of the storms as governments lack the capacity to quickly and effectively rebuild critical physical infrastructure. Food insecurity grows and the situation becomes especially dire in Myanmar, where a cadre of mid-career officers that have taken the reins of power lack any training or preparation for a major relief effort.

Seeing an opening to re engage with regional partners, Washington mounts a massive Humanitarian and Disaster Relief (HADR) effort, but is faced with skepticism and distrust from Myanmar, and only modest interest from Cambodia and Laos. China looks to leverage its expanding regional fleet and newly established presence at Ream Naval Base to launch its own operations and complicates U.S. efforts by behaving uncooperatively in regional waters and at strategic aid offboarding sites. Vietnam welcomes U.S. aid missions and works to help facilitate U.S. aid to Laos, even as Beijing seeks to intervene in Vientiane. Efforts to support aid coordination via ASEAN fall flat, as the organization continues to fail to achieve consensus amid pressure from U.S. and Chinese diplomats.

Key Indicators

- Governments take steps to shore up legitimacy by proactively combating inequality and reigning in ostentatious elites
- Increasing divergence of views on China and the United States
- Decreasing appetite for major regional initiatives and deteriorating capacity with respect to disaster response and other cooperative efforts
• Declining trust among regional partners and an emerging consensus that states should act individually or in smaller sub-regional groups to ensure sovereignty

2.4. **Building Resilience, Strengthening Communities**

*Improving Equality, Improving State Capacity*

**Precipitating Factors**

• Development along the Mekong River continues to contribute to regional droughts, but as Chinese economic influence levels off, riparian governments increasingly demand improved data sharing and water cooperation from Beijing

• Farmers and fishermen throughout the region face the overlapping challenges of drought, saline intrusion, unpredictable weather, and increasing costs for basic equipment and supplies

• Regional governments convene emergency meetings through ASEAN and other platforms to address growing food insecurity and prevent unilateral export bans

• With renewed support from development partners, regional states undertake policy reforms to enable strategic planning for water and power resources, incorporating nature-based solutions where possible and improving efficiency

• Regional and bilateral cooperation improves to help manage migration into urban centers and across national borders
Summary

Amid an extended global economic downturn, regional governments successfully leverage U.S.-China competition to encourage increased engagement and economic support. Recognizing the outsized impact of tariffs and trade frictions, Washington takes steps to launch new trade dialogues with regional partners, while China, dealing with an economic crisis of its own, is unable to maintain the momentum of its Belt and Road Initiative (BRI) pledges and is forced to withdraw from projects that are no longer economically viable. As growth slows throughout the region, Laos is able to leverage diplomatic outreach from Washington to renegotiate debt loads with the World Bank, International Monetary Fund (IMF), and Beijing. In Myanmar, the civil conflict has devolved into a stalemate; however, Thailand, wary of neighboring a failed state, now welcomes additional aid to refugees on its border. Vietnam remains a critical U.S. partner in the region, as reformers within the Communist Party are emboldened by a change in generational leadership, as well as renewed U.S. outreach through political channels and the perceived weakness of the Chinese economy.

Climate change-induced drought undermines regional agricultural productivity, which is exacerbated by the withholding of water in upstream dams in China. States in the region band together to negotiate the measured release of additional water from Chinese dams to provide relief, saving dry season crops from certain destruction, while imposing new measures to limit wasteful agricultural practices and the exploitation of groundwater. China parlays the release of waters into a diplomatic win. Though vulnerable populations face acute food insecurity challenges, Vietnam and Thailand coordinate with ASEAN to meaningfully direct resources, while continuing to leverage U.S.-China competition to maximize aid provision from the major powers.

Successful cooperation improves cohesion among Mainland Southeast Asian states, resulting in new opportunities for joint efforts on regional economic, power, and infrastructure integration. The relaxation of government attitudes towards environmental activists encourages new modes of civic cooperation
and paves the way for the adoption of nature-based solutions in lieu of the construction of additional hard infrastructure in sensitive areas. While significant climate impacts continue to hamper economic growth and prevent populations from moving fully out of poverty, government efforts to improve resilience, launched with the support of multilateral banks and a variety of advanced economies, mitigate some of the worst impacts and enable local authorities to quickly deliver support to impacted populations.

**Key Indicators**

- Managed development along the Mekong River mainstream and key tributaries to avert system collapse, and increasing cooperation among riparian states in efforts to address impacts of existing dams and infrastructure
- Poor and rural populations facing food insecurity and economic uncertainty, despite improvements in overall resilience
- Regional governments increase cooperation through various platforms, including ASEAN to improve strategic planning and address sensitive issues such as migration and export controls
- U.S. and like-minded partners step in to fill the void of retreating Chinese investment and engagement, revitalizing relations, while Beijing remains a key partner and economic player for states throughout the region
3. Conclusion and Key Opportunities for Development, Diplomacy, and Defense Leaders

The scenarios outlined in this report present plausible crisis situations that could occur given the present trends in climate change and development in Mainland Southeast Asia. These scenarios are not intended to predict likely future events, but rather to sketch out a range of potential crisis drivers and consequences with the goal of inspiring further discussion and analysis. As advances in climate modeling and our understanding of the interplay between climate change, development, and socio-political dynamics improves, policymakers should consider the indicators and drivers highlighted in this report in their strategic planning for engagement in and with the states of the region.

