



Unlocking ASEAN's climate potential: Strategies for enhancing NDC coherence and regional cooperation

*Post-Master's Thesis
International Environmental Management*

Alexandre GERMOUTY
École des Mines de Paris
University PSL



**2025
2034**

Decade of Action
for Cryospheric
Sciences

Acknowledgements

This thesis would not exist without the people who carried me through one of the most demanding, formative, and transformative year of my life.

To my partner, Lan Anh, who stood by me through countless late nights, working weekends, and early mornings. Your presence gave me strength when mine ran out. You brought light, steadiness, and laughter into a process that sometimes felt endless. I owe so much of this to your support.

To my mother, Claire, who gave me the privilege and the greatest freedom, the freedom to choose. or a long time, I followed a path that wasn't truly mine, more out of uncertainty than conviction. Your unwavering love and trust helped me pause, reflect, and redirect my steps toward something that resonates with who I am, a cause that matters deeply to me: protecting the environment, standing up for equity, and acting for others. This change made everything possible.

To my brother, Théo, your integrity, precise sense of justice, and concern for the common good keep inspiring me. Your clear-sighted courage to question society and your own place within it have been a guiding line throughout my own journey.

To Manou, your unconditional love and support fill me with the energy to surpass myself, carried by the joy of making you proud.

To my friends, la Vallée, who have seen me grow, doubted sometimes with me, but never doubted me. Thank you for reminding me who I am when I get lost, your presence kept me grounded.

To my Vietnamese family, who opened their homes and hearts to me and made me fall in love with Southeast Asia, not only as a research subject, but as a region of resilience, beauty, and deep human warmth. Cảm ơn vì đã cho tôi một quê hương thứ hai.

To the Directors of the EnvIM programme, Cathy and Daniel, thank you for taking a chance on someone with no environmental background. Your trust gave me room to learn, to stumble, and to find out that this field had been calling me all along.

To Ms Dương, whose classes and conversations gave me the intellectual tools to think critically, globally, and ethically about international cooperation. You taught me that words matter, and that questions are sometimes more powerful than answers.

To Anil and Ruth, who welcomed me into a team working on issues that truly matter. Thank you for your belief in what I could bring. You gave the confidence to grow, to contribute, and to learn how international policy really works not from the outside, but within.

Finally, to everyone who shared with me, in interviews, in classrooms, or in conversations, a part of their work, their time, and their hopes for climate action in Southeast Asia. This thesis is also yours.

Executive Summary

The ten-member Association of Southeast Asian Nations (ASEAN) stands at a crossroads of rapid economic growth and escalating climate vulnerability. Net greenhouse gas emissions in ASEAN surged by over 170% from 1990 to 2019, even as five member states now rank among the world's most climate-disaster-affected countries. All ASEAN governments have submitted Nationally Determined Contributions (NDCs) under the Paris Agreement, yet these pledges vary widely in ambition, scope, and credibility. This professional research thesis asks whether enhanced regional coordination can bridge the gap between these disparate national efforts and accelerate implementation of climate actions. To explore this question, a mixed-methods approach was adopted. The study combines comparative content analysis of the latest NDC documents from six focus countries - Indonesia, Myanmar, the Philippines, Singapore, Thailand, and Viet Nam – with 17 semi-structured interviews of policymakers and experts and a regional survey of 26 climate practitioners. This design enabled a comprehensive mapping of each country's climate governance frameworks, stakeholder participation practices, financing needs, monitoring systems, and references to ASEAN mechanisms. The results were also presented and discussed with regional stakeholders at two events—the CNRS ZASEAN-China Norms Summer School on climate governance and an academic-policy conference in Viet Nam—allowing key hypotheses to be tested, refined, and grounded in regional feedback. The multi-faceted methodology ensures analytical depth and grounds the findings in both documentary evidence and on-the-ground perspectives. The overarching aim is to assess national and regional readiness to meet climate commitments and to identify how regional cooperation might enhance policy coherence and effectiveness in ASEAN's climate governance.

National climate commitments and governance

The thesis first (*Chapter 2*) examines how NDCs are formulated and governed within the six case-study countries, revealing common structural challenges alongside notable differences. Institutional frameworks for climate policy exist in all six nations – typically in the form of inter-ministerial committees, dedicated climate change commissions, or focal agencies – but their effectiveness and authority vary. Many countries suffer from fragmented responsibilities and under-powered coordination bodies, limiting the integration of climate objectives across government. For example, Singapore's climate agenda is overseen by a high-level committee under the Prime Minister's Office, ensuring strong cross-sectoral alignment, whereas other states relegate climate coordination to environment ministries or ad-hoc committees with less clout.

Legal foundations for NDC implementation also differ: some governments have enacted climate change laws or executive orders that embed NDC targets into national policy, while others rely on general environmental frameworks without specific enforcement teeth. Equally critical is the stakeholder participation in NDC development. Across the region, public consultation on NDCs has often been perfunctory rather than genuinely participatory. Most governments report holding workshops and hearings on their NDC updates, and documents cite “whole-of-society” approaches, yet these forums rarely translate into substantive influence on final plans. A 2025 survey of regional experts found that nearly two-thirds were unaware of any meaningful opportunities for civil society input during NDC design. In practice, youth groups, Indigenous Peoples, and gender advocates remain at the margins of climate policymaking. Only isolated instances point toward greater inclusivity – for example, the Philippines' latest NDC uniquely incorporates a Gender and Climate Change Action Plan,

acknowledging the role of women in climate action. Overall, the consultation–influence gap persists: civil society organizations may be invited to comment, but their recommendations seldom alter policy decisions. This indicates a need for more institutionalized inclusion, so that climate strategies benefit from broader societal knowledge and enjoy greater legitimacy.

Ambition and content of ASEAN NDCs

A comparative review, through *Chapter 3*, of the six NDCs underscores a persistent ambition shortfall in ASEAN’s climate pledges. Collectively, current NDC targets put the region on approximately a 2.5 °C warming trajectory, far above the Paris Agreement’s 1.5 °C goal. While some countries, such as Singapore, have announced goals of net-zero emissions by mid-century, others have more modest or conditional targets, and timelines for peaking emissions differ considerably. The thesis analyses how each NDC frames mitigation ambition, whether through absolute emissions cuts, reductions against business-as-usual baselines, or intensity targets, and finds a wide divergence. For instance, certain NDCs rely heavily on conditional reductions pending international finance, raising questions about their credibility, whereas others outline unconditional commitments but with relatively low baselines.

The scope of NDCs also varies: some are economy-wide and cover all sectors with detailed measures, while others omit significant sectors (like agriculture or transport) or provide only high-level goals. Notably, all six focus countries identify similar climate hazards and adaptation needs in their NDCs (for example, citing threats from sea-level rise or extreme weather), yet their adaptation components differ in depth and integration. This content analysis highlights that despite a common recognition of climate risks, ASEAN nations’ pledges lack coherence in ambition and do not yet collectively align with a pathway to climate safety. Strengthening this ambition will require not only national political will but also greater coordinated effort to elevate peer expectations and share the burden of more stringent goals.

From pledges to implementation: Readiness and gaps

Translating NDC commitments into tangible action is proving uneven across ASEAN. The research finds, in *Chapter 4*, that implementation readiness differs markedly between countries, with three main barriers impeding progress.

First, there is often a disconnect between climate goals and development models. In several cases, long-term climate strategies are not fully embedded in national development plans or energy strategies, leading to contradictions, such as simultaneous expansion of coal or gas infrastructure alongside climate pledges. Only a few countries, like Singapore and Indonesia, have made strides in aligning NDC targets with their overarching economic plans and long-term low-emission development strategies.

Second, technical and financial capacity constraints limit the execution of climate policies. Many countries lack robust institutional capacity for project implementation, sufficient climate budgeting, or access to green finance. In contrast, wealthier ASEAN members have begun to mobilize significant resources (for example, Singapore’s carbon tax and green investment programs), underlining a regional gap in capacity and support.

Third, weak multi-level coordination hampers policy delivery: climate actions often remain siloed at the national level without effective mechanisms to engage provincial and city governments that carry out much of the implementation. This gap is evident in countries where local authorities are not well-integrated into NDC planning, resulting in slow or inconsistent adoption of climate measures on the ground. The thesis also assesses each country’s monitoring, reporting, and verification (MRV) systems and finds similarly wide disparities. Singapore has established a comprehensive, legally backed MRV platform exceeding the requirements of the

Paris Agreement's Enhanced Transparency Framework. This allows for rigorous tracking of emissions and climate actions. By contrast, several neighbors are still developing basic greenhouse gas inventory tools and data collection processes. Without reliable MRV, policy implementation cannot be effectively measured or managed. Additionally, the integration of climate action into public financial management – such as through climate budget tagging to track climate-related expenditures – is only in nascent stages in most countries. The research suggests that improving policy integration (embedding NDC targets into national and sectoral development plans), bolstering institutional capacity, and establishing clear accountability frameworks are critical steps to move from pledge to performance. These findings underscore that even ambitious NDCs will ring hollow unless supported by strong domestic systems for implementation.

Shared climate risks and the rationale for cooperation

No ASEAN country can effectively safeguard its climate future in isolation, because the region's environmental interdependence means that climate risks spill across national borders. The thesis highlights how Southeast Asia's geography and ecology bind its nations in a common fate: transboundary hazards such as transborder haze pollution from land fires, flooding along the Mekong River basin, and typhoons that strike multiple countries in succession are inherent challenges that exceed the capacity of any single state. Over 77% of ASEAN's population lives in coastal areas, making issues like sea-level rise and storm surges a shared existential threat. For example, severe tropical cyclones have caused billions in damage across the Philippines, Viet Nam, Thailand, and Myanmar in recent years, with impacts ricocheting through regional food security and infrastructure.

Chapter 5 of the thesis argues that such collective vulnerabilities expose the limits of the Paris Agreement's purely national approach to NDCs. If each country only plans within its own borders, issues like annual smoke haze or water management in one area remain inadequately addressed, jeopardizing neighbours' adaptation efforts. The analysis maps how climate-induced disasters in one member state can trigger cascading effects on others – overwhelming local disaster responses, disrupting supply chains, and diverting shared resources. These realities make a compelling case for regional cooperation on climate adaptation and disaster risk reduction. The thesis notes that ASEAN has previously acknowledged shared risks through joint initiatives (for instance, the ASEAN Agreement on Disaster Management and Emergency Response for natural disasters), but equivalent cooperation in climate change adaptation is still limited. Strengthening mechanisms for information-sharing, mutual aid, and coordinated planning against transboundary climate hazards emerges as not only beneficial but necessary for the region's resilience. Closely linked to ecological interdependence is the region's economic interdependence, which further justifies a coordinated climate response.

Chapter 6 explores how ASEAN's integration as an economic community – characterized by cross-border supply chains, trade, and investment – means that climate impacts and policies have regional economic repercussions. Climate change threatens key productive sectors and infrastructure that span countries. For example, extreme weather can damage parts of the ASEAN Power Grid or transport links that connect multiple economies, interrupting energy trade and commerce. Likewise, if one country's industrial zones are hit by floods or power outages, factories in neighbouring countries that rely on those inputs may suffer shortages. The thesis argues that in such a tightly interwoven economy, adaptive capacity and decarbonization efforts become regional public goods: each state has a stake in the others' climate resilience and low-carbon transition. Moreover, uncoordinated climate policies could create economic imbalances – for instance, differing carbon pricing or renewable energy incentives might affect competitiveness and investment flows within ASEAN. By coordinating

policies, member states can mitigate carbon leakage risks and create synergies (such as common standards for green finance or technology sharing) that lower costs for all. The finding here is an imperative for voluntary coordination: while respecting national sovereignty, ASEAN countries would collectively benefit from aligning their climate strategies, both to safeguard the integrated regional economy and to leverage economies of scale in climate solutions (e.g. a unified regional carbon market or coordinated renewable energy development). In sum, the shared risks and interdependencies detailed in Chapters 5 and 6 provide a strong rationale for ASEAN to complement national efforts with regional solidarity and joint action on climate change.

ASEAN's climate governance architecture: Achievements and constraints

Given these drivers for cooperation, the thesis critically assesses ASEAN's existing regional climate governance architecture (*Chapter 7*). ASEAN has established a number of bodies and initiatives to address climate change, but they function within the bloc's characteristic principle of non-interference and consensus-based decision-making.

The primary technical coordinating body, the ASEAN Working Group on Climate Change (AWGCC), as well as high-level forums like the ASEAN Ministerial Meeting on Environment, provide platforms for information exchange, capacity building, and the development of collective strategies. The AWGCC, for instance, oversaw the preparation of the first ASEAN State of Climate Change Report in 2021 and is guiding a Climate Change Strategic Action Plan. However, these bodies carry no enforcement mandate. Their influence is persuasive rather than prescriptive: they can encourage member states but cannot compel compliance or set binding regional targets. This reflects ASEAN's "cautious regionalism," wherein sovereignty concerns limit the delegation of authority to any regional institution.

The new ASEAN Centre for Climate Change (ACCC), expected to become operational in Brunei, will similarly focus on coordination and knowledge-sharing, and it faces the same structural constraint that real action depends on the political will of individual states. Because of this soft governance approach, ASEAN's climate cooperation to date has been largely voluntary and ad hoc.

The thesis finds that regional frameworks have indeed delivered some useful outcomes: for example, a collective ASEAN target for renewable energy share was set (23% by 2025) under the ASEAN Plan of Action for Energy Cooperation, and joint efforts have been made in disaster response and haze control agreements. These precedents of successful collaboration – such as the ASEAN Agreement on Transboundary Haze Pollution and the coordination through the ASEAN Disaster Management Centre – demonstrate that when member states' interests align, they can achieve concrete collective results. Yet, climate change at large has not seen the same level of concerted action. Transboundary challenges like region-wide flood management, drought planning, or peatland protection remain inadequately governed.

Chapter 7 concludes that ASEAN's current institutions, while valuable for dialogue and setting broad agendas, lack the authority and resources to drive implementation. The "ASEAN way" of consensus and mutual respect has prevented contentious climate issues (such as emissions reduction commitments or phasing out coal) from being tackled head-on at the regional level. This limitation is recognized by policymakers and scholars alike as a major hurdle if ASEAN is to effectively contribute to global climate goals. Strengthening the regional architecture without violating core ASEAN norms emerges as a delicate but crucial task.

Pathways for enhancing regional cooperation

Building on the recognition of these limitations, *Chapter 8* of the thesis charts strategic pathways for deeper regional cooperation that remain consistent with ASEAN's voluntary,

consensus-driven ethos. It proposes a structured approach rooted in several key guiding principles.

First is mutual benefit: initiatives should leverage the diverse strengths of member states so that all participants gain (for example, one country's renewable energy surplus could be exported to a neighbor in exchange for investment or technology transfer, creating win-win outcomes).

Second, ASEAN should utilize “soft” coordination tools – voluntary guidelines, peer learning forums, and non-binding commitments – to harmonize climate actions without formal enforcement. This might include agreeing on common frameworks (such as unified standards for GHG inventories or best-practice guidelines for climate-smart infrastructure) that countries implement at their own pace. Regular peer review sessions or an ASEAN climate forum could allow officials to share progress and solutions, fostering a healthy sense of constructive peer pressure.

Third, the pathways emphasize building trust and political will. Confidence-building measures, like transparent data sharing and equitable benefit-sharing in joint projects, are vital. The thesis suggests that over time, successful collaboration on “low-hanging fruit” can pave the way for more ambitious steps. For instance, starting with a voluntary regional renewable energy grid or interconnected power trading could eventually lead to a more integrated ASEAN energy market supporting decarbonization. Likewise, collective experience in disaster relief through AADMER (the ASEAN Agreement on Disaster Management) can be expanded into proactive climate adaptation partnerships.

Concretely, the thesis outlines several priority areas for joint action. On adaptation, ASEAN could develop cross-border resilience projects – such as coordinated flood management in the Mekong basin, joint mangrove restoration along shared coastlines, or a regional early warning system for extreme weather – recognizing that adaptive infrastructure in one country protects others as well. On mitigation, regional energy cooperation stands out: accelerating the ASEAN Power Grid and cross-border electricity trade in renewables, establishing common efficiency standards, or exploring an ASEAN carbon market or credit trading mechanism are avenues to collectively reduce emissions. There is also scope for collaborating on just transition efforts, like sharing strategies for retraining workers and managing the socio-economic impacts of moving away from coal.

Another critical area is climate finance: *Chapter 8* argues for pooling efforts to mobilize funding, for example by creating an ASEAN “green finance” catalyst fund or by submitting joint proposals to international climate funds (such as the Green Climate Fund) for regional projects. Smaller or less developed members, in particular, could benefit from a regional team that helps package bankable projects and attract investment – an approach aligning with the idea of ASEAN solidarity.

Underlying all these pathways is the insistence that any regional initiative remain voluntary and consensus-based, complementing national plans rather than imposing on them. By following these principles and focusing on shared interests, ASEAN can enhance its collective climate action without breaching the cherished norm of national sovereignty.

Policy recommendations at national and regional levels

To translate the analysis into action, *Chapter 9* provides actionable recommendations targeting both national governments and ASEAN as a regional organization. At the national level, the thesis calls for institutional reforms to strengthen “whole-of-government” climate governance.

A foremost recommendation is to empower national climate focal points or lead agencies so they can effectively coordinate across ministries. In practice, this means elevating

these bodies – whether they are climate change commissions, environmental ministries, or dedicated climate secretariats – to have higher political authority and resources, ideally under the head of government’s direct oversight. With stronger mandates, focal points can ensure that climate policies are mainstreamed into development planning and that various ministries (energy, transport, finance, etc.) align with NDC objectives.

Next, countries should formalize cross-ministerial and multi-level coordination. Regular high-level climate committee meetings, clear assignment of responsibilities, and inclusion of subnational authorities in planning are measures to break silos. For example, the thesis points to the Philippines’ Climate Change Commission as a model of a stand-alone body coordinating policy across sectors and government tiers.

Additionally, each country is invited to institutionalize inclusive climate policy processes by law or policy – moving beyond ad hoc stakeholder consultations to require that local communities, civil society, youth, and indigenous representatives have a seat at the table in climate strategy development. This could involve establishing permanent multi-stakeholder advisory panels or public consultation periods for major climate plans.

Finally, climate budget tagging and financing reforms are recommended so that governments can track and increase expenditures toward climate goals. By tagging climate-related investments in national budgets and aligning them with NDC priorities, countries improve transparency and can better attract international support. Collectively, these national-level recommendations aim to embed climate action into the core of governance, ensuring policies are coordinated, participatory, and adequately funded. At the regional level, the thesis recommends bolstering ASEAN’s capacity to support and complement national efforts. One proposal is to conduct a regular regional NDC stocktake – a voluntary, ASEAN-led review process where members periodically share updates on NDC implementation, challenges, and best practices. Such a platform would increase transparency and allow peer learning, akin to a regional version of the Paris Agreement’s global stocktake. In tandem, ASEAN could enhance the mandate of its climate bodies. For instance, the ASEAN Working Group on Climate Change and the forthcoming Climate Change Centre should be equipped with greater resources and technical expertise to not only formulate plans but also assist in implementation, track regional progress, and coordinate cross-sector initiatives. While they would remain non-binding forums, a stronger mandate could enable them to, for example, develop regional analytical tools, facilitate project preparation, or convene emergency climate dialogues when crises hit.

Another recommendation is to create an ASEAN Climate Finance Access Hub (or task force) to help match member states with funding opportunities. This could involve a team that identifies regional project opportunities – such as transboundary adaptation infrastructure or regional renewable energy investments – and prepares joint funding proposals to multilateral climate funds. By speaking with a collective voice, ASEAN countries could secure more climate finance than acting individually, especially for projects that benefit multiple states.

The thesis also suggests cross-pillar coordination within ASEAN: integrating climate considerations into ASEAN’s economic and socio-cultural community plans, so that trade, investment, and disaster management agendas all incorporate climate resilience and mitigation goals.

Lastly, building partnerships with external actors is key – ASEAN can deepen cooperation with dialogue partners (like the EU or Japan) and international agencies in ways that reinforce its regional climate objectives, ensuring external support aligns with ASEAN strategies rather than creating parallel frameworks. Through these steps, the regional level can provide leadership, technical backstopping, and collective impetus to raise the ambition and coherence of Southeast Asia’s climate action.

Voluntary regional monitoring framework for NDCs

One of the thesis's innovative contributions is the design of a voluntary regional indicator framework to track NDC implementation and encourage greater coherence (*Chapter 10*). It proposes a set of 19 indicators spanning three dimensions – effectiveness, inclusivity, and coherence – against which countries could self-assess and report progress.

The effectiveness indicators focus on outcomes like emissions trends relative to NDC targets, the implementation rate of pledged policies, and climate finance mobilized. These metrics reveal how well each country is delivering on its mitigation and adaptation commitments.

The inclusivity indicators measure the extent of stakeholder engagement and social equity in climate action: for example, whether institutional mechanisms for public participation exist, the incorporation of gender and indigenous perspectives in NDC initiatives, and transparency in climate decision-making.

Finally, coherence indicators evaluate alignment and collaboration – such as consistency between NDCs and national development plans, contributions to regional goals, or participation in transboundary climate projects.

Importantly, this entire framework is envisioned as a voluntary peer-review mechanism under ASEAN auspices. Member states would opt in to share data on these indicators and periodically discuss results. By shining a light on gaps in performance in a non-confrontational setting, the scheme seeks to create constructive competition – countries will be motivated to improve when they see their neighbours making progress. It also facilitates peer learning: good practices identified through the indicators can be shared and emulated. Over time, this transparency could build mutual confidence and nudge all members toward higher standards, effectively ratcheting up ambition without imposing binding targets. Additionally, as noted in the thesis, robust monitoring and demonstrated commitment can help attract international climate finance – donors and investors are more likely to support countries that openly track and report their climate actions. While purely voluntary, the indicator framework would institutionalize a norm of accountability and cooperation in ASEAN climate governance, filling a critical gap between national efforts and global oversight. The success of this approach would depend on trust and data reliability, but if implemented, it could become a cornerstone of ASEAN's collective climate effort.

Conclusion

The research finds that transparent and voluntary regional coherence can significantly amplify ASEAN's climate response. National actions in Southeast Asia, if left entirely uncoordinated, will continue to fall short of the transformative change required – both in cutting emissions and in safeguarding communities from intensifying climate impacts. However, ASEAN is presented with an opportunity to harness its regional solidarity and shared interest in stability to bolster those national actions through cooperation. A model of regional climate governance based on voluntary commitments, mutual support, and peer transparency can achieve outcomes that isolated national policies cannot. By voluntarily aligning NDC ambitions, learning from each other's innovations, pooling resources, and addressing cross-border issues together, ASEAN members can collectively raise their climate ambition and implementation efficiency while respecting sovereignty. This approach is particularly apt given ASEAN's consensus-driven culture – it avoids imposing top-down rules yet encourages a race to the top through shared norms and reputational incentives. As the 2035 NDC cycle begins and countries prepare to update their contributions, the timing is critical. The window is open for ASEAN to move from rhetorical unity to practical collaboration, thereby transforming climate change from an area of cautious minimalism into one of proactive regional leadership.

Acronyms

AADMER	ASEAN Agreement on Disaster Management and Emergency Response
AATHP	Agreement on Transboundary Haze Pollution
ACC THPC	ASEAN Coordinating Centre for Transboundary Haze Pollution Control
ACCC	ASEAN Centre for Climate Change
ACCEPT	ASEAN Climate Change and Energy Project
ACCF	ASEAN Common Carbon Framework
ACCSAP	ASEAN Climate Change Strategic Action Plan
ACE	ASEAN Centre for Energy
ACGF	ASEAN Catalytic Green Finance Facility
ACLP	ASEAN Climate Leadership Programme
ADB	Asian Development Bank
ADRFI	ASEAN Disaster Risk Financing and Insurance
AEC	ASEAN Economic Community
AEDP	Alternative Energy Development Plan
AFMGM	ASEAN Finance Ministers and Central Bank Governors' Meeting
AFOLU	Agriculture, Forestry and Other Land Use
AHA	ASEAN Humanitarian Assistance
AIMS	ASEAN Interconnection Masterplan Study
AIPP	Asia Indigenous Peoples Pact
AJCC	ASEAN Joint Statement on Climate Change
AMAN	Aliansi Masyarakat Adat Nusantara
AMME	ASEAN Ministerial Meeting on the Environment
AMS	ASEAN Member States
APAEC	ASEAN Plan of Action for Energy Co-operation
APG	ASEAN Power Grid
APHR	ASEAN Parliamentarians for Human Rights
ASCC	ASEAN Socio-Cultural Community
ASCCR	ASEAN State of Climate Change Report
ASEAN	Association of Southeast Asian Nations
ASEANCOF	ASEAN Climate Outlook Forum
ASOEN	ASEAN Senior Officials on Environment
AWGCC	ASEAN Working Group on Climate Change
BAU	Business-as-Usual
BAPPENAS	Badan Perencanaan Pembangunan Nasional (Indonesia)
BBC	British Broadcasting Corporation
BRWA	Ancestral Domain Registration Agency
BUR	Biennial Update Report
CBDR	Common but Differentiated Responsibilities
CCC	Climate Change Commission (Philippines)
CCS	Carbon Capture and Storage

CEIAS	Central European Institute of Asian Studies
CETWG	Carbon & Energy Transition Working Group
CGIAR	Consultative Group on International Agricultural Research
CLMV	Cambodia, Lao PDR, Myanmar and Viet Nam
COP	Conference of the Parties
CSO	Civil Society Organization
DGCC	Directorate-General of Climate Change (Indonesia)
DOE	Department of Energy (Philippines)
DPM	Deputy Prime Minister
DPTF	Disaster Prevention and Response Task Force
ETF	Enhanced Transparency Framework
EU	European Union
EV	Electric Vehicle
EVN	Vietnam Electricity
FAO	Food and Agriculture Organization
FCCC/CP	Framework Convention on Climate Change / Conference of the Parties
FY	Fiscal Year
GAP	Gender Action Plan
GAR	Global Assessment Report
GATRIK	Director-General of Electricity (Indonesia)
GDP	Gross Domestic Product
GCF	Green Climate Fund
GHG	Greenhouse Gas
GOCC	Government-Owned and Controlled Corporation
GST	Global Stocktake
GW	Gigawatt
HFC	Hydrofluorocarbon
ICAT	Initiative for Climate Action Transparency
ICCC	Inter-ministerial Committee on Climate Change (Singapore)
IEA	International Energy Agency
IFC	International Finance Corporation
IGES	Institute for Global Environmental Strategies
ILO	International Labour Organization
IMF	International Monetary Fund
IPCC	Intergovernmental Panel on Climate Change
IPR	Intellectual Property Rights
JETP	Just Energy Transition Partnership
KLHK	Kementerian Lingkungan Hidup dan Kehutanan (Indonesia)
Lao PDR	Lao People's Democratic Republic
LED	Light-emitting Diode
LTS	Long-term Strategy
LT-LEDs	Long-Term Low-Emission Development Strategy
LULUCF	Land Use, Land-use Change and Forestry
MONREC	Ministry of Natural Resources and Environmental Conservation (Myanmar)

MONRE	Ministry of Natural Resources and Environment (Viet Nam)
MRV	Monitoring, Reporting and Verification
NECCCCC	National Environmental Conservation and Climate Change Central Committee (Myanmar)
NEC	Nationally Exempted Category
NCCS	National Climate Change Secretariat (Singapore)
NDC	Nationally Determined Contribution
NDCP	NDC Partnership
NDCI	NDC Implementation Plan
NGO	Non-Governmental Organization
ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development
PA	Paris Agreement
PDP8	Power Development Plan 8 (Viet Nam)
PMO	Prime Minister's Office
PPP	Public-Private Partnership
RE	Renewable Energy
REDD+	Reducing Emissions from Deforestation and Forest Degradation plus
RPJMN	Rencana Pembangunan Jangka Menengah Nasional (Indonesia's Medium-Term Development Plan)
SDG	Sustainable Development Goal
SEWG	Sustainability & Engagement Working Group
SIPRI	Stockholm International Peace Research Institute
SME	Small and Medium-sized Enterprise
SPP	Small Power Producer
TA	Technical Assistance
TCFD	Task Force on Climate-related Financial Disclosures
TSP	Third Shadow Plan
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNFCCC	United Nations Framework Convention on Climate Change
USA	United States of America
USD	United States Dollar
WB	World Bank
WHO	World Health Organization
WWF	World Wide Fund for Nature

Table of contents

ACKNOWLEDGEMENTS	2
EXECUTIVE SUMMARY	3
ACRONYMS.....	10
TABLE OF CONTENTS.....	13
LIST OF TABLES	17
CHAPTER 1: INTRODUCTION AND RESEARCH DESIGN	18
1.1. ASEAN’S EXPOSURE TO CLIMATE RISKS AND INTERNAL DIVERSITY.....	18
1.2 THE NDC FRAMEWORK UNDER THE PARIS AGREEMENT	23
1.3. ASEAN ENVIRONMENTAL GOVERNANCE: LEGAL BASIS AND INSTITUTIONAL ARCHITECTURE	25
1.4 RESEARCH PROBLEM, CENTRAL QUESTIONS, AND HYPOTHESES	26
1.5. MIXED-METHODS RESEARCH DESIGN	28
1.6 LITERATURE REVIEW AND IDENTIFICATION OF RESEARCH GAPS	30
PART 1: THE ARCHITECTS OF AMBITION: NATIONAL GOVERNANCE AND THE FORMULATION OF NDCS.....	35
CHAPTER 2: NDC FORMULATION AND GOVERNANCE: INSTITUTIONS, PERCEPTIONS, AND PARTICIPATION	35
2.1. INSTITUTIONAL ARCHITECTURE FOR CLIMATE GOVERNANCE.....	35
2.1.2. <i>Comparative case studies: centralized vs. fragmented governance models</i>	37
(a) Singapore: a centralized, technocratic model	37
(b) Viet Nam: a hybrid model of centralized direction and sectoral fragmentation	37
(c) Indonesia: A decentralized and institutionally complex model.....	38
2.2. STAKEHOLDER PARTICIPATION: FROM FORMAL CONSULTATION TO MEANINGFUL INFLUENCE.....	39
(a) Indigenous Peoples: persistent marginalization	41
(b) Youth and Gender: visibility without decision-making power	41
(c) Comparative assessment	42
2.3. THE DUAL IDENTITY OF NDCs: INTERNATIONAL COMMITMENT VS. NATIONAL DEVELOPMENT COMPASS.....	44
BIBLIOGRAPHY	46
CHAPTER 3: AMBITION AND CONTENT ANALYSIS: A COMPARATIVE REVIEW OF ASEAN NDCS	50
3.1. CLARITY AND AMBITION OF MITIGATION TARGETS	50
3.1.1. <i>Target types: absolute, intensity-based, and business-as-usual (BAU)</i>	50
3.1.2. <i>The role of conditionality: dependence on international support</i>	52
3.2. SECTORAL PRIORITIES AND STRATEGIC FOCUS	54
3.2.1. <i>Mitigation focus: energy, LULUCF, transport, and agriculture</i>	54
(a) LULUCF-Centric Strategies.....	54
(b) Energy-centric strategies	55
(c) Technology-driven and hybrid strategies.....	55
3.2.2. <i>Adaptation integration and co-benefits</i>	56
3.3. DISPARITIES IN AMBITION: DRIVERS AND IMPLICATIONS FOR REGIONAL COHERENCE	57
3.3.1. <i>National circumstances as structural determinants of ambition</i>	57
3.3.2. <i>Regional coherence under constraint: limits and pragmatic alternatives</i>	58
BIBLIOGRAPHY	59
CHAPTER 4: FROM COMMITMENT TO ACTION: IMPLEMENTATION READINESS AND POLICY INTEGRATION.....	61
4.1. ALIGNING NDCs WITH NATIONAL DEVELOPMENT PLANNING	61
4.1.1. <i>Integration with long-term strategies (LT-LEDS) and national policies</i>	61
(a) Institutionalized coherence: NDCs embedded in national and long-term planning	61
(b) Policy contradiction beneath formal alignment.....	62
(c) Political disintegration and policy paralysis	63

4.1.2. Climate budget tagging and public finance tracking	63
(a) Institutionalized systems: Philippines and Indonesia	64
(b) Emerging or partial frameworks: Thailand and Viet Nam	64
(c) Divergent models and financial opacity: Singapore and Myanmar	65
4.2. INSTITUTIONAL AND TECHNICAL READINESS	66
4.2.1. Monitoring, reporting, and verification (MRV) systems and ETF preparedness	66
(a) Consolidated, digitalized, and legally enforceable systems: Singapore	66
(b) Institutionalized systems with growing coordination but persistent fragmentation: Indonesia and Thailand	67
(c) Systems under construction, legally enabled but unevenly operationalized: Viet Nam and the Philippines	67
(d) Institutional collapse and absence of operational systems: Myanmar	68
4.2.2. Identified gaps in capacity-building and technology transfer	69
(a) Subnational and local implementation capacity	70
(b) Technical and specialized human capital	70
(c) Access to and adaptation of climate technologies	71
4.3. SUBNATIONAL IMPLEMENTATION: THE VERTICAL COORDINATION BOTTLENECK	71
(a) Mandate clarity and institutional coordination	71
(b) Vertical coherence of plans and instruments	72
(c) Political alignment and incentive structures	72
(d) Emerging ASEAN mechanisms	72
BIBLIOGRAPHY	73
PART II: THE CASE FOR REGIONAL ALIGNMENT: COMMON CHALLENGES AND SHARED RESPONSIBILITIES	78
CHAPTER 5: CLIMATE INTERDEPENDENCE: SHARED RISKS AND VULNERABILITIES	78
5.1. REGIONAL EXPOSURE TO TRANSBOUNDARY CLIMATE HAZARDS	78
5.1.1. Typhoons, sea-level rise, and shared coastal risks	79
(a) Shared exposure to slow-onset and acute coastal risks	79
(b) Acknowledged risks, fragmented responses	80
(c) Case studies: megacities on the edge	80
(d) Regional risk, national blind spots	81
5.1.2. TRANSBOUNDARY HAZE POLLUTION AND FOREST FIRES	82
(a) Nationally Determined Commitments: the absent transboundary agenda	83
(b) A regional instrument without enforcement: the limits of the ASEAN Haze Agreement	83
(c) Civil society pressure and emerging alternatives	84
(d) A crisis uncontained: 2023 as a case in point	84
5.1.3. Floods and droughts: shared hydro-meteorological challenges	85
(a) A region defined by hydro-meteorological extremes	85
(b) National impacts and adaptation efforts	85
(c) The case for regional cooperation and shared learning	86
5.2 ECOLOGICAL INTERCONNECTIONS AND THE WATER-ENERGY-FOOD NEXUS	86
5.2.1 The Mekong River Basin: Shared resources and competing interests	86
(a) Upstream actions, downstream consequences	86
(b) Weak integration in NDCs	87
(c) Institutional cooperation and its limitations	87
(d) Nexus consequences: energy trade-offs and food insecurity	88
5.2.2 Deforestation corridors and biodiversity loss	88
(a) Shared ecosystems, shared pressures	88
(b) NDC commitments and fragmented implementation	89
(c) Leakage and coordination failures: concrete examples	89
(d) Existing cooperation and unrealized potential	89
5.3 THE INADEQUACY OF SILOED NATIONAL RESPONSES TO TRANSBOUNDARY THREATS	90
(a) The blind spots of isolated planning	90
(b) Concrete cases of coordination failure	90
(c) The political and institutional constraints to deeper cooperation	91
(d) Toward pragmatic regional solutions	91
BIBLIOGRAPHY	92
CHAPTER 6: ECONOMIC INTEGRATION AND THE IMPERATIVE FOR COORDINATED ACTION	96

6.1. THE ASEAN ECONOMIC COMMUNITY: INTERLINKED VALUE CHAINS	96
6.1.1. <i>Cascading risks in manufacturing and electronics value chains: The 2011 Thailand floods as precedent</i>	97
(a) A localized disaster with regional consequences	97
(b) Fragility through efficiency: Structural misalignments in ASEAN's production mode	97
6.1.2. <i>Climate threats to the regional agri-food value chain</i>	98
(a) Mekong-fed agriculture under climate stress	98
(b) National NDCs and the neglected transboundary risk	98
6.2. CROSS-BORDER INFRASTRUCTURE AND ENERGY COOPERATION	100
6.2.1. <i>The ASEAN power grid (APG): opportunities and vulnerabilities</i>	100
(a) Regional optimization through energy interconnection	100
(b) Infrastructure exposure and cascading vulnerability	100
(a) Sovereignty over electrons	101
(b) The interdependence paradox: energy security through vulnerability	102
6.3. THE ECONOMIC RISKS OF UNCOORDINATED CLIMATE POLICIES	102
(a) Policy fragmentation and investment uncertainty	103
(b) Divergent carbon pricing, leakage, and external trade pressures	103
(c) The fossil-gas gamble: stranded-asset and systemic financial risk	104
BIBLIOGRAPHY	105
CHAPTER 7: ASEAN'S CLIMATE GOVERNANCE ARCHITECTURE: INSTRUMENTS, INSTITUTIONS, AND CONSTRAINTS	108
7.1. THE INSTITUTIONAL LANDSCAPE FOR CLIMATE ACTION	108
7.1.1. <i>The ASEAN Working Group on Climate Change (AWGCC)</i>	108
(a) Technical coordination and regional knowledge production	108
(b) Structural limitations and non-binding governance	109
7.1.2. <i>The ASEAN Centre for Climate Change (ACCC): mandate and potential</i>	110
(a) A centralised hub for coordination and integration	110
(b) Institutional layering and the limits of political will	110
7.2. THE "ASEAN WAY": STRUCTURAL LIMITS OF SOFT REGIONALISM	111
7.2.1. <i>The principles of non-interference and consensus-based decision-making</i>	111
(a) Institutional logic and the limits of soft regionalism	112
(b) The ASEAN Agreement on Transboundary Haze Pollution (AATHP) as a stress test	112
7.2.2. <i>Gaps in mandate, coordination, and enforcement capacity: a comparative perspective with the European Union</i>	113
7.3. ASEAN'S INTERFACE WITH MULTILATERAL CLIMATE INSTITUTIONS	114
7.3.1. <i>ASEAN in the UNFCCC process and NDC Partnership</i>	114
(a) Diplomatic alignment and the performance of unity	114
(b) Fragmented national delivery through diverging NDCs	114
(c) The NDC Partnership: bilateralism over regionalism	114
7.3.2. <i>Engagement with the GCF, ADB, and regional climate finance mechanisms</i>	115
(a) Conditionality and the trust deficit in climate finance	115
(b) Key sources of multilateral climate finance	115
(a) Toward regional climate finance architecture: The ASEAN Catalytic Green Finance Facility	116
7.4. KEY REGIONAL INSTRUMENTS: FROM DECLARATIONS TO ACTION PLANS	116
(a) The structure of ASEAN's legal and policy instruments	117
(b) Case study: The success of the ASEAN Agreement on Disaster Management and Emergency Response (AADMER)	117
BIBLIOGRAPHY	119
PART III: TOWARD EFFECTIVE REGIONAL CLIMATE GOVERNANCE: OPERATIONAL RECOMMENDATIONS	122
CHAPTER 8: STRATEGIC PATHWAYS FOR THEMATIC COOPERATION AND REGIONAL INITIATIVES	122
8.1. GUIDING PRINCIPLES	122
8.1.1 <i>Leveraging complementarities for mutual benefit</i>	122
8.1.2. <i>Soft coordination tools: voluntary guidelines, peer learning, and thematic platforms</i>	123
8.1.3. <i>Political calculus: scenarios for deeper coordination and the role of leadership and trust</i>	123
8.2. JOINT ADAPTATION AND RESILIENCE PROJECTS	124
8.2.1. <i>Transboundary disaster risk management (Mekong, coastal zones)</i>	124

8.3. COORDINATED MITIGATION AND TRANSITION STRATEGIES	126
8.3.1. <i>Aligning energy transition policies and supporting the ASEAN power grid</i>	126
8.3.2. <i>Exploring regional carbon pricing mechanisms</i>	127
8.4. MOBILIZING REGIONAL CLIMATE FINANCE THROUGH SHARED MECHANISMS	128
8.4.1 <i>Strengthening access to international climate funds through joint proposals</i>	128
8.4.2 <i>Establishing ASEAN-led financing platforms and climate risk pooling</i>	129
BIBLIOGRAPHY	131
CHAPTER 9: TRENGTHENING THE ARCHITECTURE: ACTIONABLE RECOMMENDATIONS FOR MULTI-LEVEL GOVERNANCE	133
9.1. NATIONAL-LEVEL REFORMS	133
9.1.1. <i>Empowering focal points</i>	133
9.1.2. <i>Strengthening institutional coordination</i>	134
9.1.3. <i>Institutionalizing inclusive co-design</i>	134
9.1.4. <i>Implementing climate budget tagging</i>	135
9.2. ASEAN-LEVEL MECHANISMS	136
9.2.2. <i>Hosting the voluntary regional monitoring framework</i>	137
9.2.3. <i>Fostering cross-pillar coordination</i>	138
9.2.4. <i>Leveraging existing platforms for peer learning and capacity exchange</i>	139
9.3. THE ROLE OF INTERNATIONAL PARTNERS: ALIGNING SUPPORT WITH ASEAN'S FUNCTIONAL COOPERATION MODEL	140
9.3.1. <i>Aligning donor support with ASEAN's functional cooperation model</i>	141
9.3.2. <i>Coordinating external technical assistance and South–South cooperation</i>	142
BIBLIOGRAPHY	144
CHAPTER 10: FRAMEWORK FOR COHERENCE: VOLUNTARY INDICATORS FOR TRACKING PROGRESS	146
10.1. RATIONALE FOR A VOLUNTARY REGIONAL MONITORING FRAMEWORK	146
10.2. EFFECTIVENESS INDICATORS: EMISSIONS, IMPLEMENTATION, FINANCE	147
10.3. INCLUSIVITY INDICATORS: PARTICIPATION, GENDER, YOUTH, INDIGENOUS PEOPLES.....	149
10.4. COHERENCE INDICATORS: ASEAN ALIGNMENT, TRANSBOUNDARY COLLABORATION	151
CHAPTER 11: CONCLUSION	153
11.1. SUMMARY OF FINDINGS AND CENTRAL ARGUMENT	153
(a) Fragmented ambition despite Paris alignment	153
(b) Ambition gap and divergent trajectories	153
(c) Uneven implementation capacities	153
(d) Coordination mechanisms and integration efforts	153
(e) Deficits in stakeholder participation	154
(f) Regional climate governance remains soft and limited.....	154
(g) Positive models for voluntary cooperation	154
(h) Coherence as a catalyst for ambition	155
11.2. LIMITATIONS AND FUTURE RESEARCH DIRECTIONS	155
(a) Scope and country coverage limitations	155
(b) Interview and survey constraints	156
(c) Temporal limitations.....	156
(d) Unpiloted indicator framework.....	156
(e) Future avenues: expanding and testing the framework	157
(f) Political economy and institutional uptake	157
(g) Institutional evolution and monitoring	157
11.3. PERSONAL LESSONS LEARNED	158
(a) Learning from field experience	158
(b) Defending ideas through regional dialogue	158
(c) Immersion through the ASEAN-China Norms summer school.....	159
(e) Looking ahead.....	159

List of tables

Table 1: References to inclusion in NDC texts	43
Table 2: NDC target design in six ASEAN Member States.....	52
Table 3: NDC ambition split and stated financing needs	53
Table 4: MRV and ETF systems in six ASEAN countries.....	68
Table 5: Comparative coastal climate risk exposure and NDC adaptation focus.....	82
Table 6: Climate risk exposure in key ASEAN regional value chains	99
Table 7: Comparative climate governance: ASEAN vs European Union.....	113
Table 8: Climate finance flows vs needs for AMS.....	116

Chapter 1

Introduction and research design

1.1. ASEAN's exposure to climate risks and internal diversity

The Association of Southeast Asian Nations (ASEAN), comprising ten Member States, stands at a critical juncture, characterized by both dynamic economic growth and profound vulnerability to the impacts of climate change (Asian Development Bank, 2011). Despite contributing a relatively small percentage to historical global greenhouse gas (GHG) emissions, around 6.87% from 1990 to 2019, the region's net emissions have grown rapidly, increasing by 178.4% excluding the land use sector (World Resources Institute, 2022). This growth is closely linked to rapid industrialization and economic expansion, which necessitate increased energy consumption, often from fossil fuels, and land-use change leading to deforestation (Seah, S., and Martinus, M., 2021). ASEAN's population will exceed 770 million by 2040 (ASEAN Secretariat, 2021), and its economy is projected to become the world's fourth largest single market by 2030, potentially driving GHG emissions further upwards (Asian Development Bank, 2011).

The region is uniquely vulnerable to the physical impacts of climate change due to a confluence of geographical, socio-economic, and developmental factors. Southeast Asia is widely recognized as one of the most at-risk regions globally (Putra B., 2024). A significant factor is the concentration of population and economic activities along its extensive coastline, one of the longest in the world at 234,000 km (PEMSEA, 2013). An estimated 77% of the ASEAN population resides in coastal areas, with approximately 229 million people living below the high tide line (ASEAN Secretariat, 2021). This includes substantial populations in Indonesia (72 million), Vietnam (60 million), the Philippines (36 million), and Thailand (22 million). Projections indicate severe consequences from sea level rise, with nearly 90% of Vietnam's population, 54% of Thailand's, 24% of the Philippines', and 21% of Indonesia's potentially affected under high-emission scenarios like RCP8.5 (Kulp, S. A., 2019). Even a slight rise in sea levels could have catastrophic impacts on densely populated cities like Bangkok, Manila, Yangon, Ho Chi Minh City, and Jakarta. Furthermore, many of the region's fertile agricultural lands are in vulnerable coastal areas.

Beyond coastal risks, ASEAN countries face frequent and intensifying extreme weather events, including typhoons, floods, droughts, heat waves, and landslides. Between 1999 and 2018, five ASEAN Member States were ranked among the top 20 countries globally most affected by extreme weather events: Myanmar (3rd), the Philippines (5th), Viet Nam (9th), Thailand (13th), and Cambodia (19th or 13th depending on the reporting period) (Eckstein, D. et al., 2018). These events have resulted in significant economic and social losses, with impacts on agriculture, tourism, energy, labour productivity, health, and ecosystems. Myanmar, the Philippines, Viet Nam, and Thailand, in particular, have reported high losses relative to their GDP.

The region's vulnerability is compounded by high levels of poverty in some countries, which reduces their capacity to respond and recover from disasters. Natural disasters often trap vulnerable populations further in poverty. Dependence on climate-sensitive sectors, particularly agriculture, forestry, and fisheries, is high in countries like Cambodia, Lao PDR, Myanmar, and

Viet Nam (CLMV). Climate change impacts, such as changes in rainfall patterns, droughts, and saline intrusion, directly threaten agricultural production and the livelihoods of a significant portion of the population (Putra B., 2024). Thailand, Indonesia, and the Philippines also face similar agricultural impacts, though they are considered to have higher adaptive capacities than the CLMV countries (Asian Vision Institute, 2022).

Furthermore, high rates of deforestation and forest degradation persist, contributing significantly to the region's GHG emissions, accounting for 43% of total emissions in 2014 (RECOFTC, 2020). While forests provide crucial ecosystem services, enhance adaptive capacity, and serve as socio-economic safety nets, their rapid decline, which has seen a loss of almost 7 million hectares between 2013 and 2019, threatens these functions and contributes to biodiversity loss, projected to reach 40% by 2100 (Estoque et al., 2019).

Adding to the complexity, ASEAN comprises Member States with significant diversity in geographies, levels of economic development, and governance systems. This diversity influences each country's climate risks and capacity to respond. For instance, while countries like Brunei Darussalam, Malaysia, and Singapore have economies less sensitive to climate impacts, focusing more on services and industries, others remain heavily reliant on vulnerable sectors. Despite national-level commitments and efforts to integrate climate considerations into development plans, implementation at the subnational and local levels faces challenges, including policies being introduced superficially, slow trickle-down, project-orientation, and a lack of prioritized focus or understanding of climate change impacts unless paired with disaster risk reduction (ASEAN Secretariat, 2021).

The ASEAN region has acknowledged the threat of climate change through various declarations and its Community Vision 2025 (ASEAN Secretariat, 2015) with all Member States having submitted Nationally Determined Contributions (NDCs) under the Paris Agreement, outlining post-2020 objectives for mitigation and adaptation. Successive NDCs are expected to show progression, and parties agreed at COP26 to "revisit and strengthen" them (ASEAN Secretariat, 2021). Some countries have set ambitious targets, such as Singapore aiming for net zero emissions by 2050 (Singapore Government, 2022). However, there is also recognition of a lack of decisive collective action and potentially insufficient efforts to match the growing threat. The consensus-based ASEAN Way and varying national circumstances present challenges for regional alignment and imposing collective measures. Some analysis suggests that elevating climate change from a "risk" perception to an "existential threat" could drive more urgent and integrated responses across the region (Putra B., 2024).

This urgency is already palpable among many informed Southeast Asians; for instance, the State of Southeast Asia Survey (2023) showed that a majority of respondents from across the region identified climate change impacts, such as more intense extreme weather events (57.1%) and increased severity of floods/droughts (50.5%), as among the most serious challenges confronting them. Yet, despite this widespread recognition of climate change as a critical threat by the broader expert community and segments of the public, the translation of this concern into sufficiently robust and unified regional action by those in power faces persistent hurdles.

The ASEAN State of Climate Change Report (ASCCR) explicitly concludes that a "one-size-fits-all" strategy is inadequate for this highly diverse region (ASEAN Secretariat, 2021). Southeast Asia's diverse nature means that implementing solutions requires approaches tailored to local conditions. This diversity extends across numerous dimensions, including geographical features, levels of economic and social development, governance structures, and specific climate risk profiles. Countries vary significantly in their emissions profiles, national-level climate targets, and levels of state capacity and readiness. Furthermore, there is considerable diversity in the political, economic, environmental, and governance spheres that each country has developed. This heterogeneity influences each nation's climate risks and capacity to respond

effectively. ASEAN's operation through consensus, the paramount nature of national sovereignty, and the absence of a central authority to standardize or enforce climate targets makes it fundamentally different from other regional blocs like the European Union (Bal, C., et al., 2023). This "ASEAN Way," characterized by principles of non-interference and consensus decision-making, presents significant challenges for achieving regional alignment and imposing collective measures or common targets (Desierto, et al., 2020).

Given this profound diversity and the necessity for context-specific approaches, this analysis focuses in depth on six ASEAN Member States: Indonesia, Myanmar, the Philippines, Singapore, Thailand, and Viet Nam. These countries were selected to represent the spectrum of diversity within the region in terms of governance models, climate exposure profiles, and the design and ambition status of their Nationally Determined Contributions (NDCs).

Indonesia: As the world's largest archipelagic nation, comprising over 17,000 islands and the planet's third-largest rainforest, Indonesia presents a complex tapestry of climate vulnerability and significance. Its geographical landscape is defined by extensive coastlines (second longest globally) with vast low-lying areas, making it acutely susceptible to sea-level rise, projections suggest over 100 islands could be submerged, and critical urban centres like Jakarta are experiencing significant subsidence, prompting considerations for relocating the capital. The nation is predominantly Muslim (around 87%, largely Sunni), with recognized Christian, Hindu, and Buddhist minorities, all coexisting under the state ideology of Pancasila; this religious fabric influences social responses to environmental and developmental challenges. Socio-economically, Indonesia grapples with significant populations in vulnerable coastal zones (approximately 72 million) and a heavy reliance on climate-sensitive sectors like fisheries, which contribute substantially to the economy (USD 26.9 billion) and food security but face potential declines of 20-30% by 2050 due to climate change. Widespread deforestation, often for agriculture (especially palm oil) and driven by global demand, not only positions Indonesia as one of the region's largest GHG emitters, particularly from land use, land-use change, and forestry (LULUCF) and devastating peatland fires, but also destroys critical biodiversity (hosting 10% of the world's mammal species) and impacts local livelihoods. Peatland degradation is a severe issue, leading to massive carbon releases, increased flooding, and loss of freshwater resources, especially in Sumatra and Kalimantan. Politically, while possessing advanced national climate frameworks and engaging in initiatives like the Just Energy Transition Partnership (JETP), the decentralized governance structure poses persistent challenges for effective subnational implementation of climate policies. Allegations of political favoritism in climate program appointments also raise concerns about the efficacy of climate fund utilization. For this thesis, Indonesia is crucial due to its sheer scale as an emitter, its extreme vulnerability as an archipelago with globally significant forest and peatland resources, and the governance complexities shaping its energy transition and NDC implementation.

Myanmar, ranked among the top countries globally most affected by extreme weather events, faces a confluence of acute climate risks and profound political instability. Its geographical landscape includes extensive river systems like the Ayeyarwady, fertile deltas, and significant forest cover, though the latter is rapidly diminishing. The majority of the population practices Theravada Buddhism (around 90%), which is deeply intertwined with the national culture, while Christian minorities (around 8%), particularly among ethnic groups like the Kachin and Karen, often reside in border regions experiencing conflict and environmental pressures. The nation's socio-economic fabric, heavily reliant on agriculture, has been severely frayed by the double impact of the COVID-19 pandemic and the 2021 military coup, which has reportedly doubled poverty rates (to nearly 50% by 2022) and crippled climate resilience efforts. Livelihoods are under threat from intensified flooding, droughts, and cyclones, leading to widespread internal displacement. Environmental degradation is rampant, with alarming

deforestation rates driven by illegal logging, agricultural expansion, and the exploitation of resources like jade and gold, often exacerbated by the conflict and weak governance. This destruction extends to vital ecosystems, leading to soil erosion, water pollution, and threats to biodiversity, including coastal marine life. Politically, the post-coup landscape has dismantled previous climate governance structures, leading to Myanmar's absence from international climate forums and a severe impediment to implementing its NDC, which initially lacked economy-wide targets. Myanmar's relevance to this study lies in its extreme vulnerability profile, the stark illustration of how political instability and conflict can devastate climate action, and the challenges of addressing environmental issues in a failed-state context, severely limiting its capacity for NDC progression.

The Philippines, an archipelago of over 7,600 islands situated on the Pacific Ring of Fire and squarely within the typhoon belt, endures a relentless barrage of climatic hazards. Its geography is characterized by extensive coastlines, mountainous interiors, and significant biodiversity, including being a global centre for shorefish diversity. The population is predominantly Christian (over 90%, mainly Roman Catholic), a legacy of Spanish colonization, with a notable Muslim minority in the southern region of Mindanao and diverse indigenous communities whose spiritual practices are often tied to nature. Socio-economically, the nation faces immense challenges from recurrent disasters like super-typhoons (averaging 20 per year), which inflict billions of dollars in damages, displace hundreds of thousands, and trap vulnerable communities in cycles of poverty. Sea-level rise is occurring at a rate faster than the global average, threatening millions in coastal areas and vital agricultural lands. Environmental problems extend beyond cyclones to include severe deforestation due to logging and agricultural conversion, rampant plastic pollution, significant air and water pollution in urban centres like Manila, and mining impacts. Politically, the Philippines operates under a presidential system with a fragmented multi-party landscape often dominated by political dynasties and characterized by decentralized governance. While possessing robust national climate laws, the translation of these policies and NDC commitments into effective, locally implemented actions is a persistent challenge, complicated by limited fiscal space and the sheer scale of adaptation needs. The Philippines is a critical case study due to its hyper-vulnerability to climate impacts, its experience in disaster risk reduction, and the complexities of implementing ambitious climate targets within a challenging governance and socio-economic context.

Singapore stands as a unique city-state within ASEAN: a small, densely populated, low-lying island nation with a highly developed, trade-dependent economy. Its geographical reality, a mere 730 km² with no natural hinterland, dictates its acute vulnerability, particularly to sea-level rise, which threatens its very existence and critical infrastructure. The society is a religiously diverse and harmonious multicultural hub, with significant Buddhist, Christian, Muslim, Taoist, and Hindu populations, alongside a growing number of individuals with no religious affiliation; this diversity is a managed cornerstone of its social stability. Socio-economically, Singapore faces challenges such as an ageing population, resource scarcity (water, food, and energy, necessitating innovative solutions like desalination and vertical farming), and exposure to global economic volatility. Environmental concerns beyond sea-level rise include managing urban heat island effects, ensuring water security through its "Four National Taps" (including imported water, local catchment, NEWater, and desalination), and addressing its per capita carbon footprint, which is high for the region due to its energy-intensive industrial and urban systems, despite its relatively small absolute emissions. Singapore also plays a significant role in the global fossil fuel trade as a major refining and trading hub. Politically, its centralized and stable governance system has enabled proactive, long-term climate planning, evident in its comprehensive Singapore Green Plan 2030 and its ambitious (for its context) NDC target of achieving net-zero emissions by 2050. It is a regional

leader in adaptation technologies and sustainable urban solutions. Singapore's relevance for this thesis stems from its position as a highly vulnerable developed nation pushing innovation in climate adaptation and mitigation, its unique national circumstances shaping its climate policy, and its contrasting governance model within ASEAN, which allows for decisive, albeit nationally focused, climate action.

