CAMPUR

Climate Action for Mutual Prosperity Under Regional Cooperation

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Under Regional Cooperation

CAMPUR Interim Report

Achieving decarbonisation and economic growth simultaneously through ASEAN-Japan cooperation



CAMPUR Standing Committee

November 2026

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The CAMPUR Standing Committee consists of members of Brunei Climate Change Office, Brunei Darussalam; Ministry of Environment, Cambodia; Ministry of Environment, Indonesia; Ministry of Agriculture and Environment, Lao PDR; Ministry of Natural Resources and Environmental Sustainability, Malaysia; Climate Change Commission and Department of Environment and Natural Resources, the Philippines; National Climate Change Secretariat, Singapore; Ministry of Natural Resources and Environment, Thailand; Ministry of Tourism and Environment, Timor-Leste; Ministry of Agriculture and Environment, Viet Nam; and Ministry of the Environment, Japan.

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Executive Summary

Climate action in Asia and around the world needs to accelerate to achieve the 1.5°C goal of the Paris Agreement. At the same time, ASEAN Member States (AMS) and Japan face diverse economic, energy, social and environmental challenges, including energy security, demographic change, industrial transformation, environmental pressures and increasing climate risks. Decarbonisation therefore needs to be pursued in ways that also support economic development, resilience and people's well-being, while ensuring a just transition that protects affected groups, including vulnerable workers, coal-dependent communities, and low-income populations.

These challenges arise under different national circumstances. Economic and urban growth in many AMS creates opportunities for investment but also risks locking in emissions-intensive infrastructure; Japan faces different demographic and industrial conditions. Fossil-fuel dependence and volatile international energy markets raise shared energy-security concerns, while climate hazards threaten communities, assets and supply chains. Accordingly, this report understands economic growth broadly: as improving well-being and addressing socio-economic, energy and environmental challenges, not simply increasing gross domestic product.

Against this background, ASEAN and Japan launched an initiative named CAMPUR (Climate Action for Mutual Prosperity Under Regional Cooperation) to identify practical approaches for advancing decarbonisation, inclusive economic growth and energy security together, while addressing broader socio-economic and environmental challenges. This initiative builds on ASEAN–Japan cooperation under the Comprehensive Strategic Partnership and the updated Strategic Program for ASEAN Climate and Environment (SPACE), which calls for an ASEAN–Japan contribution to the Second Global Stocktake (GST2). This Interim Report, prepared for COP31, reviews national and regional policies and good practices and provides a foundation for the Final CAMPUR Report towards COP32.

Prepared with governmental representatives of AMS and Japan, regional organisations and research institutions, the report reviews national policy frameworks and implementation experience. It draws on Nationally Determined Contributions (NDCs), Long-term Low Emission Development Strategies (LT-LEDS), Biennial Transparency Reports (BTRs), National Adaptation Plans (NAPs), other official documents, international assessments and research. Cases were considered for multiple benefits, innovation, contextual relevance, viability and scalability. The report is an interim synthesis of policies and experience, not a comprehensive attribution study of outcomes.

The analysis finds that AMS and Japan share a common direction while pursuing diverse nationally determined pathways. Differences in development stage, energy systems, industrial structures, institutional capacities and national priorities mean that there is no single policy package for achieving net zero. This reflects the principle of "One Goal, Various Pathways", under which countries pursue shared climate objectives through practical approaches tailored to their national circumstances. Rather than being treated as a standalone environmental constraint, climate action is increasingly being integrated with wider development goals, energy security, industrial competitiveness, resilience, environmental sustainability and public well-being, ensuring that transition policies actively promote social inclusion, gender responsiveness, and community empowerment.

National circumstances shape both implementation opportunities and constraints. Demographic change, sectoral structures, energy systems and climate risks differ substantially across the region. Fossil fuels remain important in many electricity systems, while patterns of economic growth and energy-related CO_2 emissions vary. Countries have advanced NDCs, longer-term objectives and transparency arrangements, but policy instruments and institutional readiness remain uneven. Country ownership and appropriate policy sequencing are therefore essential, alongside mutual learning about shared implementation challenges.

Resilience is a foundation for sustainable development and the transition to net zero, not a separate concern. Climate risks to agriculture, water, coasts, health, infrastructure and ecosystems directly threaten development gains and low-carbon investment. National adaptation documents across all eleven AMS and Japan identify overlapping vulnerabilities, although risks and capacities differ. Adaptation planning is becoming more institutionalised, but turning plans into locally informed, financed and monitored action remains difficult. Regional cooperation should address a broad spectrum of climate impacts by integrating disaster risk reduction and climate-resilient infrastructure into adaptation efforts, while also strengthening the information base for understanding and addressing Loss and Damage. Integrated investments offer mutual benefits: mangrove restoration in Indonesia can support coastal protection and carbon sinks, while paludiculture can reduce emissions from degraded peatlands and support local livelihoods. Solar power and storage at Japanese evacuation facilities can cut normal-time emissions and supply power during disasters. Such examples show the relevance of embedding climate risk in infrastructure, energy and investment decisions.

Practical initiatives increasingly link climate action with broader development priorities. National strategies in Malaysia, Lao PDR, Timor-Leste and Japan connect decarbonisation with growth, livelihoods, industrial change, resilience or energy security. Sectoral cases span renewable energy and efficiency, industrial upgrading, cleaner transport, circular waste management, methane abatement, climate-smart agriculture and land use. In particular, high-impact near-term measures include integrated water-and-waste infrastructure in Singapore, rapid methane abatement in rice farming through alternate wetting and drying, and paludiculture in Indonesia. They show how measures can pursue several policy objectives together, without establishing that all projected benefits are already realised or that any single model suits every country.

The report also identifies several common enabling conditions for implementation. Key enabling factors include integrating climate objectives into national and sectoral development strategies; strengthening legal and institutional frameworks; strengthening coordination across ministries and levels of government; mobilising public and private finance; improving transparency and MRV; building institutional and human capacity; and promoting stakeholder participation. The key lesson for mutual learning is therefore not to replicate entire policy instruments, but to share enabling functions, policy sequencing, financing approaches and practical implementation experience.

These enabling functions take different institutional forms. In the Philippines, Local Climate Change Action Plans connect national frameworks with local responsibilities; Japan's Decarbonisation Leading Areas combine national support and local implementation; and programmes in Indonesia, Singapore and Japan involve communities, businesses and citizens. Carbon pricing and transition finance can help shape investment incentives, while sustainable-finance taxonomies can provide greater clarity and transparency for green and transition investments. The effectiveness of these approaches, however, depends on credible rules, data, safeguards and market readiness. The existence of a policy framework should not be confused with demonstrated investment mobilisation or emissions reductions. Transferable lessons often concern governance functions and implementation sequences, not wholesale institutional replication.

Regional cooperation can further accelerate implementation by connecting national action with regional infrastructure, markets, finance and technology, while addressing barriers that individual countries cannot overcome alone. Initiatives such as the ASEAN Power Grid and cross-border power trading demonstrate opportunities for greater regional energy connectivity. Article 6 cooperation, including the Joint Crediting Mechanism (JCM), together with regional transparency and MRV initiatives such as PaSTI, sustainable finance, capacity building and analytical tools, can support investment and technology deployment. Regional cooperation should therefore complement, rather than replace, nationally determined action.

Implementation gaps remain central. Targets, legal frameworks and pilot projects do not automatically yield verified, economy-wide results. Important barriers include upfront capital costs, currency exchange risks, fragmented responsibilities, limited technical capacity and uneven access to benefits. Assessing the transferability of good practices therefore requires attention to local context, social safeguards, financing and demonstrable outcomes—not only the attractiveness of policy designs.

Based on these findings, **the report highlights five messages for GST2**:

- Climate action is more effective when embedded in wider development, investment, energy-security and resilience strategies, rather than pursued as a stand-alone environmental policy. Such efforts should also ensure a just transition and, where relevant, draw on local and traditional knowledge.

- Common climate objectives can be advanced through diverse nationally determined pathways, reflecting different national circumstances. These pathways can also strengthen adaptation and resilience.

- Greater attention should be paid to enabling conditions for implementation, including governance, finance, capacity, transparency and stakeholder participation.

- Practical, low-cost climate actions—such as Japan's COOL BIZ and Singapore's Go 25—can generate immediate emissions reductions and other tangible benefits, providing an accessible entry point for broader climate transitions.

- Regional and international cooperation can complement domestic action by facilitating investment, infrastructure development and integration (such as the ASEAN Power Grid), technology deployment, carbon-market cooperation (including under Article 6 through the JCM), capacity development and knowledge sharing.

For GST2, the implication is to examine not only climate targets and decarbonisation technologies but also how development priorities, social equity, resilience, governance, finance and regional cooperation affect real-world implementation. These experiences can inform a practical discussion of accelerating action under diverse national circumstances. They do not establish that current efforts are sufficient for the 1.5°C goal or imply any new common quantitative commitments.

The next phase of CAMPUR will move beyond mapping policies and good practices to identify practical pathways for scaling and replication. The Final Report will examine which approaches can be transferred across national contexts, what policy, institutional, financial and technical conditions are required, and where ASEAN–Japan cooperation can most effectively accelerate implementation. Through this process, CAMPUR aims to provide a concrete regional contribution to GST2 and to advancing both climate action and mutual prosperity in Asia.

Further consultation and, where reliable data permit, quantitative analysis will strengthen the Final Report's assessment of policy sequencing, investment needs, conditions for replication and climate-development co-benefits. The objective is to move from documenting promising experience toward common principles and priority areas for actionable ASEAN–Japan cooperation, while clearly distinguishing existing commitments from future policy options.

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Abbreviations

AADMER	ASEAN Agreement on Disaster Management and Emergency Response
ACCF	ASEAN Common Carbon Framework
ACCSAP	ASEAN Climate Change Strategic Action Plan
ACE	ASEAN Centre for Energy
ACMF	ASEAN Capital Markets Forum
ADB	Asian Development Bank
AEF	Agreed Electronic Format (Article 6.2 reporting)
AETI	Asia Energy Transition Initiative
AFOLU	Agriculture, Forestry and Other Land Use
AI	Artificial Intelligence
AIM	Asia-Pacific Integrated Model
AJEEP	ASEAN–Japan Energy Efficiency Partnership
AMS	ASEAN Member States
ANRE	Agency for Natural Resources and Energy (Japan)
AP-PLAT	Asia-Pacific Climate Change Adaptation Information Platform
APAEC	ASEAN Plan of Action for Energy Cooperation
APG	ASEAN Power Grid
ASCCR	ASEAN State of Climate Change Report
ASEAN	Association of Southeast Asian Nations
AWD	Alternate Wetting and Drying
AWGCC	ASEAN Working Group on Climate Change
AZEC	Asia Zero Emission Community
AZEC-DCM	AZEC International Conference to Develop Carbon Markets
BAU	Business as Usual
BCP	Business Continuity Planning
BEMS	Building Energy Management System
BEV	Battery Electric Vehicle
BIMP-PIP	Brunei Darussalam–Indonesia–Malaysia–Philippines Power Integration Project
BNCCP	Brunei Darussalam National Climate Change Policy
BPDLH	Badan Pengelola Dana Lingkungan Hidup (Indonesian Environment Fund)
BRG	Badan Restorasi Gambut (Peatland Restoration Agency; Indonesia)
BRIN	Badan Riset dan Inovasi Nasional (National Research and Innovation Agency; Indonesia)
BRT	Bus Rapid Transit
BSP	Bangko Sentral ng Pilipinas
BTR	Biennial Transparency Report
BTR1	First Biennial Transparency Report
CAMPUR	Climate Action for Mutual Prosperity Under Regional Cooperation
CBDRM	Community-Based Disaster Risk Management
CBNRM	Community-Based Natural Resource Management

CCET	Climate Change Expenditure Tagging
CCS	Carbon Capture and Storage
CCUS	Carbon Capture, Utilisation and Storage
CLEAN	Coalition for LNG Emission Abatement toward Net-zero
COP	Conference of the Parties
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
DNSH	Do No Significant Harm
DPIN 2.0	Dasar Perubahan Iklim Negara 2.0 (National Climate Change Policy 2.0; Malaysia)
DPKK	Dasar Pasaran Karbon Kebangsaan (National Carbon Market Policy; Malaysia)
ECA	Energy Conservation Act (Singapore)
EDGAR	Emissions Database for Global Atmospheric Research
EE&C	Energy Efficiency and Conservation
EEG	Energy Efficiency Grant (Singapore)
EEP	Energy Efficiency Plan (Thailand)
EITE	Emissions-Intensive and Trade-Exposed
EPR	Extended Producer Responsibility
ERIA	Economic Research Institute for ASEAN and East Asia
ESCO	Energy Service Company
ESG	Environmental, Social and Governance
ETS	Emissions Trading System
EV	Electric Vehicle
FAO	Food and Agriculture Organization of the United Nations
FAST-P	Financing Asia's Transition Partnership
FCV	Fuel Cell Vehicle
FEMS	Factory Energy Management System
FOLU	Forestry and Other Land Use
FSF	Financial Sector Forum (Philippines)
FY	Fiscal Year
GCF	Green Climate Fund
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GMPA	Global Mitigation Potential Atlas
GOSAT	Greenhouse Gases Observing Satellite
GST	Global Stocktake
GST2	Second Global Stocktake
GWP	Global Warming Potential
GX	Green Transformation (Japan)
GX-ETS	Green Transformation Emissions Trading Scheme (Japan)
HEV	Hybrid Electric Vehicle
HPHD	Hak Pengelolaan Hutan Desa (Village Forest Management Rights; Indonesia)
HVAC	Heating, Ventilation and Air Conditioning
HVDC	High-Voltage Direct Current
ICCTF	Indonesia Climate Change Trust Fund

IEA	International Energy Agency
IGES	Institute for Global Environmental Strategies
IMCCC	Inter-Ministerial Committee on Climate Change (Singapore)
IPB	Bogor Agriculture University (IPB University; Indonesia)
IPCC	Intergovernmental Panel on Climate Change
IPP	Independent Power Producer
IPPU	Industrial Processes and Product Use
ITB	Institut Teknologi Bandung (Indonesia)
ITMOs	Internationally Transferred Mitigation Outcomes
IWMF	Integrated Waste Management Facility (Singapore)
JBIC	Japan Bank for International Cooperation
JCM	Joint Crediting Mechanism
JICA	Japan International Cooperation Agency
KHG	Kesatuan Hidrologis Gambut (Peatland Hydrological Unit; Indonesia)
LCCAP	Local Climate Change Action Plan (Philippines)
LCCP	Low Carbon Compatible with Paris (scenario)
LDC	Least Developed Country
LGU	Local Government Unit
LNG	Liquefied Natural Gas
LT-LEDS	Long-term Low Emission Development Strategies
LTMS-PIP	Lao PDR–Thailand–Malaysia–Singapore Power Integration Project
LULUCF	Land Use, Land-Use Change and Forestry
MALFF	Ministry of Agriculture, Livestock, Fisheries and Forestry (Timor-Leste)
MEPS	Minimum Energy Performance Standards
METI	Ministry of Economy, Trade and Industry (Japan)
MOEJ	Ministry of the Environment, Japan
MRV	Measurement, Reporting and Verification
MSE	Ministry of Sustainability and the Environment (Singapore)
MSME	Micro-, Small and Medium-sized Enterprise
MSS	Minimum Social Safeguards
MSW	Municipal Solid Waste
MTN	Multicurrency Medium Term Note
MVE	Monitoring, Verification and Enforcement
NAFRI	National Agriculture and Forestry Research Institute (Lao PDR)
NAMA	Nationally Appropriate Mitigation Action
NAP	National Adaptation Plan
NbS	Nature-based Solutions
NC	National Communication (to the UNFCCC)
NCCS	National Climate Change Secretariat (Singapore)
NCSD	National Council for Sustainable Development (Cambodia)
NDC	Nationally Determined Contribution
NDMC	National Disaster Management Centre (Brunei Darussalam)
NEA	National Environment Agency (Singapore)
NEK	Economic Value of Carbon (Nilai Ekonomi Karbon, Indonesia)
NETF	National Energy Transition Facility (Malaysia)

NETR	National Energy Transition Roadmap (Malaysia)
NEXI	Nippon Export and Investment Insurance
NGO	Non-Governmental Organisation
NIES	National Institute for Environmental Studies (Japan)
NIMP	New Industrial Master Plan (Malaysia)
OECD	Organisation for Economic Co-operation and Development
PaSTI	Partnership to Strengthen Transparency for co-Innovation
PDP	Power Development Plan
PES	Payment for Ecosystem Services
PHEV	Plug-in Hybrid Electric Vehicle
PM2.5	Fine particulate matter with an aerodynamic diameter of 2.5 μm or less
ProKlim	Program Kampung Iklim (Climate Village Programme; Indonesia)
PRS	Regional Product Registration System
PTMP	Public Transport Modernisation Program (Philippines)
PUB	Public Utilities Board (Singapore)
PV	Photovoltaic
REDD+	Reducing Emissions from Deforestation and forest Degradation and the role of conservation, sustainable management and enhancement of forest carbon stocks
REG(E)	Resource Efficiency Grant for Emissions (Singapore)
RMT	Remedial Measures to Transition
RUPTL	Rencana Usaha Penyediaan Tenaga Listrik (Electricity Supply Business Plan; Indonesia)
SAF	Sustainable Aviation Fuel
SDG	Sustainable Development Goal
SEC	Securities and Exchange Commission (Philippines)
SFTG	Sustainable Finance Taxonomy Guidelines (Philippines)
SIDS	Small Island Developing States
SITA	Support Initiative for Transparency in Asia
SME	Small and Medium-sized Enterprise
SPACE	Strategic Program for ASEAN Climate and Environment
SRI	System of Rice Intensification
T-VER	Thailand Voluntary Emission Reduction Program
TGO	Thailand Greenhouse Gas Management Organization (Public Organization)
TPEs	Accredited Third-Party Entities
TSO	Transmission System Operator
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UTM	University of Technology Malaysia
VCM	Voluntary Carbon Market
WASH	Water, Sanitation and Hygiene
WDI	World Development Indicators
WHO	World Health Organization
WMO	World Meteorological Organization
WtE	Waste-to-Energy

1. Introduction

1.1 Background

Climate change mitigation is an urgent priority. To achieve the 1.5°C goal of the Paris Agreement, it is essential that Parties unite and steadily advance global efforts towards further decarbonisation. There is a growing recognition that decarbonisation efforts are not necessarily a hindrance to economic growth but rather may offer numerous business opportunities, and these efforts must be accelerated to achieve the 1.5°C goal. In Asia, where economic growth is particularly rapid, it is crucial to achieve both economic growth and decarbonisation simultaneously.

It is vital to advance decarbonisation in a manner that simultaneously promotes inclusive economic growth and ensures energy security, while addressing the diverse socio-economic and environmental challenges faced by each country. In this regard, this report is written based on the thought that economic growth should be viewed not merely as an expansion of Gross Domestic Product (GDP), but as a means of improving people's well-being whilst overcoming socio-economic, energy and environmental challenges. For this reason, this report defines 'economic growth' as encompassing these wide-ranging efforts. The Association of Southeast Asian Nations (ASEAN) Member States and Japan face common challenges not only in the energy sector (such as dependence on fossil fuels and reliance on crude oil and LNG from the Middle East) but also in socio-economic areas (including rapid population ageing, labour shortages, concentration in the metropolitan area and regional disparities, and frequent natural disasters), leaving considerable scope for cooperation among ASEAN Member States (AMS) and Japan.

Volatility in global energy markets is increasing—including risks to major energy supply routes such as the Strait of Hormuz—a situation that could impact supply chains in Asia and around the world. Consequently, strengthening energy security is an urgent priority for AMS and Japan, both of which rely heavily on the Middle East. However, this could also serve as an opportunity to accelerate the diversification of energy sources and supply routes, as well as energy conservation, in line with each country's circumstances.

Over the past several decades, the relationship between AMS and Japan has evolved from a traditional donor-recipient dynamic into an equal, multi-dimensional Comprehensive Strategic Partnership (upgraded in 2023 during the 50th year of ASEAN-Japan Friendship and Cooperation). Its Implantation Plan includes climate cooperation such as the implementation of Article 6 of the Paris Agreement, Partnership to Strengthen Transparency in co-Innovation (PaSTI), Asia-Pacific Climate Change Adaptation Platform (AP-PLAT) and ASEAN Climate Change Strategic Action Plan. (ACCSAP) The Implementation Plan also incorporated the Asia Zero Emission Community (AZEC) as a specific means of cooperation on energy transition. It should be noted that Comprehensive Strategic Partnership spans in various areas of political security, economic-finance, socio-cultural and environmental dimensions. Such relations between AMS and Japan, with historical background, provide a foundation for cooperation for pro-growth decarbonisation.

The Global Stocktake, a key mechanism for the implementation of the Paris Agreement, is of vital importance as it provides a comprehensive overview of implementation status and progress across the globe, including Asia, whilst also setting out the direction that should be taken for the formulation of the next NDCs. The process for the Second Global Stocktake (GST2) to review progress under the Paris Agreement will commence at the 31st Conference of the Parties (COP31) to the United Nations Framework Convention on Climate Change (UNFCCC), to be held in November 2026.

ASEAN and Japan have been cooperating toward GST2 by demonstrating concretely that decarbonisation and economic growth can be achieved in tandem through collaboration among the relevant countries. The updated Strategic Program for ASEAN Climate and Environment (SPACE), adopted at the ASEAN-Japan Ministerial Dialogue on Environment and Climate Change in September 2025, included a commitment to prepare and disseminate an ASEAN–Japan GST Report that accurately reflects relevant efforts, technologies and ideas of AMS and Japan, with a view to incorporating these into the GST process (ASEAN, 2025a). Activities under the AZEC also serve as a useful reference point, representing a seminal effort in line with the objectives of achieving decarbonisation, economic growth and energy security simultaneously. The Joint Statement of the 3rd AZEC Ministerial Meeting, agreed in October 2025, referred to the aim of contributing to GST2 (AZEC, 2025). At COP30 in November 2025, a ministerial-level kick-off event regarding this Report was held between AMS and Japan. Furthermore, the Asia-Pacific Synergies Report, which discusses measures to address interrelated socio-economic and environmental challenges by deliberately aligning and integrating policies, actions, stakeholders and systems across sectors, levels of governance and implementation methods, also refers to the initiatives outlined in this report as a strategic direction for regional cooperation (ESCAP, UNEP-ROAP and ADB, 2026). While OECD and UNDP research demonstrates that climate action can contribute positively to economic growth at the aggregate regional and global levels (OECD and UNDP, 2025), translating this potential into the reality requires effective policies and implementation measures.

In light of the above, AMS and Japan have launched an initiative called CAMPUR (Climate Action for Mutual Prosperity Under Regional Cooperation) to put forward practical measures for achieving decarbonisation and economic growth simultaneously. Building on the significance and vision of the aforementioned initiatives among AMS and Japan, the CAMPUR Report will be compiled in collaboration with AMS, Japan and key stakeholders in the region. While the CAMPUR Report will be published at COP32, this report is an interim report to be published at COP31.

