

Advancing Carbon Market Development in AZEC Partner Countries

Volume I: Key Findings and Regional Analysis



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List of Abbreviations

A6IP	Article 6 Implementation Partnership
AASB	Australian Accounting Standards Board
ACAR	Accounting and Auditing Regulator (Cambodia)
ACCU	Australian Carbon Credit Unit
ACR	American Carbon Registry
AFOLU	Agriculture, Forestry and Other Land Use
ANREU	Australian National Registry of Emissions Units
APAC	Asia Pacific Accreditation Cooperation
ART	Architecture for REDD+ Transactions
ASEAN	Association of Southeast Asian Nations
ASIC	Australian Securities and Investments Commission
ASX	Australian Securities Exchange
AZEC	Asia Zero Emission Community
AZEC-DCM	AZEC International Conference to Develop Carbon Markets
BCCO	Brunei Climate Change Office
BTR	Biennial Transparency Report
BUR	Biennial Update Report
CAD Trust	Climate Action Data Trust
CAMPUR	Climate Action for Mutual Prosperity Under Regional Cooperation
CBAM	Carbon Border Adjustment Mechanism
CCCDM	Common Carbon Credit Data Model
CCS	Carbon Capture and Storage
CDM	Clean Development Mechanism
CDP	Carbon Disclosure Project
CFP	Carbon Footprint Program (Japan)
CPI	Carbon Pricing Instrument(s)
CSX	Cambodia Securities Exchange
EERS	Emissions and Energy Reporting System (Australia)
EEGS	Energy Efficiency and Global Warming Countermeasures Online Reporting System (Japan)
ER	Emission Reduction(s)
ESG	Environmental, Social, and Governance
ETF	Enhanced Transparency Framework
ETS	Emissions Trading System/Scheme
FOLU	Forestry and Other Land Use
GCC	Global Carbon Council
GGGI	Global Green Growth Institute
GHG	Greenhouse Gas

GRI	Global Reporting Initiative
GRK	Gas Rumah Kaca (Greenhouse Gas), Indonesia
GX	Green Transformation (Japan)
GX-ETS	Green Transformation Emissions Trading System (Japan)
ICC	International Carbon Credit Framework (Singapore)
ICVCM	Integrity Council for the Voluntary Carbon Market
IDX	Indonesia Stock Exchange
IEC	International Electrotechnical Commission
IFRS	International Financial Reporting Standards
IPCC	Intergovernmental Panel on Climate Change
IPPU	Industrial Processes and Product Use
ISO	International Organization for Standardization
ISSB	International Sustainability Standards Board
ITMO	Internationally Transferred Mitigation Outcome
JCM	Joint Crediting Mechanism
LCOS	Low Carbon Operating System (Malaysia)
LULUCF	Land Use, Land-Use Change and Forestry
MGTC	Malaysian Green Technology and Climate Change Corporation
MRA	Mutual Recognition Arrangement/Agreement
MRV	Monitoring, Reporting and Verification
NDC	Nationally Determined Contribution
NEA	National Environment Agency (Singapore)
NEK	Nilai Ekonomi Karbon (Carbon Economic Value), Indonesia
NGER	National Greenhouse and Energy Reporting (Scheme/Act), Australia
NID	National Inventory Document (Singapore)
NIR	National Inventory Report
NRES	Ministry of Natural Resources and Environmental Sustainability (Malaysia)
NSRF	National Sustainability Reporting Framework (Malaysia)
OJK	Otoritas Jasa Keuangan (Financial Services Authority), Indonesia
PACM	Paris Agreement Crediting Mechanism
PaSTI	Partnership to Strengthen Transparency for co-Innovation
PaSTI-JAIF	Partnership to Strengthen Transparency for co-Innovation – Japan-ASEAN Integration Fund
PDR	People's Democratic Republic (Lao PDR)
PFRS	Philippine Financial Reporting Standards
PGHGIMRS	Philippine Greenhouse Gas Inventory Management and Reporting System
PPI	Pengendalian Perubahan Iklim (Climate Change Control), Indonesia
QA/QC	Quality Assurance / Quality Control
SASB	Sustainability Accounting Standards Board
SEC	Securities and Exchange Commission (Philippines)

SERC	Securities and Exchange Regulator of Cambodia
SET	Stock Exchange of Thailand
SGX	Singapore Exchange
SIINas	Sistem Informasi Industri Nasional (National Industrial Information System), Indonesia
SIGN-SMART	Sistem Informasi GRK Nasional – Sistem Registri Nasional (National GHG Information System – National Registry System), Indonesia
SPE-GRK	Sertifikat Pengurangan Emisi Gas Rumah Kaca (Greenhouse Gas Emission Reduction Certificate), Indonesia
SPEI	Sertifikat Pengurangan Emisi Indonesia (Indonesia Greenhouse Gas Emission Reduction Certification)
SRN	Sistem Registri Nasional (National Registry System), Indonesia
SRN-PPI	Sistem Registri Nasional Pengendalian Perubahan Iklim (National Registry System for Climate Change Control), Indonesia
SRUK	Sistem Registri Unit Karbon (Carbon Unit Registry System), Indonesia
SSBJ	Sustainability Standards Board of Japan
T-VER	Thailand Voluntary Emission Reduction Programme
TCFD	Task Force on Climate-related Financial Disclosures
TGO	Thailand Greenhouse Gas Management Organization
THB	Thai Baht
TREES	The REDD+ Environmental Excellence Standard
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
VCMI	Voluntary Carbon Markets Integrity Initiative
VCS	Verified Carbon Standard (Verra)
VER	Verified Emission Reduction
VVB	Validation and Verification Body

Executive Summary

The current conflicts in the Middle East have highlighted systemic challenges faced by the world. At the same time, these crises reinforce the Asia Zero Emission Community's fundamental mission to pursue a clean, sustainable, just, affordable, and inclusive energy transition towards carbon neutrality/net-zero emissions, while simultaneously addressing climate change, promoting economic growth, and ensuring energy security.

Under the Action Plan for the Next Decade adopted at the Second AZEC Leaders' Meeting in October 2024, the AZEC International Conference to Develop Carbon Markets (AZEC-DCM) was launched to advance two priority areas: strengthening supply-chain GHG visualisation, including through corporate reporting and carbon pricing instruments, and promoting high-integrity carbon markets. Ten years after the adoption of the Paris Agreement and firmly in the implementation stage, this report provides a regional stocktake of relevant frameworks, institutions, and initiatives, identifies key gaps, and highlights opportunities for regional co-operation under AZEC-DCM.

Key Findings

- **National GHG reporting is the strongest area of regional convergence.** All AZEC partner countries have established national GHG inventory and transparency reporting systems supporting the Paris Agreement Enhanced Transparency Framework. Several have extended these systems to facility-level reporting, verification, and digital infrastructure.
- **Corporate GHG reporting is developing through voluntary and compliance pathways.** Companies increasingly use international frameworks including the GHG Protocol, GRI, CDP, TCFD, ISSB, and SBTi, while mandatory reporting is expanding through environmental regulations, sectoral requirements, and securities-market disclosure frameworks. Coverage and maturity, however, vary considerably.
- **Carbon pricing is developing through diverse national models.** AZEC countries are pursuing emissions trading systems, carbon taxes, and baseline-and-credit mechanisms as appropriate, reflecting different national circumstances and policy priorities. Compliance MRV systems are developing alongside operational and emerging carbon pricing instruments.
- **Carbon crediting is widespread but follows different pathways.** Nearly all AZEC countries have established a legal or regulatory basis for carbon crediting. Some operate their own domestic programmes, while others use primarily internationally recognised standards. The JCM provides an additional government-led bilateral pathway in line with Article 6.2 of the Paris Agreement.

Priority Gaps

The assessment finds that many countries have established legal and institutional foundations, but implementation and its pace remain uneven. Three areas require particular attention:

1. **Technical interoperability:** Differences in GHG accounting methodologies, MRV systems, registry architecture, data formats, and digital infrastructure constrain information exchange and cross-border transactions.
2. **International carbon market readiness:** Although many countries have established Article 6 institutions or legal frameworks, operational processes for authorisation, Letters of Authorisation, corresponding adjustments, registry co-ordination, and international reporting remain at different stages of development.
3. **Professional and market ecosystem capacity:** Capacity needs increasingly extend beyond government and MRV expertise to project developers, VVBs, methodology developers, registry operators, carbon finance specialists, exchanges, and corporate sustainability practitioners. Strategic capacity for bilateral agreements, internationally transferred mitigation outcome (ITMO) pricing, benefit sharing, and co-ordination between domestic markets and Article 6 is also emerging as a priority.

Recommendations for AZEC Co-operation

National differences in carbon pricing, crediting approaches, institutional structures, and regulatory systems are likely to persist and should be accommodated rather than harmonised. AZEC co-operation should therefore focus on compatibility, implementation capacity, and shared regional resources.

Technical co-operation could develop common references for GHG accounting, digital MRV, registry architecture, data standards, and interoperability, alongside co-operation on VVB competency, accreditation, quality assurance, and emerging international standards.

Policy and institutional co-operation could provide practical reference materials that countries can adapt to national systems, including authorisation procedures, Letters of Authorisation, bilateral implementation arrangements, safeguards, and approaches for co-ordinating domestic carbon pricing with Article 6.

Capacity and market development co-operation should respond to differentiated needs, combining regional training, practitioner exchanges, study visits, institutional twinning, communities of practice, and targeted technical advisory support.

Proposed Actions Towards 2030

Based on the assessment, AZEC-DCM could prioritise seven practical regional public goods:

1. Build on existing regional initiatives and technical references, such as those developed under PaSTI, including PaSTI-JAIF, to strengthen GHG accounting and compliance corporate/facility-level reporting.
2. Strengthen digital MRV and registry interoperability through common data structures, metadata, reporting formats, and technical guidance.
3. Build regional VVB capacity through competency and quality-assurance frameworks, aligned with relevant international standards, including ISO/IEC 17029, alongside peer learning and strengthened use of existing mutual recognition arrangements, where applicable.
4. Support Article 6 implementation through practical guidance on authorisation, Letters of Authorisation, corresponding adjustments, and domestic–international market co-ordination.
5. Advance high-integrity carbon crediting through methodology development, environmental and social safeguards, benefit sharing, and co-operation across domestic and international programmes.
6. Establish regional knowledge and professional development mechanisms covering GHG accounting, disclosure, MRV, credit development, registries, carbon finance, VVB, and Article 6 of the Paris Agreement.
7. Improve policy transparency and market information sharing amongst partner countries while enhancing public accessibility through regular exchange on regulatory developments, implementation timelines, project pipelines, market demand, and international requirements.

These actions would allow AZEC to build on the substantial progress already achieved while addressing the practical barriers that increasingly constrain carbon market development.

Chapter 1: Introduction

1.1. Background

The AZEC was established to support a clean, sustainable, just, affordable, and inclusive transition towards carbon neutrality and net-zero emissions across Asia, particularly its 11 partner countries – Australia, Brunei Darussalam, Cambodia, Indonesia, Japan, Lao PDR, Malaysia, Philippines, Singapore, Thailand, and Viet Nam.¹ Guided by the principles of addressing climate change, promoting economic growth, and ensuring energy security simultaneously, AZEC provides a platform for regional co-operation on practical pathways towards decarbonisation while recognising the diverse national circumstances of partner countries.

Across AZEC partner countries, significant progress is already being made in decarbonisation efforts related to corporate GHG reporting, carbon pricing instruments, carbon crediting mechanisms, Article 6 co-operation in line with the Paris Agreement – including the Joint Crediting Mechanism (JCM) – and national carbon registry development. At the same time, countries are advancing these initiatives at different speeds and through different institutional arrangements. As a result, important differences remain. This fragmentation makes it difficult to assess regional progress, identify common challenges, and explore opportunities for co-operation.

At the Second AZEC Leaders' Meeting in October 2024, partner countries adopted the Action Plan for the Next Decade,² which launched the AZEC-DCM to facilitate dialogue and co-operation amongst partner countries on carbon markets. Two priority areas identified in the Action Plan for the Next Decade underpin the AZEC-DCM workstream:

- (i) Priority Area 1-1 – Enhancing the competitiveness of industries through the visualisation of greenhouse gas (GHG) emissions throughout supply chains

Figure 1. AZEC member countries



Source: Authors.

¹ Asia Zero Emission Community (AZEC). 2023. [Asia Zero Emission Community Joint Statement](#).

² Asia Zero Emission Community (AZEC). 2024. [Action Plan for the Next Decade](#).

(ii) Priority Area 1-6 – Promotion of high-integrity carbon markets

Through these priority areas, the platform seeks to promote information sharing and collaboration on supply-chain GHG visualisation, carbon pricing, carbon market development, Article 6 implementation, and related institutional arrangements. To support these discussions, there is a need for a consolidated assessment of relevant initiatives, frameworks, and developments across AZEC partner countries.

In this context, this regional stocktake report aims to provide an evidence-based overview of initiatives related to GHG accounting and high-integrity carbon markets. The study maps relevant global, regional, and national frameworks; assesses current developments across AZEC partner countries; identifies technical, institutional, and policy gaps; and explores opportunities for future co-operation under the AZEC-DCM workstream.

1.2. Objectives of the Study

This report presents a regional stocktake in AZEC partner countries of initiatives, frameworks, and systems supporting **Corporate GHG Accounting & Reporting and Emissions Reduction Instruments** and **High-Integrity Carbon Market Implementation**. These two research areas correspond to the two foundational priority areas of the AZEC-DCM initiative. The assessment aims to provide a consolidated overview of existing policies, institutional arrangements, and implementation mechanisms that contribute to emissions transparency and carbon market development within the region. The findings presented in this report are primarily based on desk research and the systematic review of official policies, regulations, institutional documents, and publicly available information. The detailed country analysis is provided in a separate report.

1.3. Conceptual Framework

The priority areas on which the AZEC-DCM workstream is founded tackle two distinct but connected domains that constitute a segment of a broader decarbonisation ecosystem.

The first priority area – Priority Area 1-1 – Enhancing the competitiveness of industries through the visualisation of GHG emissions throughout supply chains – focuses on strengthening emissions transparency through GHG measurement, reporting, and disclosure systems across supply chains and economic sectors. Such systems can give way to compliance programmes that financially incentivise companies to reduce their GHG emissions or enhance removals through carbon pricing instruments (CPIs). These include carbon taxes and cap-and-trade systems. In some cases, regulated companies are allowed to meet compliance by offsetting their emissions through carbon credits, thus generating demand for verified emission reductions from carbon markets.

The second priority area, **Priority Area 1-6 - Promotion of high-integrity carbon markets** - explores the potential for generating the supply of carbon credits. Besides being used as offsets by companies regulated under a CPI, carbon credits provide opportunities for countries to receive international finance for mitigation activities, thus

furthering domestic decarbonisation efforts. This requires functional domestic and/or international registries, interoperable registry systems, robust monitoring, reporting and verification (MRV) arrangements, mutual recognition of carbon standards, and a pipeline of high-quality mitigation activities. In addition, countries may need to strengthen institutional and technical capacities to participate in international carbon market mechanisms, including arrangements to ensure transparency, prevent double counting, and facilitate the transfer of mitigation outcomes consistent with evolving international frameworks under the Paris Agreement. Such efforts can support participation in co-operative approaches, including the JCM, while helping to attract climate finance, facilitate technology deployment, and enhance the contribution of mitigation activities to national climate objectives.

International initiatives such as the Integrity Council for the Voluntary Carbon Market (ICVCM) and its Core Carbon Principles (CCPs), together with the Voluntary Carbon Markets Integrity Initiative (VCMI) Claims Code, are increasingly shaping expectations for environmental integrity and the credible use of carbon credits in voluntary and compliance markets.