Thailand, with its extensive coastlines along the Gulf of Thailand and the Andaman Sea, fertile central plains reliant on river systems like the Chao Phraya, and mountainous northern regions, exhibits significant geographical diversity and corresponding climate vulnerabilities. Theravada Buddhism is the predominant religion for over 90% of the population, deeply influencing Thai culture, social ethics, and even responses to environmental challenges, often alongside animistic and Hindu-influenced folk beliefs. There are also Muslim communities, particularly in the southern border provinces, and smaller Christian and other religious groups. Socio-economically, Thailand is grappling with the impacts of extreme weather events, including devastating floods that affect urban areas like Bangkok and droughts that plague its agricultural heartlands, especially in the north-east, impacting livelihoods and food security for a sector that still employs a significant portion of the workforce. Coastal erosion is a severe problem, with some areas losing several meters of coastline annually, and Bangkok itself is subsiding and increasingly flood prone. Key environmental issues include severe air pollution episodes in major cities and agricultural burning hotspots, persistent deforestation and forest degradation (despite conservation efforts), water scarcity, and industrial pollution. Politically, Thailand has experienced periods of instability, with governance characterized by a centralized bureaucracy that faces challenges in implementing national climate policies and NDCs effectively at subnational levels. While climate change is integrated into national strategies, and it is considered to have higher adaptive capacity than CLMV countries, its heavy reliance on fossil fuels for energy and the economic importance of vulnerable sectors like tourism and agriculture make its climate transition complex. Thailand is relevant for this study due to its significant exposure to varied climate impacts, the challenges of balancing economic development with environmental protection, and the complexities of policy implementation within its specific political and economic structure.

Viet Nam's long, S-shaped geography, with over 3,200 km of coastline, two major deltas (the Red River Delta in the north and the critically important Mekong Delta in the south), and mountainous forested regions, renders it exceptionally vulnerable to climate change. While officially an atheistic state under Communist Party rule, religious life is vibrant and diverse. Buddhism is widespread, often syncretized with traditional folk religions, including ancestor veneration. There is a significant Catholic population (a legacy of French colonialism), growing Protestant communities (especially among ethnic minorities), and unique indigenous religions like Cao Đài and Hòa Hảo Buddhism. Confucian values also deeply permeate social and political structures. Socio-economically, Viet Nam's rapid economic growth is intertwined with its climate vulnerabilities. The Mekong Delta, the nation's "rice bowl" and aquaculture hub, faces an existential threat from sea-level rise (projected to inundate large areas), saltwater intrusion, land subsidence (due to groundwater over-extraction and sediment trapping by upstream dams), and more frequent typhoons and droughts. This directly threatens the livelihoods of millions and national food security. Other significant environmental problems include widespread deforestation in the past (though reforestation efforts are underway), biodiversity loss, severe air and water pollution in rapidly urbanizing and industrializing areas like Hanoi and Ho Chi Minh City, and the impacts of extensive hydropower development on river ecosystems. Politically, the single-party state maintains strong centralized control but has also pursued economic liberalization and increasing international integration. While Viet Nam has a comprehensive NDC, covering mitigation and adaptation with both conditional and unconditional targets, the effective implementation of these plans down to local levels faces

considerable constraints related to capacity, resources, and coordination across a complex administrative system. Viet Nam is crucial for this thesis due to its extreme vulnerability as a coastal and deltaic nation, its status as a rapidly developing economy with significant energy transition challenges, and the interplay between its centralized political system and the on-the-ground realities of climate action.

This inherent and wide-ranging diversity among ASEAN Member States poses a significant challenge for achieving unified policy responses and collective action on climate change. The lack of uniformity between NDCs and other national planning documents may suggest a lack of coordination between different ministries and agencies within AMS. However, this diversity also presents an opportunity for rigorous comparative research. By examining the specific experiences, strategies, and implementation challenges within this diverse set of six countries, the analysis can yield valuable insights into the effectiveness of different NDC designs and policy approaches in managing vulnerability, enabling sector-specific transitions, and fostering a degree of regional coherence that respects national circumstances.

1.2 The NDC framework under the Paris Agreement

Nationally Determined Contributions (NDCs) are the cornerstone of the Paris Agreement's bottom-up architecture, adopted at the 21st Conference of the Parties (COP21) in 2015. The Agreement, outlined in its Article 2, aims to limit global warming to well below 2°C above pre-industrial levels, while actively pursuing efforts to cap the increase at 1.5°C. NDCs represent the formal commitments by each signatory nation, detailing how they intend to contribute to this global objective (UNFCCC, 2015).

Article 4 of the Paris Agreement mandates that all Parties prepare, communicate, and maintain successive NDCs every five years. A foundational principle, often termed the "ratchet mechanism," requires each subsequent NDC to demonstrate a progression beyond the Party's current commitments and reflect its "highest possible ambition." This must consider the principle of common but differentiated responsibilities and respective capabilities (CBDR-RC), in light of diverse national circumstances. Article 3 further affirms that these collective efforts will advance over time, recognizing the need to support developing country Parties in their implementation. Additionally, Article 4.11 allows Parties the flexibility to adjust their NDCs at any time to enhance their ambition level.

Unlike its predecessor, the Kyoto Protocol, which imposed top-down emission caps primarily on developed (Annex I) countries, the Paris Agreement adopts a universal and nationally defined model. Each Party determines the scope, structure, and ambition of its contribution. NDCs can manifest in various forms, such as absolute emission reduction targets, intensity-based goals, or policy-driven commitments. While Article 4.4 of the Paris Agreement states that developed countries *should* take the lead by undertaking economy-wide absolute emission reduction targets, developing countries are encouraged to move towards such targets over time, allowing for greater flexibility. Consequently, many developing nations, including 76 out of 154 Non-Annex I Parties in their initial NDCs, have favoured emission targets relative to a business-as-usual (BAU) baseline. This approach accommodates economies whose emissions are projected to rise, enabling them to demonstrate reductions against a projected future scenario rather than a fixed historical year (UNFCCC, n.d).

This national determination, designed to encourage broad participation and reflect diverse national contexts and the CBDR-RC principle, inherently leads to significant heterogeneity in NDC design. This makes direct comparisons of ambition and scope challenging, particularly in the Global South, where NDCs can vary widely in terms of greenhouse gas coverage, sectoral inclusion, and measurability (Zahar, 2024).

The nationally determined character of NDCs has faced criticism, as current collective submissions have not yet spurred sufficiently ambitious global mitigation action. Some analysts suggest that Article 4's provisions, initially envisioned as ambition-incentivizing, may have inadvertently led to reduced ambition in the short term (Bodansky, 2016). Furthermore, developing countries frequently make portions of their targets conditional upon receiving international support, including finance, technology transfer, and capacity building. An analysis of 168 NDCs as of June 2019, for instance, found that 136 were contingent on one or more forms of such support (Pauw, W. P., 2019). The Paris Agreement framework relies on a five-year cycle of ambition enhancement, structured around key iterative processes:

- **The Global Stocktake (GST):** Mandated by Article 14 of the Paris Agreement, the GST is conducted every five years (the first concluded in 2023) to assess collective progress towards the Paris Agreement's long-term goals. Its outcomes are intended to inform Parties as they update and enhance their NDCs and support measures in a nationally determined manner.
- **The Enhanced Transparency Framework (ETF):** Established under Article 13, the ETF is crucial for tracking progress. It requires Parties to submit regular Biennial Transparency Reports (BTRs), building on existing reporting arrangements but establishing common modalities, procedures, and guidelines for all. The ETF aims to gather the necessary information to inform the GST and build mutual trust and confidence (UNFCCC, n.d).

The first Global Stocktake (GST1), which concluded in December 2023, acknowledged some progress but found that collective efforts are significantly off track to meet the Paris Agreement's temperature goals, highlighting substantial gaps in both ambition and implementation (UNFCCC, 2023). The GST1 outcomes stressed the urgent need for Parties to submit NDCs for the post-2030 period that feature ambitious, economy-wide emission reduction targets, cover all greenhouse gases, sectors, and categories, and are aligned with limiting warming to 1.5°C (UNFCCC, 2023). To align with the 1.5°C target, global GHG emissions need to fall by 43% by 2030 and 60% by 2035, relative to 2019 levels (IPCC, 2023).ⁱ However, a UNFCCC (2023) synthesis report indicated that the full implementation of all NDCs submitted by September 2023 would lead to a 2% *decrease* in global GHG emissions by 2030 compared to 2019 levels. An earlier 2021 NDC Synthesis Report projected that NDCs submitted by then would result in a 13.7% increase in emissions by 2030 compared to 2010 levels (UNFCCC, 2021). The OECD/IEA (2024) also noted that the cumulative impact of existing NDCs points to a projected global emission reduction of only 7% by 2030, far short of the required 43%. Current NDCs collectively place the world on a trajectory for warming of 2.5-2.9°C by 2100 (UNEP, 2023)ⁱⁱ.

The next round of NDCs, setting targets primarily for 2035, was due by February 2025 but only a limited number of Member States have submitted their new NDCs.

NDCs are not solely instruments for mitigation. Article 7 of the Paris Agreement elevates adaptation to a status comparable to mitigation, requiring all Parties to engage in adaptation planning and implementation, with these efforts often communicated through NDCs or accompanying documents. Article 9 mandates developed countries to provide financial resources to assist developing country Parties with both mitigation and adaptation efforts. This is particularly relevant for the conditional components of many developing countries' NDCs. The decision at COP27 (UNFCCC, n.d.) to advance work on a new collective quantified goal on climate finance post-2025 has direct implications for regions like ASEAN, where many conditional pledges depend on such international support.

The legal nature of NDCs involves a blend of "hard" and "soft" obligations. While Parties are legally bound to prepare, communicate, and maintain successive NDCs, and to provide information for clarity and transparency, the actual achievement of the specific targets

outlined within their NDCs is not legally binding under international law. Campbell-Duruflé (2024)ⁱⁱⁱ argues that this hybrid structure reflects a facilitative, rather than punitive, model of compliance, reinforced by transparency mechanisms. Nevertheless, concerns persist regarding the potential vagueness of some pledges, the lack of direct enforceability for emission targets, and a growing divergence between stated political aspirations and institutional readiness, especially in least-developed and climate-vulnerable nations.

The Association of Southeast Asian Nations (ASEAN) presents a critical case study. All ten Member States have ratified the Paris Agreement and submitted NDCs. However, ASEAN does not have a collective mitigation target akin to the European Union. Integrated Assessment Models suggest that for ASEAN to align with a 1.5°C pathway, the region would need to achieve net-zero CO₂ emissions by around 2050 and net-zero for all GHGs by approximately 2065, with emissions peaking before 2030 (ASEAN, 2021). Current assessments indicate that the region's NDCs, even if conditional targets are met, fall short of these benchmarks, signalling a significant ambition gap (Qiu et al., 2024).

The diversity in NDC structures within ASEAN reflects the tension between the universal framework of the Paris Agreement and national discretion.

As ASEAN Member States prepare their third-round NDCs, which was in theory due in early 2025, global attention will focus on how they interpret and apply the principles of progression, transparency, and ambition. This research engages with this critical juncture, analysing how ASEAN NDCs reflect national contexts and institutional capacities, and their potential to meaningfully serve both national development objectives and regional climate governance.

1.3. ASEAN environmental governance: legal basis and institutional architecture

ASEAN's approach to environmental governance is marked by soft institutionalism, intergovernmentalism, and non-interference, often summarized by the term "ASEAN Way." Unlike the European Union, ASEAN does not possess supranational authority or legally binding environmental directives. Its regional legal framework is rooted in voluntary agreements, consensus-based decision-making, and national implementation. This institutional character has direct implications for how ASEAN coordinates and supports Member States in achieving their NDCs.

The cornerstone of ASEAN's legal identity is the ASEAN Charter, adopted in 2008. The Charter formally established ASEAN as a rules-based intergovernmental organization structured around three core pillars: the Political-Security Community, the Economic Community, and the Socio-Cultural Community (ASEAN, 2008). Environmental governance, including climate change initiatives, is primarily situated within the ASEAN Socio-Cultural Community (ASCC). Coordination in this domain is channelled through key intergovernmental bodies such as the ASEAN Ministerial Meeting on the Environment (AMME) and the ASEAN Senior Officials on Environment (ASOEN), along with various specialized working groups (Desierto & Cohen, 2020). These entities operate under the guidance of strategic documents like the ASEAN Socio-Cultural Community Blueprint 2025 (2016)^{iv}, which champions sustainable development, disaster risk reduction, and enhanced climate resilience across the region.

In recent years, ASEAN's institutional framework dedicated to climate governance has seen notable expansion and development. Key mechanisms driving regional climate efforts include:

- **ASEAN Working Group on Climate Change (AWGCC):** This body is tasked with facilitating regional coordination of climate change strategies, promoting policy

dialogue among Member States, and overseeing the implementation of regional climate initiatives.

- **ASEAN Joint Statement on Climate Change (AJCC):** Periodically adopted, often ahead of major international climate negotiations like the UNFCCC Conference of the Parties (COP), these statements articulate common regional positions and priorities.
- **ASEAN State of Climate Change Report (ASCCR):** First published in 2021, the ASCCR serves as a landmark analytical document, providing a comprehensive baseline of the region's climate situation, outlining projected impacts, and contributing to a long-term vision for climate action.
- **ASEAN Climate Change Strategic Action Plan (ACCSAP):** Currently under development, the ACCSAP is envisioned as a guiding framework for coordinated climate action across the region, aiming to align efforts towards achieving long-term goals, including pathways to net-zero emissions by mid-century.
- **ASEAN Centre for Climate Change (ACCC):** Launched in Brunei Darussalam in 2023, the ACCC is designed to function as a regional center of excellence for climate data management, research, policy analysis, and capacity-building support for Member States.

Despite these advancements and a growing portfolio of climate-related initiatives, ASEAN's legal and institutional capacity for compelling enforcement remains inherently limited. Regional instruments and commitments typically rely on the willingness and capacity of individual Member States to domesticate and implement them. This concept, termed “horizontal embeddedness” by Desierto (2020), underscores that compliance is driven by national adoption rather than centralized regional enforcement mechanisms. This structural characteristic contributes to uneven implementation of climate policies and commitments across the ASEAN region. While some Member States with more developed institutional frameworks, such as Singapore and Viet Nam, have demonstrated greater integration of regional climate objectives into national policies, others, like Myanmar and Cambodia, may face more significant challenges relating to institutional coordination, technical capacity, and resource mobilization. Critically, ASEAN’s regional bodies currently lack a formal mandate to monitor, review, or evaluate national progress on NDCs directly; this function remains primarily within the purview of the UNFCCC's processes under the Paris Agreement.

The enduring principles of non-interference and consensus, coupled with the absence of legally binding regional environmental obligations, have fostered a mode of "cautious regionalism." Consequently, while ASEAN mechanisms like the AWGCC provide valuable platforms for peer learning, information exchange, and capacity-building, they do not, and are not designed to, impose shared performance standards, binding sectoral targets, or regional compliance regimes. This has led scholars to characterize ASEAN’s climate governance approach as being more facilitative and coordinative than directive or regulatory (Zahar, 2024).^v Nevertheless, there are discernible steps being taken towards greater institutional consolidation and a more politically salient regional climate posture. Recent developments, such as the proposal for an ASEAN Climate Finance Strategy, the establishment of the ASEAN Taxonomy Board for Sustainable Finance, and the increasingly coordinated presence and articulation of ASEAN positions at international climate negotiations (COPs), signal an emergent, albeit still decentralized, regional climate architecture.

1.4 Research problem, central questions, and hypotheses

The Paris Agreement has undeniably established a universal framework for galvanizing global climate ambition. However, its practical implementation relies on Nationally

Determined Contributions (NDCs), instruments that are inherently shaped by each country's distinct domestic capacities, political dynamics, and developmental trajectories. Within the Association of Southeast Asian Nations (ASEAN), this bottom-up architecture encounters a complex regional landscape characterized by deep asymmetries in institutional strength, established governance models, and varying degrees of exposure and vulnerability to climate impacts. With most ASEAN Member States in the process of drafting their third-round NDCs (NDC 3.0) as of May 2025, a pivotal moment emerges. This period offers a critical opportunity to assess whether these nationally tailored instruments can effectively serve not only immediate domestic goals but also contribute to fostering greater regional coherence and collective efficacy in addressing the climate crisis.

The core research problem addressed in this thesis stems from the observed limited alignment and synergy between national climate pledges (NDCs) and regional cooperation mechanisms within ASEAN. While each Member State is independently advancing its NDC commitments under the Paris Agreement, the conspicuous absence of a binding or comprehensively coordinated framework at the ASEAN regional level poses significant risks. These risks include the potential for policy fragmentation across the region, duplication of efforts and resources, and systemic inefficiencies in tackling shared climate vulnerabilities and transboundary challenges. This concern regarding a fundamental disconnect between national actions and regional aspirations was a recurring theme in interviews conducted with regional experts and national officials. As one government official from Southeast Asia candidly explained:

“ASEAN climate meetings are good for sharing information, but they don’t shape what countries actually put in their NDCs. Everyone is working on their own terms, and that’s both a strength and a problem.” (Interview A2, 2025)

This research advances the argument that the overall effectiveness of ASEAN’s climate governance architecture is contingent upon more than the simple aggregation of individual state ambitions. It fundamentally requires the establishment and strengthening of institutional linkages and functional synergies between national NDC processes and purposeful regional coordination efforts. The current regional structure often lacks common benchmarks or indicators for tracking progress, formalized mechanisms for constructive peer review or shared learning concerning NDCs, and strategic alignment of climate actions across vital economic sectors. This deficiency leads to a "patchwork" of disparate climate responses across the region, rather than a strategically cohesive and mutually reinforcing approach.

To explore this multifaceted problem, the study undertakes an in-depth investigation into how six key ASEAN countries, Indonesia, Myanmar, the Philippines, Singapore, Thailand, and Viet Nam design, govern, and implement their respective NDCs. A primary focus is to ascertain whether these national processes and the NDCs themselves reflect or create viable opportunities for enhanced convergence and collaborative action under existing or potential ASEAN frameworks. These six countries have been strategically selected to represent a broad spectrum of political systems, institutional capacities, economic development levels, and climate exposure profiles found within the diverse ASEAN region, thereby facilitating a rich comparative analysis. They were also selected based on the experts reachable.

To address this overarching problem and explore pathways towards greater coherence, this study poses a series of interconnected central research questions.

Initially, the research seeks to map the current landscape by asking: *How are NDCs currently structured, governed, and implemented within the diverse contexts of selected ASEAN Member States, considering their specific institutional arrangements and policy processes?*

Building on this foundational understanding, the inquiry then delves into the underlying dynamics: *What are the principal institutional, legal, and political drivers that shape these national NDC strategies and significantly influence their levels of ambition across the region?*

A crucial aspect of the investigation involves assessing the interplay between national and regional efforts, thus prompting the question: *To what extent do these national NDCs align with, or conversely diverge from, emerging ASEAN regional climate governance instruments and their stated objectives, and what are the implications of such (mis)alignments?*

Finally, looking towards actionable solutions, the research explores: *What specific institutional innovations or practical policy mechanisms could be developed or reinforced at the ASEAN level to strengthen regional coherence and enhance the collective impact of NDC ambitions in Southeast Asia?*

1.5. Mixed-methods research design

To comprehensively investigate the structure, ambition, and implementation of Nationally Determined Contributions within selected ASEAN Member States and their intricate relationship with regional climate governance, this thesis adopts a mixed-methods research design. This approach facilitates the triangulation of findings from diverse data sources, namely document-based analysis, qualitative stakeholder input, and structured perception data, hereby offering a holistic understanding that encompasses both the formal architecture of climate commitments and the lived realities of policy implementation across the region.

The foundational component of this research is a systematic comparative analysis of the latest available NDCs from six strategically selected ASEAN countries: Indonesia, Myanmar, the Philippines, Singapore, Thailand, and Viet Nam. Each NDC underwent a detailed examination of its structural components, including the type and clarity of mitigation targets (such as distinctions between Business-As-Usual based versus absolute targets, and conditional versus unconditional commitments), the breadth of sectoral coverage (encompassing energy, transport, land use, waste, and industry), and the degree of integration of adaptation strategies with national development planning. Further scrutiny was applied to the inclusion of principles related to just transition, gender equality, youth engagement, and the rights of Indigenous Peoples. The analysis also assessed stated implementation mechanisms, institutional coordination frameworks, declared financing needs and their conditionality, and outlined Measurement, Reporting, and Verification (MRV) systems. To gain deeper insights into practical application, supplementary national documents, such as the Philippines' *NDC Implementation Plan 2020–2030*, were incorporated to assess specific implementation pathways, financing strategies, and sectoral policies. This comprehensive document analysis not only allowed for the development of comparative assessments across the six countries but also served to identify critical inconsistencies between stated NDC ambitions and existing institutional readiness, themes that are explored in detail in subsequent chapters.

To complement and contextualize the findings from the document analysis, seventeen semi-structured interviews were conducted between January 2025 and May 2025 with a diverse range of stakeholders engaged in climate policy and action across the ASEAN region. Interviewees were drawn from various professional backgrounds to capture a wide spectrum of perspectives; these included government officials from environment and planning ministries directly involved in NDC processes, civil society leaders and youth representatives advocating for more ambitious and inclusive climate action, academics and regional policy experts providing analytical insights, staff from local non-government organizations (NGO) and international organizations such as GIZ or WWF and the ASEAN Secretariat and the Centre for Energy involved in regional capacity building and policy support, and private sector consultants working on Environmental, Social, and Governance (ESG) and in Finance. Interview guides were carefully tailored to each respondent's specific profile and expertise, while consistently exploring a core set of themes. These included the institutional roles and

coordination dynamics in NDC formulation and updates; perceived constraints and enablers influencing national ambition and practical implementation; stakeholder perceptions of ASEAN's current and potential role in shaping regional climate policy; reflections on subnational integration, equity considerations, and participatory processes in climate action; and expert opinions on the feasibility and potential value of enhanced regional coordination mechanisms. Interviews were anonymized by default, with names used only upon receiving express consent. This qualitative data provides insights into the political motivations underpinning policy choices, illuminates often-unseen institutional coordination gaps, and captures diverse stakeholder expectations, thereby revealing the frequently observed disconnections between formal policy texts and actual institutional practices, a recurrent analytical theme throughout this study.

Further empirical grounding was achieved through a targeted online survey distributed in February 2025 to a cohort of regional experts and practitioners, identified through professional networks and mailing lists. The survey yielded 26 responses from individuals based in seven ASEAN countries, with respondents primarily affiliated with government agencies, NGOs, academic institutions, and regional bodies. The survey instrument was designed to capture perceptions across four key dimensions: the perceived effectiveness of NDC governance within individual Member States; the extent to which marginalized voices (such as youth, Indigenous communities, and gender perspectives) are effectively included in NDC processes; the observed role and impact of ASEAN in supporting national NDC implementation efforts; and critical support needs for enhancing both national climate ambition and regional policy coherence. Responses were primarily collected using Likert scales, supplemented by opportunities for open-ended comments to capture more nuanced views. The data gathered from this survey offer directional insights that serve to corroborate and triangulate findings derived from the documentary analysis and qualitative interviews.

This empirical work is cohesively supported by an extensive review of pertinent legal instruments, academic thesis, regional strategic documents, and climate reports. This review encompasses foundational legal texts such as the Paris Agreement and key ASEAN declarations, a wide array of academic literature focusing on regionalism, international environmental law, and climate governance, and pivotal regional strategy documents. These materials provide the essential contextual backdrop against which national and regional climate governance practices are evaluated, particularly in terms of how legal obligations and prevailing policy discourses shape climate action in Southeast Asia.

External feedback informed the design and the results. Portions of the thesis were presented at an ASEAN-focused academic-policy conference in Viet Nam on ASEAN's path to sustainable development. Discussion there tested the feasibility of a voluntary climate monitoring framework and prompted refinements, including parallels with existing peer reviews in economic policy. The work was also presented and discussed during the ASEAN-China Norms summer school on climate and sustainability governance hosted in Malaysia. Engagement with peers and practitioners across the region during that programme sharpened the treatment of country contexts, informal coordination channels and subnational dynamics.

In combination, this multi-faceted methodological approach allows for rigorous cross-checking and validation of findings across different data types, capturing both quantitative trends and the qualitative dynamics that underpin them. It reflects the thesis's overarching commitment to regional inclusivity in its research process, adherence to principles of critical realism in its analysis, and a dedication to formulating empirically grounded and policy-relevant recommendations.

1.6 Literature review and identification of research gaps

This thesis is situated within a rapidly expanding body of academic literature on Nationally Determined Contributions and climate governance that has burgeoned since the adoption of the Paris Agreement in 2015. Initial scholarly works focused on the innovative nature and inherent flexibility of the NDC mechanism, underscoring its potential to cultivate inclusive climate action while preserving national sovereignty and catering to diverse domestic circumstances (Bodansky, 2016; Rajamani, 2016). Subsequent research has delved deeper into the specific legal character of NDCs (Zahar, 2024), their collective implications for achieving global ambition target, and the persistent challenges associated with enhancing comparability, credibility, and equity across the varied commitments made by different countries (Roberts & Huq, 2015).

While analyses of regional climate governance have been extensive, much of this attention has historically concentrated on the European Union, with its formalized *acquis communautaire* in climate policy. The ASEAN, by contrast, remains a comparatively under-examined terrain in climate governance scholarship. Although recent contributions by scholars such as Bal et al. (2023) and Desierto and Cohen (2020) have begun to critically unpack the constraints of ASEAN's institutional design concerning environmental coordination, a systematic assessment of how ASEAN-level instruments and platforms interact with the national NDC processes of its Member States is still nascent. Consequently, the nuanced dynamics of legal embeddedness of regional norms, the precise implications of ASEAN's characteristic "soft regionalism" for climate policy, and the concrete prospects for meaningful NDC alignment or harmonization across Southeast Asia remain significantly underexplored.

This thesis draws upon and seeks to contribute to several key strands of literature. Firstly, the scholarship on global climate law and NDC governance highlights the structural ambiguity inherent in NDCs, emphasizing their dual function as both procedural legal obligations (to prepare, submit, and update) and as political declarations regarding national ambition levels (Campbell-Durufié, 2024). Within this, the Enhanced Transparency Framework (ETF) of the Paris Agreement is generally understood as a facilitative, "soft" compliance mechanism; however, its effective operationalization and consistent application in developing regions have encountered notable challenges (Shapovalova, 2024).

Secondly, literature on ASEAN institutionalism and environmental policy consistently describes the region's legal architecture as "horizontal" and fundamentally consensus-driven, heavily reliant on national-level implementation rather than supranational enforcement bodies (Desierto & Cohen, 2020). While this approach has historically fostered regional unity and maintained inclusivity among diverse Member States, it concurrently imposes limitations on the enforceability of regional commitments and can slow down coordinated responses in complex, multi-sectoral domains such as climate change.

Thirdly, the critical body of work on climate justice and participation underscores the imperative to consider issues of historical responsibility for emissions, differential capacities among nations, and the substantive inclusion of marginalized and vulnerable groups in climate policy-making processes (Roberts J. T., and Parks B. C., 2007). In the Southeast Asian context, evidence suggests that civil society participation in NDC development and review processes has been highly variable across countries. Notably, Indigenous communities and youth groups have often faced exclusion from core decision-making or have been subjected to tokenistic engagement (Guillao et al., 2022)^{vi}.

Finally, studies focusing on policy coherence and multilevel governance emphasize the critical need to align NDCs with overarching national development plans, specific sectoral policies (e.g., energy, transport, agriculture), and broader regional objectives to ensure effective and synergistic climate action. Despite the recognized importance of such coherence, there is a

scarcity of assessments proposing concrete mechanisms or frameworks to systematically measure or enhance policy coherence across the ASEAN region (OECD, 2023).

This thesis contributes to these intersecting fields of inquiry by systematically bridging the legal, institutional, and participatory dimensions of NDC implementation within a comparative ASEAN context. In doing so, it addresses several critical gaps in the current body of knowledge:

An empirical gap exists concerning detailed comparative research on the actual content, structure, and ambition of ASEAN NDCs beyond the basic summary information available in UNFCCC registries. This thesis seeks to fill this void by providing an in-depth, country-by-country analysis of the NDCs of six ASEAN Member States, grounded in a comparative analysis of NDC texts and a thorough review of related national policy documents.

A **governance gap** is also apparent. While ASEAN's regional climate platforms and working groups are becoming increasingly active, there has been no systematic, empirically driven assessment of how these regional mechanisms specifically influence, support, or potentially constrain the national NDC strategies of Member States. This study evaluates ASEAN's current and potential role as a mechanism for facilitating coordination, policy learning, or even voluntary convergence in specific aspects of NDC development and implementation.

Furthermore, an **equity gap** persists in the regional literature. Although principles of climate justice and inclusive participation are often invoked rhetorically in policy discourses, few studies on ASEAN NDCs have systematically examined the extent and quality of inclusion of specific groups such as youth, Indigenous Peoples, or gender considerations in a structured, comparative manner. This research incorporates primary data from expert interviews and regional surveys to critically evaluate these dimensions of inclusiveness across the selected Member States.

Lastly, a **policy design gap** is evident in that many proposals for enhancing regional climate coherence in ASEAN are often confined to high-level political declarations or general statements of intent, lacking concrete, operationalizable pathways. This thesis aims to address this by proposing strategic, contextually relevant pathways for strengthening multi-level climate governance in ASEAN (Chapter 8), and by developing a specific framework of regional indicators for monitoring NDC alignment and progress (Chapter 9), informed directly by stakeholder input and an analysis of existing institutional realities.

By addressing these identified gaps, this study aims to enrich academic debate on regional climate governance and provide actionable, policy-relevant insights for ASEAN institutions, national governments within the region, and international partners. It posits that the NDC framework, while inherently national in its design, holds significant, largely untapped potential for fostering enhanced regional coordination and ambition in Southeast Asia, provided that ASEAN's unique institutional framework can adapt and evolve to meet the escalating challenges of a warming world.

Bibliography

ASEAN Secretariat. (2015). *ASEAN Community Vision 2025: Forging ahead together*. <https://www.asean.org/wp-content/uploads/images/2015/November/aec-page/ASEAN-Community-Vision-2025.pdf>

ASEAN Secretariat. (2021). *ASEAN joint statement on climate change to the 27th session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC COP-27)*. <https://asean.org/wp-content/uploads/2022/11/33-ASEAN-Joint-Statement-on-Climate-Change-to-UNFCCC-COP-27.pdf>

ASEAN Secretariat. (2021). *ASEAN state of climate change report 2021*. ASEAN Secretariat. https://asean.org/wp-content/uploads/2021/10/ASCCR-e-publication-Correction_8-June.pdf

Asian Development Bank. (2011). *Long-term projections of Asian GDP and trade*. <https://www.adb.org/publications/long-term-projections-asian-gdp-and-trade?page=8&ref=offices%2FEurope%2Fpublications>

Asian Vision Institute, & Konrad-Adenauer-Stiftung. (2022). *ASEAN climate change response. Regional Project Energy Security and Climate Change Asia-Pacific (RECAP)*. <https://www.kas.de/en/web/recap/single-title/-/content/asean-climate-change-response->

Association of Southeast Asian Nations. (2008). *The ASEAN Charter*. ASEAN Secretariat. <https://asean.org/wp-content/uploads/images/archive/publications/ASEAN-Charter.pdf>

Association of Southeast Asian Nations. (2016). *ASEAN Socio-Cultural Community Blueprint 2025*. ASEAN Secretariat. <https://www.asean.org/wp-content/uploads/2012/05/8.-March-2016-ASCC-Blueprint-2025.pdf>

Association of Southeast Asian Nations. (2021). *ASEAN state of climate change report*. Association of Southeast Asian Nations. https://asean.org/wp-content/uploads/2021/10/ASCCR-e-publication-Correction_8-June.pdf

Association of Southeast Asian Nations. (2023). *ASEAN joint statement on climate change to the UNFCCC COP28*. ASEAN. <https://asean.org/wp-content/uploads/2023/08/36-ASEAN-Joint-Statement-on-Climate-Change-to-the-UNFCCC-COP28-final.pdf>

Bal, C., Coen, D., Kreienkamp, J., Paramitaningrum, & Pegram, T. (2023). *Explaining transformative change in ASEAN and EU climate policy: Multilevel problems, policies and politics*. Cambridge University Press. <https://doi.org/10.1017/9781009395960>

Bodansky, D. (2016). The legal character of the Paris Agreement. *Review of European, Comparative & International Environmental Law*. <https://doi.org/10.1111/reel.12154>

Bodansky, D. (2016). The Paris climate change agreement: A new hope? *American Journal of International Law*, 110(2), 288–319.

- Campbell-Durufflé, C. (2024). Submitting mandatory reports under the Paris Agreement transparency framework. In R. Salas Reyes (Ed.), *The Paris Agreement on climate change: A commentary* (pp. 447–464). Routledge. <https://doi.org/10.4324/9781003276678-25>
- Desierto, D. A., & Cohen, D. J. (Eds.). (2020). *ASEAN law and regional integration: Governance and the rule of law in Southeast Asia's single market*. Routledge. <https://doi.org/10.4324/9781315267401>
- Eckstein, D., Hutfils, M.-L., & Wings, M. (2018). *Global climate risk index 2019: Who suffers most from extreme weather events? Weather-related loss events in 2017 and 1998 to 2017*. Germanwatch. <https://reliefweb.int/report/world/global-climate-risk-index-2019>
- Estoque, R. C., Ooba, M., Avitabile, V., Hijioaka, Y., DasGupta, R., Togawa, T., & Murayama, Y. (2019). The future of Southeast Asia's forests. *Nature Communications*, 10(1), 1829. <https://doi.org/10.1038/s41467-019-09646-4>
- Government of Indonesia. (2022). *Enhanced nationally determined contribution*. UNFCCC. <https://unfccc.int/documents/615082>
- Government of the Republic of the Union of Myanmar. (2021). *Updated nationally determined contribution*. UNFCCC. <https://unfccc.int/sites/default/files/NDC/2022-06/Myanmar%20Updated%20%20NDC%20July%202021.pdf>
- Government of Singapore. (2025). *Singapore second nationally determined contribution*. UNFCCC. <https://unfccc.int/sites/default/files/2025-02/Singapore%20Second%20Nationally%20Determined%20Contribution.pdf>
- Government of Thailand. (2022). *Second updated nationally determined contribution*. UNFCCC. <https://unfccc.int/documents/620602>
- Government of Viet Nam. (2022). *Updated nationally determined contribution*. UNFCCC. <https://unfccc.int/documents/622541>
- Guillao, J., Indrarto, G. B., Lim, T., Venugopal, D., & Zunga, U. (2022). *Nationally determined contributions in Asia: Are governments recognizing the rights, roles and contributions of Indigenous Peoples?* UNDP Climate and Forests. <https://www.climateandforests-undp.org/sites/default/files/resources/NDC%20South%20East%20Asia%20April2022-digital.pdf>
- Institute for Global Environmental Strategies. (2025). *The ASEAN Climate Change Strategic Action Plan 2025–2030*. IGES. https://www.giz.de/en/downloads_els/ACCSAP%20%28IGES%29_5th%20ACCPC%29%2814%20May%202025%29.pdf
- IPCC. (2023). *Climate change 2023: Synthesis report*. Intergovernmental Panel on Climate Change. <https://www.ipcc.ch/report/ar6/syr/>
- Kao, K. H. (2025). Remarks at the Regional Workshop on Climate Change: ASEAN Centre for Climate Change Activities and Transition Finance Strategies, Bandar Seri Begawan, Brunei Darussalam [As delivered]. ASEAN Secretariat. <https://asean.org/wp-content/uploads/2025/04/SG-Dr-Kao-Remarks-at-Regional-Workshop-on-Climate-Change-Bandar-Seri-Begawan-Brunei-Darussalam-21-April-2025-As-Delivered.pdf>
- Kulp, S. A., & Strauss, B. H. (2019). New elevation data triple estimates of global vulnerability to sea-level rise and coastal flooding. *Nature Communications*, 10, 4844. <https://doi.org/10.1038/s41467-019-12808-z>
- Organisation for Economic Co-operation and Development. (2023). *Driving policy coherence for sustainable development: Accelerating progress on the SDGs*. OECD Publishing. <https://doi.org/10.1787/a6cb4aa1-en>
- OECD/IEA. (2024). *Investing in climate for growth and development: The case for enhanced NDCs – Key messages*. OECD/IEA. <https://www.oecd.org/content/dam/oecd/en/about/projects/new-ndcs-to-deliver-climate-action-for-growth/investing-in-climate-for-growth-and-development-the-case-for-enhanced-NDCs-key-messages.pdf>

- Partnerships in Environmental Management for the Seas of East Asia (PEMSEA). (2013). *Perspectives on building a regional mechanism for coastal and ocean governance in the Seas of East Asia*. <https://www.pemsea.org/resources/publications/books/perspectives-building-regional-mechanism-coastal-and-ocean-governance>
- Pauw, W. P., Castro, P., Pickering, J., & Bhasin, S. (2019). Conditional nationally determined contributions in the Paris Agreement: Foothold for equity or Achilles heel? *Climate Policy*, 19(6), 743–764. <https://doi.org/10.1080/14693062.2019.1635874>
- Putra, B. (2024). ASEAN's climate change mitigation and adaptation measures: Abandoning stagnant policy responses. *Frontiers in Climate*, 6, 1488560. <https://doi.org/10.3389/fclim.2024.1488560>
- Qiu, J., Martinus, M., & Seah, S. (2023). Assessing climate ambition enhancement in ASEAN countries' nationally determined contributions. *Environmental Development*, 49, 100945. <https://doi.org/10.1016/j.envdev.2023.100945>
- Rajamani, L. (2016). The 2015 Paris Agreement: Interplay between hard, soft and non-obligations. *Journal of Environmental Law*. <https://doi.org/10.1093/jel/eqw015>
- RECOFTC, & ASEAN Working Group on Social Forestry. (2020). *Social forestry and climate change in the ASEAN region: Situational analysis 2020*. RECOFTC. <https://www.recoftc.org/publications/0000435>
- Republic of the Philippines. (2021). *Nationally determined contribution*. UNFCCC. <https://unfccc.int/sites/default/files/NDC/2022-06/Philippines%20-%20NDC.pdf>
- Roberts, E., & Huq, S. (2015). Coming full circle: The history of loss and damage under the UNFCCC. *International Journal of Global Warming*. <https://doi.org/10.1504/IJGW.2015.071964>
- Roberts, J. T., & Parks, B. C. (2007). *A climate of injustice: Global inequality, North–South politics, and climate policy*. MIT Press.
- Seah, S., & Martinus, M. (2021). *Gaps and opportunities in ASEAN's climate governance*. ISEAS–Yusof Ishak Institute.
- Seah, S., et al. (2023). *The state of Southeast Asia: 2023 survey report*. ISEAS–Yusof Ishak Institute. <https://www.iseas.edu.sg/wp-content/uploads/2023/02/The-State-of-SEA-2023-Survey-Report.pdf>
- Singapore Government. (2022). *Addendum to Singapore's long-term low-emissions development strategy*. UNFCCC. <https://unfccc.int/sites/default/files/resource/Addendum%20to%20Singapore%27s%20Long-Term%20Low-Emissions%20Development%20Strategy.pdf>
- UNEP. (2023). *Emissions gap report 2023: Broken record – Temperatures hit new highs, yet world fails to cut emissions (again)*. United Nations Environment Programme. <https://www.unep.org/resources/emissions-gap-report-2023>
- UNFCCC. (2015). *Paris Agreement*. United Nations Framework Convention on Climate Change. https://unfccc.int/sites/default/files/english_paris_agreement.pdf
- UNFCCC. (2021). *COP26: Update to the NDC synthesis report*. UNFCCC. <https://unfccc.int/news/cop26-update-to-the-ndc-synthesis-report>
- UNFCCC. (2022). *New collective quantified goal on climate finance*. UNFCCC. <https://unfccc.int/NCQG>
- UNFCCC. (2023a). *Nationally determined contributions under the Paris Agreement: Synthesis report by the secretariat*. UNFCCC. <https://unfccc.int/documents/632334>
- UNFCCC. (2023b). *Outcome of the first global stocktake. Draft decision -/CMA.5*. UNFCCC. <https://unfccc.int/documents/636608>

UNFCCC. (2023c). *Outcome of the first global stocktake*. UNFCCC. <https://unfccc.int/topics/global-stocktake/about-the-global-stocktake/outcome-of-the-first-global-stocktake>

UNFCCC. (n.d.-a). *Enhanced transparency framework*. UNFCCC. <https://unfccc.int/ETF>

UNFCCC. (n.d.-b). *NDC registry*. UNFCCC. <https://unfccc.int/NDCREG>

World Resources Institute. (2022). *Climate Watch historical GHG emissions*. <https://www.climatewatchdata.org/ghg-emissions>

Zahar, A. (2024). *Research handbook on the law of the Paris Agreement*. Edward Elgar Publishing.

Part I

The architects of ambition: national governance and the formulation of NDCs

Chapter 2

NDC formulation and governance: institutions, perceptions, and participation

The Nationally Determined Contribution is the principal mechanism through which Parties to the Paris Agreement express their climate ambitions and define corresponding actions. Yet an NDC is not a mere technical blueprint; it is a political and social construct shaped by the interplay of international obligations, national development goals, and domestic governance dynamics. As a senior policy advisor with extensive experience in the region observed, “NDCs are inherently political. While they are grounded in science, their final content reflects national priorities, capacities, and political considerations” (Interview with Rizki Maulana Rachman, 2025).

This chapter situates ASEAN climate governance within that broader context. It begins by mapping the national institutional architectures that coordinate climate policy (Section 2.1), then assesses the scope and quality of stakeholder participation in shaping NDCs (Section 2.2), and finally examines the legal nature of NDCs and the evolving international norms around their implementation (Section 2.3).

2.1. Institutional architecture for climate governance

A credible national climate strategy depends on clear institutional roles and effective coordination. This section maps the responsibilities of lead agencies and the challenges they face in steering cross-sectoral action (Sub-section 2.1.1), contrasts centralized and fragmented governance models through case studies from Singapore, Viet Nam, and Indonesia (Sub-section 2.1.2), and shows how political instability, illustrated by Myanmar, can dismantle climate institutions entirely (Sub-section 2.1.3).

2.1.1. The role of lead agencies and inter-ministerial coordination challenges

Across ASEAN, national climate policies and NDC coordination are typically managed by dedicated environmental agencies serving as focal points to the UNFCCC. In Indonesia, this responsibility is held by the Directorate-General of Climate Change (DGCC) within the Ministry of Environment and Forestry (KLHK) (Republic of Indonesia, 2022). The Philippines designates the Climate Change Commission (CCC), operating directly under the Office of the President, as its primary focal point, with the Department of Foreign Affairs serving as an alternate contact (Republic of the Philippines, 2021). Myanmar's Environmental Conservation Department, under the Ministry of Natural Resources and Environmental Conservation (MONREC), serves as its UNFCCC focal point (Republic of the Union of Myanmar, 2021). Similarly, Viet Nam's focal point is the Department of Climate Change within its Ministry of Natural Resources and Environment (MONRE) (Socialist Republic of Viet Nam, 2022). In Thailand, climate policy coordination transitioned in 2023 to the newly established Department of Climate Change and Environment (DCCE), under the Ministry of Natural Resources and Environment (Kingdom of Thailand, 2022). Lastly, Singapore's National Climate Change Secretariat (NCCS), located within the Prime Minister's Office, acts as the national focal point and provides administrative support for its Inter-Ministerial Committee on Climate Change (IMCCC) (Republic of Singapore, 2025). These agencies are responsible for consolidating inputs from various sectoral ministries, such as energy, agriculture, transport, and industry, into a single national pledge.

Most countries have established high-level inter-ministerial committees to strengthen coordination and integration of climate objectives across sectors. Notably, Singapore's IMCCC, chaired by Deputy Prime Minister Gan Kim Yong exemplifies centralized, high-level oversight and demonstrates effective whole-of-government implementation (Republic of Singapore, National Climate Change Secretariat, 2024). Viet Nam established its National Steering Committee for Implementing COP26 Commitments, led by the Prime Minister, through Decision 2157/QĐ-TTg in December 2021, showcasing substantial political commitment at the highest government level (Socialist Republic of Viet Nam, Office of the Prime Minister, 2022).

Despite these formal structures, coordination across ministries remains a persistent challenge. The “silo effect,” where ministries operate independently and pursue competing mandates, continues to undermine policy coherence. This issue was repeatedly raised during interviews. A representative from the ASEAN Centre for Energy (ACE) described it plainly: “Across ASEAN, climate policy is usually handled by the Ministry of Environment, while energy policy falls under the Ministry of Energy. These two entities rarely coordinate, leading to misalignment in national strategies” (Interview with Indira Pradnyaswari, 2025). Environment ministries often lack the institutional authority and budgetary influence held by ministries of finance or planning, which are better positioned to lead whole-of-government efforts.

These institutional frictions frequently result in policy contradictions. In Indonesia, one interviewee observed: “*The Ministry of Environment and Forestry leads the process, but other ministries such as Agriculture or Energy still prioritize their own production goals without fully considering emissions*” (Interview Ahmad Fajar Maulana, 2025). In the Philippines, longstanding tensions persist between the Department of Energy (DOE), which continues to prioritize energy security and has historically relied on coal, and the Climate Change Commission (CCC), which is tasked with promoting decarbonization. Despite a coal moratorium announced in October 2020 (Department of Energy Philippines, 2020), the Philippine Energy Plan 2023–2050 retains coal in its energy mix, and ongoing dependence is

increasing (Department of Energy, 2023). In 2023, coal accounted for nearly 62 % of electricity generation, up from 59 % in 2022 (Ember, 2024).

Coordination issues also occur between national and subnational levels. A significant gap remains between central planning and local implementation. An official from the Philippines' Department of Environment and Natural Resources (DENR) pointed out the difficulty of "streamlining national policies into their regional field offices and to local government units" (Interview with The Climate Reality Project Philippines, 2025). Similarly, an Indonesian expert stated, "Local governments often don't even know about the national targets. There's a huge gap between the national document and regional planning" (Interview with Ahmad Fajar Maulana, 2025). In many cases, local climate action plans are derived directly from national templates, with little adaptation to local needs or contexts. This disconnect is worsened by unclear mandates, limited technical capacity, and insufficient fiscal support, conditions that leave NDCs at risk of remaining symbolic national documents rather than actionable blueprints for local-level change.

2.1.2. Comparative case studies: centralized vs. fragmented governance models

The institutional models for climate governance in Singapore, Viet Nam, and Indonesia offer a compelling comparative lens on the spectrum from centralized to fragmented systems.

(a) Singapore: a centralized, technocratic model

Singapore exemplifies a highly centralized and technocratic approach to climate governance (NCCS, n.d.). The Inter-Ministerial Committee on Climate Change (IMCCC), established in 2007, is chaired by the Deputy Prime Minister Senior Minister includes ministers from key portfolios such as Sustainability, Finance, Trade & Industry, Transport, Foreign Affairs, and National Development. This cabinet-level body is supported by the IMCCC Executive Committee comprising senior permanent secretaries, which oversees four working groups, Carbon & Energy Transition (CETWG), Long-Term Emissions & Mitigation (LTM WG), Resilience (RWG), and Sustainability & Engagement (SEWG), each tasked with integrating climate goals into sectoral policies. The IMCCC's secretariat is the National Climate Change Secretariat (NCCS) under the Prime Minister's Office. NCCS is organized into Policy & Planning, Strategic Issues, Mitigation & Resilience, International Policy, Economic Research, Technology Innovation, and Policy Innovation divisions. Functions include carbon taxation (initiated in 2019), technology roadmaps led by the National Research Foundation, national communications to the UNFCCC, and green budgeting measures. This top-down structure, consistent with Singapore's broader governance model, facilitates policy alignment and swift execution. As one ESG specialist based in Singapore noted, "Governance here is very execution-focused: if something is announced, it will likely happen. This also makes Singapore's NDC more reliable" (Interview with Lin Song, 2025). Singapore's NDC is closely tied to national frameworks such as the Singapore Green Plan 2030, which sets out sectoral roadmaps with budgeted commitments. However, this technocratic efficiency comes with limitations. The country's climate strategy pays limited attention to social dimensions. Its NDC includes minimal reference to just transition, gender equity, or vulnerable populations, reflecting a policy style that emphasizes economic and technological resilience over social inclusion (Republic of Singapore, 2025).

(b) Viet Nam: a hybrid model of centralized direction and sectoral fragmentation

Viet Nam presents a hybrid model. On one hand, its single-party political system allows for strong, top-down policy direction, as evidenced by the Prime Minister's net-zero pledge at COP26 and the subsequent establishment of a national steering committee to oversee its implementation. Its NDC is detailed, linking climate targets to multiple national strategies, including the National Climate Change Strategy (NCCS) and the National Green Growth Strategy (World Bank, 2022)

However, beneath this centralized vision, sectoral fragmentation persists. An official from Viet Nam's Ministry of Natural Resources and Environment (MONRE) acknowledged that while ministries are expected to align with the NDC, "siloed" working cultures remain a challenge (Interview V1, 2025). This leads to inconsistencies, for example, between the Ministry of Industry and Trade's energy plans and MONRE's climate targets. Furthermore, while national strategies are robust, their translation into actionable plans at the provincial level is uneven, hampered by systemic barriers including a lack of technical capacity, unclear accountability for sub-national actors, and a rigid top-down approach that fails to accommodate local contexts. The constant rotation of personnel at the local level also cripples institutional memory and prevents the accumulation of necessary technical knowledge (Climate Action Tracker. n.d.).

(c) Indonesia: A decentralized and institutionally complex model

Indonesia's governance structure is marked by extensive decentralization and institutional complexity (Climate Action Tracker. 2021). The Ministry of Environment and Forestry (KLHK) leads NDC development, while the national development planning agency, BAPPENAS, plays a key role in embedding climate priorities into the medium-term development plan (RPJMN). This dual leadership is designed to bridge environmental and economic planning (World Bank, 2024).

In practice, however, coordination challenges persist. "Sectoral ministries often submit their own targets independently. These are then reviewed and aligned... but coordination remains a challenge, especially when programs grow more complex," explained an expert familiar with the national planning process (Interview with Ahmad Fajar Maulana, 2025). The country's geographic and administrative diversity adds further complexity. Provincial governments are responsible for implementation but frequently lack the financial and technical capacity to translate national goals into local action. Although Indonesia's model allows for broader participation, it often struggles to achieve the consistency and efficiency found in more centralized systems (Climate Strategies, 2023).

2.1.3. The influence of political instability on climate governance

Myanmar provides a stark illustration of how political instability can completely derail climate governance. Prior to the 2021 military coup, Myanmar had established institutional structures for climate action, including the National Environmental Conservation and Climate Change Central Committee (NECCCCC), and was actively developing its NDC with international support (ReliefWeb, 2023). However, the coup led to an immediate collapse of these nascent institutions and a freezing of international climate finance (Georgetown Journal of International Affairs, 2024).

A civil society Director from Myanmar described the current situation as a "double crisis: conflict and climate" (Interview with WWF Myanmar, 2025). The military regime, which submitted the final NDC to the UNFCCC, lacks the technical capacity and political legitimacy to implement it. The process was devoid of genuine stakeholder consultation, and key ministries like Energy and Electricity were reportedly not committed to the targets (Climate

Action Tracker, 2022). The military has reportedly turned to the rapacious exploitation of natural resources, including illegal logging and unregulated mining, to fund its operations, accelerating environmental degradation that directly contradicts the country's climate goals (East Asia Forum, 2023). Furthermore, international climate finance has been frozen, crippling any potential for implementation. The country's energy sector is in a state of breakdown, with widespread power cuts making any discussion of an energy transition seem abstract and distant. The military's brutal crackdown on dissent has also silenced civil society and created a severe humanitarian crisis, rendering meaningful adaptation efforts impossible (SIPRI, 2024).

In this context, Myanmar's NDC, which states it was unable to set an economy-wide target due to "limitations in GHG projection capabilities", functions less as a climate plan and more as an instrument to seek international legitimacy and aid. Its ambition is framed almost entirely as conditional on receiving external support, making it, in effect, "a preparedness to receive and act upon more climate finance" (Republic of the Union of Myanmar, 2021). Climate action has been forced into a decentralized, ad-hoc model led by civil society organizations and local communities. As the interviewee noted, "We NGOs are supporting with nature-based solutions and climate-smart agriculture. We build capacity locally because we get no support from the central authority" (Interview with WWF Myanmar, 2025). The case of Myanmar demonstrates that even the most well-intentioned NDC document becomes functionally meaningless without a stable, legitimate, and capable governance system to drive it.

2.2. Stakeholder participation: from formal consultation to meaningful influence

The Paris Agreement explicitly mandates public engagement under Article 12, which requires Parties to "cooperate in taking measures, as appropriate, to enhance climate change education, training, public awareness, public participation and public access to information" (UNFCCC, 2015). This affirms that inclusive processes involving civil society, youth, women, Indigenous Peoples, and the private sector are essential to enhance the legitimacy, equity, and effectiveness of Nationally Determined Contributions.

Regionally, the Draft ASEAN Declaration on Environmental Rights (drafted March 7, 2024) outlines procedural environmental rights in Article 15, affirming that everyone has "the right to participate in decision making in environmental matters... at the earliest possible stage before decisions are taken, and while options are still open," and calls for participation to be "safe, meaningful, effective, and inclusive," especially for vulnerable groups (UNESCAP, 2024).

In theory, inclusive processes that engage civil society, youth, women, Indigenous Peoples, and the private sector can enhance the legitimacy, equity, and effectiveness of NDCs. In practice, however, the quality of participation across ASEAN varies dramatically, often remaining at the level of formal consultation rather than meaningful co-design.

This section analyses the consultation-influence gap that characterizes civil-society engagement (Sub-section 2.2.1), reviews the degree to which youth, gender, and Indigenous Peoples are brought into decision-making (Sub-section 2.2.2), and identifies structural barriers that still prevent fully participatory NDC governance (Sub-section 2.2.3).

2.2.1. Civil society engagement: the consultation-influence gap

Across ASEAN, governments increasingly include civil society organizations (CSOs) in formal consultation processes related to Nationally Determined Contributions (NDC) development. Most of the six focus countries report using public hearings, workshops, and

stakeholder roundtables to collect input. For example, Thailand’s updated NDC process involved over 150 participants from government, academia, the private sector, and civil society (Kingdom of Thailand, 2022). Similarly, Singapore regularly organizes engagement sessions and publishes response papers summarizing stakeholder feedback (Republic of Singapore, 2025). The Philippines has formalized partnerships with dozens of CSOs, often presented as evidence of inclusive governance (Republic of the Philippines, 2021).

These official procedures are also reflected in NDC documents. Thailand cites inter-ministerial consultations that include academic and private sector voices (Kingdom of Thailand, 2022). The Philippines describes its process as a “whole-of-government-and-society” effort (Republic of the Philippines, 2021). Viet Nam’s 2022 NDC states that the update involved the “active participation of... experts, scientists, NGOs, research agencies, and development partners” (Socialist Republic of Viet Nam, 2022).

However, such claims often diverge from practical experience. A significant “consultation-influence gap” persists across the region: while CSOs may be invited to meetings, their contributions rarely shape the final content of NDCs. In a 2025 regional survey, 63.7% of ASEAN climate experts reported being unaware of any mechanisms for stakeholder participation during the NDC design phase (Regional Survey, 2025). In Viet Nam, all respondents answered, “Not that I am aware of,” when asked about such opportunities. This suggests that participation mechanisms are either poorly communicated or that consultations are not inclusive, meaningful, or accessible to key actors.