1.2 Objectives

CAMPUR has three objectives. First, AMS and Japan will identify the key ideas and showcase good practices of an ASEAN-Japan approach that simultaneously pursues low-carbon development, adaptation and climate resilience alongside inclusive economic growth and energy security encompassing the solving of various socio-economic challenges. Second, with these key ideas and good practices, it aims to facilitate the sharing of views on possible policy approaches towards the 1.5°C goal of the Paris Agreement recognising that there are various practical pathways towards carbon neutrality and net-zero emissions depending on each country's national circumstances, development stage, energy mix and geographical conditions, with a view to reflect them in the outcomes of GST2 to be agreed at COP33 in 2028. Third, CAMPUR aims to support GHG emission reductions and sustainable economic growth in Asia through the deployment of low-carbon policies, measures and technologies, working towards achieving decarbonisation via various pathways.

2. Methodology

The report was prepared by the CAMPUR Standing Committee consisting of representatives from the governmental bodies of AMS and Japan (see Table 1), in collaboration with regional organisations such as the ASEAN Secretariat, ASEAN Centre for Energy (ACE), the Economic Research Institute for ASEAN and East Asia (ERIA) and research institutions in the region including University of Brunei Darussalam, Institute Technology Bandung (ITB), Bogor Agriculture University (IPB), National Agriculture and Forestry Research Institute (NAFRI), University of Technology Malaysia (UTM), MOYA Analytics, National University of Timor-Leste, Institute for Global Environmental Strategies (IGES) and National Institute for Environmental Studies (NIES).

Since the launch of updated SPACE in September 2025, a number of online and in-person meetings have been held among the participating governments and organisations to discuss the contents, structure and messages of the report (see Table 2).

Table 1: Governmental bodies participating in the CAMPUR Standing Committee

Countries	Governmental Bodies
Brunei Darussalam	Brunei Climate Change Office (Prime Minister's Office)
Cambodia	Ministry of Environment
Indonesia	Ministry of Environment
Lao PDR	Ministry of Agriculture and Environment
Malaysia	Ministry of Natural Resources and Environmental Sustainability
Myanmar	TBD
Philippines	Climate Change Commission Department of Environment and Natural Resources
Singapore	National Climate Change Secretariat (Prime Minister's Office)
Thailand	Ministry of Natural Resources and Environment
Timor-Leste	Ministry of Tourism and Environment
Viet Nam	Ministry of Agriculture and Environment
Japan	Ministry of the Environment

Table 2: List of meetings between September 2025 and September 2026

No.	Date	Meetings
1	September 2025	ASEAN-Japan Ministerial Dialogue on Environment and Climate Change (In-person meeting)
2	November 2025	Ministerial-level kick-off event at COP30 (in-person) Strategic Meeting at COP30 (in-person)
3	February - March 2026	Online Bilateral Meetings
4	April 2026	ASEAN-Japan GST Online meeting
5	May 2026	On-line meeting at the ASEAN Working Group on Climate Change (AWGCC) Online Meeting with Regional Organisations and Research Institutes
6	June 2026	Strategic Meeting in Bonn, Germany (in-person)
7	August 2026	Tokyo Meeting, Japan (in-person)
8	September 2026	Online Meeting



Figure 1: Picture of the ministerial-level kick-off event at COP30 in November 2025.

In preparing this report, the participating countries and organisations jointly reviewed official policy documents, such as Nationally Determined Contributions (NDCs), Long-term Low Emissions Development Strategies (LT-LEDS), Biennial Transparency Reports (BTRs), National Adaptation Plans (NAPs), national plans, strategies and regulations, as well as reports from the Intergovernmental Panel on Climate Change (IPCC), other international organisations and think tanks, and academic literature. In principle, data used in this report is based on official statistics, but data provided by international organisations are also used for comparison. The sources of all data are cited.

Good practices for achieving decarbonisation whilst addressing socio-economic, energy and environmental challenges were selected based on the following criteria, ensuring a balanced representation across sectors without favouring specific countries.

- Multifaceted impact: In parallel with decarbonisation, what socio-economic, energy and environmental issues are addressed or resolved?
- Innovation: Cutting-edge, pioneering approaches rather than widely established practices.
- Uniqueness: Regional specific context, priorities and distinct characteristics.
- Viability: Practicality of implementation and proven effectiveness.
- Scalability and replicability potential: Potential for scaling up across AMS, Japan and the international community.

The Interim Report was reviewed by the participating governmental bodies, the regional organisations and the research organisations in the region.

3. Findings and insights

3.1 Key developments in AMS and Japan

3.1.1 Socio-economic situations

This section reviews social, economic and environmental situations in the ASEAN region and Japan. In doing so, it highlights changing situations that could have significant implications for efforts to align economic growth and other priorities with decarbonisation.

3.1.1.1 Demographic trends

The ASEAN region and Japan are both experiencing a rapid and unprecedented demographic transition toward an ageing society, characterised by a significant slowdown in population growth. In 2024, the ASEAN region had a total population of 684.1 million (8.4% of the global total), while Japan's population stood at 123.8 million (1.5% of the global total). Both the region and Japan have seen annual population growth drop sharply since 1980, slowing from 2.10% to 0.73% in the ASEAN region, and from 0.82% to -0.42% in Japan (ASEAN Secretariat, 2025; Cabinet Office Japan, 2025). Japan's ageing rate (the share of the population aged 65 and over) reached a record high of 29.3% in 2024, compounding severe labour shortages (Cabinet Office Japan, 2025). Meanwhile, the ASEAN regional ageing rate rose from 5.4% in 2005 to 8.5% in 2025, and is projected to reach 16.3% by 2050, at which point, every member state will be classified as "ageing", "aged", or "super-aged" (see Figure 2). Notably, individual AMS are transitioning even faster than Japan; for instance, Thailand shifted from an "ageing" to an "aged" society in just 18 years (2002 to 2020), compared to 24 years in Japan (ASEAN Secretariat, 2025; GLOBAL ANGLE, 2024).

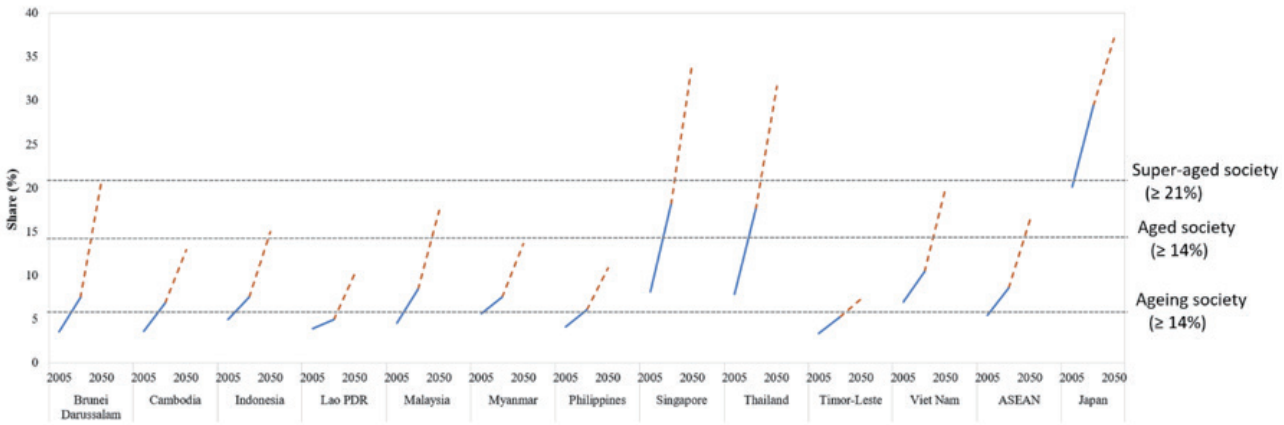


Figure 2: Share of population aged 65 and over in AMS and Japan (2005-2050).

Source: Created by the authors with data from ASEAN Secretariat (2025) and GLOBAL ANGLE (2024).

This rapid demographic shift has severe macroeconomic and environmental consequences, threatening both the region's green energy transition and public budgets. Once a country passes the 'demographic dividend'—the period when an expanding working-age population drives rapid economic growth—wages rise, and its economy can no longer rely on low-cost labour. If a country cannot overcome this hurdle, it risks falling into the 'middle-income trap,' where economic growth stalls (WB, 2024). An ageing population could complicate climate goals by shrinking the labour force available for green industries, while simultaneously increasing per-capita household emissions and energy demand. Furthermore, rising dependency ratios create competing budgetary pressures, making it increasingly difficult to fund clean energy subsidies and large-scale green infrastructure (Middlemiss et al., 2026).

Because this demographic transition poses significant challenges to economic growth, AMS and Japan need to proactively pivot toward technological and policy innovation to sustain their momentum. While Japan confronts severe labour shortages as a super-aged society, most AMS risk experiencing demographic ageing ahead of achieving high-income status, with declining workforces potentially constraining economic growth (Palma and Pincus, 2024; World Bank, 2024). To address these common structural headwinds, accelerating digital transformation and artificial intelligence (AI) adoption is vital across the region. Rather than viewing technological progress, demographic change and the green transition in isolation, AMS and Japan can leverage digital technologies and AI to simultaneously boost labour productivity and drive energy-efficient, sustainable industrial growth (Abdurohman & Huang, 2026; Cabinet Office Japan, 2021). By fostering regional partnerships in technology deployment, investment and human capital development, AMS and Japan can build resilient, high-value economies capable of navigating both demographic changes and the global transition toward decarbonisation.

3.1.1.2 Industrial structure changes and their social and environmental implications

AMS continue to outperform global growth averages, driven by steady economic momentum, while Japan's transition is shifting toward nominal expansion. ASEAN's regionally-combined GDP reached USD 3.9 trillion in 2024 (3.5% of global GDP), with real GDP growth accelerating to 4.8% (up from 4.0% in 2023) due to digital transformation, shifting supply chains, and robust domestic demand. Growth rates vary across AMS, led by Viet Nam (7.1%), the Philippines (5.7%), Cambodia (5.6%), Malaysia (5.1%), Indonesia (5.0%) and Singapore (4.4%), while Thailand (2.5%) and Myanmar (2.9%) saw moderate gains (ASEAN Secretariat, 2025). Japan remained the world's fourth-largest economy by nominal GDP in 2024, generating 3.7% of global output (IMF, 2025). After decades of sluggish real growth and post-pandemic recovery, Japan's is shifting toward nominal expansion; real GDP grew by roughly 1.1% in 2025 and is projected to expand between 0.6% and 1.3% near term (MOF, 2026a; Cabinet Office Japan, 2026). However, persistent yen depreciation widens the gap between local currency GDP trends and USD-denominated comparisons. These contrasting macroeconomic trajectories carry distinct implications for regional climate action. ASEAN's rapid GDP growth underscores an urgent risk of emissions lock-in unless expanding infrastructure is powered by clean energy. Whereas, Japan's economic maturity and expansion offer a capital and technology-rich foundation for deep industrial decarbonisation.

Both AMS and Japan are primarily service-driven economies, but varying sector balances across AMS highlight the need for structural reforms and deeper regional integration to boost long-term economic growth and job creation. As shown in Figure 3, ASEAN is shifting toward services (54.7% of regional GDP in 2024), alongside secondary (30.2%) and declining primary sectors (15.1%). However, structural divergence across AMS is vast: Singapore (77.3%) and the Philippines (63.2%) lead in service reliance, whereas countries like Brunei Darussalam (40.6%), Myanmar (29.1%), and Lao PDR (22.7%) maintain much higher primary sector shares (ASEAN Secretariat, 2025). Japan's economy is overwhelmingly service-oriented (74.4% of 2024 GDP), backed by a heavy industrial robust secondary sector (24.4%) and a minimal primary sector (around 1%) (ESRI, 2025). These structural variations dictate distinct policy responses. High primary-sector reliance in developing AMS demands targeted finance for sustainable agriculture. Regional integration of ASEAN is projected to boost GDP by 4.3% and add approximately 4 million jobs (Georgieva, 2025). This creates vital leverage to mobilise private capital for transition finance and green technology.

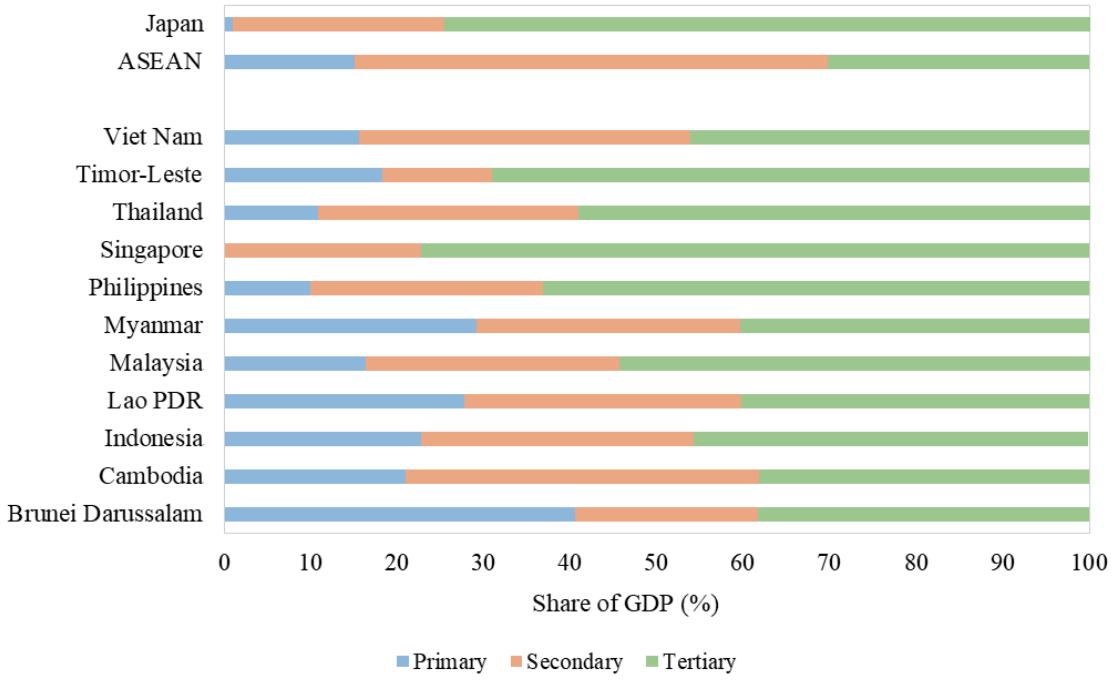


Figure 3: Share of GDP of AMS and Japan by sector in 2024.

Source: Created by the authors, based on the data from ASEAN Secretariat (2025) and ESRI (2025).

3.1.1.3 Environmental status and forest coverage

Rapid urbanisation and growth across AMS are increasing pressures on air quality, waste management and forest ecosystems, while Japan maintains stable environmental management systems. This creates a strong imperative for regional collaboration on climate change and critical environmental issues.

Air pollution presents a stark contrast between regions. While Brunei Darussalam, Japan and Timor-Leste maintain relatively good air quality, pollution is rising significantly across most AMS, highlighting the urgent need to address both PM2.5 and climate pollutants. More specifically, air pollution remains a heavy burden in ASEAN, where most member states saw PM2.5 rise in 2023, led by Lao PDR (20% increase). Country-level concentrations reached notable multi-year highs in 2023, including Myanmar (33.4 μg/m³, ASEAN's highest), Thailand (23.1 μg/m³) and Indonesia (18.6 μg/m³). PM2.5 levels stayed between 15 to 18 μg/m³ over the past decade in the Philippines, while Viet Nam shows sharp regional disparities (see Table 3) (EPIC, 2025). Targeting key emission sources like power generation, transport, industry and open burning can simultaneously cut PM2.5, GHGs and short-lived climate pollutants. Japan's air quality is generally good to moderate, though 2025 PM2.5 levels (9.8 μg/m³) remained twice the WHO annual guideline, peaking in spring due to regional transport (IQAir, 2026).

Similarly, waste generation dynamics demonstrate a growing gap between policy and operational capability across the region, highlighting the need for coordinated regional infrastructure and circular solutions. Rapid urbanisation and population growth across AMS have driven a surge in waste. Indonesia, Thailand, the Philippines and Malaysia account for the region's highest total volumes, whereas Brunei Darussalam, Malaysia, Thailand and Singapore lead in per-capita generation (WB, 2023). Waste management capabilities differ across the ASEAN region. While Singapore utilises sophisticated waste-to-energy and circular recovery systems, emerging economies still rely heavily on open dumping and informal recycling (Soudachanh et al., 2024). Although most AMS have established national waste policies, implementation remains stalled by weak enforcement, inadequate sorting infrastructure and chronic underfunding. Bridging these gaps would require coordinated regional action centred on circular economy frameworks and integrated infrastructure (GGGI, 2026). Japan's municipal solid waste (MSW) dropped to a record low of 38.11 million tonnes in FY2024, averaging 0.839 kg per person per day, thanks to a system anchored in disciplined source-separation and advanced waste-to-energy incineration (MOEJ, 2026).

Table 3: Key environmental indicators for AMS and Japan

Country/region	PM2.5 (2023, μg/m³)	Waste (2020, Mt)	Waste (2020, kg/person/day)	Forest area (2023, 1,000 km²)	Forest cover rate (2023, %)
Brunei Darussalam	8.9	0.22	1.40	3.8	72.1
Cambodia	18.8	1.09	0.19	76.0	43.1
Indonesia	18.6	65.20	0.68	903.2	47.7
Lao PDR	28.9	0.35	0.15	164.9	71.5
Malaysia	16.3	12.98	1.18	189.6	57.7
Myanmar	33.4	4.68	0.28	276.7	42.4
Philippines	17.1	14.63	0.39	72.9	24.5
Singapore	11.0	1.89	0.88	0.2	20.9
Thailand	23.1	26.85	1.07	197.7	38.7
Timor-Leste	12.0	0.22	0.47	9.2	61.7
Viet Nam	25.6	9.57	0.30	148.7	47.4
ASEAN	--	137.66	0.56	2,042.9	45.2
Japan	10.5	42.72	0.93	249.4	68.4

Note: PM2.5 values represent annual average 2023 concentrations; Waste values are sourced from the World Bank's Atlas of SDGs 2023; Forest values use the FAO-derived World Bank WDI series. ASEAN totals and averages are the author's calculations. The values of Singapore's waste and waste per person per day are the data of 2023.

Additionally, declining forests in AMS and their essential ecological value highlight the need for regional cooperation with Japan through sustainable, nature-based investments. Within ASEAN, Indonesia holds the largest forest area stocks, followed by Myanmar, Thailand, Malaysia and Lao PDR, while forest cover rates are highest in Brunei Darussalam and Lao PDR, and lowest in the Philippines and Singapore. Between 2000 and 2023, total ASEAN forest area declined by 8.6%, led by large losses in Cambodia (-29.5%), Myanmar (-20.6%) and Indonesia (-10.8%), whereas Japan's forest area remained virtually stable (WB, 2026). Because forests, mangroves and peatlands serve as vital natural capital for carbon sequestration, disaster risk reduction, water security, biodiversity and rural livelihoods, preserving them provides a strong basis for ASEAN-Japan cooperation through Nature-based Solutions (NbS), REDD+, ecosystem restoration and sustainable land-use investment.

3.1.1.4 Energy status

AMS and Japan are highly dependent on fossil fuels which poses challenges for decarbonisation, while their high dependence on the Middle East poses challenges for energy security. At the same time, these challenges present an opportunity to accelerate energy conservation and the diversification of energy sources and supply routes. While the electricity mixes of AMS and Japan vary across countries, fossil fuels account for a large portion of the power mix in most countries in this region (see Figure 4). In general, fossil fuels continue to play a significant role in the electricity generation mix of countries with fossil fuel resources, including Brunei Darussalam, Indonesia, Malaysia and Thailand. At the same time, this proportion is also high in countries such as Singapore and Japan, which lack fossil fuel resources. Furthermore, a high degree of dependence on the Middle East for fossil fuel imports is a characteristic of these countries. 55% of AMS crude-oil imports came from the Middle East (ACE, 2026), while over 90% of Japan's crude-oil imports are from the Middle East (ANRE, 2026).

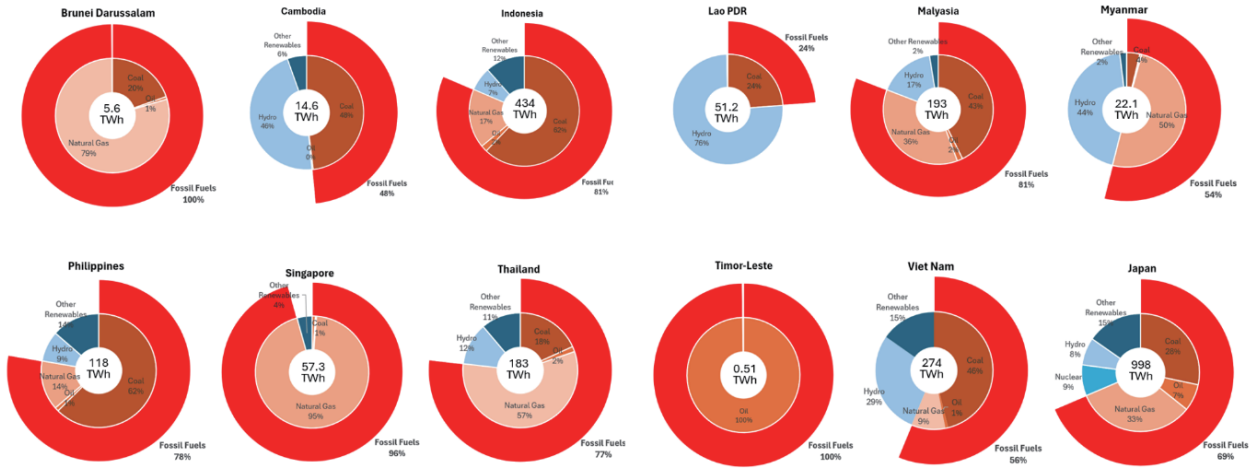


Figure 4: Electricity mix of AMS and Japan.

Source: IEA (2025) and Timor-Leste – Electricity Generation 2024 | Countryeconomy.com

3.1.2 Greenhouse gas emissions trends

AMS and Japan together account for around 8% of global GHG emissions, and their national emission profiles vary. AMS jointly emitted 3.2 $GtCO_2e$ of GHG in 2025 (roughly 6% of global GHG emissions) with wide per-capita variation, while Japan emitted 1.06 $GtCO_2e$ in 2025 (roughly 2% of global GHG emissions), excluding sources and sinks from land-use, land-use change and forestry (LULUCF) (EDGAR 2026) . GHG emissions in AMS have several distinctive characteristics: rapidly growing energy-related emissions, a significant contribution from LULUCF, substantial agricultural emissions and considerable differences among the countries. In Japan, energy-related CO_2 dominates its emission profile, and its GHG/CO_2 emissions have been declining since 2013.

Absolute and relative decoupling between CO_2 emissions and GDP growth has been observed in many of AMS and Japan, while emissions outpaced GDP growth in some AMS. Figure 5 shows AMS and Japan's energy-related CO_2 emissions data and real GDP, indexed with 1990 as the base year (100). In Japan, CO_2 emissions have shown a downward trend whilst GDP has grown, demonstrating 'absolute decoupling'. In Singapore, the rate of increase in CO_2 emissions has continued to be significantly lower than the rate of GDP growth. In Brunei and Myanmar, although CO_2 emissions have increased in line with economic growth, the rate of economic growth has outpaced the growth in emissions. These three countries indicate a trend of 'relative decoupling'.