Figure 2 below illustrates the ecosystem formed by the intersection of these two priority areas.

Figure 2. Relationship between the two priority areas



Source: Authors.

1.4. Analytical Framework

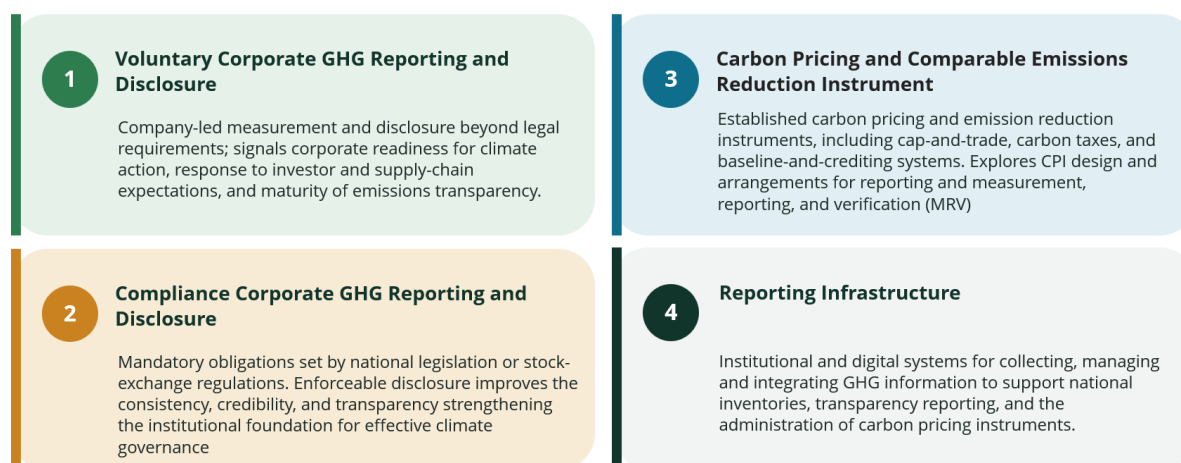
To operationalise the conceptual framework, the study translates the two interconnected AZEC-DCM priority areas into two complementary research areas that collectively assess the institutional, regulatory, and technical foundations of emissions transparency and high-integrity carbon markets across AZEC partner countries. Each research area is further divided into analytical sub-themes that represent the key components of the integrated decarbonisation ecosystem illustrated in Figure 2. Together, these sub-themes provide a structured basis for comparing national initiatives, identifying implementation progress, and assessing regional readiness for future co-operation.

1.4.1. Research Area 1. Corporate GHG Accounting & Reporting and Emissions Reduction Instruments

This research area – which responds to Priority Area 1-1 – Enhancing the competitiveness of industries through the visualisation of GHG emissions throughout supply chains – examines the systems through which GHG emissions are measured, reported, disclosed, and managed at the corporate level. These systems constitute the transparency foundation of the decarbonisation ecosystem by generating credible emissions information that supports corporate target setting and eventual compliance with regulated CPIs.

The research area is organised into four sub-themes:

Figure 3. The four sub-themes under Research Area 1: Corporate GHG Accounting & Reporting and Emissions Reduction Instruments



Source: Authors.

Each sub-theme is further divided into focus areas, which are described below.

1.4.1.1. Voluntary Corporate GHG Reporting and Disclosure

Voluntary corporate greenhouse gas reporting across AZEC partner countries is implemented through a combination of national initiatives and internationally recognised

disclosure frameworks. To support a consistent regional comparison, the assessment is organised around five focus areas that capture the principal channels through which companies voluntarily report greenhouse gas emissions and climate-related information. The following analysis presents the current implementation status across AZEC partner countries before discussing key regional observations.

Table 1. Voluntary Corporate GHG Reporting and Disclosure Assessment

Focus area	Description
National Voluntary Reporting	Domestic programmes inviting companies to measure, report, or disclose GHG emissions without binding compliance obligation – including carbon footprint schemes, registries, supply-chain platforms, and government-supported initiatives. Maps programme existence, administrators, transparency, and data consistency for policy support.
Voluntary Sustainability Disclosure	ESG reporting through Global Reporting Initiative (GRI) (most common in ASEAN), UN Global Compact, and SASB/IFRS. Records prevalence by country and sector.
Climate Disclosure	CDP-based climate disclosures. Assesses coverage and response patterns across AZEC partners and priority sectors using searchable/partly open datasets.
Climate-related Financial Disclosure	TCFD-aligned and ISSB-based (IFRS S1/S2) disclosure. Traces transition from TCFD to ISSB across ASEAN, noting Singapore and Malaysia's phased adoption.
Science-based Target Setting (SBTi)	SBTi-validated corporate emission-reduction targets. Uses public SBTi dashboard to assess committed and validated targets by country as an indicator of corporate ambition.

Source: Authors.

1.4.1.2. Compliance Corporate GHG Reporting and Disclosure

Compliance corporate greenhouse gas reporting varies considerably across AZEC partner countries in terms of legal basis, institutional arrangements, reporting thresholds, sectoral coverage, and reporting requirements. The assessment distinguishes between general compliance GHG reporting applicable to defined emitting entities and compliance GHG reporting and disclosure requirements for publicly listed companies. This sub-theme does not cover reporting requirements linked to established CPIs in a country; those are assessed separately under the next sub-theme, Carbon Pricing and Comparable Emissions Reduction Instrument. The following assessment compares the implementation status across partner countries.

Table 2. Compliance Corporate GHG Reporting and Disclosure Assessment

Focus area	Description
General Compliance GHG Reporting and Disclosure	Examines mandatory GHG reporting requirements applicable to defined emitting entities regardless of listing status or coverage under a specific carbon pricing instrument. The assessment considers the legal and regulatory basis, institutional responsibilities, reporting thresholds, sectoral coverage, reporting requirements, and, where available, reporting and verification arrangements.
Compliance GHG Reporting and Disclosure for Publicly Listed Companies	Examines mandatory or compliance-based sustainability and GHG disclosure requirements applicable to publicly listed companies through securities regulations, stock exchange requirements, or related reporting frameworks. The assessment considers the scope of companies covered, applicable reporting standards and guidance, GHG disclosure requirements, implementation or phase-in timelines, and assurance requirements.

Source: Authors.

1.4.1.3. Carbon Pricing and Comparable Emissions Reduction Instrument

CPIs are policy instruments that place an explicit or implicit financial cost on GHG emissions and create incentives for regulated entities to reduce emissions. Across AZEC partner countries, these instruments include emissions trading systems, carbon taxes, and baseline-and-credit mechanisms. Their effectiveness depends in part on the availability of reliable emissions data and monitoring, reporting and verification (MRV) systems to support compliance, emissions accounting, and administration.

The assessment examines the design of CPIs and the MRV frameworks supporting their implementation. Under the first focus area, each CPI is assessed separately where a country operates more than one instrument. This allows different instruments within the same country to be assessed according to their own design characteristics, while maintaining a consistent framework for cross-country comparison. For the purpose of maintaining a consistent framework for cross-country comparison, the assessment also considers national emissions reduction instruments that share relevant design features with CPIs, such as emissions baselines, compliance obligations, and the generation or use of tradable credits. Inclusion within this analytical category does not imply that such instruments are formally classified as CPIs under national policy frameworks. The second focus area examines the emissions measurement, reporting, verification, and accreditation arrangements that support the operation of these instruments.

Table 3. Carbon Pricing Instruments Assessment

Focus area	Description
Carbon Pricing and Comparable Emissions Reduction Instrument Design	The design and implementation of CPIs and comparable emissions reduction instruments, including their type, scope, sectoral and facility coverage, emissions thresholds or baselines, pricing arrangements where applicable, compliance obligations, and provisions for the generation or use of carbon credits or offsets, where applicable.
Carbon Pricing and Comparable Emissions Reduction Instrument MRV Framework	Measurement, reporting, and verification arrangements supporting CPIs and Comparable Emissions Reduction Instrument, for example Measurement, reporting, and verification rules underpinning each instrument.

Source: Authors.

1.4.1.4. Reporting Infrastructure

National reporting systems vary considerably in their institutional arrangements, digital infrastructure, and integration with national greenhouse gas inventories. The assessment examines the systems and institutional arrangements supporting national GHG inventory compilation, climate reporting, NDC tracking, and, where applicable, the integration of facility-level emissions and carbon market data.

Table 4. Reporting Infrastructure Assessment

Focus area	Description
National GHG Inventory & Climate Reporting	National systems and institutional arrangements for collecting, managing, consolidating, and reporting GHG emissions data. The assessment considers how national inventories support climate reporting and NDC tracking, as well as how facility-level emissions and, where applicable, carbon pricing or carbon market data are incorporated into national reporting. It also considers the consistency of methodologies, data boundaries, and reporting processes across these systems.

Source: Authors.

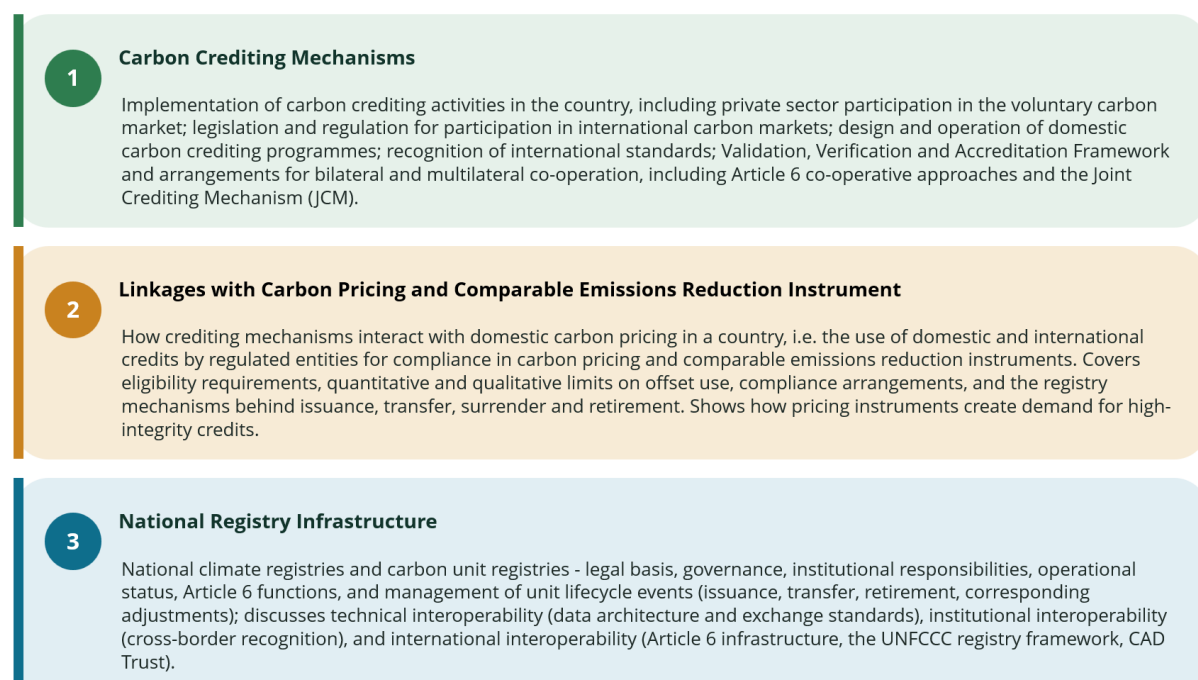
1.4.2. Research Area 2. High-Integrity Carbon Market Implementation

This research area – which responds to Priority Area 1-6 – Promotion of high-integrity carbon markets – examines the systems that enable the generation, transfer, recognition, and accounting of high-integrity carbon credits. High-integrity carbon markets refer to markets that ensure environmental and social integrity through robust accounting, transparent governance, credible MRV, safeguards against double counting, and

alignment with internationally recognised standards. It evaluates the mechanisms through which verified emission reductions are generated, administered through registry systems, and exchanged domestically (including for domestic CPIs) or internationally. Together, these elements determine each country's readiness to participate in domestic and international carbon markets.

The research area is organised into three complementary sub-themes.

Figure 4. The three sub-themes under Research Area 2: High-Integrity Carbon Market Implementation



Source: Authors.

Each sub-theme is further divided into focus areas, which are described below.

1.4.2.1. Carbon Crediting Mechanisms

Carbon crediting mechanisms across AZEC partner countries vary in their regulatory frameworks, programme design, and level of implementation. To facilitate a structured regional comparison, the assessment is organised around three focus areas covering domestic crediting systems, participation in independent crediting programmes, and bilateral carbon co-operation. The following assessment presents the implementation status across AZEC partner countries.

Table 5. Carbon Crediting Mechanisms Assessment

Focus area	Description
Domestic Crediting Mechanism	National frameworks and programmes for generating, certifying, issuing, transferring, and using carbon credits. The assessment considers the legal and regulatory basis,

	responsible institutions, eligible activities, methodologies, project registration, validation and verification, issuance arrangements, and operational status.
Independent Crediting Programmes	International crediting programmes operating in the country, including programmes such as Verra, Gold Standard, Plan Vivo, and ART-TREES. The assessment considers the scale and sectoral coverage of participation, the role of independent programme operators, and the relationship between these programmes and national carbon market frameworks.
Bilateral Carbon Cooperation Framework	Bilateral and international carbon co-operation arrangements, namely co-operative approaches in line with Article 6.2, including the JCM. The assessment considers the relevant agreements, authorisation arrangements, corresponding adjustment provisions, institutional responsibilities, and supporting infrastructure for international carbon credit transfers.
Validation, Verification and Accreditation Framework	The assessment considers the applicable legal or regulatory basis, lead institutions, domestic VVB accreditation, integration with domestic carbon-market mechanisms, and regional or international recognition, including the APAC Mutual Recognition Arrangement (MRA). It also considers mechanism-specific arrangements under the JCM, Article 6 co-operation, and independent crediting programmes. The assessment recognises that countries may use domestic accreditation bodies, internationally accredited VVBs, mechanism-specific third-party entities, or combinations of these approaches.

Source: Authors.

1.4.2.2. Linkages with Carbon Pricing and Comparable Emissions Reduction Instrument

Carbon pricing and comparable emissions reduction instruments can interact with carbon crediting mechanisms by creating demand for verified emission reductions and removals. Where compliance instruments allow regulated entities to use eligible carbon credits towards their obligations, carbon crediting mechanisms can provide an additional source of compliance units and help reduce the cost of meeting emissions targets. Such linkages can also strengthen demand for high-integrity carbon credits and create incentives for investment in mitigation activities. The extent to which they do so, however, depends on the design features of the relevant instrument, including applicable pricing arrangements where relevant, which influence demand for eligible credits and, consequently, carbon credit prices. Eligibility of credits, quantitative limits, environmental integrity requirements, and accounting arrangements also vary across jurisdictions.

The assessment therefore examines the extent to which domestic carbon crediting mechanisms and independent crediting programmes are linked to carbon pricing and comparable emissions reduction instruments, including through the use of eligible credits for compliance purposes. It also considers whether such linkages extend to international carbon market mechanisms, including Article 6 co-operative approaches. Where no relevant domestic compliance instrument exists, carbon credits may instead serve primarily voluntary or international markets.

1.4.2.3. National Registry Infrastructure

National registry systems have developed at different stages across AZEC partner countries, reflecting differences in policy priorities, institutional arrangements, and carbon market maturity. The assessment examines both the development and operationalisation of national registry systems and their ability to support interoperability with other registry systems and international carbon market infrastructure. Together, these dimensions capture the extent to which registry infrastructure supports domestic carbon unit management, transparent accounting, and cross-border carbon market transactions.