3.1. Development

Mainland Southeast Asia is a region marked by uneven development and highly variable government capacity. While regional leaders Thailand and Vietnam have made significant strides in improving the situation of their populations, Cambodia is only now seeing the emergence of a thriving middle class, while debt-laden Laos lags far behind. Myanmar, meanwhile, is mired in a civil conflict that threatens to undo development progress achieved over the past decade. There is significant inequality within and between these states and a lack of regional strategic planning has prevented numerous efficiencies from being unlocked. Climate change will present significant challenges of
the kind these governments, and the region as a whole, have yet to confront in their modern histories.

Our experts noted the following suggestions and points for regional development professionals:

- Significant internal inequality holds back many sub-state communities and the COVID-19 pandemic and other crises have undermined economic gains for the poorest inhabitants of Mainland Southeast Asia
- Worsening climate conditions will complicate development efforts and increase economic pressure on the most vulnerable in the region
- In addition to building regional governments’ capacities to respond to climate risks, efforts should be made to support a broader, vibrant middle class that is resilient to sudden shocks associated with climate change
- Regional governments’ capacity to respond to climate challenges—including through thoughtful preparation and planning efforts—will determine their legitimacy in the eyes of citizens
- Governments require technical and planning support to make the greatest use of development funds and cooperation with the private sector—both domestic and foreign—should be emphasized to help reach broader modernization goals
- Connectivity—both natural and in terms of cross-border cooperation—should be emphasized to ensure development that binds the region rather than creating artificial barriers
3.2. **Diplomacy**

Competition between Washington and Beijing has become an increasingly salient aspect of diplomacy in Mainland Southeast Asia. However, attempts to create “blocs” or pressure regional players to accept a set of solutions that excludes any of the major powers tend to backfire. In the climate and environmental security context, the transnational character of many challenges presents obstacles to, and opportunities for, coordinated diplomatic and aid efforts. While climate change will play out over decades, disasters associated with the climate risks highlighted in this report can create crises in a matter of hours that will challenge not only domestic governments, but also external partners seeking to provide aid and support.

For diplomatic engagement on climate and environmental risks, the expert discussion surfaced the following points:

- The primary security risks posed by climate change involve factors that are transnational in nature, including the potential for migration, regional food insecurity, and water/river management issues
- Mainland Southeast Asia feeds much of Maritime Southeast Asia, so a crisis in the former will almost definitely impact the latter
- Governments in the region are increasingly worried about major power competition, and fear (and reject) being forced to choose between Washington and Beijing
- ASEAN and other regional fora should continue to serve as platforms for engagement, cooperation, and coordination on response efforts and capacity building, while mitigating pressure from any parties to “choose sides”
- The most effective diplomatic engagement to date has featured the provision of data and the proposal of “options” for development, planning, and coordination
Engagement with civil society for foreign interlocutors is becoming increasingly fraught and states in the region should be discouraged from cracking down on legitimate civil society efforts to highlight climate risks and improve policy making.

### 3.3. Defense and Security

For nearly thirty years, starting in 1991 with the conclusion of the Paris Peace Agreements that set Cambodia on the path to stability, Mainland Southeast Asia experienced a period of relative peace among its constituent states. While border skirmishes would occur on occasion, they were generally self-contained and carried little risk of a broader conflagration. More recently, however, increasing geopolitical competition, marked by rising Chinese assertiveness, increasing U.S. skepticism, and inconsistent hedging practices by regional states, have begun to pose new risks to stability. Additionally, the 2021 coup in Myanmar has sparked an expanding civil conflict and opened space for the rapid growth of transnational criminal organizations. Amid this increasingly complex security situation, emergent climate risks threaten to further undermine stability and introduce unpredictability, particularly as the consequences of climate change are likely to have a transnational impact.

In the context of defense and security policy, our experts noted the following points:

- Tensions between the superpowers have generated significant anxiety among regional states and the breakdown of relations in recent years has enhanced these concerns.
- U.S. HADR capabilities are welcomed in the region, but their deployment may become more complicated as China’s armed forces play a more active role in the region.
- Security services throughout the region are assessing the risks posed by climate change; however, there do not appear to be significant
efforts at cooperation among these services or with external partners on addressing climate risks

• Autocratic tendencies and regime insecurity have hindered trust between civil society and governments in the region, and efforts should be made to reverse the increasing trend of coercive legal action being used to silence environmental advocates and organizations

• The military administration in Myanmar could undermine efforts at regional cooperation—both because of the disruptive impact of the coup, and more broadly because the regime has demonstrated a willingness to disregard regional agreements

• External partners should seek to engage regional security services to share best practices and modeling techniques, enhance cooperation (within the region and with external partners), and encourage a more cooperative approach to engagement with civil society
Annex 1: Climate Snapshot: Mainland Southeast Asia

Mainland Southeast Asia (MLS)—which is composed of Cambodia, Laos, Myanmar (Burma), Thailand, and Vietnam—sits at the fulcrum of the broader Indo-Pacific region and is home to nearly 250 million people. It is an area of tremendous cultural and ecological diversity that is becoming increasingly urbanized and interconnected, despite greatly varying levels of development between and within states. While the region has seen significant progress towards peace and prosperity over the last thirty years, growing geopolitical competition, domestic political unrest, the impact of the COVID-19 pandemic, and environmental and climatic degradation are threatening to upend recent gains.