Among the six countries, the Philippines stands out as a relatively stronger example. Since 2022, the Climate Change Commission (CCC) has collaborated with 47 CSOs, formalizing partnerships in key thematic areas. At COP28, over 20 CSOs engaged in sustained dialogue with the national delegation, marking an unprecedented level of engagement in Philippine international climate diplomacy (CCC, 2025). Yet, even in this more inclusive setting, influence remains contested. A coalition of Philippine CSOs publicly challenged the exclusion of the forestry sector from the government’s NDC mitigation targets, submitting a joint letter to demand its reinstatement, despite the sector’s inclusion in earlier pledges (Jo Ann Guillao, 2022).

This episode illustrates a deeper structural issue: the most meaningful civil society influence often occurs outside formal consultation mechanisms. CSOs are frequently more effective as external watchdogs, mobilizing media, issuing reports, and organizing campaigns, than as internal partners. This reflects an “advocacy paradox”: the participatory systems designed to include them often function in ways that limit their actual impact (Leah Sprain, 2016). In practice, CSOs rely more on public pressure than institutional dialogue to influence climate policy. Regional recommendations for strengthening their role, through data collaboration, monitoring, and policy advocacy, implicitly confirm that CSOs remain peripheral to formal decision-making processes in NDC governance.

Interview data further illustrates this gap between consultation and influence. An Indonesian expert explained, “Ministries present their plans, but the feedback from communities is not always integrated into subsequent drafts. Meetings are fragmented, each focused on different themes, and there’s no clear mechanism to follow up” (Interview with I1, 2025). In Myanmar, one consultation was described as “more of a presentation than a dialogue” (Interview with WWF Myanmar, 2025). In the Philippines, some CSOs were invited to a virtual NDC consultation with such short notice that it precluded meaningful engagement (Interview with the Climate Reality Project Philippines, 2025).

2.2.2. Inclusion of marginalized voices: youth, gender, and Indigenous Peoples

(a) Indigenous Peoples: persistent marginalization

Across Southeast Asia, Indigenous Peoples are custodians of vast forested landscapes that act Indigenous Peoples across Southeast Asia are stewards of carbon-rich ecosystems and holders of traditional ecological knowledge vital to climate resilience. Despite this role, they are largely excluded from NDC formulation and implementation.

A 2023 report by the Asia Indigenous Peoples Pact (AIPP) highlights major shortcomings in the NDCs of Malaysia, Indonesia, and the Philippines, particularly regarding the recognition of Indigenous land rights and the integration of traditional knowledge (Asia Indigenous Peoples Pact, 2023). In Malaysia, the NDC's failure to acknowledge native land tenure is seen as undermining the equity of REDD+ programs. In Indonesia, the government's endorsement of "social forestry" is strongly criticized by Indigenous groups such as the Aliansi Masyarakat Adat Nusantara (AMAN), which argue that the model treats communities as renters of state-owned land, rather than as owners of customary (adat) territories (Aliansi Masyarakat Adat Nusantara, 2024). AMAN and the Ancestral Domain Registration Agency (BRWA) continue to call for full legal recognition of customary lands as a precondition for any climate collaboration. As BRWA's Kasmita Widodo notes, "The government needs to also play their role to accelerate the formalizing of the IPs mapping so that all actors can 'meet in the middle' and collaborate smoothly."

Despite such efforts, legal and institutional barriers persist. In Viet Nam, a government official candidly admitted, "We didn't consult IPs directly. Their priority is livelihoods, not policy" (Interview with V1, 2025). This reflects a widespread policy blind spot: the failure to recognize that Indigenous rights and livelihoods are inseparable from environmental integrity. As one Indigenous leader from the Philippines explained, their communities are "respected in theory, excluded in practice" (Interview with The Climate Reality Project Philippines, 2025).

(b) Youth and Gender: visibility without decision-making power

Across the ASEAN region, youth engagement in climate processes often remains confined to visibility rather than influence. While events such as the ASEAN Youth in Climate Action and Disaster Resilience Conference bring together dozens of young delegates, 67 at a recent edition hosted by the Philippines, a considerable gap persists between outreach and actual power in policymaking (CCC, 2025). These conferences produce declarations and galvanize youth solidarity, yet young people seldom gain seats at formal decision-making tables or see their contributions reflected in national climate strategies.

In Viet Nam, a notable but isolated initiative leveraged traditional water puppetry to raise climate awareness. In theatre troupes along the Red River, youth-led performances depicted environmental stories using the cultural form of múa rối nước, inviting policymakers to engage (Lloyd-Williams, 2024).

Despite its creativity and local resonance, this remains an exception, not a model systematically integrated into climate governance. Regional climate policy experts point to structural constraints. Rizki Maulana Rachman, a senior advisor in the region, explains: "Youth are consulted... but it's unclear how much of their input carries into final documents. Youth need more technical capacity to negotiate on equal footing". He highlights two key issues: first, youth participation is frequently limited to awareness-raising and campaign-style involvement; second, young people lack access to the technical tools and institutional platforms needed for meaningful policy engagement (Interview with Rizki Maulana Rachman, 2025).

Strengthening youth influence in ASEAN NDC processes therefore requires more than invitations to conferences, it demands capacity-building in policy literacy, participatory mechanisms that support genuine co-creation, and formal roles in inter-ministerial committees

or working groups. Only then can the energy and creativity of youth translate into sustained policy impact.

Gender inclusion suffers from a similar pattern. Although most NDCs reference women's vulnerability to climate change, few contain gender-responsive implementation pathways. **Indonesia** provides illustrative case studies: in Demak, Central Java, fisherwomen confront climate change on multiple fronts. As reported by UN Women, unpredictable waves, increasing tidal floods, and rising sea levels have submerged villages (UN Women, 2021). Fisherwomen in Demak, like Masnuah, head of the Indonesian Sisterhood of Fisherwomen, describe having no insurance or workplace protections, increased debt, children being pulled from school, and mounting domestic responsibilities during the COVID-19 pandemic. These conditions reflect the compounded vulnerability women face, yet Demak's NDC fails to address these gender-differentiated challenges or propose targeted support mechanisms. The situation in Cirebon, West Java, reinforces this pattern. A 2017 study (Pratiwi, N. A. H., R., et al., 2017) on gender equality in climate change adaptation demonstrated severe socio-economic disparities: women in rural Cirebon face lower education and literacy levels, restricted access to resources and mobility, and limited participation in decision-making, compared to men. The study found that while urban areas show slight advances in mainstreaming gender into adaptation programs, rural regions lag significantly, where local authorities and policymakers often lack gender awareness, and traditional norms hamper women's engagement.

One clear exception is the **Philippines**, whose NDC includes a Gender Action Plan (CCC, 2024) officially mandates gender-responsive climate action and emphasizes the "meaningful participation of women" alongside a commitment to "gender equality, empowerment of women and intergenerational equalities". Spearheaded by the Climate Change Commission with interagency collaboration and support from the Asian Development Bank and UNDP, the NDC GAP links gender equity directly to key ministries, such as Environment, Energy, Agriculture, and Transportation, and outlines sector-specific strategic actions, capacity-building measures, and indicators to ensure implementation. This signals a clear shift: women are framed as essential agents of change in national climate efforts, not merely passive victims.

In **Viet Nam**, the influence of gender-focused institutions is emerging, though largely at the grassroots level. The Vietnam Women's Union, with over 13 million members, is one of the most powerful mobilizers in rural development and climate adaptation. In provinces like Hoa Binh, Thanh Hoa, Nghe An, Ha Tinh, and Ben Tre, women-led WASH initiatives supported by the Union have significantly improved access to sanitation and hygiene in vulnerable communities (Water for Women Fund, 2021). Despite these successes, deeper gender mainstreaming into national climate frameworks remains limited. As, a gender specialist, observed: "Women-led initiatives are active, but integration into national strategy is still limited" (Interview with Tu Anh Nguyen, 2025). This reflects broader trends: gender-aware projects are supported on the ground, but translation into coherent policy and budget frameworks is still weak.

(c) Comparative assessment

The disconnect between symbolic acknowledgment and substantive inclusion of marginalized voices is evident in both policy texts and implementation realities. The Philippines stands out for its relatively stronger integration of Indigenous rights, gender equity, and youth engagement. In contrast, most other ASEAN Member States mention these groups without institutionalizing mechanisms for their influence or participation.

This gap is illustrated in the table below, which synthesizes the recognition of Indigenous Peoples, youth, and gender in the six focus countries' NDCs.

Table 1: References to inclusion in NDC texts

Country	Indigenous Peoples	Youth	Gender
Indonesia	Mentioned (as <i>Masyarakat Hukum Adat</i>), but rights recognition is contested (e.g., social forestry vs. <i>adat</i>)	Mentioned in the context of intergenerational equity	Mentioned in the context of gender equality and empowerment of women
Myanmar	Mentioned in the context of inclusive engagement and sustainable landscape use	Mentioned in the context of stakeholder consultations	Mentioned in the context of stakeholder consultations
Philippines	Strong recognition of rights and traditional knowledge in NDC text	Explicitly mentioned as a key stakeholder group for participation	Strong commitment to gender-responsive action and women's participation
Singapore	Not mentioned	Mentioned in the context of engaging citizens and co-creating solutions	Not mentioned
Viet Nam	Mentioned in the context of community engagement, but specific rights are not detailed	Mentioned in the context of raising awareness and community engagement	Mentioned in the context of promoting gender equality

2.2.3. Systemic barriers to inclusive and participatory NDC processes

Despite formal recognition of the need for inclusive climate governance, multiple systemic barriers continue to obstruct the transition from consultation to meaningful participation across ASEAN Member States. These barriers are embedded in political, institutional, and socio-economic structures that limit the influence of marginalized actors in the formulation and implementation of NDCs.

A fundamental constraint lies in the political economy of several ASEAN countries, where policymaking is often shaped by entrenched "politico-business coalitions" that have long profited from carbon-intensive development models. These coalitions tend to dominate national agendas and resist alternative approaches, especially those that advocate for structural change or redistribution (Bal, Coen, & Hickmann, 2022). As a result, policy processes remain exclusivist, sidelining civil society organizations (CSOs), Indigenous groups, and youth and women movements that challenge dominant economic interests.

Institutional weaknesses also play a major role. One of the most cited issues is the absence of formalized feedback mechanisms within NDC development processes (Regional Survey, 2025). For example, in Indonesia, stakeholders described a lack of transparency in how their input is considered, with no clear procedures for reporting back on which suggestions were accepted or rejected. This absence of feedback loops fosters disillusionment and consultation fatigue among non-state actors, who often perceive such engagements as superficial or tokenistic.

In addition to procedural gaps, there are stark asymmetries in capacity and access. Many CSOs, youth networks, and Indigenous organizations lack the technical expertise, financial resources, and political leverage to engage on equal footing with government agencies or

powerful private sector actors. These groups often operate under precarious conditions, with limited institutional support and few opportunities for sustained dialogue with decision-makers.

Language barriers further compound the problem. NDCs are frequently published only in English, which limits their accessibility to non-English-speaking communities and even to local officials. In Indonesia, for instance, an expert noted that he had “never seen an official Bahasa Indonesia version” of the NDC, raising concerns that the document was written primarily for international audiences rather than for domestic stakeholders (Interview I1, 2025). This practice undermines local ownership, restricts public accountability, and reinforces the perception that climate policy is an elite, technocratic process.

The broader political culture in many ASEAN countries also inhibits participatory governance. Decision-making remains highly centralized and technocratic, especially in contexts such as Viet Nam, where hierarchical governance structures constrain local engagement. The principle of consensus underlying the “ASEAN Way,” while useful in preventing diplomatic conflict, can also stifle robust civil society engagement and discourage critical discourse. In this context, the dominance of executive agencies and the sidelining of dissenting perspectives contribute to what some scholars describe as a “mono-centric mode of governance”, one that systematically excludes voices from below (Socialist Republic of Viet Nam, Ministry of Finance & UNDP Regional Bureau for Arab States, 2011)

Addressing these structural barriers requires more than expanding the number of stakeholder workshops or consultation sessions. It calls for institutional reforms that embed participation within the architecture of climate policymaking. This includes the establishment of transparent, iterative feedback systems, the translation of national climate documents into local languages, and sustained investment in capacity-building for underrepresented groups. Only by reducing structural asymmetries and opening space for continuous engagement can the NDC process evolve from a formal obligation to a genuinely participatory and inclusive framework for climate action.

2.3. The dual identity of NDCs: international commitment vs. national development compass

Nationally Determined Contributions in ASEAN are not monolithic instruments. Rather, they are strategically crafted to serve a dual function. On one hand, they are formal pledges submitted to the international community under the legal architecture of the Paris Agreement. On the other, they are domestic policy frameworks designed to align climate ambition with national development priorities, attract strategic investment, and justify policy directions across sectors such as energy, industry, and land use. This dual identity is essential to understanding the content, ambition, and political logic that shape each country’s NDC.

As instruments of international commitment, NDCs are the principal mechanism through which countries communicate their contributions to the global goal of limiting warming to well below 2 °C and pursuing efforts toward 1.5 °C. Article 4 of the Paris Agreement requires Parties to submit successive NDCs that represent a “progression” in ambition, establishing a five-year cycle known as the “ratchet mechanism” (UNFCCC, 2015). This process is reinforced by the Global Stocktake, which assesses collective progress and pressures countries to align their pledges with evolving scientific and geopolitical realities. In this sense, NDCs are key tools of international diplomacy and transparency.

At the same time, the true political drivers of NDC content often lie in their role as domestic development compasses. Across ASEAN, NDCs are closely integrated with national development strategies. Indonesia’s NDC is explicitly linked to its National Medium-Term Development Plan (RPJMN) and is framed as contributing to poverty reduction and “a

prosperous Indonesia” (Republic of Indonesia, 2022). Thailand’s NDC is aligned with its 13th National Economic and Social Development Plan and Climate Change Master Plan (Kingdom of Thailand, 2022). The Philippines presents its NDC as supporting national goals of sustainable industrial development, energy security, poverty eradication, and inclusive growth. In each case, climate action is presented not as a constraint but as a facilitator of economic transformation.

This developmental orientation is increasingly reflected in efforts to render NDCs “investable.” Governments are positioning NDCs not merely as climate plans, but as strategic prospectuses for domestic and international investors. A credible NDC today must offer clear targets, stable policy frameworks, and a pipeline of bankable projects to attract the capital required for low-carbon transitions (OECD/UNDP, 2025). Malaysia’s NDC, for instance, is embedded in its National Energy Transition Roadmap (NETR) and National Industrial Master Plan, explicitly linking decarbonization to economic modernization and job creation. Institutions such as the Asian Development Bank (ADB), are working closely with ASEAN governments to support this agenda, helping country’s structure financing strategies that convert NDC pledges into investment-ready packages (Asian Development Bank, 2024).

The political nature of this balancing act is clear. As Indonesian climate policy expert Rizki Maulana Rachman put it, “The NDC is a powerful but fundamentally political tool. Although science-based emissions pathways exist, the final NDC content reflects the interests of political leadership” (Interview with Rizki Maulana Rachman, 2025). This statement captures the core tension: NDCs are negotiated outcomes, shaped both by international expectations and by domestic economic and political constraints.

This dual function also creates a divergence between external messaging and internal governance. For international audiences, UNFCCC bodies, development partners, and investors, NDCs provide traceable signals of ambition and transparency. As Rizki Maulana Rachman observed, “It is the only global tool that ensures traceability and visibility of countries’ commitments” (Interview with Rizki Maulana Rachman, 2025). Many ASEAN NDCs reflect this function through their structure, language, and level of technical detail. The frequent publication of NDCs only in English, such as in Indonesia, reinforces their orientation toward international readers. As Hang Dang noted in a 2025 interview, this outward-facing focus can render NDCs “more like a symbolic document” than a tool actively used by domestic institutions (Interview with Hang Dang, 2025).

Nonetheless, NDCs are by definition nationally determined. Their credibility and effectiveness depend on integration with national development frameworks. This is reflected in how Indonesia, the Philippines, and Thailand situate their NDCs within their respective planning instruments, such as the RPJMN, the Philippine Development Plan, and the Thai National Strategy. This approach not only legitimizes NDCs domestically but also strengthens their investment logic by identifying actionable, fundable projects that can attract private capital.

Understanding this dual character, both as global commitments and as national planning tools, is essential to evaluating the ambition and strategic design of NDCs in ASEAN. It is precisely because NDCs must fulfil both roles, signal ambition internationally and provide a coherent domestic roadmap, that the structure, content, and framing of each pledge deserve careful scrutiny.

The next chapter turns to this task directly, offering a comparative analysis of ASEAN NDCs to assess how ambition is framed, targets are set, and national priorities are expressed through mitigation, adaptation, and sectoral strategies.

Bibliography

Aliansi Masyarakat Adat Nusantara. (2024). *Critique of social forestry and advocacy for Indigenous land rights*. <https://www.aman.or.id/english>

ASEAN. (2022). *ASEAN Youth in Climate Action and Disaster Resilience Conference*. <https://asean.org/asean-youth-convene-on-regional-climate-action-and-disaster-resilience/>

Asia Indigenous Peoples Pact. (2023). *NDCs in Asia: Are governments recognizing the rights, roles and contributions of Indigenous Peoples?* <https://www.climateandforests-undp.org/ipandndc>

Asia Indigenous Peoples Pact. (2024). *Southeast Asia sub-regional report: Country reports from Malaysia, Philippines, and Indonesia*. <https://aippnet.org/southeast-asia-sub-region-country-reports-malaysia-philippines-indonesia/>

Asian Development Bank. (2024). *Transforming ASEAN: Strategies for achieving inclusive and sustainable growth* (Rev. ed.). <https://www.adb.org/sites/default/files/publication/960106/transforming-asean-strategies-achieving-inclusive-and-sustainable-growth-rev1.pdf>

Bal, M., Coen, D., & Hickmann, T. (2022). *Explaining transformative change in ASEAN and EU climate policy: The role of polycentric governance and policy entrepreneurs* [Working paper]. UCL Discovery. <https://discovery.ucl.ac.uk/id/eprint/10165144/>

CCC. (2025). *CCC rallies support for youth-driven climate action at ASEAN conference*. <https://climate.gov.ph/news/992>

Central European Institute of Asian Studies. (2024). *Myanmar's crisis: The fragility of governance and the urgency of climate action*. <https://ceias.eu/myanmars-crisis-the-fragility-of-governance-and-the-urgency-of-climate-action/>

Climate Action Tracker. (2021, October). *Climate governance series: Indonesia*. https://climateactiontracker.org/documents/980/2021_10_CAT_Governance_Report_Indonesia.pdf

Climate Action Tracker. (2022). *Evolving climate change governance in Myanmar: Limitations and opportunities in a political crisis*. https://www.researchgate.net/publication/357003214_'Evolving_climate_change_governance_in_Myanmar_Limitations_and_opportunities_in_a_political_crisis'__-_Ch7_in_Governing_Climate_Change_in_Southeast_Asia_Critical_Perspectives_Routledge

Climate Action Tracker. (n.d.). *Viet Nam*. <https://climateactiontracker.org/countries/vietnam/policies-action/>

Climate Change Commission. (2024). *Philippines nationally determined contribution gender action plan 2024–2030*. <https://climate.gov.ph/files/NDC%20GAP%202024-2030%20Final.pdf>

Climate Change Commission. (2025, June 11). *CCC, CSOs, private sector convene to bolster climate action and governance*. <https://climate.gov.ph/news/1006>

Climate Strategies. (2023). *Climate-energy governance model in Indonesia*. <https://climatestrategies.org/publication/new-snapfi-report-climate-energy-governance-model-in-indonesia/>

Department of Energy. (2020, October 27). *Advisory on the moratorium of endorsements for greenfield coal-fired power projects in line with improving the sustainability of the Philippines' electric power industry*. <https://legacy.doe.gov.ph/announcements/advisory-moratorium-endorsements-greenfield-coal-fired-power-projects-line-improving>

Department of Energy. (2023). *Philippine energy plan 2023–2050* (Vol. I). <https://legacy.doe.gov.ph/sites/default/files/pdf/pep/PEP%202023-2050%20Vol.%20I.pdf>

East Asia Forum. (2023, November 9). *Conflicts intensify climate change risks in Myanmar*. <https://eastasiaforum.org/2023/11/09/conflicts-intensify-climate-change-risks-in-myanmar/>

Ember. (2024, July 1). *Philippines' dependency on coal-fired power surpasses China, Indonesia*. *Reuters*. <https://www.reuters.com/markets/commodities/philippines-dependency-coal-fired-power-surpasses-china-indonesia-2024-07-01/>

Georgetown Journal of International Affairs. (2024). *The challenges of conflict and climate change in Myanmar*. <https://gja.georgetown.edu/2024/06/09/concurrent-challenges-of-conflict-and-climate-change-in-myanmar/>

Guillao, J. A., Indrarto, G. B., Lim, T., Venugopal, D., & Zunga, U. (2022). *NDC South East Asia April 2022*. UNDP Climate and Forests. <https://www.climateandforests-undp.org/sites/default/files/resources/NDC%20South%20East%20Asia%20April2022-digital.pdf>

Human Rights Watch. (2024, June 30). *ASEAN environmental rights declaration needs transparency*. <https://www.hrw.org/news/2024/06/30/asean-environmental-rights-declaration-needs-transparency>

Interview V1. (2025). Official at the Ministry of Environment (MONRE), Viet Nam [Interview]. Conducted by Alexandre Germouty.

Interview with Ahmad Fajar Maulana. (2025). Former official at the Ministry of Environment and Forestry, Indonesia [Interview]. Conducted by Alexandre Germouty.

Interview with Hang Dang. (2025). Climate and civil-society specialist in Myanmar [Interview]. Conducted by Alexandre Germouty.

Interview with I1. (2025). Former official at the Ministry of Environment and Forestry, Indonesia [Interview]. Conducted by Alexandre Germouty.

Interview with Indira Pradnyaswari. (2025). ASEAN Centre for Energy [Interview]. Conducted by Alexandre Germouty.

Interview with Lin Song. (2025). ESG consultant in the private sector [Interview]. Conducted by Alexandre Germouty.

Interview with Rizki Maulana Rachman. (2025). Former official at Indonesia's Ministry of Environment and Forestry and climate policy expert at GIZ [Interview]. Conducted by Alexandre Germouty.

Interview with The Climate Reality Project Philippines. (2025). Civil-society actor involved in local climate policy [Interview]. Conducted by Alexandre Germouty.

Interview with Tu Anh Nguyen. (2025). Climate policy researcher [Interview]. Conducted by Alexandre Germouty.

Interview with WWF Myanmar. (2025). Environmental NGO representative [Interview]. Conducted by Alexandre Germouty.

Kingdom of Thailand, Office of Natural Resources and Environmental Policy and Planning. (2022, November 2). *Second updated nationally determined contribution*. https://unfccc.int/sites/default/files/NDC/2022-11/Thailand_2ndUpdated_NDC.pdf

Lloyd-Williams, A., Dang, T. H., & Nguyen, H. T. T. (2024). Act of hope: A story of climate change and water puppetry performance along the Red River, Vietnam. *Research in Drama Education: The Journal of Applied Theatre and Performance*, 29(2), 165–183. <https://doi.org/10.1080/13569783.2024.2319833>

National Climate Change Secretariat. (n.d.). *Inter-ministerial Committee on Climate Change*. <https://www.nccs.gov.sg/who-we-are/inter-ministerial-committee-on-climate-change/>

OECD & United Nations Development Programme. (2025). *Investing in climate for growth and development: The case for enhanced NDCs*. OECD Publishing. <https://doi.org/10.1787/16b7cbc7-en>

Pratiwi, N. A. H., Rahmawati, Y. D., & Setiono, I. (2017). Gender equality in climate change adaptation: A case of Cirebon, Indonesia. *The Indonesian Journal of Planning and Development*, 2(2), 74–86.

Regional survey among ASEAN stakeholders. (2025). Unpublished raw data [Dataset]. Collected by Alexandre Germouty.

ReliefWeb. (2023). *Climate change actions in conflict-affected contexts: Insights from Myanmar after the military coup*. <https://reliefweb.int/report/myanmar/climate-change-actions-conflict-affected-contexts-insights-myanmar-after-military-coup>

Republic of Indonesia, Ministry of Environment and Forestry. (2022, September 23). *Enhanced nationally determined contribution*. https://unfccc.int/sites/default/files/NDC/2022-09/Indonesia_Enhanced_NDC_2022.pdf

Republic of Singapore, National Climate Change Secretariat. (2024). *Singapore Biennial Transparency Report I*. <https://unfccc.int/sites/default/files/resource/Singapore%20BTR1%202024.pdf>

Republic of Singapore, National Climate Change Secretariat. (2025, February). *Second nationally determined contribution and accompanying information*. <https://unfccc.int/sites/default/files/2025-02/Singapore%20Second%20Nationally%20Determined%20Contribution.pdf>

Republic of the Philippines, Climate Change Commission. (2021, April 15). *First nationally determined contribution*. <https://unfccc.int/sites/default/files/NDC/2021-07/Philippines%20-%20NDC.pdf>

Republic of the Union of Myanmar, Ministry of Natural Resources and Environmental Conservation. (2021, August 3). *Updated nationally determined contribution 2021–2030*. <https://unfccc.int/sites/default/files/NDC/2021-10/Myanmar%20Updated%20NDC%202021-2030.pdf>

Socialist Republic of Viet Nam, Ministry of Finance; & United Nations Development Programme, Regional Bureau for Arab States. (2011). *Making the state responsive: Experience with democratic*

governance assessments. United Nations Development Programme. <https://www.undp-aci.org/publications/ac/books/making%20the%20state%20responsive-e.pdf>

Socialist Republic of Viet Nam, Ministry of Natural Resources and Environment. (2022, November 8). *Updated nationally determined contribution*. <https://unfccc.int/sites/default/files/NDC/2022-11/Viet%20Nam%20Updated%20NDC%202022.pdf>

Socialist Republic of Viet Nam, Office of the Prime Minister. (2022, December 9). *Decision No. 2157/QĐ-TTg on establishing a National Steering Committee for the implementation of Viet Nam's commitments at COP26*. <https://vanban.chinhphu.vn/default.aspx?pageid=27160&docid=204731>

SIPRI. (2024). *Climate, peace and security fact sheet: Myanmar*. <https://www.sipri.org/publications/2024/partner-publications/climate-peace-and-security-fact-sheet-myanmar-2024>

Sprain, L. (2016). Paradoxes of public participation in climate change governance. *The Good Society*, 25(1), 62–80. <https://doi.org/10.5325/goodsociety.25.1.0062>

Stockholm Environment Institute. (2024). *The ASEAN Declaration on Environmental Rights: Whose rights and what rights?* <https://www.sei.org/perspectives/asean-declaration-environmental-rights/>

United Nations Economic and Social Commission for Asia and the Pacific. (2024). *Draft ASEAN Declaration on Environmental Rights*. https://unescap.org/sites/default/d8files/event-documents/AER%20WG_3M_3_Add1%20Draft%20ASEAN%20declaration%20on%20environmental%20rights.pdf

United Nations Framework Convention on Climate Change. (2015). *Paris Agreement*. https://unfccc.int/sites/default/files/english_paris_agreement.pdf

UN Women. (2021). *How the fisherwomen of Java rise above climate change and an increase in gender-based violence*. <https://wrd.unwomen.org/explore/insights/how-fisherwomen-java-rise-above-climate-change-and-increase-gender-based-violence>

Water for Women Fund. (2021). *Women's initiatives in Vietnam ensuring no one is left behind in the fight against COVID-19*. <https://www.waterforwomenfund.org/en/news/women-s-initiatives-in-vietnam-ensuring-no-one-is-left-behind-in-the-fight-against-covid-19.aspx>

World Bank. (2022). *Vietnam Country Climate and Development Report*. <https://openknowledge.worldbank.org/server/api/core/bitstreams/a27f1b05-910d-59ab-ba2c-84206bf107c2/content>

World Bank. (2024). *Indonesia Country Climate and Development Report*. <https://www.worldbank.org/en/country/indonesia/publication/indonesia-country-climate-and-development-report>

Chapter 3

Ambition and content analysis: a comparative review of ASEAN NDCs

The credibility and effectiveness of climate governance begin with the content of national commitments. Nationally Determined Contributions, while designed to reflect country-specific circumstances, must collectively advance global goals under the Paris Agreement. In ASEAN, this balance between national autonomy and global ambition gives rise to a wide diversity in targets, strategies, and implementation frameworks. This chapter conducts a comparative analysis of the structure, ambition, and sectoral orientation of NDCs from six ASEAN Member States, Indonesia, Viet Nam, the Philippines, Thailand, Myanmar, and Singapore. Drawing on official submissions, national implementation plans, and qualitative data from expert interviews, it dissects the technical architecture of mitigation targets (Section 3.1), the strategic sectoral focus and adaptation integration (Section 3.2), and the structural drivers that shape disparities in ambition (Section 3.3). The analysis aims to clarify where national approaches diverge, where alignment may be possible, and what this diversity implies for the coherence of ASEAN's climate response.

3.1. Clarity and ambition of mitigation targets

The mitigation targets set out in the NDCs of six ASEAN Member States (AMS), reveal a highly diverse and fragmented landscape of ambition. This diversity stems from distinct economic profiles, national development strategies, and interpretations of equity under the Paris Agreement. This section dissects the technical architecture of these targets, comparing their types (Sub-section 3.1.1), transparency (Sub-section 3.1.2) and implications for regional coherence (Sub-section 3.1.3). It also assesses how international support shapes the outer bounds of ambition across the region.

3.1.1. Target types: absolute, intensity-based, and business-as-usual (BAU)

The design of a country's mitigation target is a fundamental political and technical choice. It signals the level of ambition, the nature of emissions reduction effort, and the extent to which the country aligns its climate objectives with development priorities. Across ASEAN, three primary types of targets are employed: economy-wide absolute targets, relative targets based on business-as-usual (BAU) projections, and cumulative avoidance goals. The variety of approaches reflects the "nationally determined" character of the Paris framework but complicates efforts at comparability and alignment.

Singapore is the only AMS to adopt an economy-wide absolute emissions cap. Its Second NDC commits to reducing emissions to 45-50 MtCO_{2e} by 2035, down from a previous peak of 65 MtCO_{2e} around 2030 (Republic of Singapore, 2025). This target aligns with expectations for high-income countries and provides maximum clarity and environmental certainty. It is also compatible with Singapore's economic structure, which is dominated by services and energy-intensive industries, rather than emissions-heavy agriculture or land use. As a small island state highly vulnerable to climate risks, Singapore's choice reflects both its long-term strategic planning capacity and its incentive to lead on climate ambition.

In contrast, the remaining five countries, Indonesia, Viet Nam, the Philippines, Thailand, and Myanmar, rely on targets defined relative to a projected BAU scenario. This approach, common among developing economies, allows countries to commit to reducing the

growth rate of future emissions without constraining economic development through absolute limits (OECD & UNDP, 2025). It offers political flexibility in contexts where energy demand, industrial output, and population growth are expected to increase substantially over the coming decades.

The structure of these BAU-relative targets varies by country:

- Indonesia: 31.89% unconditional and 43.20% conditional reduction from BAU by 2030 (Republic of Indonesia, 2022).
- Viet Nam: 15.8% unconditional and 43.5% conditional reduction by 2030 (Socialist Republic of Viet Nam, 2022).
- Thailand: 30% unconditional and 40% conditional reduction by 2030 (Kingdom of Thailand, 2022).
- Philippines: a 75% cumulative reduction and avoidance goal against a 2020-2030 BAU baseline of 3,340.3 MtCO₂e (Republic of the Philippines, 2021).
- Myanmar: a cumulative avoidance target of 244.52 MtCO₂e unconditionally and 414.75 MtCO₂e conditionally by 2030 (Republic of the Union of Myanmar, 2021).

This architecture reflects a “development-first” orientation. BAU-relative targets allow these governments to project emissions growth consistent with industrialization, while demonstrating a downward deviation from that path (Ambition to Action., 2017). This makes the NDC politically viable within national planning processes that prioritize poverty eradication, infrastructure development, and energy access.

However, the use of BAU baselines introduces serious transparency and comparability issues. BAU projections are not standardized. They are built on assumptions about economic growth, population, energy use, and technology that are often opaque and subject to political negotiation. This creates a “black box” effect: ambitious-sounding percentage reductions may conceal minimal real-world mitigation effort if the baseline is inflated. Independent assessments, including those from the Climate Action Tracker, suggest that unconditional targets from countries like the Philippines (Climate Action Tracker, 2025a) and Viet Nam (Climate Action Tracker, 2025b) require little to no additional effort beyond existing policies, casting doubt on the integrity of their BAU scenarios.

This concern is acknowledged within countries themselves. The Philippines’ NDC Implementation Plan (CCC, 2020) notes that its BAU projection was based on outdated development assumptions, and actual emissions in the early years of the NDC period have already been significantly lower than forecast. This raises doubts about the meaningfulness of the 75% mitigation pledge and underscores the need for more accurate baseline construction.

The result is a widening “ambition gap”, the difference between the headline percentage and the real mitigation effort required (IPCC, 2022). Without a standardized methodology for BAU construction, it is difficult to evaluate whether Indonesia’s 31.89% pledge represents more ambition than Thailand’s 30% or Viet Nam’s 15.8%. This lack of clarity complicates climate finance planning, policy coordination, and accountability, and poses a significant obstacle to regional coherence.

The diversity of ambition metrics, ranging from absolute targets (Singapore) to percentage reductions from projected BAU (Indonesia, Viet Nam, Thailand) to cumulative avoidance over a decade (Philippines, Myanmar), makes direct comparison virtually impossible. This fragmentation hinders the development of joint initiatives such as regional carbon pricing or cross-border offset schemes. As one ASEAN climate expert noted, “The diversity in sectoral focus, level of ambition, and institutional maturity makes convergence difficult.” (Interview with A2, 2025). The lack of a common reference point weakens ASEAN’s ability to form a cohesive negotiating bloc under the Paris Agreement or to implement collective measures that require shared accounting standards.

Table 2: NDC target design in six ASEAN Member States

Country	NDC Version/Year	arget Type	Base Year/Period	Target Year	GHG Coverage
Indonesia	Enhanced NDC (2022)	BAU-Relative Reduction	2010 (BAU reference)	2030	CO ₂ , CH ₄ , N ₂ O
Viet Nam	Updated NDC (2022)	BAU-Relative Reduction	2014 (BAU start)	2030	CO ₂ , CH ₄ , N ₂ O, HFCs
The Philippines	First NDC (2021)	Cumulative BAU-Relative Reduction	2020-2030 (BAU period)	2030	CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs, SF ₆
Thailand	2nd Updated NDC (2022)	BAU-Relative Reduction	2005 (BAU reference)	2030	CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs, SF ₆
Myanmar	Updated NDC (2021)	Cumulative BAU-Relative Reduction	2021-2030 (BAU period)	2030	CO ₂
Singapore	Second NDC (2025)	Absolute Emissions Target	N/A	2035	CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs, SF ₆ , NF ₃

3.1.2. The role of conditionality: dependence on international support

A defining feature of the NDCs from five ASEAN developing countries, Indonesia, Viet Nam, the Philippines, Thailand, and Myanmar, is the clear division between unconditional targets, which governments pledge to achieve using domestic resources, and more ambitious conditional targets, contingent on the provision of international finance, technology transfer, and capacity building. Far from being a technical detail, this bifurcation reflects the political economy of climate ambition in the Global South and signals each country's position in ongoing climate finance diplomacy.

The magnitude of conditionality varies significantly across the region, reflecting diverse development contexts and strategic postures. The Philippines presents the most extreme case: its NDC pledges a 75% reduction and avoidance of emissions from 2020 to 2030, of which only 2.71% is unconditional. This makes nearly 97% of its stated ambition contingent on external support (Republic of the Philippines, 2021). Such framing is not only a financing strategy but also a political signal, a call for climate justice, grounded in the country's acute vulnerability to climate-related disasters. By highlighting its needs so starkly, the Philippines positions itself as a frontline state in global climate negotiations, where ambition is inseparable from claims to historical responsibility and financial equity.

Other countries employ conditionality more moderately. Viet Nam commits to a 15.8% unconditional reduction from its business-as-usual (BAU) emissions by 2030, rising to 43.5% if international support is available, a conditional gap of 27.7 percentage points (Socialist Republic of Viet Nam, 2022). Thailand's NDC follows a similar structure, with a 30% unconditional and 40% conditional target (Kingdom of Thailand, 2022). Indonesia, meanwhile, offers a 31.89% unconditional reduction, increasing to 43.20% conditionally, an additional 11.31 percentage points (Republic of Indonesia, 2022). As Indonesian expert Ahmad Fajar Maulana suggested in interview, this narrower conditional gap "may reflect a strategic intention to signal domestic capacity and policy certainty, with the aim of attracting foreign investment" rather than traditional aid (Interview with Ahmad Fajar Maulana, 2025).

This strategic use of conditionality is shaped by a broader climate finance trust deficit. As noted by Rizki Maulana Rachman, a former official in Indonesia’s Ministry of Environment and Forestry, the persistent failure of developed countries to deliver on longstanding promises, such as the US\$100 billion annual climate finance commitment, has fostered deep scepticism (UNFCCC Standing Committee on Finance, 2024). This explains why many ASEAN countries adopt cautious unconditional targets and reserve more ambitious plans for conditional scenarios. In Rachman’s words, “It’s a way of saying: here’s what we can do alone, and here’s what we could achieve with your help, if you actually show up” (Interview with Rizki Maulana Rachman, 2025).

The aspirational nature of these conditional targets becomes clear when examining the staggering financing needs behind them. The Philippines’ NDC Implementation Plan estimates that achieving its targets will require US\$72 billion (CCC, 2023). Viet Nam’s NDC projects a need of US\$21.7 billion for unconditional action and a total of US\$86.8 billion if its conditional targets are to be achieved. Thailand estimates up to US\$202 billion, while Indonesia’s financing needs range from US\$247 to 285 billion by 2030. These figures far exceed what is currently mobilized through mechanisms such as the Green Climate Fund (GCF) or multilateral development banks, underscoring a critical disconnect between ambition and means of implementation (GCF, 2024).

This gap has catalysed a shift in narrative: conditional NDCs now function less as concrete delivery plans and more as political and financial propositions. They articulate what could be achieved under a transformed global financial system, one capable of supporting whole-economy transitions rather than isolated projects. Initiatives such as the Just Energy Transition Partnerships (JETPs), negotiated with Indonesia and Viet Nam, represent one possible pathway to operationalize this potential, blending public finance with private capital under a long-term transformation framework (Martinus, 2024). Still, such arrangements remain rare, experimental, and contingent on political will from both donor and recipient countries.

The credibility of large conditional targets is not guaranteed. While they are important tools of climate diplomacy, they are also closely scrutinized by donors and investors. Countries are assessed not only on the size of their financial needs but also on the governance systems, policy coherence, and institutional capacity that underpin their climate frameworks. In this sense, ambitious conditional pledges may raise expectations, but they also raise questions about whether recipient states can effectively absorb and utilize support.

Across ASEAN, conditionality thus serves multiple purposes: a plea for climate justice (Philippines), a negotiating lever for concessional finance (Indonesia and Viet Nam), or a signal of policy reliability to private investors (Thailand). Yet despite this diversity of framing, the use of conditional targets reflects a shared structural reality: in the absence of robust and predictable international support, many ASEAN countries cannot realistically deliver on the full scale of their stated climate ambition.

Ultimately, the role of conditionality reveals the inherently political nature of climate commitments. It reaffirms that ambition is not just a question of emissions trajectories, but of power, finance, and trust in a global system that has too often failed to deliver for developing countries.

Table 3: NDC ambition split and stated financing needs

Country	Unconditional target	Conditional target	Ambition gap (conditional - unconditional)	Stated financial need for NDC implementation (US\$ Billion)
---------	----------------------	--------------------	--	---

Indonesia	31.89% reduction from BAU	43.20% reduction from BAU	11.31 percentage points	~\$247 - \$323
Viet Nam	15.8% reduction from BAU	43.5% reduction from BAU	27.7 percentage points	\$21.7 (unconditional) / \$86.8 (total conditional)
The Philippines	2.71% of 75% total reduction	72.29% of 75% total reduction	69.58 percentage points	~\$72
Thailand	30% reduction from BAU	40% reduction from BAU	10 percentage points	~\$145 (unconditional) / ~\$202 (conditional)
Myanmar	244.52 MtCO ₂ reduction	414.75 MtCO ₂ reduction	170.23 MtCO ₂ e	Not specified in NDC, but requires significant international support
Singapore	Absolute emissions cap: 45–50 MtCO ₂ e in 2035	N/A	N/A	Not specified in NDC, but requires significant investment in technology

3.2. Sectoral priorities and strategic focus

Beyond the headline targets, the substance of an NDC lies in its sectoral focus. This section dissects the "what" and "how" of the mitigation pledges, comparing where countries are strategically concentrating their efforts (Sub-section 3.2.1). It also examines the extent to which adaptation, a critical priority for the vulnerable region, is integrated into these climate strategies and how the narrative of "co-benefits" is used to align climate action with national development goals (Sub-section 3.2.2).

3.2.1. Mitigation focus: energy, LULUCF, transport, and agriculture

A comparative analysis of the six NDCs reveals a clear divergence in sectoral prioritization, primarily driven by each nation's unique emissions profile, economic structure, and natural resource endowment. The strategies largely coalesce around two pillars: the energy transition and the land use, land-use change, and forestry (LULUCF) or agriculture, forestry, and other land use (AFOLU) sector.

(a) LULUCF-Centric Strategies

For **Indonesia** and **Myanmar**, the land use sector is the centrepiece of their mitigation plans. **Indonesia**, home to the world's third-largest rainforest, has made its "FOLU Net Sink 2030" initiative the very backbone of its NDC. This ambitious plan aims to transform the sector from a major source of emissions into a net sink, absorbing 140 MtCO₂e more than it emits by 2030. This is to be achieved through aggressive measures like reducing deforestation, restoring 2 million hectares of peatlands, and rehabilitating 12 million hectares of degraded land (Republic of Indonesia, 2022). The focus is logical: LULUCF and peat fires have historically accounted for over half of Indonesia's total emissions, representing the largest and most accessible source of abatement. Similarly, **Myanmar's** NDC sets a conditional target of reducing deforestation by 50% by 2030, reflecting that forestry contributes some 80% of its

national GHG emissions (Republic of the Union of Myanmar, 2021). For these forest-rich nations, land use is not just one sector among many; it is the primary arena for climate action.

(b) Energy-centric strategies

In contrast, **Viet Nam** and **Thailand**, two of the region's most dynamic and rapidly industrializing economies, place the energy sector at the heart of their NDCs. Viet Nam's updated NDC is inextricably linked to its landmark Power Development Plan 8 (PDP8), a comprehensive roadmap for its energy future (Socialist Republic of Viet Nam, 2022). PDP8 outlines a massive expansion of renewable energy, particularly solar and wind, and a managed transition away from coal, which is to be capped with no new plants approved after 2030. **Thailand's** NDC is similarly constructed upon its national energy plans, the Power Development Plan (PDP), Alternative Energy Development Plan (AEDP), and Energy Efficiency Plan (EEP), which collectively aim to boost renewables and energy efficiency. Tellingly, Thailand explicitly excludes the LULUCF sector from its 2030 target accounting, although it maintains a separate national goal to increase forest cover to 55% by 2037 (Kingdom of Thailand, 2022). For these nations, whose emissions growth is propelled by soaring energy demand, decarbonizing the power supply is the most critical lever for mitigation.

(c) Technology-driven and hybrid strategies

The remaining countries display more unique or balanced strategies. **Singapore**, being a small, land-scarce, and "alternative-energy disadvantaged" island, has no significant LULUCF sink to leverage. Its strategy is therefore necessarily technology-intensive and energy-focused. It aims to maximize solar deployment in a dense urban landscape, import up to 6 GW of low-carbon electricity from its neighbours by 2035, and invest heavily in speculative, long-term solutions like low-carbon hydrogen and Carbon Capture, Utilisation, and Storage (CCUS) (Republic of Singapore, 2025).

The **Philippines** presents the most balanced approach. Its NDC Implementation Plan details significant mitigation policies and measures (PAMs) across multiple sectors. Energy is a major focus, with targets for a 35% renewable energy share by 2030. The transport sector is also prominent, with large-scale projects like the Public Utility Vehicle Modernization Program. Crucially, however, its targets in the agriculture and waste sectors are almost entirely conditional on international support (Republic of the Philippines, 2021)

This sectoral divergence reveals a "mitigation hierarchy" across the region (Bergès et al., 2020). Large-scale, capital-intensive projects in the energy and LULUCF sectors receive the most attention and often form the basis of unconditional targets. These are sectors amenable to centralized planning and large government or private sector investments. In contrast, more diffuse and socially complex sectors like agriculture and waste are frequently relegated to conditional targets or receive less detailed planning. For example, all of the Philippines' agricultural PAMs are conditional, and Viet Nam's innovative agricultural measures (e.g., methane reduction in rice cultivation) constitute a smaller part of its overall effort compared to its energy transition. This suggests a systemic preference for "hard" infrastructure projects over the "soft," behaviour-based changes required in sectors like agriculture. The latter are often more difficult to implement, monitor, and finance, as they involve the livelihoods of millions of smallholder farmers and require extensive community engagement, posing greater political and economic challenges (Low et al., 2022). This prioritization has profound implications for ensuring a just and equitable transition, as it risks leaving behind the rural and informal sectors that are often most vulnerable to both climate impacts and policy shifts.

3.2.2. *Adaptation integration and co-benefits*

Given Southeast Asia's profound vulnerability to climate change, adaptation is a non-negotiable priority. The way this priority is framed and integrated within the NDCs varies significantly, serving as a reliable indicator of each country's perceived vulnerability and stage of development.

At one end of the spectrum, the most vulnerable nations place adaptation at the very core of their climate policy. The **Philippines**, an archipelago battered by an average of 20 typhoons annually, explicitly frames its entire climate strategy around resilience. Its NDC states that "mitigation [is] a function of adaptation," a unique framing that elevates adaptation from a parallel activity to the central organizing principle of its climate action. Its National Adaptation Plan (NAP) and NDC are designed to be deeply interwoven, with the NAP providing the strategic direction for building resilience across key sectors like agriculture, water, and health. Similarly,

Myanmar, as a Least Developed Country (LDC) ranked among the world's most vulnerable, clearly states in its NDC that "adaptation actions will be a key priority". For these nations, climate change is a clear and present danger to development and survival, and their NDCs function primarily as national resilience documents.

In the middle of the spectrum are **Indonesia** and **Viet Nam**, rapidly developing economies facing the dual challenge of managing high-growth emissions while simultaneously building resilience to severe climate impacts. Their NDCs reflect this balance, containing extensive and detailed adaptation components that are co-equal with their mitigation sections. Both countries have developed comprehensive NAPs that inform their NDC adaptation goals (Republic of Indonesia, 2019), focusing on critical areas such as water security, food security through climate-smart agriculture, and protecting vast, vulnerable coastlines and deltas (The Socialist Republic of Viet Nam, 2024).

At the other end, **Singapore**, a high-income nation, frames adaptation primarily as an existential engineering and financial challenge. Its NDC and related policy documents focus on protecting critical infrastructure and its very existence from the primary threat of sea-level rise. Adaptation is presented as a costly necessity that will impose "significant fiscal costs" to safeguard its economic assets, rather than a broader development issue.

Across all six NDCs, the narrative of "co-benefits", the idea that mitigation actions can yield significant adaptation benefits, and vice versa, is universally adopted. This framing is politically astute, as it helps justify investments in mitigation by highlighting more immediate and tangible resilience outcomes. For example, mangrove restoration, a nature-based solution (NbS) mentioned in several NDCs, simultaneously sequesters carbon (mitigation) while protecting coastlines from storm surges (adaptation).

However, the operationalization of this concept into concrete, prioritized, and funded policies appears inconsistent. While the language of synergy is pervasive, the systematic identification, quantification, and prioritization of projects based on their co-benefits is rare. **Thailand's** National Adaptation Plan is a notable exception, explicitly highlighting actions with dual benefits, such as reforestation and the creation of urban green spaces that enhance carbon sinks while reducing flood and drought risks (Kingdom of Thailand, 2024).

The **Philippines'** NDCIP also includes provisions to track adaptation co-benefits. In many other instances, however, the "co-benefit" label appears to be applied retroactively to projects rather than serving as a core criterion for their selection and design (Republic of the Philippines, Climate Change Commission, 2024). This suggests a persistent gap between the political narrative of synergy and the practical reality of siloed sectoral planning. As one

interviewee noted, “adaptation is a practical entry point for regional cooperation precisely because it is less politically contentious than mitigation” (Interview with ACE, 2025). A more rigorous and systematic application of the co-benefit’s framework could be a powerful vehicle for advancing integrated climate action, but only if it is translated from a rhetorical device into a core planning principle.

3.3. Disparities in ambition: drivers and implications for regional coherence

The comparative analysis of ASEAN Member States' NDCs reveals deep disparities in ambition, not only in the magnitude of targets but also in their structural design, sectoral focus, and strategic orientation. This diversity is not accidental. It reflects complex, context-specific variables that shape each country’s climate ambition space. Understanding these disparities is essential to evaluating the limits of regional integration and the potential pathways for more effective cooperation. This section explores how national circumstances, such as development pathways, natural resource endowments, and governance systems, determine the structure and feasibility of climate commitments (Sub-section 3.3.1). It then examines how this heterogeneity constrains ASEAN’s ability to articulate a coherent regional response, while identifying pragmatic entry points for collaboration (Sub-section 3.3.2).

3.3.1. National circumstances as structural determinants of ambition

Ambition cannot be assessed in isolation from the broader climate-development nexus that defines each country’s capabilities and constraints. At its core, ambition is a product of what might be called a country’s climate-development DNA: a unique configuration of economic structure, natural resource endowments, geographic exposure, and institutional capacity (Pérez Català et al., 2025).

The most powerful driver is economic structure and development pathway. Singapore's high-income, trade-oriented economy, which is heavily reliant on petrochemical refining, can afford to invest in high-cost, speculative technologies like CCUS and hydrogen, shaping its technology-forward NDC. However, this economic structure also creates internal contradictions, such as providing significant tax rebates to the very refining industries it aims to decarbonize, a tension not fully acknowledged in its NDC. At the opposite extreme, Myanmar's conflict-ridden, agriculture-dependent economy, further crippled by political instability, severely constrains its capacity for any meaningful climate action, rendering its technically ambitious NDC almost entirely theoretical. For Indonesia, a major coal producer and exporter, the powerful political economy of its fossil fuel and agribusiness sectors creates an "energy paradox," where ambitious LULUCF targets coexist with plans that entrench fossil fuel reliance, effectively capping its overall ambition (Overland et al., 2021).

Geography and resource endowments are equally deterministic. Singapore's identity as a small, low-lying, "alternative-energy disadvantaged" island state is the single most important factor shaping its NDC strategy, forcing it to look beyond its borders for solutions like electricity imports (Teo, 2022). Conversely, the vast forest and peatland resources of Indonesia and Myanmar are the primary determinants of their LULUCF-focused approaches; it is their area of greatest comparative advantage in global climate mitigation efforts. For Viet Nam and the Philippines, their extensive and densely populated coastlines make them hyper-vulnerable to sea-level rise and typhoons, elevating adaptation to a position of paramount importance in their national planning.

Finally, political stability and governance capacity act as critical enablers or constraints. The starkest contrast lies between Singapore's stable, centralized, and long-term planning apparatus and Myanmar's state collapse, which has dismantled its climate governance structures. Between these poles, countries like Indonesia and the Philippines face persistent challenges with decentralized governance and inter-ministerial coordination, which act as significant brakes on the translation of national ambition into coherent, subnational action. These governance realities explain why even well-crafted national policies often fail to achieve their intended impact on the ground. Therefore, to understand the disparities in ambition, one must analyse the unique climate-development DNA of each country. This inherent heterogeneity makes a "one-size-fits-all" regional climate target not only politically unpalatable but also technically illogical (ASEAN Secretariat, 2021)

3.3.2. Regional coherence under constraint: limits and pragmatic alternatives

The structural diversity in national ambition, rooted in divergent economic models, institutional maturity, and exposure to climate risks, translates into a fractured regional climate architecture. The ASEAN framework, operating under the foundational principles of consensus and non-interference, offers little institutional leverage to harmonize climate ambition across Member States.

This institutional DNA, often referred to as the “ASEAN Way,” inherently limits the scope for hard alignment. Unlike the European Union, ASEAN is not built to impose region-wide standards or targets. The coexistence of absolute targets (as in Singapore) alongside relative BAU-based pledges (as in Indonesia, Viet Nam, and the Philippines) reflects not just methodological differences but fundamentally divergent development trajectories.

Nowhere is this more apparent than in mitigation. Decisions in this domain, particularly around energy, industry, and land use, are deeply entangled in national sovereignty and domestic political economy. The geopolitical influence of external factors such as China, through large-scale infrastructure investments, further complicates regional alignment. As one expert aptly observed, “Mitigation remains complex. The diversity in sectoral focus, level of ambition, and institutional maturity makes convergence difficult” (Interview with ACE, 2025).

In contrast, adaptation offers a more viable entry point for ASEAN climate cooperation. Unlike mitigation, which often carries zero-sum implications for development and growth, adaptation responds to shared vulnerabilities, floods, droughts, sea-level rise, that affect all Member States regardless of emission profiles. As another regional expert noted, “Adaptation may offer more potential for regional action because it tends to be less politically sensitive... All ASEAN countries face climate hazards” (Interview with Rizki Maulana Rachman 2025). Cooperation on early warning systems, transboundary water management, climate-resilient infrastructure, and disaster risk reduction offers tangible co-benefits and avoids the sovereignty concerns that plague mitigation.

Nature-based solutions (NbS) also hold potential as a unifying agenda. These strategies, such as mangrove restoration or peatland rehabilitation, deliver simultaneous benefits for adaptation, mitigation, and biodiversity conservation, and are often less contentious than energy or industry reforms. Building consensus around such cross-cutting approaches could lay the groundwork for greater trust and coordination.

The next chapter explores how these nationally determined commitments, diverse in form and ambition, are translated into policy and practice. It examines the degree to which NDCs are embedded in national development planning, the readiness of institutional and technical systems to implement them, and the vertical coherence between national and subnational action.

Bibliography

Ambition to Action. (2017, November). *NDC update report*. Ambition to Action Initiative. <https://ambitiontoaction.net/wp-content/uploads/2017/11/NDC-Update-Report-November-2017.pdf>

ASEAN Secretariat. (2021, October). *ASEAN state of climate change report: Current status and outlook of the ASEAN region toward the ASEAN climate vision 2050*. https://asean.org/wp-content/uploads/2021/10/ASCCR-e-publication-Correction_8-June.pdf

Bergès, L., Avon, C., Bezombes, L., Clauzel, C., Duflot, R., Foltête, J.-C., ... Spiegelberger, T. (2020). Environmental mitigation hierarchy and biodiversity offsets revisited through habitat connectivity modelling. *Journal of Environmental Management*, 256, 109950. <https://doi.org/10.1016/j.jenvman.2019.109950>

Climate Action Tracker. (2025a). *Assumptions – Philippines*. <https://climateactiontracker.org/countries/philippines/assumptions/>

Climate Action Tracker. (2025b). *Assumptions – Viet Nam*. <https://climateactiontracker.org/countries/vietnam/assumptions/>

Climate Change Commission. (2021, April 15). *First nationally determined contribution (NDC)*. <https://unfccc.int/sites/default/files/NDC/2021-07/Philippines%20-%20NDC.pdf>

Climate Change Commission. (2024, July). *The Philippines: NDC implementation plan*. <https://niccdies.climate.gov.ph/files/documents/The%20Philippines-%20NDC%20Implementation%20Plan%20-%2020072024.pdf>

Green Climate Fund. (2024). *Annual report 2023*. <https://www.greenclimate.fund/annual-report-2023>

Intergovernmental Panel on Climate Change. (2022). Mitigation and development pathways in the near to mid term (Chapter 4). In *Climate change 2022: Mitigation of climate change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (pp. 409-550). Cambridge University Press. <https://doi.org/10.1017/9781009157926.006>

Interview with A2. (2025). ASEAN Secretariat. Personal communication, conducted by Alexandre Germouty.

Interview with ACE climate policy expert. (2025). ASEAN Secretariat. Personal communication, conducted by Alexandre Germouty.

Interview with Ahmad Fajar Maulana. (2025). Climate-change researcher in Indonesia. Personal communication, conducted by Alexandre Germouty.

Interview with Rizki Maulana Rachman. (2025). Former official at Indonesia's Ministry of Environment and Forestry and climate-policy expert at GIZ. Personal communication, conducted by Alexandre Germouty.