Table 6. National Registry Infrastructure Assessment

Focus area	Description
Registry Initiatives	National registry systems that record GHG data, mitigation actions, NDC-related information, and, where applicable, carbon units and Article 6 authorisations. The assessment documents the legal basis, institutional home, functions, scope, operational status, and relationship between national climate registries and carbon unit registries, including the issuance, transfer, retirement, and tracking of carbon units and their links to trading platforms.
Registry Interoperability	The ability of national registry systems to exchange information and support cross-border carbon market transactions. The assessment considers technical, institutional, and international interoperability, including compatibility with other national registries and relevant international carbon market infrastructure.

Source: Authors.

1.4.3. Analytical Lenses

The initiative database is subsequently analysed using three analytical lenses applied consistently across all research areas, sub-themes, and countries.

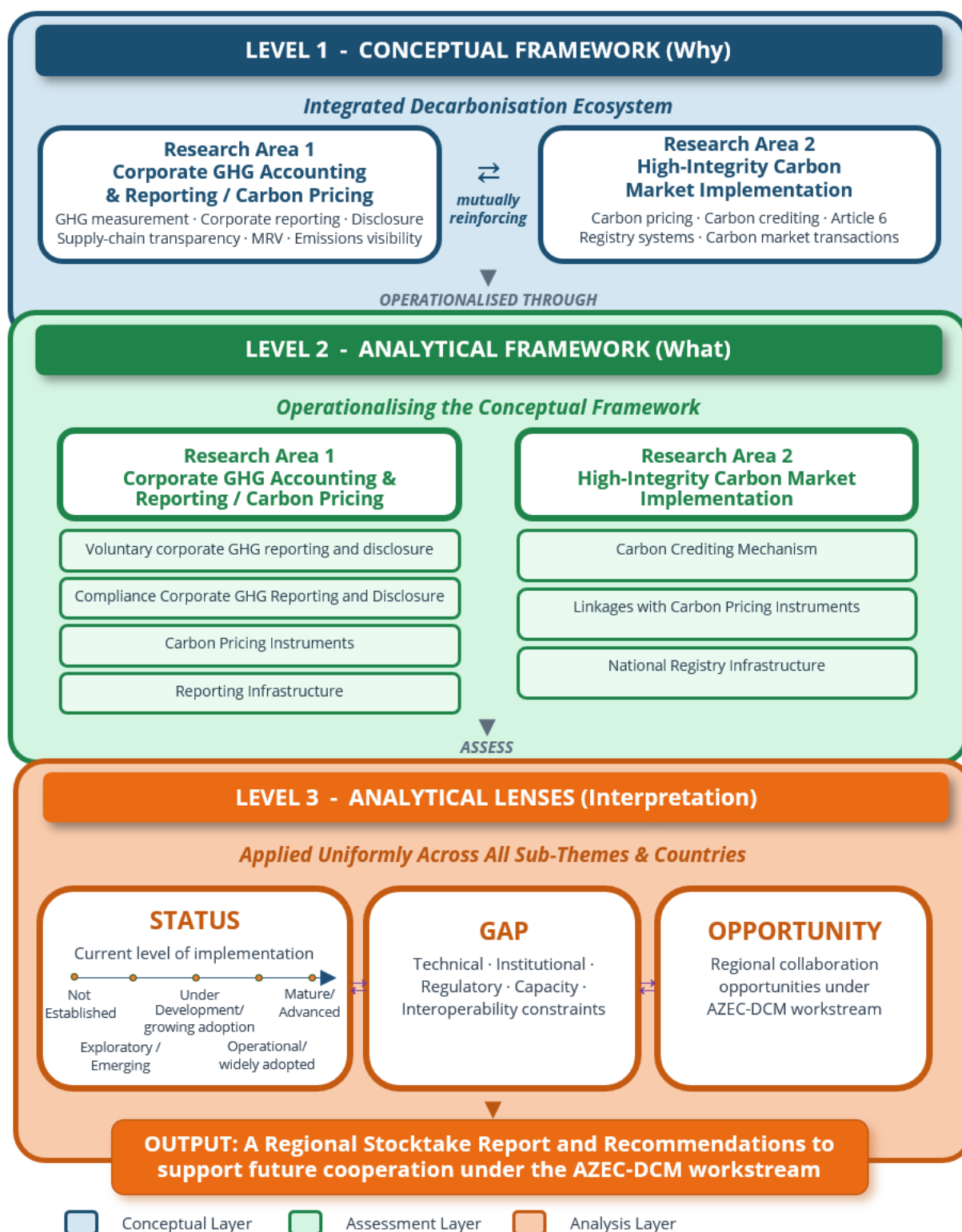
- **Status** assesses the current level of implementation by documenting existing policies, institutional arrangements, and operational initiatives. Each initiative is classified according to its stage of implementation using the following categories:
 - **Not Established** – No relevant initiative or official framework identified.
 - **Exploratory / Emerging** – Initial concepts, pilot activities, or early institutional discussions have commenced.

- **Under Development / Growing Adoption** – Policies or institutional arrangements have been established, with implementation underway or adoption increasing.
- **Operational / Widely Adopted** – The initiative is actively implemented and functioning as part of the national framework.
- **Mature / Advanced** – The initiative is well-established, broadly implemented, and demonstrates a high level of institutional and operational maturity.

Note: A status of 'Not Established' above reflects available information within the specific scope covered by this stocktake and does not automatically imply a lack of climate action through other policy channels.

- **Gap** identifies methodological, technical, institutional, regulatory, capacity, and interoperability constraints that may limit effective implementation.
- **Opportunity** identifies opportunities for bilateral and regional collaboration under the AZEC-DCM workstream, including knowledge sharing, common reporting approaches where appropriate, mutual recognition, registry interoperability, and Article 6 co-operation.

Figure 5. Integrated conceptual and analytical framework



Source: Authors.

Chapter 2

Stocktake Summary by Country

This section provides a summary of the current status and gaps in each country for each of the research areas, sub-themes, and focus areas as discussed in the previous chapter. A more comprehensive elaboration for each country is provided in the Annex.

2.1. Australia

Table 7. Australia Stocktake Summary

Focus Area	Initiative / Framework	Status	Description
Research Area 1: Corporate GHG Accounting & Reporting and Emissions Reduction Instruments			
Voluntary Corporate GHG Reporting and Disclosure			
National Voluntary Reporting	Climate Active	Operational/widely adopted <i>*Under review</i>	*Climate Active standards and certification - under review, with a proposed end date of 30 June 2027. Separately, organisations also commonly use international standards such as GHG Protocol, ISO 14064-1, GRI, CDP, TCFD and SBTi.
Voluntary Sustainability Disclosure	GRI	Mature/advanced	Widely used by ASX-listed companies, although not mandated. GRI is commonly used alongside integrated reporting and emerging ISSB-aligned disclosures.
Climate Disclosure	CDP	Operational/widely adopted	Widely adopted, with 522 Australian companies represented on the CDP platform, indicating an established corporate climate disclosure culture.
Climate-related Financial Disclosure	TCFD	Operational/widely adopted	Widely adopted by ASX-listed companies before the transition to mandatory ISSB-aligned disclosure. TCFD became a de facto market practice through regulatory and investor expectations.
Science-based Target Setting	SBTi	Operational/widely adopted	161 companies represented, including 109 with targets set, 26 committed and 33 with net-zero targets.
Compliance Corporate GHG Reporting and Disclosure			
General Compliance GHG Reporting and Disclosure	NGER Scheme; NGER Measurement Determination 2008	Mature/advanced	Mandatory reporting of GHG emissions, energy production and consumption above defined thresholds. Provides methodologies and QA/QC requirements and supports the Safeguard Mechanism.

Focus Area	Initiative / Framework	Status	Description
Compliance GHG Reporting and Disclosure for Publicly Listed Companies	AASB S1 & S2 / Mandatory Climate-related Financial Disclosure Framework	Mature/ advanced	Mandatory climate-related financial disclosures for in-scope entities. AASB S2 covers governance, strategy, risk, metrics, targets and GHG emissions (partly aligned with ISSB; AASB S2 does not require industry-specific information to be reported); ASIC oversees compliance.
Carbon Pricing and Comparable Emissions Reduction Instrument			
Carbon Pricing and Comparable Emissions Reduction Instrument Design	Safeguard Mechanism	Mature /advanced	The Safeguard Mechanism applies scope 1 baseline emissions limits to large industrial greenhouse gas emitters. Facilities report emissions under NGER and meet baseline obligations through emissions reductions and eligible credits - Australian Carbon Credits and Safeguard Mechanism Credits.
Carbon Pricing and Comparable Emissions Reduction Instrument MRV Framework	Safeguard Mechanism	Mature/ advanced	Annual emissions reporting under NGER is used to assess facility performance against Safeguard Mechanism baselines and determine compliance obligations.
Reporting Infrastructure			
National GHG Inventory & Climate Reporting	NGER Scheme	Mature/ advanced	Provides facility- and corporate-level emissions and energy data used for Australia's National Greenhouse Accounts, NIR, BTR and other national climate reporting.
National GHG Inventory & Climate Reporting	EERS	Mature /advanced	Digital platform for NGER reporters to submit annual emissions and energy data, supporting national reporting and the Safeguard Mechanism.
Research Area 2: High-Integrity Carbon Market Implementation			
Carbon Crediting Mechanism			
Domestic Crediting Mechanism	ACCU Scheme	Mature/ advanced	Australia's principal domestic carbon crediting scheme. ACCUs are issued under approved methodologies and can be traded voluntarily or used for Safeguard Mechanism compliance. 612 projects registered.
Participation in Independent Crediting Programmes	N/A	Not Established	No identified participation in an independent international crediting programme.

Focus Area	Initiative / Framework	Status	Description
Bilateral Carbon Cooperation Framework	Bilateral Cooperation Arrangements under Article 6	Not Established	The Australian Government is not an active participant in Article 6 and has no plan to engage in Article 6 to meet its international climate commitments at this time.
Bilateral Carbon Cooperation Framework	JCM	Not Established	Australia does not participate in the JCM.
Validation, Verification and Accreditation Framework	Registered Greenhouse and Energy Auditor Framework / APAC-recognised accreditation arrangements	Mature/ advanced	Australia has an established domestic assurance framework for GHG reporting and carbon markets. ACCU Scheme audits are conducted by registered greenhouse and energy auditors under Clean Energy Regulatory oversight. Australia also participates in regional accreditation through JAS-ANZ and the APAC MRA, while independent crediting programmes apply their own VVB requirements.
Linkages with Carbon Pricing Comparable Emissions Reduction Instrument			
Linkages with Carbon Pricing and Comparable Emissions Reduction Instrument	Safeguard Mechanism	Mature/ advanced	Links carbon crediting with compliance through the use of ACCUs to meet Safeguard Mechanism obligations.
National Registry Infrastructure			
Registry Initiatives	ANREU	Mature/ advanced	National registry for issuing, holding, transferring, surrendering and retiring SMCs and ACCUs.
Registry Interoperability	ANREU	Not Established	Supports domestic emissions-unit transactions. Not used for Article 6/ITMO tracking or international registry connectivity as the Australian Government has no plan to engage in Article 6 to meet its international climate commitments at this time.

Source: Authors' compilation from various references.

2.2. Brunei Darussalam

Table 8. Brunei Darussalam Stocktake Summary

Focus Area	Initiative / Framework	Status	Description
Research Area 1: Corporate GHG Accounting & Reporting and Emissions Reduction Instruments			
Voluntary Corporate GHG Reporting and Disclosure			
National Voluntary Reporting	Not Established	Not Established	No standalone national organisational carbon footprint methodology or label scheme. Corporate carbon reporting remains voluntary and often relies on international frameworks such as GRI 305.
Voluntary Sustainability Disclosure	GRI	Exploratory / Emerging	Sustainability and climate reporting remains voluntary, with adoption mainly amongst multinational, financial and government-linked companies. Alignment with international frameworks is emerging but not yet widespread.
Climate Disclosure	CDP	Not Established	No significant evidence identified of Brunei-based companies participating in the CDP platform.
Climate-related Financial Disclosure	TCFD	Not Established	No national regulation or financial-sector requirement for TCFD-aligned disclosure identified. Climate-related financial disclosure remains at an early stage.
Science-based Target Setting	SBTi	Not Established	No significant evidence identified of Brunei-based companies participating in SBTi.
Compliance Corporate GHG Reporting and Disclosure			
General Compliance GHG Reporting and Disclosure	Directive on Mandatory Reporting on Greenhouse Gases (2023)	Mature/ advanced	Mandatory GHG reporting introduced in 2023, with full implementation from 2025. Facilities report quarterly and annually; data primarily supports UNFCCC inventory and BTR preparation rather than domestic compliance.

Focus Area	Initiative / Framework	Status	Description
Compliance GHG Reporting and Disclosure for Publicly Listed Companies	Sustainable Finance Roadmap	Exploratory / Emerging	Promotes ESG integration in the financial sector but does not establish mandatory corporate sustainability disclosure requirements for listed companies.
Carbon Pricing and Comparable Emissions Reduction Instrument			
Carbon Pricing and Comparable Emissions Reduction Instrument Design	Carbon Pricing Instrument	Exploratory / Emerging	Carbon pricing is identified under the National Climate Change Policy but remains under development. Implementation has been delayed by economic, institutional and political-economy considerations.
Carbon Pricing and Comparable Emissions Reduction Instrument MRV Framework	Not Established	Not Established	No dedicated MRV framework has been established for carbon pricing instruments.
Reporting Infrastructure			
National GHG Inventory & Climate Reporting	National GHG Inventory and Reporting System	Mature/ advanced	Supports national GHG inventory compilation, BTR reporting and NDC tracking. Sectoral data are consolidated and quality-controlled by BCCO using IPCC and ETF requirements; currently focused on UNFCCC reporting.
Research Area 2: High-Integrity Carbon Market Implementation			
Carbon Crediting Mechanism			
Domestic Crediting Mechanism	Not Established	Not Established	No domestic carbon crediting mechanism established.
Participation in Independent Crediting Programmes	Not Established	Not Established	No significant participation in independent international crediting programmes identified.
Bilateral Carbon Cooperation Framework	Bilateral Cooperation Arrangements under Article 6	Exploratory / Emerging	Formal co-operation covers carbon markets, carbon credits, CCS and green economy. Current activities focus on readiness building and knowledge exchange

Focus Area	Initiative / Framework	Status	Description
			rather than carbon market transactions.
Bilateral Carbon Cooperation Framework	JCM	Exploratory / Emerging	JCM co-operation has been discussed with Japan, but no formal bilateral agreement, projects or implementation arrangements have been established.
Validation, Verification and Accreditation Framework	National VVB Registration / International Accreditation and Crediting Frameworks	Operational / Widely Adopted	Brunei has domestic registration arrangements for VVBs, while technical accreditation is generally obtained through recognised external bodies. Carbon-market V/V therefore combines domestic oversight with international and programme-specific arrangements.
Linkages with Carbon Pricing and Comparable Emissions Reduction Instrument			
Linkages with Carbon Pricing and Comparable Emissions Reduction Instrument	Not Established	Not Established	No established linkage between carbon crediting and carbon pricing instruments.
National Registry Infrastructure			
Registry Initiatives	Not Established	Not Established	No national carbon registry for issuance, transfer, retirement or tracking of carbon units has been established.
Registry Interoperability	Not Established	Not Established	No national carbon registry or interoperability infrastructure has been established.

Source: Authors' compilation from various references.