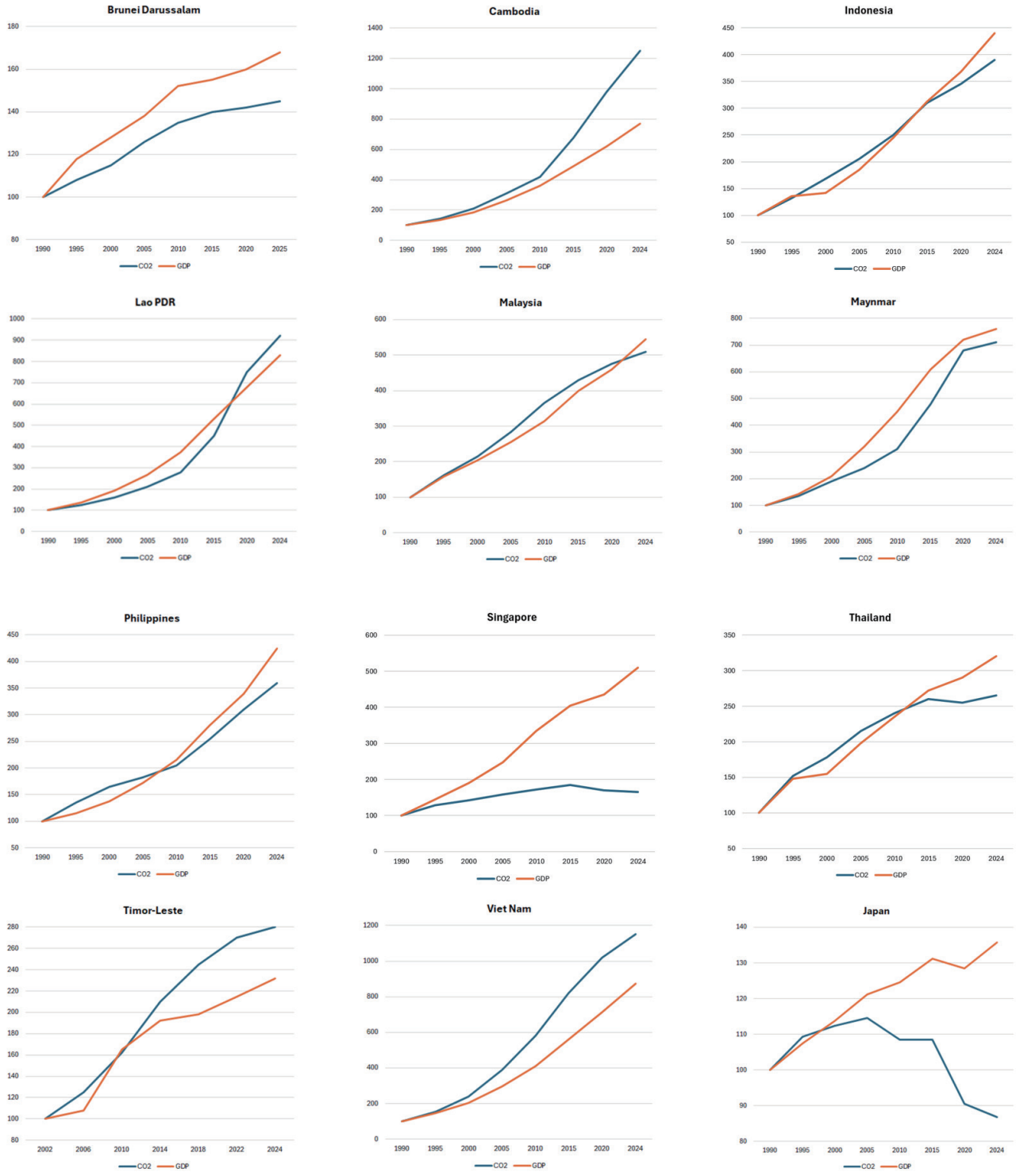


Figure 5: Relations between GDP growth and energy-related CO_2 emissions (1990 value = 100, except Timor-Leste with 2002 value = 100).

Source: Created by the authors, based on data from IEA (2026b) and IMF (2025).

In Indonesia, Malaysia, the Philippines and Thailand, CO_2 emissions had previously been rising at a rate exceeding that of economic growth; however, in recent years, improvements in energy efficiency and the use of renewable energy and natural gas have led to a shift towards 'relative decoupling', where economic growth outpaces the growth in CO_2 emissions.

Conversely, in Viet Nam, the growth in CO_2 emissions continues to exceed the GDP growth rate due to the rapid expansion of the manufacturing sector and the increase in coal-fired power generation to meet rising electricity demand. Cambodia, Lao PDR and Timor-Leste also recently increased their recent rapid use of fossil fuels. Currently, these four countries show 'negative decoupling', where the rate of increase in CO_2 emissions exceeds the GDP growth rate.

3.1.3 Status of BTRs, NDCs and LT-LEDS

All the AMS and Japan showed strong commitment toward climate mitigation actions. All the AMS and Japan set mitigation targets and actions under their NDC 1.0 and 2.0 (i.e. the first NDC and the first NDC updated), and eight AMS and Japan communicated their reduction targets and action of NDC 3.0 for 2035. Of the eight AMS that have set NDC 3.0, four have set economy-wide, absolute emissions reduction targets, while three have BAU targets and one has climate actions. This represents significant progress compared to the situation under NDC 1.0, when no AMS had set nation-wide absolute emissions reduction targets. Nine AMS and Japan set net-zero emission goals, but only four AMS and Japan have formally submitted LT-LEDS to the UNFCCC. It should be noted, however, that several AMS, such as Malaysia, the Philippines and Viet Nam, have domestic long-term climate/low-carbon strategies without having formally submitted an LT-LEDS to the UNFCCC. As of September 2026, eight AMS and Japan submitted their BTR1, for which the deadline was 31 December 2024, although LDCs and SIDS have some flexibility under the Paris Agreement transparency provisions (see Table 4).

Table 4: Status of BTRs, NDCs, long-term goal and LT-LEDS submission by AMS and Japan

Country	NDCs (mitigation)		Long-term Goals		Submission of BTR
	2030	2035	Net zero goals	Submission of LT-LEDS	
Brunei Darussalam	20% reduction from BAU	•20% reduction from BAU (conditional)	Moving towards net zero by 2050	–	✓
Cambodia	41.7% reduction from BAU	•16% reduction from BAU (non-conditional) •55% reduction from BAU (conditional)	GHG net zero by 2050	✓	✓
Indonesia	Peaking at 1,345MtCO_2e~1,495MtCO_2e (Low Carbon Compatible with Paris (LCCP) scenario)	•Reducing to 1,258 MtCO_2e~1,489 MtCO_2e (LCCP scenario)	GHG net zero by 2060 or sooner	✓	✓
Lao PDR	60% or 62MtCO_2e reduction from BAU	–	GHG net zero by 2050	–	✓
Malaysia	Peaking between 2029 and 2034	•Up to 20 MtCO_2e reduction from the peak (non-conditional) •Additional 10 MtCO_2e reduction (conditional)	GHG net zero by 2050	–	✓
Myanmar	Cumulative emissions between 2021 and 2030 •244.52 MtCO_2e (non-conditional) •414.75 MtCO_2e (conditional)	–	Net zero by 2050	–	–
Philippines	•2.71% reduction from BAU (non-conditional) •75% reduction from BAU (conditional)	•Net reduction/ avoidance target of 75% (of which 7% unconditional and 68% conditional) for 2025-2035 against BAU cumulative emissions	–	–	✓
Singapore	•Reduce emissions to around 60 MtCO_2e after peaking emissions earlier	•Reducing its emissions to 45~50 MtCO_2e	GHG net zero by 2050	✓	✓
Thailand	•30% reduction from BAU (non-conditional) •40% reduction from BAU (conditional)	•47% reduction from 2019 level	GHG net zero by 2050	✓	✓
Timor-Leste	•Invest in and scale up renewable energy	•Strengthening Climate Risk Governance; Nature-Positive Growth and Transition; Low-Carbon Development;	–	–	–
Viet Nam	•15.8% reduction from BAU (non-conditional) •43.5% reduction from BAU (conditional)	–	GHG net zero by 2050	–	–
Japan*	•46% reduction from FY2013 levels	•60% reduction from FY2013 levels	GHG net zero by 2050	✓	✓

Notes: * Japan set the FY2040 emissions reduction target at 73% against FY2013 levels under NDC 3.0.

Source: Based on UNFCCC's NDC Registry (https://unfccc.int/NDCREG), Long-term strategies portal (https://unfccc.int/process/the-paris-agreement/long-term-strategies).

International cooperation among AMS and Japan is progressing towards the formulation and quality improvement of BTRs, LT-LEDS and NDCs, including GHG inventories. ASEAN–Japan cooperation on BTRs, NDCs and LT-LEDS is quite substantial, but it is not one single programme. It is better understood as a layered support architecture covering GHG inventories, transparency/BTRs, NDCs, long-term strategies, implementation and carbon markets. Such cooperation includes the Workshop on Greenhouse Gas Inventories in Asia of which origin dates back to 2003 and the Support Initiative for Transparency in Asia (SITA), launched in 2025, which has made BTR support much more explicit. GOSAT (Greenhouse gases Observing Satellite) is also expected to improve national GHG inventories mainly by providing an independent "top-down" observation that can be compared with the conventional "bottom-up" inventory. Furthermore, a major Japanese contribution in NDC cooperation has been the use of the Asia-Pacific Integrated Model (AIM) for national mitigation scenarios, technology options and mitigation cost and investment, which are used for the preparation of NDCs and/or LT-LEDS in Indonesia, Thailand and Viet Nam. These initiatives have been contributing to the implementation of the Paris Agreement at the regional and national levels, as well as the improvement of the accuracy of GHG emissions reporting.

3.1.4 Integrating mitigation and adaptation: resilience as a foundation for sustainable growth and net zero

Climate impacts are already affecting the natural, economic and social systems that support development and decarbonisation, making adaptation and resilience an integral part of a resilient and sustainable transition to net zero. Drawing on national climate change assessments and adaptation-related documents across the 11 AMS, including National Communications (NCs) and other national impact and vulnerability assessments, national adaptation plans (NAPs), nationally determined contributions (NDCs), climate legislation and other national strategies, together with the ASEAN State of Climate Change Report (ASCCR), Japan's Third Assessment Report on Climate Change Impacts and IPCC assessments, this section reviews observed impacts and emerging risks, summarises current adaptation responses, and highlights why resilience matters for sustainable growth and mitigation. One point of scope should be noted at the outset. The ASCCR was published in 2021 and prepared for the then 10 AMS, whereas Timor-Leste was admitted as ASEAN's 11th Member State on 26 October 2025. Regional findings attributed to the ASCCR therefore relate to those 10 AMS, while the country-level synthesis presented below covers all 11 AMS together with Japan (ASEAN Secretariat, 2021; ASEAN, 2025b).

Across ASEAN and Japan, climate change is already increasing pressure on agriculture, food and water systems, coastal areas, health, ecosystems, infrastructure and economic activity, while future risks rise with every increment of warming. The IPCC assessments identify increasing risks from extreme heat, heavy precipitation and flooding across Asia, with implications for food security, health and coastal settlements in South and Southeast Asia. The ASCCR finds the region already experiencing significant impacts, with extreme weather events growing in intensity and magnitude, accompanied by rising economic, environmental and social damage. The national climate change assessments, NAPs, NDCs and national strategies of the AMS consistently identify floods, droughts, tropical cyclones, extreme heat and sea-level rise as principal hazards, while the ASCCR records that these hazards have already caused substantial damage: Myanmar, the Philippines, Viet Nam and Thailand were among the 10 countries worldwide most affected by extreme climate events over 1999–2018, and AMS that had been affected by droughts and floods in 2018 and 2019 went on to experience exacerbated social impacts from the COVID-19 pandemic. Compared with 2012, ASEAN experienced about 17 times as many disasters in 2025, with over 97% related to hydrometeorological factors such as floods, winds, storms and landslides (ADINet, 2026; Alviar et al., 2026). Yearly damage costs in 2024 and 2025 combined surged by more than 500% compared to the 2019–2023 average, exacerbated largely by Tropical Cyclone Yagi and the enhanced southwest monsoon in 2024 as well as a series of tropical cyclones in 2025, in addition to the M7.7 Earthquake in Myanmar and Thailand (Alviar et al., 2026). Table 5 sets out by country the hazards, observed trends and recorded impacts documented in national sources, drawing for each country, as for Japan, on its national climate change assessments. For Japan, the Third Assessment Report on Climate Change Impacts concludes that climate change impacts are already manifest rather than a future prospect: 23 of the 80 assessed items (29%) are already rated at the highest significance level under current conditions, and the report records declining rice yields and quality, poor colouring in apples and other fruit, more frequent coral bleaching, more locations at which flooding occurs, water shortages from more frequent droughts, and rising numbers of heatstroke emergency transports and deaths. These findings suggest two key conclusions: stronger mitigation limits additional risk, but adaptation is imperative under present warming (IPCC, 2022; MOEJ, 2026d).

Despite large differences in geography and development conditions, national plans and strategies on adaptation of these countries point to a common core of adaptation priorities. Across the AMS, agriculture and food security, water resources, coastal and marine systems, public health and infrastructure recur as major areas of vulnerability in NAPs, NDCs, and other national strategies. Japan's Third Climate Change Impact Assessment Report identifies the same broad domains, alongside impacts on ecosystems, industry and everyday life. Table 5 provides a compact synthesis of the hazards, recorded impacts and vulnerable sectors documented across the 11 AMS and Japan (ASEAN Secretariat, 2021; MOEJ, 2026d).

Table 5: Climate-related hazards, observed impacts and priority vulnerable sectors recognised in AMS and Japan

Country	Key climate hazards recognised	Observed impacts and recorded climate-related events	Priority vulnerable sectors	Key source(s)
Indonesia	Floods, droughts, extreme rainfall and landslides, sea-level rise and coastal flooding, wildfire and peat-fire risk, coral bleaching	Warming of 0.01-0.06 °C per year since 1950; more frequent floods and droughts over four decades; tidal (rob) flooding and land subsidence on the north Java coast; severe peatland fire and haze (e.g. 2015, 2019); coral bleaching	Food-water-energy systems; agriculture and fisheries; coastal areas; health; infrastructure; biodiversity	Government of Indonesia (2018, 2025b, 2025c))
Viet Nam	Extreme heat and rainfall, tropical cyclones, drought, sea-level rise, flooding and salinisation in delta areas	Warming of about 0.9 °C (1958–2018) and sea-level rise of about 3 mm per year (1993–2018); more days above 35 °C; intensifying typhoons and coastal flooding; saline intrusion already reducing Mekong Delta rice output	Agriculture; water; disaster risk reduction; health; infrastructure; biodiversity	MONRE (2020); Government of Viet Nam (2022b, 2025b))
Philippines	Tropical cyclones, extreme rainfall and flooding, drought, sea-level rise and extreme heat	Warming of about 0.16 °C per decade (1951–2018); sea-level rise of 4.5–7 mm per year (1993–2015); tropical-cyclone rainfall up 17–19% per decade since 2000; about 20 tropical cyclones each year, including Typhoon Haiyan (2013); recurrent flooding and drought affecting agriculture	Agriculture, fisheries and food security; water; health; ecosystems and biodiversity; infrastructure and transport	OML Center (2024); Government of the Philippines (2024b)
Thailand	Floods, droughts, storms, heat, sea-level rise and coastal erosion	Warming of 1.30 °C (1970–2017) and sea-level rise above the global average; catastrophic 2011 floods and further severe floods in 2021 and 2022; recurring drought; coastal erosion along the Gulf of Thailand	Water; agriculture and food; tourism; public health; natural resources; settlements	Limsakul et al. (2019); Government of Thailand (2022, 2024)
Malaysia	Monsoon and flash flooding, dry spells, sea-level rise, heat and disruption to water and ecosystems	Warming of 0.13–0.24 °C per decade (1969–2019); sea-level rise of 2.9–3.2 mm per year; major monsoon floods (e.g. December 2021) displacing tens of thousands; recurrent flash flooding, landslides and El Niño-related dry spells	Water and coasts; agriculture and food; cities and infrastructure; energy; health; forestry and biodiversity	Government of Malaysia (2024, 2025a)
Singapore	Sea-level rise and coastal flooding, intense rainfall and flash floods, rising temperatures and dry spells	Warming of 0.24 °C per decade (1984–2022); annual rainfall up about 83 mm per decade (1980–2022); heavier short-duration rainfall; dengue outbreaks in warmer periods; high exposure to sea-level rise (about 30% of land below 5 m above sea level)	Coastal protection; water; health; biodiversity; infrastructure and energy; food security	Government of Singapore (2024a, 2024b); NCCS (n.d.)
Cambodia	Floods, droughts, storms, rising temperatures and sea-level rise	Floods in 2011 and 2013 caused losses of about USD 451 million and USD 356 million (250 and 168 deaths); the 2015–2016 floods and drought affected about 2.5 million people; repeated flood and drought years disrupting wet-season rice	Agriculture; livelihoods and gender; water and WASH; forestry and ecosystems; health; coastal areas; infrastructure	Government of Cambodia (2022, 2025a, 2025b)

Country	Key climate hazards recognised	Observed impacts and recorded climate-related events	Priority vulnerable sectors	Key source(s)
Lao PDR	Floods, droughts, heat and rainfall variability	Warming of about 0.02 °C per year (1976–2005); recurrent riverine flooding and drought; irregular rainfall affecting agriculture and hydropower operations	Agriculture; water; forestry; transport and urban systems; health; energy (hydropower)	Government of Lao PDR (2021, 2024, 2025)
Myanmar	Cyclones and storm surge, floods, droughts, heat and sea-level rise	Normal annual mean maximum temperature up 0.5 °C (1961–1990 to 1981–2010); Cyclone Nargis (2008), in which 138,373 people were killed or reported missing; recurrent flooding and drought	Agriculture; natural resources; health; disaster risk reduction; urban areas	DMH (2017); Government of Myanmar (2012, 2019, 2021)
Brunei Darussalam	Forest fires, flash flooding, landslides, strong wind, extreme heat, haze, sea-level rise and saltwater intrusion	Warming of about 0.25 °C per decade; rainfall up about 100 mm per decade; sea-level rise of 5–5.5 mm per year; flash flooding (record 275 mm daily rainfall, 2019); fire and haze in the 1997–98 and 2015–16 El Niño events; coastal erosion and saltwater intrusion	There are 6 vulnerable sectors identified inside NAP: Infrastructure and Urban Resilience; Biodiversity and Environment; Agriculture and Food Security; Health and Livelihood; Marine Protection and Coastal Resilience; Water Resources	BCCO (n.d.); Government of Brunei Darussalam (2017, 2020a, 2020b, 2025)
Timor-Leste	Drought, rainfall variability, floods, landslides, cyclones and sea-level rise, coral bleaching	The 2015–16 El Niño drought affected nearly half the planted maize and rice area; Cyclone Seroja (2021): worst floods in 50 years across all 13 municipalities, 34 deaths, >13,000 displaced; El Niño drought (2023) left ~27% food-insecure	Agriculture and food; water and WASH; health; coasts and fisheries; forests; disaster risk reduction	Government of Timor-Leste (2020, 2021, 2026)
Japan	Extreme and heavy rainfall, intensifying typhoons, sea-level rise, ocean warming and decreasing snow depth	Annual mean temperature up 1.40 °C per century (1898–2024) and nearby sea-surface temperature up 1.33 °C per century; more days at or above 35 °C and heavier daily rainfall; 23 of 80 impact items already rated Level 3 (most significant); rice-quality decline and fisheries disruption; >1,000 heat-stroke deaths per year	Agriculture forestry and fisheries; water; natural ecosystems; natural disasters and coastal areas; health; industry and economy; citizens' lives and urban life	MEXT & JMA (2025); MOEJ (2021, 2026d)

Note: The table provides a high-level synthesis of the key climate hazards, observed impacts and recorded climate-related events, and priority vulnerable sectors identified in national sources for each of the 11 AMS and Japan. Observed trends are as reported in each source and differ in period and method. The table does not imply identical levels of risk or assessment capacity across countries, and no individual event is attributed here to climate change.

All 11 AMS and Japan set adaptation priorities in national policy documents, and adaptation planning is increasingly institutionalised in dedicated plans and in legislations, though implementation remains uneven. Policy recognition is the most widely shared: every AMS and Japan set out adaptation priorities in at least one national instrument—an NDC, a NAP, a climate law or a national climate change policy—as the sources in Table 5 indicate. Beyond recognition, NAPs are a useful marker of institutionalised planning, since they are the principal UNFCCC instrument for cross-sectoral adaptation planning. Moreover, the first global stocktake called on Parties to have such plans in place by 2025 and to be implementing them by 2030. As of August 2026, eight of the 11 AMS had shared a NAP through UNFCCC NAP Central—Timor-Leste and Cambodia in 2021, the Philippines and Thailand in 2024 and Viet Nam, Lao PDR, Brunei Darussalam and Indonesia in 2025—and Malaysia is preparing its first NAP for 2026–2035. Other instruments serve the same purpose: statute, as in the Philippines' Climate Change Act of 2009 and Japan's Climate Change Adaptation Act of 2018, which requires both a Cabinet-decided adaptation plan and a five-yearly impact assessment; national climate change policies, as in Timor-Leste (Government of Timor-Leste, 2022), Myanmar (Government of Myanmar, 2019) and Brunei Darussalam (Government of Brunei Darussalam, 2020b); and legislation in preparation, notably Thailand's draft Climate Change Act, approved in principle in December 2025. Implementation arrangements are also emerging: Japan, for example, gave statutory status to heat-health alerts and cooling shelters from April 2024 and will review its adaptation plan in FY2026; Singapore designated a national coastal protection agency in 2020 and passed coastal protection legislation in March 2026; and the Philippines finances local adaptation through the People's Survival Fund. The ASCCR's assessment still applies: national-level progress is commendable but needs to reach the local level, which requires devolution and stronger local capacity (ASEAN Secretariat, 2021; UNFCCC, 2023, 2026; MOEJ, 2021, 2024; MNRE, 2025; MSE, 2026).

Cross-cutting capabilities to understand, anticipate and manage climate risk are becoming central to adaptation because the same hazards can disrupt multiple sectors at once. The ASCCR places vulnerability assessment and a stronger scientific information base first among the adaptation actions that it prioritises for the region by 2030, alongside downscaled climate information, adaptation monitoring and evaluation, and Loss and Damage information. These come first because progress on projections, downscaling and risk assessment in some AMS has yet to be scaled beyond specific river basins and sectors. Multi-hazard early warning systems are an important part of this agenda, combining observation, forecasting, communication and preparedness to reduce losses before hazards become disasters, building on regional architecture such as AADMER and the ASEAN Disaster Risk Financing and Insurance initiative. Regional knowledge platforms can complement national systems: the Asia-Pacific Climate Change Adaptation Information Platform (AP-PLAT), for example, provides climate-risk information, tools and adaptation practices, and supports partnerships for risk-informed decision-making across the Asia-Pacific (ASEAN Secretariat, 2021; WMO, 2022; NIES, 2026).