Kingdom of Thailand, Office of Natural Resources and Environmental Policy and Planning. (2022, November 2). *Second updated nationally determined contribution (NDC)*. https://unfccc.int/sites/default/files/NDC/2022-11/Thailand_2ndUpdated_NDC.pdf

Kingdom of Thailand, Office of Natural Resources and Environmental Policy and Planning. (2024). *Thailand's national adaptation plan 2024*. https://unfccc.int/sites/default/files/resource/NAP_THAILAND_2024.pdf

Low, S., Baum, C. M., & Sovacool, B. K. (2022). Rethinking Net Zero systems, spaces, and societies: “Hard” versus “soft” alternatives for nature-based and engineered carbon removal. *Global Environmental Change*, 75, Article 102530. <https://doi.org/10.1016/j.gloenvcha.2022.102530>

Martinus, M. (2024, June 4). *Just energy transition partnerships (JETPs) in Indonesia and Vietnam: Implications for Southeast Asia* (ISEAS Perspective No. 2024/40). ISEAS – Yusof Ishak Institute. https://www.iseas.edu.sg/wp-content/uploads/2024/05/ISEAS_Perspective_2024_40.pdf

Ministry of National Development Planning/National Development Planning Agency. (2019). *National adaptation plan: Executive summary*. LCDI. <https://lcdiindonesia.id/wp-content/uploads/2020/05/Executive-Summary-NAP.pdf>

OECD & United Nations Development Programme. (2025). *Investing in climate for growth and development: The case for enhanced NDCs*. OECD Publishing. <https://doi.org/10.1787/16b7cbc7-en>

Overland, I., Sagbakken, H. F., Vakulchuk, R., Suryadi, B., Chan, H.-Y., Merdekawati, M., & Utama, N. A. (2021). The ASEAN climate and energy paradox. *Energy and Climate Change*, 2, Article 100019. <https://doi.org/10.1016/j.egycc.2020.100019>

Pérez Català, A., Torres Gunfaus, M., & Waisman, H. (2025, March). *Ambition for action: A framework for assessing NDCs* (IDDRI Policy Brief No. 02/25). Institut du développement durable et des relations internationales. https://www.iddri.org/sites/default/files/PDF/Publications/Catalogue%20Iddri/Propositions/202503-PB0225-NDC_0.pdf

Republic of Indonesia, Ministry of Environment and Forestry. (2022, September 23). *Enhanced nationally determined contribution (NDC)*. https://unfccc.int/sites/default/files/NDC/2022-09/Indonesia_Enhanced_NDC_2022.pdf

Republic of Singapore, National Climate Change Secretariat. (2025, February). *Second nationally determined contribution (NDC) and accompanying information*. <https://unfccc.int/sites/default/files/2025-02/Singapore%20Second%20Nationally%20Determined%20Contribution.pdf>

Republic of the Union of Myanmar, Ministry of Natural Resources and Environmental Conservation. (2021, August 3). *Updated nationally determined contribution (2021–2030)*. <https://unfccc.int/sites/default/files/NDC/2021-10/Myanmar%20Updated%20NDC%202021-2030.pdf>

Socialist Republic of Viet Nam. (2024, November 15). *National adaptation plan for the period 2021–2030, with a vision to 2050*. <https://www.undp.org/vietnam/publications/national-adaptation-plan-period-2021-2030-vision-2050>

Socialist Republic of Viet Nam, Ministry of Natural Resources and Environment. (2022, November 8). *Updated nationally determined contribution*. <https://unfccc.int/sites/default/files/NDC/2022-11/Viet%20Nam%20Updated%20NDC%202022.pdf>

Teo, C. H. (2022, March 8). *A decisive move to net zero* [Speech at the Committee of Supply 2022]. Prime Minister’s Office, Singapore. <https://www.pmo.gov.sg/Newsroom/SM-Teo-Chee-Hean-at-the-Committee-Of-Supply-2022>

United Nations Framework Convention on Climate Change, Standing Committee on Finance. (2024). *100 billion USD pledged for climate finance: 6th biennial assessment and overview of climate finance flows* [PDF]. https://unfccc.int/sites/default/files/resource/UNFCCC_100bn_ES_Web_FINAL.pdf

Chapter 4

From commitment to action: Implementation readiness and policy integration

This chapter examines how far ASEAN Member States have moved from climate pledges to real implementation. It argues that NDC delivery is constrained by three main barriers: a disconnect between climate goals and national development models, a lack of technical and financial capacity, and weak coordination between national and subnational levels. These issues are explored through three lenses: policy integration (Section 4.1), institutional readiness (Section 4.2), and local implementation (Section 4.3).

4.1. Aligning NDCs with national development planning

One critical aspect of implementation readiness is the degree to which NDC goals are embedded in domestic development planning. Rather than treating NDCs as standalone international pledges, effective countries align them with their long-term strategies (LT-LEDS) and national development policies. This section is structured around two analytical sub-sections: the extent of integration between NDCs, long-term low-emission strategies (LT-LEDS), and national planning instruments (Sub-section 4.1.1); and the development of climate budget tagging and public finance tracking systems to align funding with climate priorities (Sub-section 4.1.2). These analyses provide insight into how policy and financial coherence influence the credibility and feasibility of national climate trajectories.

4.1.1. Integration with long-term strategies (LT-LEDS) and national policies

The credibility of a Nationally Determined Contribution (NDC) depends not only on its ambition but on whether it is embedded within a consistent policy architecture, linking short-term emissions targets to mid-century visions and national development plans. While all six ASEAN Member States reviewed have adopted climate-related long-term strategies, the extent to which these frameworks align with and reinforce the NDC varies significantly. Three main patterns emerge: (a) countries with coherent institutional and policy alignment; (b) cases of partial or contradictory integration; and (c) the absence of integration under conditions of political collapse.

(a) Institutionalized coherence: NDCs embedded in national and long-term planning

Singapore, Indonesia, and Thailand show the most advanced forms of integration, characterized by alignment between NDCs, long-term strategies (LT-LEDS), and national development plans, backed by clear governance structures.

In Singapore, the Second NDC (Republic of Singapore, 2025) synchronized with its LT-LEDS with a net-zero goal by 2050 (National Climate Change Secretariat, 2022) and the Singapore Green Plan 2030 (Ministry of Sustainability and the Environment, 2021). These frameworks were developed concurrently and structured around five-year national planning cycles. The Inter-Ministerial Committee on Climate Change, oversees implementation across agencies. A dedicated Long-Term Mitigation Working Group ensures technical coherence between 2030 and 2050 trajectories. Singapore has operationalized its NDC through a gradually

rising carbon tax, from S\$5/tCO₂e in 2019 to S\$25 in 2024, with a scheduled increase to S\$50–80 by 2030. Strategic investments in low-carbon hydrogen and cross-border electricity trade complement this framework. As one ESG expert emphasized, Singapore’s climate governance is “very execution-focused: if something is announced, it will likely happen” (Interview with Lin Song, 2025). The integration is not only legal but operational and budgeted.

In Indonesia, the Enhanced NDC (Republic of Indonesia, 2022) explicitly links to the RPJMN 2020–2024 (Ministry of National Development Planning/National Development Planning Agency, 2020) and Indonesia Vision 2045 (Ministry of Foreign Affairs, 2021). The 2021 Long-Term Strategy for Low Carbon and Climate Resilience (Ministry of Environment and Forestry, 2021) sets the goal of net-zero emissions by 2060, with the Forestry and Other Land Use (FOLU) sector becoming a net sink by 2030. Climate objectives are embedded in economic planning through a dual-leadership structure: the Ministry of Environment and Forestry formulates the NDC, while BAPPENAS integrates climate goals into development strategy. As explained by a senior planner: “This ensures climate goals feature in sectoral programs and the national budget” (Interview I1, 2025). However, contradictions persist. The USD 20 billion Just Energy Transition Partnership (JETP) has faced delays and credibility issues (Imelda et al., 2024). A significant loophole initially exempted off-grid captive coal plants from phaseout plans, highlighting the deep institutional inertia of the coal sector.

Thailand has formally integrated its updated NDC (Kingdom of Thailand, 2022a), with a suite of national plans: the 13th National Economic and Social Development Plan 2023–2027 (Office of the National Economic and Social Development Council, 2023), the Climate Change Master Plan 2015–2050 (Kingdom of Thailand, 2022b), and its LT-LEDS, which pledges carbon neutrality by 2050 and net-zero by 2065 (Office of Natural Resources and Environmental Policy and Planning, 2022). Implementation is governed by an NDC Sectoral Action Plan, assigning responsibilities to ministries across energy, transport, waste, agriculture, and industry. This aligns with the 20-Year National Strategy (2018–2037), embedding sustainability as a cross-cutting goal (Ministry of Education, 2023). Nevertheless, the national energy plan still leans heavily on fossil gas, and structural barriers, including the dominance of the state-owned Electricity Generating Authority of Thailand (EGAT), constrain the growth of private renewable energy projects. Interviews noted that while high-level policy is coherent, “subnational actors often lack the capacity or clarity to implement NDC-aligned measures.” (Interview T1, 2025)

(b) Policy contradiction beneath formal alignment

Viet Nam and the Philippines present strong formal links between their NDCs and national strategies, yet key sectoral policies, particularly in energy, create friction with their long-term decarbonization goals.

In Viet Nam, the 2022 NDC is aligned with the National Climate Change Strategy to 2050 (Socialist Republic of Viet Nam, 2020) with net-zero goals by 2050, the Green Growth Strategy, and Power Development Plan 8 (PDP8). The establishment of a national steering committee, chaired by the Prime Minister, was meant to centralize climate policy following the 2021 net-zero pledge. Climate targets are increasingly integrated into five-year Socio-Economic Development Plans and provincial guidelines. However, PDP8 reflects a dual-track strategy: it reduces planned coal capacity but simultaneously commits to an expansive buildout of LNG infrastructure and gas-fired power, presented as a “transition fuel” (Ministry of Industry and Trade, 2023).

This locks in high-emissions infrastructure beyond 2040, raising serious questions about compatibility with net-zero. A senior MONRE official acknowledged that “ministries are

expected to align their plans with the NDC, but the coordination is still very siloed” (Interview with MONRE official, 2025)

In the Philippines, the NDC (2021) is anchored in the Philippine Development Plan 2023–2028 (National Economic and Development Authority, 2023), which includes a dedicated chapter on climate and resilience. A detailed NDC Implementation Plan (Climate Change Commission, 2023) was developed by the Climate Change Commission to map sectoral measures, budget requirements, and institutional responsibilities. The Department of Energy’s Renewable Energy Plan 2020–2040 supports NDC targets through expanded clean energy goals (Department of Energy, 2023a). Still, two key contradictions undercut the mitigation narrative. First, its landmark 2020 moratorium on new coal power plants includes a significant exemption for projects already in the pipeline, allowing 2.6 GW of new coal capacity to come online. Second, a major focus of current energy policy is the development of LNG import infrastructure to replace the country’s depleting Malampaya gas field, a move that risks swapping one fossil fuel dependency for another rather than accelerating a shift to renewables. As observers have noted, the Philippine Energy Plan 2023–2050 (Department of Energy, 2023b), still includes sustained fossil use, presenting “a clear divergence from NDC targets” (Interview with The Climate Reality Project Philippines, 2025). The CCC and NEDA are mandated to review sectoral plans for alignment, and legislation is being drafted to formalize climate integration at subnational levels.

(c) Political disintegration and policy paralysis

Myanmar represents a situation where NDC-policy integration is nominal at best. Its 2021 NDC was submitted after the February 2021 military coup and draws loosely from the now-defunct Myanmar Sustainable Development Plan and Climate Change Master Plan 2018–2030 (Republic of the Union of Myanmar, 2019). There was no meaningful consultation, and implementation structures have collapsed. A civil society leader summarized the situation starkly: “Myanmar is facing a double crisis: conflict and climate” (Interview Hang Dal, 2025). Key ministries were not involved in the NDC drafting, and the energy sector remains largely unregulated, focused on resource extraction to finance conflict. International climate finance has been suspended, and donor cooperation halted. Any alignment that existed under the previous civilian government is now obsolete, rendering the NDC effectively disconnected from any operational policy framework.

4.1.2. Climate budget tagging and public finance tracking

Effective NDC implementation depends on more than strategic alignment, it also requires clear financial alignment. Climate Budget Tagging (CBT) and public climate expenditure tracking are increasingly recognized as indispensable tools to assess how national budgets reflect climate ambitions. These mechanisms allow governments to monitor the allocation of resources for mitigation and adaptation and to identify gaps in financing. Across ASEAN, the development of CBT systems remains uneven. While some countries have institutionalized tagging and linked it to national climate priorities, others are only beginning to experiment with tracking methodologies. The credibility and utility of CBT depend not only on technical execution but also on whether tagged expenditures contribute meaningfully to NDC targets.

(a) Institutionalized systems: Philippines and Indonesia

The Philippines operates the most advanced and formalized CBT system in Southeast Asia. The Climate Change Expenditure Tagging (CCET) system, launched in 2015 through a joint memorandum from the Department of Budget and Management (DBM) and the Climate Change Commission, mandates all government agencies to tag climate-related programs in their budget proposals using a standardized typology (Department of Budget and Management & National Economic and Development Authority, 2015).

The results are significant. In 2023, the DBM reported that ₱453.11 billion (approximately USD 8.3 billion), equivalent to 8.34% of the national budget, was climate-tagged (Department of Budget and Management, 2023). This reflects a sharp increase since 2015 and aligns with the government's "green recovery" strategy. However, a critical gap lies in the linkage to the NDC. According to the Philippines' NDC Implementation Plan, only 9.75% of tagged expenditures between 2020 and 2023 were explicitly associated with NDC actions. Of this share, 94% went to low-carbon transport infrastructure, including major rail projects, an area consistent with the mitigation pillar of the NDC.

This misalignment has prompted a new Climate Budget Modelling initiative aimed at refining tagging criteria to better align budget planning with NDC priorities. The CCC is also working to integrate CBT into a broader MRV system, which would cover both domestic and external climate finance. The Philippine case highlights a critical lesson: the quality of tagging and its relevance to NDC objectives matter as much as the quantity of climate-labelled spending (i4CE – Institute for Climate Economics, 2024).

Indonesia's Ministry of Finance began piloting CBT in 2016. The system now covers both mitigation and adaptation expenditures and has helped the government estimate finance needs and mobilize climate-specific resources. Budget data show that climate-tagged expenditures rose from IDR 146.8 trillion (~USD 10.5 billion) in 2017 to IDR 196.3 trillion (~USD 14 billion) in 2018 (United Nations Development Programme, 2022). The Ministry of Finance estimates that such expenditures made up approximately 4% of total public spending in that period.

The CBT framework directly supports Indonesia's Green Sukuk issuance. Since 2018, sovereign green Islamic bonds have raised USD 2.5 billion, with proceeds linked to tagged mitigation and adaptation projects (United Nations Development Programme & Kuwait Finance House, 2024). This provides financial credibility for investors and reinforces Indonesia's narrative of domestic climate commitment. In 2019, Indonesia established the Environmental Fund Management Agency (BPD LH) to pool resources from CBT data, carbon revenues, and international sources (Mafira et al., 2020).

Still, implementation challenges remain. Subnational reviews (e.g. in East Kalimantan) found that large shares of tagged spending were classified as indirectly climate-related, with no measurable mitigation or adaptation outputs. As noted in government reports, "a lot of improvements need to be done to make the budget tagging results a credible basis for estimating finance needs for NDC implementation" (Ministry of Environment and Forestry, 2022). Methodological inconsistencies between ministries and limited disaggregation between NDC-specific and general climate actions hinder strategic planning. Yet Indonesia's linkage of CBT to financial instruments (e.g. green bonds, carbon pricing) makes it a regional reference point.

(b) Emerging or partial frameworks: Thailand and Viet Nam

Thailand does not yet have a formalized national CBT system but has taken initial steps to quantify and integrate climate-related spending. A 2013 Climate Public Expenditure and Institutional Review (CPEIR) provided a baseline of climate expenditures and recommended

integrating climate criteria into annual budget circulars (United Nations Development Programme, 2013). Since then, the Thai government has developed a Climate Finance Strategy and is working to align it with its NDC Sectoral Action Plan.

Sectoral ministries already cost and submit climate-relevant budget items, particularly in energy and agriculture. For example, the Energy Ministry's Alternative Energy Development Plan and Energy Efficiency Plan include budgeted components aligned with mitigation targets (Office of the Prime Minister, Energy Policy and Planning Office, 2011). The government estimates that USD 100 billion will be required by 2030 to meet its 40% conditional emissions reduction target (Office of Natural Resources and Environmental Policy and Planning, 2022). However, the lack of a unified tagging system limits the ability to track whether these expenditures are being systematically prioritized. Thailand is exploring green bonds and a future climate fund under the proposed Climate Change Act as mechanisms to bridge this financing gap (Pujari, 2025).

Viet Nam does not currently operate a comprehensive CBT system but has acknowledged the importance of financial alignment in its 2022 NDC and National Climate Change Strategy. The Ministry of Planning and Investment is developing tracking guidelines, and international partners (e.g. GCF, UNDP, World Bank) have supported pilot tagging efforts in selected ministries and provinces.

As of now, Viet Nam has conducted a Private Climate Expenditure and Institutional Review (PCEIR) to better assess the role of non-state actors (United Nations Development Programme, 2021). The government estimates that adaptation costs alone will exceed 3-5% of GDP by 2030 and that public resources can only meet about 30% of those needs (Ministry of Natural Resources and Environment, 2022). This underscores the urgency of formalizing public expenditure tracking. Several statements in the updated NDC, e.g. instructing that Socio-Economic Development Plans prioritize dual-benefit projects (adaptation and mitigation), indicate political intent. While no aggregate CBT data are available, Viet Nam appears poised to adopt a system in the next planning cycle, likely linked to its evolving green growth and climate finance strategies.

(c) Divergent models and financial opacity: Singapore and Myanmar

Singapore does not use a formal CBT system but incorporates climate action into fiscal policy from the outset. Public expenditures supporting mitigation and adaptation are embedded in mainstream programs, such as the SGD 5 billion Coastal and Flood Protection Fund, R&D investments in hydrogen and CCUS, and incentives for electric mobility.

Revenue from Singapore's carbon tax, currently S\$25/tCO₂e and scheduled to rise to S\$80 by 2030, is earmarked for decarbonization support, including the Energy Efficiency Fund and industrial transition programs (Quah et al., 2023). The government reports on climate spending through biennial updates and sectoral plans. According to Singapore's FY2022 budget, carbon tax revenue will partly finance the Low-Carbon Energy Research Fund (Singapore, Ministry of Finance, 2022). This model avoids separate tagging but ensures traceability through budgetary instruments. Singapore's approach works due to centralized planning and high administrative capacity but may not be replicable in less centralized or lower-income ASEAN Member States.

Myanmar lacks any functional public finance system for climate budgeting. Before the 2021 military coup, climate initiatives were funded through donor-supported projects and modest allocations in environmental budgets. The 2021 NDC listed project funding needs but did not reference CBT or domestic financial planning. Since the coup, development assistance has been frozen, public finances reoriented toward military operations, and environmental governance suspended. As noted by an NGO representative, "any climate-related expenditure

today is either incidental or donor-driven, with no strategic alignment” (Interview with Hang Dal, 2025). CBT is effectively irrelevant in the current context.

4.2. Institutional and technical readiness

The translation of NDC commitments into concrete action is contingent upon the foundational capacities of a state, its institutional arrangements, technical tools, and human resources. This section he foundational capacities that enable or constrain climate policy implementation in ASEAN. Varying levels of preparedness in institutional structures, data systems, human capital, and technology access shape each country’s ability to monitor progress, meet transparency requirements, and operationalize NDCs. The analysis focuses on two areas: national Monitoring, Reporting, and Verification (MRV) systems and Enhanced Transparency Framework (ETF) preparedness (Sub-section 4.2.1); and persistent gaps in capacity-building and technology transfer (Sub-section 4.2.2). These elements are deeply interlinked, without robust institutions and technical capability, climate ambition remains out of reach.

4.2.1. Monitoring, reporting, and verification (MRV) systems and ETF preparedness

As Parties to the Paris Agreement prepare for the full implementation of the Enhanced Transparency Framework (ETF), national capacities to monitor, report, and verify climate progress are emerging as decisive indicators of implementation readiness. While the ETF requires standardized reporting across both developed and developing countries, the ASEAN region presents a highly uneven landscape.

(a) Consolidated, digitalized, and legally enforceable systems: Singapore

Among ASEAN countries, Singapore stands apart with a comprehensive and legally mandated MRV system that already meets, if not exceeds, the ETF’s technical requirements. The institutional framework is centralized and precise. The National Environment Agency (NEA) leads inventory coordination, supported by regulatory bodies such as the Energy Market Authority.

Since 2013, Singapore has required all facilities emitting over 25,000 tCO₂ per year to submit emissions reports under the Carbon Pricing Act ((Attorney General’s Chambers, 2018), with mandatory third-party verification and submission via the Emissions Data Monitoring and Analysis (EDMA) portal (National Environment Agency, n.d.). Singapore has submitted four Biennial Update Reports and is on schedule to deliver its first BTR in 2024 (National Environment Agency, 2024). Its GHG inventory is highly detailed, covering energy, IPPU, waste, and even bunker fuel emissions, with cross-verification through fuel import and energy balance data.

Continuous Emissions Monitoring Systems (CEMS) and modelling tools such as MARKAL support scenario analysis and policy planning (National Climate Change Secretariat, 2022). The city-state’s transparency also extends to mitigation finance: although it does not use budget tagging, it tracks expenditures through national accounting and links carbon tax revenues to decarbonization programs. Given its robust infrastructure, Singapore is now preparing to apply these MRV systems to Article 6 implementation, including corresponding adjustments. Its experience is frequently shared in ASEAN transparency workshops, offering peer-learning opportunities to countries at earlier stages of system development.

(b) Institutionalized systems with growing coordination but persistent fragmentation: Indonesia and Thailand

Indonesia and Thailand have both institutionalized their MRV frameworks, combining regulatory mandates with digital infrastructure. However, they continue to face internal fragmentation, especially in harmonizing sectoral data and integrating subnational inputs.

In **Indonesia**, the Directorate General of Climate Change (DGCC) coordinates climate reporting, supported by a suite of dedicated platforms. These include SIGN-SMART for GHG inventory input, SRN for mitigation actions and international support, and APPLE-GATRIK and SIINAS for power and industrial sector data (Prihatno, 2019). Although these tools represent significant technical progress, Indonesia's decentralized governance has complicated integration. Subnational data collection, especially on land-use change and peatlands, remains inconsistent, and methodological issues in uncertainty analysis persist. Indonesia has submitted three BURs and is preparing its first BTR. In parallel, it is implementing a roadmap under the Capacity-Building Initiative for Transparency (CBIT) to harmonize tabular formats and improve tracking of climate finance received (Climate Transparency Platform, 2024). Indonesia's active participation in Article 6 pilots, and its stated interest in applying corresponding adjustments, add urgency to the refinement of its MRV architecture.

Thailand has followed a similar trajectory, with the Thailand Greenhouse Gas Management Organization (TGO) and the Office of Natural Resources and Environmental Policy and Planning (ONEP) jointly coordinating its MRV ecosystem. Thailand has submitted three BURs and has developed the Thailand Greenhouse Gas Emission Inventory System (TGEIS), a national inventory platform that supports online data entry and archiving (Chauhan, 2025). The country recently published its first BTR (United Nations Development Programme, 2025). The country has also piloted methodologies for tracking mitigation outcomes in sectors like transport through ICAT-supported projects. Still, emission factors for emerging sectors such as petrochemicals and HFC/HCFCs are underdeveloped, and adaptation monitoring remains a significant blind spot. The updated Climate Change Master Plan (Office of Natural Resources and Environmental Policy and Planning, 2015) mandates the establishment of a dedicated MRV system for both mitigation and climate finance, reflecting growing institutional ambition. While Thailand's mitigation MRV is comparatively advanced, its ability to track adaptation measures or outcomes from international support remains nascent.

(c) Systems under construction, legally enabled but unevenly operationalized: Viet Nam and the Philippines

Viet Nam and the Philippines have entered a new phase of MRV development, marked by legal frameworks, political commitment, and digital infrastructure, yet both remain constrained by institutional fragmentation and human capacity deficits.

Viet Nam's 2020 Law on Environmental Protection and its 2022 Decree on GHG mitigation have created a legal foundation for enterprise-level reporting in priority sectors. MONRE is developing a National GHG Inventory System with designated focal points in the ministries of industry, construction, agriculture, and waste management (UNFCCC, 2021). Viet Nam has submitted one BUR (Government of Viet Nam, 2014) and a combined BUR/Third National Communication (2019) and is expected to submit its first BTR by the end 2025. Ongoing technical partnerships with JICA, the US EPA, and ICAT have enabled pilot projects in the steel and energy sectors, and MONRE is coordinating a national data portal to improve access and transparency. However, structural challenges remain acute. Subnational personnel often lack the training to gather and submit data consistently, and frequent staff rotations at the provincial level undermine institutional memory. Viet Nam's readiness is reinforced by strong

policy intent, its NDC clearly commits to strengthening MRV capacity, but execution will depend on stable coordination and continued capacity-building investments (World Bank, 2024).

In the **Philippines**, the Climate Change Commission (CCC) has transformed a once-fragmented reporting landscape. While the country submitted no BURs in the 2010s, it successfully delivered its first Biennial Transparency Report (BTR1) in April 2025 (Philippine Climate Change Commission, 2025a). The NICCDIES platform, developed with CBIT and UNDP support, now centralizes climate data collection and reporting (Climate Change Commission, 2025b). The BTR includes GHG inventories, a full NDC progress tracking system with policy indicators, and a dedicated chapter on climate finance. According to the NDC Implementation Plan, while GHG accounting and expenditure tagging are operational, components such as project-level tracking and adaptation metrics remain under development. Sectoral agencies, including the Department of Energy and Department of Transportation, contribute data for inventory updates and policy tracking. However, data from local government units (LGUs) remains largely unincorporated. With over 1,600 LGUs developing Local Climate Action Plans, integration of local-level reporting will be critical for next-generation transparency. The CCC plans to institutionalize MRV requirements via executive orders or legislation to ensure mandatory agency contributions and reporting regularity.

(d) Institutional collapse and absence of operational systems: Myanmar

Myanmar's institutional capacity for MRV has collapsed. Prior to the February 2021 coup, the country had submitted its Initial National Communication and was developing its first BUR with UN support (Ministry of Environmental Conservation and Forestry, 2012). The 2021 NDC included MRV-related language and scenarios, but no concrete systems were implemented. Following the coup, nearly all technical staff in the climate change division of the Ministry of Natural Resources and Environmental Conservation were dismissed or lost access to donor programs. No BUR has been submitted, and the country is not expected to meet any ETF reporting obligations in the near term.

Interviews with former advisors describe a total breakdown in environmental data systems: meteorological stations no longer function reliably, deforestation monitoring has ceased, and the national GHG inventory is inactive. Any climate-relevant data collection is now ad hoc, uncoordinated, and reliant on estimates from international sources such as FAO. Rebuilding Myanmar's MRV capacity will require not only technical assistance but also a fundamental political transition and restoration of institutional legitimacy. In the current context, Myanmar remains a blind spot in ASEAN's collective transparency efforts.

Table 4: MRV and ETF systems in six ASEAN countries

Country	Lead Institution(s) for MRV	Key Legal/Policy Basis	National Registry System	ETF Preparedness Level	Key Challenges
Singapore	National Environment Agency (NEA)	Carbon Pricing Act (2018)	Emissions Data Monitoring and Analysis (EDMA) - Fully operational	High	Maintaining technological edge; integrating emerging sectors.
Indonesia	Ministry of Environment and Forestry	Presidential Regulation on	National Registry System (SRN), SIGN-	Medium	Integration of multiple, disparate systems; data

Country	Lead Institution(s) for MRV	Key Legal/Policy Basis	National Registry System	ETF Preparedness Level	Key Challenges
	(KLHK); BAPPENAS	NDC Implementation	SMART, APPLE-GATRIK, SIINAS - Operational but fragmented		consistency across platforms; subnational data collection.
The Philippines	Climate Change Commission (CCC)	Executive Order 174 (2014); Climate Change Act (2009)	National Integrated Climate Change Database and Information Exchange System (NICCDIES) - Operational	Low-to-Medium	Simplifying methodologies for sectoral agencies; ensuring consistent data quality from all sources.
Thailand	ONEP; Thailand Greenhouse Gas Management Organization (TGO)	Climate Change Master Plan; Draft Climate Change Act	System under development, linked to pilot ETS	Medium	Lack of a legally binding framework (pending Act); defining clear inter-agency roles; data quality.
Viet Nam	Ministry of Natural Resources and Environment (MONRE)	Law on Environmental Protection (2020); Decree 06/2022	System under development for 2025 carbon market pilot	Low	Lack of comprehensive historical data; building technical capacity in line ministries; establishing legal framework for data sharing.
Myanmar	Ministry of Natural Resources and Environmental Conservation (MONREC) (pre-coup)	Myanmar Climate Change Policy (2019) (pre-coup)	None functional	Collapsed	Complete breakdown of governance and institutional capacity; lack of data; suspension of international support.

4.2.2. Identified gaps in capacity-building and technology transfer

The effective implementation of NDCs in ASEAN depends not only on having coherent plans or systems in place but also on the presence of skilled personnel, enabling institutions, and the technological means to act. Capacity-building and technology transfer are repeatedly flagged across the six Member States as prerequisites for achieving climate commitments. While the form and magnitude of these needs vary, five core gap areas emerge across the region.

(a) Subnational and local implementation capacity

All six countries, to varying degrees, report substantial limitations at the subnational level. In Indonesia, while national agencies such as the Ministry of Environment and BAPPENAS possess strategic capacity, many provincial governments lack trained staff to align local development plans with NDC goals. A 2025 interview with a provincial officer confirmed that “local staff are expected to act on climate but haven’t received training in how to use planning tools or draft project proposals” (Interview with V1, 2025).

Viet Nam echoes this challenge: despite national leadership, local Departments of Natural Resources and Environment (DONRE) struggle with climate risk assessments and emissions accounting, made worse by high turnover among officials, which disrupts continuity.

In the Philippines, where LGUs are mandated to draft Local Climate Change Action Plans, implementation is hindered by limited technical staffing and capacity to conduct hazard mapping or develop mitigation projects. A civil society representative observed that local leaders often prioritize short-term socio-economic needs, with climate action perceived as secondary (Interview with The Climate Reality Project Philippines. (2025).

Thailand faces a similar, though less severe, issue: municipal bodies and SMEs are expected to enforce energy and emissions policies but often lack sector-specific knowledge or financing tools. The country is investing in training through its CITC, but full decentralization of technical capacity remains incomplete (OECD, 2025).

Myanmar presents a particularly stark picture. Under current political conditions, many subnational institutions have collapsed or are under-resourced. Local NGOs and communities have attempted to sustain climate initiatives, such as community forestry or solar home systems, but without institutional coordination or access to technical training.

Singapore, by contrast, does not face this issue due to its centralized governance structure and small geographical scale, though it does acknowledge the need to build broader societal awareness and participation in the green transition.

(b) Technical and specialized human capital

Technical expertise across key implementation areas, GHG accounting, MRV systems, emissions modelling, and project appraisal, is widely insufficient across ASEAN.

In Indonesia, emissions modelling and project development are identified as core capacity gaps, particularly in the forestry sector. The country’s BUR flagged high uncertainty in land use emission data, highlighting a lack of forest carbon assessment capabilities.

Viet Nam similarly notes limited availability of trained personnel in climate modelling and disaster forecasting, particularly in its hydrometeorological services.

In the Philippines, technical gaps affect both national and local levels. Although the Climate Change Commission has established a National Panel of Technical Experts, it is too small to meet sectoral and regional needs. MRV capacity remains weak in sectors such as AFOLU.

Thailand, while relatively strong at the central level, still lacks the specialized personnel required for emerging domains such as carbon pricing, hydrogen deployment, or Article 6 mechanisms. National agencies are increasingly requesting international support to train regulators and market actors in these areas.

Myanmar currently lacks most forms of technical climate expertise within government institutions. Trained professionals have left public service, and few remaining staff have access to technical resources or peer exchange.

Meanwhile, Singapore has high levels of technical expertise in engineering, finance, and planning. However, knowledge gaps persist in emerging fields such as nature-based

solutions, where the government is still building capacity through regional partnerships and academic research initiatives.

(c) Access to and adaptation of climate technologies

All six countries identify critical technology gaps for both mitigation and adaptation. Indonesia seeks transfer of technologies including grid-scale storage, geothermal drilling, and waste-to-energy systems, noting that most are still imported or available only at pilot stage. It also identifies technology needs in coastal protection and climate-resilient agriculture. Viet Nam flags urgent gaps in solar and wind integration, grid modernization, and carbon capture and storage (CCS), the latter being vital for its net-zero 2050 pathway but currently absent domestically.

The Philippines similarly relies on imported renewable energy technologies, lacks infrastructure for EV deployment, and needs adaptation technologies such as drought-resistant seeds and flood-resilient housing. Technological self-sufficiency is still far off. Thailand shows greater technology readiness in solar and EV deployment, but new frontiers such as carbon utilization, green hydrogen, and energy storage still require international transfer and innovation.

Myanmar, by contrast, has extremely limited access even to basic technologies: early warning systems, renewable energy generation, and irrigation technologies are underdeveloped, with almost no prospect of acquiring advanced systems under current political conditions.

Singapore is actively developing and testing low-carbon hydrogen, CCS, and circular economy technologies but acknowledges that full-scale deployment will require international partnerships. The city-state is also working to build public and corporate readiness to absorb and utilize these technologies effectively.

4.3. Subnational implementation: the vertical coordination bottleneck

Even with well-aligned national plans, adequate financing, and improved capacities, a critical question remains: can climate policies formulated at the national level effectively penetrate to subnational authorities and local communities where implementation ultimately occurs? This remains a critical weakness across most ASEAN Member States. The "vertical coordination bottleneck" emerges not only from institutional fragmentation but also from fundamental governance mismatches, inconsistent mandates, and resource asymmetries.

(a) Mandate clarity and institutional coordination

The effectiveness of vertical coordination depends not only on awareness and resources but also on clear institutional responsibilities. In Viet Nam, a 2022 decree formally assigned provincial People's Committees the responsibility to develop GHG reduction plans, marking a step toward mandate clarity (Government of Vietnam, 2022). Indonesia's earlier RAD-GRK framework attempted something similar by disaggregating national targets by province, but enforcement and integration with planning documents like the RPJMD remained weak (Climate Scorecard, 2016). In the Philippines, the legal obligation for LGUs to draft LCCAPs is well-established, yet a lack of supervision and guidance undermines its effectiveness (OECD, 2020). Thailand, where provincial governors are centrally appointed, benefits from clearer chains of command, but sectoral silos between ministries and their provincial arms (e.g., between transport and interior ministries) persist (OECD, 2022). In Myanmar, institutional coordination

is effectively defunct. Singapore demonstrates the benefits of centralized oversight, where climate responsibilities are distributed across statutory boards with clear mandates under central control (National Climate Change, 2016).

(b) Vertical coherence of plans and instruments

The extent to which local plans mirror and reinforce national climate goals is another critical variable. Indonesia attempted formal vertical coherence through the RAD-GRK model and is now considering its revival (Chrysolite et al., 2020). Yet evaluations found many of these plans to be superficial, lacking budget backing or integration with broader development strategies. The Philippines' LCCAPs are supposed to mainstream the NDC locally, but most remain unfinanced and disconnected from national accounting systems (Local Government Academy, 2017). Viet Nam's Green Growth Strategy requires all provinces to draft subnational action plans, but many districts lack the technical capacity to design coherent frameworks (Government of Viet Nam, 2024). In Thailand, vertical coherence is more a function of administrative discipline than formal planning integration; local climate actions are often incidental rather than strategic (Chaiyapa, Abdullah, Gonzalez, & Afifah Yogar, 2024). Myanmar had no functional coherence even prior to the coup, as local initiatives were scattered and donor-driven. Singapore again avoids this issue entirely due to its unitary system, where planning and execution are centralized.

(c) Political alignment and incentive structures

Finally, vertical coordination is influenced by political dynamics, particularly the priorities of local leaders. Elected local officials may prioritize immediate economic needs over long-term climate goals, especially when their political survival depends on short-term results. Incentives matter in the Philippines, initiatives like the Seal of Good Local Governance integrate climate criteria, offering recognition for proactive LGUs (Municipality of Echague, 2021). Indonesia is experimenting with fiscal incentives linked to environmental indicators (UN-REDD Programme, n.d.). Viet Nam has begun using reputational incentives, spotlighting provinces that excel in green development (Ministry of Foreign Affairs, 2025). In Thailand, climate is framed in terms of disaster resilience and urban quality of life, aligning it with local interests, especially in Bangkok (Resilient Cities Network, 2017). Myanmar's fractured governance offers no enabling political context. In contrast, Singapore's political alignment across all levels allows swift implementation, reinforcing the value of coherence in unified systems.

(d) Emerging ASEAN mechanisms

Several regional initiatives seek to address vertical fragmentation. The ASEAN "Model Cities" program supports sustainable urban policies and fosters peer learning (High-Level Seminar on Environmentally Sustainable Cities, 2013). Past international initiatives like the GIZ-led V-LED project in Viet Nam and the Philippines have demonstrated that structured dialogue between governance levels, supported by targeted finance and capacity-building, can begin to bridge the implementation gap (International Climate Initiative, n.d.).

In conclusion, the vertical coordination bottleneck is one of the most consequential yet under-addressed impediments to effective NDC implementation in ASEAN. It reflects a broader governance mismatch: while climate targets are global and national, action is fundamentally local. Unless subnational actors are engaged as equal partners, through mandates, resources, and meaningful participation, NDCs risk remaining abstract commitments. Bridging this gap is not a technical formality but a prerequisite for climate credibility in Southeast Asia.

Bibliography

- Attorney General's Chambers. (2018). *Carbon Pricing Act 2018 (No. 23 of 2018)* [PDF]. International Labour Organization NATLEX. <https://natlex.ilo.org/dyn/natlex2/natlex2/files/download/109956/SGP109956.pdf>
- Bergès, L., Avon, C., Bezombes, L., Clauzel, C., Duflot, R., Foltête, J.-C., ... Spiegelberger, T. (2020). Environmental mitigation hierarchy and biodiversity offsets revisited through habitat connectivity modelling. *Journal of Environmental Management*, 256, 109950. <https://doi.org/10.1016/j.jenvman.2019.109950>
- Chaiyapa, W., Abdullah, K., Gonzalez, P., & Afifah Yogar, H. N. (2024). Climate governance and multilevel policy practices in Thailand and Malaysia. *Public Policy Management and Analysis*, 34, 74–94. <https://doi.org/10.24965/gapp.11271>
- Chauhan, J. (2025, January 10). Thailand Greenhouse Gas Emission Inventory System – TGEIS. Climate Transparency Platform. <https://climate-transparency-platform.org/knowledge/thailand-greenhouse-gas-emission-inventory-system-tgeis>
- Chrysolite, H., Utami, A., Mahardika, D., Wijaya, A., Altamirano, J.-C., & Ge, M. (2020, March 18). *Looking past the horizon: The case for Indonesia's long-term strategy for climate action*. World Resources Institute Indonesia. <https://wri-indonesia.org/sites/default/files/looking-past-horizon.pdf>
- Climate Scorecard. (2016, November 1). Indonesia emissions reduction policy. <https://www.climatescorecard.org/2016/11/indonesia-emissions-reduction-policy/>
- Climate Transparency Platform. (2024, November). *Agenda and concept note: Strengthening climate transparency – Capacity-building workshop for the Philippines' first BTR*. https://climate-transparency-platform.org/sites/default/files/2024-11/Agenda%20and%20Concept%20Note_0.pdf
- Department of Energy, Republic of the Philippines. (2023a, June 15). *Philippine energy plan 2020–2040* [PDF]. <https://legacy.doe.gov.ph/sites/default/files/pdf/pep/PEP-2020-2040-Final%20eCopy-as-of-15-June-2023.pdf>
- Department of Energy, Republic of the Philippines. (2023b). *Philippine energy plan 2023–2050* (Vol. I) [PDF]. <https://legacy.doe.gov.ph/sites/default/files/pdf/pep/PEP%202023-2050%20Vol.%20I.pdf>
- Food and Agriculture Organization of the United Nations. (2015, July). *Climate change master plan 2015–2050* (Kingdom of Thailand, Office of Natural Resources and Environmental Policy and Planning). <https://faolex.fao.org/docs/pdf/tha203759.pdf>
- Government of Viet Nam. (2014). *First biennial update report – Viet Nam*. United Nations Framework Convention on Climate Change. <https://unfccc.int/sites/default/files/resource/bur1vietnam.pdf>
- Government of Viet Nam. (2022, January 7). *Decree No. 06/2022/ND-CP on mitigation of greenhouse gas emissions and protection of the ozone layer*. https://climate-laws.org/document/decreed%20no%2006%202022%20nd%20cp%20on%20mitigation%20of%20green%20house%20gas%20ghg%20emissions%20and%20protection%20of%20ozone%20layer_d8ff
- Government of Viet Nam. (2024, October). *National green growth strategy for 2021–2030, vision toward 2050*. <https://sustainabledevelopment.gov.vn/wp-content/uploads/2024/10/National-Green-Growth-Strategy-for-2021-2030-Vision-Towards-2050.pdf>
- High Level Seminar on Environmentally Sustainable Cities. (2013). *Appendix D* [PDF]. <https://hls-esc.org/documents/4hlsesc/4th%20HLS%20ESC%20APPENDIX%20D.pdf>
- i4CE – Institute for Climate Economics. (2024, May 15). *The use of revenues from EU CDRs: Opportunities and challenges* [Report]. <https://www.i4ce.org/wp-content/uploads/2024/05/240515-i4ce-EUCDs-use-of-revenues-66pA4-Web.pdf>

- Imelda, H., Andayani, A. R. D., Danastri, H. D., Amir, M. F., & Zafira, P. A. (2024, May 17). *The role of the Just Energy Transition Partnership in Indonesia in making finance flows consistent with low-GHG and climate-resilient development* (Germanwatch Policy Paper). Indonesia Research Institute for Decarbonization & Germanwatch. https://www.germanwatch.org/sites/default/files/germanwatch_the_role_of_the_just_energy_transition_partnerships_in_indonesia_2024.pdf
- International Climate Initiative. (n.d.). *Vertical integration and learning for low-emission development (V-LED)*. <https://www.international-climate-initiative.com/en/project/vertical-integration-and-learning-for-low-emission-development-v-led-15-i-258-global-a-national-mitigation-strategies/>
- Interview with Hang Dal. (2025). Director of WWF Myanmar. Conducted by Alexandre Germouty.
- Interview with I1. (2025). Former official at Indonesia's Ministry of Environment and Forestry. Conducted by Alexandre Germouty.
- Interview with Lin Song. (2025). ESG consultant in the private sector. Conducted by Alexandre Germouty.
- Interview with MONROE Official. (2025). Ministry of Natural Resources and Environment, Viet Nam. Conducted by Alexandre Germouty.
- Interview with T1. (2025). Civil-society representative in Thailand. Conducted by Alexandre Germouty.
- Interview with The Climate Reality Project Philippines. (2025). Civil-society actor involved in local climate policy. Conducted by Alexandre Germouty.
- Kingdom of Thailand. (2022b). *Climate Change Act B.E. 2561 (2018)* [Legal text]. Food and Agriculture Organization Faolex. <https://faolex.fao.org/docs/pdf/tha203759.pdf>
- Kingdom of Thailand, Office of Natural Resources and Environmental Policy and Planning. (2022, November 8). *Thailand's long-term low-emissions development strategy* (revised version) [PDF]. United Nations Framework Convention on Climate Change. https://unfccc.int/sites/default/files/resource/Thailand%20LT-LEDS%20%28Revised%20Version%29_08Nov2022.pdf
- Local Government Academy, Department of the Interior and Local Government. (2017). *Enhanced LGU guidebook on the formulation of local climate change action plan* (Book 3). <https://lga.gov.ph/uploads/publication/attachments/1590498028.pdf>
- Mafira, T., Mecca, B. M., & Muluk, S. (2020, April). *Indonesia environment fund: Bridging the financing gap in environmental programs* (A CPI report). Climate Policy Initiative. <https://www.climatepolicyinitiative.org/publication/indonesia-environment-fund-bridging-the-financing-gap-in-environmental-programs/>
- Ministry of Education, Thailand. (2023). *Thailand national strategy summary* [PDF]. https://bic.moe.go.th/images/stories/pdf/National_Strategy_Summary.pdf
- Ministry of Environmental Conservation and Forestry. (2012). *Myanmar's initial national communication under the United Nations Framework Convention on Climate Change*. <https://unfccc.int/sites/default/files/resource/mmrnc1.pdf>
- Municipality of Echague. (2021, September). *Seal of Good Governance*. <https://echague.gov.ph/wp-content/uploads/2021/09/Seal-of-Good-Governance.pdf>
- National Climate Change. (2016). *Climate Action Plan: Publication Part I*. https://sustainabledevelopment.un.org/content/documents/1545Climate_Action_Plan_Publication_Part_1.pdf
- National Climate Change Secretariat. (2022). *Singapore's long-term low-emissions development strategy* [PDF]. Prime Minister's Office, Singapore. <https://www.nccs.gov.sg/files/docs/default-source/publications/nccsleds.pdf>

National Climate Change Secretariat, Ministry of Sustainability and the Environment, Ministry of Trade and Industry, Ministry of Transport, Ministry of Foreign Affairs, Ministry of National Development, & National Environment Agency. (2022, November 4). *Charting Singapore's long-term low-emissions development strategy*.

National Environment Agency et al. (2024, December 4). *Singapore's first biennial transparency report (BTR1) 2024* [PDF]. United Nations Framework Convention on Climate Change. <https://unfccc.int/sites/default/files/resource/Singapore%20BTR1%202024.pdf>

National Environment Agency. (n.d.). Measurement and reporting requirements for greenhouse gas emissions. <https://www.nea.gov.sg/our-services/climate-change-energy-efficiency/climate-change/carbon-tax/measurement-and-reporting-requirements-for-greenhouse-gas-emissions>

Office of Natural Resources and Environmental Policy and Planning, Ministry of Natural Resources and Environment. (2015, July). *Climate Change Master Plan 2015–2050*. <https://faolex.fao.org/docs/pdf/tha203759.pdf>

Office of the National Economic and Social Development Council. (2023, June 15). *Thailand's 13th national economic and social development plan: Summary*. https://www.nesdc.go.th/article_attach/article_file_20230615134223.pdf

Office of the Prime Minister, Energy Policy and Planning Office. (2011, May). *Thailand 20-year energy efficiency development plan (2011–2030)* [PDF]. https://www.eppo.go.th/images/POLICY/ENG/EEDP_Eng.pdf

Organisation for Economic Co-operation and Development. (2020). *Common ground between the Paris Agreement and the Sendai Framework: Climate change adaptation and disaster risk reduction*. <https://doi.org/10.1787/3edc8d09-en>

Organisation for Economic Co-operation and Development. (2022, February 18). *Open and connected government review of Thailand*. OECD Publishing. https://www.oecd.org/content/dam/oecd/en/publications/reports/2022/02/open-and-connected-government-review-of-thailand_6dbfbec4/e1593a0c-en.pdf

Organisation for Economic Co-operation and Development. (2025, June 19). *Strengthening productivity analysis for policymaking in Thailand*. https://www.oecd.org/content/dam/oecd/en/publications/reports/2025/06/strengthening-productivity-analysis-for-policymaking-in-thailand_98f85a89/0b8d13ac-en.pdf

Philippine Climate Change Commission. (2025a). *Philippines' first biennial transparency report*. <https://unfccc.int/sites/default/files/resource/%5BFinal%5D%20Philippine%20Biennial%20Transparency%20Report.pdf>

Philippine Climate Change Commission. (2025b). National Integrated Climate Change Database and Information Exchange System (NICCDIES). <https://climate.gov.ph/our-programs/national-integrated-climate-change-database-and-information-exchange-system>

Philippines, Department of Budget and Management. (2023, March). *P453 billion tagged as climate-related expenditure for 2023* [Press release]. <https://www.dbm.gov.ph/index.php/management-2/427-p453-billion-tagged-as-climate-related-expenditure-for-2023>

Philippines, Department of Budget and Management & National Economic and Development Authority. (2015, March 24). *Revised guidelines for climate change expenditure tagging* (JMC No. 2015-1). https://www.dbm.gov.ph/wp-content/uploads/Issuances/2015/Joint%20Memorandum%20Circular/JMC2015-1_MARCH242015_REVISEDGUIDELINESFORCLIMATECHANGEEXPENDITURETAGGING%28CCET%29AMENDINGJMC%20NO.%202013-01_all.pdf

Philippines. National Economic and Development Authority. (2023). *Philippine development plan 2023–2028*. <https://pdp.depdev.gov.ph/wp-content/uploads/2023/01/PDP-2023-2028.pdf>

- Prihatno, J. (2019, December 5). *Institutionalizing data management system: SIGN SMART and national registry system* – Indonesia. https://unfccc.int/sites/default/files/resource/CGE_informal%20forum_data%20management%20system_Indonesia.pdf
- Pujari, R. (2025, March 21). Thailand's draft Climate Change Act: Key business considerations. *Tilleke & Gibbins*. <https://www.tilleke.com/insights/thailands-draft-climate-change-act-key-business-considerations/>
- Quah, E., Chia, W. M., Chua, Y. H., Lee, Z., & Tan, J. R. (2023, December). *Decarbonisation pathways for Singapore* (ASEAN Green Future Project, Phases 2.1–2.2). UN Sustainable Development Solutions Network & ClimateWorks Centre. https://files.unsdsn.org/AGF%20-%20Singapore%20-%202.1_2.2_Report%20-%20FINAL.pdf
- Republic of Indonesia, Ministry of Environment and Forestry. (2021, July 22). *Long-term strategy for low carbon and climate resilience 2050 (LTS-LCCR 2050)* [PDF]. https://unfccc.int/sites/default/files/resource/Indonesia_LTS-LCCR_2021.pdf
- Republic of Indonesia, Ministry of Environment and Forestry. (2022, June). *Updated nationally determined contribution of the Republic of Indonesia 2021* (corrected version) [PDF]. <https://unfccc.int/sites/default/files/NDC/2022-06/Updated%20NDC%20Indonesia%202021%20-%20corrected%20version.pdf>
- Republic of Indonesia, Ministry of Environment and Forestry. (2022, September 23). *Enhanced nationally determined contribution (NDC)*. https://unfccc.int/sites/default/files/NDC/2022-09/Indonesia_Enhanced_NDC_2022.pdf
- Republic of Indonesia, Ministry of Foreign Affairs. (2021, November 5). *Indonesia at Expo 2020 Dubai: Executive summary* [PDF]. https://d2y6coegeqpd4v.cloudfront.net/devel/DubaiExpo/uploads/documents/Executive_Summary_In_donesia_20_20211105093444_Site.pdf
- Republic of Indonesia, Ministry of National Development Planning/National Development Planning Agency. (2020). *National medium-term development plan 2020–2024 (RPJMN 2020–2024)* [PDF]. https://perpustakaan.bappenas.go.id/e-library/file_upload/koleksi/migrasi-data-publikasi/file/RP_RKP/Narasi-RPJMN-2020-2024-versi-Bahasa-Inggris.pdf
- Republic of the Philippines, Climate Change Commission. (2024, July). *The Philippines: NDC implementation plan* [PDF]. <https://niccdies.climate.gov.ph/files/documents/The%20Philippines-%20NDC%20Implementation%20Plan%20-%20072024.pdf>
- Republic of the Union of Myanmar. (2019, November). *Myanmar climate change strategy* [PDF]. United Nations Country Team Myanmar. https://myanmar.un.org/sites/default/files/2019-11/MyanmarClimateChangeStrategy_2019.pdf
- Resilient Cities Network. (2017). *Bangkok resilience strategy*. https://resilientcitiesnetwork.org/downloadable_resources/Network/Bangkok-Resilience-Strategy-English.pdf
- Singapore, Ministry of Finance. (2022). *FY 2022 budget statement* [PDF]. https://www.mof.gov.sg/docs/librariesprovider3/budget2022/download/pdf/fy2022_budget_statement.pdf
- Singapore, Ministry of Sustainability and the Environment. (2021). *Green Plan 2030: City in nature* [Infographics]. <https://www.greenplan.gov.sg/files/sgp-cos-infographics.pdf>
- Socialist Republic of Viet Nam. (n.d.). *Law on environmental protection No. 72/2020/QH14* [Legal text]. Food and Agriculture Organization Faolex. <https://faolex.fao.org/docs/pdf/vie212245.pdf>
- Socialist Republic of Viet Nam, Ministry of Industry and Trade. (2023, May). *Power development plan VIII (PDP8)* [PDF]. https://vepg.vn/wp-content/uploads/2023/05/PDP8_full-with-annexes_EN.pdf

United Nations Development Programme. (2013, January 9). *Thailand climate public expenditure and institutional review (CPEIR)*. <https://www.undp.org/thailand/publications/thailand-climate-public-expenditure-and-institutional-review-cpeir>

United Nations Development Programme. (2021). *Climate public expenditure and investment review: Viet Nam (CPEIR)*. <https://www.undp.org/vietnam/publications/climate-public-expenditure-and-investment-review-viet-nam>

United Nations Development Programme. (2022, September). *Indonesia integrated national financing framework*. https://www.undp.org/sites/g/files/zskgke326/files/2022-09/INFF%202022%20-%20250822_Final.pdf

United Nations Development Programme, & Kuwait Finance House. (2024, May 19). *The potential growth and future trends of green sukuk as a tool for sustainable financing* [Report].

United Nations Framework Convention on Climate Change. (2021). *Technical analysis of the third biennial update report of Viet Nam (tast2021_VNM)*. https://unfccc.int/sites/default/files/resource/tast2021_VNM.pdf

UN REDD Programme. (n.d.). *Fiscal transfer incentives in Indonesia*. <https://www.un-redd.org/news/fiscal-transfer-incentives-indonesia>

World Bank. (2024). *Viet Nam 2045: Growing greener – Pathways to a resilient and decentralised green economy*. <https://documents1.worldbank.org/curated/en/099051625143012802/pdf/P176996-37953242-ccab-4fd4-b9da-7178f234adfb.pdf>

Part II

The case for regional alignment: common challenges and shared responsibilities

Chapter 5

Climate interdependence: shared risks and vulnerabilities

This chapter argues that the ecological and climatic realities of Southeast Asia, a region bound by shared coastlines, river basins, and atmospheric systems, fundamentally challenge the nation-centric framework of climate action embodied in the Paris Agreement's Nationally Determined Contributions. While NDCs are designed as instruments of national policy, the gravest climate threats confronting the Association of Southeast Asian Nations are inherently transboundary. Their impacts cascade across borders, rendering purely sovereign responses insufficient and, at times, counterproductive.

This chapter shows why collective action is indispensable, tracing the pathways through which hazards, resource flows, and policy gaps spill across frontiers (Section 5.1), stress shared ecosystems and the water-energy-food nexus (Section 5.2), and expose the limits of siloed national planning despite rising regional interdependence (Section 5.3).

5.1. Regional exposure to transboundary climate hazards

The physical geography and atmospheric dynamics of Southeast Asia create a highly interconnected climate system where disasters in one area can have immediate spillover effects on neighbouring countries. The region's extensive coastline, over 234,000 kilometers, hosts more than three-quarters of the population in low-lying zones vulnerable to sea-level rise, typhoons, floods, and saline intrusion (ASEAN, 2021). Climate events here do not respect political boundaries; instead, they produce cascading, transboundary hazards that overwhelm local infrastructure, disrupt regional supply chains, and undermine national adaptation efforts. Despite this shared ecological exposure, ASEAN Member States continue to frame these risks, and their responses, as purely domestic challenges.

This section reviews the shared coastal and storm-related threats that unite ASEAN's littoral states (Sub-section 5.1.1), examines the cross-border health and economic impacts of annual haze events driven by peat and land fires (Sub-section 5.1.2), and analyses hydro-meteorological extremes, floods and droughts, that follow monsoon and ENSO cycles across multiple watersheds (Sub-section 5.1.3).

5.1.1. Typhoons, sea-level rise, and shared coastal risks

The physical geography and atmospheric dynamics of Southeast Asia create a landscape of shared vulnerability where climatic events in one area have direct and often severe consequences for its neighbours. This section establishes the physical basis of this shared risk, demonstrating how meteorological and atmospheric phenomena disregard national borders, generating hazards that cascade across the region and challenge the efficacy of national-level climate planning.