2.3. Cambodia

Table 9. Cambodia Stocktake Summary

Focus Area	Initiative / Framework	Status	Description
Research Area 1: Corporate GHG Accounting & Reporting and Emissions Reduction Instruments			
Voluntary Corporate GHG Reporting and Disclosure			
National Voluntary Reporting	Not Established	Not Established	No dedicated national voluntary corporate GHG reporting or carbon footprint programme. Voluntary disclosure generally relies on international frameworks.
Voluntary Sustainability Disclosure	GRI	Exploratory/ Emerging	ESG and sustainability reporting is promoted through the capital market, with GRI used as an international good-practice reference. Corporate adoption remains limited.
Climate Disclosure	CDP	Not Established	No significant evidence identified of Cambodian companies participating in CDP.
Climate-related Financial Disclosure	TCFD	Not Established	No national regulation or financial-sector requirement for TCFD-aligned disclosure identified.
Science-based Target Setting	SBTi	Exploratory/ Emerging	7 companies identified, including 5 with targets set and 1 with a net-zero target.
Compliance Corporate GHG Reporting and Disclosure			
General Compliance GHG Reporting and Disclosure	Not Established	Not Established	Not Established
Compliance GHG Reporting and Disclosure for Publicly Listed Companies	ESG Disclosure Requirements /Draft ESG Disclosure Prakas	Exploratory/ Emerging	ESG disclosure is being integrated into the capital market framework. SERC, CSX and ACAR are developing supporting requirements, including alignment with IFRS Sustainability Disclosure Standards.
Carbon Pricing and Comparable Emissions Reduction Instrument			
Carbon Pricing and Comparable Emissions Reduction Instrument Design	Not Established	Not Established	No established national carbon pricing instrument identified.

Focus Area	Initiative / Framework	Status	Description
Carbon Pricing and Comparable Emissions Reduction Instrument MRV Framework	Not Established	Not Established	No dedicated MRV framework for carbon pricing instruments identified.
Reporting Infrastructure			
National GHG Inventory & Climate Reporting	National GHG Inventory and Reporting System	Mature/ Advanced	Established national inventory system covering Energy, IPPU, AFOLU/FOLU and Waste, using IPCC methodologies, QA/QC and inventory management procedures.
Research Area 2: High-Integrity Carbon Market Implementation			
Carbon Crediting Mechanism			
Domestic Crediting Mechanism	Not Established	Not Established	No domestic carbon crediting mechanism identified.
Participation in Independent Crediting Programmes	Independent Crediting Programs (Verra, Gold Standard)	Under Development /growing adaptation	International crediting programmes support projects in forestry, renewable energy and community activities. 22 VCS and 23 Gold Standard projects identified.
Bilateral Carbon Cooperation Framework	Bilateral Cooperation Arrangements under Article 6	Under Development /growing adaptation	The 2024 Article 6 Operations Manual establishes procedures for authorisation, issuance, corresponding adjustments and ITMO transfers. Bilateral co-operation is developing.
Bilateral Carbon Cooperation Framework	JCM	Operational/ widely adopted	Cambodia participates in the JCM with Japan, with multiple projects implemented in areas including energy efficiency and renewable energy.
Validation, Verification and Accreditation Framework	National V/V Standards/ JCM and International Crediting Frameworks	Operational/ Widely Adopted	Cambodia has relevant national V/V standards but no dedicated domestic carbon-market VVB accreditation framework identified. Carbon-market assurance operates mainly through JCM Third-Party Entities and VVBs recognised under international crediting programmes.

Focus Area	Initiative / Framework	Status	Description
Linkages with Carbon Pricing and Comparable Emissions Reduction Instrument			
Carbon Pricing and Comparable Emissions Reduction Instrument	Not Established	Not Established	No established linkage between carbon crediting and carbon pricing instruments identified.
National Registry Infrastructure			
Registry Initiatives	Cambodia Carbon Registry	Under Development / Growing Adaptation	The Cambodia Carbon Registry (CCR), a national platform for GHG Emission Reduction projects, is being developed to register projects and authorised GHG emission reductions and support issuance, transfer and cancellation.
Registry Interoperability	Cambodia Carbon Registry	Under Development / Growing Adaptation	The CCR is designed to integrate with international systems, such as the UN's registry under Article 6 of the Paris Agreement. Registry infrastructure and ITMO tracking arrangements are under development.

Source: Authors' compilation from various references.

2.4. Indonesia

Table 10. Indonesia Stocktake Summary

Focus Area	Initiative / Framework	Status	Description
Research Area 1: Corporate GHG Accounting & Reporting and Emissions Reduction Instruments			
Voluntary Corporate GHG Reporting and Disclosure			
National Voluntary Reporting	N/A	Not Established	No dedicated national voluntary corporate GHG reporting or carbon footprint programme. Companies primarily use international frameworks such as GRI, CDP and the GHG Protocol.
Voluntary Sustainability Disclosure	GRI	Operational/ widely adopted	OJK requires sustainability reporting but does not mandate GRI. OJK and IDX guidance is broadly aligned with GRI, which is widely used by listed companies.

Focus Area	Initiative / Framework	Status	Description
Climate Disclosure	CDP	Operational/ widely adopted	497 Indonesian companies are represented on CDP, indicating broad corporate participation despite limited leadership-level scores.
Climate-related Financial Disclosure	TCFD	Under Development /growing adaptation	TCFD is not explicitly mandated, but climate-related disclosures increasingly align with TCFD through corporate practice and investor expectations.
Science-based Target Setting	SBTi	Under Development /growing adaptation	49 companies identified, including 25 with targets set, 9 committed and 10 with net-zero targets.
Compliance Corporate GHG Reporting and Disclosure			
General Compliance GHG Reporting and Disclosure	SIINas	Mature/ advanced	Industrial enterprises report production and emissions-related information through SIINas, providing an industrial emissions reporting mechanism distinct from the country's developing carbon pricing and ETS arrangements.
Compliance GHG Reporting and Disclosure for Publicly Listed Companies	IDX ESG Disclosure Guidance	Mature/ advanced	Financial institutions, issuers and public companies must publish Sustainability Reports. GHG emissions are expected to be calculated using recognised standards such as GHG Protocol and/or ISO 14064-1.
Carbon Pricing and Comparable Emissions Reduction Instrument			
Carbon Pricing and Comparable Emissions Reduction Instrument Design	ETS (Power Sector)	Operational/ widely adopted	Coal-fired power plants covered by the ETS must monitor, report and verify emissions and meet compliance obligations. The system is transitioning towards broader coverage, including captive coal and gas plants.
Carbon Pricing and Comparable Emissions Reduction Instrument Design	Carbon Tax	Under Development/ growing adaptation	Legal basis established, but implementation remains pending. Future reporting arrangements are expected to build on the existing NEK MRV framework.

Focus Area	Initiative / Framework	Status	Description
Carbon Pricing and Comparable Emissions Reduction Instrument MRV Framework	MRV Framework for Carbon Pricing Instruments	Mature/ advanced	Established MRV framework requires monitoring plans, verified emissions reporting and third-party verification, supporting carbon pricing compliance and market administration.
Reporting Infrastructure			
National GHG Inventory & Climate Reporting	SRN-PPI & SIGN SMART	Mature/ advanced	SIGN-SMART and SRN-PPI support national inventory management, MRV, carbon market activities and Article 6 implementation, with sectoral systems feeding into national reporting.
National GHG Inventory & Climate Reporting	National GHG Inventory and Reporting System	Mature/ advanced	National GHG inventories, NIRs and BTRs are prepared under the Enhanced Transparency Framework using IPCC methodologies and sectoral data.
Research Area 2: High-Integrity Carbon Market Implementation			
Carbon Crediting Mechanism			
Domestic Crediting Mechanism	SPE-GRK (<i>Sertifikat Pengurangan Emisi Gas Rumah Kaca</i>)	Under Development / growing adaptation	Domestic crediting operates under the Carbon Economic Value framework, with approved methodologies and validation/verification requirements. 10 SPE-GRK units/projects are listed on IDX Carbon.
Participation in Independent Crediting Programmes	Independent Crediting Programmes (Verra, Gold Standard, Plan Vivo, Puro.Earth, ART TREES)	Operational/ widely adopted	Indonesian projects participate in major international crediting programmes. 64 VCS and 33 Gold Standard projects are identified, with several programmes also establishing co-operation with Indonesia.
Bilateral Carbon Cooperation Framework	Bilateral Cooperation Arrangements under Article 6	Under Development / growing adaptation	Bilateral Article 6 arrangements are being developed to support authorisation, international transfers, corresponding adjustments and carbon market co-operation.
Bilateral Carbon Cooperation Framework	JCM	Mature/ advanced	Bilateral crediting mechanism with Japan supporting technology transfer and emissions reduction projects through jointly

Focus Area	Initiative / Framework	Status	Description
			approved methodologies and third-party verification.
Validation, Verification and Accreditation Framework	KAN Accreditation / APAC MRA / JCM and International Crediting Frameworks	Mature/ Advanced	Indonesia has an established domestic accreditation framework through KAN, with accredited LVVs integrated into NEK/SPE-GRK. This is complemented by JCM Third-Party Entities and VVB arrangements under applicable international crediting programmes.
Linkages with Carbon Pricing and Comparable Emissions Reduction Instrument			
Linkages with Carbon Pricing and Comparable Emissions Reduction Instrument	PR 110/2025; MoEF Regulation 21/2022; MoF Regulation 6/2026	Operational/ widely adopted	Allows eligible carbon credits to be used for emissions compensation, subject to validation, verification and national registry requirements.
National Registry Infrastructure			
Registry Initiatives	SRN-PPI	Operational/ widely adopted	National platform for recording climate actions, GHG reduction activities, carbon projects and carbon market activities.
Registry Initiatives	SRUK	Under Development / growing adaptation	Carbon unit registry being developed for issuance, transfer, tracking, retirement and management of carbon units, with planned connections to domestic and international systems.
Registry Interoperability	SRUK	Under Development / growing adaptation	SRUK is being developed using the CCCDM created under the G20 Sustainable Finance Working Group to support data exchange with international crediting programmes and IDXCarbon and future Article 6 registry connectivity.

Source: Authors' compilation from various references.

2.5. Japan

Table 11. Japan Stocktake Summary

Focus Area	Initiative / Framework	Status	Key Features
Research Area 1: Corporate GHG Accounting & Reporting and Emissions Reduction Instruments			
Voluntary Corporate GHG Reporting and Disclosure			
National Voluntary Reporting	Basic Guidelines on Accounting for GHG Emissions	Mature/ advanced	Non-binding national guidelines for organisational GHG accounting, aligned with GHG Protocol and ISO 14064-1. No government-operated certification or labelling scheme.
Voluntary Sustainability Disclosure	GRI	Mature/ advanced	GRI is widely used by major listed companies alongside integrated reporting and TCFD disclosures, supported by investor expectations and corporate governance initiatives.
Climate Disclosure	CDP	Mature/ advanced	3,254 companies participate in CDP, including 231 A-rated and 100 A--rated companies, indicating broad participation and high disclosure maturity.
Climate-related Financial Disclosure	TCFD	Mature/ advanced	TCFD was widely adopted before becoming the basis for mandatory sustainability disclosure. From July 2026, SSBJ standards provide mandatory requirements for in-scope companies.
Science-based Target Setting	SBTi	Mature/ advanced	2,555 companies identified, including 2,475 with targets set, 58 committed, and 105 with net-zero targets.
Compliance Corporate GHG Reporting and Disclosure			
General Compliance GHG Reporting and Disclosure	Act on Promotion of Global Warming Countermeasures/ GHG Emissions Calculation, Reporting and Publication System	Mature/ advanced	Requires specified high-emitting businesses to calculate and report their GHG emissions to the government under the Act on Promotion of Global Warming Countermeasures. Reported emissions are aggregated and published, providing an established corporate/facility-level reporting system.
Compliance GHG Reporting and Disclosure for Publicly Listed Companies	FSA Sustainability Disclosure Requirements	Mature/ advanced	Listed companies are required to disclose sustainability information, including climate-related risks and opportunities, with mandatory SSBJ standards strengthening consistency and comparability.

Focus Area	Initiative / Framework	Status	Key Features
Compliance GHG Reporting and Disclosure for Publicly Listed Companies	Tokyo Stock Exchange Corporate Governance Code	Mature/ advanced	Prime Market companies have been expected to disclose climate-related information based on TCFD recommendations on a comply-or-explain basis since 2021.
Compliance GHG Reporting and Disclosure for Publicly Listed Companies	SSBJ Sustainability Disclosure Standards	Operational/ widely adopted	Mandatory sustainability disclosure framework for listed companies, based on the TCFD four-pillar structure and strengthening climate-related reporting consistency.
Carbon Pricing and Comparable Emissions Reduction Instrument			
Carbon Pricing and Comparable Emissions Reduction Instrument Design	GX-ETS	Operational/ widely adopted	Japan's government-led ETS entered its implementation phase in April 2026. Covered companies must quantify and report emissions using approved methodologies, with verified data supporting compliance and emissions trading.
Carbon Pricing and Comparable Emissions Reduction Instrument Design	Tax for Climate Change Mitigation (Global Warming Tax)	Mature/ advanced	A national carbon tax is applied upstream to fossil fuel suppliers through established fuel taxation and reporting systems.
Carbon Pricing and Comparable Emissions Reduction Instrument Design	Fossil Fuel Surcharge (Carbon Pricing)	Under Development/ growing adaptation	Legally established under the GX Promotion Act but not yet operational. The GX Surcharge is scheduled to commence in FY2028 as part of Japan's evolving carbon pricing framework.
Carbon Pricing and Comparable Emissions Reduction Instrument MRV Framework	GX-ETS Guidelines / Act on Promotion of Global Warming Countermeasures	Operational/ widely adopted	Combines facility-level GHG reporting with GX-ETS requirements to provide verified emissions data for compliance and carbon market administration.

Focus Area	Initiative / Framework	Status	Key Features
Reporting Infrastructure			
National GHG Inventory & Climate Reporting	National Greenhouse Gas Inventory System	Mature/ advanced	Established national inventory system covering all IPCC sectors and supporting NIR, BTR, National Communications and NDC tracking, with IPCC methodologies and QA/QC.
National GHG Inventory & Climate Reporting	EEGS	Mature/ advanced	Electronic platform for receiving, compiling and disclosing GHG emissions reported by specified business operators under the national climate law.
Research Area 2: High-Integrity Carbon Market Implementation			
Carbon Crediting Mechanism			
Domestic Crediting Mechanism	J-Credit Scheme	Mature/ advanced	National carbon crediting scheme supporting generation, trading and retirement of credits for corporate carbon neutrality and domestic carbon market participation. 1,359 registered projects including transition projects.
Participation in Independent Crediting Programmes	N/A	Not Established	No significant participation in independent international crediting programmes identified.
Bilateral Carbon Cooperation Framework	Bilateral Cooperation Arrangements under Article 6	Mature/ advanced	JCM serves as a government-led bilateral mechanism for Article 6.2 co-operation, enabling authorisation, ITMO generation, and international transfer in co-operation with partner countries.
Bilateral Carbon Cooperation Framework	JCM	Mature/ advanced	Government-led bilateral co-operative framework in line with Article 6.2, supporting technology transfer, emissions reductions and ITMO generation with partner countries.
Validation, Verification and Accreditation Framework	JAB Accreditation J-Credit / APAC MRA / JCM	Mature/ advanced	Japan has established domestic GHG V/V accreditation through JAB, supporting domestic assurance and carbon-crediting activities. The framework is complemented by JCM's designation of Third-Party Entities and regional/international accreditation recognition.