With climate impacts anticipated to become more pronounced in the coming years, the Center for Climate and Security is convening a group of experts to identify and assess climate security risk drivers impacting the region. These risk drivers are climate-induced stressors with the potential to alter daily life and commercial activities with second order implications for regional stability and security. The following “snapshot” memo is designed to establish a baseline with respect to forecasted climatic shifts to enable an assessment of the extent and nature of the climate security risk drivers facing Mainland Southeast Asia in the decades ahead.
Climate Projections for Mainland Southeast Asia

**Temperature.** Warming will continue throughout MLS roughly in line with or at a slightly lower rate than the global average, with projections anticipating an increase of between 1°C and 3.5°C by 2100 depending on global emissions. Temperature extremes on the high end are expected to increase more rapidly than the mean average temperature, meaning more days of extreme heat throughout the year. Extreme heat stress poses real risks to human health, especially for outdoor laborers, young children, and the elderly, while at the same time threatening the viability of food crops, especially during extended periods of high temperatures. Increasing temperatures are also expected to raise demand for energy for cooling, potentially complicating climate mitigation efforts and imposing new economic costs on inhabitants throughout the region.

**Precipitation.** Precipitation in MLS is anticipated to increase in total; however, there is uncertainty as to how rainfall patterns will change in different sub-regions and over time as the Southeast Asian monsoon weakens. The El Nino Southern Oscillation (ENSO) is likely to remain a driving force determining the pattern and frequency of extreme precipitation events and droughts, and this will likely intensify and become less predictable as temperatures increase. While overall “wet days” are expected to decrease, more frequent and intense rainfalls are expected, which increases risks of rapid inundation, flash floods, and mudslides in more mountainous areas, threatening lives and commerce, as well as food crops and supplies of freshwater.

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3 Data represented in the following paragraphs is taken from IPCC AR6 WG1 Chapters 11, 12 and the WG1 Technical Summary, as well as WG2 Chapter 10 and the WG2 Technical Summary.
Sea Level Rise. Sea levels along the coastal areas of MLS are rising more quickly than the global average and will soon threaten major coastal population areas, including Ho Chi Minh City and Bangkok, which will see a 0.2-meter rise in sea level by 2025. Saltwater intrusion is already interfering with agricultural and aquacultural production, forcing local communities to shift away from traditional crops and to redirect scarce freshwater supplies towards irrigation efforts. These impacts are anticipated to worsen over time, particularly as groundwater extraction accelerates land subsidence, amplifying the effect of rising seawater levels.

Extreme Weather. In general, rising temperatures globally result in a greater frequency and intensity of extreme weather events. In MLS, this translates to an increase in the likelihood of devastating flash floods and landslides, as well as increasingly intense, albeit less frequent, tropical cyclones. These weather disasters can impose significant costs in terms of human lives, disrupted livelihoods, and damage to critical infrastructure. Underdeveloped portions of highland MLS in Laos, Thailand, and Vietnam are particularly at risk for flooding and landslides during intense storms, especially in areas with large numbers of hydropower dams. Similarly, Central Vietnam and Myanmar have proven especially vulnerable to tropical cyclones, and evidence suggests these storms are likely to increase in size and intensity going forward.

Complicating Human Development Factors. In addition to physical climate change effects, human development activities will compound the impacts of climate change throughout MLS. The region is experiencing rapid urbanization as migrants seek jobs in the region’s growing urban population centers. Often, there is little advance planning to enable cities to absorb these populations and many areas lack quality infrastructure. Increasing temperatures and precipitation are likely to result in concurrent increases in heat stress and water-borne diseases respectively, especially in densely populated areas.

The damming of the Mekong River in China and Laos for hydropower production also presents a distinct set of challenges around the sustainability of the river’s ecosystems, which provide fish and freshwater for millions in the
region. Meanwhile, in Vietnam’s Mekong Delta, sediment depletion due to damming and groundwater withdrawal for irrigation purposes are accelerating riverbank erosion and deltaic sinking. These factors and dynamics complicate climate adaptation efforts and exacerbate the negative impacts associated with climate change. Domestic political instability, driven in part by competition over control over resource wealth, is increasing the risk of outright conflict, as demonstrated by the Myanmar coup in 2021 and the low-grade civil war that has emerged in its wake.
Annex 2: Participants, Climate Security in Mainland Southeast Asia—Experts Group

The author and editors are grateful to the experts below for providing input to this publication. At the same time, we wish to underscore that we bear ultimate responsibility for the content of this report and the scenarios contained herein.

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