The next step is to translate adaptation plans into locally informed, adequately financed and measurable action. The ASCCR's 29 prioritised adaptation actions to 2030 span risk and vulnerability assessment and the scientific information base, mainstreaming adaptation into sectoral and development planning, adaptation–mitigation co-benefits, multi-stakeholder partnerships, adaptation goals and climate risk transfer; the NAPs and NDCs summarised in Table 5 converge with them on five requirements in particular: local-scale risk and vulnerability assessment, climate information services, sectoral mainstreaming, adaptation finance, and monitoring and evaluation. Each opens a distinct avenue for cooperation: risk assessment and climate information through shared data, downscaled projections and common platforms; sectoral mainstreaming through exchange of planning guidance; finance through joint mobilisation, project preparation and the risk transfer mechanisms the ASCCR envisages; and monitoring and evaluation through comparable indicators and adaptation goals. The ASCCR observes that the AMS furthest advanced in risk assessment and adaptation planning are well placed to share that expertise, making peer learning within ASEAN a practical channel and multi-stakeholder partnerships a way of extending it beyond government. Japan can contribute on the same terms: its statutory cycle of five-yearly impact assessment and amending adaptation plan offers transferable experience on risk assessment and monitoring, AP-PLAT supplies climate-risk information and tools across the Asia-Pacific, and Japan supported preparation of the ASCCR itself through the Japan-ASEAN Integration Fund. ACCSAP offers a vehicle for organising such cooperation The ASCCR was also designed to contribute to the global stocktake, providing a regional basis for considering adaptation and resilience in the GST process. (ASEAN Secretariat, 2021; ASEAN, 2025c).

Adaptation and resilience help safeguard the people, ecosystems, infrastructure and supply chains on which both sustainable development and decarbonisation depend. The IPCC finds that climate risks propagate across interconnected systems, so that hazards affecting water, food, health and ecosystems also reach the cities, settlements and infrastructure that development depends on. The ASCCR draws out what this means for the region and treats it as an objective in its own right: the ASEAN Climate Vision 2050 includes a goal for synergising adaptation and mitigation, and the report points to climate-smart agriculture, nature-based solutions such as agroforestry and mangrove protection, and appropriate hydropower reservoir management as measures that reduce local flood and extreme-event risk while contributing to mitigation. It adds that climate-proofed energy infrastructure—generators, power grids and associated buildings—needs to be sited or relocated where exposure is lower if those synergies are to hold. Two examples illustrate this integration in practice. In Indonesia, the national programme to rehabilitate 600,000 hectares of degraded mangroves, supported by the World Bank's Mangroves for Coastal Resilience project, is designed both to protect coastal communities and infrastructure from floods, storms and erosion, and to contribute to the Forestry and Other Land Use (FOLU) Net Sink 2030 target under the country's NDC, including through blue-carbon finance (WB, 2022). In Japan, a Ministry of the Environment programme subsidises solar power and battery storage at municipal evacuation centres and disaster-response facilities, cutting emissions in normal times while keeping power available during outages; such installations functioned during a large-scale blackout in Shikoku and heavy rainfall in Yamagata in 2024 (MOEJ, 2026e). Both show how a single investment can deliver adaptation and mitigation together, complementing the climate-smart agriculture practices discussed in Section 3.2. Japan's Third Assessment Report on Climate Change Impacts makes the same point from the demand side, assessing direct damage to industry from floods and typhoons alongside indirect damage from disrupted infrastructure and supply chains, and treating secondary impacts transmitted from overseas as an assessed item in its own right, a cross-border dimension that matters for a rapidly integrating region. Embedding climate risk into infrastructure, investment and business continuity planning (BCP) therefore protects both development gains and low-carbon investment. Adaptation and mitigation are in this sense mutually reinforcing rather than competing agendas, and strengthening the link between adaptation and low-carbon investment is an important next step for regional cooperation, hence the regional resilience as a foundation, for the decarbonisation opportunities examined in Section 3.2 (IPCC, 2022; ASEAN Secretariat, 2021; MOEJ, 2026d).

3.2 Initiatives to synergise decarbonisation and economic growth

3.2.1 Progress and challenges at the national and sub-national levels

3.2.1.1 Institutional arrangements and governance

AMS and Japan are pursuing a common direction: using climate action to advance decarbonisation while supporting economic development and energy security, and addressing other socio-economic priorities. Because countries differ in their development stages, energy systems, institutional settings and available technologies, this common direction is being pursued through different nationally determined pathways. This reflects the principle of "One Goal, Various Pathways", under which countries pursue shared climate objectives through practical approaches tailored to their respective national circumstances. The demographic, urban, industrial, environmental and energy conditions reviewed in Section 3.1.1 help explain both why these pathways differ and why climate action is increasingly being linked to multiple development and socio-economic objectives. Across the region, governments are linking climate action with poverty reduction, climate resilience, local economies and employment, health and well-being, and environmental sustainability. This is being done through climate mainstreaming in development planning, cross-ministerial and national-local coordination, enabling legal, financial and market frameworks, as well as encouraging stakeholder participation. Sharing experiences across these different approaches can help accelerate implementation without implying a single institutional model for the region.

(a) Integrating climate action with development and socio-economic priorities

Countries across the region are embedding climate action in development and growth strategies, creating policy foundations for decarbonisation to advance together with national socio-economic priorities. Illustrative examples of this integration can be found across different national contexts. Malaysia's Thirteenth Malaysia Plan (13MP, 2026-2030) places green growth, environmental sustainability and climate resilience among national development priorities, opening a pathway for climate action to be advanced within the country's broader development agenda. Lao PDR's National Green Growth Strategy links economic growth and poverty reduction with environmental protection, GHG mitigation and climate resilience. Timor-Leste's National Climate Change Policy and NDC 3.0 connect climate policy with development planning, investment priorities and climate finance. Japan is implementing the Green Transformation (GX) 2040 Vision, the Seventh Strategic Energy Plan and the Plan for Global Warming Countermeasures in a coordinated manner, linking decarbonisation with energy security, economic growth, and industrial and investment policy. (Government of Malaysia, 2025b; Government of Lao PDR, 2018; METI, 2025a; ANRE, 2025a; MOEJ, 2025; Government of Timor-Leste, 2022; UNFCCC, 2026).

This integration also extends beyond national plans. At local and workplace levels, policies and programmes can connect decarbonisation with place-specific economic, resilience and well-being objectives. Local decarbonisation initiatives can support economic development and resilience, while Singapore's Go 25 translates energy efficiency into workplace practices that also take health and comfort into account. Table 6 synthesises the broader range of socio-economic priorities linked to decarbonisation across the examples in this section and the diversity of policy pathways used to pursue them (MOEJ, 2026a; MSE, 2025b).

Table 6: Examples of integrating decarbonisation with socio-economic priorities in AMS and Japan

Socio-economic priority	How it is pursued together with decarbonisation	Illustrative countries / policies or programmes
Economic growth, industry and investment	Embed climate objectives in growth strategies, industrial and investment policy and financial-sector development, supporting private investment and business development.	Brunei Darussalam: Sustainable Finance Roadmap; Timor-Leste: NDC 3.0
Poverty reduction and livelihoods	Link climate action and green growth with poverty reduction and the strengthening of livelihoods.	Lao PDR: National Green Growth Strategy
Local economies, industrial promotion and employment	Combine place-based decarbonisation with local economic development, industrial promotion, and the creation or retention of economic value and employment within communities.	Japan: Decarbonisation Leading Areas
Energy security	Advance stable energy supply, the use of local resources and more distributed energy systems together with decarbonisation.	Japan: GX, energy and climate policies
Climate resilience and disaster preparedness	Link climate action and distributed energy with resilience and stronger capacity to prepare for and respond to disasters.	Malaysia: 13MP; Lao PDR: National Green Growth Strategy, Brunei Darussalam: Disaster Management Strategic Policy Framework
Health, comfort and well-being	Pursue energy efficiency and emissions reduction in ways that also support health and comfortable living and working environments.	Singapore: Go 25
Environmental sustainability and local resources	Connect climate action with environmental protection, forests and farmland, other local resources, and value creation in agriculture and tourism.	Malaysia: 13MP; Lao PDR: National Green Growth Strategy

Note: A single policy or programme may pursue several socio-economic priorities simultaneously. The table is not intended to provide one example for each of the 11 countries; rather, it highlights the breadth of socio-economic linkages and the diversity of policy pathways identified in this section. Sources are provided in the accompanying text and provisional reference list.

(b) Enabling conditions for implementation

Science-based modelling promotes the direction of private capital towards investable decarbonisation opportunities and stimulates technological innovation, by identifying technologies that deliver greater emissions reductions relative to their costs and highlighting sectors with strong growth potential during the transition. By clarifying cost-effective technology portfolios, required deployment levels and sectoral transition pathways, the AIM analysis (see Section 3.2.2.4) provides governments, businesses and financial institutions with quantitative information that is also consistent with emissions pathways. Incorporating these insights into NDCs and long-term strategies can support pathways to pursue emissions reductions and economic growth simultaneously, while reflecting each country's circumstances and development priorities.

Countries are also strengthening legal, financial, market, MRV and capacity-building frameworks that can translate integrated policy objectives into implementation. Indonesia's Presidential Regulation No. 110/2025 brings NDC implementation, transparency, monitoring and evaluation, finance and capacity building within a common framework for the Economic Value of Carbon (Nilai Ekonomi Karbon: NEK) and national GHG management. This provides an institutional platform for implementation, while the horizontal coordination arrangements under the same regulation are discussed below. Brunei Darussalam's Sustainable Finance Roadmap 2025-2030 places ESG considerations, climate and environmental risk, and sustainable financial products and services within financial-sector development, giving financial institutions and policymakers a shared direction for risk management, capacity development and sustainable finance. This is supported by the launch of the Mandatory Reporting Directive to strengthen climate-related disclosure and transparency, alongside efforts to raise awareness and build climate literacy through initiatives such as the Greening Education Plan. Malaysia is likewise strengthening the policy-to-implementation chain: National Climate Change Policy 2.0 (DPIN 2.0) and the Thirteenth Malaysia Plan provide the policy foundation, while the National Carbon Market Policy (DPKK), launched in April 2026, provides a national framework for carbon-market development and associated MRV, reporting and tracking arrangements. This illustrates how policy direction, implementation instruments and transparency infrastructure can be developed in parallel (Government of Indonesia, 2025a; BDCB, 2025a, 2025b; NRES, 2026).

Other countries are developing or operating complementary market-related arrangements. Viet Nam's Environmental Protection Law and related decrees progressively establish the legal architecture for GHG management and a domestic carbon market, while Thailand's Standard T-VER connects mitigation projects across sectors with a voluntary crediting framework. TGO frames T-VER as a mechanism that can support co-benefits such as pollution reduction, lower fossil-fuel dependence, local income and value creation from waste and agricultural residues. These governance foundations complement the more detailed carbon-market and finance measures discussed in the cross-cutting subsection, while illustrating how legal certainty, MRV, finance and institutional capacity can reinforce implementation according to national readiness (Government of Viet Nam, 2020a, 2022a, 2026a, 2026b; TGO, 2026).

(c) Horizontal coordination

Whole-of-government arrangements are helping countries connect climate action across policy domains and administrative responsibilities. Cambodia's National Council for Sustainable Development (NCSD) brings together central agencies and governors of the capital and provinces and has been involved in climate strategies, sectoral action plans and climate-finance frameworks. In Indonesia, Presidential Regulation No. 110/2025 also establishes an inter-ministerial Steering Committee, showing how the implementation framework described in (b) above is backed by horizontal coordination. In Singapore, the Inter-Ministerial Committee on Climate Change (IMCCC) chaired by the Deputy Prime Minister and Minister for Energy, Trade and Industry Gan Kim Yong oversees Whole-of-Government coordination on climate change policies. Japan operates the Global Warming Prevention Headquarters, composed of all Cabinet ministers, as a government-wide mechanism for advancing climate policy (NCSD, n.d.-a, n.d.-b; Government of Indonesia, 2025a; MOEJ, 2025).

(d) National-local coordination

Countries are linking national policy direction and support with local leadership, enabling implementation to respond to place-specific risks, resources and development priorities. In the Philippines, the Climate Change Act of 2009 (Republic Act No. 9729) integrates adaptation and mitigation into national and local development plans and positions local government units (LGUs) as front-line agencies for local climate action. National agencies provide technical and financial support for Local Climate Change Action Plans (LCCAPs), while LGUs plan and implement actions in light of local risks and vulnerabilities. According to the Climate Change Commission, 1,474 of 1,715 LGUs (85.95%) had submitted LCCAPs as of 23 August 2023. This arrangement links a national framework with local planning through a clear allocation of roles (Republic of the Philippines, 2009; CCC, 2023). In Malaysia, the Johor Climate Action Plan 2035 links state-level climate action with national frameworks including the National Energy Transition Roadmap (NETR), LT-LEDS and Malaysia's NDC, while Johor Bahru provides a concrete example of integrating climate objectives with spatial planning in a rapidly developing urban area. The draft Johor Bahru Local Plan 2035, prepared through the statutory local-plan process, incorporates low-carbon mobility, green buildings and environmental sustainability alongside liveability and quality-of-life objectives. Together with the state-level Johor Climate Action Plan 2035, these planning layers illustrate an emerging linkage between national climate direction, state climate planning and city-level development planning (Ho & Chau, 2026). Japan formulated the Regional Decarbonization Roadmap in 2021 through a council consisting of representatives from the national and local governments, and based on this roadmap, Japan's Decarbonisation Leading Areas also combine national support with local leadership: local governments lead implementation with local companies, energy businesses and suppliers, financial institutions, agriculture, forestry and fisheries organisations, universities and chambers of commerce, while MOEJ Regional Environment Bureaus provide hands-on support. The programme is designed to address local priorities such as local economic development, disaster resilience, and promotion of local industries, agriculture, forestry, fisheries, and tourism alongside decarbonisation (MOEJ, 2026a).

Across these examples, several recurring governance functions emerge: aligning climate action with development priorities; coordinating across ministries and levels of government; and establishing legal, financial, market, MRV and capacity-building arrangements that can translate policy objectives into implementation. The institutional mix differs across countries, but these functions provide practical entry points for peer learning and cooperation across the region.

(Good practice: GX policy in Japan) Japan's GX policy provides one example of linking decarbonisation with investment, industrial transformation and energy security. It illustrates how the combinations of carbon pricing, transition finance and industrial policy can provide nationally determined pathways towards common climate and socio-economic objectives.

Column 1: GX policy in Japan

Overview:

Japan's Green Transformation (GX) aims to simultaneously achieve a stable energy supply, economic growth and decarbonisation. The GX2040 Vision, adopted by the Cabinet in February 2025, sets out Japan's medium- to long-term direction for transforming its economic and industrial structure and increasing the predictability of GX investment. It promotes a realistic transition towards carbon neutrality. Japan also recognises that approaches adopted by each country need to reflect differences in national circumstances, including energy systems, industrial structures and available technologies. This approach is consistent with the AZEC principle of "one goal, various pathways."

Transforming industrial structures and creating new markets:

Japan aims to realise an advanced industrial structure in which new GX businesses using innovative technologies emerge one after another, and entire supply chains are upgraded through the use of decarbonised energy and digital transformation.

GX is therefore treated not only as a means of reducing emissions, but also as an opportunity to create new industries, products, services and sources of economic growth. Japan is promoting the social implementation of innovative technologies, investment in the transformation of manufacturing processes and the development of supply chains. It is also working to create markets for GX products and services by visualising their environmental value and promoting demand through public and private procurement.

Creating a predictable environment for GX investment:

Japan seeks to enhance the predictability of the business environment so that companies can make investment decisions with greater confidence. Its medium- to long-term policy direction is complemented by sector-specific investment strategies that set out future directions and investment promotion measures in priority sectors.

To support long-term GX investment, Japan aims to mobilise over JPY 150 trillion in public-private investment over the next decade. Under the Pro-Growth Carbon Pricing Concept, Japan implements investment promotion measures that focus on both regulation and support. To mobilise the large-scale investment required for GX, GX Economy Transition Bonds are used to finance upfront investment support, together with the introduction of emissions trading system (GX-ETS) and levy on fossil fuels. Japan is also promoting green and transition finance to mobilise private capital for decarbonisation efforts. Together, these measures are intended to encourage GX investment through public-private collaboration and to support the transition towards a decarbonised, growth-oriented economic structure.

Relevance for international cooperation:

Japan's GX policy provides an example of integrating decarbonisation into broader strategies for industrial development, investment and economic growth. In line with the principles of AZEC, Japan recognises that various and practical pathways towards net zero are needed to reflect differences in national circumstances and starting points, including industrial structures, social contexts, geographical conditions and stages of development.

Recognising that there is no one-size-fits-all approach, international cooperation should be carried out in line with nationally determined transition approaches. Cooperation can draw on tools including technology deployment, capacity-building, financing and the development of policies and measures, taking into account the circumstances of each country.

Replication potential and relevance for GST2:

Japan's GX approach highlights the importance of pursuing decarbonisation, economic growth and energy security in an integrated manner, rather than treating them as separate objectives. Achieving these objectives requires practical and sustainable transition strategies that reflect national circumstances and are supported by innovation, investment and predictable policy frameworks.

Building on this experience, GST2 should recognise that there is no one-size-fits-all pathway towards net zero and that countries need the flexibility to pursue diverse and nationally determined pathways, taking into account their respective circumstances.

GST2 should also promote the sharing of practical experiences and lessons learned and strongly recognise the importance of accelerating the implementation of climate action, while supporting economic growth and ensuring energy security.

Source: Government of Japan materials, including ANRE (2025b), METI (2024, 2026), MOF (2026b)

(Good practice: The Koh Sralao Carbon Neutrality Initiative in Cambodia) The Koh Sralao Carbon Neutrality Initiative in Cambodia provides a practical, multi-sectoral model that successfully balances deep carbon mitigation with local economic development. Its significance lies in leveraging high-yield “blue carbon” mangrove ecosystems alongside decentralised off-grid solar and circular waste systems, demonstrating how remote, vulnerable island communities can eliminate fossil fuel reliance and open burning. By pairing direct environmental conservation with legal community co-management and scalable MRV frameworks, the initiative offers a proven, highly replicable blueprint that empowers local livelihoods while directly advancing national net-zero goals and regional climate resilience across ASEAN.

Column 2: The Koh Sralao Carbon Neutrality Initiative in Cambodia

Column 2: The Koh Sralao Carbon Neutrality Initiative in Cambodia

Overview:

The Koh Sralao Carbon Neutrality Initiative is a pilot project led by Cambodia’s Ministry of Environment in partnership with the UNDP to establish ASEAN's first model carbon-neutral island community in Koh Kong Province. Designed as a scalable national blueprint for Cambodia’s goal to achieve net-zero greenhouse gas emissions by 2050, the initiative addresses over 350 households by combining nature-based "blue carbon" mangrove restoration with clean technology transitions. Core measures include community-led co-management of coastal ecosystems, replacing fossil fuels with household off-grid solar energy setups, implementing structured waste sorting systems to eliminate open burning, and developing climate-smart agriculture and ecotourism.

Climate and social-economic benefits:

- Climate & environmental benefits: The initiative restores mangrove forests to capture atmospheric carbon at rates up to four times higher than inland forests while creating natural storm surge buffers and marine habitats. It also cuts pollution by replacing diesel generators with off-grid household solar power and implementing waste management systems to eliminate open burning and marine plastics.
- Socio-economic benefits: By eliminating diesel reliance through solar energy, the project lowers living expenses for local households. It grants residents legal co-management of coastal resources and diversifies incomes through ecotourism, climate-smart agriculture and sustainable fisheries, with long-term carbon credit sales funding ongoing community development.

Enabling conditions:

- Strong political will & institutional backing: Led directly by the Ministry of Environment, providing necessary regulatory frameworks, legislative support and high-level political priority.
- Community-led co-management: Grants local residents legal rights to co-manage coastal natural resources, fostering long-term stewardship and active protection of mangroves.

- International strategic partnerships: Collaborates with global partners like the UNDP and international funding mechanisms to secure technical expertise, technology transfers and financial backing.
- Holistic, multi-sectoral design: Integrates clean energy, waste management, eco-tourism and climate-smart agriculture alongside conservation to simultaneously address environmental, social, and economic needs.

Challenges and policy responses:

- High upfront capital & long-term financial viability. Response: Combine international climate grants (e.g. UNDP) for initial infrastructure with long-term revenues from accredited mangrove "blue carbon" credit sales to build a self-sustaining funding stream.
- Community buy-in & economic realities. Response: Grant local residents legal co-management rights over mangroves, deploy solar energy to cut household diesel expenses, and create alternative income streams through eco-tourism and climate-smart agriculture.
- Geographical isolation & technical logistics. Response: Supply tailored waste management equipment designed for coastal island logistics while training local community members to directly operate and maintain off-grid solar systems.
- Coastal vulnerability & extreme weather risk. Response: Implement reforestation using native, storm-resistant mangrove species planted in dense buffer zones to act as living infrastructure against storm surges and sea-level rise.

Replication potential:

The initiative holds strong replication potential across ASEAN coastal regions by providing a standardised, community-driven blueprint for decarbonising isolated island communes. Key enablers for scaling include establishing robust MRV frameworks to unlock private blue carbon markets, packaging proven co-management and land-use governance models into adaptable policy templates, and using blended finance to fund local green micro-enterprises. By acting as a regional learning hub, the pilot offers a practical framework that neighbouring coastal nations can adopt to combine marine conservation with sustainable economic growth.

Relevance for GST2:

The Initiative directly supports the GST2 process by providing concrete, ASEAN-based empirical evidence of how vulnerable coastal communities can achieve pro-growth decarbonisation. This pilot offers a practical baseline for integrating high-capacity "blue carbon" sequestration with household-level clean technology and waste management to advance national net-zero goals. Its scalable governance structures, co-management frameworks and MRV protocols serve as valuable inputs to inform future, enhanced NDCs and accelerate regional climate action ahead of GST2 assessment cycles.

Source: Prepared by IGES and confirmed by the Ministry of Environment, Cambodia.

3.2.1.2 Sectoral initiatives

(a) Energy sector

Across AMS and Japan, energy policy is shifting toward balancing decarbonisation with economic growth and energy security. Regional frameworks increasingly address an affordable and resilient power supply through diverse pathways reflecting national circumstances, including energy efficiency, renewable energy, nuclear energy for those countries that choose to use it for peaceful purposes, hydrogen and ammonia, bioenergy, CCUS, grid reinforcement and other zero- and low-emission technologies. In ASEAN, achieving these goals relies on regional connectivity, particularly through the expansion of the ASEAN Power Grid and upgraded national infrastructure. To fund this transformation, governments and international partners are mobilising targeted public-private capital, blended transition finance and sovereign transition instruments to scale clean technology and cross-border trade. Crucially, these frameworks integrate just transition mechanisms—focusing on reskilling and green job creation—to protect vulnerable local economies while driving systemic emissions reductions.