Focus Area	Initiative / Framework	Status	Key Features
Linkages with Carbon Pricing and Comparable Emissions Reduction Instrument			
Linkages with Carbon Pricing and Comparable Emissions Reduction Instrument	Carbon Offsetting Mechanism	Operational/ widely adopted	GX-ETS participants may use eligible J-Credits and JCM credits for compliance, subject to eligibility criteria and a 10% quantitative limit.
National Registry Infrastructure			
Registry Initiatives	J-Credit Registry	Mature/ advanced	National registry recording issuance, transfer and retirement of J-Credits.
Registry Initiatives	JCM Registry	Mature/ advanced	Government-operated electronic registry for issuance, holding, transfer, cancellation and retirement of JCM credits, supporting tracking of JCM credits as ITMOs in line with Article 6.2.
Registry Interoperability	J-Credit Registry	Under Development/ growing adaptation	Supports domestic J-Credit transactions but has no identified direct ITMO accounting or international registry interoperability; international transfers use the JCM Registry.
Registry Interoperability	JCM Registry	Mature/ advanced	Operational registry arrangements support bilateral JCM transfers, corresponding adjustments and ITMO tracking in line with Article 6.2.

Source: Authors' compilation from various references.

2.6. Lao PDR

Table 12. Lao PDR Stocktake Summary

Focus Area	Initiative / Framework	Status	Key Features
Research Area 1: Corporate GHG Accounting & Reporting and Emissions Reduction Instruments			
Voluntary Corporate GHG Reporting and Disclosure			
National Voluntary Reporting	Not Established	Not Established	No standalone national organisational carbon footprint methodology or labelling scheme identified.
Voluntary Sustainability Disclosure	GRI	Not Established	No sustainability reporting regulation or stock exchange guidance promoting GRI identified. Voluntary adoption remains limited.
Climate Disclosure	CDP	Not Established	No significant evidence identified of Lao PDR companies participating in CDP.
Climate-related Financial Disclosure	TCFD	Not Established	No regulatory guidance, stock exchange initiative or widespread corporate adoption of TCFD identified.
Science-based Target Setting	SBTi	Not Established	No Lao PDR companies identified on the SBTi platform.
Compliance Corporate GHG Reporting and Disclosure			
General Compliance GHG Reporting and Disclosure	Not Established	Not Established	No general mandatory corporate GHG reporting framework identified.
Compliance GHG Reporting and Disclosure for Publicly Listed Companies	Not Established	Not Established	No mandatory climate or GHG disclosure requirements for publicly listed companies identified.
Carbon Pricing and Comparable Emissions Reduction Instrument			
Carbon Pricing and Comparable Emissions Reduction Instrument Design	Not Established	Not Established	No operational carbon pricing instrument identified.
Carbon Pricing and Comparable	Not Established	Not Established	No dedicated MRV framework for carbon pricing instruments identified.

Focus Area	Initiative / Framework	Status	Key Features
Emissions Reduction Instrument MRV Framework			
Reporting Infrastructure			
National GHG Inventory & Climate Reporting	National GHG Inventory and Reporting System	Mature/ advanced	National inventory system supports National Communications, BURs and BTRs under the UNFCCC and Paris Agreement ETF, covering Energy, IPPU, AFOLU and Waste sectors.
Research Area 2: High-Integrity Carbon Market Implementation			
Carbon Crediting Mechanism			
Domestic Crediting Mechanism	Not Established	Not Established	No standalone domestic carbon crediting mechanism identified.
Participation in Independent Crediting Programmes	Independent Crediting Programmes (Verra, Gold Standard)	Under Development /growing adaptation	National carbon-credit framework provides for project approval, registration, certification and trading, while projects use recognised independent programmes. 29 VCS and 23 Gold Standard projects identified.
Bilateral Carbon Cooperation Framework	Bilateral Cooperation Arrangements under Article 6	Exploratory/ Emerging	Lao PDR is exploring international carbon market co-operation under Article 6, including potential co-operation with South Korea.
Bilateral Carbon Cooperation Framework	JCM	Operational/ Widely adopted	Bilateral government-led crediting mechanism with Japan supporting technology transfer and emissions-reduction projects through third-party validation and verification.
Bilateral Carbon Cooperation Framework	Lao PDR-Singapore Implementation Agreement	Under Development /growing adaptation	The Implementation Agreement between Lao PDR and Singapore was signed on 4 September 2026.
Validation, Verification and Accreditation Framework	JCM and International V/V Frameworks	Operational/ Widely Adopted	Lao PDR's carbon-market V/V operates primarily through mechanism-specific and internationally qualified third parties rather than a dedicated domestic accreditation framework. The JCM provides an established V/V pathway through designated Third-Party Entities.

Focus Area	Initiative / Framework	Status	Key Features
Linkages with Carbon Pricing and Comparable Emissions Reduction Instrument			
Linkages with Carbon Pricing and Comparable Emissions Reduction Instrument	Not Established	Not Established	No established linkage between carbon crediting and a carbon pricing instrument identified.
National Registry Infrastructure			
Registry Initiatives	Carbon Credit Information System	Exploratory/ Emerging	Carbon Credit Decree provides for a national Carbon Credit Information System, establishing the legal basis for carbon market information infrastructure.
Registry Interoperability	National Carbon Registry	Exploratory/ Emerging	No operational technical interoperability or international registry linkage identified. Legal provisions support future international carbon market participation.

Source: Authors' compilation from various references.

2.7. Malaysia

Table 13. Malaysia Stocktake Summary

Focus Area	Initiative / Framework	Status	Description
Research Area 1: Corporate GHG Accounting & Reporting and Emissions Reduction Instruments			
Voluntary Corporate GHG Reporting and Disclosure			
National Voluntary Reporting	Malaysian Green Technology and Climate Change Corporation (MGTC)	Operational/ widely adopted	LCOS provides GHG accounting for Scope 1–3 based on the GHG Protocol. NSRF introduces mandatory Scope 1–3 reporting for listed and large non-listed companies, with Scope 3 phased in from 2027.
Voluntary Sustainability Disclosure	GRI	Operational/ widely adopted	GRI is widely used by Malaysian listed companies. Bursa Malaysia guidance and the NSRF promote internationally recognised sustainability reporting standards.

Focus Area	Initiative / Framework	Status	Description
Climate Disclosure	CDP	Operational/ widely adopted	496 Malaysian companies participate in CDP, indicating broad corporate climate disclosure participation despite limited leadership-level scores.
Climate-related Financial Disclosure	TCFD	Operational/ widely adopted	TCFD has been incorporated into Bursa Malaysia and NSRF reporting requirements and provides the basis for Malaysia's transition towards ISSB-aligned disclosure.
Science-based Target Setting	SBTi	Under Development / growing adaptation	46 companies identified, including 25 with targets set, 12 committed and 10 with net-zero targets.
Compliance Corporate GHG Reporting and Disclosure			
General Compliance GHG Reporting and Disclosure	MyCarbon Programme (Corporate GHG Reporting Programme)	Mature/ advanced	MyCarbon, ISO 14064-1, GHG Protocol and national inventory methodologies provide the basis for organisational GHG accounting, quantification and reporting.
Compliance GHG Reporting and Disclosure for Publicly Listed Companies	Bursa Malaysia Sustainability Reporting Guide	Operational/ widely adopted	Provides practical guidance for sustainability and GHG disclosure under the NSRF, aligned with IFRS S1 and S2 and phased in for listed and large private companies from 2025–2027.
Carbon Pricing and Comparable Emissions Reduction Instrument			
Carbon Pricing and Comparable Emissions Reduction Instrument Design	National ETS	Exploratory/ Emerging	Malaysia is developing an ETS framework. Reporting and MRV arrangements are expected to be established alongside future ETS implementation.
Carbon Pricing and Comparable Emissions Reduction Instrument Design	Carbon Tax	Exploratory/ Emerging	Carbon tax is under consideration as part of Malaysia's future carbon pricing framework. Compliance reporting requirements have not yet been established.

Focus Area	Initiative / Framework	Status	Description
Carbon Pricing and Comparable Emissions Reduction Instrument MRV Framework	Not Established	Not Established	No dedicated MRV framework for compliance carbon pricing instruments has been established; development is anticipated alongside carbon pricing policies.
Reporting Infrastructure			
National GHG Inventory & Climate Reporting	National GHG Inventory and Reporting System	Mature/ advanced	National reporting architecture supports GHG inventories, NDC tracking and BUR/BTR submissions, with NRES co-ordinating inputs from sectoral ministries and agencies.
Research Area 2: High-Integrity Carbon Market Implementation			
Carbon Crediting Mechanism			
Domestic Crediting Mechanism	Not Established	Not Established	No standalone domestic carbon crediting mechanism identified.
Participation in Independent Crediting Programmes	Independent Crediting Programmes (Verra, Gold Standard, ART TREES, Plan Vivo, etc.)	Under Development / growing adaptation	Malaysian projects participate in international crediting programmes, including Verra VCS, Gold Standard and ART TREES. 24 VCS and 1 Gold Standard projects identified.
Bilateral Carbon Cooperation Framework	Bilateral Cooperation Arrangements under Article 6	Exploratory/ Emerging	Malaysia is developing Article 6 co-operation frameworks, including authorisation and governance arrangements for international carbon transactions.
Bilateral Carbon Cooperation Framework	JCM	Under Development /growing adaptation	Malaysia plans to participate in the JCM with Japan, supporting low-carbon technology deployment and emissions-reduction projects through bilateral co-operation.
Validation, Verification and Accreditation Framework	JSM AVVB Scheme/ APAC MRA/ International Crediting Frameworks	Mature/ advanced	Malaysia has an established domestic VVB accreditation framework through JSM, based on relevant ISO standards and recognised through the APAC MRA. Carbon-market mechanisms may also use VVBs recognised under applicable international crediting programmes.

Focus Area	Initiative / Framework	Status	Description
Linkages with Carbon Pricing and Comparable Emissions Reduction Instrument			
Linkages with Carbon Pricing and Comparable Emissions Reduction Instrument	Not Established	Not Established	No established linkage between carbon crediting and a compliance carbon pricing instrument identified.
National Registry Infrastructure			
Registry Initiatives	National Carbon Registry Framework	Exploratory/ Emerging	Malaysia is developing national arrangements for registration, tracking and governance of carbon projects and units, including support for Article 6 and avoidance of double counting.
Registry Interoperability	National Carbon Registry	Exploratory/ Emerging	Registry architecture is under development for carbon-unit registration, tracking and transfer, with future support for Article 6 transactions and international transfers.

Source: Authors' compilation from various references.

2.8. Philippines

Table 14. Philippines Stocktake Summary

Focus Area	Initiative / Framework	Status	Description
Research Area 1: Corporate GHG Accounting & Reporting and Emissions Reduction Instruments			
Voluntary Corporate GHG Reporting and Disclosure			
National Voluntary Reporting	Not Established	Not Established	National GHG inventory system exists, but no government-operated voluntary organisational GHG reporting programme has been identified.
Voluntary Sustainability Disclosure	GRI	Under Development /growing adaptation	SEC and Philippine Stock Exchange encourage sustainability reporting. GRI is widely used by larger companies, although adoption remains voluntary.
Climate Disclosure	CDP	Operational/ widely adopted	149 Philippine companies participate in CDP, with one A-rated company and several B/C-rated companies, indicating growing but concentrated adoption.

Focus Area	Initiative / Framework	Status	Description
Climate-related Financial Disclosure	TCFD	Under Development /growing adaptation	TCFD is not yet mandatory. SEC and Philippine Stock Exchange are strengthening climate disclosure requirements as part of the transition towards ISSB-aligned reporting.
Science-based Target Setting	SBTi	Exploratory/ Emerging	9 companies identified, including 5 with targets set, 3 committed and 2 with net-zero targets.
Compliance Corporate GHG Reporting and Disclosure			
General Compliance GHG Reporting and Disclosure	SEC Sustainability Reporting /PFRS Sustainability Disclosure Standards (PFRS S1 & S2)	Under Development /growing adoption	The SEC is transitioning from voluntary sustainability reporting towards mandatory ISSB-aligned sustainability disclosure. The framework includes corporate GHG emissions disclosure and is being phased in for listed and large non-listed companies.
General Compliance GHG Reporting and Disclosure	PaSTI	Exploratory/ Emerging	The Philippines and Japan are cooperating to develop facility-level emissions reporting.
Compliance GHG Reporting and Disclosure for Publicly Listed Companies	PFRS Sustainability Disclosure Standards/SEC Sustainability Reporting Guidelines	Under Development /growing adoption	SEC is transitioning sustainability disclosure towards mandatory PFRS S1 and S2 requirements, with phased implementation from 2027–2029 for listed and large non-listed companies.
Carbon Pricing and Comparable Emissions Reduction Instrument			
Carbon Pricing and Comparable Emissions Reduction Instrument Design	Proposed Emissions Trading System	Exploratory/ Emerging	Proposed legislation would establish an emissions trading system and associated reporting requirements. No operational compliance carbon-pricing system currently exists.
Carbon Pricing and Comparable Emissions Reduction Instrument MRV Framework	Not Established	Not Established	Existing GHG reporting supports national inventories but is not yet linked to an operational carbon pricing instrument.

Focus Area	Initiative / Framework	Status	Description
Reporting Infrastructure			
National GHG Inventory & Climate Reporting	Philippine Greenhouse Gas Inventory Management and Reporting System (PGHGIMRS)	Mature/ advanced	National system co-ordinates sectoral inventories across Energy, IPPU, Agriculture, Waste and LULUCF and supports NDC tracking and UNFCCC reporting.
National GHG Inventory & Climate Reporting	National GHG Inventory and Reporting System	Mature/ advanced	First BTR submitted in 2025. National reporting follows IPCC methodologies and ETF requirements and provides a foundation for future MRV and carbon market development.
Research Area 2: High-Integrity Carbon Market Implementation			
Carbon Crediting Mechanism			
Domestic Crediting Mechanism	Carbon Crediting Frameworks	Exploratory/ Emerging	Sector-specific carbon crediting frameworks are emerging in the energy and forestry sectors, although a fully operational economy-wide domestic crediting mechanism has not yet been established.
Participation in Independent Crediting Programmes	Independent Crediting Programmes (Verra, Gold Standard, Plan Vivo, ART TREES)	Under Development /growing adaptation	Philippine projects participate in international programmes, particularly in nature-based solutions, forestry, renewable energy and community mitigation. 27 VCS and 15 Gold Standard projects identified.
Bilateral Carbon Cooperation Framework	Bilateral Cooperation Arrangements under Article 6	Under Development /growing adaptation	The Philippines is developing readiness for Article 6 co-operation, including corresponding adjustments and potential international co-operation arrangements.
Bilateral Carbon Cooperation Framework	JCM	Operational/ widely adopted	Government-led bilateral JCM with Japan supporting technology transfer and emissions-reduction projects through jointly approved methodologies and third-party verification.
Bilateral Carbon Cooperation Framework	Philippines-Singapore Implementation Agreement	Under Development /growing adaptation	The Implementation Agreement between the Philippines and Singapore was signed on 30 April 2026.
Validation, Verification and Accreditation Framework	PAB Accreditation / JCM and Emerging Domestic Crediting Frameworks	Under Development /growing adaptation	The Philippines has domestic GHG V/V accreditation capacity through PAB, although integration into emerging domestic carbon-market frameworks remains developing. JCM Third-Party Entities and internationally recognised VVBs provide additional assurance pathways.

Focus Area	Initiative / Framework	Status	Description
Linkages with Carbon Pricing and Comparable Emissions Reduction Instrument			
Linkages with Carbon Pricing and Comparable Emissions Reduction Instrument	World Bank and support by Japan Policy and Human Resources Development (PHRD) Fund	Exploratory/ Emerging	Ongoing support from World Bank and PHRD, and ongoing discussion with national government agencies
National Registry Infrastructure			
Registry Initiatives	National Carbon Registry Framework	Under Development /growing adaptation	Institutional and technical arrangements for carbon-unit tracking and Article 6 transactions are under development, but a fully operational national carbon registry has not yet been established.
Registry Interoperability	National Carbon Registry	Exploratory/ Emerging	Article 6 arrangements for authorisation, corresponding adjustments, reporting and ITMO tracking are being developed, while the supporting registry arrangements are not yet fully operational.