(a) Shared exposure to slow-onset and acute coastal risks

Sea-level rise (SLR) presents an existential threat. Projections from the Intergovernmental Panel on Climate Change (IPCC) and regional studies indicate that SLR in Southeast Asia is geographically variable but consistently menacing. The IPCC's Fourth Assessment Report (AR4) noted that even under conservative scenarios, a 40 cm rise in sea level by 2100 would increase the number of people flooded annually in coastal populations from 13 million to 94 million, with approximately 20% of this increase occurring in Southeast Asia. More recent projections are even more alarming (IPCC, 2007; Wassmann et al., 2004). A 2024 study suggests that by 2100, mean sea levels could rise by up to 1.15 m in the worst-case scenario for Singapore and 1.33 m for Manila (MSS, 2024; Agupubs, 2024). Nearly 229 million people in the region live in low-lying coastal areas less than five meters above sea level, including 72 million in Indonesia, 60 million in Viet Nam, 36 million in the Philippines, 22 million in Thailand, 18 million in Myanmar, and nearly 2 million in Singapore (ASEAN, 2021). Climate projections indicate the region is “highly vulnerable to sea-level rise and coastal inundation”. Under a high-emissions scenario, nearly 90% of Viet Nam’s population, 54% of Thailand’s, 24% of the Philippines’, and 21% of Indonesia’s could be severely affected by rising seas by 2100 (ASEAN, 2021).

Compounding this slow-onset disaster is the high frequency of extreme weather events. The region is frequently battered by powerful typhoons, with five ASEAN states, Myanmar, the Philippines, Viet Nam, Thailand, and Cambodia, ranking among the top 20 most affected countries globally between 1999 and 2018 (ASEAN, 2021). Climate change is projected to increase the intensity of these cyclones, leading to more devastating socio-economic impacts. Recent events bear this out: Typhoon Rai (2021) caused over USD 1 billion in damages in the Philippines, Typhoon Noru (2022) led to widespread flooding and significant agricultural losses in Viet Nam, and Typhoon Doksuri (2023) affected over two million people in the Philippines and caused an estimated USD 25 billion in total monetary losses across the region (ReliefWeb, 2022; SCMP, 2024).

More recently, Super Typhoon Yagi, which tracked across the South China Sea in early September 2024, made sequential landfalls in the Philippines, China, and northern Viet Nam before its remnants triggered record flooding in Laos, Thailand, and Myanmar, leaving more than 600 fatalities across six ASEAN states and hundreds still missing (Center for Disaster Philanthropy, 2024). Direct economic losses exceeded USD 16 billion, and Viet Nam’s planning ministry projected a 0.15-percentage-point reduction in 2024 GDP growth, reflecting the storm’s macro-level reach (Reuters, 2024). Flood-damaged highways linking Haiphong, Bangkok, and Mandalay impeded emergency relief and choked regional supply chains; surveys indicated that 82 percent of logistics firms operating across Cambodia–Lao PDR–Viet Nam faced severe or moderate delays, while more than 80 percent of manufacturing sites experienced power outages (Vu Nguyen Hanh, 2024).

These events underscore a grim reality: the region's capacity to recover is being outstripped by the increasing frequency and severity of climate-related disasters.

(b) Acknowledged risks, fragmented responses

All six focus countries identify coastal climate hazards as major threats in their Nationally Determined Contributions. The **Philippines**, situated in the Pacific typhoon belt, faces approximately 20 typhoons annually. Its 2021 NDC quantifies average annual economic losses at around 0.5% of GDP and cites Super Typhoon Haiyan (2013), which killed over 6,000 people and caused damages amounting to 4% of GDP. In 2020, the back-to-back typhoons Goni and Vamco inflicted over USD 850 million in losses, underscoring the increasing frequency and economic severity of these events (Republic of the Philippines, 2021; ReliefWeb, 2020; EM-DAT, 2021).

Myanmar's NDC positions the country as “one of the most vulnerable in the world” and recalls the catastrophic impact of Cyclone Nargis in 2008, which caused over 130,000 deaths and USD 4 billion in damage. In the following decade, repeated cyclones and floods have strained response systems and compounded the vulnerability of low-lying regions such as the Ayeyarwady Delta (Republic of the Union of Myanmar, 2021; EM-DAT, 2008).

Thailand also ranks high on global climate risk indices, with its NDC stating that the country is “highly vulnerable to climate impacts.” Historical data confirms increasing frequency of floods and droughts, while Bangkok’s position in a low-elevation delta makes it one of the most threatened capitals in Southeast Asia (Kingdom of Thailand, 2020; Germanwatch, 2021).

Even Singapore, despite its advanced infrastructure and affluence, acknowledges that 30% of its land lies below 5 meters. The government has allocated over S\$5 billion for coastal defences, including sea walls and tidal gates (Republic of Singapore, 2020; CNA, 2019). Yet this national planning effort, though sophisticated, is siloed from broader regional strategies. No reference is made in Singapore’s NDC to possible regional cooperation on similar adaptive infrastructure or data sharing.

Viet Nam’s updated NDC (2022) warns explicitly of saline intrusion, subsidence, and inundation risks in both the Mekong and Red River Deltas. The Mekong Delta, home to over 17 million people, is already seeing alarming transformations in land use and freshwater availability. National planning highlights the risk of “permanent flooding,” but again does not acknowledge the transboundary nature of the Mekong River system, shared with Cambodia, Lao PDR, Thailand, and Myanmar (Socialist Republic of Viet Nam, 2022; ASEAN, 2021).

Indonesia’s enhanced NDC discusses the chronic flooding in Jakarta and the decision to relocate the national capital to East Kalimantan. The move, framed as a response to the “confluence of rising seas, extreme rainfall, and subsidence”, is one of the most drastic climate adaptation measures taken by any ASEAN Member State. However, the environmental pressures of constructing Nusantara are rarely examined in regional terms, even though Borneo is ecologically shared with Malaysia and Brunei. There has been little discussion of how this massive project may affect shared watersheds, biodiversity corridors, or climate-induced displacement patterns across borders (Republic of Indonesia, 2021; BBC, 2022; ASEAN, 2021).

These examples reveal a paradox: while each country clearly recognizes the physical risks, none treats them as part of a shared regional system. The framing remains nationally siloed, even as the climate system becomes increasingly interconnected.

(c) Case studies: megacities on the edge

Two urban examples, Manila and Jakarta, highlight the contradictions between national development priorities and adaptation planning.

In Metro Manila, the 2021 Manila Bay Sustainable Development Masterplan proposed mangrove restoration, green embankments, and flood control infrastructure. However, by 2025, 21 land reclamation projects had been approved along the bay. According to an impact study by the Department of Environment and Natural Resources, these projects are blocking natural drainage pathways, leading to a “bottleneck effect” that exacerbates flooding in nearby cities like Navotas and Bacoor (DENR, 2023; Rappler, 2024). These contradictions between development and resilience planning illustrate the institutional fragmentation undermining climate adaptation efforts.

Jakarta, meanwhile, is sinking at an alarming rate, some areas by over 4 meters since 1978, due to groundwater over-extraction. Facing worsening floods and a projected sea-level rise that could submerge a quarter of the city by 2050, Indonesia has chosen to build an entirely new capital city. Nusantara is envisioned as a green and climate-resilient city. Yet its location in East Kalimantan raises ecological alarms: large-scale deforestation, biodiversity loss, and risks to Indigenous lands are inevitable. The decision was made without regional environmental impact assessments or consultation with Malaysia and Brunei, two countries that share Borneo (BBC, 2022; ASEAN, 2021; Mongabay, 2023).

(d) Regional risk, national blind spots

The ASEAN State of Climate Change Report (2021) provides clear regional data: 39% of the population in ASEAN lives in coastal areas vulnerable to extreme sea-level events. Yet NDCs do not translate this recognition into policy mechanisms for regional cooperation. No country proposes:

- Joint contingency funds for climate-induced displacement
- Shared early warning systems for typhoons and floods
- Regional coordination on adaptive infrastructure
- Cooperative mangrove restoration corridors

Interviewed experts consistently emphasized this gap. A regional climate advisor explained: *“All ASEAN countries face climate hazards like flooding, drought, and sea-level rise. Shared vulnerabilities make adaptation a practical entry point for regional programs”* (Interview with Ace, 2025).

Another noted that ASEAN’s non-binding governance culture limits enforcement, but not information sharing or indicator harmonization (Interview with Indira Pradnyaswari, 2025). Yet even these softer forms of coordination are largely absent from national NDCs. Even Singapore, a technical leader in coastal adaptation, does not offer to collaborate on engineering knowledge or regional modelling systems.

A regional Coastal Risk Exposure Map, integrating elevation data, population density, typhoon tracks, and current investment in adaptation infrastructure, could be a powerful policy tool. It would help identify zones where risks converge and cooperation is urgently needed.

The absence of such a shared visualization reflects the continued preference for national approaches. The Philippines, Viet Nam, and Myanmar are restoring mangroves independently. Thailand and Indonesia face similar urban flooding issues. Singapore and Malaysia have sophisticated flood management systems. Yet lessons are rarely exchanged, and projects are seldom coordinated. As one interviewee stressed: *“No one country can weather what’s coming alone. When Manila or Bangkok floods, supply chains falter across ASEAN”* (Interview with Rizki Maulana Rachman, 2025).

Table 5: Comparative coastal climate risk exposure and NDC adaptation focus

Country	Coastal population below high tide line (millions)	Projected SLR by 2100 (high emissions, m)	Explicit mention of SLR in NDC	Explicit mention of coastal protection in NDC	Explicit mention of mangrove restoration in NDC
Indonesia	72	≈0.7–0.8 m (IPCC AR6 regional median for Asia)	Implied (low-lying areas)	Yes (resilient coastal zones)	Yes (integrated management)
Viet Nam	60	~0.73–1.0 m	Yes	Yes (sea dykes, coastal mgt.)	Yes (planting mangroves)
Philippines	36	1.33	Implied (vulnerability)	Yes (coastal ecosystems)	Implied (forest restoration)
Thailand	22	≈0.7–0.8 m (IPCC AR6 regional median for Asia);	No	Implied (human settlements)	No
Myanmar	18	≈0.7–0.8 m (IPCC AR6 regional median for Asia)	Yes	Yes (coastal zone protection)	Yes (mangrove restoration)
Singapore	1.9	1.15	Implied (low-lying island)	Yes (protect our coasts)	No

5.1.2. Transboundary haze pollution and forest fires

Few climate-related hazards in Southeast Asia illustrate the failure of fragmented governance more vividly than the recurring haze crisis. Each year, smoke from land and forest fires spreads across national borders, blanketing the region in toxic air. This “atmospheric spillover” transforms one country’s land-use practices into another’s public health emergency (Putra, 2024). While the problem is widely recognized, responses remain fragmented, with little integration into the formal climate commitments under the Paris Agreement.

The drivers of this crisis are both ecological and political. The most intense fires originate in carbon-rich peatlands, especially in Sumatra and Kalimantan in Indonesia. These ecosystems, once drained for agriculture and plantation expansion, are highly flammable during the dry season. Large-scale agribusiness operations, particularly for palm oil and pulpwood, rely on fire as a cheap land-clearing tool. In parallel, many smallholders across Indonesia, Thailand, and Myanmar use slash-and-burn methods with minimal regulation or enforcement (Akahoshi et al., 2024).

The economic cost of these fires is staggering. Indonesia alone lost an estimated USD 16 billion from the 2015 fire crisis (World Bank, 2016). The 1997-1998 regional haze event, fuelled by El Niño drought, caused losses exceeding USD 9 billion across ASEAN (ASEAN,

n.d.). The health costs are harder to quantify but deeply felt: tens of millions are exposed annually to hazardous air, especially in downstream nations such as Singapore, Malaysia, and southern Thailand (State of Global Air, n.d.). Despite this toll, the haze crisis remains marginal in official climate planning frameworks, particularly the NDCs.

(a) Nationally Determined Commitments: the absent transboundary agenda

A comparative review of the latest NDCs from the six ASEAN focus countries reveals a conspicuous silence on the haze. Despite the transboundary nature of the problem, references to haze-related cooperation or atmospheric spillovers are virtually absent.

Indonesia, the origin of most fire-linked haze, addresses the root causes through its Forestry and Other Land Use (FOLU) Net Sink 2030 target. The NDC pledges to restore 2 million hectares of peatland and reduce emissions from "fires and peat decomposition" (Republic of Indonesia, 2022). These are significant efforts. Yet they are presented solely as domestic mitigation measures. The term "haze" is not mentioned, and there is no reference to regional cooperation or the impacts on neighbouring countries. The framing is national, despite the clearly regional consequences.

Thailand commits to expanding forest cover to 55% by 2037 but excludes the LULUCF sector from its 2030 emissions target. There is no mention of haze, agricultural burning, or its impacts on border provinces (Kingdom of Thailand, 2022). This is striking, given that northern Thailand regularly suffers from a "second haze season," caused by fires in the Mekong sub-region ((Moran, 2019). Thai policymakers have responded with new domestic laws and cross-border discussions, but these efforts are not reflected in the NDC.

Singapore, although not a source of fires, is among the most affected by haze events. It enacted the Transboundary Haze Pollution Act (THPA) in 2014, a bold legal tool creating extraterritorial corporate liability for causing haze in Singapore (Government of Singapore, 2014). Yet the NDC does not mention this law or any strategy to address haze as a climate or health risk. This disconnect suggests that climate diplomacy is not yet integrated into air quality governance.

Myanmar's NDC contains general commitments on forest protection and emissions reduction in the land-use sector but does not address haze, even though agricultural fires and seasonal burning affect both domestic populations and neighbours.

This omission is not without consequence. By failing to name or address the haze in their official climate pledges, ASEAN countries forego the opportunity to treat it as a regional mitigation and adaptation issue under the UNFCCC framework. This institutional silence reinforces the perception that haze is a recurring nuisance rather than a systemic, transboundary crisis.

(b) A regional instrument without enforcement: the limits of the ASEAN Haze Agreement

In response to mounting pressure in the early 2000s, ASEAN adopted the Agreement on Transboundary Haze Pollution (AATHP) in 2002. It was the first legally binding environmental treaty under ASEAN and entered into force in 2003. Its goal: to achieve a "haze-free ASEAN" (ASEAN, 2002).

The agreement created a modest institutional architecture, including the ASEAN Coordinating Centre for Transboundary Haze Pollution Control (ACC THPC) and a series of regional haze monitoring and forecasting mechanisms. It remains the region's only formal mechanism to address this atmospheric crisis.

Yet the AATHP's effectiveness has been widely questioned. Its reliance on the "ASEAN Way", non-interference, consensus-based decisions, and voluntary compliance, has

severely limited its capacity to compel action. There are no binding penalties for non-compliance. Implementation remains at the discretion of national authorities (Honbun, 2023).

During the 2023 haze event, triggered by El Niño-driven drought, Malaysia and Singapore experienced severe air pollution and raised diplomatic concerns. Indonesian officials denied cross-border impacts, citing insufficient evidence of transboundary smoke (Mai, 2023). The incident quickly devolved into a familiar regional dispute, with no coordinated response or institutional enforcement, despite the haze agreement being technically in force.

(c) Civil society pressure and emerging alternatives

The governance vacuum left by state inaction has created space for civil society organizations (CSOs) and regional watchdogs. Groups such as Greenpeace Southeast Asia, WALHI, and ASEAN Parliamentarians for Human Rights (APHR) have called for stronger accountability mechanisms (ASEAN Parliamentarians for Human Rights & Greenpeace Southeast Asia, 2023). Among their key demands:

- Public disclosure of concession maps for plantations and logging
- Regional legal frameworks to hold polluters accountable
- Harmonized air quality indices and real-time pollution data sharing

These proposals reflect growing public impatience with ASEAN's diplomatic constraints. In some countries, domestic legal activism has filled the gap. Singapore's THPA, although only partially enforced, is the only ASEAN legislation explicitly targeting transboundary climate impacts. Malaysia drafted a similar law in 2019, but political changes stalled its adoption (Astro AWANI International, n.d.). Several interviewees highlighted Singapore's potential to act as a regional leader, not only through regulation but through partnerships. As one Singapore-based expert noted:

“Voluntary carbon markets alone won't create sufficient incentives. We need to partner with forest-rich neighbours, Indonesia, Viet Nam, Malaysia, to support peatland protection and fire prevention on a long-term basis” (Interview with Lin Song, 2025).

This suggests a possible shift: reframing the haze not just as a nuisance, but as part of climate mitigation. Peat fires are major GHG emitters. Including them in future NDC updates, through regional emission targets or cooperative fire management plans, could unlock international support and climate finance.

(d) A crisis uncontained: 2023 as a case in point

The 2023 haze episode reinforced how fragile and fragmented current approaches remain. In the context of an intense El Niño year, dry conditions triggered large-scale fires across Sumatra and Borneo. Thick smoke enveloped western Malaysia, with air quality indices exceeding hazardous levels in Kuala Lumpur and Johor. Flights were delayed, schools closed, and hospitals reported spikes in respiratory illness (Strangio, 2023).

Despite real-time satellite evidence and media reports (NASA Earth Observatory, 2023), Indonesia's government denied responsibility, citing the absence of “conclusive cross-border evidence” (Reuters, 2023). This lack of transparency, combined with ASEAN's diplomatic constraints, once again paralyzed the regional response.

The consequences were not only environmental and public health-related. The diplomatic fallout eroded trust between neighbours and demonstrated the inability of the current institutional framework to address an increasingly predictable crisis.

5.1.3. Floods and droughts: shared hydro-meteorological challenges

(a) A region defined by hydro-meteorological extremes

The ASEAN region is defined by its hydro-meteorological systems, particularly the seasonal monsoons and the El Niño Southern Oscillation (ENSO) phenomenon, which create a shared rhythm of floods and droughts (ASEAN, 2025). These events are not isolated national incidents but often transboundary in nature, with cyclones sweeping across multiple countries and droughts affecting entire sub-regions. The El Niño warm phase, for instance, is historically linked to severe droughts across Southeast Asia, from the Philippines and Indonesia to Thailand and Viet Nam. The intense El Niño events of 1997-98 and 2015-16 fuelled devastating forest fires in Indonesia and widespread crop failures ((NASA Goddard Institute for Space Studies, 2016). Conversely, the La Niña phase can trigger intense monsoon rains and catastrophic flooding. Climate change is exacerbating these extremes, increasing the frequency and intensity of both floods and droughts, which now represent the most common and costly disasters in the region.

(b) National impacts and adaptation efforts

The impacts of these recurring hazards are felt acutely across the six nations.

Viet Nam and Thailand face a dual threat. The Mekong River, their shared lifeline, is subject to both extreme floods and debilitating droughts, often linked to upstream activities and climate variability. In 2019-2020, a severe drought in the Mekong Delta led Viet Nam to declare a state of emergency, with saltwater intrusion affecting over 58,000 hectares of rice (Open Development Vietnam, 2022). Thailand, meanwhile, has battled its own severe droughts, with the 2020 event costing its economy an estimated US\$1.5 billion and impacting its vital agricultural sector (World Bank, 2023). Both countries have also experienced devastating floods, with an unprecedented summer flood submerging parts of Hue City in Viet Nam in June 2025 and monsoon-driven floods regularly affecting provinces in Thailand (ECHO Daily Flash, 2025).

The Philippines, an archipelago in the heart of the typhoon belt, endures an average of 20 tropical cyclones annually, which trigger widespread flooding and landslides (Asian Disaster Reduction Center, n.d.). Recent years have seen a "super typhoon season," with storms like Rai (Odette) in 2021 causing over USD 1 billion in damages (Center for Disaster Philanthropy, 2022). The country also suffers from severe droughts, with a protracted El Niño-induced drought in 2024 affecting over 900,000 families and forcing children out of school to help on farms (Save the Children, 2024).

Indonesia and Myanmar are similarly exposed. Indonesia regularly faces deadly floods and landslides across its islands, with major events in West Sumatra and Java in 2023 and 2024 causing significant loss of life and damage to infrastructure (FloodList, n.d.). The 2023 El Niño-driven drought also led to water scarcity and crop production impacts. Myanmar, ranked as one of the world's most vulnerable countries, suffered catastrophic flooding in September 2024 that affected an estimated one million people, while its central dry zone is perennially at risk of severe drought (Global Network Against Food Crises, n.d.).

Singapore, despite its advanced infrastructure, is not immune. As a low-lying island city-state, it faces increasing risks from flash floods caused by intense, unpredictable rainfall overwhelming its drainage systems, as seen in events in April 2025 (Ng, 2025). It is also vulnerable to drought, which threatens its water supply agreements with neighbouring Malaysia.

In response, countries are implementing national adaptation strategies, from building flood-resilient infrastructure in Jakarta and Manila to promoting drought-resistant crops in the Philippines and Thailand. Singapore is a leader in urban flood resilience, investing heavily in drainage improvements and coastal protection.

(c) The case for regional cooperation and shared learning

The physical nature of floods and droughts, moving across watersheds, coastlines, and atmospheric systems, makes regional cooperation not a luxury but a necessity. A cyclone making landfall in the Philippines can continue as a rainstorm in Viet Nam. A drought upstream in the Mekong can shrink river flows and fisheries across multiple countries, impacting food systems, power generation, and livelihoods. Even adaptation policies can have transboundary consequences: upstream dam releases, irrigation withdrawals, and land-use change decisions reverberate downstream.

ASEAN has acknowledged this interdependence through various frameworks. The ASEAN Agreement on Disaster Management and Emergency Response (AADMER) provides a platform for coordination during acute disasters (ASEAN, 2005). The ASEAN Declaration on Strengthening Adaptation to Drought signals growing recognition of creeping, long-term hazards (ASEAN, 2020). Technical bodies like the ASEAN Specialized Meteorological Centre (ASMC) and the Mekong River Commission (MRC) are also producing valuable data and forecasts.

But these initiatives remain fragmented. The lack of harmonized early warning systems, limited interoperability of national disaster databases, and absence of regional hydrological contingency plans mean that countries continue to face these threats with limited coordination. No mechanism exists to co-manage risks from cross-border flooding or to allocate shared water during drought periods. This absence becomes critical when political or economic decisions in one country, such as dam operations, deforestation, or water diversions, directly increase the hazard exposure of another.

5.2 Ecological interconnections and the Water-Energy-Food Nexus

Transboundary climate risks in ASEAN are not limited to dramatic disasters like typhoons or haze. Many slow-onset and systemic challenges span national boundaries, particularly where ecosystems and critical resources are shared. This gives rise to a complex water-energy-food nexus across ASEAN countries. Rivers flow from one nation to another; forests and wildlife traverse political frontiers; and energy systems are increasingly connected through regional power trade. Climate change is stressing these interlinked systems, often revealing the misalignment between natural boundaries and national jurisdictions. Two cases are especially illustrative: the Mekong River Basin, where upstream development triggers downstream vulnerabilities (Sub-section 5.2.1), and transboundary forest landscapes, where deforestation and biodiversity loss in one area undermine conservation in another (Sub-section 5.2.2). In both cases, current NDCs and national policies struggle to address the “spillover” effects, a clear sign of the inadequacy of siloed responses.

5.2.1 The Mekong River Basin: Shared resources and competing interests

(a) Upstream actions, downstream consequences

The Mekong River, stretching over 4,800 km across six countries, China, Myanmar, Lao PDR, Thailand, Cambodia, and Viet Nam, directly sustains more than 70 million people

and underpins 25% of the world's inland freshwater catch (WWF, 2024). The river is indispensable to food security, agriculture, and fisheries, particularly for Cambodia and Viet Nam. The Mekong Delta in Viet Nam, home to over 17 million people and a key rice-producing area contributing nearly 20% of national GDP, is especially vulnerable to hydrological disruptions (WWF, 2023).

However, hydropower expansion upstream, especially from China's Lancang dams and Lao PDR's mainstream projects like Xayaburi and Don Sahong, has trapped up to 96% of the sediment load vital for delta replenishment (Baran et al., 2015). This has drastically reduced sediment discharge from 160 million tons annually (pre-1990) to 75 million tons in 2014, aggravating land subsidence and saline intrusion in Viet Nam's deltaic provinces (MRC, 2017).

During the 2019-2020 drought, widely seen as the worst in 40 years, water levels on the Mekong reached historic lows (Mekong River Commission, 2024). This was partially attributed to upstream reservoir regulation by China and Lao PDR (International Rivers, 2022). Saltwater intrusion affected more than 33,000 hectares of rice fields and cut off drinking water supplies to 70,000 households in Viet Nam's delta (WWF, 2023). The lack of sediment flow also accelerated coastal erosion, with over 750 kilometers of riverbanks eroded and nearly 2,000 homes lost between 2016 and 2023 (IKI, 2024).

Cambodia's Tonle Sap Lake, whose seasonal flood pulse is synchronized with Mekong flows, is also deteriorating. Altered hydrological regimes now jeopardize this dynamic, reducing fish biomass and endangering the country's primary source of protein. Cambodia, which draws 12% of its GDP from fishing (Initiative for the Future of Great Rivers, 2019), may suffer up to 3.7% GDP losses due to fishery declines caused by dams (MDPI, 2020).

Meanwhile, Lao PDR's ambition to become the "Battery of Southeast Asia" has resulted in the construction of more than a dozen major hydropower projects. Revenues from power exports are projected to reach USD 5 billion annually by 2025, accounting for over 25% of the country's 2019 GDP (Initiative for the Future of Great Rivers, 2019).

Yet these benefits come at significant environmental and social costs. Dams have disrupted fish migration, fragmented ecosystems, and forced the displacement of 12,000 people along the Nam Ou river cascade alone (International Rivers, 2022). Despite vocal opposition to upstream dams, Viet Nam signed electricity purchase agreements with Lao PDR for 1.5 billion kWh in 2020, arguing that engagement offers strategic leverage, though critics warn of eroding environmental leadership (Viet Nam News, 2023).

(b) Weak integration in NDCs

Despite the magnitude of shared risks, national climate pledges largely omit basin-level coordination. Viet Nam's NDC acknowledges the Mekong Delta's vulnerability but treats it as an internal challenge, disconnected from upstream hydropower impacts. Thailand's NDC prioritizes Integrated Water Resources Management but fails to mention the Mekong or its role as a major investor in Lao dams. Other countries in the basin, including Cambodia and Lao PDR, treat hydropower as a domestic asset rather than a regional concern. These omissions reflect the fragmentation of climate planning and the political sensitivity of sovereignty in water governance.

(c) Institutional cooperation and its limitations

The Mekong River Commission (MRC), established in 1995, is the region's only multilateral institution for water cooperation, comprising Cambodia, Lao PDR, Thailand, and Viet Nam. It facilitates data sharing, joint studies, and consultations under the Procedures for Notification, Prior Consultation and Agreement (Mekong River Commission, 2003).

Yet the MRC has no binding authority. China and Myanmar remain only “dialogue partners,” limiting upstream accountability. Consultations for major projects like Xayaburi and Don Sahong proceeded despite downstream concerns, and cumulative environmental impacts remain poorly assessed.

The MRC did secure dry-season water releases from China during recent droughts and has improved hydrological modelling and public reporting. Expert interviews express cautious optimism: “The Mekong River Commission is a good model: it brings countries together because they share a vital resource and mutual risks,” (Interview with Tu Anh Nguyen, 2025). Still, civil society voices remain marginal in its deliberations.

(d) Nexus consequences: energy trade-offs and food insecurity

In 2019, Cambodia suffered an electricity shortfall of ~30% (equivalent to 400 MW) as drought caused hydropower generation to plummet. Phnom Penh faced rolling blackouts, and Cambodia had to urgently import electricity from Thailand and Viet Nam (Initiative for the Future of Great Rivers, 2019). This triggered cascading impacts: crop irrigation was curtailed, food prices rose, and industrial productivity slowed, a textbook demonstration of the water-energy-food security nexus under climate stress (ASEAN Centre for Energy, 2024).

Such vulnerabilities are exacerbated by the absence of coordinated contingency planning. ASEAN has no permanent water crisis response mechanism, and regional coordination remains limited to ad hoc dialogues. One climate policy expert from the ASEAN Secretariat underscored this gap: “Such cases show how one country’s plan can negatively affect another. Stronger coordination through ASEAN or shared environmental impact mechanisms would help mitigate these risks” (Interview with ACE, 2025)

The challenge lies not only in recognizing interconnected risks but in building actionable regional frameworks that can pre-empt such crises rather than respond belatedly. Without enforceable agreements on sediment, water flow, and energy trade-offs, downstream countries like Viet Nam and Cambodia will continue to shoulder disproportionate burdens from decisions made upstream.

5.2.2 Deforestation corridors and biodiversity loss

(a) Shared ecosystems, shared pressures

Southeast Asia’s forests and biodiversity form an ecological web that crosses national boundaries. The region’s rich tropical ecosystems, including the Greater Mekong rainforests, the Sundaland forests of Borneo and Sumatra, and marine biodiversity corridors, are shared natural assets. Wildlife, such as elephants and tigers, move across the Myanmar-Thailand frontier; hornbills and gibbons traverse Malaysia and Indonesia; marine species link the Philippines, Indonesia, and other archipelagic states (Greenpeace Southeast Asia, n.d.).

Climate change exacerbates these systems’ vulnerability, shifting habitats, increasing wildfire risks, and altering species migration. Yet human pressures, such as commercial logging, agricultural expansion, and wildlife trafficking, remain the primary drivers of ecosystem degradation. These activities are often spatially displaced: when one country tightens conservation efforts, exploitation shifts to areas with weaker enforcement, a phenomenon known as deforestation leakage or spillover. These dynamic makes coordinated regional strategies essential.

(b) NDC commitments and fragmented implementation

All six countries acknowledge the critical role of forests and ecosystems in their latest NDCs. Indonesia's 2022 NDC highlights that 97% of its mitigation efforts stem from the land-use and energy sectors. Measures include a 2019 permanent moratorium on forest and peatland clearing, which covers 66 million hectares, and a freeze on new oil palm permits from 2018-2021. These actions have reportedly reduced deforestation (Diela, 2019).

Viet Nam emphasizes afforestation and reforestation, building on its pioneering Payments for Forest Environmental Services (PFES) scheme. Viet Nam is also piloting a carbon-linked PFES model to generate results-based finance (Pham et al., 2023). Thailand integrates forest expansion into its adaptation-mitigation strategy, while Myanmar's 2021 NDC sets a target to restore forest cover to 30% despite ongoing governance issues. Singapore, though lacking extensive forests, pledges protection of its remaining green spaces and supports regional nature-based projects.

Despite these policies, deforestation and biodiversity loss continue. The ASCCR warns that, under current trends, the region may lose up to 40% of its biodiversity by 2100. This decline is particularly alarming in transboundary forest zones. These include the Cardamom Mountains (Cambodia-Thailand), Tanintharyi forests (Myanmar-Thailand), and Borneo's central forest block (Indonesia-Malaysia-Brunei). Fragmented governance and lack of bilateral coordination allow poaching, logging, and land conversion to shift across borders, undercutting conservation gains (ASEAN, 2021).

(c) Leakage and coordination failures: concrete examples

Myanmar's forests have been severely degraded by illegal logging, which surged after the 2021 military coup. Much of the timber is trafficked across borders to meet demand in China and India (Mahadevan & Global Initiative Against Transnational Organized Crime, 2021). Thai conservation success is hindered by porous frontiers, as noted by an interviewee: "The porous border with Myanmar means illegal timber and wildlife still flow in, we can't save wild tigers in Thailand if poaching persists next door" (Interview with T1, 2025).

Similarly, Borneo's ecosystems are fractured by inconsistent governance. Orangutans, pygmy elephants, and rhinos range between Kalimantan (Indonesia) and Sabah/Sarawak (Malaysia), but conservation efforts differ across the border (World Wildlife Fund, n.d.). Fires, plantation expansion, and illegal trade occur on both sides. Although both countries have adopted peatland protections, these were developed through national channels, not under an ASEAN framework.

(d) Existing cooperation and unrealized potential

Some transboundary initiatives show promise. The Heart of Borneo programme (Indonesia, Malaysia, Brunei) aims to conserve 220,000 km² of forest, though it is not well integrated into NDCs (World Wildlife Fund, n.d.). The ASEAN Heritage Parks network offers a model for protected areas cooperation but lacks enforcement capacity. Integration with climate finance and adaptation mechanisms remains limited (ASEAN Centre for Biodiversity, n.d.).

One ASEAN expert observed that although forestry features in all NDCs, "implementation varies greatly, harmonization isn't feasible, but coordinated learning is" (Interview with Indira Pradnyaswari, 2025). Examples include Indonesia's social forestry programme or Viet Nam's PFES, which have inspired pilots in Laos and Cambodia. Scaling

these via ASEAN would create coherence in climate action. NDCs rarely treat forests and ecosystems as shared capital. Most focus on national emissions and afforestation targets, with minimal recognition of regional ecological connectivity.

Tools like the Nusantara Atlas and Global Forest Watch provide real-time regional monitoring of forest loss. Incorporating these into LULUCF tracking would support collective accountability.

5.3 The inadequacy of siloed national responses to transboundary threats

The case studies above, typhoons, sea-level rise, haze, river basin degradation, and biodiversity loss, all converge on a critical observation: when climate risks transcend borders, uncoordinated national responses are inadequate. Yet, ASEAN's climate action framework continues to revolve around state-centric planning. The Nationally Determined Contributions of Indonesia, Viet Nam, the Philippines, Thailand, Myanmar, and Singapore remain rooted in domestic agendas, with limited recognition of interdependence or regional externalities.

This reflects deeper institutional norms within ASEAN. The principles of sovereignty and non-interference shape the region's climate governance: decisions are made by consensus, and ASEAN lacks authority to standardize or enforce climate policy. While NDCs nominally reflect "nationally determined" ambition, their exclusive domestic focus creates policy blind spots when addressing region-wide threats.

(a) The blind spots of isolated planning

NDCs assume a closed-loop model of emissions and adaptation. They overlook how upstream emissions, ecosystem degradation, or infrastructure development can directly undermine neighbouring countries' climate goals. One regional climate official confirmed: "Each NDC is nationally determined, Member States cannot intervene in each other's pledges, and ASEAN has no authority to reconcile externalities. (Interview with ACE, 2025).

Without a regional mandate, ASEAN cooperation is limited to voluntary frameworks. Technical platforms exist, such as the ASEAN Agreement on Transboundary Haze Pollution, but are not reflected in NDCs. Cooperation advances only when mutual interests align, and falters when national priorities diverge.

(b) Concrete cases of coordination failure

Haze diplomacy breakdowns in 2019 and 2023 illustrate the costs of this gap. Indonesia's NDC highlights domestic peat fire reduction, but when transboundary haze affects Malaysia and Singapore, no formal ASEAN mechanism exists to apportion responsibility or coordinate prevention. Malaysia's diplomatic protests and emergency school closures in 2023 underscore the policy vacuum.

The 2019 Cambodian electricity crisis, triggered by climate-exacerbated drought, reveals similar structural gaps. Without an ASEAN energy security mechanism, Cambodia resorted to bilateral electricity imports and fossil fuel expansion. Neighbouring countries' NDCs made no provision for cross-border energy crisis support. The ASEAN Power Grid, discussed in the next chapter, remains underutilized as a resilience tool.

Another missing piece is migration. While sea-level rise and extreme weather may displace millions by mid-century, ASEAN has no protocol for climate-induced migration.

NDCs treat displacement as a purely domestic issue. The 2008 Cyclone Nargis, which pushed Myanmar refugees into Thailand, offers a precedent for what is likely to become more frequent.

(c) The political and institutional constraints to deeper cooperation

Why does ASEAN lag behind on climate regionalization? Interviews point to political inertia, sensitivity over sovereignty, and a persistent trust deficit. Countries prefer bilateral partnerships or ad hoc trilateral initiatives over region-wide frameworks. Still, shared risks are mounting. A Thai stakeholder warned that “climate shocks to food production in one country can ripple through the entire ASEAN market” (Interview with T1, 2025). Others noted that climate disruption is increasingly seen by investors and supply chain managers as a regional, not national, risk.

Economic interdependence, then, may act as a driver for more coordinated responses. A regional expert observed: “Nationalism runs deep... But economic interdependence could be a unifying force if climate is framed as a shared economic threat” (Interview with ACE, 2025). This logic supports the rationale for ASEAN to prioritize climate-smart cooperation through its economic integration agenda.

(d) Toward pragmatic regional solutions

While ASEAN is unlikely to adopt binding climate policy instruments akin to the EU, there is room to build coordination tools that respect national sovereignty while strengthening regional resilience. Examples include:

- An ASEAN Climate Risk Outlook published biennially to map shared hazards and recommend responses.
- Regional adaptation funds or technical deployment teams to support joint infrastructure or emergency response.
- Coordinated standards on peatland management, emissions controls, or data-sharing mechanisms for forests and GHG inventories.

Importantly, such steps would not compromise national autonomy but enhance national efforts through shared capacity. As one Indonesian climate diplomat put it: “Don’t impose. Inspire. The goal is not to harmonize everything, but to build confidence through cooperation” (Interview with Rizki Maulana Rachman, 2025).

This adaptive regionalism is already visible in isolated successes: interoperable emissions registries, peer-to-peer learning on disaster risk reduction, and growing replication of social forestry and PES models. The missing element is a systemic framework to scale up such practices across the ASEAN Community.

Climate interdependence in ASEAN reveals both vulnerabilities and opportunities. One country’s actions, or inaction, has immediate implications for others, but shared risks can also enable shared solutions. If treated as a collective security and development challenge, climate policy could unify ASEAN’s fragmented responses.

Chapter 6 now turns to the economic dimension of this argument. It explores how ASEAN’s deepening economic integration, including cross-border infrastructure, trade, and energy interdependence, creates both climate risks and levers for collective action. The next chapter assesses whether ASEAN’s economic architecture can be mobilized to align climate and development priorities across Member States.

Bibliography

- Agupubs. (2024). *Robust sea-level projections for Singapore by 2100 and 2150*. <https://agupubs.onlinelibrary.wiley.com/doi/10.1029/2024JC021840>
- Akahoshi, K., Zusman, E., Hanaoka, T., Kim Oanh, N. T., Huy, L. N., Wangwongwatana, S., ... Amann, M. (2024). The prospects of controlling open burning of crop residues in Thailand: A quantitative assessment of implementation barriers and costs. *Atmosphere*, 15(11), 1309. <https://doi.org/10.3390/atmos15111309>
- ASEAN. (2020). *ASEAN Declaration on the Strengthening of Adaptation to Drought*. https://asean.org/wp-content/uploads/2023/02/ASEAN_Declaration_on_the_Strengthening_of_Adaptation_to_Drought_2020.pdf
- ASEAN. (2021). *ASEAN State of Climate Change Report*. ASEAN Secretariat. https://asean.org/wp-content/uploads/2021/10/ASCCR-e-publication-Correction_8-June.pdf
- ASEAN. (2025, April). *Changing disaster risk landscape due to climate change in ASEAN: ASCC Trend Report No. 10*. https://asean.org/wp-content/uploads/2025/04/20240324_Trend-Report_DM-10-2025.pdf
- ASEAN Agreement on Disaster Management and Emergency Response. (2005, July 26). <https://agreement.asean.org/media/download/20220330063139.pdf>
- Association of Southeast Asian Nations. (2002, June 10). *ASEAN Agreement on Transboundary Haze Pollution*. <https://asean.org/wp-content/uploads/2021/01/ASEANAgreementonTransboundaryHazePollution-1.pdf>
- Association of Southeast Asian Nations. (n.d.). *Haze*. <https://asean.org/our-communities/asean-socio-cultural-community/haze-2/>
- ASEAN Centre for Biodiversity. (n.d.). *The ASEAN Heritage Parks Programme*. Retrieved July 24 2025, from <https://www.aseanbiodiversity.org/the-asean-heritage-parks-programme/>
- ASEAN Centre for Energy. (2024). *Cambodia electricity power cuts caused by drought*. <https://aseanenergy.org/news-clipping/cambodia-electricity-power-cuts-caused-by-drought-official-reports/>
- ASEAN Parliamentarians for Human Rights, & Greenpeace Southeast Asia. (2023, November 14). *Renewed calls for ASEAN to prioritise and protect citizens' rights to clean air from transboundary haze*. <https://aseanmp.org/publications/post/joint-statement-with-greenpeace-southeast-asia-renewed-calls-for-asean-to-prioritize-and-protect-citizens-rights-to-clean-air-from-transboundary-haze>
- Astro AWANI International. (n.d.). *Tackling the haze crisis in Malaysia*. <https://international.astroawani.com/malaysia-news/tackling-haze-crisis-malaysia-416740>
- Baran, E., Guerin, E., & Nasielski, J. (2015). *Fish, sediment and dams in the Mekong*. WorldFish & CGIAR Research Program on Water, Land and Ecosystems.
- BBC. (2022, January 18). *Indonesia names new capital Nusantara, replacing sinking Jakarta*. <https://www.bbc.com/news/world-asia-60024394>
- Center for Disaster Philanthropy. (2022, April 14). *Super Typhoon Odette (Rai)*. <https://disasterphilanthropy.org/disasters/super-typhoon-odette-rai/>
- Center for Disaster Philanthropy. (2024). *2024 Super Typhoon Yagi*. <https://disasterphilanthropy.org/disasters/2024-super-typhoon-yagi/>
- CNA. (2019, August 18). *Singapore to spend S\$100 billion to protect against rising sea levels*. <https://www.channelnewsasia.com/news/singapore/singapore-to-spend-s-100b-to-protect-against-rising-sea-levels-11817784>

Department of Environment and Natural Resources. (2023). *Manila Bay sustainable development masterplan*. <https://mbsdmp.com/>

Diela, T. (2019, August 14). Indonesia has just made its moratorium on forest clearance permanent. *World Economic Forum*. <https://www.weforum.org/stories/2019/08/indonesia-president-makes-moratorium-on-forest-clearance-permanent/>

ECHO Daily Flash. (2025, June 10). *Viet Nam – Floods (NCHMF Vietnam, media)*. ReliefWeb. <https://reliefweb.int/report/viet-nam/viet-nam-floods-nchmf-vietnam-media-echo-daily-flash-10-june-2025>

EM-DAT. (2008, 2021). *The International Disaster Database*. Centre for Research on the Epidemiology of Disasters. <https://www.emdat.be/>

FloodList. (n.d.). Indonesia – Deadly floods and landslides in West Sumatra after 300 mm of rain in six hours. <https://floodlist.com/asia/indonesia-floods-west-sumatra-march-2024>

Germanwatch. (2021). *Global Climate Risk Index 2021*. <https://www.germanwatch.org/en/19777>

Global Network Against Food Crises. (n.d.). *Household food security data summary (Nov 2024–May 2025)*. https://www.fightfoodcrises.net/sites/default/files/resource/file/HH_Nov24-May25_FINAL.pdf

Government of Singapore. (2014). *Tobacco Hazards Prevention Act 2014*. <https://sso.agc.gov.sg/Act/THPA2014>

Greenpeace Southeast Asia. (n.d.). *Biodiversity: The wildlife of Indonesia's forests*. <https://www.greenpeace.org/southeastasia/wildlife/>

Honbun, S. (2023). ASEAN's haze diplomacy and the limits of environmental regionalism. *The Japan Review of International Affairs*, 9757, 1–20. https://www2.jiia.or.jp/en/jria/9757_Honbun.pdf

Initiative for the Future of Great Rivers. (2019). *Mekong study*. <https://www.initiativesfleuves.org/wp-content/uploads/2019/07/Fiches-synoptiques-MEKONG.pdf>

International Rivers. (2022). *Nam Ou River Cascade Hydropower Project*. <https://thepeoplesmap.net/project/nam-ou-river-cascade-hydropower-project>

Intergovernmental Panel on Climate Change. (2007). *Climate change 2007: The physical science basis* (S. Solomon et al., Eds.). Cambridge University Press. https://archive.ipcc.ch/publications_and_data/ar4/wg2/en/ch10s10-4-3.html

Interview with ACE climate policy expert. (2025). ASEAN Secretariat. Conducted by Alexandre Germouty.

Interview with Ahmad Fajar Maulana. (2025). Former official at Indonesia's Ministry of Environment and Forestry. Conducted by Alexandre Germouty.

Interview with Indira Pradnyaswari. (2025). ASEAN Centre for Energy. Conducted by Alexandre Germouty.

Interview with Lin Song. (2025). ESG consultant in the private sector. Conducted by Alexandre Germouty.

Interview with Rizki Maulana Rachman. (2025). Former official at Indonesia's Ministry of Environment and Forestry and climate-policy expert at GIZ. Conducted by Alexandre Germouty.

Interview with T1. (2025). Civil-society representative in Thailand. Conducted by Alexandre Germouty.

Interview with Tu Anh Nguyen. (2025). Conducted by Alexandre Germouty.

Mai, L. (2023, November 28). Extinguishing a point of contention: Examining transboundary haze in Southeast Asia. *The Diplomat*. <https://thediplomat.com/2023/11/extinguishing-a-point-of-contention-examining-transboundary-haze-in-southeast-asia/>

- Mahadevan, P. (2021). *Myanmar's illicit timber: Flows, drivers and actors* [Research report]. Global Initiative Against Transnational Organized Crime. <https://globalinitiative.net/wp-content/uploads/2021/10/Myanmars-illicit-timber-Flows-drivers-and-actors.pdf>
- Meteorological Service Singapore. (2024). *Past and future sea level change*. https://www.mss-int.sg/docs/default-source/v3_reports/v3_science_report/v3_science_report_chapter_12.pdf
- Mekong River Commission. (2003, November 30). *Procedures for Notification, Prior Consultation and Agreement (PNPCA)*. <https://www.mrcmekong.org/wp-content/uploads/2024/08/Procedures-Notification-Prior-Consultation-Agreement.pdf>
- Mekong River Commission. (2017). *Council Study: Key messages from the study on sustainable management and development of the Mekong River Basin*. <https://www.mrcmekong.org/assets/Publications/Council-Study/CS-Key-Messages-long-v9.pdf>
- Mongabay. (2023, March 15). Nusantara: Indonesia's new capital and the environmental cost. <https://news.mongabay.com/2023/03/indonesias-new-capital-nusantara-a-green-city-or-an-environmental-disaster/>
- Moran, L. (2019). The haze problem in Northern Thailand and policies to combat it: A review. *Environmental Science & Policy*, 97, 1–15. <https://doi.org/10.1016/j.envsci.2019.04.005>
- NASA Earth Observatory. (2023, October 7). Indonesian fires return in 2023. <https://earthobservatory.nasa.gov/images/151929/indonesian-fires-return-in-2023>
- NASA Goddard Institute for Space Studies. (2016, August 1). Severe 2015 Indonesian fire season linked to El Niño drought. <https://www.nasa.gov/centers-and-facilities/goddard/severe-2015-indonesian-fire-season-linked-to-el-ni%C3%B1o-drought/>
- Ng, H. S. (2025, April 13). Flash floods hit parts of Singapore after afternoon downpour: PUB. *Channel NewsAsia*. <https://www.channelnewsasia.com/singapore/pub-flash-flood-apr-13-yishun-punggol-5062926>
- Open Development Vietnam. (2022, March 13). The new normal: Mekong Delta faces droughts and saltwater intrusion. <https://vietnam.opendevdevelopmentmekong.net/topics/droughts-and-saltwater-intrusion/>
- Pham, T. T., Bennett, K., Vu, T. P., Brunner, J., Le, N. D., Nguyen, D. T., & Pham, H. L. (2023). Implementation of payment for forest environmental services and its influence on the livelihood of forest protectors in Thừa Thiên Huế Province. *Science of the Total Environment*. <https://doi.org/10.1016/j.scitotenv.2023.165432>
- Putra, B. A. (2024). The politics of environmental policy: Haze pollution, ASEAN, and the way forward. *Frontiers in Sustainable Cities*, 6, Article 1417746. <https://doi.org/10.3389/frsc.2024.1417746>
- Rappler. (2024, February 10). Manila Bay reclamation projects worsen flooding, DENR study finds. <https://www.rappler.com/environment/denr-study-manila-bay-reclamation-projects-worsen-flooding/>
- ReliefWeb. (2020, November 23). *Philippines: Typhoons Goni and Vamco situation report*. <https://reliefweb.int/report/philippines/philippines-typhoons-goni-and-vamco-situation-report-no-2-23-november-2020>
- ReliefWeb. (2022). *Viet Nam monsoon storms and floods 2022: Final report*. <https://reliefweb.int/report/viet-nam/viet-nam-monsoon-storms-and-floods-2022-final-report-mdrvn021>
- Reuters. (2023, October 2). Indonesia denies smog from forest fires drifted to Malaysia. <https://www.reuters.com/business/environment/indonesia-denies-smog-forest-fires-drifted-malaysia-2023-10-02/>
- Reuters. (2024, September 15). Vietnam says 2024 GDP may decline 0.15 % due to Typhoon Yagi's impact. <https://www.reuters.com/markets/asia/vietnam-says-2024-gdp-may-decline-015-due-typhoon-yagis-impact-2024-09-15/>

Save the Children. (2024, May 10). Drought hits 900,000 families across the Philippines, with some children forced from school to help on farms. <https://www.savethechildren.net/news/drought-hits-900000-families-across-philippines-some-children-forced-school-help-farms>

South China Morning Post. (2024, January 9). Typhoon Doksuri's 2023 rampage across China leaves US\$23 billion shortfall in insurance coverage. <https://www.scmp.com/business/china-business/article/3247753/typhoon-doksuri-2023-rampage-across-china-leaves-us23-billion-shortfall-insurance-coverage-munich>

State of Global Air. (n.d.). *Air pollution and health impacts in Central, Southeast, and South Asia*. <https://www.stateofglobalair.org/resources/asia>

Strangio, S. (2023, October 4). Malaysia could shut schools due to spiking air pollution. *The Diplomat*. <https://thediplomat.com/2023/10/malaysia-could-shut-schools-due-to-spiking-air-pollution/>

Vu Nguyen Hanh. (2024, September 17). Impact of Typhoon Yagi on Vietnam: Economic damages and recovery efforts. *Vietnam Briefing*. <https://www.vietnam-briefing.com/news/impact-of-typhoon-yagi-on-vietnam-economic-damage-and-recovery-efforts.html>

Viet Nam News. (2023, December 21). Vietnam to purchase wind power from Laos: EVN. <https://vietnamnews.vn/economy/1638236/vn-to-purchase-wind-power-from-laos-evn.html>

Wassmann, R., Hien, N. X., Hoanh, C. T., & Tuong, T. P. (2004). Sea-level rise affecting the Vietnamese Mekong Delta: Water elevation in the flood season and implications for rice production. *Climatic Change*, 66(1-2), 89-107.

World Bank. (2016). *Indonesia forest fire notes*. <https://thedocs.worldbank.org/en/doc/643781465442350600-0070022016/render/Indonesiaforestfirenotes.pdf>

World Bank. (2023). *Thailand Systematic Country Diagnostic Update 2024*. <https://documents1.worldbank.org/curated/en/099031424140547576/pdf/BOSIB138594db30dd1a7cf11bc1d58091b2.pdf>

World Wildlife Fund. (2023). *Production of a documentary on the impacts of sand mining and solutions in the Vietnamese Mekong Delta*. https://20asia.awsassets.panda.org/downloads/term_of_reference_p00000134_documentary.pdf

World Wildlife Fund. (2024). *Greater Mekong*. <https://www.worldwildlife.org/places/greater-mekong>

World Wildlife Fund. (n.d.). *Threats to Borneo forests*. Retrieved July 24 2025, from https://wwf.panda.org/discover/knowledge_hub/where_we_work/borneo_forests/borneo_deforestation/

Yoshida, Y., Lee, H. S., Trung, B. H., Tran, H. D., Lall, M. K., Kakar, K., Xuan, T. D. (2020). Impacts of mainstream hydropower dams on fisheries and agriculture in the Lower Mekong Basin. *Sustainability*, 12(6), 2404. <https://doi.org/10.3390/su12062404>

Chapter 6

Economic integration and the imperative for coordinated action

This chapter transitions the analysis from the shared ecological vulnerabilities confronting the Association of Southeast Asian Nations, as detailed in Chapter 5, to the equally critical, yet distinct, shared *economic* vulnerabilities that arise from climate change. The central argument advanced here is that the very architecture of the ASEAN Economic Community (AEC), meticulously designed to foster a single market and production base, has created deep economic interdependencies that, while a cornerstone of the region's prosperity, simultaneously act as a conduit for transmitting and amplifying climate-related economic shocks across national borders. This inherent contradiction means that uncoordinated, nationally focused climate responses are not only ecologically insufficient but also economically suboptimal, introducing systemic risks that threaten the region's collective development trajectory.

These dynamics are analysed through three interconnected lenses: cascading risks across regional value chains (Section 6.1); the dual nature of cross-border infrastructure as both a resilience tool and vulnerability amplifier (Section 6.2); and the economic risks generated by fragmented national climate policies and divergent NDCs (Section 6.3).

6.1. The ASEAN economic community: interlinked value chains

The establishment of the ASEAN Economic Community (AEC) in 2015 marked a significant milestone in regional integration, formalizing the vision of a "single market and production base" characterized by the free flow of goods, services, and investment (ASEAN, 2015). This framework has successfully deepened economic interdependence, with intra-ASEAN trade consistently accounting for over one-fifth of the region's total trade and intra-bloc Foreign Direct Investment (FDI) representing a significant source of capital (ASEAN & UNCTAD, 2024). A key outcome of this integration has been the development of sophisticated Regional Value Chains (RVCs), particularly in sectors such as electronics, automotive manufacturing, and agri-food, where different stages of production are fragmented across member states to leverage comparative advantages. This has positioned ASEAN as a vital hub in the global economy, enhancing its collective competitiveness and share of global exports.

However, this intricate web of economic interdependence has also created a parallel network of shared vulnerabilities. The very efficiency of these RVCs makes them fragile; a disruption at a single node can send shockwaves through the entire system. Climate change acts as a powerful and unpredictable stressor on these nodes, transforming localized physical hazards into cascading economic risks that do not respect national borders. This dynamic creates what can be termed "risk chains," where the economic fallout from a climate event in one member state is transmitted to others through the arteries of trade and investment (Guo et al., 2024). This shared economic exposure presents a formidable challenge to the nationally-siloed climate strategies prevalent in the region. Yet, as one regional expert observed in an interview, this shared vulnerability could also be a catalyst for collective action: "Each country still prioritizes its own model. Still, economic interdependence could be a unifying force if climate is framed as a shared economic threat" (Interview with Tu Anh Nguyen. 2025).

The following two subsections explore this dynamic through concrete case studies: first, by examining the cascading effects of extreme weather events on the region's manufacturing and electronics value chains (Sub-section 6.1.1), and second, by analysing climate risks to

ASEAN's agri-food systems, with particular attention to transboundary water dependencies in the Mekong River Basin (Sub-section 6.1.2).

6.1.1. Cascading risks in manufacturing and electronics value chains: The 2011 Thailand floods as precedent

(a) A localized disaster with regional consequences

The catastrophic floods that inundated Thailand in 2011 serve as a stark historical analogue for the transboundary economic risks posed by climate change. The disaster inflicted an estimated US\$46.5 billion in damages and losses, making it one of the costliest natural disasters in modern history (World Bank, 2025). The manufacturing sector, the engine of Thailand's export-oriented economy, bore the brunt of this impact, accounting for approximately 70% of the total economic damage (Royal Thai Government & World Bank, 2012).

The floods submerged seven major industrial estates in Thailand's central provinces, which were critical nodes in both global and regional supply chains for the automotive and electronics industries. These estates housed factories producing essential components for a global market, most notably hard disk drives (HDDs), of which Thailand produced an estimated 43% of the world's supply in 2011 (Nakasu et al., 2020). The shutdown of these facilities created an immediate and severe global shortage of critical components.

The economic disruption was not contained within Thailand's borders. The "just-in-time" production model, which underpins the efficiency of modern manufacturing by minimizing inventory, meant that downstream assemblers across ASEAN and beyond quickly ran out of necessary parts (Chongvilaivan, 2012). The impact on the automotive sector was particularly severe, with production lines in Malaysia and Indonesia, which were deeply integrated with Thai component suppliers, facing significant disruptions. Japanese automakers like Toyota and Honda, with extensive production networks in the region, reported massive financial losses as their global operations were crippled by the parts shortage originating in Thailand (Haraguchi & Lall, 2015). The event demonstrated with brutal clarity how a localized disaster in one ASEAN country could paralyze an entire regional industry.