National energy planning

AMS and Japan are establishing comprehensive long-term roadmaps for energy transition. Indonesia's MEMR Regulation No. 10/2025 caps power emissions by 2037 through coal phase-outs, nuclear deployment and carbon capture (ADCO Law, 2025). Malaysia's NETR targets net-zero emissions and a 70% renewable capacity share by 2050 through EV infrastructure, hydrogen and CCUS (MOEM, 2023). The Philippine Energy Plan 2023–2050 seeks a 50% renewable share by 2040 alongside smart grids and 4,800 MW of nuclear power by 2050 (Department of Energy, 2024). Thailand's draft PDP 2026–2050 targets an 89% clean energy mix by 2050, including the deployment of Small Modular Reactors, to meet surging AI and EV demand (MOET, 2026). Meanwhile, Viet Nam's revised PDP8 aims for 75% renewable power by 2050 from wind, solar and biomass, supported by nuclear energy and storage for grid stability (Prime Minister of Vietnam, 2025a). Japan's GX framework pursues net zero by 2050 together with energy security and economic growth, while responding to rising power demand. Japan's GX strategy envisages the maximum utilisation of existing nuclear reactors and the expansion of renewable energy, alongside the development and deployment of next-generation advanced reactors. Outlined in its GX strategy and updated power sector roadmaps, the policy leverages carbon pricing, grid investments and advanced technologies to achieve decarbonisation efficiently (ANRE, 2025b; METI, 2025a).

Accelerated renewable energy expansion

AMS and Japan are expanding renewable energy, supported by national targets and outlooks. Indonesia's RUPTL 2025–2034 drives this shift by adding 42.1 GW of clean capacity to reach a 70–72% renewable share by 2060 (PLN/MEMR, 2025). Similarly, Thailand's draft PDP targets over 51% renewable electricity by 2037 and over 70% by 2050, supported by rooftop solar incentives, grid-scale storage and Direct Power Purchase Agreements (MOET, 2026). Backed by JPY 20 trillion in GX Transition Bonds and extensive grid modernisation, Japan's Outlook for Energy Supply and Demand in FY2040 indicates renewables accounting for approximately 40–50% of the power generation mix (ANRE, 2025b).

Appropriate use of nuclear energy

Any potential development of nuclear power within AMS and Japan will be undertaken in accordance with national circumstances, as part of a balanced energy mix that supports energy transition strategies and decarbonisation goals. Development of nuclear power also needs to be consistent with international safeguards obligations and commitments to nuclear non-proliferation, while for some countries, nuclear energy may not be a desired option for their energy mix.

Adoption of next-generation technologies

AMS and Japan are pathfinding for low-carbon hydrogen and ammonia, CCUS and next-generation renewable energy technologies to accelerate decarbonisation. Singapore and Malaysia are paving long-term transition pathways by studying the viability of low-carbon hydrogen and CCUS. Given hydrogen's and ammonia's potential as low-carbon fuels, Singapore is developing a low-carbon ammonia pathfinder project to experiment with the use of ammonia in shipping and power generation. Additionally, Singapore committed SGD 10 billion into its Future Energy Fund across 2024 and 2025, part of which could help fund critical infrastructure for hydrogen. Japan is promoting hydrogen and ammonia co-firing as well as CCUS, while deploying next-generation technologies such as perovskite solar and floating offshore wind, as electricity demand rises driven by AI, data centres and semiconductor manufacturing (ANRE, 2025a).

(Good practice: Malaysia's NETR) Launched in late 2023, Malaysia's National Energy Transition Roadmap (NETR) provides a model for combining ambitious climate targets with actionable economic mechanisms. The roadmap targets net-zero emissions by 2050 through a 2045 coal phase-out, a 70% renewable energy share and smart grid integration. By addressing the energy sector's 78.5% share of total national emissions, the NETR projects a 32% to 37% drop in GHG emissions and a 22% reduction in energy demand. Additionally, it highlights how climate policy can stimulate economic growth, targeting RM 220 billion in GDP gains and 310,000 green jobs via blended finance and public seed capital.

Column 3: Malaysia's National Energy Transition Roadmap

Column 3: Malaysia's National Energy Transition Roadmap

Overview:

Launched in late 2023 to reach net zero by 2050, Malaysia's National Energy Transition Roadmap (NETR) addresses the energy sector's 78.5% share of national emissions through six key decarbonisation levers and 12 enablers. Coordinated by the Ministry of Economy alongside key agencies and corporate giants like PETRONAS and TNB, the strategy targets phased milestones including a 2045 coal phase-out, backed by RM 1.2–1.3 trillion in required capital, anchored by a RM 2 billion seed fund, and integrated with broader national policies.

Climate and social-economic benefits:

The NETR drives significant environmental and economic impacts by cutting energy sector GHG emissions by 32% to 37%, boosting renewable capacity to 70% with 59 GW of solar PV, phasing out coal by 2045, and targeting 22% energy efficiency savings by 2050. Economically, it leverages RM 25 billion in initial flagship projects to unlock up to RM 1.3 trillion in cumulative investments, generating RM 220 billion in GDP and creating 310,000 green jobs that primarily benefit low- and medium-income households. Furthermore, it vastly improves air quality through fleet electrification, strengthens national energy security through system diversification, and ensures a just, inclusive transition for all workers.

Enabling conditions:

- Strong political commitment: High-level executive backing aligned with national development frameworks and multi-year strategic plans.
- Broad stakeholder engagement: Whole-of-nation design integrating regional state roadmaps and extensive public-private policy consultations.
- Predictable policy signals: Clear, legislated long-term targets and renewable energy milestones to provide market certainty.
- Effective financing frameworks: Blended finance mechanisms and sustainable taxonomy alignment that unlock commercial bank capital.
- Resource-optimized infrastructure: Leveraging local resource strengths and existing assets, such as co-locating solar on hydro reservoirs to reduce storage costs.

Financing approach:

The NETR's financing strategy uses public seed capital and blended finance to de-risk green projects, deploying over RM 25 billion for initial flagship projects to crowd in private capital and unlock up to RM 1.3 trillion in total investment by 2050.

Challenges and policy responses:

- High capital costs and unproven returns for emerging tech. Response: Created the National Energy Transition Facility (NETF) for blended finance and established targeted federal tax credits.
- High transaction costs for decentralised projects deter institutional financiers. Response: Established a centralised public ESCO platform to aggregate public sector retrofits and streamline funding for private firms.
- Rapid solar penetration threatens grid stability. Response: Accelerated smart grid transmission investments and incentivised utility-scale power storage solutions.
- Absence of legal frameworks for hydrogen, CCUS, and cross-border CO_2 shipping. Response: Enacted CCUS-specific legislation, established low-carbon hydrogen standards, and initiated London Protocol-aligned transboundary agreements.
- Fossil fuel job losses and skills mismatches. Response: Developed a green skills taxonomy, funded targeted reskilling programmes, and created localised community mitigation plans.

Replication potential:

The NETR offers developing AMS a practical blueprint by harmonising national targets with regional strengths, providing clear policies to attract green investment, deploying public seed capital to unlock private funds and integrating cross-border grids for cost-effective clean energy sharing.

Relevance for GST2:

The NETR directly supports GST2 by translating national climate goals into multi-level operational policies that close the mitigation gap through firm coal-phaseout targets. It advances GST2's finance and cooperation mandates by replacing grant reliance with scalable blended finance platforms and driving regional grid integration for shared energy security.

Source: Information provided by UTM-Low Carbon Asia Research Centre.

(b) IPPU sector

In the IPPU sector, AMS and Japan view industrial decarbonisation not as a trade-off with growth, but as a primary catalyst for economic competitiveness. By merging low-carbon technologies with national industrial strategies, the region is modernising heavy industry, boosting material productivity and securing high-value positioning in increasingly carbon-conscious global supply chains. AMS and Japan drive industrial upgrading by integrating low-carbon roadmaps into national growth strategies, proving that deep decarbonisation enhances, rather than hinders, industrial competitiveness. Through digitalisation and smart manufacturing, industrial facilities optimise material efficiency to add high value and improve productivity while meeting strict energy management standards and intensity reduction targets. Concurrently, deploying a range of decarbonisation technologies slashes process emissions and enhances efficiency across heavy industry. These structural shifts bolster industrial resilience, attract green investment and spur high-skilled job creation across green engineering fields.

Industrial decarbonisation and circular economy

AMS and Japan are driving sustainable industrial transitions by embedding low-carbon manufacturing, resource efficiency and circular economy practices into national growth strategies. Malaysia accelerates this push through its New Industrial Master Plan 2030 (NIMP 2030), leveraging digitalisation, ESG compliance, and economic complexity to build resilient, net-zero manufacturing sectors (MITI, 2023). Concurrently, the Philippines targets sector-specific emissions under its IPPU NDC framework by phasing down high-GWP hydrofluorocarbons in cooling and promoting clinker substitution in cement production (Government of the Philippines, 2024a). Supporting these regional shifts, Viet Nam's National Action Plan for Circular Economy through 2035 (Decision No. 222/QĐ-TTg) provides an overarching strategy to optimise resource efficiency, minimise waste and institutionalise circularity across key sectors (Government of Viet Nam, 2025a). Japan leverages its GX strategy to decarbonise heavy manufacturing and boost competitiveness in the IPPU sector. By integrating smart manufacturing and digitalisation, facilities improve material efficiency and productivity. Simultaneously, deploying multiple decarbonisation pathways, including electrification, hydrogen and CCUS, reduces industrial emissions while strengthening industrial resilience and competitiveness (METI, 2025b).

Energy intensity and consumption reduction targets

AMS are establishing target reductions to curb energy intensity against baseline projections. AMS are adopting various measures to improve energy efficiency and support the transition towards lower-carbon industries. Thailand, for example, has set a target under its Energy Efficiency Plan (EEP 2018–2037) to reduce energy intensity by 36% against a business-as-usual baseline by 2037. The plan includes mandatory energy management systems, equipment standards and financial incentives to support industrial energy-efficiency improvements (Ministry of Energy, 2020).

Institutionalised energy management

AMS governments are enforcing mandatory frameworks, including energy audits and management systems, to drive energy efficiency across major industrial sectors. Singapore and the Philippines enforce strict regulatory regimes alongside fiscal support to accelerate industrial decarbonisation. Under Singapore's Energy Conservation Act (ECA), energy-intensive industrial facilities are required to implement mandatory energy management practices, including energy management systems, periodic energy efficiency assessments and annual energy efficiency improvement plans, with funding support to implement energy efficiency measures available through schemes such as the Resource Efficiency Grant for Emissions (REG(E)) and the Energy Efficiency Grant (EEG)(Ministry of Trade and Industry, 2024). Similarly, the Philippines leverages Republic Act No. 11285 and its National Energy Efficiency and Conservation Plan to mandate energy audits, appliance performance standards and designated energy officers for major consumers, offering tax incentives to accelerate adoption (Department of Energy, 2019).

(c) Transport sector

Decarbonisation of the transport sector in the ASEAN region and Japan requires a comprehensive, multi-pillar strategy that goes beyond EV adoption. By combining rapid electrification with structural modal shifts to public transit and rail, digital logistics optimisation and low-carbon alternative fuels, the region is enhancing urban mobility, improving freight efficiency and slashing fossil fuel dependency. By pairing clear transport decarbonisation targets with diverse powertrain and fuel options, including EV, hydrogen technologies, biofuels and e-fuels, with targeted fiscal incentives, AMS and Japan are cutting transport emissions while building a regional automotive manufacturing hub. Initiatives such as the Philippines' public transit modernization, Lao's Bus Rapid Transit, and Singapore's charging network expansion extend clean mobility to enhance broader social welfare. Furthermore, integrating Sustainable Aviation Fuels (SAF), marine biofuels, and digital logistics decarbonizes hard-to-abate sectors, directly reducing fossil fuel dependence to secure long-term economic resilience.

EV adoption targets

AMS and Japan are introducing targeted frameworks to accelerate transport decarbonisation. Building on the earlier target of a 60% EV sales share by 2035 (BCCS, 2020) and informed by the latest available data, Brunei Darussalam is broadening its focus towards low-carbon mobility, encompassing both electric and hybrid vehicles, to support a more balanced transition of the transport sector, while Cambodia aims to electrify 70% of motorcycles and 40% of passenger cars by 2050 (MOE, 2021). Lao PDR targets a 30% EV adoption rate by 2030 (Government of Lao PDR, 2021). Malaysia has published a mobility blueprint targeting a 15% EV sales share by 2030 (KASA, 2021). Thailand follows its "30@30" roadmap to make zero-emission vehicles 30% of domestic production (The Nation, 2021), and Singapore mandates that all new cars be cleaner-energy models by 2030 to fully phase out internal combustion engines by 2040 (MSE, 2021). Japan targets 100% electrified new passenger car sales by 2035, including BEVs, PHEVs, FCVs and HEVs, while pursuing multiple decarbonisation pathways for commercial vehicles through electrification, hydrogen technologies, biofuels, e-fuels and other low-carbon energy solutions (METI, 2021).

Policy and tax incentives

AMS are lowering EV adoption barriers and attracting foreign investment through fiscal incentives, tax cuts and localised manufacturing mandates. Under Presidential Regulation No. 79/2023, Indonesia grants temporary import duty and luxury tax exemptions for fully assembled EVs in exchange for local production commitments (Cabinet Secretariat of the Republic of Indonesia, 2023). Thailand's "EV 3.5" policy (2024–2027) combines consumer subsidies with sharp cuts to import duties (up to 40%) and excise taxes (down to 2%) (National EV Policy Committee, 2023). Meanwhile, Cambodia offers reduced special tax rates for EVs and plug-in hybrids (MOEF, 2023). Collectively, these actions lower upfront purchase costs, boost regional manufacturing capacity, and position Southeast Asia as a global EV hub.

Public transport decarbonisation and modal shift

AMS and Japan are prioritising modal shifts toward public transit to relieve urban congestion and lower per-capita emissions. Singapore, Cambodia and Brunei are scaling nationwide charging networks to support public and private fleets, anchored by Singapore's target of 60,000 public chargers by 2030 alongside continuous expansion of its urban rail mass transit system (MSE, 2021). Concurrently, mass transit modernisation is progressing through initiatives like the Philippines' Public Transport Modernization Program (PTMP), which replaces legacy public utility vehicles with Euro-4, hybrid or electric buses (Department of Transportation, 2023). Similarly, Lao PDR is establishing a Bus Rapid Transit (BRT) system in Vientiane to encourage a modal shift from personal motorbikes to clean mass transit (Government of Lao PDR, 2021).

Logistics efficiency, freight modal shift and alternative fuels

Addressing freight transport requires combining supply chain optimisation with cleaner energy sources. AMS and Japan are streamlining freight movement through digital logistics management, automated customs/routing, and shifting long-haul cargo from trucks to energy-efficient rail and coastal shipping corridors. To decarbonise remaining maritime and aviation transport, countries are establishing alternative fuel mandates. Under its National Oil Plan, Thailand promotes clean marine fuels and mandates SAF blending, starting at 1% in 2026 and scaling to 5–8% by 2036 (Department of Energy Business, 2026). Combined with alternative fuels and digital logistics optimisation, these measures serve as central pillars of the region's green transport agenda. Likewise, Japan is advancing integrated logistics networks, smart fleet energy management, synthetic fuels, biofuels and SAF deployment to decarbonise heavy freight and aviation (FSA et al., 2025).

(d) Waste sector

AMS and Japan are advancing circular economies and waste-to-energy systems through EPR mandates, strict source separation and advanced resource recovery. By implementing technologies like thermal incineration, gasification and anaerobic digestion, countries such as Malaysia, Thailand and Japan convert organic and non-recyclable waste into low-carbon power, displacing fossil fuels and reducing landfill methane emissions. Supported by community sorting campaigns and infrastructure upgrades, these integrated strategies divert waste from landfills, phase out open dumping and establish sustainable resource loops across the region.

Resource efficiency and circular economy

AMS and Japan are advancing circular waste management by pairing Extended Producer Responsibility (EPR) with expanded recycling, composting and high-efficiency waste-to-energy (WtE) recovery. Rather than serving purely as a technical waste volume reduction option, WtE yields multiple co-benefits simultaneously—reducing methane emissions from landfill sites by avoiding direct landfill of organic waste, generating energy and mitigating severe public health risks, by replacing unmanaged open dumping and uncontrolled waste burning—a major source of localised PM2.5 pollution across the ASEAN region. Malaysia's Circular Economy Blueprint for Solid Waste (2025–2035) sets a 10-year strategy mandating EPR, scaling WtE capacity and targeting a 40% recycling rate (KPKT, 2024). Concurrently, Thailand is scaling municipal composting, anaerobic digestion and WtE through regional cluster models and feed-in tariffs to phase out open dumping and uncontrolled burning, curbing methane and PM2.5 pollution while enhancing resource recovery (MONRE, 2022). Japan exemplifies this integrated approach by combining upstream circular practices with high-efficiency energy recovery. Pairing upstream waste sorting with advanced thermal treatment (incineration and gasification) allows non-recyclable municipal waste to be repurposed into electricity, heat or low-carbon chemical feedstocks. This delivers a dual benefit: replacing fossil fuel inputs while eliminating landfill-derived methane and extending the operational longevity of landfill sites (MOEJ, 2025).

Targeted waste reduction and diversion

AMS are cutting landfill dependency and methane emissions by combining urban plastic reduction, resource recovery and landfill gas capture. Thailand and Cambodia prioritise landfill diversion by phasing out open dumping, enforcing source separation, and routing organic and plastic waste to waste-to-energy, mechanical-biological treatment and 4R (Refuse, Reduce, Reuse, Recycle) initiatives (UNDP, 2025). To tackle residual waste, Cambodia's updated NDC 3.0 mandates upgrading landfills with gas capture, flaring and energy recovery systems alongside anaerobic biodigesters— mitigating transforming fugitive methane emissions while capturing biogas for clean energy production (MOE, 2025a).

Community engagement

Supported by UNDP and Japan, Cambodia is driving community waste sorting through its nationwide "Clean Cambodia, Khmer Can Do" campaign. By distributing tens of thousands of colour-coded separation bins to schools, public spaces and local offices, the initiative builds public awareness to drive source sorting and plastic recycling, thereby cutting life cycle GHG emissions (MOE, 2026).

(Good practice: Tuas Nexus in Singapore) Singapore's Tuas Nexus is a benchmark good practice for integrated urban infrastructure, proving that co-locating water reclamation and solid waste treatment delivers critical cross-sectoral synergies. Co-digesting food waste and sewage sludge allows the facility to achieve energy self-sufficiency, export excess grid power and save land. Enabled by Whole-of-Government alignment under the Ministry of Sustainability and the Environment (MSE), green bond financing and mandatory waste segregation under the 2019 Resource Sustainability Act, it offers a highly replicable blueprint for urban circularity.

Column 4: Tuas Nexus of Singapore

Overview:

Singapore's Tuas Nexus integrates waste incineration and water treatment, co-digesting sludge and food waste, to maximise biogas, power operations, save land and export excess energy.

Climate and social-economic benefits:

Tuas Nexus advances climate resilience by achieving energy self-sufficiency and cutting emissions through the co-digestion of food waste and sludge for biogas, while reclaiming water and incinerating solid waste to minimise landfill use. Socioeconomically, this integrated model saves up to two hectares of land in land-scarce Singapore, lowers utility operating costs through shared thermal efficiencies, safeguards public health, and strengthens national water and energy security.

Enabling conditions:

- Whole-of-government alignment: Strategic leadership by the overarching ministry (MSE) to unite distinct agencies (PUB and NEA) around shared sustainability targets.
- Integrated long-term planning: Overcoming traditional sector siloes by embedding infrastructure development within a comprehensive, forward-looking urban design framework.
- Synergistic infrastructure: Aligning municipal water treatment and solid waste management goals to co-optimise energy self-sufficiency, land savings and resource recovery.

Financing approach:

Tuas Nexus is funded through public capital allocations and green debt financing under Singapore's Whole-of-Government model. To directly fund the Integrated Waste Management Facility (IWMF), a SGD 3 billion Multicurrency Medium Term Note (MTN) Programme and Green Bond Framework is established to issue green bonds, while component facilities are delivered through engineering procurement contracts with private sector partners.

Challenges and policy responses:

- Merging separate water and waste streams created engineering complexities. Response: PUB and NEA conducted feasibility studies, refined joint designs and validated processes through pilot testing.
- Food waste was historically mixed with municipal solid waste and incinerated. Response: Under the 2019 Resource Sustainability Act legally mandated large commercial and industrial food waste generators, including hotels, shopping malls and food manufacturers, are mandated to segregate their food waste for treatment or conversion into useful products and to submit food waste reports annually.

Replication potential:

Tuas Nexus offers a scalable blueprint for urban centres by demonstrating that cross-sectoral utility integration requires early-stage greenfield co-design, inter-agency collaboration and supportive upstream policy. Its success proves that multi-utility infrastructure depends on bridging institutional silos and enacting mandatory waste segregation laws to guarantee the organic feedstocks needed to fuel downstream resource recovery.

Relevance for GST2:

Aligning directly with GST2 priorities, Tuas Nexus demonstrates how integrated municipal infrastructure accelerates systemic decarbonisation and urban climate resilience. By converting waste streams into renewable biogas to achieve energy self-sufficiency and reduce landfill emissions, the facility offers a concrete, policy-backed model for nations striving to meet their NDCs while securing vital water and energy resources.

Source: Information provided by the Public Utilities Board (PUB), Singapore.

(e) Agriculture sector

AMS and Japan are driving climate-smart agriculture to cut emissions while boosting farm productivity and securing water resources. By deploying techniques like Alternate Wetting and Drying (AWD), countries such as Cambodia, Thailand and Japan slash paddy methane emissions by up to 50% and conserve up to 35% of irrigation water without sacrificing crop yields. Complemented by high-tech precision farming, soil conservation and modernised infrastructure in Malaysia, the Philippines, Timor-Leste and Viet Nam, these integrated practices meet national climate goals, protect ecosystems and fortify regional food security against extreme weather.

Climate-smart agriculture

AMS and Japan are advancing climate-smart agriculture to cut emissions while securing food production. In Cambodia, adopting AWD and the System of Rice Intensification (SRI) cuts paddy methane emissions by up to 50% and water use by 35% without reducing yields (ASEAN Climate Resilience Network, 2021). Concurrently, Malaysia's National Agrofood Policy 2021–2030 (NAP 2.0) modernises paddy, livestock, crop and aquaculture production through high-tech practices that minimise GHG emissions and safeguard farmer livelihoods (KPKM, 2021). Similarly, Thailand's 20-Year Strategy and the Thai Rice NAMA project use AWD to modernise supply chains and cut rice-sector emissions by 26% to 29% (MOAC, 2017). Under its national food strategy, Japan advances agricultural decarbonisation and climate resilience by combining low-emission techniques with smart adaptation. Key GHG mitigation measures include soil carbon sequestration, optimised fertilizer use, prolonged mid-season drainage and fossil-fuel-free greenhouses. Concurrently, Japan secures food supplies against extreme weather by upgrading irrigation and deploying heat-tolerant crops, as well as leveraging AI precision farming (MAFF, 2026).

NDC reduction alignment

Mitigation efforts in agriculture directly support NDC goals and overall emissions targets. In the Philippines, where agriculture generates roughly 30% of total emissions, low-carbon food system strategies are central to achieving the country's NDC objectives. By scaling climate-smart practices, advanced farm technologies and modernised post-harvest infrastructure, the nation is cutting agricultural emissions and preventing resource loss while safeguarding food security and rural livelihoods (CCC, 2021).