Source: Authors' compilation from various references.

2.9. Singapore

Table 15. Singapore Stocktake Summary

Focus Area	Initiative / Framework	Status	Description
Research Area 1: Corporate GHG Accounting & Reporting and Emissions Reduction Instruments			
Voluntary Corporate GHG Reporting and Disclosure			
National Voluntary Reporting	Not Established	Not Established	No dedicated national voluntary corporate GHG reporting methodology identified. Singapore promotes international frameworks such as GHG Protocol, ISO 14064-1, GRI, CDP, TCFD, ISSB and SBTi through national guidance.
Voluntary Sustainability Disclosure	GRI	Mature/ advanced	SGX requires sustainability reporting by listed issuers. GRI has been widely adopted as a reporting framework, alongside Singapore's transition towards ISSB-aligned disclosure.
Climate Disclosure	CDP	Operational /widely adopted	329 Singapore companies participate in CDP, including 6 A-rated and 3 A--rated companies, indicating strong disclosure quality and participation.

Focus Area	Initiative / Framework	Status	Description
Climate-related Financial Disclosure	TCFD	Operational /widely adopted	TCFD was widely adopted voluntarily before Singapore's transition to mandatory climate reporting and provided the basis for earlier SGX climate disclosure requirements.
Science-based Target Setting	SBTi	Operational /widely adopted	96 companies identified, including 63 with targets set, 18 committed and 17 with net-zero targets.
Compliance Corporate GHG Reporting and Disclosure			
General Compliance GHG Reporting and Disclosure	Greenhouse Gas Emissions Measurement and Reporting Scheme / Carbon Pricing (MRV) Regulations 2018	Mature/ advanced	Facilities emitting at least 2,000 tCO ₂ e annually must report their GHG emissions. Facilities below the 25,000 tCO ₂ e carbon-tax threshold are still subject to reporting, demonstrating that mandatory emissions reporting extends beyond carbon-tax compliance. Starting in FY2030, large non-listed companies will be required to disclose Scope 1 and Scope 2 GHG emissions.
Compliance GHG Reporting and Disclosure for Publicly Listed Companies	SGX Sustainability Reporting Framework (Rules 711A & 711B) / Practice Note 7.6	Mature/ advanced	Listed issuers must publish annual sustainability reports covering material ESG factors, climate disclosures, GHG emissions, targets and governance, with alignment to ISSB and other international standards. Rules deviate from ISSB standards due to exclusion of non-constituent listed companies from mandatory reporting of Scope 3 emissions.
Carbon Pricing and Comparable Emissions Reduction Instrument			
Carbon Pricing and Comparable Emissions Reduction Instrument Design	Carbon Tax	Mature/ advanced	Facilities above 25,000 tCO ₂ e must submit verified annual emissions reports to determine carbon tax liability. Eligible international carbon credits may also be used subject to applicable requirements.
Carbon Pricing and Comparable Emissions Reduction Instrument	Carbon Pricing (Measurement, Reporting and Verification) Regulations 2018	Mature/ advanced	Established MRV framework requires approved monitoring plans, annual emissions reporting and mandatory third-party verification to support carbon tax compliance.

Focus Area	Initiative / Framework	Status	Description
MRV Framework			
Reporting Infrastructure			
National GHG Inventory & Climate Reporting	National GHG Inventory and Reporting System	Mature/ advanced	National inventory system covers IPCC sectors and supports NID, BTR, National Communications and NDC reporting using IPCC methodologies and QA/QC procedures.
Research Area 2: High-Integrity Carbon Market Implementation			
Carbon Crediting Mechanism			
Domestic Crediting Mechanism	N/A	Not Established	No domestic carbon crediting mechanism identified.
Participation in Independent Crediting Programmes	ICC Framework (Verra VCS, Gold Standard, ACR, ART TREES, GCC)	Mature/ advanced	Singapore allows eligible international carbon credits to offset part of carbon tax liability. Credits must come from approved programmes and meet environmental integrity and Article 6 requirements. 6 VCS projects identified.
Bilateral Carbon Cooperation Framework	Implementation Agreements (IAs)	Mature/ advanced	Singapore operationalises Article 6.2 through bilateral Implementation Agreements. Eligible credits require approved programmes/methodologies and corresponding adjustments.
Bilateral Carbon Cooperation Framework	JCM	Not Established	Singapore does not participate in the JCM.
Validation, Verification and Accreditation Framework	SAC Accreditation / NEA Verification Framework / APAC MRA / International Carbon Credit Framework	Mature/ advanced	Singapore has established domestic GHG assurance through SAC accreditation and NEA's regulatory verification arrangements for taxable facilities. These are complemented by APAC recognition and programme- and Article 6-specific V/V requirements for international carbon credits
Linkages with Carbon Pricing and Comparable Emissions Reduction Instrument			
Linkages with Carbon Pricing and Comparable Emissions	International Carbon Credit (ICC) Framework	Mature/ advanced	Carbon tax-liable facilities may offset up to 5% of taxable emissions using eligible international credits from approved programmes and jurisdictions, supported by corresponding adjustments.

Focus Area	Initiative / Framework	Status	Description
Reduction Instrument			
National Registry Infrastructure			
Registry Initiatives	N/A	Not Established	Singapore has no domestic project crediting registry. Government-administered systems record eligible international credits and compliance transactions for carbon tax purposes.
Registry Interoperability	Registry Data Exchange	Mature/ advanced	Singapore relies on approved international programme registries and digital MRV rather than a domestic credit registry. Article 6 bilateral arrangements support international credit tracking and interoperability.

Source: Authors' compilation from various references.

2.10. Thailand

Table 16. Thailand Stocktake Summary

Focus Area	Initiative / Framework	Status	Description
Research Area 1: Corporate GHG Accounting & Reporting and Emissions Reduction Instruments			
Voluntary Corporate GHG Reporting and Disclosure			
National Voluntary Reporting	TGO's Corporate Carbon Footprint (CFP) Guidelines	Operational/ widely adopted	TGO administers a nationally recognised Corporate Carbon Footprint programme providing methodology and certification for organisational GHG emissions based on ISO 14064-1.
Voluntary Sustainability Disclosure	GRI	Operational/ widely adopted	GRI is widely used alongside SET sustainability initiatives and TGO programmes. Leading companies also participate in international disclosure platforms and carbon neutrality/net-zero programmes.
Climate Disclosure	CDP	Operational/ widely adopted	Approximately 500 Thai companies participate in CDP, including 7 A-rated and 1 A--rated companies, indicating broad participation and several disclosure leaders.

Focus Area	Initiative / Framework	Status	Description
Climate-related Financial Disclosure	TCFD	Under Development /growing adaptation	TCFD adoption has been encouraged by SET, the Bank of Thailand and SEC. Financial institutions and large listed companies increasingly use TCFD-aligned reporting.
Science-based Target Setting	SBTi	Under Development /growing adaptation	61 companies identified, including 31 with targets set, 16 committed and 11 with net-zero targets.
Compliance Corporate GHG Reporting and Disclosure			
General Compliance GHG Reporting and Disclosure	Notification of the Department of Mineral Fuels on Criteria for Reporting and Calculation Methods of Greenhouse Gas Emissions from Petroleum Operations B.E. 2565 (2022)	Operational/ widely adopted	Mandatory GHG reporting applies to specific sectors and activities, including oil and gas operations and industrial facilities. Thailand does not yet have a single comprehensive economy-wide corporate GHG reporting requirement independent of sectoral regulation.
Compliance GHG Reporting and Disclosure for Publicly Listed Companies	SET Sustainability Reporting Guidelines	Operational/ widely adopted	SEC and SET require listed companies to disclose sustainability information through the 56-1 One Report, covering ESG performance, climate risks, GHG emissions and governance.
Carbon Pricing and Comparable Emissions Reduction Instrument			
Carbon Pricing and Comparable Emissions Reduction Instrument Design	Interim Carbon Tax Mechanism	Operational/ widely adopted	Interim carbon price of THB 200/tCO ₂ e is incorporated into the petroleum excise tax system. It currently relies on existing fuel taxation rather than facility-level emissions reporting.
Carbon Pricing and Comparable Emissions Reduction Instrument	Not Established	Not Established	No dedicated MRV framework for compliance carbon pricing instruments. The Draft Climate Change Act proposes future MRV requirements for ETS, carbon tax and carbon credit markets.

Focus Area	Initiative / Framework	Status	Description
MRV Framework			
Reporting Infrastructure			
National GHG Inventory & Climate Reporting	National GHG Inventory and Reporting System	Mature/ advanced	National inventory covers Energy, IPPU, Agriculture, LULUCF and Waste and supports NDC tracking, BTRs and ETF reporting using IPCC methodologies.
Research Area 2: High-Integrity Carbon Market Implementation			
Carbon Crediting Mechanism			
Domestic Crediting Mechanism	Thailand Voluntary Emission Reduction Program (T-VER)	Mature/ advanced	TGO's national voluntary crediting programme provides methodologies, project registration, monitoring, verification and credit issuance. 596 T-VER projects identified.
Domestic Crediting Mechanism	Premium T-VER	Mature/ advanced	Higher-integrity domestic crediting programme designed to strengthen credit quality and support international carbon market participation, including Article 6 co-operation. 9 projects identified.
Participation in Independent Crediting Programmes	Independent Crediting Programmes (Verra, Gold Standard)	Operational/ widely adopted	Thai projects participate in VCS and Gold Standard, including renewable energy, waste, methane and forestry activities. 58 VCS and 38 Gold Standard projects identified.
Bilateral Carbon Cooperation Framework	Bilateral Cooperation Arrangements under Article 6	Mature/ advanced	Thailand has established arrangements for authorisation, international transfer and corresponding adjustments, providing a basis for bilateral Article 6 co-operation and international carbon transactions.
Bilateral Carbon Cooperation Framework	JCM	Mature/ advanced	Thailand is an early and active JCM partner with Japan. The government-led bilateral framework supports low-carbon technology deployment, approved methodologies, MRV and JCM credit issuance.
Bilateral Carbon Cooperation Framework	Thailand-Singapore Implementation Agreement	Under Development / growing adaptation	The Implementation Agreement between Thailand and Singapore was signed on 19 August 2025.
Validation, Verification and	NSC Accreditation / TGO VVB	Mature/ advanced	Thailand has an established domestic VVB framework supporting T-VER and Premium T-VER through accreditation

Focus Area	Initiative / Framework	Status	Description
Accreditation Framework	Registration / APAC MRA / T-VER / JCM		and TGO registration. It also recognises international accreditation pathways, while the JCM uses designated Third-Party Entities.
Linkages with Carbon Pricing and Comparable Emissions Reduction Instrument			
Linkages with Carbon Pricing and Comparable Emissions Reduction Instrument	Not Established	Not Established	T-VER and independent crediting programmes are currently used voluntarily and are not linked to a mandatory carbon pricing instrument.
National Registry Infrastructure			
Registry Initiatives	Thailand Carbon Credit Registry	Mature/ advanced	Thailand Carbon Credit Registry, a national registry administered by TGO, supports registration, issuance, holding, transfer, retirement and cancellation of T-VER, Premium T-VER and relevant international carbon credits.
Registry Interoperability	Thailand Carbon Credit Registry	Under Development / growing adaptation	The registry supports carbon-credit transaction records and Article 6 transfers, while further international registry interoperability remains under development.

Source: Authors' compilation from various references.

2.11. Viet Nam

Table 17. Viet Nam Stocktake Summary

Focus Area	Initiative / Framework	Status	Description
Research Area 1: Corporate GHG Accounting & Reporting and Emissions Reduction Instruments			
Voluntary Corporate GHG Reporting and Disclosure			
National Voluntary Reporting	Not Established	Not Established	No dedicated national organisational carbon footprint methodology or certification programme identified. Companies generally use international frameworks such as GHG Protocol, ISO 14064-1 and GRI.

Focus Area	Initiative / Framework	Status	Description
Voluntary Sustainability Disclosure	Global Reporting Initiative (GRI)	Under Development /growing adaptation	Major companies increasingly publish sustainability reports using GRI and other international ESG frameworks, but adoption remains developing.
Climate Disclosure	CDP	Operational/ widely adopted	Hundreds of Vietnamese companies participate in CDP, indicating growing corporate engagement, although leadership-level disclosure remains limited.
Climate-related Financial Disclosure	TCFD	Under Development /growing adaptation	TCFD is not explicitly required, but climate disclosure is increasingly incorporating TCFD principles as Viet Nam moves towards ISSB-aligned reporting.
Science-based Target Setting	SBTi	Under Development /growing adaptation	42 companies identified, including 21 with targets set, 8 committed and 5 with net-zero targets.
Compliance Corporate GHG Reporting and Disclosure			
General Compliance GHG Reporting and Disclosure	Mandatory GHG Inventory Requirements under Law on Environmental Protection 2020 / Decree 06/2022/ND-CP	Mature/ advanced	Designated facilities are required to conduct and report GHG inventories under the national regulatory framework. The requirements extend beyond facilities currently receiving ETS allocations and therefore provide a broader facility-level emissions reporting base.
Compliance GHG Reporting and Disclosure for Publicly Listed Companies	Sustainability Disclosure Framework for Listed Companies	Under Development /growing adaptation	Listed and public companies report sustainability and GHG information under Circular 96. The framework is being strengthened towards greater alignment with GRI and ISSB.
Carbon Pricing and Comparable Emissions Reduction Instrument			
Carbon Pricing and Comparable Emissions Reduction Instrument Design	Emissions Trading System (ETS)	Operational/ widely adopted	Viet Nam's ETS has entered the pilot phase, covering power, steel and cement. MRV data support allowance allocation and compliance, with the system preparing for broader carbon market implementation.

Focus Area	Initiative / Framework	Status	Description
Carbon Pricing and Comparable Emissions Reduction Instrument MRV Framework	Decree No. 06/2022/ND-CP	Operational/ widely adopted	National MRV framework supports ETS implementation, emissions quota management and operation of the domestic carbon market.
Reporting Infrastructure			
National GHG Inventory & Climate Reporting	National GHG Inventory and Reporting System	Mature/ advanced	National inventory covers Energy, IPPU, Agriculture, LULUCF and Waste and supports NDC tracking and transparency reporting through established institutional, methodological and QA/QC arrangements.
Research Area 2: High-Integrity Carbon Market Implementation			
Carbon Crediting Mechanism			
Domestic Crediting Mechanism	TCVN 14682:2026: Forest carbon credits – Requirements	Under Development / growing adaptation	The Ministry of Agriculture and Environment issued TCVN 14682:2026, Forest Carbon Credits – Requirements, in August 2026, providing a national technical foundation for the development and implementation of forest carbon projects. While a standalone domestic carbon crediting mechanism is not yet fully established, the standard represents progress towards the development of domestic methodologies and technical standards for carbon credit generation, particularly in the forestry and land-use sectors.
Participation in Independent Crediting Programmes	Independent Crediting Programmes (Verra, Gold Standard, ART TREES, Plan Vivo)	Operational/ widely adopted	Vietnamese projects participate in international programmes covering renewable energy, forestry, energy efficiency and community mitigation. 63 VCS and 79 Gold Standard projects identified.
Bilateral Carbon Cooperation Framework	Bilateral Cooperation Arrangements under Article 6	Under Development / growing adaptation	Viet Nam has established arrangements for authorisation, acquisition, transfer and reporting of ITMOs and carbon credits, supporting bilateral Article 6 co-operation.
Bilateral Carbon	JCM	Mature/ advanced	Government-led bilateral JCM with Japan supports low-carbon technology,

Focus Area	Initiative / Framework	Status	Description
Cooperation Framework			renewable energy and energy-efficiency projects through approved methodologies and JCM credit issuance.
Bilateral Carbon Cooperation Framework	Viet Nam–Singapore Implementation Agreement	Under Development / growing adaptation	The Implementation Agreement between Viet Nam and Singapore was signed on 16 September 2025.
Validation, Verification and Accreditation Framework	National Accreditation Bureau (BoA) /VICAS Accreditation / APAC MRA / JCM and Emerging Domestic Carbon-Market Frameworks	Mature/ Advanced	Viet Nam has established domestic GHG V/V accreditation through BoA's VICAS scheme with regional and international recognition. JCM provides an operational mechanism-specific V/V pathway, while integration with domestic carbon-market frameworks continues to evolve.
Linkages with Carbon Pricing and Comparable Emissions Reduction Instrument			
Linkages with Carbon Pricing and Comparable Emissions Reduction Instrument	119/2025/NĐ-CP	Under Development / growing adaptation	Establishments may use eligible credits for compliance, subject to a 30% quantitative limit.
National Registry Infrastructure			
Registry Initiatives	National Registration System for GHG Emission Quotas and Carbon Credits	Operational/ widely adopted	National system records ownership, issuance, transfer, cancellation and retirement of emission quotas and carbon credits and supports the domestic carbon market.
Registry Interoperability	National Carbon Registry	Under Development / growing adaptation	National system supports accounts, ownership records and transfers. Article 6 legal arrangements are established, but operational international registry connectivity has not yet been demonstrated.