(b) Fragility through efficiency: Structural misalignments in ASEAN's production mode

The economic model that has driven ASEAN's success, prioritizing specialization and efficiency, is fundamentally misaligned with the demands of climate resilience, which requires redundancy and diversification. The AEC's economic architecture encourages the development of specialized production hubs, like Thailand for automotive parts, to achieve economies of scale and reduce costs (Asian Development Bank, 2015). This "just-in-time" model is predicated on predictability and seamless logistics. Climate change, however, introduces profound unpredictability through more frequent and intense extreme weather events. The 2011 floods revealed that when a specialized hub is incapacitated, the lack of redundancy, such as alternative suppliers or strategic buffer stocks, causes the entire regional value chain to seize up. Thus, the very economic logic that made the region competitive now renders it fragile. Building resilience would require a paradigm shift from pure efficiency toward strategic redundancy, a costly undertaking that is disincentivized for any single company or country to pursue alone, creating a classic collective action problem at the heart of the AEC's future.

This historical event is directly relevant to the current climate risk landscape. Many of ASEAN's most important industrial zones, in the greater Jakarta area, around Ho Chi Minh City, and in the Bangkok metropolitan region, are situated in low-lying coastal areas that are

highly vulnerable to sea-level rise, storm surges, and extreme rainfall events. The electronics sector, a key driver of export growth for the Philippines, Viet Nam, Malaysia, and Singapore, remains particularly exposed due to its concentration in these vulnerable locations (ASEAN, 2025). A future climate-driven disaster in any one of these economic hubs would replicate, and potentially magnify, the cascading economic disruptions seen in 2011.

6.1.2. Climate threats to the regional agri-food value chain

(a) Mekong-fed agriculture under climate stress

The agri-food sector provides another compelling example of shared economic vulnerability. As discussed in Chapter 5, the Mekong River Basin is a critical lifeline for regional food security, supporting the livelihoods of millions of people in agriculture and fisheries, particularly in Thailand, Cambodia, and Viet Nam. Climate change is placing this vital resource under unprecedented stress through more frequent and intense droughts, altered monsoon patterns, and rising sea levels that drive saltwater intrusion deep into the fertile Mekong Delta. These impacts directly threaten the production of rice, the region's primary staple food and a key export commodity.

During the 2011 floods, over 1.3 million hectares of paddy fields were inundated across Southeast Asia, including approximately 445,000 ha in Cambodia and 99,000 ha in Viet Nam around 14% of that year's rice production, leading to significant food shortages and higher prices (Timberlake, 2011).

The economic consequences of these disruptions ripple through the entire regional agri-food value chain. Reduced agricultural output directly impacts farmers' incomes and can lead to rural displacement. It also affects regional food prices and export revenues, threatening the food security of net food-importing nations like Singapore and Malaysia and potentially stoking regional inflation.

By 2100, Indonesia, the Philippines, Thailand and Viet Nam are projected to experience a potential fall of about 50% in rice yield, assuming no adaptation and no technical improvement. The rice yield decline would range from 34% in Indonesia to 75% in the Philippines (Asian Development Bank, 2009). It is noted that a 10% rice yield decrease for every 1°C increase in temperature, highlighting the scale of the economic threat (FAO, 2012).

Experts estimate that continued climate-driven flood and drought cycles could push up to 130 million people in Asia into hunger by 2050, with a significant share concentrated in the Mekong River's watersheds (Food and Agriculture Organization, 2020).

(b) National NDCs and the neglected transboundary risk

A comparative analysis of the NDCs of the region's major agricultural producers, Indonesia, Viet Nam, the Philippines, and Thailand, reveals a significant blind spot regarding these transboundary risks. Adaptation and mitigation strategies for both agriculture and industry are framed almost exclusively within a national context. For instance, Viet Nam's updated NDC details ambitious plans for developing climate-resilient agriculture in the Mekong Delta, including the promotion of low-emission rice cultivation, but it does not explicitly link the success of these plans to the water management and dam-building policies of upstream countries. Similarly, industrial policies mentioned in the NDCs rarely contain provisions for enhancing the resilience of regional supply chains against shared climate shocks.

This national-level focus overlooks the fundamental interconnectedness of the regional economy. As one expert highlighted in an interview, while forestry is a sector where all ASEAN NDCs have commitments, implementation varies greatly and "harmonization is not feasible, but coordinated learning is" (Interview with Rizki Maulana Rachman. 2025). This suggests that even without full policy harmonization, a more coordinated approach that acknowledges shared risks is both necessary and possible.

The table below provides a systematic overview of how climate risks are transmitted through some of ASEAN's key regional value chains, making the concept of "risk chains" more tangible.

Table 6: Climate risk exposure in key ASEAN regional value chains

Value chain	Key production/exporting AMS	Primary climate hazard(s) in production zone	Key importing/processing AMS	Nature of transboundary economic risk
Rice	Viet Nam, Thailand	Drought, saltwater intrusion (Viet Nam); Extreme rainfall, flooding (Thailand)	Philippines, Indonesia, Malaysia, Singapore	Food price inflation, supply shortages, reduced export revenues, threats to regional food security.
Automotive components	Thailand, Indonesia	Extreme rainfall, coastal and riverine flooding	Malaysia, Viet Nam, Philippines	Production stoppages due to input shortages, supply chain disruption, financial losses for manufacturers.
Semiconductors & electronics	Malaysia, Viet Nam, Philippines, Singapore	Flooding, typhoons, sea-level rise impacting coastal industrial parks	All ASEAN members (as part of integrated assembly)	Disruption of critical component supply, production delays for finished goods (e.g., phones, computers), global price volatility.
Palm oil	Indonesia, Malaysia	Drought, increased risk of wildfires and transboundary haze, heat stress	Singapore, Viet Nam (for processing and re-export)	Supply disruption for food and industrial uses, reputational damage for brands due to haze, trade friction.

6.2. Cross-border infrastructure and energy cooperation

The drive for deeper economic integration in ASEAN is physically manifested in the development of cross-border infrastructure, most notably in the energy sector. Such infrastructure is often promoted as a tool for enhancing regional resilience and energy security. However, this section argues that physical integration, particularly through the ASEAN Power Grid (APG), simultaneously creates new forms of shared vulnerability and exposes the deep-seated political tensions inherent in the region's energy transition. This necessitates a level of coordinated policy that has yet to materialize. The section addresses these dynamics through two subsections: the physical and climate risks associated with the ASEAN Power Grid (*Sub-section 6.2.1*), and the political tensions surrounding transboundary energy development in the Mekong Basin (*Sub-section 6.2.2*).

6.2.1. The ASEAN power grid (APG): opportunities and vulnerabilities

(a) Regional optimization through energy interconnection

The APG is a cornerstone of ASEAN's long-term energy cooperation strategy. Envisioned as a fully integrated regional power system, its primary objectives are to enhance energy security by allowing countries to share reserves, improve economic efficiency through cross-border electricity trade, and facilitate the integration of the region's abundant but unevenly distributed renewable energy resources (ASEAN, 2015). This aligns with the ASEAN Plan of Action for Energy Cooperation (APAEC), which has set an aspirational target of achieving a 23% share of renewables in the region's total primary energy supply by 2025, with the APG serving as a key enabling infrastructure (ASEAN & ACE, 2021).

The development of the APG is progressing through a series of bilateral and, increasingly, multilateral interconnection projects. The ASEAN Interconnection Masterplan Study (AIMS) III has identified 18 priority projects to form the backbone of the grid (ACE, 2024). Key existing and planned links include the connections between Thailand and Peninsular Malaysia, and Peninsular Malaysia and Singapore. A significant step towards multilateral trade is the Lao PDR-Thailand-Malaysia-Singapore Power Integration Project (LTMS-PIP), which serves as a pioneering pilot for broader regional power trading (ACE, 2023).

The primary opportunity offered by the APG is its potential to unlock and balance the region's vast renewable energy potential. It allows countries with significant renewable resources, such as the immense hydropower capacity of Lao PDR and the growing solar and wind potential in Viet Nam, to export clean electricity to major energy-demand centres like Singapore and Malaysia, which have limited domestic renewable options (Ember, 2025). In theory, this regional optimization can lower the overall cost of decarbonization, reduce reliance on volatile fossil fuel imports, and accelerate the energy transition for all participating members.

(b) Infrastructure exposure and cascading vulnerability

However, this physical integration also creates a profound shared vulnerability. The infrastructure of the APG, high-voltage transmission lines, converter stations, and substations, spans multiple countries and is directly exposed to the region's significant climate hazards. Transmission corridors are susceptible to damage from intensifying typhoons, extreme flooding, and landslides, all of which are projected to worsen with climate change. The failure

of a single critical interconnector due to an extreme weather event could trigger a cascading failure, disrupting the energy supply of several nations simultaneously. For example, a typhoon damaging the transmission lines running through Thailand could curtail power exports from Lao PDR, affecting energy security in Malaysia and Singapore. This shared physical risk is a dimension of vulnerability that is not, and cannot be, adequately addressed in purely national-level grid planning or climate adaptation strategies.

6.2.2. Transboundary energy politics

Beyond physical vulnerabilities, the APG and other cross-border energy projects are deeply enmeshed in the region's complex political landscape, often bringing national interests into direct conflict.

(a) Sovereignty over electrons

A vivid illustration came in October 2021, when Malaysia imposed an outright ban on exporting renewable electricity to Singapore in order to “safeguard domestic supply and pricing” (Global Trade Alert, 2021). The decision torpedoed several Singapore-bound solar and hydro projects and underscored the primacy of national sovereignty over regional market logic. Singapore, which plans to import up to 6 GW of low-carbon power, 30 to 75 percent of its projected demand by 2035, to meet decarbonisation goals, suddenly found its flagship strategy exposed to another country’s domestic politics (Singapore Green Plan, 2025). Although Malaysia lifted the ban in 2022 to accelerate its own clean-energy industry, investors were left to weigh the risk that future policy swings could again close the tap.

The episode played out just as the Lao PDR-Thailand-Malaysia-Singapore Power Integration Project (LTMS-PIP) was proving technical feasibility by wheeling hydropower 1,600 km from Lao PDR to Singapore. Singapore’s Energy Market Authority had already doubled LTMS-PIP import capacity to 200 MW, extending licences to 2026; yet every additional megawatt still depends on Malaysia’s corridors and political goodwill (Energy Market Authority, 2024).

Jakarta’s position adds another layer of uncertainty. In 2023 the Indonesian government signalled support for solar-export mega-projects to Singapore, granting conditional approval for 1.4 GW of imports, only months after debates on whether such exports should be restricted until the domestic grid is fully decarbonised (Christina, 2024). Similar ambivalence surrounds new Indonesia-Malaysia interconnectors now under study, which could eventually transmit power “equivalent to 33 nuclear plants” but still face regulatory gaps and shifting priorities (Ghosal & Milko, 2023).

Even Malaysia’s own Sarawak state, which already sends surplus hydropower to West Kalimantan, must renegotiate volumes whenever federal or Indonesian rules change. Lawyers advising potential traders warn that inconsistent licensing terms across the two countries can derail bankability at any time (PWC, 2023). In short, cross-border electrons remain hostages to national politics: one ministerial decree can disrupt multi-billion-dollar infrastructure, mirroring the very sovereignty tensions long seen on the Mekong. As cited by a climate expert of the region: “Such cases show how one country’s plan can negatively affect another. Stronger coordination through ASEAN... or shared environmental impact mechanisms would help mitigate these risks. But actions, not just events, are needed” (Interview with Indira Pradnyaswari, 2025).

(b) The interdependence paradox: energy security through vulnerability

The APG creates a "resource interdependence paradox": the pursuit of national energy security through interconnection simultaneously generates new and complex forms of political and climate-related vulnerability. For a country like Singapore, which has almost no indigenous energy resources, the APG is a vital tool for diversifying its energy mix and importing low-carbon power. This is the intended benefit of the grid. However, this strategy makes Singapore's national energy security directly dependent on a web of external factors: the climate resilience of transmission infrastructure in Malaysia and Thailand, the political stability and export policies of its neighbours, and even the climatic conditions in a third country, such as rainfall patterns in Laos affecting hydropower output. A political dispute with one neighbour or a severe drought in another could jeopardize Singapore's power supply. Thus, the act of diversifying energy sources through regional integration introduces a new set of transboundary dependencies that did not exist when the country relied primarily on global LNG markets.

Furthermore, the APG acts as a physical manifestation of the political tensions inherent in ASEAN's energy transition. For a regional grid to function efficiently and attract investment, it requires a high degree of technical and regulatory harmonization, including transparent grid codes, coordinated planning, and reliable dispute resolution mechanisms. This technical necessity implies a degree of shared governance and a partial ceding of absolute national control over domestic energy systems. Yet, as the Mekong hydropower case demonstrates, member states fiercely guard their sovereign right to develop energy resources as they see fit, even at the expense of their neighbours. The APG's cables and pylons physically connect these conflicting national strategies, forcing a fundamental choice: either maintain strict national sovereignty and accept a suboptimal, fragmented, and high-risk regional grid, or embrace deeper cooperation to unlock the APG's full economic and climate benefits. The current slow progress and persistent political hurdles suggest the region is struggling with this choice.

6.3. The economic risks of uncoordinated climate policies

The preceding sections have established how ASEAN's economic and physical integration creates shared vulnerabilities to climate change. This final section synthesizes these arguments to demonstrate how the significant divergence in national climate policies, as articulated in the member states' NDCs, introduces a further layer of direct economic risk to the integrated ASEAN economy. This policy fragmentation undermines investment, distorts competition, and jeopardizes the region's long-term stability, making a compelling case for greater coordination. An analysis of the NDCs of Indonesia, Viet Nam, the Philippines, Thailand, Myanmar, and Singapore, supplemented by independent assessments, reveals a highly fragmented policy landscape. There are profound differences across several key dimensions:

The NDCs feature a mix of target types, from Singapore's economy-wide absolute emissions cap to the intensity-based and business-as-usual reduction targets of Indonesia, Thailand, Viet Nam, and Indonesia. This heterogeneity makes direct comparison of ambition difficult and, according to organizations like the Climate Action Tracker, most of these targets are rated as "Insufficient" (Climate Action Tracker, n.d.a) or "Critically Insufficient" (Climate Action Tracker, n.d.b) to meet Paris Agreement goals.

Policy instruments for pricing carbon are inconsistent across the region. Singapore has implemented a national carbon tax that is scheduled to increase significantly (National Climate Change Secretariat, n.d.). Indonesia is in the process of developing a domestic emissions trading system (ETS) and has experimented with a carbon tax on coal plants (Sunanda et al.,

2025). Other countries in the analysis have limited or no explicit carbon pricing policies, creating a patchwork of different carbon cost signals for businesses.

National energy plans reveal divergent strategies for decarbonization. While some countries have seen rapid growth in renewables, such as Viet Nam's solar boom, though this has recently stalled due to grid and policy issues (Do et al., 2021), the region as a whole is planning a massive expansion of fossil gas infrastructure, with governments in Viet Nam, Thailand, and the Philippines framing it as a necessary "transition fuel" (National Economic and Development Authority, 2025).

This policy divergence is not merely an academic point; it creates tangible economic risks for the region.

(a) Policy fragmentation and investment uncertainty

First, the lack of a coherent regional climate policy framework creates investment uncertainty and deterrence. For a private investor or a multinational corporation considering a long-term, capital-intensive project in the region, such as a green manufacturing facility, a large-scale renewable energy plant, or cross-border infrastructure, this policy fragmentation generates profound regulatory risk (OECD, 2024). A project spanning multiple countries or relying on a regional supply chain must navigate a complex and unpredictable patchwork of different regulations, incentives, carbon costs, and renewable energy standards. This increases transaction costs and makes it difficult to forecast long-term profitability (Qadir et al., 2021).

The high degree of conditionality in many ASEAN NDCs, whereby more ambitious targets are contingent on receiving international financial support, exacerbates this uncertainty. This creates a "chicken-and-egg" dilemma: investors are hesitant to commit capital without policy certainty, but governments are reluctant to enact stronger unconditional policies without guaranteed financial inflows (Finans Danmark, 2025). The current uncoordinated approach fails to provide the stable, predictable, and "investible" framework that the private sector requires to mobilize the vast sums of capital needed for the region's green transition.

(b) Divergent carbon pricing, leakage, and external trade pressures

Second, divergent carbon pricing regimes create a significant risk of carbon leakage and competitiveness distortions. Carbon leakage occurs when an energy-intensive industry relocates from a jurisdiction with stringent climate policies to one with more lenient rules to avoid compliance costs (The Asia Foundation, 2023). This could lead to a scenario where emissions are not reduced but are merely shuffled across borders within ASEAN, resulting in no net climate benefit while creating unfair economic competition. For instance, an energy-intensive manufacturer might move operations from Singapore to a neighbouring country to avoid its carbon tax, undermining Singapore's policy while increasing emissions elsewhere. There are growing concerns that countries with weaker regulations, like Indonesia, could become a "carbon dumping ground" for industries seeking to evade stricter climate policies elsewhere (Nugrahaeni, 2025).

This internal challenge is being amplified by a powerful external coherence forcer: the European Union's Carbon Border Adjustment Mechanism (CBAM). The CBAM imposes a levy on carbon-intensive imports, such as steel and cement, to ensure they face a carbon price equivalent to that of EU domestic producers (European Commission, n.d.). This mechanism transforms ASEAN's internal policy fragmentation into a direct external trade vulnerability. Goods produced in an ASEAN country with no carbon price will face a tariff at the EU border, potentially eroding their competitiveness in a key export market (Elder et al., 2025). The CBAM

effectively penalizes the lack of regional policy coordination and creates a compelling economic incentive for ASEAN Member States to harmonize their carbon pricing frameworks to avoid trade distortions and maintain market access.

(c) The fossil-gas gamble: stranded-asset and systemic financial risk

Third, the region's collective and largely uncoordinated bet on fossil gas as a "transition fuel" creates a substantial regional stranded asset risk. National energy plans in countries like Viet Nam (under its PDP8), Thailand, and the Philippines envision a significant build-out of new liquefied natural gas (LNG) import terminals and gas-fired power plants. This strategy is in direct contradiction to authoritative 1.5°C-compatible pathways from the International Energy Agency (IEA, 2023) and the Intergovernmental Panel on Climate Change (IPCC, 2018), which conclude there is no room for new unabated fossil fuel infrastructure. As global climate policy inevitably tightens and the costs of renewable energy and battery storage continue to fall, these new, long-lived gas assets are at a high risk of becoming economically unviable and "stranded" well before the end of their planned operational lifetimes (DNV, 2024). This could lead to massive financial losses for the state-owned utilities, private investors, and governments that financed them, creating a systemic financial risk for the entire region.

The "nationally determined" character of NDCs, while a political necessity for securing broad participation in the Paris Agreement, is paradoxically a primary driver of economic risk within a deeply integrated bloc like ASEAN. The Agreement's bottom-up architecture allows each country to set its own climate targets based on its unique national circumstances. In a region of disconnected economies, this approach is logical. However, within the AEC, where economies are linked by intricate supply chains and shared infrastructure, one country's "nationally determined" policy inevitably creates un-costed economic externalities for its neighbours (Shi & Yao, 2020). Thailand's decisions on fossil fuel subsidies directly affect the competitiveness of Malaysian firms. Viet Nam's energy plan to build a fleet of new gas plants contributes to a regional carbon lock-in that alters the investment case for renewables in Cambodia and Lao PDR (Asian Development Bank, 2017). The sum of these individually rational national choices, as reflected in the divergent NDCs, results in a collectively suboptimal and high-risk economic outcome for the region as a whole. This suggests that for a regional economic community, a purely "nationally determined" approach to climate policy is inherently flawed from an economic standpoint.

The absence of a coordinated regional climate policy framework, therefore, acts as a significant non-tariff barrier (NTB) to trade and investment, directly undermining the core objectives of the AEC (Bellmann & van der Ven, 2020). The AEC was established precisely to reduce such barriers. While these have traditionally been understood as tariffs and complex customs procedures, in the 21st-century economy, regulatory divergence is an equally potent barrier. The inconsistent patchwork of climate policies, from carbon prices and renewable energy standards to energy efficiency regulations, increases transaction costs for businesses operating across borders, creates uncertainty that chills investment, and distorts fair competition (World Trade Organization, 2022). Consequently, the lack of climate policy coordination is not merely an environmental failing; it is an economic integration issue that actively works against the AEC's foundational goal of creating a seamless and competitive single market.

Bibliography

- Asian Development Bank. (2009). *The economics of climate change in Southeast Asia: A regional review*. <https://www.adb.org/sites/default/files/publication/29657/economics-climate-change-se-asia.pdf>
- Asian Development Bank. (2015). *Nature-based solutions for flood management in Asia and the Pacific* (REI Working Paper No. 145). <https://www.adb.org/sites/default/files/publication/152830/reiwp-145.pdf>
- Asian Development Bank. (2017). *Fossil fuel subsidies in Asia: Trends, impacts, and reforms – Integrative report*. <https://www.adb.org/sites/default/files/publication/182255/fossil-fuel-subsidies-asia.pdf>
- Association of Southeast Asian Nations. (2015). *ASEAN integration report 2015*. <https://asean.org/wp-content/uploads/2015/12/ASEAN-Integration-Report-2015.pdf>
- Association of Southeast Asian Nations. (2015). *ASEAN Power Grid outreach document* [PDF]. <https://asean.org/wp-content/uploads/images/2015/October/outreach-document/Edited%20APG-3.pdf>
- Association of Southeast Asian Nations. (2025, January 9). *WPC ASEAN investment manufacturing services: Final revised report* [PDF]. https://asean.org/wp-content/uploads/2025/03/WPC_ASEAN_Investment_Manufacturing_Services_finalrev_9Jan2025.pdf
- Association of Southeast Asian Nations & ASEAN Centre for Energy. (2021). *ASEAN Plan of Action for Energy Cooperation (APAEC) 2016–2025, Phase II: 2021–2025* [PDF]. <https://asean.org/wp-content/uploads/2023/04/ASEAN-Plan-of-Action-for-Energy-Cooperation-APAEC-2016-2025-Phase-II-2021-2025.pdf>
- Association of Southeast Asian Nations & United Nations Conference on Trade and Development. (2024). *ASEAN investment report 2024*. <https://asean.org/wp-content/uploads/2024/10/AIR2024-3.pdf>
- ASEAN Centre for Energy. (2023). *Growing momentum of LTMS-PIP and its impact on regional integration*. <https://aseanenergy.org/post/growing-momentum-of-ltms-pip-and-its-impact-on-regional-integration/>
- ASEAN Centre for Energy. (2024). *ASEAN Interconnection Masterplan Study (AIMS III) Phases 1–2 summary report* [PDF]. https://aseanenergy.org/wp-content/uploads/2024/06/01_AIMS-III-Phase-1-and-2_Summary-Report-Endorsed-AMEM39.pdf
- Bellmann, C., & van der Ven, C. (2020). Greening regional trade agreements on non-tariff measures through technical barriers to trade and regulatory co-operation (OECD Trade and Environment Working Paper No. 2020/04). OECD Publishing. <https://doi.org/10.1787/dfc41618-en>
- Chongvilaivan, A. (2012). *Thailand's 2011 flooding: Its impact on direct exports and global supply chains* (ARTNeT Working Paper No. 113). <https://www.econstor.eu/bitstream/10419/64271/1/715937650.pdf>
- Christina, B. (2024, September 5). Singapore to import more low-carbon power from Indonesia, minister says. *Reuters*. <https://www.reuters.com/business/energy/singapore-import-more-low-carbon-power-indonesia-minister-says-2024-09-05/>
- Climate Action Tracker. (n.d.a). *Philippines*. <https://climateactiontracker.org/countries/philippines/>
- Climate Action Tracker. (n.d.b). *Viet Nam*. <https://climateactiontracker.org/countries/vietnam/>
- Do, T. N., Burke, P. J., Nguyen, H. N., Overland, I., Suryadi, B., Swandaru, A., & Yurnaidi, Z. (2021). Vietnam's solar and wind power success: Policy implications for the other ASEAN countries. *Energy for Sustainable Development*, 65, 1–11. <https://doi.org/10.1016/j.esd.2021.09.002>
- DNV. (2024). *Energy Transition Outlook 2024*. <https://www.dnv.com/energy-transition-outlook>

- Elder, M., Hopkinson, S., Zhou, X., Arino, Y., & Matsushita, K. (2025). *Implications of the EU's Carbon Border Adjustment Mechanism for ASEAN: An argument for more ambitious carbon pricing* [Policy brief]. Institute for Global Environmental Strategies. https://www.iges.or.jp/en/publication_documents/pub/policy/en/14054/ASEAN+CBAM+policy+brief%20published.pdf
- Ember. (2025). *Wired for profit: Grid is the key to unlock ASEAN energy investment* [PDF]. <https://ember.energy.org/app/uploads/2025/05/Report-Wired-for-profit-ASEAN-PDF.pdf>
- Energy Market Authority. (2024, September 20). *Singapore doubles power import capacity under LTMS-PIP Phase 2* [Media release]. <https://www.ema.gov.sg/content/dam/corporate/news/media-releases/2024/20240920-Media-Release-Singapore-doubles-power-import-capacity-under-LTMS-PIP-Phase-2.pdf>
- European Commission. (n.d.). *Carbon Border Adjustment Mechanism*. https://taxation-customs.ec.europa.eu/carbon-border-adjustment-mechanism_en
- Finans Danmark. (2025). *Analysis of barriers to increased financing and investment in the green transition*. https://finansdanmark.dk/media/4iyihqeb/climatepartnership_report_2025_en.pdf
- Food and Agriculture Organization. (2015). *Rice in Southeast Asia: Facing risks and vulnerabilities to respond to climate change*. https://www.fao.org/fileadmin/templates/agphome/documents/climate/Rice_Southeast_Asia.pdf
- Food and Agriculture Organization. (2020). *Regional overview of food insecurity: Asia and the Pacific*. <https://openknowledge.fao.org/server/api/core/bitstreams/bf4211ec-38fd-41d1-acad-ef846749b882/content>
- Ghosal, A., & Milko, V. (2023, September 27). Climate change and the shift to cleaner energy push Southeast Asia to finally start sharing power. *Associated Press*. <https://www.apnews.com/article/asean-grid-renewable-energy-asia-40dcc02e27b130fc014e2b44fbf6aeb1>
- Global Trade Alert. (2021, October 25). *Malaysia: Government banned the export of renewable energy and regulated the price of the export of electricity to Singapore*. <https://globaltradealert.org/intervention/119944-malaysia-government-banned-the-export-of-renewable-energy-and-regulated-the-price-of-the-export-of-electricity-to-singapore>
- Guo, J., Xie, J., Liu, X., & Yang, T. (2024). How do global value chains respond to climate change? A case study of Chinese manufacturing firms. *Journal of Environmental Management*, XX, Article 122083. <https://doi.org/10.1016/j.jenvman.2024.122083>
- Haraguchi, M., & Lall, U. (2015). Flood risks and impacts: A case study of Thailand's floods in 2011 and research questions for supply-chain decision making. *International Journal of Disaster Risk Reduction*, 14, 256–272. <https://doi.org/10.1016/j.ijdr.2014.09.005>
- International Energy Agency. (2023). *Net Zero Roadmap: A global pathway to keep the 1.5 °C goal in reach*. <https://www.iea.org/reports/net-zero-roadmap-a-global-pathway-to-keep-the-15-0c-goal-in-reach>
- Intergovernmental Panel on Climate Change. (2018). *Global warming of 1.5 °C: An IPCC special report on the impacts of global warming of 1.5 °C above pre-industrial levels*. <https://www.ipcc.ch/sr15/>
- Interview with Ahmad Fajar Maulana. (2025). Former official at Indonesia's Ministry of Environment and Forestry. Conducted by Alexandre Germouty.
- Interview with Indira Pradnyaswari. (2025). ASEAN Centre for Energy. Conducted by Alexandre Germouty.
- Interview with Rizki Maulana Rachman. (2025). Former official at Indonesia's Ministry of Environment and Forestry and climate-policy expert at GIZ. Conducted by Alexandre Germouty.
- Interview with The Climate Reality Project Philippines. (2025). Civil-society actor involved in local climate policy. Conducted by Alexandre Germouty.

Interview with Tu Anh Nguyen. (2025). Conducted by Alexandre Germouty.

Nakasu, T., Miyamoto, M., Bhula-or, R., Mokkhamakkul, T., Anantsuksomsri, S., Amornkitvikai, Y., Duangkaew, S., & Okazumi, T. (2020). Finding the devastating economic disaster's root causes of the 2011 flood in Thailand. *Journal of Disaster Research*, 15(5), 556–570. <https://doi.org/10.20965/jdr.2020.p0556>

National Climate Change Secretariat. (n.d.). *Carbon tax*. <https://www.nccs.gov.sg/singapores-climate-action/mitigation-efforts/carbontax/>

National Economic and Development Authority. (2025). *Philippine development report 2024*. <https://pdp.depdev.gov.ph/pdr-2024/>

Nugrahaeni, R. (2025, February 4). Can Indonesia avoid becoming Southeast Asia's carbon dumping ground? *Eco-Business*. <https://www.eco-business.com/opinion/can-indonesia-avoid-becoming-southeast-asias-carbon-dumping-ground/>

OECD. (2024). *Infrastructure for a climate-resilient future*. OECD Publishing. <https://doi.org/10.1787/a74a45b0-en>

PricewaterhouseCoopers Indonesia. (2023). *Power in Indonesia: Investment and taxation guide 2023* (7th ed.) [PDF]. <https://www.pwc.com/id/en/energy-utilities-mining/assets/power/power-guide-2023.pdf>

Qadir, S. A., Al Motairi, H., Tahir, F., & Al Fagih, L. (2021). Incentives and strategies for financing the renewable-energy transition: A review. *Energy Reports*, 7, 3590–3606. <https://doi.org/10.1016/j.egy.2021.06.041>

Royal Thai Government & World Bank. (2012). *Thai flood 2011: Rapid assessment for resilient recovery and reconstruction planning* [Overview]. <https://documents1.worldbank.org/curated/en/677841468335414861/pdf/698220WP0v10P106011020120Box370022B.pdf>

Shi, X., & Yao, L. (2020). Economic integration in Southeast Asia: The case of the ASEAN Power Grid. *Journal of Economic Integration*, 35(1), 152–171. <https://www.jstor.org/stable/26891718>

Singapore Green Plan. (2025, June 20). *Energy reset*. <https://www.greenplan.gov.sg/key-focus-areas/energy-reset/>

Sunanda, W., Setyonegoro, M. I. B., Hadi, S. P., & Sarjiya. (2025). Carbon tax and trading mechanisms for emission reduction in the Indonesian power sector. *Cleaner Energy Systems*, 6, 101024. <https://doi.org/10.1016/j.clet.2025.101024>

The Asia Foundation. (2023). *Supporting carbon pricing implementation in Southeast Asia: Malaysia*. https://asiafoundation.org/wp-content/uploads/2023/12/Malaysia_A-Guide-to-Carbon-Pricing-in-Southeast-Asia.pdf

Timberlake, I. (2011, October 6). Floods drown Asia's rice bowl. *Phys.org*. <https://phys.org/news/2011-10-asia-rice-bowl.htm>

World Bank. (2025, June 2). Assessing and managing natural-disaster risks for the financial sector in Thailand. <https://blogs.worldbank.org/en/allaboutfinance/assessing-and-managing-natural-disaster-risks-for-the-financial->

World Trade Organization. (2022). *World Trade Report 2022: Climate change and international trade*. https://www.wto.org/english/res_e/booksp_e/wtr22_e/wtr22_e.pdf

Chapter 7

ASEAN's climate governance architecture: instruments, institutions, and constraints

This chapter critically examines the institutional and legal framework governing climate action within the Association of Southeast Asian Nations. It argues that while ASEAN has developed a complex architecture of committees, centres, and policy instruments to signal its commitment to climate action, the practical effectiveness of this architecture is fundamentally constrained by the bloc's deep-seated principles of non-interference and consensus-based decision-making. This "ASEAN Way" fosters a model of soft regionalism that prioritizes national sovereignty over supranational enforcement, resulting in significant gaps in coordination, implementation, and overall ambition. Through a comparative analysis with the European Union and case studies of transboundary challenges, this chapter deconstructs the paradox of ASEAN's climate governance: a proliferation of form that often lacks functional impact. The analysis is structured into four sections: institutional mandates and decision-making (Section 7.1), coordination mechanisms and intergovernmental platforms (Section 7.2), knowledge, data, and capacity-building instruments (Section 7.3), and comparative lessons from other regional models (Section 7.4).

7.1. The institutional landscape for climate action

The institutional architecture for climate governance in ASEAN is situated primarily within the ASEAN Socio-Cultural Community (ASCC) pillar, one of the three foundational pillars of the ASEAN Community. This placement reflects an initial framing of climate change as a socio-environmental issue rather than a core economic or security threat. However, as the cross-cutting nature of climate impacts has become undeniable, this structure has been tested, revealing challenges of institutional fragmentation and siloed mandates. This section maps the primary bodies tasked with climate governance, the ASEAN Working Group on Climate Change (Sub-section 7.1.1) and the newly established ASEAN Centre for Climate Change (Sub-section 7.1.2), assessing their formal mandates against their operational realities.

7.1.1. The ASEAN Working Group on Climate Change (AWGCC)

Established in 2009 under the ASEAN Senior Officials on the Environment (ASOEN), the AWGCC serves as the primary technical body for facilitating regional cooperation on climate change. Its official mandate encompasses three core functions: (1) fostering regional dialogue and information-sharing on the socio-economic impacts of climate change; (2) consolidating ASEAN's joint positions for international climate negotiations under the UNFCCC; and (3) coordinating climate-related work across sectoral bodies, including energy, forestry, agriculture, and disaster risk reduction (ASEAN, 2021a).

(a) Technical coordination and regional knowledge production

To operationalize its mandate, the AWGCC developed a comprehensive Action Plan (2019–2025), structured around eight thematic pillars, including climate change adaptation,

mitigation, long-term planning and Nationally Determined Contribution assessment, climate modelling, Measurement, Reporting, and Verification, Climate Financing and Market, Cross-sectoral coordination and technology transfer. Among its key deliverables, the plan supports the establishment of a Southeast Asia MRV Network ("SEA Hub"), promotes joint capacity-building activities, and encourages sectoral alignment with national NDCs. Implementation of the plan is distributed across member states based on thematic leadership, Singapore, for example, leads work on carbon pricing and MRV, while Viet Nam focuses on climate negotiations and strategic planning (ASEAN Working Group on Climate Change, 2022).

(b) Structural limitations and non-binding governance

In practice, the AWGCC's role is overwhelmingly facilitative. It serves as a crucial venue for dialogue, information exchange, and peer learning among member states. As noted by a senior advisor at GIZ with extensive experience in the Indonesian government, the AWGCC's function is constrained by ASEAN's core principles: "ASEAN cannot dictate national climate targets. The implementation must be nationally determined" (Interview with Rizki Maulana Rachman, 2025). This observation underscores the gap between the AWGCC's broad mandate and its limited authority. Its power is persuasive, not prescriptive. This is further supported by analysis from the ISEAS - Yusof Ishak Institute, which finds that the AWGCC's role remains confined to its environmental mandate, struggling to exert influence over the powerful economic and energy sectors where the most critical mitigation decisions are made (Seah & Martinus, 2021).

Despite these constraints, the AWGCC has demonstrated effectiveness in knowledge production and coordination. Its most significant achievement is the development of the first *ASEAN State of Climate Change Report* (ASCCR), published in 2021. The report serves as a landmark regional baseline, consolidating data on emissions, vulnerabilities, and policies from all ten member states. The AWGCC is also overseeing the development of the ASEAN Climate Change Strategic Action Plan (ACCSAP), a roadmap intended to translate the high-priority actions identified in the ASCCR into concrete regional activities (Institute for Global Environmental Strategies, 2024). These initiatives showcase the AWGCC's capacity to build consensus around shared information and strategic planning. However, the translation of these regional plans into binding national action remains the central, unresolved challenge.

The development of the ASCCR provides a clear illustration of the AWGCC's dual nature. On one hand, the process was a success in regional coordination. Under the purview of the AWGCC, national think tanks and focal points from all ten ASEAN Member States (AMS) were mobilized to gather and synthesize national-level data, a complex undertaking given the diversity of capacities and reporting standards across the region. The resulting report provides a shared evidence base for understanding regional climate trends and is intended to support the global stocktake process under the Paris Agreement. This demonstrates the AWGCC's strength as a facilitator of knowledge co-production.

On the other hand, the ASCCR's impact is limited by its non-binding nature. Its recommendations, such as strengthening scientific information bases, promoting nature-based solutions, and establishing an ASEAN adaptation fund, are aspirational. Their implementation depends entirely on the voluntary actions of individual member states. The report can inform and guide, but it cannot compel. This case study thus encapsulates the AWGCC's core function: it is an effective architect of regional consensus on paper but lacks the tools to enforce the construction of its blueprints on the ground.

7.1.2. The ASEAN Centre for Climate Change (ACCC): mandate and potential

The establishment of the ASEAN Centre for Climate Change (ACCC) in Brunei Darussalam marks a significant evolution in the region's climate governance architecture. The ACCC is intended to address the coordination deficits and fragmentation inherent in a system reliant on a network of working groups (ASEAN, 2025). However, its potential to become a true catalyst for regional action hinges on its ability to secure a robust mandate, sustainable resources, and the political support needed to operate beyond a purely technical advisory capacity.

(a) A centralised hub for coordination and integration

The ACCC was a flagship initiative of Brunei Darussalam's 2021 ASEAN Chairmanship and is envisioned as a central, inter-governmental hub for climate coordination and cooperation (ASEAN, 2021b). Its anticipated functions are ambitious: to provide policy recommendations to member states, to serve as a regional knowledge hub, to support other ASEAN working groups, and to facilitate networking and research cooperation. Critically, the ACCC is mandated to take a leading role in the implementation of the forthcoming ASEAN Climate Change Strategic Action Plan, positioning it as a key operational body for the region's climate strategy.

The creation of the ACCC appears to be a direct response to the identified shortcomings of the existing framework. ASEAN's institutional structure is often described as a collection of "silos," where sectoral bodies operate with limited cross-pillar coordination (Collins, et al., 2023). The ACCC is designed to bridge these divides, with a mandate to "facilitate, coordinate and interconnect efforts among ASEAN Centres" such as the ASEAN Centre for Biodiversity and the ASEAN Centre for Energy (ADB, 2024). This structure holds the potential to foster a more integrated approach, for example, by linking adaptation strategies with biodiversity conservation (Nature-based Solutions) or by aligning mitigation targets with regional energy planning. As one expert from the ASEAN Climate Change and Energy Project (ACCEPT) suggested, a key role for the ACCC could be to "harmonize MRV frameworks" and "build a common data infrastructure," which are foundational for enhancing regional transparency and enabling potential carbon market cooperation (Interview with Indira Pradnyaswari, 2025).

(b) Institutional layering and the limits of political will

Despite this potential, the ACCC faces formidable challenges. Its operational framework, standard operating procedures, and reporting mechanisms are still under development, supported by partners such as Australia through the Aus4ASEAN project (Association of Southeast Asian Nations & Australian Government, 2024). The Centre must navigate the same structural constraints that limit the AWGCC. Its ultimate influence will be determined by the political will of the member states. An expert from an ASEAN-affiliated energy centre offered a cautionary perspective: "A new centre is a good step, but unless it has the power to convene ministries of finance and energy, not just environment, it will become another silo" (Interview with ACE, 2025). Furthermore, its relationship with the AWGCC and other sectoral bodies must be carefully delineated to prevent institutional overlap and competition for resources, a concern highlighted in analyses of ASEAN's climate governance.

The institutional evolution from the AWGCC to the ACCC reveals a characteristic pattern in ASEAN governance: a preference for "responsive layering" (ASEAN, 2022). Faced

with the functional limits of an existing body (the AWGCC), which could not be granted greater authority without challenging the principle of non-interference, ASEAN leaders chose to create a new institution (the ACCC) designed to fill the identified gaps. This approach avoids politically contentious reforms of existing structures but risks creating a more complex and potentially duplicative bureaucracy. This pattern suggests a governance model that prioritizes the maintenance of consensus and political comfort over streamlined institutional efficiency. The key question for the ACCC is whether this new layer can transcend the political constraints of the layers beneath it.

The ongoing process of establishing the ACCC serves as a real-time case study of ASEAN institutional development. The Centre is being project-managed by the Brunei Climate Change Office, reflecting the country's leadership in championing the initiative. The initial phase of its operationalization focuses on three foundational pillars: a comprehensive Needs Assessment to identify entry points for action, a Strategic Partnership Framework to guide collaboration, and an Operational Framework to define its internal structure and procedures. This methodical, phased approach demonstrates a commitment to building a solid institutional foundation (ASEAN, 2024). The success of this early work, in securing a clear mandate, establishing robust governance protocols, and forging strong partnerships with other ASEAN bodies and external partners, will be a critical determinant of whether the ACCC can evolve into an effective regional climate hub or will ultimately be subsumed by the very political and structural limitations it was created to overcome.

7.2. The “ASEAN way”: structural limits of soft regionalism

The architecture of ASEAN's climate governance does not exist in a vacuum; it is fundamentally shaped by the bloc's unique political culture and legal philosophy, often termed "soft regionalism" (Padmakumara, 2021). This approach, rooted in the foundational principles of state sovereignty, non-interference, and consensus-based decision-making, has been instrumental in maintaining regional stability and unity among a highly diverse group of nations (Sub-section 7.2.1). However, when applied to a transboundary collective action problem like climate change, these same principles become significant structural impediments, creating profound gaps in coordination and enforcement. A comparative analysis with the European Union's (EU) more centralized, supranational model starkly illustrates the functional consequences of ASEAN's approach (Sub-section 7.2.1).

7.2.1. The principles of non-interference and consensus-based decision-making

The "ASEAN Way" is the uncoded but deeply ingrained ethos that guides interaction among member states. Its core tenets, non-interference in the internal affairs of other members and the imperative of reaching decisions by consensus, were formalized in the 2008 ASEAN Charter, giving them a legal basis (ASEAN, 2008). Article 2(e) of the Charter explicitly enshrines the principle of "non-interference," while Article 20 mandates that "decision-making in ASEAN shall be based on consultation and consensus". This legal framework deliberately and unequivocally prioritizes national sovereignty over any form of supranational authority, creating a system of intergovernmental cooperation rather than deep integration.

(a) Institutional logic and the limits of soft regionalism

The practical implications for climate governance are profound. This model of soft regionalism means there are no hard legal mechanisms for ensuring regional accountability or enforcing compliance with collective agreements. If a member state fails to meet its commitments, the issue is referred to the ASEAN Summit, where the consensus rule still applies, effectively granting every member a veto over any punitive or corrective action. This creates what scholars have termed a "governance deficit," where the institutional machinery for making declarations is robust, but the machinery for enforcement is intentionally weak (Desierto & Cohen, 2020). This structure empowers national governments to treat regional commitments as discretionary. A former officer from the Indonesia's Ministry of Environment and Forestry captures this dynamic perfectly: "The NDC is a powerful but fundamentally political tool. Although science-based emissions pathways exist, the final NDC content reflects the interests of political leadership" (Interview with Rizki Maulana Rachman, 2025). Regional frameworks thus become inputs to a national decision-making process, not binding constraints upon it.

This system is not an accidental flaw but a deliberate political choice that serves to manage the region's immense diversity. ASEAN comprises states with vastly different political systems (from single-party states to electoral democracies), levels of economic development, and climate vulnerabilities (Association of Southeast Asian Nations & Economic Research Institute for ASEAN and East Asia, 2021). The principles of non-interference and consensus were essential for building trust and preventing conflict in the bloc's formative years. In the context of climate change, this framework allows ASEAN to present a united front to the world while accommodating the divergent national interests within (Jones, 2012). It enables the bloc to absorb international pressure, for instance, by creating climate-related bodies and action plans, without transmitting that pressure into binding domestic obligations that might challenge the economic priorities of member states, particularly those influenced by powerful "politico-business coalitions" vested in carbon-intensive industries (Bal et al., 2023).

(b) The ASEAN Agreement on Transboundary Haze Pollution (AATHP) as a stress test

The AATHP is the quintessential case study of the ASEAN Way's limitations in the face of a transboundary environmental crisis. Signed in 2002 and entering into force in 2003, it is a legally binding regional treaty designed to prevent and control haze pollution from land and forest fires (ASEAN, 2003). Yet, for over two decades, it has proven largely ineffective in stopping the seasonal haze that chokes the region, leading analysts to label it "toothless" (Samanea Saman, 2021).

The agreement's failure stems directly from the structural constraints of the ASEAN Way. While the AATHP establishes mechanisms for monitoring, prevention, and mutual assistance, including the ASEAN Coordinating Centre for Transboundary Haze Pollution Control (ACC THPC) and a Haze Fund, it lacks any meaningful enforcement or dispute settlement provisions (Muhammad, 2022). The core of the problem is political: the haze is a transboundary issue that requires assigning responsibility, as fires in one country (predominantly Indonesia) directly impact the air quality and health of others (primarily Malaysia and Singapore). Any attempt at enforcement is immediately confronted by the principle of non-interference (Heilmann, 2015).

Consequently, ASEAN's response has been confined to diplomatic dialogue and voluntary cooperation, a cycle often described as a "political 'blame game'" rather than a collective problem-solving effort (Putra, 2025). A recent analysis from early 2025 confirms that despite the AATHP and a subsequent 2016-2023 Haze-Free Roadmap, severe haze returned in

2023 (Peteru et al., 2025), underscoring ASEAN's continued "inability to adopt enforcing pronouncements" (Putra, 2025). The AATHP thus stands as a powerful example of how a legally binding instrument can be functionally neutralized by a political culture that prioritizes non-interference above all else.

7.2.2. Gaps in mandate, coordination, and enforcement capacity: a comparative perspective with the European Union

A comparative analysis between ASEAN's intergovernmental model and the EU's supranational one illuminates the functional consequences of these differing approaches to regionalism. The EU's climate governance framework is characterized by a degree of centralization and legal authority that is absent in ASEAN, leading to vastly different outcomes in terms of policy coherence, enforcement, and financing (Bal et al., 2023).

The institutional and legal differences are stark, as summarized in Table 7. The EU can enact legally binding directives and regulations, such as those within the "Fit for 55" package, which are then transposed into national law and are enforceable by the European Court of Justice (Bradeen, 2023). In contrast, ASEAN relies on non-binding declarations and action plans, with implementation being a purely domestic affair. The European Commission acts as a powerful "supranational policy entrepreneur," possessing the sole right to initiate legislation and drive the regional agenda (Hegedus, 2015). ASEAN has no equivalent body; the ASEAN Secretariat is primarily an administrative and coordinating body with a limited mandate and resources (Rattanaseevee, 2014). Finally, the EU's use of qualified majority voting for many policy decisions prevents a single member state from vetoing progress, a sharp contrast to ASEAN's consensus rule, which often results in policies that reflect the "lowest common denominator" (Villanueva, 2017).

Table 7: Comparative climate governance: ASEAN vs European Union

Feature	ASEAN	European Union (EU)
Legal basis	ASEAN Charter (Intergovernmental)	Treaties of the European Union (Supranational)
Key institutions	ASEAN Summit, AWGCC, ACCC (Coordinative)	European Commission, Parliament, Council (Legislative/Executive)
Decision-making	Consensus	Qualified Majority Voting / Consensus
Legal instruments	Declarations, Action Plans, "Soft Law"	Directives, Regulations (Legally Binding)
Enforcement	Peer pressure, diplomatic channels; No central judicial body	European Court of Justice, Infringement Procedures
Regional financing	Small, voluntary funds (e.g., Haze Fund); reliance on external partners (ADB, GCF)	Significant central budget (e.g., EU Green Deal, Innovation Fund)

Source: Synthesized from Desierto & Cohen (2020) and Bal et al. (2023).

7.3. ASEAN's interface with multilateral climate institutions

ASEAN's engagement with the global climate regime is characterized by a strategic duality. As a bloc, it projects a unified political voice in multilateral forums like the UNFCCC to enhance its collective bargaining power. Individually, however, its member states pursue their distinct national interests, particularly in the formulation of their NDCs and in their engagement with international financial institutions. This section analyses this dual-track approach, examining the gap between ASEAN's regional rhetoric and the fragmented reality of its members' actions. To do so, it proceeds in two parts: first, it explores ASEAN's political engagement in the UNFCCC and the NDC Partnership (Sub-section 7.3.1); second, it analyses the bloc's relationship with major international climate finance mechanisms and its implications for regional coherence (Sub-section 7.3.2).

7.3.1. ASEAN in the UNFCCC process and NDC Partnership

(a) Diplomatic alignment and the performance of unity

In the arena of the UNFCCC, ASEAN has successfully cultivated an image of unity and collective purpose. The bloc regularly issues ASEAN Joint Statements to the Conference of the Parties (COPs), which serve as a key diplomatic tool for articulating a common position (ASEAN, 2024). These statements consistently reaffirm the region's commitment to the Paris Agreement, emphasize the principle of Common But Differentiated Responsibilities and Respective Capabilities (CBDR-RC), and issue strong calls for financial, technological, and capacity-building support from developed countries. This practice is a clear expression of "ASEAN Centrality," a core principle of the bloc's foreign policy aimed at ensuring ASEAN remains the primary driver of regional architecture (Han Phoumin & Kimura, 2023).

(b) Fragmented national delivery through diverging NDCs

However, this veneer of unity fractures upon closer inspection of the primary instruments of implementation: the Nationally Determined Contributions. An analysis of the NDCs of six key member states, Indonesia, Viet Nam, the Philippines, Thailand, Myanmar, and Singapore, reveals a landscape of profound divergence rather than coordinated action. The commitments vary widely in terms of ambition, target type, sectoral coverage, and conditionality, reflecting distinct national priorities, economic structures, and political calculations over any shared regional strategy as demonstrated in Part 1 of this thesis.

This heterogeneity demonstrates that NDCs are overwhelmingly national documents. This is further evidenced by the conspicuous absence of regional framing within them. A review of these NDCs shows that references to ASEAN frameworks or regional cooperation as a means of implementation are minimal to non-existent, a critical omission given the transboundary nature of many of the region's climate challenges.

(c) The NDC Partnership: bilateralism over regionalism

The engagement of several ASEAN countries with the NDC Partnership further reinforces this nationally driven approach. Singapore, Indonesia, Viet Nam, the Philippines, and Thailand are all receiving technical and financial support through the Partnership to

enhance and implement their NDCs. While valuable, this support is structured bilaterally (country-to-Partnership), channelling resources and expertise directly to national institutions and priorities, thereby bypassing and potentially undermining the development of a coordinated regional implementation strategy (NDC Partnership, 2024). This dual-track approach, projecting collective identity at the UNFCCC while pursuing national interests through bilateral partnerships, allows member states to maximize both political leverage and practical support, but it comes at the cost of regional coherence.

7.3.2. Engagement with the GCF, ADB, and regional climate finance mechanisms

The flow of international climate finance is a critical enabler of ambition in Southeast Asia; a fact starkly reflected in the high degree of conditionality in the region's NDCs. While member states are significant recipients of funding from multilateral sources like the Green Climate Fund (GCF) and the Asian Development Bank (ADB), the scale of this finance remains insufficient to meet the region's vast needs, creating a persistent gap that constrains climate action.

(a) Conditionality and the trust deficit in climate finance

The financial needs of the region are immense. The ADB estimates that Southeast Asia requires approximately USD 210 billion annually until 2030 for climate-resilient infrastructure alone (Asian Development Bank, 2023a). In stark contrast, tracked climate finance flows to the region are orders of magnitude smaller. For the 2018-2019 period, Southeast Asia received only \$27.8 billion in climate finance, a mere 5% of the total for Asia and the Pacific (Asian Development Bank, 2023b). This chasm between needs and resources is a primary driver of the conditionality embedded in the NDCs of countries like Indonesia and the Philippines, which explicitly link their most ambitious targets to the provision of international support.

This reliance on external funding is compounded by a "climate finance trust deficit" (Interview with Ahmad Fajar Maulana, 2025), a term used by an expert to describe the scepticism among developing countries stemming from the consistent failure of developed nations to meet their long-standing pledge to mobilize USD 100 billion annually as agreed in Copenhagen during COP15 (UNFCCC, 2009). This deficit incentivizes developing countries to frame their highest ambitions as conditional, protecting them from being locked into commitments that they lack the resources to achieve.

(b) Key sources of multilateral climate finance

The Green Climate Fund is a key multilateral channel for climate finance in the region. An analysis of its project database reveals funding for a range of initiatives, including support for Indonesia's REDD+ program and access to climate finance (Green Climate Fund, n.d.a), mangrove restoration and resilient agriculture in Viet Nam (Green Climate Fund, n.d.b), off-grid electrification in the Philippines (Green Climate Fund, 2020), and climate-smart rice farming in Thailand (Green Climate Fund, n.d.c). While impactful, these interventions are project-based and do not constitute the kind of systemic, programmatic funding required to drive economy-wide transitions.

The Asian Development Bank is arguably the most significant climate finance partner for the region. It has committed to delivering \$100 billion in cumulative climate finance across

Asia and the Pacific from 2019 to 2030 (Asian Development Bank, 2021). Its portfolio in Southeast Asia is extensive, supporting geothermal energy in Indonesia (Asian Development Bank, 2025a), climate resilience in Viet Nam (Asian Development Bank, 2024a), a dedicated climate change policy loan for the Philippines (Asian Development Bank, 2024b), and climate-resilient infrastructure in Thailand (Asian Development Bank, 2025b).

(a) Toward regional climate finance architecture: The ASEAN Catalytic Green Finance Facility

Recognizing the need for a regional approach, the ADB also manages the ASEAN Catalytic Green Finance Facility (ACGF), an initiative under the broader ASEAN Infrastructure Fund. The ACGF aims to use public funds to de-risk and "catalyse" private investment in green infrastructure projects (Asian Development Bank, 2024c). By 2022, it had mobilized over \$1.8 billion in co-financing from various partners, including the GCF and several European development banks (Asian Development Bank, 2023). While the ACGF is a crucial step towards building a regional financing architecture, its current scale remains modest relative to the region's multi-trillion-dollar infrastructure needs, and it represents a collection of national projects rather than a truly integrated regional investment strategy. The finance gap thus remains a defining constraint on ASEAN's collective climate ambition, as illustrated in Table.

Table 8: Climate finance flows vs needs for AMS

Country	Conditional NDC Finance need (Est. USD)	GCF Approved Funding (USD, 2020-2025)	ADB Climate Finance (USD, 2020-2025)	Identified gap
Indonesia	\$281 billion	\$578.3 million	\$3.7 billion	Significant
Viet Nam	\$86.8 billion	\$210.6 million	\$2.6 billion	Significant
Philippines	\$72 billion	\$172.6 million	\$8.2 billion (selected projects)	Significant
Thailand	~\$143–200 billion	\$62.2 million	\$2.2 billion	Significant
Myanmar	Not quantified	\$4 million	\$2.9 billion	Significant

7.4. Key regional instruments: from declarations to action plans

ASEAN's approach to climate governance is codified through a diverse array of regional instruments, ranging from high-level, non-binding political declarations to detailed, technical action plans and, occasionally, legally binding agreements. This complex mosaic of "hard" and "soft" law reflects the bloc's pragmatic, incremental, and consensus-driven nature. An analysis of these instruments reveals that their effectiveness is often inversely proportional to their political sensitivity; those focused on technical, functional cooperation tend to succeed, while those requiring enforcement against a member state falter.

(a) The structure of ASEAN's legal and policy instruments

The hierarchy of ASEAN's climate-related instruments reflects its governance model. At the apex are legally binding treaties like the ASEAN Charter, which provides the overarching legal framework for the organization, and specific agreements like the AATHP. Below this tier lie strategic documents that set regional goals and priorities but lack legal force. These include the ASCC Blueprint 2025, the landmark ASCCR, and the forthcoming ACCSAP, which together are meant to guide regional action. At the base are political instruments, such as the annual ASEAN Joint Statements to the UNFCCC, which are tools of diplomacy and collective signalling.

Most of the ASEAN's climate work is guided by soft law instruments, action plans, strategic frameworks, and guidelines. The preference for soft law is a direct consequence of the consensus-based decision-making model. Such instruments provide flexibility, are easier to negotiate, and avoid impinging on national sovereignty, thereby serving as crucial tools for agenda-setting, dialogue, and building common understanding across the region.

Conversely, the limits of hard law are starkly illustrated by the AATHP. As detailed in section 7.2.1, this legally binding treaty has been rendered largely ineffective by the political impossibility of enforcing its provisions against a member state, a direct result of the non-interference principle. This case demonstrates that in the ASEAN context, the legal character of an instrument is secondary to the political will to implement and enforce it.