Co-benefits of mitigation, adaptation and food security

Agricultural policies across AMS consistently align climate mitigation with adaptation, land protection and food security. Demonstrating this integrated approach, Timor-Leste's NDC 3.0 (2026–2035) embeds these priorities into its AFOLU strategies by combining soil conservation to protect natural carbon sinks with climate-resilient farming techniques (Climate Policy Database, 2025). This framework curbs degradation, elevates crop yields, fortifies national food security and builds long-term adaptive capacity for rural smallholders. Meanwhile, Viet Nam's Decision No. 324/QD-TTg sets a 2045 master programme to promote sustainable land and water management across the Mekong Delta, safeguarding long-term food security and climate-resilient livelihoods (Government of Viet Nam, 2020b).

(Good practice: AWD in Lao PDR) Lao PDR is piloting AWD technology to cut agricultural water use and methane emissions without sacrificing rice yields. Backed by a four-pillar research framework and farmer incentives, the initiative offers a scalable model for regional climate goals through joint pilots, blended finance and peer exchanges.

Column 5: Alternate Wetting and Drying for rice farming in Lao PDR

Overview:

Lao PDR is piloting Alternate Wetting and Drying (AWD), monitoring soil drying via low-cost tubes before re-flooding, to cut agricultural water use and methane emissions without reducing yields.

Climate and social-economic benefits:

AWD in Lao PDR delivers major climate benefits by reducing methane emissions by nearly 60% compared to continuous flooding and cutting water use by 50%, directly contributing to national NDC mitigation targets. Socioeconomically, this low-cost, easily learned water management technique preserves or increases crop yields by improving root oxygenation, while lowering irrigation pumping expenses to boost net farmer income without requiring expensive infrastructure.

Enabling conditions:

- Clear policy framework: Strong national alignment with Lao's NDC, Climate Change Decree and methane reduction strategy.
- Low-cost accessibility: Simple, affordable technology (e.g. basic observation tubes) easily mastered by farmers within a single season.
- Empirical validation: Structured multi-pillar research and trial partnerships (e.g. World Bank, The Asia Foundation) providing proof-of-concept.
- Peer-led engagement: Active farmer-to-farmer mentorship and hands-on training to build confidence in shifting away from continuous flooding.
- Phased deployment: Staged rollout starting with pilot-scale validation before expanding regionally in step with the 2025 decree.

Financing approach:

The financing approach relies on low-cost farmer entry supported by blended international programme funding from partners like the World Bank and The Asia Foundation. Scaling is driven by public climate finance tied to national NDC targets, alongside proposed ASEAN-Japan regional blended mechanisms to fund essential land levelling, irrigation infrastructure and training.

Challenges and policy responses:

- AWD relies on dependable water control and flat fields, which are absent in poorly levelled or un-paddied areas. Response: Target deployment to irrigated zones, expand land levelling and invest in upgraded irrigation infrastructure.
- Farmers fear crop failure from departing from traditional continuous flooding. Response: Deploy farmer-to-farmer mentorship, conduct field demonstrations and distribute early-maturing rice varieties.
- Lack of farmer familiarity with water observation timing and application rates. Response: Provide structured seasonal training, establish pilot-finance support and create ASEAN-Japan knowledge-exchange networks.

Replication potential:

AWD offers high replication potential across rice-growing nations due to its low cost, simple observation tools and one-season learning curve. Scaling requires deploying localised demonstration plots to ease farmer risk-aversion, securing basic irrigation infrastructure, and leveraging regional frameworks—such as ASEAN-Japan exchange training and standardised MRV protocols—to expand smallholder capacity.

Relevance for GST2:

AWD advances GST2 goals by delivering deep, immediate agricultural methane reductions alongside water savings without yielding trade-offs. It serves as a practical blueprint for AMS NDCs and the Global Methane Pledge, proving that smallholder adaptation and land-use decarbonisation can jointly strengthen climate resilience and food security.

Source: Information provided by the National Agriculture and Forestry Research Institute (NAFRI), Lao PDR.

(f) FOLU sector

AMS and Japan are realising the value of natural capital and carbon through forest conservation, Nature-based Solutions and carbon market frameworks. Ambitious targets, such as Thailand's 55% forest cover by 2037, Brunei Darussalam's sustained forest cover of more than 70% alongside its target of 55% gazetted forest reserves and Indonesia's FOLU Net Sink 2030, expand carbon sequestration, enhance climate adaptation and boost biodiversity. Simultaneously, the cyclic use of forest resources in Japan and carbon trading regulations in Indonesia and Viet Nam monetise ecosystem services and incentivise sustainable governance. Together, these strategies build disaster resilience, safeguard vital ecosystems and improve local community livelihoods.

Forest expansion targets

Several AMS are advancing forest conservation and carbon sequestration through ambitious national targets and international initiatives. Thailand aims for 55% forest cover by 2037 under its revised 20-Year National Strategy, leveraging a sector that historically absorbs over 20% of its emissions (Government of Thailand, 2018). Brunei aims to increase its forest reserve from 41% to 55%, supported by a 500,000-tree goal through reforestation and afforestation, alongside mandatory carbon reporting (BCCS, 2020). Meanwhile, Indonesia is driving toward its FOLU Net Sink 2030 target with record-low deforestation and the 2025 "GREEN for Riau" peatland project, while Viet Nam executes its National REDD+ Action Programme to hit 45% forest cover by 2030 (KLHK, 2022; ADB, 2017).

Carbon sequestration and tree planting

AMS and Japan enhance climate resilience, carbon storage and biodiversity through targeted tree-planting, habitat restoration and sustainable forestry initiatives. Launched in 2020 by Singapore's National Parks Board under the Singapore Green Plan 2030, the OneMillionTrees movement aims to plant one million trees by 2030. Restoring urban, coastal and mangrove habitats boosts biodiversity, cools the city and sequesters carbon (National Parks Board, 2020). Japan promotes sustainable forest management and the cyclic use of forest resources through various measures, such as thinning of planted forests, replanting after harvesting with the use of elite trees, and promoting wood use in mid-high rise buildings. These efforts contribute to carbon sequestration and storage, biodiversity conservation and disaster risk reduction (Forestry Agency, 2026).

Carbon markets and legal frameworks

AMS are advancing land-use policies by regulating carbon credit trading and mandating emissions reporting. Through recent regulatory updates, Indonesia and Viet Nam are strengthening environmental governance via domestic carbon markets and certification systems. Indonesia's Regulation No. 7/2023 permits carbon credit trading from protected and production forests, strictly prioritising national climate targets over international transfers (KLHK, 2023). Meanwhile, Viet Nam's Forest Certification Scheme (Decision No. 1288/QD-TTg) expands certified forest areas and chain-of-custody tracking, enhancing local governance and aligning timber products with global trade standards (VFCO, 2020).

(Good practice: Paludiculture in Indonesia) Paludiculture in Indonesia is an exemplary nature-based good practice, proving that rewetting degraded peatlands can slash emissions from 30 to below 8 t-CO_2/ha/year while eliminating fire risks. By combining secure land tenure via Social Forestry (HPHD) with science-backed groundwater governance across Peatland Hydrological Units (KHGs), the model empowers communities to cultivate sustainable commodities like Liberica coffee and pineapple. Supported by blended green financing, eco-certifications and payment for ecosystem services (PES), it demonstrates that ecosystem restoration and rural economic resilience are mutually reinforcing—offering a highly scalable model.

Column 6: Practice on paludiculture in Indonesia

Column 6: Practice on paludiculture in Indonesia

Overview:

Indonesia's Peatland Restoration Agency (BRG) replaces dryland drainage with canal blocking and paludiculture (wet farming), converting fire-prone peatlands into productive landscapes that cut annual emissions from around 30 t-CO_2/ha to below 8 t-CO_2/ha while restoring water tables.

Climate and social-economic benefits:

Paludiculture delivers critical climate resilience by rewetting peatlands to stop organic matter oxidation, reduce carbon emissions, lower fire risks, and restore degraded ecosystems into functional carbon sinks and flood-mitigating habitats. Economically and socially, it revitalises rural communities by creating jobs in nurseries, canal management, and processing native commodities like sago, jelutong, Liberica coffee and handicrafts. Ultimately, this approach stabilises local incomes through commodity diversification while opening new revenue streams via carbon incentives and payment for ecosystem services (PES).

Enabling conditions:

- Policy and land rights: Legal tenure via Village Forest Management Rights (HPHD) under hydrological protection.
- Local leadership: Championing by village heads and farmer groups to drive behavioural change.
- Collective governance: Coordinated water management across entire Peatland Hydrological Units (KHGs).
- Science and technology: Land mapping and real-time groundwater monitoring sensors guided by BRIN and NGOs.
- Financial access: Green financing, eco-certifications, and premium market channels for sustainable crops.

Financing approach:

The financing approach combines green financing access with premium market channels and eco-certifications for sustainable commodities like Liberica coffee and pineapple. This financial model is underpinned by government Social Forestry schemes granting legal Village Forest Management Rights (HPHD), giving local farmer groups the land security required to attract investment and transition to profitable, wet-peatland agroforestry.

Challenges and policy responses:

- Insufficient regulatory backing and targeted economic incentives. Response: Integrate paludiculture into regional development agendas and introduce supportive fiscal policies.
- High upfront capital requirements and limited credit access for farmers. Response: Expand green capital via environmental funds, carbon financing, green bonds and public-private partnerships.
- Lack of wet-peatland inputs, quality seeds and specialised machinery. Response: Boost R&D in native seed breeding, wet-land mechanisation and hydrological infrastructure.

- Entrenched reliance on conventional drainage-based farming. Response: Establish local demonstration plots, provide hands-on mentoring and engage community leaders early.
- Insufficient expertise among farmers and extension agents in wet-crop cultivation and processing. Response: Conduct continuous technical training for field officers, agricultural institutions and local farmers.

Replication potential:

Successfully replicating paludiculture requires establishing local demonstration plots with pioneer farmers to prove economic viability, alongside designing agroforestry models that combine short-term cash crops with long-term trees to buffer transitional income loss. Scale also depends on securing early market off-takers through cooperatives or private partnerships, establishing collective village-level water governance across entire Peatland Hydrological Units (KHGs), and providing transitional financing and supportive land regulations.

Relevance for GST2:

Paludiculture directly aligns with GST2 climate imperatives by proving that rewetting peatlands drives deep, nature-based decarbonisation—preventing fires and turning degraded ecosystems back into functional carbon sinks while strengthening community adaptation and flood resilience. Furthermore, it exemplifies how nations can fulfil the Paris Agreement goals by combining regulatory frameworks and land-tenure rights with market-based economic drivers, such as carbon financing and PES.

Source: Information provided by IPB University, Indonesia.

(Good practice: Community-based natural resource management (CBNRM) in Timor-Leste) The CBNRM initiative provides a scalable, proven model for pro-growth decarbonisation that directly bridges high-level climate targets with grass-roots implementation in vulnerable ecosystems. Its core significance lies in its holistic, participatory design—integrating traditional customary governance with modern forestry frameworks, sustainable agricultural extension and multi-tier institutional planning. By demonstrating that forest conservation and GHG mitigation can actively drive economic resilience, enhance rural livelihoods and strengthen local governance, this practice offers an adaptable blueprint for developing AMS seeking to fulfil their climate commitments while fostering sustainable local development.

Column 7: Community-based natural resource management (CBNRM) in Timor-Leste

Column 7: Community-based natural resource management (CBNRM) in Timor-Leste

Overview:

The CBNRM initiative, led by Timor-Leste's Ministry of Agriculture, Livestock, Fisheries and Forestry (MALFF) and JICA, combats deforestation, land degradation and climate vulnerability in critical watersheds. Scaled up across 74 villages through 2029 with Green Climate Fund support, the practice integrates participatory land-use planning, village regulations, agricultural extension services and watershed management councils.

Climate and social-economic benefits:

- The initiative reduces GHG emissions by an estimated 464,229 tCO_2e (2022–2029) while safeguarding up to 85,500 hectares of dense and sparse forests in critical watersheds.
- By stabilising upper catchments, it protects local biodiversity, preserves ecosystem services, and lowers community vulnerability to severe soil erosion, landslides, flash floods and drought.
- The project strengthens rural livelihoods by training 6,480 households in climate-resilient agriculture, agroforestry, and income-generating micro-programmes to boost food security and income.

- Additionally, it reinforces local governance and capacity by establishing Watershed Management Councils, legalising village land-use regulations, and upskilling over 50 government officials.

Enabling conditions:

- Policy alignment: Strong alignment with Timor-Leste's national forestry laws, ministerial orders, climate policies and the national CBNRM roadmap.
- Government ownership: Formal adoption and leadership by MALFF and local municipal offices.
- Customary integration: Blending local traditional rules and practices with modern resource management to ensure community acceptance and ownership.
- Multi-tiered governance: Establishing Watershed Management Councils and enforceable village regulations to handle landscape-level issues.
- Sustainable financing: Leveraging international climate finance (GCF and JICA) alongside potential private carbon-credit mechanisms.
- Livelihood incentives: Linking forest conservation directly with tangible socio-economic gains, such as improved crop yields and income generation.

Challenges and policy responses:

- Financial constraints due to insufficient and unpredictable long-term funding to sustain and scale the practice after direct project support ends. Response: Pilot-testing a carbon-credit mechanism to attract private investment and secure sustainable post-project financing.
- Limited technical and institutional capacity among local stakeholders and government field officers to effectively implement the practice. Response: Delivering targeted training programmes and hands-on coaching for government field officers to strengthen local implementation capacity across priority watersheds.
- Unclear land tenure arrangements and inadequate land registration systems, leading to overlapping land uses and forest management conflicts. Response: Institutionalising village regulations under national forestry frameworks and establishing Watershed Management Councils to coordinate multi-stakeholder land governance.
- Limited opportunities for local communities to generate alternative income beyond conventional subsistence farming. Response: Preparing and deploying a menu of micro-programmes dedicated to income-generating initiatives and livelihood diversification.
- Low agricultural productivity and frequent crop losses caused by severe climate-related hazards, such as prolonged droughts and heavy rainfall. Response: Rolling out practical micro-programmes focused on sustainable, climate-resilient agriculture, agroforestry and improved farming practices.

Replication potential:

The practice holds strong replication potential across AMS by adapting its core approach—integrating customary rules and local knowledge with modern forest management frameworks—to suit each country's specific land tenure systems, local institutions and climate risks. Rather than applying a rigid model, regions can leverage Timor-Leste's proven experience as a practical blueprint for capacity building, institutional design and developing bankable climate-finance proposals. The institutional framework established through the CBNRM mechanism also provides a versatile foundation that can easily support subsequent initiatives such as watershed restoration, community forestry, biodiversity conservation and carbon-credit projects.

Relevance for GST2:

The initiative aligns directly with the outcome of GST2 under the Paris Agreement by translating global climate ambitions—specifically halting and reversing deforestation, enhancing landscape-level adaptation and accelerating nature-based solutions—into actionable local interventions. By integrating custom community governance with national regulatory frameworks and international climate finance, the CBNRM mechanism serves as a scalable model for developing nations to fulfil their NDCs while strengthening socio-economic resilience and biodiversity conservation in vulnerable watersheds.

Source: Information provided by Japan International Cooperation Agency (JICA).

3.2.1.3 Cross-cutting initiatives

AMS and Japan are driving decarbonisation, economic growth, energy security and broader social development through cross-cutting policies and initiatives such as carbon pricing, CCUS deployment, methane reduction and transparent governance. Market mechanisms like Indonesia's IDX Carbon exchange and Japan's GX framework incentivise green investment, while early CCS initiatives in Thailand and Indonesia protect industrial competitiveness and energy security. Concurrently, targeted measures like agricultural and waste-sector methane cuts safeguard rural livelihoods and public health. Finally, robust digital MRV systems, ESG disclosures, and unified NDC tracking ensure policy transparency, optimise capital allocation and secure long-term economic resilience.

(a) Carbon market and pricing frameworks

Nations across ASEAN region and Japan are rapidly expanding their carbon pricing architectures through targeted regulatory and market mechanisms. Cambodia has formalised its voluntary market under Paris Agreement Article 6 via a national registry and a Korean e-mobility partnership (Climate Policy Radar, 2023; GGGI, 2025). Indonesia established its 'IDX Carbon' exchange under Financial Services Authority oversight, expanding its framework under Presidential Regulation No. 110 of 2025 to encompass carbon levies, emission allocations, and results-based payments (OJK, 2023). Thailand is complementing its voluntary scheme, which delivers over 16.6 million tons of annual CO_2 reductions, with a mandatory ETS scheduled for a 2029 pilot (TGO, 2026a; ICAP, 2026). Meanwhile, Japan is transitioning from its voluntary GX League to a mandatory system, introducing power generator auctions in FY2033 alongside a fossil fuel surcharge starting in FY2028 (METI, 2025c).

(Good practice: The carbon tax of Singapore) Singapore's carbon tax is a benchmark practice for pro-growth decarbonisation, proving that an economy-wide price signal covering 70% of national emissions can drive deep mitigation without undermining competitiveness. By pairing a transparent, long-term price trajectory with a self-sustaining revenue-recycling model—generating over SGD 650 million annually for decarbonisation efforts, such as green grants and low-carbon tech—it converts tax liabilities into transition capital. Supported by performance-tied allowances to prevent carbon leakage, proactive workforce upskilling and extensive public consultation, it offers a highly replicable, policy-backed blueprint for nations updating their NDCs.

Column 8: The carbon tax of Singapore

Column 8: The carbon tax of Singapore

Overview:

Launched in 2019, Singapore's carbon tax covers facilities emitting at least 25,000 t-CO_2e/year, 70% of national emissions (80% with fuel duties). The rate reached SGD 45/t-CO_2e in 2026, targeting SGD 50–80/t-CO_2e by 2030. To preserve competitiveness, Singapore uses transitional allowances for trade-exposed sectors and carbon credit offsets.

Climate and social-economic benefits:

Singapore's carbon tax drives deep climate mitigation by establishing an economy-wide price signal across 70% of national emissions, generating an ongoing revenue stream—over SGD 650 million from taxable emissions in 2024—to reinvest directly in clean tech and carbon credit markets. Socioeconomically, this revenue recycling funds business energy-efficiency upgrades and green innovation, positioning the economy for long-term competitiveness while protective transitory allowances for EITE sectors safeguard local jobs and industrial stability during the transition.

Enabling conditions:

Singapore's carbon tax framework succeeds through predictable policy signals, pragmatic calibration and extensive stakeholder engagement. Giving advance notice of multi-year tax hikes provides a stable price signal for long-term investment, while a calibrated approach safeguards economic competitiveness by offering performance-tied transitory allowances to EITE sectors. Transparent public and industry consultations ensure social buy-in and allow the government to fine-tune support measures while driving national decarbonisation.

Financing approach:

Singapore uses a revenue-recycling model where all carbon tax proceeds are directly redirected into decarbonisation efforts, some of which translates into business grants and green tech subsidies to fund enterprise decarbonisation. This is supplemented by a market-based offset mechanism allowing companies to offset a portion of their taxable emissions using eligible international carbon credits.

Challenges and policy responses:

- Carbon tax hikes increase utility bills. Response: Households receive utility rebates and appliance vouchers, while businesses get energy-efficiency grants funded by tax revenues.
- EITE firms risk relocating to cheaper jurisdictions. Response: The state offers temporary, phased tax allowances tied strictly to verified decarbonisation targets.
- Industrial shifts cause green skill gaps. Response: A multi-stakeholder Green Skills Committee maps emerging roles and funds worker reskilling pathways.

Replication potential:

Singapore's carbon tax proves that successful pricing mechanisms require predictable rate hikes, targeted coverage and revenue recycling. Announcing multi-year price increases in advance gives businesses time to adapt, while a 25,000 t-CO_2e facility threshold captures 70% of emissions with minimal administrative burden on smaller firms. Crucially, reinvesting tax revenues into enterprise decarbonisation grants converts carbon pricing from a compliance penalty into a catalyst for green innovation.

Relevance for GST2:

Aligning with GST2 goals, this model demonstrates how market-based policies drive pro-growth decarbonisation without sacrificing economic competitiveness. It offers a clear blueprint for updating NDCs by proving that transparent carbon pricing, paired with direct reinvestment into low-carbon technologies, can effectively bridge the global emissions gap.

Source: Information provided by the National Climate Change Secretariat (NCCS), Singapore.

(b) CCS deployment

To safeguard industrial competitiveness and regional energy security, particularly in hard-to-abate sectors, AMS and Japan are building comprehensive legal and operational frameworks to commercialise targeted CCS projects by around 2030. In ASEAN, Indonesia and Malaysia share similar advantages for evolving into regional CCS hubs. Their favourable conditions include substantial geological storage potential, physical distance from major emitter countries, existing oil and gas infrastructure, and strong local technical expertise (ERIA, 2026a). Indonesia's Presidential Regulation No. 14 of 2024 governs the full CCS lifecycle, reserving 70% of storage capacity for domestic emissions while allocating 30% for cross-border transport (Government of Indonesia, 2024). Malaysia has been leading the region in developing its CCS business ecosystem, having established a centralised CCUS authority for permitting and coordination as well as the Post-closure Stewardship Fund. The government allows unlimited cross-border CO_2 storage and provides incentives such as investment tax allowances, income tax exemptions and import duty exemptions (ERIA, 2026a). Thailand is amending its Petroleum Act to establish carbon licensing and site closure protocols, anchored by PTT Group's Arthit offshore project targeting one million tonnes of annual CO_2 capture (DMF, 2024; PTTEP, 2025a). Timor-Leste has identified favourable sites for CCS development and cooperated with IFC to develop a legal framework (IFC, 2024). Viet Nam also established a legal foundation for CCUS by amending the Petroleum Law in August 2026. The amendment provides a comprehensive regulatory framework for CCS/CCUS projects. The law permits CCS/CCUS activities within petroleum contracts, including ownership and trading of carbon credits (MoIT, 2026a; MoIT, 2026b). Concurrently, Japan is accelerating its commercialisation strategy through the Act on Carbon Dioxide Storage Businesses, establishing a permitting system for exploratory offshore drilling and a dedicated regulatory framework for long-term monitoring and risk management (METI, 2024; JOGMEC, 2024).

(c) Sector-specific methane reduction

Methane mitigation across AMS and Japan focuses heavily on agriculture, waste infrastructure and energy supply chains. Thailand and Cambodia are deploying sectoral roadmaps targeting methane cuts of up to 49% and 50% by 2050, respectively, by scaling AWD rice irrigation, livestock feed improvements, biogas recovery and rice straw management—measures that simultaneously reduce water and fertiliser costs, boost agricultural productivity and generate renewable farm energy (MOAC, 2023; MOE, 2025b). They are further curbing emissions while improving public health and waste management through WtE projects, strict open-burning bans, and voluntary industrial gas recovery (WB, 2025; PTTEP, 2025b). Similarly, Japan is accelerating methane reductions by promoting prolonged mid-season drainage and water management in paddy fields, upgrading waste incineration and anaerobic digestion facilities, and controlling fugitive emissions across energy supply chains (MOEJ, 2025). Developed by Fukuoka City and Fukuoka University, the Fukuoka Method (Semi-Aerobic Landfill System) uses electricity-free, heat-driven natural aeration to cut methane emissions, suppress hydrogen sulfide odors and speed up site stabilisation, leading to its deployment across Asia-Pacific cities via UN-HABITAT and JICA (Fukuoka City Government, 2021).