Source: Authors' compilation from various references.

Chapter 3

Regional Assessment and Gap Analysis

3.1. Maturity Assessment Across AZEC

This section synthesises findings across the nine sub-themes of functional dimensions assessed in the AZEC countries into a regional maturity matrix. The matrix identifies regional patterns across functional dimensions, highlighting areas where technical development has converged, where common regional gaps remain, and where differences in maturity create opportunities for peer learning and technical co-operation.

Table 18: Regional Assessment Overview

Country	Research Area 1. Corporate GHG Accounting & Reporting and Emissions Reduction Instruments				Research Area 2. High-Integrity Carbon Market Implementation		
	Voluntary reporting	Compliance corporate GHG reporting	Compliance reporting for CPI-relevant design	Reporting infrastructure	Carbon crediting mechanisms	Linkages with carbon pricing - relevant instruments	National Registry infrastructure
Australia							
Brunei Darussalam							
Cambodia							
Indonesia							
Japan							
Lao PDR							
Malaysia							
Philippines							
Singapore							
Thailand							
Viet Nam							



- Not Established
- Exploratory / Emerging
- Under Development / Growing Adaptation
- Operational / Widely Adopted
- Mature / Advanced

**For the description of the maturity levels above, refer to 1.4.3 Analytical Lenses.*

Source: Authors.

Viewed collectively, the matrix reveals three broad patterns in carbon market development across AZEC, reflecting areas of regional convergence as well as different pathways towards more advanced market functions.

Pattern 1: Broad convergence in climate transparency. GHG reporting and its reporting infrastructure represent one of the strongest common foundations across AZEC. Most partner countries have operational or mature corporate GHG reporting arrangements, while reporting infrastructure is operational or mature across all countries assessed. In contrast, the maturity of voluntary and CPI-relevant reporting varies more widely across countries. Nevertheless, the relatively strong reporting foundation, including national inventory systems, provides a common technical basis for further development of corporate reporting, carbon pricing MRV and carbon market infrastructure, as shown by several countries that have subsequently extended these foundations into facility-level reporting, verification systems and digital reporting infrastructure.

Pattern 2: Widespread carbon crediting through diverse market models. Carbon pricing and comparable emissions reduction instrument design ranges from ETS-based systems in Indonesia, Japan and Viet Nam, to carbon taxes in Japan and Singapore, while Malaysia is developing an ETS and carbon tax framework and Australia implements the Safeguard Mechanism, a national emissions reduction instrument that establishes emissions baselines and compliance obligations for covered facilities. Carbon crediting is widespread across AZEC through different models. Australia, Indonesia, Japan, and Thailand operate domestic crediting programmes, while other countries participate in or use a combination of independent crediting programs, such as Verra and Gold Standard, and bilateral mechanisms such as the JCM. Singapore does not operate a domestic crediting programme but has established a framework for using eligible international credits. Linkages between carbon crediting and carbon pricing or comparable emissions reduction instruments remain concentrated in Australia, Indonesia, Japan, and Singapore. Viet Nam is developing such linkages, while Thailand has a carbon pricing mechanism without an established crediting linkage. In other countries, these linkages remain exploratory or have not yet been established.

Pattern 3: Registry infrastructure is expanding, while interoperability remains an emerging function. National registry infrastructure remains unevenly developed across AZEC. Japan has the most advanced national registry infrastructure amongst the countries assessed, while Australia, Cambodia, Indonesia, the Philippines, Thailand and Viet Nam have systems under development or undergoing further adaptation. Lao PDR and Malaysia remain at an exploratory or emerging stage, while Brunei Darussalam has not yet established national registry infrastructure. Singapore does not operate a national carbon-credit registry and instead relies on relevant government systems and approved independent programme registries. Cross-border interoperability remains limited, particularly for Article 6, where international connectivity has not yet been operationalised. The regional priority is therefore to enable nationally distinct registries to exchange and reconcile data through common technical standards.

3.2. Technical Gaps

The technical gaps identified across AZEC concern the extent to which existing carbon market systems can produce consistent information, support credible carbon units, and operate across national boundaries. The assessment highlights differences in emissions

accounting, MRV systems, carbon crediting mechanisms, registry infrastructure, and Article 6 implementation, with implications for data comparability, environmental integrity, and the efficiency of cross-border co-operation.

International experience³ demonstrates that regional carbon market integration is supported through technical interoperability, enabling nationally distinct systems to operate under common technical principles while maintaining domestic policy flexibility. Accordingly, this assessment examines the principal technical convergence challenges across AZEC countries, focusing on five interrelated dimensions of carbon market development: emissions reporting and MRV systems; registry interoperability and digital infrastructure; carbon crediting system readiness; carbon accounting methodologies and international standards; and Article 6 technical readiness. For each dimension, the analysis assesses the current technical landscape, its implications for regional carbon market functioning, and potential pathways to strengthen interoperability and regional market integration.

Emissions Reporting and MRV Systems

National GHG inventory systems are well established across AZEC partner countries and generally follow the IPCC Guidelines and ETF requirements, providing a common basis for reporting under the UNFCCC.⁴ Beyond national inventories, some countries have developed corporate and facility-level emissions reporting systems that reflect different domestic policy objectives.

Reporting thresholds, organisational boundaries, sectoral coverage, verification requirements, and reporting frequency therefore vary considerably across jurisdictions. For example, Singapore's reporting framework supports its carbon tax through a facility-level 25,000 tCO₂e⁵, while Indonesia's mandatory MRV system currently focuses on coal-fired and gas-fired power plants in support of its emissions trading system.⁶ Malaysia is progressively implementing corporate sustainability reporting requirements through the National Sustainability Reporting Framework. These differences reflect nationally determined regulatory approaches rather than a common regional reporting model.

Technical arrangements supporting compliance CPIs are at different stages of development. In countries operating or preparing emissions trading systems or carbon taxes, dedicated MRV frameworks have been developed to meet the requirements of those instruments. In other countries, where compliance carbon pricing mechanisms have not yet been introduced, MRV systems continue to focus primarily on national inventory reporting, voluntary carbon market activities, or sector-specific reporting

³ EU–Switzerland ETS linkage – The EU and Swiss ETS remain separate domestic systems but are linked through a direct registry-to-registry connection, with common technical standards and mutual recognition of allowances.

Japan's JCM – JCM partner countries retain their own domestic arrangements, while bilateral rules, common MRV/accounting arrangements, registries and corresponding-adjustment procedures enable cooperation and ITMO transfers.

⁴ UNFCCC. 2019. [2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories](#).

⁵ NEA. 2018. [Carbon Pricing Act 2018](#)

⁶ PLN. 2026. [Session 2 PaSTI-Enhancing the Competitiveness of Industries through Visualization of GHG Emissions throughout the Supply Chain-](#)

requirements. As a result, the level of technical preparation for compliance-oriented MRV differs according to each country's carbon market pathway rather than representing a uniform regional benchmark.

Integrated digital reporting platforms linking inventory compilation, facility-level reporting, and verification have been identified in several countries. Australia and Singapore operate mature digital reporting systems supporting compliance carbon pricing, while Indonesia, Malaysia, the Philippines, and Thailand continue expanding integrated digital MRV platforms. Across the remaining partner countries, digital systems continue to evolve, with varying degrees of integration between national inventories, facility-level reporting, verification processes, and carbon market infrastructure.

The diversity of reporting boundaries, verification approaches, reporting thresholds, and digital infrastructure influences the comparability and consistency of emissions data across AZEC. Although national inventory systems provide a common foundation for international reporting, differences in corporate and facility-level reporting frameworks present challenges for comparing emissions data across jurisdictions and supporting cross-border carbon market activities. Where countries choose to implement compliance CPIs, dedicated MRV systems become an important technical prerequisite for ensuring robust monitoring, verification, and market integrity.

Registry Interoperability and Digital Infrastructure

AZEC partner countries have made progress in developing national carbon registries and supporting digital infrastructure, although technical maturity and system architecture vary considerably. While registry lifecycle functionalities have advanced, technical interoperability remains at an earlier stage of development. Existing initiatives include Japan's bilateral JCM registry arrangements, which apply harmonised accounting rules and corresponding adjustment procedures, and Singapore's participation in the CAD Trust, which seeks to improve transparency and interoperability through common data infrastructure for carbon market transactions.

Publicly available information on registry interfaces, metadata structures, and technical communication protocols remains limited, making it difficult to assess the current level of interoperability between national registry systems. Digital infrastructure for emissions reporting has also expanded, with Australia, Indonesia, Japan, the Philippines, Singapore, and Thailand operating established digital systems for emissions reporting or carbon market administration, while Malaysia and several other partner countries continue to strengthen comparable infrastructure. However, fully integrated platforms linking national inventories, facility-level reporting, verification, registry operations, and market transactions remain less common across the region.

Implications for international carbon market participation

Corresponding adjustments under Article 6 are applied at the national accounting level against inventory data, while project-level MRV under JCM and other crediting programmes produces more granular, vintage-specific information. The consistency and timeliness of national inventory data therefore remain important for tracking the relationship between ITMO transfers and the host country's NDC accounting, including the risk that mitigation outcomes are authorised for international transfer without corresponding reductions being adequately reflected in national emissions accounting. This highlights the importance of connecting national inventory, reporting, and registry

systems. Indonesia provides one example, with the integration of SRN-PPI and SRUK under the registry development agenda established by PR 110/2025 illustrating how registry integration can affect both domestic administration and international carbon market credibility.

More broadly, the stocktake raises a question for the AZEC-DCM workstream: whether the voluntary, exchange-based, and compliance reporting streams being developed across partner countries can be brought closer together, or whether they are better treated as distinct systems serving different purposes. Greater convergence could be supported by common minimum data requirements, including consistent emissions boundaries, emission-factor sourcing, and verification approaches, allowing information collected for one reporting purpose to be reused where appropriate. The comparison across AZEC partner countries can help identify where such convergence is technically and institutionally feasible, and where differences in definitions or reporting requirements reflect genuine functional needs rather than co-ordination gaps.

Carbon Crediting System Development

A basic legal or regulatory mandate enabling carbon crediting activity is now in place across nearly all AZEC partner countries, providing a foundation for carbon project development and the broader carbon market ecosystem. Carbon crediting can serve different market functions: projects may generate credits for voluntary carbon markets, domestic compliance or CPIs, or international co-operation under applicable bilateral or multilateral frameworks. Participation in voluntary or domestic crediting activity does not by itself indicate readiness to authorise international transfers under Article 6, which involves additional institutional, accounting, and reporting arrangements. Across AZEC, the main differences in carbon crediting therefore concern the extent to which countries have developed domestic crediting programmes and methodologies, participate in internationally recognised crediting programmes, and have established arrangements for recognition or use of credits across different systems.

Australia and Japan are the clearest examples of countries operating almost entirely through their own domestic programmes (The ACCU Scheme and the J-Credit Scheme, respectively) rather than hosting projects under independent standards, reflecting their domestic regulatory capacity. Thailand's Premium T-VER programme functions as a comprehensive domestic system that also serves as the platform for Thailand's JCM co-operation with Japan and for advancing the Premium T-VER as an internationally recognised standard, notably under the Carbon Offsetting and Reduction Scheme for International Aviation. Indonesia continues to expand its domestic crediting framework (SPEI) alongside its national carbon market. Participation in bilateral crediting arrangements, including the JCM, can also support the development of domestic MRV systems, registry infrastructure, and institutional capacities needed for engagement in international carbon markets.

Several other AZEC members continue to primarily use internationally recognised standards such as Verra, Gold Standard, and ART TREES, allowing project development to proceed while domestic methodologies continue to evolve. This reflects a market-access strategy that allows project development and credit issuance to proceed using existing, internationally accepted methodologies and verification infrastructure, independent of whether a country has also chosen to invest in domestic methodology development.

A related distinction concerns mutual recognition between domestic and international or bilateral crediting systems. Indonesia is currently the only AZEC member to have concluded a series of formal Mutual Recognition Arrangements: with Japan (October 2024, aligning SPEI and the JCM), Gold Standard (May 2025), Plan Vivo and the Global Carbon Council (September 2025), and Verra (October 2025). Other AZEC members participating in JCM, including Thailand and Vietnam, operate under bilateral co-operation agreements that contain standard mutual-recognition language for ITMO transfers and NDC-accounting purposes between the two governments; these differ from Indonesia's arrangements in that JCM projects in these countries are typically registered directly through an existing domestic programme – for example, Thailand's Premium T-VER – rather than recognised through a standalone equivalence instrument between two independently operating crediting systems.

These differences influence, rather than determine, countries' capacity to develop carbon market activities that reflect national circumstances and sectoral priorities. Countries with established methodology development processes can adapt crediting rules to emerging technologies and domestic mitigation priorities, and, as Indonesia's MRA activity illustrates, can also pursue formal recognition of their domestic credits by external standards and partner countries.

Countries primarily utilising international standards retain access to established, internationally recognised methodologies and verification infrastructure, with somewhat less flexibility to shape crediting rules around country-specific project types. Private-sector project experience presented at the 5th AZEC-DCM held in July this year points to a finding shared across both groups: methodology gaps for emerging project types were raised independently by both government and private participants, including in agriculture (Alternate Wetting and Drying for rice cultivation), biochar, and carbon capture, utilisation and storage, where existing methodologies – whether domestic or international – do not yet fully capture the characteristics of these approaches.⁷ Addressing these methodology gaps will be important not only for domestic and voluntary carbon markets but also for facilitating participation in international carbon market mechanisms in line with Article 6 of the Paris Agreement. Bilateral and co-operative crediting approaches, including the JCM, can provide opportunities to pilot new methodologies, strengthen technical capacity, and accelerate the deployment of advanced mitigation technologies in sectors where existing methodologies remain limited.