(b) Case study: The success of the ASEAN Agreement on Disaster Management and Emergency Response (AADMER)

In contrast to the political paralysis surrounding the haze agreement, the ASEAN Agreement on Disaster Management and Emergency Response (AADMER) stands out as a remarkable example of effective functional cooperation. Signed in 2005 and entered into force in 2009, AADMER is a legally binding framework that has successfully established concrete, operational mechanisms for regional disaster response (ASEAN, 2010). The success of AADMER lies in its technical and operational focus. It has created a robust institutional ecosystem, including:

- The ASEAN Coordinating Centre for Humanitarian Assistance on disaster management (AHA Centre), which serves as the operational engine for coordinating regional response.
- The ASEAN Emergency Rapid Assessment Team (ASEAN-ERAT), a deployable team of experts to conduct rapid assessments in disaster-stricken areas.
- The Disaster Emergency Logistics System for ASEAN (DELSA), a network of regional stockpiles of relief items.
- The Standard Operating Procedure for Regional Standby Arrangements and Coordination of Joint Disaster Relief and Emergency Response Operations (SASOP), which provides a common framework for joint action.

These mechanisms have been tested and proven effective in numerous real-world disasters, from Cyclone Nargis in Myanmar (UNDRR, 2008) to Typhoon Bopha in the Philippines in 2012 (ASEAN Coordinating Centre for Humanitarian Assistance on disaster management, 2017). Crucially, the AADMER Work Programme 2021-2025 explicitly seeks to mainstream Climate Change Adaptation (CCA) and Disaster Risk Reduction (DRR), creating a tangible link between disaster response and long-term climate resilience (ASEAN 2021).

The key difference between the AADMER and the AATHP lies in their political nature. AADMER is built on the principle of mutual assistance in the face of external shocks (natural disasters). Its framework is cooperative and facilitative, providing support to an affected

member state without assigning blame or challenging sovereignty. The AATHP, in contrast, deals with a problem where one member's actions directly harm another, creating a politically charged dynamic that is incompatible with the non-interference doctrine. This comparison suggests that ASEAN's architecture excels at "cooperative functionalism", working together on shared technical and operational challenges, but falters when it comes to "regulatory enforcement" (The Asia Foundation, 2018). This insight provides a potential pathway for future climate cooperation: initiatives framed around shared technical challenges, such as establishing a regional climate data hub or joint early warning systems for climate-related hazards, are far more likely to succeed than those aimed at enforcing common emissions targets.

Bibliography

Association of Southeast Asian Nations. (2003). *ASEAN Agreement on Transboundary Haze Pollution* (signed 10 June 2002, entered into force 25 November 2003). <https://asean.org/wp-content/uploads/2021/01/ASEANAgreementonTransboundaryHazePollution-1.pdf>

Association of Southeast Asian Nations. (2008). *Charter of the Association of Southeast Asian Nations*. <https://asean.org/wp-content/uploads/images/archive/publications/ASEAN-Charter.pdf>

Association of Southeast Asian Nations. (2010). *AADMER Work Programme 2010–2015* [PDF]. <https://www.asean.org/wp-content/uploads/images/2012/publications/AADMER%20WP%202011.pdf>

Association of Southeast Asian Nations. (2021a). *ASEAN state of climate change report*. ASEAN Secretariat. https://asean.org/wp-content/uploads/2021/10/ASCCR-e-publication-Correction_8-June.pdf

Association of Southeast Asian Nations. (2021b). *AADMER Work Programme 2021–2025*. <https://asean.org/wp-content/uploads/2021/08/AADMER-Work-Programme-2021-2025.pdf>

Association of Southeast Asian Nations. (2021c). *2021 Chairman's statement of the 38th and 39th ASEAN Summits* (26 October 2021). <https://asean.org/wp-content/uploads/2021/10/FINAL-Chairmans-Statement-of-the-38th-and-39th-ASEAN-Summits-26-Oct....pdf>

Association of Southeast Asian Nations. (2023). *ASEAN Leaders' Declaration on Sustainable Resilience* (5 September 2023, Jakarta). <https://asean.org/wp-content/uploads/2023/09/ASEAN-Leaders-Declaration-on-Sustainable-Resilience.pdf>

Association of Southeast Asian Nations. (2024a). *ASEAN joint statement on climate change to UNFCCC COP 29*. https://asean.org/wp-content/uploads/2024/10/18-Final_AJS-on-CC-to-UNFCCC-COP29.pdf

Association of Southeast Asian Nations. (2024b). *Terms of reference: Building a climate-resilient future – Needs assessment and framework for the ASEAN Centre for Climate Change*. https://asean.org/wp-content/uploads/2024/05/TenderTOR_ACCC_fin.pdf

Association of Southeast Asian Nations. (2025). *Agreement on the establishment of the ASEAN Centre for Climate Change*. <https://agreement.asean.org/media/download/20250326041945.pdf>

Association of Southeast Asian Nations & Australian Government. (2024). *Aus4ASEAN Futures: Promoting regional prosperity by delivering for ASEAN*. <https://asean.org/aus4asean-futures-promoting-regional-prosperity-by-delivering-for-asean/>

Association of Southeast Asian Nations & Economic Research Institute for ASEAN and East Asia. (2021). *The ASEAN Economic Community into 2025 and beyond* (Vol. 5). <https://asean.org/wp-content/uploads/2021/08/the-asean-economic-community-into-2025-and-beyond.pdf>

ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management. (2017). *ASEAN Emergency Response and Assessment Team (ASEANERAT): Solidarity in action* (AHA Centre Knowledge Series Book No. 4). <https://ahacentre.org/wp-content/uploads/2017/05/Digital-Format-4-ASEAN-ERAT.pdf>

ASEAN Working Group on Climate Change. (2022). *AWGCC Action Plan 2019–2025*. https://environment.asean.org/public/uploads/working_groups/20220627-1.-AWGCC-Action-Plan.pdf

Asian Development Bank. (2021, October 13). ADB raises 2019–2030 climate finance ambition to \$100 billion. <https://www.adb.org/news/adb-raises-2019-2030-climate-finance-ambition-100-billion>

Asian Development Bank. (2023a, July). *ADB Southeast Asia Green Finance Hub* [Brochure]. <https://www.adb.org/publications/adb-southeast-asia-green-finance-hub>

Asian Development Bank. (2023b, August). *Climate finance landscape of Asia and the Pacific*. <https://www.adb.org/sites/default/files/publication/901611/climate-finance-landscape-asia-pacific.pdf>

Asian Development Bank. (2024a, November 26). ADB expands support for the Philippines' climate action with US\$500 million loan. <https://www.adb.org/news/adb-expands-support-philippines-climate-action-500-million-loan>

Asian Development Bank. (2024b). *ASEAN Catalytic Green Finance Facility 2023: Expanding support to build green pipelines* [Progress report]. <https://www.adb.org/sites/default/files/institutional-document/950121/asean-catalytic-green-finance-facility-2023.pdf>

Asian Development Bank. (2024c). *Typhoon Yagi Emergency Response for Viet Nam* (Project 58410-001). <https://www.adb.org/projects/58410-001/main>

Asian Development Bank. (2025a, January 14). ADB supports Indonesia's green energy transition with geothermal expansion project. <https://www.adb.org/news/adb-supports-indonesia-green-energy-transition-geothermal-expansion-project>

Asian Development Bank. (2025b). ADB supports resilient infrastructure development in eastern Thailand [News release]. <https://www.adb.org/news/adb-supports-resilient-infrastructure-development-eastern-thailand>

Asian Development Bank. (2023). *ASEAN Catalytic Green Finance Facility 2022: Building Southeast Asia's green project pipelines* [Progress report]. <https://www.adb.org/sites/default/files/institutional-document/860436/asean-catalytic-green-finance-facility-2022.pdf>

Bal, C., Coen, D., Kreienkamp, J., Paramitaningrum, & Pegram, T. (2023). Explaining transformative change in ASEAN and EU climate policy: Multilevel problems, policies and politics. In *Organizational response to climate change: Businesses, governments* (pp. xx–xx). Cambridge University Press. <https://doi.org/10.1017/9781009395960>

Bradeen, E. (2023). 'Fit for 55' and implications for climate litigation in the EU. Grantham Research Institute, London School of Economics. <https://www.lse.ac.uk/granthaminstitute/news/fit-for-55-and-implications-for-climate-litigation-in-the-eu/>

Collins, A., & Bon Tai Soon, E. (2023). The spiral model, scope conditions, and contestation in the ASEAN Intergovernmental Commission on Human Rights. *The Pacific Review*, 37(2), 328–359. <https://doi.org/10.1080/09512748.2023.2168034>

Desierto, D. A., & Cohen, D. J. (Eds.). (2020). *ASEAN law and regional integration: Governance and the rule of law in Southeast Asia's single market*. Routledge.

Green Climate Fund. (n.d.). Project FP125: Strengthening the resilience of smallholder agriculture to climate-change-induced water insecurity in Vietnam. <https://www.greenclimate.fund/project/fp125>

Green Climate Fund. (n.d.). Project FP130: Indonesia REDD+ results-based payments for results period 2014–2016. <https://www.greenclimate.fund/project/fp130>

Green Climate Fund. (n.d.). Project FP214: Thai Rice – Strengthening climate-smart rice farming. <https://www.greenclimate.fund/project/fp214>

Green Climate Fund. (2020, December 23). Transforming the landscape for off-grid electrification in the Philippines (Concept note). <https://www.greenclimate.fund/document/transforming%20landscape%20grid%20electrification%20philippines>

Han Phoumin, & Kimura, S. (Eds.). (2023). *Energy outlook and energy saving potential in East Asia 2023: Main report* (Vol. II). ERIA. https://www.eria.org/uploads/media/0.AV2040_VOL2.pdf

Hegedus, D. (2015). Policy entrepreneur or simply agent of member states? *European Policy Review*, 1(2), 76–83. <https://esthinktank.com/wp-content/uploads/2015/08/dora-hegedus.pdf>

Heilmann, D. (2015). After Indonesia's ratification: The ASEAN Agreement on Transboundary Haze Pollution and its effectiveness as a regional environmental governance tool. *Journal of Current Southeast Asian Affairs*, 34(3), 95–121. <https://doi.org/10.1177/186810341503400304>

- Institute for Global Environmental Strategies. (2024). *The ASEAN Climate Change Strategic Action Plan 2025–2030 project*. <https://www.iges.or.jp/en/projects/accsap2024>
- Interview with ACE climate policy expert. (2025). ASEAN Secretariat. Conducted by Alexandre Germouty.
- Interview with Ahmad Fajar Maulana. (2025). Former official at Indonesia’s Ministry of Environment and Forestry. Conducted by Alexandre Germouty.
- Interview with Indira Pradnyaswari. (2025). ASEAN Centre for Energy. Conducted by Alexandre Germouty.
- Interview with Rizki Maulana Rachman. (2025). Former official at Indonesia’s Ministry of Environment and Forestry and climate-policy expert at GIZ. Conducted by Alexandre Germouty.
- Interview with The Climate Reality Project Philippines. (2025). Civil-society actor involved in local climate policy. Conducted by Alexandre Germouty.
- Jones, L. (2012). *ASEAN: Sovereignty and intervention in Southeast Asia*. Palgrave Macmillan. <https://bookshop.iseas.edu.sg/publication/630>
- Muhammad, F. (2022). Environmental agreement under the non-interference principle: The case of the ASEAN Agreement on Transboundary Haze Pollution. *International Environmental Agreements*, 22, 139–155. <https://doi.org/10.1007/s10784-021-09545-4>
- NDC Partnership. (2024). *Building a global coalition: NDC Partnership brochure*. <https://ndcpartnership.org/sites/default/files/2024-10/ndc-partnership-brochure.pdf>
- Padmakumara, S. C. (2021). A conceptual analysis on “ASEAN Way” as a normative approach for conducting regional affairs. *Colombo Journal of Multidisciplinary Research*, 6(1), 1–12. <https://fgs.cmb.ac.lk/wp-content/uploads/Vol-06-No-01-1-12.pdf>
- Peteru, S., Dermawan, A., Silviana, S. H., & Brady, M. A. (2025). Revisiting the ASEAN response strategy to fire, smoke and haze (CIFOR ICRAF Infobrief No. 419). https://www.cifor-icraf.org/publications/pdf_files/infobrief/9359-Infobrief.pdf
- Putra, B. A. (2025). The politics of environmental policy: Haze pollution, ASEAN, and the way forward [Policy brief]. *Frontiers in Sustainable Cities*, 6, Article 1417746. <https://doi.org/10.3389/frsc.2024.1417746>
- Rattanaseevee, P. (2014). Towards institutionalised regionalism: The role of institutions and prospects for institutionalisation in ASEAN. *SpringerPlus*, 3, 556. <https://doi.org/10.1186/2193-1801-3-556>
- Samanea Saman. (2021, March 17). Toothless treaty: ASEAN haze agreement lacks accountability. *Bangkok Post*. <https://www.bangkokpost.com/opinion/postbag/2084827/toothless-treaty>
- Seah, S., & Martinus, M. (2021). *Gaps and opportunities in ASEAN’s climate governance* (Trends in Southeast Asia No. 5/2021). ISEAS–Yusof Ishak Institute. https://www.iseas.edu.sg/wp-content/uploads/2021/03/TRS5_21.pdf
- The Asia Foundation. (2018). *ASEAN as the architect for regional development cooperation* (Summary report). <https://asiafoundation.org/wp-content/uploads/2018/09/Summary-ASEAN-as-the-Architect-for-Regional-Development-Cooperation.pdf>
- United Nations Framework Convention on Climate Change. (2009). *Copenhagen Accord* (Draft decision FCCC/CP/2009/L.7). <https://unfccc.int/resource/docs/2009/cop15/eng/107.pdf>
- United Nations International Strategy for Disaster Reduction. (2008). *Cyclone Nargis 2008: Social impact monitoring report II*. https://www.unisdr.org/files/16776_cyclonenargis2008.pdf
- Villanueva, K. H. R. (2017). ASEAN consensus: The intangible heritage of Southeast Asian diplomacy. In *ASEAN @ 50 – Building ASEAN community: Political security and socio-cultural reflections* (Vol. 4, Essay 4A.6). ERIA. https://www.eria.org/ASEAN_at_50_4A.6_Villanueva_final.pdf

Part III

Toward effective regional climate governance: operational recommendations

Chapter 8

Strategic pathways for thematic cooperation and regional initiatives

Achieving stronger climate action across ASEAN requires more than national commitments. It calls for strategic cooperation at the regional level, where shared risks, interconnected systems, and diverse capacities can be addressed collectively. This chapter presents a set of pathways through which ASEAN Member States (AMS) can build and deepen collaboration, drawing from existing practices and proposing new institutional, financial, and technical mechanisms. It is structured around four pillars: guiding principles that support coordination while respecting ASEAN's governance norms (Section 8.1), priority areas for joint adaptation and resilience (Section 8.2), regional strategies for mitigation and just transition (Section 8.3) and mobilizing regional climate finance through shared mechanisms (Section 8.4). Each section identifies both ongoing initiatives and forward-looking proposals to operationalize ASEAN's climate ambitions through structured cooperation.

8.1. Guiding principles

This section outlines foundational principles for regional cooperation that respect ASEAN's institutional culture of consensus and voluntary engagement. Rather than imposing obligations, the approach emphasizes complementarity, soft tools such as peer learning and voluntary guidelines, and political trust-building. It presents three core orientations: leveraging comparative strengths to create mutual benefits (Sub-section 8.1.1), using non-binding mechanisms to harmonize practices without infringing on sovereignty (Sub-section 8.1.2) and exploring political scenarios for deeper integration, based on trust and leadership (Sub-section 8.1.3). Together, these principles form the scaffolding for effective and scalable climate initiatives in ASEAN.

8.1.1 Leveraging complementarities for mutual benefit

ASEAN's diversity in resources and capacities can be turned into a strength through collaboration. By leveraging each member's comparative advantages, for example, one country's abundant renewable energy potential and another's technological or financial expertise, the region can achieve more together than alone. A guiding principle is to pursue

synergies between national climate efforts, aligning them so that collective action yields mutual benefits.

The draft ASEAN Climate Change Strategic Action Plan (ACCSAP) 2025-2030 explicitly emphasizes enhancing synergies between mitigation and adaptation efforts as a way to accelerate implementation of Nationally Determined Contributions across Member States (Institute for Global Environmental Strategies, 2022). This means that cooperative projects (for instance, a cross-border solar or hydropower project feeding the regional grid, or joint mangrove restoration spanning shared coastlines) can simultaneously reduce emissions and build resilience for all participating countries. Such win-win approaches underscore the value of complementarity: each country contributes according to its strengths and, in return, shares in the broader benefits of regional sustainability and security.

8.1.2. Soft coordination tools: voluntary guidelines, peer learning, and thematic platforms

In line with ASEAN's traditional preference for consensus and non-binding arrangements, the use of "soft" coordination mechanisms forms a core guiding strategy for climate cooperation. Rather than imposing hard targets, ASEAN often adopts collective *aspirational* goals and best-practice guidelines that national governments can voluntarily implement. For example, under the ASEAN Plan of Action for Energy Cooperation (APAEC), member states agreed on aspirational energy targets (such as 23% share of renewable energy in the primary energy mix by 2025) without legally binding enforcement, relying on peer encouragement and mutual benefit to drive compliance (ASEAN Centre for Energy, 2020).

Building on this approach, ASEAN can develop voluntary regional guidelines, for instance, on integrating climate risks into infrastructure planning or on carbon market methodologies, to harmonize policies across countries.

Peer learning is another low-pressure but effective tool: regular forums like the ASEAN Climate Change Partnership Conference allow officials and experts to exchange best practices and lessons learned in NDC implementation, adaptation planning, and green finance mobilization (ASEAN, 2023).

Likewise, thematic platforms and networks can foster collaboration on specific issues; ASEAN has already established platforms in related domains (e.g. the ASEAN Climate Outlook Forum for meteorological collaboration and seasonal forecasting) which could be complemented by new platforms focusing on topics such as climate-smart agriculture or urban resilience. These soft mechanisms create a shared knowledge base and coordinate action while respecting national sovereignty, a critical consideration in the ASEAN context.

8.1.3. The political calculus: scenarios for deeper coordination and the role of leadership and trust

Advancing beyond the status quo of loose coordination will require navigating political sensitivities and building trust among member states.

One scenario is a gradual deepening of coordination as confidence grows: starting with voluntary measures and information-sharing and progressively moving toward joint initiatives or common standards as countries see the benefits. Trust is built through positive experiences, for example, the successful cooperation in disaster response under the ASEAN Agreement on Disaster Management and Emergency Response (AADMER) and its AHA Centre has shown that collective action can help all members during crises, fostering confidence to tackle climate threats similarly (Triyana et al., 2022).

Another scenario envisions leadership by a coalition of the willing within ASEAN: a subset of countries with more ambitious climate agendas (for instance, those with net-zero targets by mid-century like Malaysia and Singapore) may pioneer regional initiatives, such as an integrated power grid or a carbon market, and invite others to join once the framework is proven. High-level political leadership is pivotal in this calculus (Institute for Global Environmental Strategies, 2012). When ASEAN chairs or influential member states champion a climate agenda, they can set the tone for regional cooperation. Brunei's leadership in spearheading the forthcoming ASEAN Centre for Climate Change (ACCC) is a case in point, an initiative born from the ASEAN Chairmanship 2021 that signalled political commitment to a dedicated climate coordination body.

Finally, *trust* among members is reinforced by transparency and fairness. If data and benefits are shared openly and mechanisms are perceived as equitable (for example, mutual recognition of carbon credits or fair access to climate fund resources), states will be more willing to coordinate deeply (Asian Development Bank, 2024). In sum, the guiding political principle is to move at a pace comfortable for all members, but with an eye toward scenarios of closer integration as confidence and urgency heighten. Given the escalating climate risks, the region's political calculus may well tilt toward deeper cooperation, especially if visionary leadership and trust-building measures are in place to allay concerns about sovereignty or unequal gain.

8.2. Joint adaptation and resilience projects

This section focuses on adaptation strategies that require cross-border cooperation to manage shared climate risks. It highlights how joint responses to transboundary disasters, particularly in river basins and coastal areas, can deliver greater resilience than isolated national efforts (Sub-section 8.2.1). It then turns to the development of regional climate services and early warning systems, essential for evidence-based decision-making and life-saving interventions (Sub-section 8.2.2). By framing adaptation as a shared regional responsibility, this section proposes ways ASEAN can move from reactive disaster response to anticipatory, systems-based risk reduction, underpinned by technical cooperation and shared data infrastructures.

8.2.1. Transboundary disaster risk management (Mekong, coastal zones)

Climate impacts in Southeast Asia do not respect national borders, a reality that makes transboundary cooperation for adaptation not just desirable but necessary. As studied, the Mekong River basin exemplifies the need for joint risk management. Extreme weather upstream can trigger floods or droughts that cascade across multiple countries, threatening agriculture, fisheries, and livelihoods of millions in the Lower Mekong. Studies project, for instance, an annual loss of up to USD 16 billion in the Mekong Delta's economic productivity by 2050 from climate-induced inundation and salinization, while exposing approximately 6.2 million people to displacement risks due to inundation, pressures that no single country can tackle alone (USAID, 2014). In response, Mekong countries (which include five ASEAN members) have crafted a Mekong Climate Change Adaptation Strategy and Action Plan (MASAP) at the basin level, coordinated by the Mekong River Commission (Mekong River Commission, 2017). ASEAN can complement such sub-regional efforts by framing them in a broader regional resilience strategy. For example, ASEAN could facilitate an integrated flood management project linking upstream and downstream communities or support the expansion of flood early-warning systems along the Mekong through data-sharing agreements.

Similarly, in low-lying coastal zones across the ASEAN littoral states, rising sea levels and stronger storms pose transboundary threats (such as storm surges in the Gulf of Thailand affecting Thailand, Malaysia, and Viet Nam). Joint adaptation projects could include coordinated mangrove rehabilitation along contiguous coastlines to buffer storm impacts, or a regional coastal risk mapping initiative to inform national adaptation plans. ASEAN's existing disaster cooperation mechanisms provide a foundation: the AADMER framework and the ASEAN Coordinating Centre for Humanitarian Assistance (AHA Centre) facilitate mutual aid in disaster emergencies. Building on this, ASEAN can shift from reacting to disasters towards proactive risk reduction, for instance, a regional *Transboundary Disaster Risk Reduction program* that pools expertise and funds to climate-proof critical infrastructure in border regions and shared ecosystems.

A tangible step is enhancing financial risk pooling: ASEAN already supports the Southeast Asia Disaster Risk Insurance Facility (SEADRIF, n.d.) to collectively insure against catastrophes. Expanding such insurance and contingency fund mechanisms (with climate change explicitly factored into risk models) will enable countries to jointly absorb and manage disaster losses. Overall, by planning adaptation measures collaboratively, from the Mekong to archipelagic and coastal hotspots, ASEAN countries can ensure that protective measures in one country do not inadvertently increase vulnerability in another, but rather that all countries fortify each other's resilience.

8.2.2. Regional climate services and early warning systems

Effective adaptation hinges on information, climate data, forecasts, and warning systems, that often have greater value when shared regionally. ASEAN has made a start in this direction by establishing platforms like the ASEAN Climate Outlook Forum (ASEANCOF), a collaborative process where national meteorological agencies jointly produce seasonal climate outlooks for Southeast Asia (ASEAN Specialised Meteorological Centre, 2025).

This model of cooperation in climate services can be expanded into a more comprehensive *ASEAN Climate Services Network* under the new ASEAN Climate Change Centre. Such a network could develop region-wide climate risk assessments, harmonize data on climate hazards, and enable early warning systems that span borders. For example, an enhanced regional early warning system for tropical cyclones could pool real-time data from all Southeast Asian meteorological agencies and issue region-wide alerts, thereby improving lead times for countries down a storm's path. In the same vein, systems for extreme heat or drought warnings could be standardized across the region. Technical cooperation with global initiatives is key: aligning ASEAN's efforts with the UN's "Early Warnings for All" campaign could bring in resources and technology to improve last-mile warning communication in multiple languages across member states (United Nations Office for Disaster Risk Reduction, 2025).

Importantly, these regional climate services would also support evidence-based adaptation planning. They could host a centralized *climate data portal* (managed by the ACCC) that includes downscaled climate projections for ASEAN, shared methodologies for vulnerability assessment, and an inventory of adaptation actions and their outcomes across the region. This knowledge hub function was envisioned as one role of the ASEAN Climate Change Centre, indicating political support for shared learning. From a technical standpoint, integrating different countries' data systems is a challenge, requiring common standards and capacity building, but it is one where ASEAN's functional cooperation model excels. Countries like the Philippines and Indonesia, which have advanced climate risk mapping, can share tools and train counterparts in other AMS.

Peer learning happens here in practice: a disaster risk management official in Laos, for instance, could learn from Bangladesh's cyclone preparedness (via a South-South exchange facilitated by ASEAN) and apply that knowledge to flood preparedness in the Mekong context. The outcome of improved climate services and early warnings will be measured in lives saved and damages averted, a clear collective benefit that justifies close cooperation. Moreover, by jointly investing in these systems, ASEAN members can avoid duplication, reduce costs, and ensure interoperability, strengthening the region's overall adaptive capacity in the face of intensifying climate threats.

8.3. Coordinated mitigation and transition strategies

While adaptation addresses the impacts of climate change, mitigation efforts must reduce emissions at scale. This section presents two key areas where regional coordination can accelerate mitigation outcomes: energy transition and carbon pricing. First, it explores how a more integrated ASEAN power grid and aligned energy strategies can enable the region to shift away from fossil fuels and scale renewable deployment efficiently (Section 8.3.1). Second, it examines opportunities for harmonizing emerging carbon pricing instruments under a common ASEAN framework (Section 8.3.2). These coordinated approaches offer both environmental and economic benefits, reinforcing the need for joint planning and governance mechanisms that support equitable transitions.

8.3.1. *Aligning energy transition policies and supporting the ASEAN power grid*

Energy is at the heart of ASEAN's mitigation challenge and thus a prime candidate for coordinated strategy. All ten ASEAN nations have incorporated energy sector targets in their NDCs, typically expanding renewables and improving efficiency, yet individual efforts can be amplified through regional coordination. A flagship initiative is the ASEAN Power Grid (APG), a long-standing plan to interconnect national electricity grids to allow cross-border power trade.

Realizing the APG can greatly facilitate the energy transition: countries with surplus renewable energy (such as hydropower in Laos or solar in Thailand) can export to neighbours facing supply deficits, reducing the need for fossil backup and improving regional energy security. A recent breakthrough pilot, the Lao PDR-Thailand-Malaysia-Singapore Power Integration Project, has already demonstrated the feasibility of multilateral power trading, delivering renewable hydroelectricity from Laos all the way to Singapore through intermediary grids (UN ESCAP, 2023). Building on this, ASEAN is eyeing an expansion of such interconnected projects, which would not only cut overall emissions but also lower costs through economies of scale and shared reserves.

Aligning energy transition policies means synchronizing *planning horizons and technical standards*: for example, ASEAN members could coordinate on setting compatible grid codes for renewable energy integration and agree on timelines to phase down unabated coal power, in line with each country's circumstances. There is progress in setting common goals: under APAEC, ASEAN collectively targets a 35% share of renewable power capacity by 2025 (ASEAN Centre for Energy, 2020), and at COP28 many ASEAN countries joined the global pledge to triple renewable energy capacity by 2030 (ASEAN, 2023).

The next step is translating these targets into a coherent regional energy transition roadmap for 2030 and beyond, possibly as part of the upcoming APAEC 2026-2030 that is expected to incorporate net-zero considerations. Such a roadmap would identify priority

interconnection projects, regional energy storage or grid-balancing solutions, and collaborative procurement of clean technology.

Institutionally, the ASEAN Centre for Energy is positioned to coordinate these efforts, working closely with energy ministries and utilities of member states. *Politically*, deeper energy integration requires trust, countries must feel confident that reliance on neighbours' power will not compromise their energy sovereignty. This calls for robust agreements and governance mechanisms for the APG, potentially under ASEAN auspices, to manage trade, resolve disputes, and ensure fair benefit-sharing. If successful, a well-integrated ASEAN power grid underpinned by aligned national policies would be a game-changer: it would unlock large-scale renewable deployment (including in countries with less endowment of renewables) and exemplify how regional cooperation can accelerate decarbonization while maintaining reliability and growth (ACE, 2025).

8.3.2. Exploring regional carbon pricing mechanisms

As countries across ASEAN begin to implement carbon pricing, through taxes, emissions trading systems, or crediting mechanisms, a clear opportunity emerges to connect and harmonize these efforts regionally. Several member states have taken pioneering steps: Singapore has introduced a national carbon tax and is scaling it up, and Malaysia, Indonesia, Thailand and Viet Nam are at various stages of developing carbon trading frameworks or pilot markets. Rather than evolving in isolation, these schemes could benefit from an *ASEAN Common Carbon Market approach*. Indeed, ASEAN is already moving in this direction: by 2025, the bloc had finalized the concept note of the ASEAN Common Carbon Framework (ACCF) as a foundation for a regional carbon market (ASEAN Business Advisory Council, n.d.). The ACCF lays out governance structures and methodologies to enable mutual recognition of carbon credits and to align standards across different national systems.

Such mutual recognition is crucial, it allows, for example, a ton of CO₂ reduced in one country (through a forest conservation project in Borneo or a renewable energy project in the Mekong) to be counted and traded in another country's market with confidence in its integrity. The potential benefits are significant: a connected carbon market can lower overall abatement costs by tapping the cheapest reduction opportunities region-wide and can attract substantial green investment into ASEAN. One estimate projects an ASEAN carbon market could unlock up to USD 3.8 trillion in investment by 2050 (EU-ASEAN Business Council, 2025).

To make this vision a reality, several technical and political steps are needed. Technically, ASEAN must establish common standards and transparency measures, the ACCF's principles of adhering to international carbon market standards and ensuring robust MRV (monitoring, reporting, verification) are designed to address this (EU-ASEAN Business Council, 2025). Pilot transactions under Article 6 of the Paris Agreement could be pursued within ASEAN to test the system, building experience with cross-border credit transfers in a controlled manner.

Politically, member states will need to align on rules for avoiding double counting of emission reductions and agree on how to share benefits. Here, leadership and support play a role: Malaysia's Minister of Environment has noted that the ACCF can be a "key catalyst to unlock the potential" of ASEAN's carbon market by driving cooperation and capacity building. High-level buy-in from all AMS is essential, as is capacity development for less experienced members so that no one is left behind in market participation (Budiman, 2025).

In practice, a phased approach could be taken, initially linking the more advanced national systems (e.g. Singapore's and Thailand's) and gradually expanding as others come online. An ASEAN-wide carbon credit trading platform or registry could be hosted by the

ASEAN Secretariat or the ACCC, serving as the central infrastructure for transparency. Over time, a fully interconnected ASEAN carbon market would send a powerful price signal across the region, incentivizing low-carbon investment and innovation. It would also reinforce ASEAN's collective voice on carbon pricing in global forums, showcasing a model of voluntary cooperation that complements national policies.

In exploring this path, ASEAN must weigh technical complexities and ensure that the mechanism supports, rather than substitutes for, strong domestic climate actions. But the groundwork laid in 2025 suggests a shared recognition that regional carbon pricing cooperation is not only feasible but advantageous for accelerating decarbonization across Southeast Asia.

8.4. Mobilizing regional climate finance through shared mechanisms

Financing the region's climate transition and adaptation priorities will require a strategic mix of international and domestic resources, channeled through both national and regional pathways. While ASEAN Member States (AMS) have individually accessed global climate finance mechanisms, a coordinated regional approach can unlock greater scale, improve efficiency, and strengthen ASEAN's collective voice in climate finance governance. This section presents two complementary strategies: first, improving access to international climate funds through joint regional proposals (Sub-section 8.4.1); second, developing ASEAN-led financing platforms and insurance schemes that enhance regional ownership and long-term resilience (Sub-section 8.4.2). Together, these approaches aim to strengthen the region's financial architecture to meet rising climate needs and attract investment for shared priorities.

8.4.1 Strengthening access to international climate funds through joint proposals

Financing the climate transition and adaptation needs of ASEAN will require tapping every available source, especially international climate funds and mechanisms. While all member states have accessed global funds like the Green Climate Fund (GCF), Global Environment Facility (GEF), Adaptation Fund, etc., there is scope to increase both the scale and effectiveness of finance by approaching these sources *together*.

One promising strategy is for ASEAN countries to develop joint regional proposals for climate funding. A regional approach can be compelling to funders: it promises larger impact and fosters cooperation, aligning with calls from the international community for collaborative efforts. For example, multiple AMS could co-finance and co-request support for a transboundary adaptation project, such as a Mekong basin climate resilience program or an ASEAN-wide early warning system upgrade, under the GCF. Such a proposal would highlight economies of scale and regional public goods, likely attracting donor interest (OECD, 2023). Indeed, ASEAN's own climate statements urge developed nations and global funds to improve access for developing countries and to simplify approval processes, acknowledging that more needs to be done to channel funds to where they are most needed (ASEAN, 2024a). By teaming up, AMS can share the technical and administrative burden of proposal development, drawing on each other's expertise and lessons learned from past projects.

To facilitate this, ASEAN could establish a small *Joint Climate Finance Task Force* under the ASEAN Secretariat or the AWGCC, tasked with identifying regional project ideas and coordinating proposal submission to international funds. This approach aligns with the ASEAN Climate Finance Access and Mobilization Strategy, which calls for bridging finance gaps through both domestic and international sources (ASEAN, 2024c). Notably, ASEAN already has a precedent of collective bargaining: the ASEAN Catalytic Green Finance Facility

(ACGF), managed by the Asian Development Bank, pools funds from various donors and ASEAN governments to support sustainable infrastructure projects in the region.

ASEAN leaders explicitly encourage contributions to such mechanisms and emphasize taking into account ASEAN members' needs in the new global climate finance goal beyond 2025 (ASEAN, 2025b). Joint proposals can leverage this political support and demonstrate the region's unity in addressing climate change, which, in turn, could bolster ASEAN's credibility and negotiating power in global climate finance discussions (for instance, arguing for a fair share of the promised \$100 billion annual climate finance and its successor goal). Ultimately, pursuing funding together does not replace individual country projects, but it adds an important avenue to mobilize large-scale resources for initiatives that by their nature transcend borders or benefit multiple countries.

8.4.2 Establishing ASEAN-led financing platforms and climate risk pooling

In addition to seeking external funds, ASEAN can bolster *home-grown* financing mechanisms to support climate action. An essential step is to strengthen and scale up existing regional funds and schemes dedicated to sustainability. The ASEAN Catalytic Green Finance Facility is one such platform, launched to catalyse green infrastructure investments by blending contributions from ASEAN governments, development banks, and donors. It has been highlighted as a key vehicle to channel climate finance into the region. Building on its early successes, ASEAN could consider expanding the ACGF's mandate or capital base to specifically target climate resilience and low-carbon transition projects. For example, an *ACGF-Climate Window* could be established, inviting each member state to allocate a modest sum that, when pooled and combined with external co-financing, funds a portfolio of regional mitigation and adaptation projects (such as cross-border renewable energy grids or ecosystem-based adaptation in shared ecoregions). Another idea is the creation of an ASEAN Climate Fund under ASEAN's own auspices, a fund that could both receive international donations and mobilize intraregional public and private finance, to be invested in priority climate programmes across AMS. This would echo models seen in other regions, like the Caribbean's regional climate investment funds, but tailored to ASEAN's context and governance style.

Climate finance is not only about raising new funds, but also about risk pooling and insurance to handle climate impacts. Here, ASEAN has already taken concrete steps with initiatives like the ASEAN Disaster Risk Financing and Insurance (ADRFI) program and SEADRIF, which pool risk to provide insurance solutions for disasters (ASEAN, 2025a). These mechanisms can be enhanced and explicitly climate-linked: for instance, expanding SEADRIF's coverage to include slow-onset events (like droughts aggravated by climate change) or establishing a dedicated regional *Climate Risk Insurance Pool* that offers affordable insurance for climate-related agricultural losses or extreme weather damages in member countries. By pooling risk, countries reduce the financial shock of climate disasters on any single national budget, a clear collective benefit.

ASEAN finance ministers have also been working on the ASEAN Taxonomy for Sustainable Finance and an "ASEAN Green Map" to guide investments (ASEAN, 2025b). Such tools, while primarily regulatory, can be seen as part of a broader platform to attract private green investments by providing common definitions and confidence to investors. The political implication of these financial collaborations is that ASEAN member states must be willing to commit resources to shared schemes and trust in joint governance of funds. This may require, for example, agreement on representation and decision-making for any ASEAN Climate Fund, and transparency to ensure equitable access for all countries (so that smaller economies feel they benefit, not just the larger ones). The technical implications involve financial management

capacity: robust systems to evaluate project proposals, measure climate outcomes, and manage fiduciary risks across different jurisdictions.

Fortunately, ASEAN can draw on partnerships here, multilateral institutions (ADB, World Bank) and dialogue partners (e.g. Japan, EU) have offered technical support for regional finance initiatives and can continue to do so, aligned with ASEAN's priorities.

In summary, by developing its own financing platforms and risk-sharing mechanisms, ASEAN not only mobilizes more capital for climate action but also signals a proactive stance, showing the world that the region is investing in its own future. This stance could encourage donors to contribute even more, knowing that ASEAN has “skin in the game” through its collective financial commitments to the climate cause.

Bibliography

- ASEAN Business Advisory Council. (n.d.). *ASEAN Common Carbon Market initiative*. <https://aseanbac.com.my/asean-common-carbon-market-initiative/>
- ASEAN Centre for Energy. (2020). *ASEAN Plan of Action for Energy Cooperation 2016–2025, Phase II: 2021–2025*. <https://asean.org/wp-content/uploads/2023/04/ASEAN-Plan-of-Action-for-Energy-Cooperation-APAEC-2016-2025-Phase-II-2021-2025.pdf>
- ASEAN Centre for Energy. (2025). *ASEAN energy in 2025: Key insights about ASEAN energy landscape and predictions in 2025*. <https://aseanenergy.org/wp-content/uploads/2025/02/ASEAN-Energy-in-2025.pdf>
- ASEAN Specialised Meteorological Centre. (2025). *Twenty-fourth session of the ASEAN Climate Outlook Forum (ASEANCOF 24)*. <https://asmc.asean.org/events-twenty-fourth-session-of-the-asean-climate-outlook-forum-aseancof-24/>
- Association of Southeast Asian Nations. (2008). *Charter of the Association of Southeast Asian Nations*. <https://asean.org/wp-content/uploads/images/archive/publications/ASEAN-Charter.pdf>
- Association of Southeast Asian Nations. (2021). *ASEAN state of climate change report*. https://asean.org/wp-content/uploads/2021/10/ASCCR-e-publication-Correction_8-June.pdf
- Association of Southeast Asian Nations. (2023a). *3rd ASEAN Climate Change Partnership Conference aims for global influence*. <https://environment.asean.org/news/detail/3rd-asean-climate-change-partnership-conference-aims-for-global-influence/>
- Association of Southeast Asian Nations. (2023b). *ASEAN joint statement on climate change to UNFCCC COP 28*. <https://asean.org/wp-content/uploads/2023/09/ASEAN-JS-on-Climate-Change-to-the-UNFCCC-COP28.pdf>
- Association of Southeast Asian Nations. (2024a, October 9). *ASEAN joint statement on climate change to UNFCCC COP 29*. https://asean.org/wp-content/uploads/2024/10/18-Final_AJS-on-CC-to-UNFCCC-COP29.pdf
- Association of Southeast Asian Nations. (2024b, December). *Climate finance access and mobilization strategy for the member states of ASEAN (2024–2030)*. https://unfccc.int/sites/default/files/resource/ASEAN_CF%20Strategy_Dec%202024.pdf
- Association of Southeast Asian Nations. (2025a, May 26). *ASEAN 2045: Our shared future*. <https://asean.org/wp-content/uploads/2025/05/ASEAN-2045-Our-Shared-Future.pdf>
- Association of Southeast Asian Nations. (2025b, April 1). *Disaster risk financing and insurance in Southeast Asia: ASCC Trend Report No. 8 (DM 12 2025)*. https://asean.org/wp-content/uploads/2025/04/20240401_Trend-Report_DM-12-2025.pdf
- Association of Southeast Asian Nations. (2025c, April 10). *Joint statement of the 12th ASEAN Finance Ministers' and Central Bank Governors' Meeting (AFMGM)*. https://asean.org/wp-content/uploads/2025/04/08_ADOPTED_12th-AFMGM-Joint-Statement_20250410.pdf
- Association of Southeast Asian Nations. (2025d). *Agreement on the establishment of the ASEAN Centre for Climate Change*. <https://agreement.asean.org/media/download/20250326041945.pdf>
- Association of Southeast Asian Nations & Australian Government. (2024). *Aus4ASEAN Futures: Promoting regional prosperity by delivering for ASEAN*. <https://asean.org/aus4asean-futures-promoting-regional-prosperity-by-delivering-for-asean/>
- Association of Southeast Asian Nations & Economic Research Institute for ASEAN and East Asia. (2021). *The ASEAN Economic Community into 2025 and beyond (Vol. 5)*. <https://asean.org/wp-content/uploads/2021/08/the-asean-economic-community-into-2025-and-beyond.pdf>

ASEAN Centre for Energy. (2025). *ASEAN Energy in 2025: Key insights about ASEAN energy landscape and predictions in 2025*. <https://aseanenergy.org/wp-content/uploads/2025/02/ASEAN-Energy-in-2025.pdf>

ASEAN Working Group on Climate Change. (2022). *AWGCC Action Plan 2019–2025*. https://environment.asean.org/public/uploads/working_groups/20220627-1.-AWGCC-Action-Plan.pdf

Asian Development Bank. (2024). *Transforming ASEAN: Strategies for achieving inclusive and sustainable growth* (Rev. 1). <https://www.adb.org/sites/default/files/publication/960106/transforming-asean-strategies-achieving-inclusive-and-sustainable-growth-rev1.pdf>

Budiman, S. (2025, April 3). ASEAN sets governance structure and implementation roadmap to strengthen regional carbon market. *Ecobiz.asia*. <https://ecobiz.asia/asean-sets-governance-structure-and-implementation-roadmap-to-strengthen-regional-carbon-market/>

EU–ASEAN Business Council. (2025). *Development of carbon markets in ASEAN* [Policy paper]. https://www.eu-asean.eu/wp-content/uploads/2025/03/Carbon-Markets-Paper-combined_2_2.pdf

Institute for Global Environmental Strategies. (2012). *Greening governance in Asia-Pacific* (IGES White Paper IV E). https://www.iges.or.jp/en/publication_documents/pub/books/en/2971/WP_IV_E_final.pdf

Institute for Global Environmental Strategies. (2022). *Overview of the ASEAN Climate Change Strategic Action Plan 2023–2030* [Guiding document for COP27 side event]. https://www.iges.or.jp/sites/default/files/inline-files/1-1_ACCSAP%20%28COP-27%29%20-%20ASEC-final2.pdf

Institute for Global Environmental Strategies. (2024). *The ASEAN Climate Change Strategic Action Plan 2025–2030 project*. <https://www.iges.or.jp/en/projects/accsap2024>

Mekong River Commission. (2017). *Mekong climate change adaptation strategy and action plan (MASAP)*. <https://www.mrcmekong.org/wp-content/uploads/2024/09/Mekong-Climate-Change-Adaptation-Strategy-and-Action-Plan-MASAP.pdf>

OECD. (2023). *Rethinking regional attractiveness in the new global environment* (OECD Regional Development Studies). <https://doi.org/10.1787/a9448db4-en>

Southeast Asia Disaster Risk Insurance Facility. (n.d.). *SEADRIF: Strengthening ASEAN's financial resilience through regional disaster risk financing*. <https://seadrif.org/>

Triyana, H. J., Harjono, N. P., & McDermott, R. (2022). Implementing the ASEAN Agreement on Disaster Management and Emergency Response for better coordination and simplification procedures. *Jambe Law Journal*, 5(2), 147–205. <https://doi.org/10.22437/jlj.5.2.147-205>

U.S. Agency for International Development. (2014, June). *Climate change in the Lower Mekong Basin: Values at risk – Report and executive summary*. <https://weadapt.org/wp-content/uploads/2023/05/5507ddc9ca992usaid-marcc-values-at-risk-report-with-exesum-revised.pdf>

United Nations Economic and Social Commission for Asia and the Pacific. (2023). *Laos–Thailand–Malaysia–Singapore Power Integration Project: Insights for accelerating ASEAN Power Grid development* [Technical report]. https://www.unescap.org/sites/default/d8files/event-documents/Laos-Thailand-Malaysia-Singapore%20Power%20Integration%20Project_Malaysia.pdf

United Nations Office for Disaster Risk Reduction. (2025). *Explainer: Early warnings for all – Because everyone counts*. <https://www.undrr.org/media/106969/download>

Chapter 9

Strengthening the architecture: actionable recommendations for multi-level governance

Effective climate action requires more than technical measures; it depends on the institutional arrangements that guide decision-making, coordination, and implementation. In ASEAN, where authority remains largely national and regional bodies operate through consensus, governance becomes the linchpin of ambition and delivery. This chapter addresses the institutional dimension of ASEAN's climate response, proposing concrete recommendations to improve coordination within countries, among ASEAN institutions, and between ASEAN and external partners. It is organized into three sections: national-level reforms to strengthen whole-of-government responses (*Section 9.1*), ASEAN-level mechanisms for enhanced coherence and monitoring (*Section 9.2*), and strategies to align international cooperation with ASEAN's functional model (*Section 9.3*).

9.1. National-level reforms

This section explores the institutional foundations of climate governance within ASEAN Member States. While all AMS have adopted NDCs and related policies, domestic implementation often suffers from fragmented responsibilities, underpowered coordination bodies, and limited stakeholder inclusion. This proposes a series of institutional reforms to address these challenges: strengthening the authority and connectivity of national focal points (*Sub-section 9.1.1*); improving inter-ministerial and vertical coordination (*Sub-section 9.1.2*); institutionalizing inclusive stakeholder engagement (*Sub-section 9.2.3*); and implementing climate budget tagging to align finance with climate priorities (*Sub-section 9.2.4*). These reforms aim to embed climate objectives into the machinery of national governance and create more coherent, transparent, and participatory frameworks for policy development and delivery.

9.1.1. Empowering focal points

Effective climate governance in ASEAN begins at home, within each member state. A key recommendation is to empower national climate focal points, the agencies or individuals designated to coordinate climate policy (often housed in environment ministries or dedicated climate change offices). In practice, this means elevating their authority and resources so they can truly orchestrate a “whole-of-government” climate response. Many ASEAN countries have set up inter-agency climate change committees or task forces, but these sometimes lack clout if the focal point is a relatively junior entity. By contrast, giving the focal point a higher institutional standing (for example, directly under the Prime Minister's or President's office, or backed by strong legal mandates) can enable swifter policy coordination across ministries like energy, finance, agriculture, and disaster management. Singapore offers a compelling model: its National Climate Change Secretariat operates under the Prime Minister's Office and supports the Inter-Ministerial Committee on Climate Change, a senior-level body that integrates climate priorities into national planning. This structure has enabled coherent and forward-looking policies, including Singapore's carbon tax and Green Plan 2030.

An empowered focal point should also serve as the key link to ASEAN processes, ensuring that regional climate initiatives (such as the ASEAN Climate Change Strategic Action

Plan) are communicated and implemented domestically. This two-way linkage means focal points can bring national concerns into ASEAN discussions (advocating for support or flexibility where needed) and conversely translate regional commitments into actionable plans at home.

Politically, empowering focal points signals high-level commitment, it shows that climate action is not confined to one ministry's silo but is a strategic priority monitored at the centre of government. This helps overcome internal resistance and secures buy-in from line ministries.

Institutionally, it may entail civil service reforms such as creating dedicated climate secretariats with sufficient staffing, technical experts, and budgetary allocation within the government structure.

9.1.2. Strengthening institutional coordination

Alongside empowering lead agencies, countries must formalize mechanisms for cross-ministerial and multi-level coordination on climate change. Climate policy intersects with energy, transport, forestry, urban development, and more, thus requiring an integrated approach. Many ASEAN states would benefit from updating or strengthening their *national climate change committees* (or equivalent bodies) to ensure they meet regularly, include high-ranking representatives from key ministries, and can make binding decisions or recommendations.

For instance, the Philippines' Climate Change Commission is an example of a stand-alone body with a broad mandate to coordinate policy across sectors and government levels, which could inspire similar models elsewhere. Institutional coordination should also extend vertically: linking national governments with subnational authorities (provincial, city, local) because implementation often happens at those levels. Regular coordination meetings, clear assignment of roles (who handles mitigation in energy vs. adaptation in agriculture, etc.), and joint planning processes (like developing NDCs or National Adaptation Plans through an all-of-government approach) are practical steps.

To institutionalize this, governments could mandate climate change focal points in each key ministry and each province, who then convene under the national committee. Additionally, integrating climate objectives into the national development planning and budgeting cycle is crucial. Some ASEAN countries have started *mainstreaming* climate considerations into their national development plans and disaster risk reduction strategies, these efforts need to be scaled up so that climate action is not an afterthought but a core criterion in policymaking (Maeda et al., 2019). The ASEAN State of Climate Change Report (ASEAN, 2021a) noted that inconsistent regulatory frameworks and fragmented institutional arrangements hamper low-carbon investment in the region, underscoring that internal coordination gaps can translate to missed opportunities (like investors perceiving too much red tape or uncertainty). Strengthening coordination addresses this by presenting a unified front and clear strategy domestically. It also means when ASEAN collectively discusses issues (energy transition, forestry, etc.), each country can contribute more effectively, having already aligned its domestic actors on positions and implementation plans.

9.1.3. Institutionalizing inclusive co-design

Climate policies are more likely to succeed, and to be fair, if they are formulated with the input of those affected and knowledgeable: local communities, indigenous peoples, civil

society, academia, youth groups, and the private sector (GIZ, 2025). ASEAN governments should move from ad hoc consultations to institutionalized stakeholder engagement in climate policy design and implementation. This could involve legally requiring public consultation periods for new climate-related laws and strategies, creating permanent multi-stakeholder advisory panels on climate change, and dedicating support to build the capacity of non-state actors to participate effectively.

Significantly, ASEAN is on the cusp of endorsing the *principle of environmental rights* in the region. The draft ASEAN Declaration on Environmental Rights affirms that “everyone has the right to participate in decision-making in environmental matters” and calls for “meaningful, effective” public participation, including special measures for vulnerable groups. This emerging regional norm should be translated into national practice by all AMS (UN ESCAP, 2024). For example, in designing updated NDCs or Long-Term Low Emissions Strategies, governments could convene national dialogues or “Talanoa” conversations to gather inputs from communities and industries on what measures are feasible and acceptable (UNFCCC, n.d.).

In adaptation planning, engaging local knowledge, as Indonesia has done with its community-based “Desa Iklim” (Climate Village) program, can ensure solutions are context-appropriate and empower communities (Anshari, 2024). The *institutionalization* part means making these processes routine and mandated, not optional. One way is to incorporate stakeholder engagement guidelines into climate change laws or policies: e.g., a Climate Change Act could stipulate the creation of a Climate Stakeholder Council. Several AMS have started moving in this direction (for instance, Viet Nam’s climate legislation includes provisions for public consultation).

The political implication of inclusive co-design is that governments must be open to critique and input and occasionally cede some control to accommodate stakeholder insights, a shift that may require a culture change in bureaucracies more used to top-down planning. However, the payoffs are legitimacy and innovation: policies co-created with stakeholders tend to face less resistance during implementation and may surface creative solutions that officials alone would miss (Sahay & Goldthwaite, 2024). Moreover, inclusive processes build public support for climate action, which is crucial for sustained effort across election cycles. In sum, the recommendation is to embed the ethos of “nothing about us without us” into climate governance at the national level, thereby reflecting the spirit of the ASEAN Environmental Rights Declaration in each member state’s climate actions.

9.1.4. Implementing climate budget tagging

Financing national climate action is as much about *knowing* where the money goes as it is about finding new funds. Climate budget tagging is a technical reform that can greatly enhance transparency and effectiveness of climate spending (OECD, 2021). This tool involves labelling or marking government budget expenditures that contribute to climate change objectives (mitigation, adaptation, or both). By tagging climate-relevant expenditures across all ministries, governments can track how much they are investing in climate action, identify gaps or overlaps, and make informed decisions to increase spending where needed. Several ASEAN countries are pioneers in this area. Indonesia and the Philippines, for example, have introduced climate budget tagging in their budgeting process, allowing annual budget documents to highlight climate-related programs (like renewable energy projects, reforestation, flood control works) and quantify spending on them. The practice has been facilitated by guidance from UNDP and other international partners, and there is an opportunity for cross-learning among AMS on the methodologies.

The ASEAN State of Climate Change Report (ASEAN, 2021a) pointed out that measures like climate investment tracking and budget tagging, alongside improved climate data, should be the entry point to developing robust monitoring and evaluation systems for adaptation and mitigation. By institutionalizing climate budget tagging, countries will not only meet that recommendation but also strengthen their ability to access international finance (as they can clearly demonstrate domestic co-financing and needs).

Implementing this reform requires collaboration between environment/climate agencies and finance ministries. It may involve training budget officers to apply climate markers to projects, adjusting financial management information systems, and setting criteria for what qualifies as “climate expenditure” (to avoid greenwashing general development spending). The technical implication is the need for a robust taxonomy, often aligned with international standards like the OECD’s Rio Markers, to classify spending (OECD, 2020). The institutional implication is that finance ministries must buy into the importance of climate action and be willing to add this extra layer of analysis in budget formulation.

Politically, climate budget tagging sends a message of accountability: governments can be pressed by parliaments or the public on why, say, only a small percentage of the budget is going to climate programs, or why certain high-carbon projects are still receiving funding (International Budget Partnership, 2022). Indeed, ASEAN parliamentary groups have begun discussing climate budget oversight and tagging as a way to ensure funds are wisely spent (UNDP & Parliamentary Centre of Asia, 2025).

Over time, routine use of climate tagging can facilitate more strategic budgeting, for instance, setting targets to progressively increase the climate-related share of the national budget, or to align public finance with NDC priorities. It also dovetails with the concept of “green budgeting” which several ASEAN economies are exploring in partnership with organizations like the OECD. In conclusion, while climate budget tagging may seem like a wonky, technical fix, it is a foundational step to improve governance: it forces governments to *put their money where their mouth is* regarding climate commitments, and it generates data that can guide both national policy and ASEAN-wide discussions on resource mobilization and burden-sharing (I4CE, 2021).

9.2. ASEAN-level mechanisms

This section examines how ASEAN’s regional institutions and processes can be strengthened to support Member States in implementing and enhancing their climate commitments. While ASEAN has adopted several key strategies, such as the ASEAN Climate Change Strategic Action Plan (ACCSAP) and the creation of the ASEAN Centre for Climate Change (ACCC), its climate architecture remains nascent and dispersed. This section outlines actionable measures to reinforce ASEAN-level coordination and accountability, focusing on four strategic levers: enhancing the mandate and capacity of key climate bodies, notably the AWGCC and ACCC (Sub-section 9.2.1); hosting a voluntary regional monitoring framework to support transparency and peer learning (Sub-section 9.2.2); fostering cross-pillar coordination across ASEAN’s Political-Security, Economic, and Socio-Cultural communities (Sub-section 9.2.3); and leveraging existing platforms for peer learning and regional capacity exchange (Sub-section 9.2.4). These mechanisms aim to operationalize ASEAN’s climate ambitions by strengthening institutional linkages, improving information flows, and reinforcing regional solidarity.

9.2.1. Enhancing the mandate and capacity of key climate bodies (AWGCC, ACCC)

At the regional level, ASEAN's climate governance rests on a few key bodies which need bolstering to meet growing expectations. The ASEAN Working Group on Climate Change, comprising national climate focal points, has traditionally driven ASEAN's climate agenda by formulating action plans and joint statements. Strengthening AWGCC could involve giving it a more proactive mandate to not only *plan* but also *monitor and facilitate* implementation of regional climate actions. For instance, AWGCC might convene more frequently, create technical sub-committees on adaptation, mitigation, and finance, and coordinate closely with other sectoral bodies (energy, forestry, etc.). The AWGCC's current Action Plan (2019–2025) is due for renewal, and the ACCSAP's objective of accelerating AWGCC Action Plan implementation underscores the importance of this body. Injecting resources, in terms of a dedicated secretariat support team and analytical capacity, would help AWGCC members turn plans into on-the-ground collaborations.