AMS and Japan recognise the ongoing work by ACE and JOGMEC on methane emissions management in the oil and gas sector and the importance of practical approaches to reducing methane emissions through voluntary approaches based on industry dialogue and cooperation, including the Coalition for LNG Emission Abatement toward Net-zero (CLEAN) initiative.

(d) Data transparency and governance

Nations across the region are prioritising enhanced governance, standardised NDC tracking, and robust MRV systems. The Philippines is advancing the Paris Agreement commitments by institutionalising unified NDC tracking guidelines, establishing mandatory data-sharing policies across agencies and private entities, and expanding its Climate Change Expenditure Tagging (CCET) framework with recognition-based incentives for local engagement (CCC, 2021). Similarly, Japan is strengthening climate data transparency to create business incentives, accelerate private-sector decarbonisation and enhance industrial competitiveness through its standardised national GHG inventory system, integrated digital MRV platforms under the GX framework, and mandatory corporate ESG disclosures aligned with international reporting standards (MOEJ, 2025).

3.2.1.4 Financing initiatives

AMS and Japan are advancing regional decarbonisation and economic growth through standardised finance frameworks and targeted private capital mobilisation. By establishing traffic-light classification systems and Minimum Social Safeguards, regional partners prevent greenwashing while directing private capital toward green and transition activities. Blended finance platforms de-risk clean technology, energy efficiency and SME decarbonisation to stimulate green economic expansion. Furthermore, shifting capital beyond energy and transport toward climate adaptation and resilient agriculture safeguards vulnerable communities and protects long-term food and climate security.

(a) National taxonomy and roadmap development

AMS are establishing standardised sustainable finance taxonomies and roadmaps to classify green, transitional and ineligible economic activities, bringing clarity and credibility to regional capital allocation. Countries including Viet Nam, Thailand, Singapore, the Philippines, Malaysia, Indonesia and Cambodia have introduced national frameworks to mitigate climate risks and combat greenwashing (BNM, 2021; MAS, 2023; OJK, 2024; FSF, 2024; BOT & SEC, 2025; Prime Minister of Viet Nam, 2025b; NBC, 2026). Some frameworks adopt traffic-light classification systems (Green/Amber/Red) to facilitate phased decarbonisation while excluding high-carbon practices. To ensure market integrity and interoperability, key frameworks enforce Do No Significant Harm (DNSH) principles and Minimum Social Safeguards (MSS).

(Good practice: The Philippine Sustainable Finance Taxonomy Guidelines (SFTG)). The SFTG stands out as a good practice by establishing a credible, unified regulatory framework aligned with the ASEAN Taxonomy to accelerate sustainable investment. It features a practical “traffic-light” system with a safeguards-backed Amber category to support phased decarbonisation for high-emitting sectors. Additionally, it ensures economic inclusion and ease of adoption through a simplified assessment for MSMEs, a phased observation period, and ongoing regulatory guidance. For the GST2, the SFTG serves as a vital model for enabling policy that translates national climate targets into financial-sector decision rules. It offers strong replication potential for developing economies seeking to balance ambitious decarbonisation with pragmatic, inclusive growth.

Column 9: Sustainable Finance Taxonomy Guidelines (SFTG), the Philippines

Overview:

The Philippine Sustainable Finance Taxonomy Guidelines (SFTG), launched in February 2024 by the BSP, SEC and Insurance Commission, is a national framework for classifying sustainable economic activities. Aligned with the ASEAN Taxonomy, it uses a traffic-light system (Green, Amber, Red) centred on climate mitigation and adaptation, featuring an "Amber" category for transition activities and a simplified process for MSMEs. Instead of providing direct funding, the SFTG serves as a regulatory tool to prevent greenwashing, increase transparency, and channel capital toward the Philippines' estimated USD 72 billion climate goal.

Climate and social-economic benefits:

- Climate benefits: Directs private capital toward the Philippines' USD 72 billion NDC target by establishing clear criteria for mitigation and adaptation. Its "Amber" category allows high-emitting sectors to finance structured, time-bound decarbonization without immediate exclusion, while strict Do No Significant Harm (DNSH) rules prevent greenwashing.
- Socio-economic benefits: Promotes inclusive growth through a simplified assessment process that prevents MSMEs from being priced out by compliance costs. By incorporating Minimum Social Safeguards (MSS), it aligns green investments with national labour and social regulations to ensure a just transition. Standardising these rules across banking, securities and insurance builds market transparency, boosts investor confidence and supports financial stability.

Enabling conditions:

- Built upon the whole-of-government 2021 Sustainable Finance Roadmap and Guiding Principles, establishing a clear mandate for sustainable finance definitions, risk management and investment pipelines.
- Jointly developed under the Financial Sector Forum (FSF) by the BSP, SEC and Insurance Commission, ensuring aligned definitions across banking, capital markets and insurance sectors.
- Anchored in the ASEAN Taxonomy Foundation Framework while adapting assessment rules to Philippine legal standards, national priorities and market conditions.
- Utilises a traffic-light classification (Green/Amber/Red) that accommodates gradual decarbonisation via the "Amber" category, supported by DNSH, RMT and MSS safeguards.
- Employs an observation period, simplified evaluation rules for MSMEs and practical user guides to minimise friction and allow learning before adding technical complexity.
- Maintained ongoing industry consultations, FAQs and user guides to guide financial market participants through practical implementation.
- Supported by distinct regulatory incentives (such as extended Single Borrower's Limits and zero-percent reserve requirements for sustainable bonds) that encourage adoption.

Challenges and policy responses:

- Inconsistent interpretation of a principles-based framework: The BSP introduced an observation period, issued user guides and expanded FAQ series, conducted industry consultations and began collecting SFTG usage data in 2025 to harmonise application, with plans to add technical screening criteria over time.
- Risk of greenwashing in transition finance: The SFTG established strict safeguards for its "Amber" transition category, requiring substantial contribution to environmental objectives, DNSH compliance, Minimum Social Safeguards (MSS) and time-bound Remedial Measures to Transition (RMT) with mandatory independent verification for remediation exceeding five years.

- Difficulty in classifying location- and context-specific adaptation activities: The BSP released sample adaptation-related activities and initiated the development of a Philippine Adaptation and Resilience Catalogue to provide science-based, contextualised parameters.
- Data and technical capacity constraints for MSMEs: Regulators implemented a simplified, proportionate assessment approach specifically designed for MSMEs to prevent compliance costs and data hurdles from excluding them from sustainable finance, alongside ongoing capacity-building efforts.
- Cross-sectoral coordination across diverse financial industries: Regulators leveraged the Financial Sector Forum (FSF) as a centralised platform to harmonise taxonomy application across banking, securities and insurance markets while respecting each agency's specific mandate.
- Demonstrating tangible real-economy impact beyond classification: Regulators are working toward publishing consistent tracking indicators on SFTG-aligned financing, sectoral allocations, transition progress and downstream climate outcomes to verify actual progress over time.

Replication potential:

The SFTG offers a replicable model for emerging markets by tailoring regional frameworks (like the ASEAN Taxonomy) to national realities and utilising a traffic-light system with strict safeguards for transition finance. Key transferable features include a simplified path for MSMEs, cross-regulator alignment, a phased implementation period and pairing taxonomy rules with complementary prudential incentives.

Relevance for GST2:

The SFTG aligns with GST2 goals by serving as an enabling policy framework that translates national climate targets into clear financial rules to align capital flows with low-carbon, resilient development. Its safeguarded "Amber" transition category provides a practical model for developing nations to implement transition finance that drives real-economy decarbonisation without sacrificing economic growth.

Source: Provided by IGES and confirmed by the Philippine government.

(b) Capital mobilisation and blended finance

AMS and Japan are deploying blended finance platforms, dedicated state funds, and other capital mobilisation schemes to de-risk green projects and mobilise massive public and private capital for climate action. In Japan, sovereign GX Economy Transition Bonds play an important role in mobilising long-term transition investment. Platforms such as Indonesia's SDG Indonesia One de-risk sustainable infrastructure by blending concessional loans, grants and commercial financing (OECD, 2025). Complementing these platforms, centralised state facilities such as Thailand's Climate and ENCON Funds alongside Indonesia's BPDLH and ICCTF channel targeted capital into local energy efficiency, SME decarbonisation and cross-sectoral climate projects (Ministry of Finance of Indonesia, 2019; OECD, 2024; ONEP & GIZ, 2023). Driven by its GX strategy, Japan plans to mobilise over JPY 150 trillion in decarbonisation investments over a decade, backed by JPY 20 trillion in sovereign GX Economy Transition Bonds for clean tech and R&D (MOF, 2026b). These bonds will be repaid through upcoming fossil fuel surcharges and power-sector carbon auctions (METI, 2026). This enables Japanese commercial banks, institutional investors and private companies to co-finance transition projects across AMS using clear, standardised metrics.

(c) Capital diversification beyond power and transport

AMS green financing overwhelmingly targets high-carbon energy and transport sectors, though capital is gradually shifting toward underfunded climate adaptation and resilient agriculture. While Thailand raised THB 1.6 trillion (USD 47 billion) from 2018–2024, primarily for renewables and EVs, it still faces a 50% net-zero funding gap that leaves agriculture under-resourced (CFA & WB, 2025). Malaysia continues scaling mitigation via soft loans and corporate green power purchasing schemes (PETRA, 2024). Conversely, adaptation and food security are gaining traction in Cambodia through GCF and ADB-backed facilities alongside green FDI tax incentives (ADB, 2026a; GCF, 2025). Strategic AMS–Japan blended facilities are increasingly structuring de-risked revenue guarantees for underserved sectors, mobilising private funds into climate-resilient agriculture, water management and cross-border grid integration within ASEAN.

3.2.1.5 Stakeholder participation and whole-of-society action

Stakeholder engagement in the region takes several distinct but complementary forms: participation in policy formulation, access to information and transparency, co-implementation at the community and local level, as well as direct lifestyle or workplace action.

(a) Participation in policy formation and transparency

AMS and Japan are creating complementary channels for stakeholders to contribute to policy formulation, access information on programmes, and follow implementation and progress. Singapore's public consultation on its national decarbonisation journey received 580 responses, helping the government understand how to calibrate near-term impacts while maintaining long-term commitment to decarbonisation. Japan incorporates public comments into national energy policymaking; around 41,000 comments were submitted during the process for the Seventh Strategic Energy Plan, and the government revised wording in response to comments. Johor Bahru also illustrates how stakeholder participation can be embedded in local planning. Preparation of the 2035 replacement local plan included early publicity and a focus-group discussion under the Town and Country Planning Act 1976 (Act 172), involving around 120 participants from government agencies, councillors, residents and community associations, followed by formal public review of the draft plan in 2025. Transparency and reporting mechanisms can also support engagement beyond consultation: Malaysia's Low Carbon Cities Framework uses measurement and reporting together with assessment and recognition tools to make local action more visible. Together, these channels connect stakeholder input and information with implementation and monitoring. (ANRE, 2025c; REACH, 2025; MBJB, 2023, 2025; MGTC, n.d.).

(b) Community and whole-of-society action

Countries are also positioning communities, citizens and businesses as direct actors in climate action, translating national goals into concrete choices in communities, workplaces and daily life. Indonesia's Program Kampung Iklim (ProKlim) links a national community-based climate programme with local adaptation and mitigation action. The government combines registration and verification with training, technical guidance, support and recognition, while communities, local governments, businesses and NGOs take action at village and neighbourhood levels. Singapore's Go Green SG provides a whole-of-nation platform through which citizens, businesses, schools and community organisations can participate in collective sustainability activities. Its Go 25 national sustainable-cooling movement translates the same logic into voluntary workplace and building-management practices through pledges, toolkits and technical guidance. The National Disaster Management Centre (NDMC) in Brunei Darussalam promotes Community-Based Disaster Risk Management (CBDRM) to strengthen community preparedness and resilience against climate change impacts and disasters. CBDRM highlights the potential impacts of climate change and promotes appropriate preparedness and response measures to strengthen community resilience. This approach helps improve public awareness, strengthen coordination between communities and relevant agencies, and enhance the capacity of communities to respond effectively to hazards such as floods. Through Japan's national movement "Decokatsu", the government supports initiatives by companies, local governments and other organisations to encourage decarbonisation actions among people, and promotes COOL BIZ, which encourages appropriate clothing choices and indoor temperature management at home and in the workplace while balancing energy efficiency, health and comfort considerations. From its early stage, COOL BIZ has enjoyed high public awareness, widespread public support and active participation, making it one of the most successful government-led campaigns to date. By relying mainly on adjustments to clothing and air-conditioning practices, COOL BIZ offers an accessible form of climate action that does not necessarily require major technological changes or additional investment. Another reason for its success would be that it aligned workplace norms with people's desire for comfort, making lightweight clothing socially acceptable and encouraging widespread adoption. To further encourage its adoption, a flexible approach is being taken. Initially, the recommendation was to maintain an indoor temperature of 28 degrees celsius from June through September; however, in light of social circumstances, the recommendation has been revised several times. Currently, there is no specific temperature target or nationwide implementation period, and the focus is on maintaining appropriate indoor temperatures without being tied to a specific setting. Together, these programmes illustrate how national initiatives can enable communities, citizens and businesses to act directly rather than remain only policy recipients, helping to embed climate action in everyday economic and social practice. (KLH/BPLH, n.d.; MSE, 2025a, 2025b; MOEJ, 2026c).

3.2.2 Progress and challenges at the regional levels

At the regional level, the ASEAN Strategy for Carbon Neutrality aims to accelerate an inclusive transition towards a green economy, fostering sustainable growth and complementing national efforts. The Strategy encompasses eight pillars and covers multiple cross-sectoral initiatives, including circular economy supply chains, green infrastructure and markets, and interoperable carbon markets. It leverages the region's diverse economies and markets, unleashing synergistic opportunities for carbon neutrality (ASEAN, 2023). In light of this policy development, various opportunities for cooperation between AMS and Japan are emerging. Such initiatives include initiatives to create ASEAN region-wide power grid interconnection under the ASEAN Power Grid (APG), the promotion of investment and market development through the visualisation of GHG emissions, harmonisation of standards, Article 6 mechanisms and voluntary carbon markets.

3.2.2.1 ASEAN Power Grid: Addressing emissions reduction and energy security

APG is one of regional initiatives to simultaneously address decarbonisation and other socio-economic challenges, and by providing technologies and lowering financial barriers, Japan can be a key partner in ASEAN's efforts to advance decarbonisation and enhance energy security through the APG. APG is a regional power grid initiative driving ASEAN's energy cooperation, which aims to strengthen regional energy connectivity and enable AMS to share and trade electricity across borders. A more integrated regional power system can enhance energy security and resilience, reduce electricity costs through more efficient use of diverse regional resources (DNV, 2024; IEA, 2019), and accelerate the deployment and utilisation of renewable energy. Furthermore, greater electricity trade and investment in regional energy infrastructure can stimulate job creation, economic growth and deeper economic integration across ASEAN (DNV, 2024). However, while the Lao PDR–Thailand–Malaysia–Singapore Power Integration Project (LTMS-PIP) is serving as a 'pathfinder' towards the larger APG (see Column 10), full region-wide interconnection has not yet been achieved. The Short-Term Bilateral Power Trading Readiness Index shows that the region is at a moderate stage of readiness, with varying degrees of scores among AMS. This finding reflects the coexistence of significant progress amongst a few countries, demonstrating strong physical interconnections, mature regulatory frameworks and active cross-border electricity exchanges, while continuing structural limitations amongst others. These are several barriers including geographic isolation, a substantial investment gap and the absence of/inconsistent regulatory frameworks across countries (ERIA, 2026b). Japan can provide a package of combining advanced grid technologies such as high-voltage direct current (HVDC) transmission and submarine cables, flexible public-private financing (see below), and institutional support, rule-making and capacity building such as wide-area supply-demand dispatch, congestion management, balancing markets, guidance for Transmission System Operators (TSO) and cybersecurity governance (IEEJ 2026). This will provide AMS alternative options that prevent technological "lock-in" or infrastructure dependence on any single foreign nation.

Column 10: Lao PDR–Thailand–Malaysia–Singapore Power Integration Project (LTMS-PIP)

Column 10: Lao PDR–Thailand–Malaysia–Singapore Power Integration Project (LTMS-PIP)

Overview:

The Lao PDR–Thailand–Malaysia–Singapore Power Integration Project (LTMS-PIP) is led by the governments and national electricity authorities of Lao PDR, Thailand, Malaysia and Singapore, with the respective national utilities and transmission system operators responsible for implementing and operating the cross-border electricity trade. The LTMS-PIP specifically aims to demonstrate the feasibility of multilateral cross-border electricity trading in ASEAN by enabling renewable electricity generated in Lao PDR to be transmitted through Thailand and Malaysia for consumption in Singapore. The initiative seeks to make better use of the region's diverse renewable energy resources, particularly Lao PDR's hydropower potential, while strengthening regional electricity connectivity and energy security. Serving as a 'pathfinder' towards the larger ASEAN Power Grid, it has been implemented in Phase 1 (2022-2024) and Phase 2 (2024-2026). Singapore aims to import 6 GW of low-carbon electricity by 2035 to meet roughly one-third of its power demand (NCCS, 2024).

Climate and social-economic benefits:

By delivering electricity generated from Lao PDR's hydropower to Singapore, it is estimated that the LTMS-PIP contributes to emission mitigation of 109 $ktCO_2e$ in Phase 1 with the maximum capacity limit of 200 MW, and approximately 350 $ktCO_2e$/year under Phase 2 with the maximum capacity limit of 200 MW*.

A more integrated regional power system can enhance energy security and resilience, reduce electricity costs through more efficient use of diverse regional resources, accelerate the deployment and utilisation of renewable energy, and support regional decarbonisation. In addition, greater electricity trade and investment in regional energy infrastructure can stimulate job creation, economic growth and deeper economic integration across ASEAN.

Note: * Assuming 50% average capacity factor of the trade limit and using the grid emission factor during Phase 1 (0.41 $kgCO_2e$/kWh) and Phase 2 (0.4 $kgCO_2e$/kWh).

Enabling conditions:

- Strong regional political commitment and cooperation
- Strong role and coordination of transmission system operators
- Established communication and data-sharing mechanisms
- Use of existing interconnection infrastructure
- Clear operational procedures and emergency coordination
- Phased and practical approach to regional integration
- Learning from international best practices
- Existing institutional and technical capabilities

Financing approach:

LTMS-PIP was not financed as a conventional standalone infrastructure project. Its initial success came partly from avoiding a large new transmission investment: it used existing interconnection assets in Lao PDR, Thailand and Malaysia, while the electricity transaction and wheeling services were financed through commercial contracts and payments.

Challenges and policy responses:

The largest challenges of multi-lateral electricity trade are not technical, but rather coordination related. However, the silver lining is that these coordination challenges have been solved in other regions and there is a rich community of practice that can be engaged to learn from. An important part of solving this challenge is to isolate some of the technical challenges by using existing infrastructure and focusing on a small pilot to establish the coordination. Finally, aligning national interests requires us to focus on the total potential cost savings, emissions savings and economic growth potential; and subsequently deal with how to split the benefits with the understanding that multiple possible win-win scenarios exist. The size of the potential benefits will motivate different parties to align their interests and work toward coordination.

Replication potential:

LTMS-PIP demonstrates that practical, smaller-scale collaborations among countries with complementary electricity systems can build the foundations for wider regional integration. For example, the Brunei Darussalam–Indonesia–Malaysia–Philippines Power Integration Project (BIMP-PIP) can build on the experience of LTMS-PIP, particularly its governance and transmission system operator coordination mechanisms, while addressing infrastructure investment, financing, technical standards and regulatory alignment early in the development process. This can help reduce implementation risks and accelerate the transition from planning to actual cross-border power trade.

Relevance for GST2:

LTMS-PIP demonstrates that AMS can accelerate decarbonisation while addressing socio-economic challenges, in particular energy security, through making tangible progress towards regional power integration by combining political commitment, focused sub-regional cooperation, practical technical coordination and incremental implementation.

Source: ACE (2025a), Clarke, et al (2025), EMA (2022) and EMA (2024).

There are various challenges for mobilising large-scale private finance to high-risk and capital-intensive cross-border power grid initiatives. It is estimated that an investment of USD 27 billion will be required to construct cross-border power grids under the APG – over USD 1 billion per year until 2030, and an average of USD 2 billion per year thereafter (IEA, 2026a); when domestic infrastructure development is also taken into account, the total investment required is estimated at USD 100 billion by 2045 (ADB, 2026b). Private-sector involvement has grown, mainly in power generation, particularly through Independent Power Producers (IPPs). Countries like Malaysia, Indonesia, the Philippines and Viet Nam have promoted IPP development to satisfy growing electricity demand and broaden investment sources. However, private capital flows are limited in transmission and distribution, which largely remain state-owned and regulated sectors across the region (ERIA, 2026b). Attracting the private sector at scale is still challenging. The complex nature of capital-intensive cross-border power connections and grid modernizations carry various risks including political and regulatory risk, technical and physical risk, permitting and access risk, off-taker risk and currency risk (IEA, 2026a). In addition to these risks, high capital cost is another hurdle mobilising private finance for cross-border power grid initiatives.

In response to these challenges, 'blended finance'—which uses public funds to de-risk early-stage transition projects and crowd in private commercial capital—is being re-evaluated as an effective approach to supporting decarbonisation. One of the prime examples of a large-scale fund established is the 'Financing Asia's Transition Partnership (FAST-P)', a Singapore-led blended finance initiative which aims to mobilise up to USD 5 billion to finance green transition across the region (FAST-P, 2026). Japan also launched the Asia Energy Transition Initiative (AETI) with the USD 10 billion pledge in financial support. This financial package relies on public financial institutions—such as the Japan Bank for International Cooperation (JBIC) and Nippon Export and Investment Insurance (NEXI)—to provide concessional loans and insurance, thereby de-risking early-state transition projects. This series of developments could serve as an opportunity to reassess the potential of blended finance as a funding model for accelerating the development of sustainable infrastructure in Asia, in particular high-risk and capital-intensive cross-border power grid initiatives.

3.2.2.2 Expanding markets that recognise efforts to reduce emissions

Cooperation aimed at visualising GHG emissions across the entire supply chain and at harmonising energy-saving standards is of great importance from the perspective of linking decarbonisation to market development and industrial competitiveness. The former aims to enable the identification and evaluation of low-emission products and companies in the market by making it possible to measure GHG emissions in the supply chain. The latter aims to expand the intra-ASEAN market for high-efficiency products and encourage corporate investment in energy efficiency by enabling the comparison and certification of energy efficiency performance across regions. These initiatives are being advanced as market-shaping measures in a mutually complementary manner.

(a) Visualisation of GHG emissions

The importance of visualising emissions lies not merely in measuring the emissions of companies, but in contributing to the shaping of the market and the maintenance and strengthening of industrial competitiveness. Initiatives to visualise emissions can create a cycle in which emissions are measured and made comparable and disclosed, low-emission companies and products are evaluated, procurement and trade are promoted, investment in low-GHG technologies is expanded, and further emissions reductions are achieved.