Meanwhile, the new ASEAN Centre for Climate Change, in Brunei Darussalam is poised to become a cornerstone of regional climate cooperation. To live up to its promise, the ACCC must be endowed with both a clear authority and sufficient expertise. ASEAN Leaders have welcomed its establishment as a means to facilitate regional coordination and to provide policy recommendations to member states. Concretely, this suggests the ACCC should function as a knowledge and coordination hub, compiling regional greenhouse gas inventories, vulnerability data, and best practices, and offering technical advice on climate policy and technologies. The Centre's key purposes, as articulated, include networking, capacity development, and housing a climate change database. Fulfilling these roles will require hiring or seconding skilled analysts, climate scientists, and policy experts from around ASEAN. It also requires political backing so that ACCC's recommendations are taken seriously in national capitals.

One way to cement the Centre's role is to formalize its reporting line to ASEAN ministerial meetings, for example, the ACCC could produce an annual "State of ASEAN Climate Action" report that is submitted to the ASEAN Summit or the Ministers of Environment for endorsement. This would elevate climate change in ASEAN's institutional hierarchy and ensure cross-sectoral buy-in. Another aspect of capacity is funding: ASEAN could create a trust fund (with contributions from members and partners) specifically for the ACCC's programs, ensuring it has autonomy to initiate regional research or pilot projects without waiting for external donors.

In summary, empowering AWGCC and ACCC is about governance innovation within ASEAN: giving these bodies the tools and authority to move from discussion to delivery. As climate challenges intensify, an adequately resourced regional architecture will be critical to coordinate the myriad initiatives, monitor progress, and advise on course corrections, all while respecting ASEAN's consensus-driven approach.

9.2.2. Hosting the voluntary regional monitoring framework

Transparency and accountability are essential to both the Paris Agreement and to reinforcing trust in ASEAN cooperation. A voluntary ASEAN climate monitoring and review framework would allow member states to collectively track progress on their climate commitments (NDCs and other goals) in a non-intrusive, supportive manner. The idea is not to

“police” each other, but to share updates and learn from each other’s experiences, identifying where regional support is needed.

Practically, this could take the form of an *ASEAN Climate Progress Dashboard* maintained by the ACCC, compiling indicators such as GHG emission trends, renewable energy capacity, forest cover changes, climate finance received and spent, and key policy milestones for each country. Much of this data is already submitted internationally (e.g. in Biennial Transparency Reports to the UNFCCC), but an ASEAN-specific platform would contextualize it for regional purposes and highlight collective trends. For instance, ASEAN could annually aggregate how far the region has come in cutting emission intensity or in adapting to climate impacts, essentially a regional stocktake. Indeed, as the first Global Stocktake under the Paris Agreement concluded at COP28 with a clear message that ambition must ramp up, ASEAN’s own voluntary stocktake could motivate its members to enhance NDCs in unison and ensure no country is left behind.

To implement this, ASEAN environment and climate officials could establish a *common reporting template* aligned with international metrics but simplified for regional sharing. Countries would then, on a voluntary basis, submit their climate action progress into this system, perhaps every two years. A technical team at the ACCC or ASEAN Secretariat can compile and analyze the information, and AWGCC meetings could be used to discuss the findings in a peer-review spirit. This is analogous to the “ASEAN Peer Review Mechanism” that exists in other domains (like economic policy surveillance), except here it is entirely facilitative (ASEAN, 2021c). The framework could also incorporate qualitative peer review sessions: e.g., one country presents on its implementation progress and challenges, and peers discuss and advise, in a closed supportive meeting.

ASEAN’s experience with *voluntary facilitative sharing* (for example, the ASEAN Economic Community’s peer monitoring of reforms) shows that even without hard enforcement, the desire to not fall behind peers can be a powerful incentive to implement agreements (ASEAN & World Bank, 2021). Over time, this regional monitoring can be linked back to national improvements, as data gaps or policy lags are identified, countries can request capacity building through ASEAN to address them. The institutional implication is that ASEAN will need to invest in data systems and perhaps mandate the ACCC as the custodian of this monitoring effort. Politically, members must be comfortable with a degree of transparency and open comparison; building trust here is key, which is why framing and voluntariness are important. The reward is a stronger collective accountability, then ASEAN ministers jointly observe where they stand, it can galvanize a unified push to achieve targets like those in the ASEAN Climate Vision or sectoral plans (ASEAN, 2021a). It also allows ASEAN, as a bloc, to tell a credible story internationally about its contributions and needs, using evidence drawn from all members.

9.2.3. *Fostering cross-pillar coordination*

ASEAN’s structure spans three pillars, Political-Security, Economic, Socio-Cultural, and climate change, by its very nature, cuts across all of them.

One actionable recommendation is to formally integrate climate change considerations into the work of relevant ASEAN sectoral bodies beyond the environment sector. This means breaking the silo so that, for example, the ASEAN Ministers on Energy, Agriculture, Finance, and Defence all incorporate climate action into their regional agendas.

Some progress is visible: the ASEAN Finance sector has developed the *ASEAN Taxonomy for Sustainable Finance*, explicitly linking finance and climate/environmental objectives, and the Economic pillar’s initiatives like the ASEAN Smart Cities Network indirectly support climate mitigation through sustainable urbanization (ASEAN, 2024).

To institutionalize cross-pillar coordination, ASEAN could establish an ASEAN Climate Change Coordinating Committee that includes chairs or representatives from key sectoral bodies (energy, forestry, agriculture, disaster management, health, etc.) in addition to the climate working group. This Committee, possibly chaired by a high-ranking ASEAN official or rotated among member states, would meet to ensure climate-related actions are aligned and mutually reinforcing across sectors. For example, if the energy pillar is working on the APAEC renewable energy target, and the agriculture pillar on climate-smart agriculture, and the finance pillar on green bonds, the committee would harmonize these efforts under a common climate framework and timeline.

Another approach is integrating climate into high-level statements and documents that guide cross-pillar work, such as the ASEAN Community Vision 2045 (ASEAN, 2025). By embedding strong climate resilience and low-carbon commitments into that overarching vision, all pillars are implicitly tasked to contribute. We already see this trajectory: the ASEAN Joint Statement to COP28 called for strengthening cross-pillar cooperation on sustainable finance and other areas, acknowledging that success requires economic and social policies to align with climate goals (ASEAN, 2023).

Operationally, cross-pillar coordination can be fostered by joint workshops and projects. For instance, the AWGCC could co-host sessions with the ASEAN energy body (ACE) on NDC-energy alignment, or with the ASEAN Ministers of Agriculture on drought resilience. The ACCC, with its broad mandate, can facilitate these interactions by acting as a bridge, perhaps seconding climate experts to other ASEAN centres or working groups to inject climate perspectives.

The political implication of stronger cross-pillar work is that some traditional boundaries might need to be relaxed; ministries of environment would collaborate more deeply with ministries of finance or trade at the regional level, which may require overcoming differences in terminology, priorities, or capacity. Yet, as climate change increasingly affects economic development and human security, the rationale for integrated action is compelling.

By proactively coordinating, ASEAN can avoid duplication (e.g., two pillars doing separate risk assessments) and prevent policy conflict (e.g., an economic initiative that inadvertently increases emissions). Instead, policies can be co-designed for co-benefits, such as a regional infrastructure plan that addresses both connectivity and climate resilience. In summary, mainstreaming climate across ASEAN's pillars will mirror what needs to happen within countries domestically, and it will solidify climate change as a core consideration in ASEAN's collective future, rather than a niche environmental topic.

9.2.4. Leveraging existing platforms for peer learning and capacity exchange

ASEAN possesses numerous platforms and networks that can be harnessed to build capacity and share knowledge on climate solutions. A practical recommendation is to map and strengthen these peer learning mechanisms.

The ASEAN Climate Change Partnership Conference, which convenes officials, partners, and stakeholders, is one such platform explicitly designed to exchange ideas and forge cooperation on climate change; for example, its recent sessions focused on ASEAN's reflections post-COP28 and strategies towards COP29. Ensuring the continuity and impact of these conferences, perhaps by adopting formal outcome documents or recommendations that feed into policy, can enhance their utility. Similarly, sector-specific networks like the ASEAN Renewable Energy Sub-Sector Network or the ASEAN Forest Clearing House have been

instrumental in technical exchange. These could be given a climate focus in particular years (e.g., dedicating an ASEAN energy practitioners workshop to solar integration best practices).

ASEAN, with support from partners, has also run leadership programs and training for climate change, such as the ASEAN Climate Leadership Programme (ACLP), which bring together government officials and other stakeholders from different countries. Expanding such programs will build a cadre of ASEAN climate leaders who share a common understanding and personal networks across borders.

Peer learning can be South-South, but also involve international experts: for example, workshops on MRV systems inviting experts from Latin America or the EU ETS to share experiences on emissions tracking and carbon markets. The important thing is to institutionalize knowledge exchange: climate-oriented capacity building shouldn't rely on one-off projects but be embedded into ASEAN's regular activities. One idea is to create an ASEAN Climate Knowledge Portal under the ACCC, where all training materials, case studies (like successful community resilience projects in one country), and toolkits (for climate budgeting, risk assessment, etc.) are curated and accessible to officials and practitioner's region wide. This would prevent each country from reinventing the wheel and accelerate the diffusion of innovations.

Furthermore, twinning arrangements could be promoted, or instance, pairing cities or provinces across countries to pilot low-carbon solutions together, with ASEAN recognition for successful partnerships. The institutional backing for this could come from ASEAN's existing cooperation funds (such as the ASEAN Development Fund) earmarking resources for climate-related capacity building initiatives. By leveraging and connecting what exists, forums, networks, educational programs, ASEAN can create a thriving ecosystem of peer-to-peer support. This not only raises the competency of all members (narrowing the capability gap between, say, more advanced and less advanced AMS), but also reinforces a sense of regional solidarity. As climate change presents unfamiliar challenges, the value of a trusted regional peer network cannot be overstated: countries will be more confident experimenting with new policies or technologies if they know neighbours are ready to advise and assist based on firsthand experience.

9.3. The role of international partners: aligning support with ASEAN's functional cooperation model

This section considers how ASEAN can better coordinate and benefit from the growing support of international partners in the climate field. While many bilateral and multilateral actors have provided valuable financial and technical assistance to ASEAN Member States, the proliferation of initiatives can result in duplication or misalignment with ASEAN priorities. This section proposes two pathways for improved cooperation: aligning donor support more closely with ASEAN's functional cooperation model and key regional strategies (Sub-section 9.3.1) and coordinating external technical assistance and South-South exchanges to respond to ASEAN-wide capacity needs (Sub-section 9.3.2). The overarching objective is to ensure that external support reinforces ASEAN's institutional structures and long-term climate agenda, rather than bypassing them, thereby promoting coherence, ownership, and regional integration in the delivery of climate solutions.

9.3.1. Aligning donor support with ASEAN's functional cooperation model

ASEAN's climate aspirations, while regionally driven, can be significantly bolstered by the contributions of international partners, provided those contributions mesh well with ASEAN's own frameworks. Donor countries and organizations (from the EU, Japan, and the US, to UN agencies and development banks) have shown keen interest in supporting climate action in Southeast Asia.

To maximize effectiveness, such external support should be aligned with ASEAN's functional cooperation model, meaning it should reinforce rather than bypass ASEAN-led processes and respect the consensus-based, member-driven nature of ASEAN projects. In practical terms, this means donors might channel assistance through ASEAN mechanisms.

A good example is the support given to the ASEAN Common Carbon Framework by the UK through the ASEAN-UK Green Transition Initiative (UK PACT, 2025). Rather than pushing disparate national programs, this approach strengthens a regionally agreed initiative, the ASEAN-China Cooperation Fund (ACCF, n.d.), with technical and financial aid, thereby accelerating its development as a unifying platform. Similarly, the development of the ACCSAP and the ASEAN State of Climate Change Report was supported by expertise from IGES (Japan) and GIZ (Germany), with those partners working under ASEAN's coordination to produce outputs that ASEAN owns.

Donors should prioritize coherence and continuity: aligning their project goals with key ASEAN documents like the ACCSAP 2025–2030, the ASEAN State of Climate Change Report's recommendations, and other jointly endorsed strategies. For instance, if the ACCSAP identifies establishing an ASEAN Climate Change Centre as a priority, partners could contribute to capacity building and infrastructure for that Centre. If ASEAN has a target for renewable energy or climate-smart agriculture, bilateral aid programs in the region can explicitly contribute to those targets, making reporting easier and progress more measurable.

Another facet of alignment is timing and consultation. Partners ought to engage in dialogue with ASEAN early, through forums like the annual ASEAN Climate Change Partnership Conference, to understand what the collective needs are, rather than coming in with preset agendas. When multiple donors are active, coordination amongst them is crucial to avoid duplication. Here, ASEAN can play a convening role: just as it convenes member states, it can convene donors in a structured way. Perhaps an ASEAN Partners Group on Climate Change could be created, where external supporters regularly meet with ASEAN Secretariat and AWGCC representatives to share plans and ensure synergies. This mirrors the way some countries manage donor coordination at a national level but applied regionally.

The institutional implication is a bit of extra effort from the ASEAN side to manage partner relations, but with the payoff of more streamlined aid. The political implication for donors is acceptance of ASEAN centrality, being content to support ASEAN-led initiatives even if it means slower consensus processes, rather than seeking quick bilateral wins that might not scale regionally. Encouragingly, many partners recognize ASEAN's convening power: for example, the EU has increasingly engaged ASEAN as a bloc on Green Deal and sustainable development dialogues, and at COP28 side events, partners highlighted ASEAN's crucial role in driving climate ambition. By aligning with ASEAN's model of functional cooperation (incremental, inclusive, consensus-based action), international assistance can reinforce the region's unity and long-term capacity instead of creating parallel tracks.

9.3.2. Coordinating external technical assistance and South–South cooperation

In addition to financial support, international partners provide a wealth of technical assistance, sharing expertise, technology, and experiences from other regions. However, such assistance yields better results when it's well-coordinated and tailored to ASEAN contexts.

To this end, ASEAN could serve as a broker and clearinghouse for technical assistance requests and offers. For example, if several AMS indicate a need for help in developing climate risk assessments, ASEAN (through the Secretariat or ACCC) could consolidate these needs and approach partners collectively, perhaps arranging a regional training that benefits all interested countries instead of separate workshops by different donors. This “many-to-one” coordination ensures consistency in the advice given and fosters collective learning. It also reduces administrative burden on individual AMS who might otherwise be juggling multiple consultant teams from different agencies on similar tasks.

South-South cooperation is a particular subset of technical assistance that ASEAN should actively embrace. ASEAN itself is a South-South success story in many ways, and members can both benefit from and contribute to exchanges with other developing regions. For instance, ASEAN could strengthen ties with the Pacific Island countries on climate adaptation and loss & damage, given shared vulnerabilities to extreme weather and sea-level rise. Mechanisms like joint workshops between ASEAN and Pacific Regional Environment Programme (SPREP, n.d.), or triangular cooperation where a developed country funds an exchange between ASEAN and African Union experts on climate-smart agriculture, could be pursued.

Indeed, at COP28 and COP29, there is strong emphasis on global partnerships and South-South knowledge sharing to implement the Paris Agreement (United Nations PAGE, 2024). ASEAN should capitalize on this by positioning itself as a hub for South-South cooperation, not only receiving knowledge (such as learning from Latin America's deforestation policies or Africa's renewable energy mini-grids) but also exporting its own successes (for example, ASEAN's experience with community-based disaster management or our emerging sustainable finance taxonomy could inform other regions).

To coordinate both traditional North-South and South-South assistance, ASEAN might develop a Climate Cooperation Registry, an online platform listing ongoing and needed climate projects in the region, where partners can see opportunities to contribute or collaborate. This would increase transparency and help match needs with offers. Another recommendation is integrating partners into ASEAN's climate working processes without compromising ASEAN ownership. This can be done by inviting key partners as observers or special participants in relevant ASEAN working group meetings or ACCC activities. For instance, the UNFCCC Regional Collaboration Centre or the NDC Partnership could be engaged through ASEAN to support implementation of NDCs in a harmonized way. Already, development partners often attend ASEAN workshops; formalizing this through partnership frameworks (like the ASEAN-Germany or ASEA-Japan climate programs) can ensure continuity.

The technical implication is that ASEAN must maintain high standards in vetting external expertise, making sure advice aligns with local realities and doesn't push inappropriate solutions. But ASEAN's collective voice can help guide partners to focus on context-appropriate technology (e.g., solar and storage suited to tropical conditions, or climate insurance models tailored to local markets).

The institutional implication is a possibly expanded role for the ASEAN Secretariat's Climate Change and Environment Division (or the ACCC once operational) to act as a liaison for all this assistance. This might require more staffing or a clear mandate to handle external relations on climate matters. Given the scale of needs, from capacity building for transparency to technology transfer for clean energy, coordinating outside help is well worth the effort. It

will lead to more coherent capacity building where each training or pilot project builds on the previous, collectively lifting ASEAN's capabilities to implement ambitious climate actions.

In conclusion, international partnerships are invaluable for ASEAN's climate journey, but the overarching principle must be to integrate them into ASEAN's vision and structures. By aligning support with ASEAN's plans (notably ACCSAP and the forthcoming ASEAN Community Vision 2045) and carefully coordinating technical inputs, ASEAN can ensure that external aid amplifies regional cooperation rather than fragmenting it. This approach will enable ASEAN to present a united front and effectively utilize global opportunities, such as the outcomes of COP20 and the momentum going into COP30, to secure the resources, knowledge, and political support needed to unlock the region's full climate potential.

The strategies laid out in Chapters 8 and 9 thus come together as a comprehensive blueprint: strengthening both thematic collaboration and governance systems, at national and regional scales, so that ASEAN can coherently drive forward its climate agenda in the critical years ahead, enhancing NDC ambition, protecting its peoples, and contributing to global climate stability in line with the Paris Agreement's goals.

Bibliography

- Anshari, S. (2024, September). *Analisis aksi adaptasi dan mitigasi perubahan iklim melalui Program Kampung Iklim di Kabupaten Paser, Provinsi Kalimantan Timur* [Analysis of climate adaptation and mitigation actions through the Climate Village Program in Paser Regency, East Kalimantan]. Universitas Terbuka. <https://msl-fst.ut.ac.id/wp-content/uploads/2024/09/syafuruddin 1.pdf>
- Association of Southeast Asian Nations. (2021a, October). *ASEAN state of climate change report: Current status and outlook of the ASEAN region toward the ASEAN Climate Vision 2050*. https://asean.org/wp-content/uploads/2021/10/ASCCR-e-publication-Correction_8-June.pdf
- Association of Southeast Asian Nations. (2021c, September). *ASEAN competition law and policy peer review: Guidance document*. <https://asean.org/wp-content/uploads/2021/09/ASEAN-Peer-Review-GD.pdf>
- Association of Southeast Asian Nations. (2023, September 5). *ASEAN joint statement on climate change to UNFCCC COP 28*. <https://asean.org/wp-content/uploads/2023/09/ASEAN-JS-on-Climate-Change-to-the-UNFCCC-COP28.pdf>
- Association of Southeast Asian Nations. (2024, December 20). *ASEAN taxonomy Version 3.4: ASEAN taxonomy for sustainable finance*. <https://asean.org/wp-content/uploads/2024/12/ASEAN-Taxonomy-Finalised-Version-3-4.pdf>
- Association of Southeast Asian Nations. (2025, May 26). *ASEAN 2045: Our shared future*. <https://asean.org/wp-content/uploads/2025/05/ASEAN-2045-Our-Shared-Future.pdf>
- Association of Southeast Asian Nations & World Bank. (2021, September). *ASEAN integration monitoring report*. <https://asean.org/wp-content/uploads/2021/09/association-of-southeast-asian-nations-asean-integration-monitoring-report-a-joint-report-by-the-asean-secretariat-and-the-world-bank-english.pdf>
- Deutsche Gesellschaft für Internationale Zusammenarbeit. (2025, April 2). *From national to local implementation: A collaborative, multi-level effort to achieve joint climate and biodiversity goals* (Thematic Paper No. 5). https://unfccc.int/sites/default/files/resource/Thematic_Paper_5_From_National_to_Local_Implementation_A_Collaborative%2C_Multi-Level_Effort_to_Achieve_Joint_Climate_and_Biodiversity_Goals.pdf
- Institute for Climate Economics. (2021, October 14). *The good, the bad and the unclear: Environmental budget tagging – From communicating national effort to improving budgetary performance*. https://www.i4ce.org/wp-content/uploads/I4CE_Environmental-Budget-Tagging_VA.pdf
- Institute for Global Environmental Strategies. (2022). *Overview of the ASEAN Climate Change Strategic Action Plan 2023–2030* (Guiding document for COP 27 side event). https://www.iges.or.jp/sites/default/files/inline-files/1-1_ACCSAP%20%28COP-27%29%20-%20ASEC-final2.pdf
- International Budget Partnership. (2022). *Public participation in climate budgeting*. <https://internationalbudget.org/wp-content/uploads/21031iied-1.pdf>
- I4CE – Institute for Climate Economics. (2021, October 14). *The good, the bad and the unclear: Environmental budget tagging*. https://www.i4ce.org/wp-content/uploads/I4CE_Environmental-Budget-Tagging_VA.pdf
- Maeda, T., Sivapuram, V. R. K. P., & Shivakoti, B. R. (2019). *An assessment of mainstreaming climate change concerns into institutions and policies for disaster risk reduction in ASEAN* (Contributing paper to GAR 2019). United Nations Office for Disaster Risk Reduction. https://www.preventionweb.net/files/66266_f329maedaassessmentofmainstreamingc.pdf

- Organisation for Economic Co-operation and Development. (2020). *OECD DAC Rio markers for climate: Handbook* (Rev. ed.). https://www.flac.awsassets.panda.org/downloads/rio_marker_revised_climate_marker_handbook_final.pdf
- Organisation for Economic Co-operation and Development. (2021, February). *Green budget tagging: Introductory guidance and principles*. https://www.oecd.org/content/dam/oecd/en/publications/reports/2021/02/green-budget-tagging_62f62cd1/fe7bfcc4-en.pdf
- Sahay, S., & Goldthwaite, C. (2024). Participatory practices during organizational change: Rethinking participation and resistance. *Management Communication Quarterly*, 38(2), 279–306. <https://doi.org/10.1177/08933189231187883>
- Secretariat of the Pacific Regional Environment Programme. (n.d.). *SPREP*. <https://www.sprep.org/>
- Southeast Asia Disaster Risk Insurance Facility. (n.d.). *SEADRIF: Strengthening ASEAN's financial resilience through regional disaster risk financing*. <https://seadrif.org/>
- UK PACT. (2025). *ASEAN–UK Green Transition Fund*. <https://www.ukpact.co.uk/regional-fund/asean-gtf>
- United Nations Development Programme & Parliamentary Centre of Asia. (2025, July 21). *Parliamentary oversight of climate finance in ASEAN: Compendium of parliamentary briefs*. https://www.undp.org/sites/g/files/zskgke326/files/2025-07/parliamentary_oversight_of_climate_finance_in_asean.pdf
- United Nations Economic and Social Commission for Asia and the Pacific. (2024, March 7). *Draft ASEAN declaration on environmental rights* (AER WG/3M/03/Add.1). https://unescap.org/sites/default/d8files/event-documents/AER%20WG_3M_3_Add1%20Draft%20ASEAN%20declaration%20on%20environmental%20rights.pdf
- United Nations Framework Convention on Climate Change. (n.d.). *Talanoa Dialogue* (Mitigation, Data and Analysis Programme). https://unfccc.int/sites/default/files/resource/02_UNFCCC_TD.pdf
- United Nations Office for Disaster Risk Reduction. (2025). *Explainer: Early warnings for all – Because everyone counts*. <https://www.undrr.org/media/106969/download>
- United Nations PAGE. (2024, October 25). *From vision to practice for a just transition for all: A cross-regional South–South policy dialogue on energy, sustainable finance, and enterprises*. <https://www.un-page.org/static/d7920d665f471550c8ae82d8623e0d69/25-oct-draft-cop29-page-ibc-policy-dialogue-nov-2024-f-1.pdf>

Chapter 10

A framework for coherence: voluntary indicators for tracking progress

10.1. Rationale for a voluntary regional monitoring framework

The development of a regional framework to track NDCs in ASEAN must reflect the political and institutional conditions under which it is expected to operate. In a region where consensus and non-interference remain guiding principles, a coercive or top-down monitoring mechanism would not only be politically unviable, but it would also risk undermining the fragile trust that enables collective action. The case for a voluntary system draws on ASEAN's long-standing success in functional cooperation to advance an agenda that is inherently sensitive: the comparative tracking of climate ambition.

The proposed framework echoes the logic behind successful instruments like the ASEAN Agreement on Disaster Management and Emergency Response, which has delivered results precisely because it steered away from naming and shaming. By contrast, legally binding agreements that ignored political realities, such as the ASEAN Agreement on Transboundary Haze Pollution, have struggled to gain traction. Monitoring NDCs necessarily involves performance comparisons, which, if poorly framed, can trigger sovereignty concerns. A voluntary, non-judgmental framework shifts the narrative from scrutiny to solidarity: the question is not “Why are you falling behind?” but “What kind of support could accelerate your efforts?”

This approach creates space for mutual learning and gradual convergence, not through pressure, but through trust. It allows countries to identify their own challenges and voluntarily share them, with the expectation of receiving technical support or peer knowledge in return. This form of regional exchange reinforces ASEAN's cooperative model while addressing a key institutional gap: the absence of a common system to assess NDC progress across the ten Member States. At present, reporting remains highly uneven, with wide disparities in emissions data, adaptation tracking, and climate finance transparency. A common framework, aligned with the Enhanced Transparency Framework under the Paris Agreement, yet adapted to ASEAN contexts, can help bridge these gaps without duplicating global obligations.

Critically, the framework's indicators must be fit for purpose. They should reflect regional priorities, be sensitive to national capacities, and include dimensions often underrepresented in national reports, such as participation, equity, and cross-border coordination. Indicators should be tagged according to their political sensitivity, allowing governments to engage progressively. Some may serve as aspirational benchmarks, nudging improvements in data systems and governance structures over time.

The ASEAN Centre for Climate Change, recently established with support from all Member States, is the logical institutional home for this initiative. As a neutral convener and technical hub, the ACCC can act as the secretariat, host regional dashboards, and coordinate voluntary review processes. Anchoring the framework in the ACCC would also ensure alignment with ASEAN's broader climate strategies and facilitate coordination across sectors and stakeholders.

Ultimately, the goal is not to enforce compliance, but to build confidence. A voluntary regional monitoring framework, grounded in ASEAN's own institutional logic, offers a practical route to deepen transparency, improve implementation, and enable a collective “ratcheting up” of ambition consistent with the Paris Agreement's five-year cycle, on ASEAN's terms, and in ASEAN's voice.

10.2. Effectiveness indicators: emissions, implementation, finance

Effective NDC implementation and adequate climate financing are the backbone of credible climate action in ASEAN. This indicator category is strategically important because it addresses the core question of whether countries are turning their pledges into progress. Given the region's ambition gap and uneven capacities, these indicators shine a light on both the clarity of targets and the strength of systems in place to achieve them. They are aligned with the Paris Agreement's Enhanced Transparency Framework, covering emissions tracking and support, but are tailored to ASEAN's context, highlighting, for instance, vertical integration (to tackle subnational coordination failures) and finance mobilization (to track the flow of resources behind commitments).

ID	Indicator Name	Measurement	Rationale	Reporting frequency	Political sensitivity
Emissions Ambition and Transparency					
E1	Clarity and type of mitigation target	Type of headline target (Economy-wide absolute / Intensity / BAU-relative).	Promotes clarity and comparability of ambition across a region with diverse target types.	Every NDC cycle (5 years)	Medium (implies preference for absolute targets)
E2	Transparency of Business-As-Usual (BAU) projections	For BAU-based targets: publication of BAU methodology and assumptions (Yes/No)	Addresses the “black box” of opaque baselines that can exaggerate ambition; fosters trust by clarifying how targets are calculated.	Every NDC cycle (5 years)	Low (technical transparency)
E3	Alignment with 1.5°C pathways	Assesses if the NDC target is independently rated as compatible with a 1.5°C trajectory (Traffic lights)	Benchmarks national ambition against the collective global goal, providing an objective measure of adequacy.	Every NDC cycle (5 years)	Low (science-based, non-personal)
E4	Sectoral coverage and policy coherence	Coverage of key emitting sectors in NDC with sector-specific targets or policies (Yes/No; count of sectors covered)	Encourages a whole-of-economy approach, moving beyond a single headline target to actionable sectoral plans.	Every NDC cycle (5 years)	Low (objective scope measure)
Implementation Readiness and Governance					
E5	Maturity of national MRV system	Maturity of GHG monitoring & reporting system (e.g. Established nationwide system, Developing, or Not in place)	A robust MRV system is foundational for tracking progress, ensuring transparency, and	Biennial	Medium (exposes capacity gaps)

ID	Indicator Name	Measurement	Rationale	Reporting frequency	Political sensitivity
			enabling carbon market participation.		
E6	Preparedness for the Enhanced Transparency Framework (ETF)	Submission of latest Biennial Transparency Report (BTR) (Submitted / In preparation / Delayed).	A time-bound indicator of compliance with Paris Agreement obligations. Meeting ETF reporting deadlines reflects political prioritization of transparency.	Biennial (per UNFCCC schedule)	Medium (reveals international compliance readiness)
E7	Vertical integration into subnational planning	Mechanisms for translating NDC into subnational action (e.g. % of provinces with climate action plans or budgets aligned to NDC)	Addresses the critical "vertical coordination bottleneck" that hinders on-the-ground implementation.	Every NDC cycle (5 years)	Medium (highlights domestic governance effectiveness)
Climate Finance and Investment					
E8	Implementation of Climate Budget Tagging (CBT)	Existence of a national CBT system (Yes, institutionalized / Yes, pilot phase / No). Percentage of national budget tagged for climate action (if available).	Enhances transparency of domestic climate finance and aligns national budgets with NDC priorities.	Annual (budget cycle)	Low (internal financial practice)
E9	NDC financial needs articulation	Inclusion of a quantified estimate of financial needs in NDC (with sector breakdown and split of unconditional vs. conditional needs) (Yes/No)	A clear articulation of needs is essential for attracting targeted international support and investment.	Every NDC cycle (5 years)	Low (planning transparency)
E10	Mobilization of conditional finance	Percentage of required conditional finance for NDC that has been secured (Quantified estimate).	Indicates progress in converting conditional commitments into action by securing promised support.	Biennial	Medium (can implicitly call out shortfalls in support or effort)

10.3. Inclusivity indicators: participation, gender, youth, Indigenous Peoples

The Inclusivity indicator category addresses the persistent governance gap where many ASEAN climate policies have been top-down and technocratic, with limited input from those most affected by climate impacts or transitions. Strengthening inclusivity is strategically important because it improves both the legitimacy and the effectiveness of NDC implementation: when communities, youth, indigenous peoples, and other stakeholders have a voice, climate strategies are more attuned to on-the-ground realities and fairness concerns. This is particularly relevant in ASEAN, where soft authoritarian tendencies or centralized decision-making in some states mean that vulnerable groups (e.g. rural communities, women, urban poor) might otherwise be overlooked, and climate measures could fail to address social justice (or even provoke backlash). These indicators therefore track whether institutional mechanisms for participation and equity are in place, from formal consultation bodies to gender-responsive budgeting, shining a light on areas often ignored by the Paris Agreement’s transparency rules. They also align with ASEAN’s stated principles of people-centred development, pushing the concept of “leave no one behind” into climate action.

ID	Indicator name	Measurement	Rationale	Reporting frequency	Political sensitivity
I1	Stakeholder participation mechanism	Existence of a formal multi-stakeholder climate body or consultation process for NDC development (Yes/No)	Meaningful participation ensures government accountability and integrates diverse expertise.	Every NDC cycle (5 years)	Medium (questions top-down governance practices)
I2	Gender responsiveness of climate policy	Inclusion of gender-specific actions or a dedicated Gender Action Plan in the NDC/implementation (Yes/No)	A gender-responsive NDC indicates recognition of different impacts and leverages the contributions of women, improving equity.	Every NDC cycle (5 years)	Low (generally accepted, though progressive)
I3	Youth engagement in climate decision-making	Assesses if the NDC target is independently rated as compatible with a 1.5°C trajectory (Traffic lights)	Captures whether the next generation, who will face future climate impacts, have a voice in policy.	Every NDC cycle (5 years)	Low (youth inclusion is widely supported)
I4	Indigenous Peoples’ inclusion	Recognition of indigenous peoples and local communities in climate strategies, with consultative or benefit-sharing mechanisms (Yes/No)	This is critical in ASEAN, where indigenous communities guard vast carbon sinks but are often marginalized	Every NDC cycle (5 years)	High (touches on land rights and sovereignty sensitivities)

ID	Indicator name	Measurement	Rationale	Reporting frequency	Political sensitivity
I5	Accessibility of climate information	Public availability of NDCs and key climate documents in national/local languages and user-friendly formats (Yes/No)	If climate plans and progress reports are accessible to the general public, it empowers civil society and subnational actors.	Every NDC cycle (5 years)	Low (government transparency norm)
I6	Just Transition planning	Existence of a Just Transition strategy or commission (with representation of government, employers, workers) (Yes/No)	Checks whether countries are planning for the socio-economic impacts of climate action (e.g. job losses in fossil-fuel sectors).	Every NDC cycle (5 years)	Medium (can implicate vested interests in energy sector)
I7	Local government & community engagement	Mechanisms for subnational input into NDC implementation (e.g. climate committees at provincial level or community consultations for project design) (Yes/No)	Gauges vertical inclusivity. Local authorities and communities are on the front line of implementation; their engagement means policies are better tailored and more likely to succeed	Biennial (progress review)	Medium (may challenge centralized control)
I8	Climate education and awareness	Integration of climate change into national education curricula or public awareness campaigns (Yes/No)	Reflects efforts to build an informed and climate-conscious society. By educating youth and the public, countries cultivate long-term support for climate policies and empower citizens to participate.	Biennial	Low (uncontroversial)

10.4. Coherence indicators: ASEAN alignment, transboundary collaboration

Regional coherence is the cornerstone of ASEAN's added value in global climate action: it transforms ten separate national efforts into a coordinated force capable of addressing shared challenges. This category of indicators is strategically significant in highlighting how well ASEAN countries align and collaborate on climate initiatives, an area where the thesis identified considerable room for improvement. Under the current paradigm of “soft” regionalism, ASEAN climate cooperation has been largely limited to information exchange and voluntary plans, lacking binding commitments or joint programs. The Coherence indicators are designed to gently push beyond this status quo, by tracking participation in collective endeavours and consistency with regional policies. They directly target ASEAN-specific gaps: institutional fragmentation (e.g. climate efforts not integrated with ASEAN frameworks), transboundary blind spots (e.g. haze pollution or shared river basins addressed only nationally), and the underutilization of ASEAN mechanisms (e.g. the ASEAN Centre for Climate Change).

Importantly, improved coherence can yield practical benefits: harmonized policies can attract more climate finance (through regional proposals), joint projects can manage shared resources more effectively, and a united front can amplify ASEAN's voice in international negotiations. For high-level decision-makers, these indicators offer a clear picture of how close the region is to speaking with one voice on climate matters and where strategic interventions (like facilitating regional pilot projects or common standards) might make a difference.

ID	Indicator name	Measurement	Rationale	Reporting frequency	Political sensitivity
C1	Alignment with ASEAN climate strategies	Number of explicit references to ASEAN-agreed climate or energy frameworks (e.g. ACCSAP, APAEC targets) in the country's NDC or climate plans	Gauges policy coherence: when national plans cite or align with regional goals (such as the ASEAN renewable energy target), it indicates synergy rather than working at cross-purposes	Every NDC cycle (5 years)	Low (voluntary alignment)
C2	Transboundary climate risk addressal	Inclusion of transboundary climate issues in national plans: e.g. acknowledgment of shared risks (haze, river basin floods) in NDC and number of regional initiatives addressing them	Tracks whether countries treat cross-border climate risks as a regional concern, which closes gaps that no country can solve alone.	Every NDC cycle (5 years)	Medium (acknowledges cross-border responsibility)
C3	Regional mitigation integration	Participation in ASEAN-wide mitigation efforts (e.g. ASEAN Power Grid projects status; engagement in regional carbon market initiatives like ACCF)	Active participation signals trust and willingness to share benefits and burdens, moving beyond isolated national projects.	Annual (progress update)	Medium (touches energy sovereignty and market integration)

ID	Indicator name	Measurement	Rationale	Reporting frequency	Political sensitivity
C4	Participation in ASEAN climate platforms	Level of engagement in ASEAN climate forums and joint activities (e.g. attendance/hosting of ASEAN Working Group on Climate Change meetings, contributions to ASEAN Climate Outlook Forum)	Strong participation suggests countries value regional knowledge exchange and are building a community of practice, which can gradually lead to policy convergence and mutual support.	Annual	Low (routine diplomacy)
C5	Joint regional climate finance initiatives	Number of multi-country project proposals submitted to international climate funds (GCF, Adaptation Fund) or regional green finance facilities (e.g. ASEAN Catalytic Green Finance Facility)	Joint proposals imply pooled expertise and shared benefit, enhancing smaller countries' access to finance and demonstrating ASEAN's unity to donors.	Biennial	Low (win-win collaboration)
C6	Supply chain climate resilience	Integration of regional supply-chain or trade vulnerability assessments into national climate strategies (Yes/No)	Assesses forward-looking coherence on economic resilience.	Every NDC cycle (5 years)	Medium (may expose economic vulnerabilities)
C7	Common ASEAN negotiation stance	Consistency in supporting joint ASEAN positions or statements in UNFCCC negotiations (Yes/No; e.g. endorsement of ASEAN Joint Climate Statement each year)	Tests diplomatic coherence. When all members back collective statements or negotiating positions, ASEAN's voice on the global stage is stronger.	Annual (COP meetings)	Low (consensus-based diplomacy)
C8	Engagement with ASEAN Climate Centre (ACCC)	Active utilization of the ASEAN Centre for Climate Change services (e.g. data reporting to regional climate portal, joint research or secondments with ACCC) (Yes/No)	Evaluates buy-in to the newest regional climate institution.	Annual	Low (technical cooperation)
C9	Intra-ASEAN climate support	Contributions to or use of ASEAN-led climate support programs (e.g. climate finance facilities, disaster response funds, technical assistance schemes) (Yes/No; or number of programs engaged)	Captures mutual aid and resource pooling.	Biennial	Medium (some may prefer bilateral over regional support)

Chapter 11: Conclusion

11.1. Summary of findings and central argument

(a) Fragmented ambition despite Paris alignment

This thesis set out to investigate how enhancing regional coherence could bolster the ambition and effectiveness of Nationally Determined Contributions in the ASEAN region. The research problem was rooted in the observation that while all ten ASEAN Member States have Paris-aligned climate commitments, their efforts remain largely fragmented and vary in ambition, and ASEAN as a bloc lacks a unified approach to climate action. The methodology combined comparative case studies of six ASEAN countries, Indonesia, Myanmar, the Philippines, Singapore, Thailand, and Viet Nam, selected to represent the region's diversity in governance, development, and climate challenges. In-depth policy analysis was complemented by expert interviews and a review of regional initiatives, providing both qualitative and quantitative insights. Through this lens, the thesis examined national NDC contents, institutional readiness, stakeholder inclusion, and areas of cross-border relevance, before formulating a framework for voluntary regional indicators in the penultimate chapter.

(b) Ambition gap and divergent trajectories

Key findings emerged across multiple dimensions. First, there is a clear ambition gap at the regional level: collectively, ASEAN's current NDCs are not on track for a 1.5°C pathway, even if conditional targets are met. Integrated assessment models indicate the region would need to reach net-zero CO₂ emissions around 2050, but most national targets fall well beyond this, reflecting insufficient ambition (Qiu et al., 2024). Underlying this gap is the diversity of NDC approaches, some countries (e.g. Singapore) have relatively robust, economy-wide targets and policy frameworks, whereas others (e.g. Myanmar) have narrower scopes or primarily conditional goals.

(c) Uneven implementation capacities

This diversity partly stems from varying national circumstances and capacities. Indeed, the research found that institutional and technical readiness for NDC implementation is highly uneven across ASEAN. For example, Singapore has an advanced, legally mandated MRV system exceeding ETF standards and has consistently submitted transparency reports on time. In contrast, several other states are still developing basic GHG inventory systems and struggled to produce even their biennial reports, highlighting capacity gaps. Such disparities in data and implementation capacity contribute to an uneven pace of NDC progress.

(d) Coordination mechanisms and integration efforts

Another important finding is related to policy integration and coordination. Where institutional mechanisms exist to integrate climate targets into development planning, NDC execution tends to be stronger. Countries like Viet Nam and Indonesia have begun aligning NDCs with sectoral plans and created inter-ministerial committees, whereas others lack clear

coordination structures, resulting in *ad hoc* or siloed efforts. Vertical integration (national-local linkages) is also variable; for instance, only a few countries engage provinces or cities systematically in NDC implementation.

(e) Deficits in stakeholder participation

On the inclusivity front, the thesis documented a consistent deficit in meaningful stakeholder engagement. While most countries followed formal consultation steps in updating NDCs (e.g. workshops, public comments), the influence of non-state inputs on final outcomes has generally been limited. Civil society representatives often describe NDC consultations as perfunctory or rushed. The survey data revealed that a majority of ASEAN climate experts were unaware of effective participation mechanisms in their countries' NDC processes, pointing to either poor communication or absence of genuine dialogue. Youth and gender considerations, similarly, were frequently acknowledged in discourse but weakly integrated in policy, with the notable exception of the Philippines' NDC, which pioneered a dedicated Gender and Climate Action Plan. This suggests that social inclusivity in climate policy is still at an early stage in ASEAN, potentially weakening public support and the responsiveness of NDC actions to community needs.

(f) Regional climate governance remains soft and limited

From a regional governance perspective, the study found ASEAN's climate cooperation to date is characterized by soft coordination without enforcement. ASEAN's climate-related bodies and agreements, the AWGCC, joint climate statements, the ASCCR, etc, have provided important platforms for information exchange and capacity building. They have succeeded in producing shared analyses and setting broad directions (e.g. outlining priority actions in the ASCCR). However, these mechanisms operate under strict principles of national sovereignty and non-interference. There are no binding emission targets or compliance tools at the ASEAN level; implementation of regional plans relies entirely on national follow-through. This has resulted in what one might call "cautious regionalism", progress on less sensitive, technical cooperation (for instance, joint research, capacity building) but hesitation to collectively address issues that imply sharing burdens or constraining domestic policy (such as transboundary emissions reductions or unified finance asks). A telling example analysed was the Transboundary Haze Pollution issue: despite a binding ASEAN Agreement (AATHP) in force, the haze problem persists almost every year, and notably, NDCs treated it as a domestic matter rather than a regional priority. This fragmentation indicates that without new approaches, some climate risks will remain inadequately tackled by purely national efforts.

(g) Positive models for voluntary cooperation

Conversely, successful cases of regional cooperation provide optimism and lessons. The thesis highlighted the ASEAN Agreement on Disaster Management and Emergency Response as a case where a regional framework led to effective collective action (with the AHA Centre and other mechanisms), made possible by framing the issue in a non-political, mutually beneficial way. Similarly, the APAEC in energy set collective renewable energy goals that, while voluntary, have driven member states to invest in clean energy and pursue projects like the ASEAN Power Grid. These instances show that ASEAN can act in unity when interests align and when initiatives respect the ASEAN Way.

(h) Coherence as a catalyst for ambition

The central argument advanced in this thesis builds on that insight: that *regional coherence, achieved through voluntary alignment, transparent progress tracking, and cooperative initiatives, can amplify national climate action*. In essence, if countries know what their peers are doing and have forums to collaborate, they are more likely to raise their ambition and improve implementation. This argument is supported by evidence of peer influence: for example, in ASEAN economic integration, peer review processes have spurred reforms by leveraging a desire not to fall behind neighbours. Translated to climate, a transparent ASEAN monitoring framework could create a similar dynamic of positive competition and mutual support.

To summarize the central argument: regional coherence enhances national NDC ambition and effectiveness by providing structure for transparency, facilitating learning, and enabling joint initiatives that no single country could achieve alone. Coherence does not mean identical policies or loss of sovereignty; rather, it means moving in the same direction and mutually reinforcing each other's efforts. Throughout the chapters, it was shown that incoherence, each country acting in isolation, leads to duplication, gaps (such as cross-border issues being unaddressed), and a slower overall response to climate threats. Conversely, greater coherence, even if voluntary, can help close the ambition gap by building trust and collective momentum. For instance, an ASEAN "stocktake" of NDC progress could highlight the need for all to step up, and shared indicators could pinpoint where technical help is needed, thereby channelling support to those who might otherwise fall behind. By speaking with a more unified voice, ASEAN could also strengthen its negotiating position internationally and attract climate finance, which in turn enables higher ambition, a virtuous circle.

The framework of voluntary indicators proposed in Chapter 10 is a practical embodiment of this thesis's argument: it seeks to operationalize regional coherence in a manner consistent with ASEAN norms, aiming to gradually ratchet up transparency, inclusivity, and alignment. In concluding, the research finds that while challenges to regional climate coherence are significant, the benefits in terms of enhanced ambition, implementation capacity, and resilience to transboundary risks make a strong case for ASEAN and its Member States to embrace the strategies recommended. The next sections discuss the limitations of this research and suggest how future work can further explore and validate the link between regional cooperation and climate action outcomes.

11.2. Limitations and future research directions

Like any study, this thesis has limitations that must be acknowledged. These limitations largely stem from scope, data availability, and the evolving nature of the subject matter.

(a) Scope and country coverage limitations

The research focused on 6 out of 10 ASEAN Member States. While these six (Indonesia, Myanmar, Philippines, Singapore, Thailand, Viet Nam) were carefully chosen to represent a range of contexts (large vs. small emitters, different governance regimes, varying climate vulnerabilities), the exclusion of four countries (Brunei Darussalam, Cambodia, Lao PDR, Malaysia) means the findings are not fully comprehensive for the entire region. Important nuances may have been missed – for instance, Malaysia's federal approach or Lao PDR's perspectives on regional power trade were not directly examined. Thus, any generalization to

“ASEAN as a whole” should be made with caution. Future research should aim to include all ten countries or at least ensure that different sub-regional perspectives (Maritime Southeast Asia vs. Mainland, higher-income vs. lower-income AMS) are covered for a more complete picture.

(b) Interview and survey constraints

The study’s qualitative insights were drawn from a limited number of stakeholder interviews and a survey of regional experts. Practical constraints (time, access, and language in some cases) meant that the interview sample may not capture the full spectrum of views, especially from grassroots actors or government officials in certain countries who could not be reached. For example, voices from civil society in more restrictive contexts or local-level officials might be underrepresented. Additionally, given diplomatic sensitivities, some interviewees may have provided guarded responses on ASEAN cooperation challenges. This limitation suggests that some findings (particularly on political will and perceptions of the ASEAN processes) could be further validated with a broader or more targeted set of interviews, including policymakers, community representatives, and regional secretariat officials.

(c) Temporal limitations

This research was conducted during a dynamic period (2024-2025) when many ASEAN countries were in the midst of updating their NDCs (the “NDC 3.0” submissions due around 2025). At the time of analysis, most of these third-round NDCs were not yet publicly available, meaning the study had to rely on the latest available second-round NDCs and other policy documents. The global Global Stocktake at COP28 (late 2023) and subsequent international climate finance pledges may influence ASEAN actions but were only beginning to unfold as this thesis was finalized. The fast-moving policy environment is a limitation in that some analysis might be quickly outdated by new national commitments or ASEAN initiatives. However, the broader structural conclusions likely remain valid, as they concern deeper institutional and regional coordination issues that do not change overnight. Future researchs updating this work should incorporate the content of all third-round NDCs once available, to see if trends identified here (e.g. on inclusion or regional references) improved and to adjust recommendations accordingly.

(d) Unpiloted indicator framework

The thesis culminates in a proposed framework of voluntary indicators and cooperation strategies. These recommendations, while grounded in the findings, remain conceptual and untested. Due to the academic scope, it was not possible to pilot the indicator framework in a real ASEAN setting or to model quantitatively how its adoption might impact NDC outcomes. This is a limitation because the efficacy of the recommended approach (voluntary regional monitoring) is based on theory and analogous examples rather than direct evidence in the climate realm. For example, we infer that peer transparency will raise ambition by drawing on other policy domains and expert opinion, but we could not demonstrate this empirically within the thesis. Similarly, the assumption that ASEAN states would be willing to participate in such a framework is unproven – political economy constraints could differ by country. As such, the recommendations should be viewed as a starting point for discussion and experimentation, not a guaranteed solution.

(e) Future avenues: expanding and testing the framework

Building on these limitations, several future research directions are suggested to deepen and test the insights of this study. Future studies should include all ten AMS to provide a truly region-wide assessment. This could involve partnerships with local researchers to gather country-specific data (especially for countries less covered in English-language literature). Including all members would also be important for any practical implementation of a monitoring framework, as ASEAN operates by consensus.

To complement this qualitative and institutional analysis, quantitative research could model scenarios of regional cooperation impacts. For example, one could use integrated assessment models or energy models to simulate an “ASEAN cooperative scenario” where countries collectively achieve certain targets (like the APAEC renewable goal or a coordinated coal phase-down) and compare it to a business-as-usual scenario. This would put numbers on the potential emissions reduction or cost savings from regional coordination, strengthening the case with economic and climate impact evidence. Additionally, quantitative network analysis might be applied to ASEAN climate policies to see how information or finance flows between countries, identifying key connectors or gaps in the network.

An action-research project could be undertaken where a subset of ASEAN countries voluntarily adopt and report on the indicators proposed in Chapter 10 for a trial period. For instance, interested countries could form a working group with the ASEAN Secretariat to exchange their data on the agreed indicators for a year or two. Observing this pilot would yield insights on the practicality: Are the definitions clear? Is data collection feasible and not overly burdensome? How do countries react to each other’s data? Does it stimulate the intended dialogue and learning? The results could then inform a refined framework that is officially tabled at ASEAN meetings. Such piloting moves the idea from paper to practice and could also surface political hurdles (or unexpectedly strong support).

(f) Political economy and institutional uptake

Further political economy analysis is warranted to understand the conditions under which ASEAN states might embrace deeper climate cooperation. Questions include: What are the incentive structures for national leaders to prioritize regional approaches (e.g. does leadership in ASEAN climate initiatives confer diplomatic or economic benefits)? Conversely, what sensitivities (sovereignty concerns, fear of external scrutiny) could impede participation in a transparency framework, and how might they be allayed? Research involving interviews with policymakers or participant observation in ASEAN negotiation processes could shed light here. Knowing this would help tailor any proposed framework to be more acceptable – for example, by ensuring data is handled confidentially or by explicitly separating it from any compliance use.

(g) Institutional evolution and monitoring

ASEAN is in the process of developing new cooperative measures (the ASEAN Climate Change Strategic Action Plan, the ACCC in Brunei, etc.). Future research should track the implementation of these and assess their impact on national policies. Are they leading to better-integrated actions? How effective is the ACCC in data sharing? Do regular ASEAN climate meetings result in tangible changes or just statements? This kind of evaluation research can determine if ASEAN’s institutional evolution is addressing some gaps identified in this thesis.

In summary, while this thesis offers an initial framework and evidence base suggesting the value of regional coherence, further research is needed to generalize the findings, test the recommendations in practice, and refine them. ASEAN's climate governance is a moving target, with each COP, each new climate disaster, and each technological shift, the context changes. Continuous research that stays updated with these developments will be important. Ultimately, proving the hypothesis that regional cooperation can drive higher ambition may require both quantitative impact studies and on-the-ground experimentation, working hand-in-hand with ASEAN stakeholders.

11.3. Personal lessons learned

Beyond the academic findings, this research journey has been immensely enriching on a personal level. It not only deepened my understanding of ASEAN climate governance, but also significantly shaped my perspectives as an early-career researcher and practitioner. Three experiences in particular stand out as formative “lessons learned” moments:

(a) Learning from field experience

Conducting interviews with regional experts and practitioners was a highlight of my research. Speaking with government advisors, NGO leaders, and international agency specialists gave life to the concepts I was analyzing on paper. For example, hearing first-hand from an Indonesian climate official about the constraints of the ASEAN process, or from a Philippine civil society leader about navigating government consultations, provided nuance that cannot be found in documents. These conversations taught me the importance of *listening and empathy* in research – understanding where each stakeholder is coming from, and the practical realities they face. It was a lesson in grounding theoretical proposals (like my indicator framework) in the day-to-day constraints of bureaucracy, politics, and resource limitations. Moreover, I learned how to communicate across cultural and professional divides; tailoring my questions and framing to each interviewee's context was crucial for gleaning honest insights. This skill will be invaluable in any future fieldwork or policy engagement I undertake.

(b) Defending ideas through regional dialogue

I had the opportunity to present portions of this research at an ASEAN-focused academic-policy conference in Viet Nam, titled “ASEAN's Path to Sustainable Development: Navigating International Relations, Legal Frameworks, and Sovereignty.” Sharing my preliminary findings with a room of Southeast Asian scholars, officials, and fellow students was both nerve-wracking and enlightening. The experience taught me how to defend my argument (that ASEAN needs a voluntary climate monitoring framework) before an informed audience who brought different viewpoints, some were optimistic about ASEAN's role, others more sceptical. The ensuing discussion was incredibly instructive: participants probed the feasibility of my proposals, citing historical precedents and political sensitivities I needed to consider. I learned the value of incorporating regional voices in my work, indeed, some suggestions from that conference (such as drawing parallels to ASEAN's peer review in economic policies) were integrated into the final thesis. This experience also underscored how research can contribute to live policy debates. As I fielded questions on sovereignty and data-sharing, I realized I was part of a larger conversation about ASEAN's future, which was both

humbling and motivating. It reinforced my determination to pursue research that is policy-relevant and to do so in a collaborative spirit, welcoming critique as a means to refine ideas

(c) Immersion through the ASEAN-China Norms summer school

Attending virtually a summer school on climate and sustainability governance in Malaysia (organized by the CNRS “ASEAN-China Norms” network) was another pivotal experience. For a few days, I learned alongside peers from across ASEAN, from Viet Nam to Malaysia to the Philippines, as well as China and Europe. Through workshops, (including a day focused on legal tools for climate transitions in the ASEAN context), I gained a much richer appreciation of the cultural and socio-political context in which ASEAN climate policy operates. This on-the-ground exposure taught me lessons that books alone could not: the importance of informal networks and personal relationships in ASEAN cooperation, the differing national narratives around climate change (for instance, how history and education shape the discourse in each country), and the resourcefulness of local initiatives driving change from the bottom up. One key takeaway was learning to see climate issues through the eyes of my Southeast Asian colleagues, stepping outside the external analyst perspective. This fostered a sense of solidarity and respect; ultimately, it impressed upon me that sustainable solutions must come from within the region, with external support playing a supportive role. The summer school experience solidified my passion for working in and on ASEAN issues. It is one thing to research a region, and quite another to build personal connections with the people for whom these issues are daily realities.

(e) Looking ahead

The journey of writing this thesis has been transformative. It has strengthened my conviction that rigorous analysis can inform better policy, especially when combined with genuine engagement with those on the front lines. I have come to appreciate the complexity of driving change in a consensus-based regional setting, patience, cultural sensitivity, and creative thinking are as important as technical knowledge. Importantly, this process has only increased my commitment to ASEAN’s climate and development agenda. Far from being disheartened by the challenges identified, I am inspired by the potential for progress and the many dedicated individuals working toward it. The research has opened several new questions (as noted above) and I find myself eager to explore them, possibly through doctoral research. I am particularly interested in carrying forward the idea of voluntary regional frameworks and testing it in practice, as well as delving deeper into how local communities in Southeast Asia can be linked into regional policymaking.

In essence, this thesis is an ending but also a beginning, the culmination of my Post-Master’s study and the launch pad for what I hope will be a long-term engagement with climate governance in ASEAN. The lessons learned, intellectual, professional, and personal, will guide me in the next steps. I conclude with a sense of gratitude for the opportunity to contribute, in a small way, to the understanding of ASEAN’s climate potential, and with optimism that the seeds of regional coherence and cooperation, nurtured by research and dialogue, will continue to grow in the coming years.