Visualisation of GHG emissions across the supply chain can encourage emissions reduction, facilitate investment and strengthen industrial competitiveness. By setting targets for companies both within and outside the region to reduce emissions across their entire supply chains, a new competitive dynamic will emerge whereby suppliers with lower emissions will be favoured in the market. Furthermore, by identifying bottlenecks within the supply chain (i.e. where high emissions occur), it is expected that raw material manufacturers, processing manufacturers and logistics companies will collaborate to improve efficiency and introduce new technologies (through collaborative investment). In addition, as emission reduction obligations are tightened in international markets, it can be said that for AMS, the visualisation of emissions is essential not only to avoid being excluded from the global market but also to maintain and expand their status as key suppliers. As manufacturing and export industries account for a high proportion of the economy in the ASEAN region, therefore, visualising emissions across the entire supply chain can lead to entry into international business and the strengthening of industrial competitiveness.

Within the ASEAN region, efforts are already underway through the PaSTI led by Japan to develop facility-level calculation and reporting guidelines and to support the establishment of institutional frameworks (PaSTI-JAIF Project 2023). PaSTI will also contribute to focusing on Scope 3 supply chain emissions. The 'Action Plan for the Next Decade', adopted at the 2nd Leaders Meeting in 2024, identifies enhancing industrial competitiveness through the visualisation of GHG emissions throughout the supply chain as a pillar.

(b) Harmonisation of standards

Cooperation towards the harmonisation of energy efficiency standards is also being institutionalised in concrete terms and creating infrastructure for market development. The APAEC 2026–2030 sets out the harmonisation of MEPS (Minimum Energy Performance Standards) and MVE (Monitoring, Verification and Enforcement) within the Energy Efficiency & Conservation (EE&C) Programme Area as a clear course of action. To date, efforts have focused in particular on harmonising MEPS for household appliances (air conditioners, lighting and refrigerators). In 2025, the ASEAN Centre for Energy (ACE) launched the Regional Product Registration System (PRS) (ACE 2025b). This is a database for managing energy-efficient household appliances registered in AMS at a regional level, and is expected to support future standard harmonisation, market surveillance and mutual recognition. It will serve as a vital piece of infrastructure for market development. Between ASEAN and Japan, the ASEAN–Japan Energy Efficiency Partnership (AJEEP) has been established, and cooperation is underway to enable ASEAN itself to develop common regional standards, qualifications, testing and certification systems (ACE and ECCJ, 2012).

3.2.2.3 Carbon Markets: Promoting investment in decarbonisation technologies and mitigation actions through market-based mechanisms

The Joint Crediting Mechanism (JCM), as one of the leading cooperative mechanisms in line with Article 6.2 of the Paris Agreement, is promoting the mobilisation of private capital for decarbonisation and low-carbon technologies between Japan and partner countries. The JCM is a carbon market tool whereby private sector participants and governments cooperate with mitigation activities in partner countries. JCM credits are generated against reference emissions, which is set below BAU to secure contributions to achieving NDC targets of partner countries. JCM credits will be shared between the companies/countries taking into account their contributions, in line with Article 6 of the Paris Agreement. The JCM incentivises Japan's investment in decarbonisation projects bringing various benefits in addition to GHG emissions reduction. Such benefits include:

- Environmental benefits: Local pollution reduction (replacing inefficient fossil-fuel boilers or other equipment with advanced low-carbon technologies reduces air pollutants such as sulfur oxides, nitrogen oxides and particulate matter (PM) 2.5); waste and resource management (waste-to-energy, industrial wastewater treatment, or agricultural residue utilisation (e.g. biogas generation) projects reduce landfill waste, prevent water pollution and promote circular economic models; and forest and biodiversity conservation (through REDD+ (JCM forest projects contribute to reducing GHG emissions and enhancing carbon removals through forest conservation and restoration, while also providing additional benefits such as biodiversity conservation and soil erosion prevention).

- Economic and industrial development: Technology transfer of state-of-the-art Japanese technologies—such as high-efficiency heating, ventilation and air conditioning (HVAC), inverter systems and industrial energy management systems (Factory Energy Management System (FEMS)/Building Energy Management System (FEMS/BEMS)—to host countries; energy cost savings and supply security (improvement in operational efficiency for local businesses, lowering utility bills and reducing national reliance on imported fossil fuels); and green job creation: Generates local employment during project installation, civil engineering, ongoing operation and routine facility maintenance.

- Capacity building and skill development: Local engineers, technicians and operators receive technical training on installing and maintaining low-carbon equipment, strengthening local human capital.

The number of partner countries expanded to 32, and the number of projects reached 303 with total private-sector investment exceeding USD 3 billion as of 14 July 2026. Within AMS, a total of 221 JCM projects have been implemented: 11 projects in Cambodia, 62 in Indonesia, 7 in Lao PDR, 8 in Myanmar, 23 in the Philippines, 59 in Thailand and 51 in Viet Nam. As these numbers indicate, the JCM has contributed to the promotion of investment in decarbonisation in these AMS (METI and MOEJ, 2026).

The JCM includes a wide range of project types from renewable energy (hydro, biogas and geothermal), energy efficiency (in both residential and industrial sectors) to waste management (including waste-to-energy). Furthermore, there is strong private-sector interest in the forest and agriculture sectors, which hold significant potential for emissions reduction and removal.

The JCM is a leading mechanism consistent with the Article 6.2 of the Paris Agreement and is building the foundation for the development of the ITMOs market. While the actual issuance and international transfer of ITMOs in accordance with Article 6(2) of the Paris Agreement are still at an early stage, the JCM is providing good examples for issuing and transferring ITMOs. The implementation of the JCM is compatible with the Article 6 rules, thanks to conservative calculation of credits using reference emissions below BAU emissions, both Japan's and a partner country's authorisation of the use of ITMOs, avoidance of double counting by applying corresponding adjustment, evaluation of JCM project's contribution to sustainable development through JCM project cycle procedures and reporting to UNFCCC (Initial Report, Regular Information and Annual Information in the agreed electronic format (AEF)). In November 2025, Thailand became the first country to have issued ITMOs from a JCM project, followed by the Maldives, Palau and Mongolia by June 2026. Having successfully issued multiple ITMOs, the JCM is expected to continue taking a leading role in the implementation of Article 6 of the Paris Agreement, and further decarbonisation investments through this mechanism are expected. However, the total number of projects succeeded in issuing ITMOs remains small compared to the overall number of projects and investment made so far. It is expected that the issuance of ITMOs will expand in the future, alongside the further development and improvement of ITMOs methodologies in new sectors.

Column 11: The Joint Crediting Mechanism (JCM)

Column 11: The Joint Crediting Mechanism (JCM)

Overview:

Established by Japan in 2013, the Joint Crediting Mechanism (JCM) is a bilateral project-based framework that accelerates the deployment of advanced low-carbon technologies in partner countries.

Climate and social-economic benefits:

Climate benefits: Targets cumulative total reductions and removals at the level of approximately 100M t-CO_2e by FY2030 and 200M t-CO_2e by FY2040 through JCM projects. Socio-economic benefits: Facilitates the diffusion of leading decarbonising technologies and infrastructure, thereby contributing to GHG emission reductions or removals and sustainable development in partner countries.

Enabling conditions:

- Financial subsidies & blended finance: Public grants (20%–50% equipment coverage) and ADB co-financing de-risk investments to unlock private capital.
- Simplified MRV methodologies: Objective, streamlined rules reduce administrative friction and speed up project validation.
- NDC alignment & policy signals: Strategic alignment with national targets and credit integration into compliance markets (e.g. GX-ETS) ensure steady demand.
- Bilateral trust & governance: Government-to-government Joint Committees provide transparent, locally tailored project administration.
- Independent auditing: Accredited Third-Party Entities (TPEs) enforce strict validation and Article 6.2 environmental integrity.
- Capacity building & local engagement: Technical workshops and operator training build long-term local technical and institutional expertise.

Challenges and policy responses:

- High initial capital costs & market uncertainty: Public grants (e.g. MOEJ, ADB) de-risk investments via blended finance to crowd in private capital.
- Administrative bottlenecks & validation delays: Streamlining administrative procedures and standardised MRV, without compromising integrity.
- Local technical capacity gaps: Targeted workshops and operator training build local MRV and project development expertise.
- Uncertain credit demand: Integrating JCM credits into various compliance markets provides reliable demand signals and accelerates investments.

Replication potential:

The JCM is highly replicable across emerging markets due to standardised baselines that streamline approvals, blended finance models that scale capital, and local training programmes. Additionally, linking credits to compliance frameworks creates predictable market demand, allowing other regions and multilateral initiatives to adopt similar bilateral Article 6.2 mechanisms.

Relevance for GST2:

The JCM supports GST2 goals as an Article 6.2-compliant model that scales mitigation ambition and helps close the global emissions gap. By enabling technology transfer, mobilising private finance and applying corresponding adjustments to prevent double counting, it offers a concrete framework for host countries and Japan to accelerate their NDCs in response to the call for urgent climate action.

Source: Prepared by IGES and confirmed by the Ministry of the Environment, Japan (MOEJ).

Voluntary carbon markets (VCMs) are maturing in terms of integrity; at the same time, stakeholders need to adapt to the evolving environment to develop projects that align with buyer preferences and emerging compliance requirements. AMS have substantial potential for supplying carbon credits, especially from nature-based solutions (NbS). Globally, Indonesia ranks first in potential for cost-effective natural climate solutions, with an annual estimate of nearly 1.4 billion tonnes of CO_2eq, while Malaysia, Myanmar, Viet Nam, Thailand, Lao PDR, Cambodia and the Philippines are all among the top 20 nations for implementing cost-effective NbS (Griscom et al., 2020). Worldwide, more than 2.7 billion voluntary credits have been issued over the past two decades, with ASEAN countries' contributions growing. A July 2026 database of six major voluntary crediting standards shows that projects in Southeast Asia generated approximately 13.3 million ton-CO_2eq of carbon credits in 2025, with about 13.5% coming from the forestry and land use sector—bringing the region's cumulative issuance close to 240 million ton-CO_2eq (Quartson et al., 2026). However, as concerns over carbon markets have led to increased scrutiny in recent years, VCM demand has also become more selective. An analysis by ERIA on credits retired between January 2007 and January 2025 reveals that 97.4% of credits generated in the region were used by non-ASEAN entities, while the rest were used by local entities (ACMF, 2025). These buyers increasingly favour credits characterised by more transparent governance, robust MRV, rigorous social and environmental safeguards, and concrete contributions to sustainable development. To evaluate these dimensions, buyers rely on long-standing core criteria—such as baseline-setting, additionality, permanence and leakage countermeasures—while some are paying closer attention to newer integrity benchmarks and labels that simplify the identification of high-quality credits. Alongside these developments, the linkage between voluntary and compliance markets is strengthening, driven largely by the implementation of domestic ETS and carbon taxes as well as international frameworks, particularly the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA).

As VCM demand has become increasingly selective, AMS and Japan are initiating regional efforts to make ASEAN carbon credits trusted, competitive and recognised globally, thereby ensuring demand for such credits. This is consistent with the rationale for high-integrity markets: common quality thresholds can make it easier for buyers to identify and price high-integrity credits (ICVCM, 2026). The ASEAN Capital Markets Forum (ACMF), a group of capital market regulators in the region, launched the ASEAN Voluntary Carbon Market (VCM) Development Plan and Guidance in November 2025, developed in collaboration with the Economic Research Institute for ASEAN and East Asia (ERIA) (ACMF, 2025). Private sector-led initiatives in ASEAN are also accelerating the development of a regional market for high-quality carbon credits. One notable example is the ASEAN Common Carbon Framework (ACCF). Presumably, the region's most visible and active initiative was founded by the ASEAN Alliance on Carbon Markets and industry associations from Indonesia, Malaysia, Singapore and Thailand. The framework covers both the supply and demand of carbon credits, with concrete deliverables defined to advance carbon market ecosystems and avoid greenwashing (ACCF, 2026). The AZEC International Conference to Develop Carbon Market (AZEC-DCM) is a policy coordination dialogue on the visualisation of GHG emissions and the development of high-integrity carbon markets, covering carbon pricing instruments, crediting mechanisms, and Article 6 implementation. This government dialogue has been supported by key organizations, including the Article 6 Implementation Partnership (IGES), the Asian Development Bank, the World Bank, and ERIA, which has published multiple reports on carbon pricing and markets under AZEC to inform the platform. The most recent report indicates that many countries in the region have established legal and institutional arrangements. While the most advanced countries have completed the international transfer of carbon credits under the Paris Agreement, others are at various stages of implementation. This uneven development and pace led to three areas for future cooperation: technical interoperability, international carbon markets readiness, and the capacity of professional and market ecosystems (ERIA, 2026c). The AZEC-DCM will continue to address these challenges, while also contributing to the development of common technical references that foster credible markets. Together with previously mentioned initiatives, such as PaSTI to improve GHG MRV and corporate/supply-chain transparency, these efforts are expected to ensure that AMS' carbon credits are trusted, competitive and selected globally.

3.2.2.4 Providing analytical tools to promoting regional collaboration

In AMS and Japan, various relevant publications and analytical tools have been provided to assist policymakers and business leaders in taking action to reduce emissions.

Several analytical tools and modelling approaches have been developed by regional and research institutions to support evidence-based assessment of energy transition and mitigation options. These include scenario analyses by ACE, the Global Mitigation Potential Atlas (GMPA) developed by MOYA Analytics, and modelling using the Asia-Pacific Integrated Model (AIM) by NIES. These tools can provide analytical insights into mitigation potential, technology options, investment needs and associated costs under different assumptions and scenarios. Such analytical approaches can support knowledge sharing and informed consideration of policy and cooperation options, while their results should be interpreted in light of their respective assumptions, scope and national circumstances.

An international consortium co-led by MOYA Analytics and Climate Analytics has been developing the Global Mitigation Potential Atlas (GMPA). The GMPA serves as a free-to-use decision-support web-based global tool that employs energy-system modelling methodologies to quantify the domestic mitigation potential in each country based on their natural endowments and renewable energy potential at different costs and interactively quantifies how international collaboration between countries can unlock strategies that can simultaneously reduce costs and emissions while meeting energy needs.

GMPA data, models and analysis can hence help inform discussions on international cooperation for greater mitigation ambition. For example, under its modelling assumptions, it can illustrate cost-effective options for cross-border energy cooperation, including green energy, hydrogen and ammonia, involving all economic sectors. This can then help inform countries seeking to explore possible areas of cooperation in light of their energy security and decarbonisation objectives. The GMPA can hence help identify potential international collaboration opportunities by highlighting mitigation options that could result in decarbonization and economic benefits, subject to further assessment of their feasibility in each national context. Such results do not represent the positions or commitments of the participating governments.

By comparing domestic and collaborative mitigation strategies, GMPA can help policymakers assess the opportunities from international cooperation for supporting decarbonisation and economic growth and identify options for lower costs to reach net zero.

The Asia-Pacific Integrated Model (AIM) is a tool that researchers and policymakers in Asian countries have used in collaboration for more than a decade to develop low-carbon and decarbonisation scenarios, strengthen local modelling capacity, and prepare and enhance NDCs and long-term strategies. The AIM-based analyses have informed Thailand's national communications and long-term strategies and Indonesia's long-term strategy and local planning, while cooperation with Viet Nam has supported the quantitative assessment of its decarbonisation pathways. These experiences demonstrate that sustained collaboration among domestic research institutions, government agencies and regional research networks can contribute to the development of scientifically grounded strategies that reflect their respective economic structures, energy systems and development priorities.

Recent analysis using the AIM/Enduse demonstrates that a common analytical framework can identify both national priorities and opportunities for regional cooperation. An assessment of the decarbonisation benefits for the ASEAN region resulting from the deployment of decarbonisation technologies in Indonesia, Malaysia, Thailand and Viet Nam—four major ASEAN economies—suggests that the following energy-efficient equipment—motors and boilers in industry, air conditioners in buildings, passenger and freight vehicles—could make significant contributions to achieving ASEAN's 2035 targets consistent with NDC 3.0. Under the assumptions of this analysis, further progress towards net-zero emissions could be supported by deeper decarbonisation of the power sector, widespread adoption of electric passenger and freight vehicles, and accelerated industrial electrification through high-efficiency industrial machinery and heat-pump boilers. Such analysis using AIM/Enduse clarifies the scale, timing and sectoral allocation of the required technology deployment and, when reflected in plans formulated by governments and industry sectors, promotes economically viable decarbonisation investment.

4. Conclusion: Lessons learnt and the way forward

AMS and Japan share a common direction while pursuing tailored, nationally determined pathways that align climate action with broader socioeconomic priorities. As demonstrated in this Interim Report, climate action is increasingly structured to lower GHG emissions while simultaneously advancing economic development, energy security, resilience, environmental sustainability and public well-being. Given the varying development stages, energy systems, industrial structures, institutional capabilities and national priorities, a one-size-fits-all policy package is unfeasible. Accelerating implementation thus requires a unified vision paired with country-owned approaches. Ultimately, diversity in policy instruments and transition pathways is not a barrier to progress, but a practical necessity for achieving climate goals across unique national contexts.

Evidence in Section 3.1 shows how varying demographic and urbanisation trends, industrial structures, environmental pressures, energy systems and climate risks lead to dictate different national transition pathways. These structural conditions define both the opportunities for climate action and its implementation constraints. Crucially, resilience is deeply connected with sustainable development and net-zero goals. While climate impacts threaten infrastructure, energy systems, food production, livelihoods, supply chains and investment, robust resilience safeguards development gains. The good-practice cases in Section 3.2 highlights how nations adapt to these realities, including the integration of climate objectives into national growth strategies; the alignment of decarbonisation with energy security and industrial transformation; the leverage of place-based approaches; and the deployment of sectoral measures with broad social-economic benefits. Together, the central challenge is not balancing climate action against development, but rather driving climate strategies that reinforce both.

The national and subnational cases in Section 3.2.1 highlight several recurring enabling functions that translate climate objectives into concrete implementation. Governments across the region are embedding climate goals into national and sectoral plans; establishing legal and institutional frameworks; enhancing cross-ministries and multi-level governance; mobilising finance; establishing market mechanisms; improving measurement, reporting, transparency and monitoring; building institutional capacity; and fostering whole-of-society stakeholder participation. Because these functions take different forms across jurisdictions, the evidence suggests there is no universal institutional model. Instead, implementation succeeds when climate targets are linked to the resources, institutions, data and actors required for action. This underscores a crucial takeaway for mutual learning: cross-country transferability lies not in replicating complete policy instruments, but in sharing the enabling functions, policy sequencing, financing models and practical implementation insights.

Regional initiatives in Section 3.2.2 indicate that ASEAN–Japan cooperation adds value by overcoming implementation constraints that national efforts cannot tackle alone. Key examples include Article 6.2 cooperation, including the Joint Crediting Mechanism; regional energy integration through the APG; transparency and MRV enhancement and operational alignment under PaSTI; finance mobilisation; capacity building; and analytical tools for mapping mitigation opportunities and investment needs. Across different policy domains, these initiatives serve a unified purpose: an important function: linking national implementation with regional markets, infrastructure, finance, technology and institutional capacity. Regional cooperation should thus be viewed not as a substitute for nationally determined policies, but as a catalyst to enable, connect and scale them. While respecting national ownership and individual transition pathways, joint action can lower implementation barriers, facilitate knowledge sharing and scale proven solutions.

Taken as a whole, the evidence in this report points to five messages that ASEAN and Japan can bring to the GST2 process. First, climate implementation can be strengthened when climate action is embedded in wider development, investment, energy-security and resilience strategies, rather than pursued as a stand-alone environmental policy. Practical examples identified in this report demonstrate that integrating climate objectives with broader development priorities, such as energy security, sustainable waste management, industrial competitiveness, employment and resilience, can generate multiple environmental, economic and social benefits simultaneously. Second, common climate objectives can be advanced through various nationally determined pathways, reflecting different national circumstances, development stages, energy systems, resource endowments and institutional capacities, and differences in policy instruments and institutional arrangements need not prevent progress towards a shared direction. Third, greater attention needs to be paid to the enabling conditions for implementation, including governance, finance, institutional and human capacity, transparency and MRV, and stakeholder participation. Fourth, AMS and Japan can accelerate near-term climate action by jointly identifying and scaling up practical "low-hanging fruits" that can deliver immediate emissions reductions with little or no additional cost and institutional development. Such readily implementable measures as Japan's COOL BIZ and Singapore's Go 25 can enable broad participation and generate tangible results while more capital- and technology-intensive measures are being developed. Sharing and expanding such accessible practices across the region could provide an immediate and practical area for ASEAN–Japan cooperation. Finally fifth, regional and international cooperation can complement and accelerate domestic action while contributing to a "triple breakthrough" of addressing climate change, promoting inclusive economic growth and achieving energy security simultaneously. ASEAN–Japan cooperation can help realise such mutually reinforcing outcomes by facilitating investment, infrastructure development, technology deployment, carbon-market cooperation, capacity development and knowledge sharing, while respecting national ownership and diverse nationally determined pathways. Experience from implementation-oriented cooperative approaches under Article 6 of the Paris Agreement demonstrates the potential of mobilising finance, supporting technology deployment and accelerating emissions reductions, while respecting national priorities and delivering mutual benefits.

The evidence assembled in this Interim Report provides a strong foundation for the next phase of CAMPUR, though further analysis and stakeholder consultation are required before defining specific policy directions. Following continued engagement with AMS, Japan and relevant regional organisations, the Final Report will systematically examine which identified practices can be replicated or scaled up, the enabling conditions (policy, institutional, financial and technical) required, and their implications across different national contexts. Particular focus will be placed on evaluating enabling frameworks, mobilising public and private finance, establishing replication criteria, and maximising climate-development co-benefits. Where data permits, quantitative modelling will complement the qualitative case studies for key regional and sectoral initiatives. The Final Report will move beyond mapping individual practices to articulate concrete common principles, policy trajectories, and priority areas for ASEAN–Japan cooperation. The analyses and cooperation options presented in this report do not imply any new common quantitative targets or policy commitments by individual countries, and the Final Report will clearly distinguish existing commitments from future policy options.

Rather, both reports are intended to provide a foundation for the next phase of CAMPUR, which will move beyond mapping policies and good practices to identify practical pathways for scaling and replication. Building on this foundation, the Final Report will examine which approaches can be transferred across national contexts, what policy, institutional, financial and technical conditions are required, and where there may be opportunities for ASEAN–Japan cooperation, while clearly distinguishing existing commitments from possible future policy options.

Through this process, CAMPUR will evolve from a stocktake of existing and planned policies and practice into a strategic platform for mapping actionable pathways that accelerate climate action and mutual prosperity. The collaboration will focus on sharing experiences, identifying good practices and exploring opportunities for cooperation, while respecting the national circumstances and priorities of participating countries. By building the evidence base, testing practice transferability, deepening mutual learning and linking national implementation with regional cooperation, AMS and Japan will deliver a concrete contribution to GST2. This effort established the analytical and policy foundation for the Final Report leading up to COP32, placing a sharp focus on how proven and promising approaches can be potentially adapted, financed and scaled across diverse national contexts.

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