Carbon Accounting Methodologies and International Standards

AZEC partner countries increasingly reference internationally recognised carbon accounting frameworks, including the GHG Protocol, ISO 14064, and ISSB-aligned sustainability reporting standards. However, implementation differs not only in regulatory status but also in methodological depth. Australia, Japan, Malaysia, and Singapore have established or are progressively implementing mandatory ISSB-aligned sustainability reporting frameworks supported by nationally developed technical guidance and phased implementation arrangements. Indonesia is strengthening corporate sustainability reporting while progressively aligning national carbon accounting practices with

⁷ Asia Zero Emission Community (AZEC). 2026. *5th Asia Zero Emission Community International Conference to Develop Carbon Markets (AZEC-DCM)*.

international standards. In several other partner countries, corporate emissions accounting continues to rely primarily on voluntary application of international frameworks, with more limited domestic guidance for sector-specific accounting methodologies, Scope 3 emissions, and national emission factors. Consequently, the degree to which carbon accounting methodologies are codified, localised, and supported by national technical guidance varies considerably across the region.

These methodological differences influence the consistency of corporate emissions inventories, the quantification of emission reductions, and the treatment of value-chain emissions across jurisdictions. Variations in organisational boundaries, Scope 3 treatment, emission factors, and sector-specific methodologies mean that emissions reported by companies in different AZEC countries are not always directly comparable, even when based on the same international reference standards. This reduces the consistency of emissions data used to support carbon pricing mechanisms, domestic crediting programmes, and cross-border carbon market co-operation.

Article 6 Technical Readiness

AZEC partner countries have made substantial progress in establishing the institutional and technical foundations required for Article 6 implementation, although readiness varies across different components of the implementation cycle. Singapore and Thailand currently possess the region's most operationalised Article 6 frameworks.

Singapore has established a comprehensive institutional framework combining the Carbon Pricing Act, ICC Framework, bilateral Implementation Agreements, and participation in the CAD Trust, while integrating ITMOs into its domestic carbon tax system.

Thailand became the first country globally to complete an Article 6.2 ITMO transfer and has developed comprehensive operational arrangements, including an Operations Manual, authorisation procedures, corresponding adjustment methodology, and institutional co-ordination mechanisms.

Several other partner countries – including Cambodia, Indonesia, Lao PDR, Malaysia, the Philippines, and Viet Nam – have established legal and institutional foundations while continuing to operationalise registry arrangements, authorisation procedures, and corresponding-adjustment systems. Australia has taken a different approach, prioritising domestic carbon market implementation over dedicated Article 6 operational arrangements. This reflects a policy choice to prioritise domestic carbon market implementation rather than a lack of technical capacity for international carbon market participation.

These different implementation pathways are reflected in the region's Article 6 activity. Indonesia and Thailand currently host the largest number of co-operative approaches in ASEAN, followed by Viet Nam, while Japan remains the dominant international buyer through the JCM.

Singapore has emerged as one of the most active buyer countries through an extensive network of bilateral implementation agreements, while Thailand has demonstrated

operational readiness as a host country through completed ITMO transfers. Japan has pursued a longstanding bilateral approach through the JCM, combining host-country co-operation with its role as a major acquiring country. These different experiences demonstrate that Article 6 readiness is shaped not only by institutional arrangements but also by the role's countries choose to play in co-operative approaches and the mechanisms through which they operationalise those roles. Such arrangements may include bilateral co-operation implementation agreements, participation as an acquiring or host Party, or other approaches to authorising and transferring ITMOs consistent with Article 6.2.

Differences in operational readiness continue to influence countries' ability to participate effectively in international carbon market transactions. While many AZEC partner countries have established governance arrangements and legal foundations, technical components such as authorisation workflows, corresponding adjustment implementation, registry interoperability, transaction tracking, and integration with ETF reporting remain at different stages of operationalisation.

Strengthening these technical components through regional knowledge exchange and existing initiatives such as the Article 6 Implementation Partnership (A6IP)⁸ would enhance interoperability and facilitate greater participation in Article 6 co-operative approaches while allowing countries to pursue implementation pathways aligned with their respective national circumstances.

3.3. Institutional Gaps

Carbon Market Governance Has Not Yet Caught Up with Established Climate Governance

Every AZEC partner country has established institutional co-ordination mechanisms for national GHG inventories and UNFCCC reporting, reflecting more than a decade of experience in emissions reporting. Co-ordination for carbon market governance, however, has developed more unevenly. While inventory co-ordination is operational across the region, five of the eleven AZEC countries have no established co-ordination mechanism for compliance MRV, the institutional process that connects verified emissions data with CPIs. This indicates that although climate governance has become well established, governance arrangements supporting carbon market implementation remain at an earlier stage of development.

This difference reflects the sequence in which institutions have evolved. National inventory co-ordination was established to meet international reporting obligations under the UNFCCC (for developing countries starting with national communications, then biennial update reports, and now BTRs), whereas co-ordination across carbon pricing,

⁸ Asia Zero Emission Community (AZEC). 2026. *5th Asia Zero Emission Community International Conference to Develop Carbon Markets (AZEC-DCM)*.

registry administration, market oversight, and Article 6 has only become necessary as countries begin developing domestic carbon markets or aiming to participate in international carbon markets under Article 6.

Malaysia's National Carbon Market Policy identifies co-ordination between NRES and the *Jawatankuasa Dekarbonisasi Kebangsaan* as an enabling condition for future compliance mechanisms, while Indonesia's Presidential Regulation No. 110/2025 introduced a dedicated Steering Committee to co-ordinate responsibilities across the expanded carbon market architecture. Similar developments are evident in Cambodia and Lao PDR, where Article 6 operational frameworks have required new co-ordination arrangements between multiple government institutions.

The institutional challenge therefore lies less in establishing lead agencies than in connecting institutions with increasingly specialised mandates. As carbon markets expand beyond emissions reporting into carbon pricing, registry management, financial regulation, and international carbon market co-operation, governments must co-ordinate a broader range of institutions than those traditionally involved in climate reporting alone. Where these co-ordination mechanisms remain underdeveloped, carbon pricing, carbon crediting, and Article 6 implementation continue to operate alongside, rather than as part of, an integrated governance system.

Operational Governance Capacity Has Not Kept Pace with Legal and Policy Development

National carbon market policies, regulations, and Article 6 frameworks are now in place or under development across much of the region, providing clearer institutional mandates and governance structures. However, the country assessment indicates that operational governance has generally progressed more gradually than legal and policy development. While legal frameworks define institutional responsibilities, many countries continue to develop the administrative arrangements needed to implement them, including registry administration, authorisation procedures, compliance management, market supervision, and institutional operating procedures.

Legal frameworks establish mandates and policy direction, whereas operational governance requires institutions to translate those mandates into day-to-day administrative processes. Across the AZEC assessment, this transition remains ongoing wherever new carbon market frameworks have recently been introduced. Similar sequencing is evident across several partner countries where legal frameworks have progressed ahead of registry development, operational procedures, and market administration.

Legal readiness therefore does not necessarily translate into operational readiness. Several countries possess comprehensive legal frameworks while continuing to strengthen the institutions responsible for administering registries, supervising market participants, implementing authorisation procedures, and co-ordinating compliance

processes. As carbon markets move from policy design to implementation, this gap may delay market operation despite the existence of enabling legislation.

Governance for Validation and Verification Remains Fragmented

Validation and verification have become integral components of emissions reporting and carbon crediting systems across AZEC. Verification requirements are incorporated into national MRV and carbon crediting frameworks to varying degrees, while the institutional arrangements for accrediting, recognising, and overseeing validation and verification bodies (VVBs) differ across countries.

Across the region, many countries have national accreditation bodies operating in accordance with relevant international standards. International recognition can additionally be supported through peer-review and mutual recognition arrangements. The Asia Pacific Accreditation Cooperation (APAC) provides an existing regional framework for such recognition, with seven AZEC partner countries – Australia, Indonesia, Japan, Malaysia, Singapore, Thailand, and Viet Nam – already full signatories to the APAC Mutual Recognition Arrangement (MRA) for validation and verification.⁹ The Philippines is also an APAC Full Member and has a domestic accreditation system based on ISO standards, although international recognition requires the relevant peer-review process.

These different approaches reflect institutional design choices rather than differences in carbon market maturity. Developing a domestic accreditation system compliant with ISO/IEC 17029 requires specialised institutional capacity that may not be proportionate for every national market. Countries with more established carbon markets, including Australia, Japan, and Thailand, continue to use internationally recognised accreditation arrangements while maintaining robust domestic carbon market governance. Conversely, Singapore and Indonesia have chosen to extend the mandate of existing national accreditation bodies to cover greenhouse gas validation and verification, demonstrating an alternative governance approach rather than a more advanced stage of institutional development.

These differences should therefore be understood as reflecting institutional mandates, the scope of accreditation, and the application of relevant international standards rather than differences in carbon market maturity.¹⁰ As For regional carbon market co-operation, the relevant issue is how existing national and regional arrangements can support consistent VVB competence, recognition, and quality assurance across jurisdictions.

In this context, potential AZEC-DCM co-operation could focus specifically on VVB accreditation, recognition, and quality assurance for GHG reporting and carbon crediting

⁹ Asia Pacific Accreditation Cooperation (APAC). 2026. [Full Member - Members - APAC](#)

¹⁰ Asia Zero Emission Community (AZEC). 2026. *5th Asia Zero Emission Community International Conference to Develop Carbon Markets (AZEC-DCM)*.

activities. This could include strengthening understanding and application of relevant ISO standards, supporting countries seeking international peer review where needed, facilitating exchange amongst national accreditation bodies, and exploring how existing mechanisms such as the APAC MRA can support cross-border recognition of VVBs.

Institutionalisation of Sovereign Decision-Making for Article 6 Remains Incomplete

AZEC partner countries have made significant progress in establishing legal and institutional arrangements for participation in Article 6. However, the country assessment indicates that institutional development has largely focused on establishing the organisations responsible for Article 6, whereas the governance processes through which governments exercise sovereign authority over international carbon transactions remain less consistently developed. Across much of the region, institutional arrangements for project authorisation, issuance of Letters of Authorisation, sectoral approval, corresponding adjustments, registry co-ordination, and international reporting continue to evolve as countries move from policy development to implementation.

This reflects the nature of Article 6 governance itself. Unlike domestic carbon market instruments, Article 6 requires governments to make sovereign decisions over the international transfer of mitigation outcomes while ensuring consistency with national climate objectives and reporting obligations under the Paris Agreement. Although many AZEC members have designated lead authorities or adopted enabling legislation, the institutional processes supporting these decisions differ considerably. Singapore and Thailand have operationalised governance arrangements covering authorisation, registry management, and corresponding adjustments, while Cambodia, Indonesia, Lao PDR, Malaysia, the Philippines, and Viet Nam continue to strengthen different parts of the decision-making process as legal frameworks are translated into operational practice. Japan has followed a different pathway through the JCM, where long-established bilateral governance arrangements have provided practical institutional experience that predates the Article 6 rulebook itself. These arrangements have involved project approval, intergovernmental co-ordination, registry administration, and the management of internationally transferred mitigation outcomes, providing experience relevant to the governance processes now required under Article 6.

The consequence is not that countries are unable to participate in Article 6, but that the predictability and consistency of sovereign decision-making vary across the region. For project developers and international partners, Article 6 participation depends not only on technical MRV systems or registry infrastructure, but also on transparent institutional processes governing authorisation, inter-agency review, registry reconciliation, and corresponding adjustments. Where these governance arrangements remain under development, transaction timelines, administrative certainty, and investor confidence may be affected even where enabling legislation already exists.

3.4. Capacity Gaps

Operational Carbon Market Workforce Capacity Remains Uneven

Across AZEC, countries have expanded technical expertise through government programmes, international co-operation, pilot initiatives, and market development activities. However, the availability and maturity of specialised professionals remain uneven across the region. Capacity requirements extend beyond government agencies responsible for greenhouse gas inventories, MRV systems, corporate disclosure, registry administration, and Article 6 implementation to include project developers, validation and verification bodies (VVBs), methodology developers, carbon consultants, registry operators, carbon finance specialists, exchange operators, and corporate sustainability practitioners.

The assessment suggests that workforce development generally reflects the maturity of national carbon market systems. Countries with more mature carbon markets have developed broader professional ecosystems supporting both regulatory implementation and commercial carbon market activities, while emerging markets continue to rely more on international technical assistance. As carbon market systems expand from policy design towards implementation, demand for specialised expertise in validation and verification, carbon accounting, registry management, and corporate emissions reporting is increasing across both government and private sectors.¹¹

Carbon market implementation ultimately depends on people with the skills to operate increasingly complex systems. Even where technical infrastructure and governance arrangements have been established, limited availability of experienced professionals may constrain emissions reporting, project development, verification, registry operation, compliance administration, and participation in domestic and international carbon markets. This challenge is likely to become more pronounced as mandatory disclosure, domestic carbon pricing, and Article 6 implementation continue to expand across the region.

Organisational Capacity to Implement Carbon Markets Remains Uneven

The assessment indicates that organisational capacity remains uneven across governments, private companies, financial institutions, and supporting market service providers. While many AZEC partner countries have established carbon pricing policies, domestic crediting mechanisms, corporate disclosure requirements, and Article 6 frameworks, implementation capacity has not expanded uniformly across the organisations responsible for delivering these systems in practice.

¹¹ Perspectives Climate. 2026. [*Pathways for Strengthening Validation and Verification Body \(VVB\) Capacity in Africa*](#)

A similar pattern is evident across the broader carbon market ecosystem. Capacity to develop carbon projects, provide validation and verification services, manage carbon finance, operate exchanges, and deliver specialised advisory services remains concentrated within a relatively small number of organisations, particularly in the region's more mature markets. At the same time, mandatory and voluntary greenhouse gas reporting requirements are expanding rapidly across AZEC, increasing demand for companies capable of measuring emissions, preparing corporate disclosures, managing carbon data, and participating in carbon markets. While larger corporations and internationally oriented industries have generally progressed further in developing these capabilities, implementation capacity remains more limited amongst many SMEs and domestic industries, particularly in countries where carbon market development is at an earlier stage.¹²

The expansion of carbon markets increasingly depends on organisational capability rather than regulatory development alone. Functioning markets require companies capable of developing bankable projects, validation and verification bodies able to provide assurance services, financial institutions able to assess carbon assets, exchanges able to facilitate transparent transactions, and corporate entities able to comply with increasingly sophisticated reporting and carbon pricing requirements. Where these organisational capabilities remain concentrated within a limited number of actors, market participation, project pipelines, and private-sector engagement may expand more slowly than the underlying policy frameworks.

Strategic Capacity for International Carbon Market Participation Remains Limited

As AZEC countries move beyond establishing domestic carbon market frameworks, capacity needs are shifting from technical implementation towards strategic functions. These include negotiating bilateral implementation agreements, determining ITMO pricing, operationalizing benefit-sharing arrangements, co-ordinating domestic compliance markets with Article 6 activities, and managing the legal, financial, and administrative processes associated with international carbon transactions.¹³

Progress across these areas has been uneven. Singapore and Thailand currently demonstrate the region's most operational strategic capacity for international carbon market participation. Indonesia and Viet Nam are strengthening these capabilities alongside expanding domestic carbon markets, while several other partner countries continue to build the legal, financial, and institutional expertise required to negotiate and implement bilateral co-operation arrangements independently.

This capacity needs differ from the technical expertise required to operate domestic carbon market systems. Once countries begin participating in international carbon

¹² RICS. 2026. [RICS Sustainability Report 2024: a year of progress?](#)

¹³ UNFCCC. 2026. [Advancing Article 6 Implementation in the Philippines](#)

markets, governments must make decisions that combine legal, financial, and policy considerations. This includes negotiating balanced bilateral agreements, determining appropriate amounts or values for ITMOs, managing benefit-sharing arrangements, and ensuring that domestic compliance markets and Article 6 transactions operate consistently without creating double-counting risks.¹⁴

3.5. What the Assessment Means for Regional Co-operation

The assessment indicates that Carbon market development is advancing across AZEC with diverse technical, institutional, and policy pathways. Differences in market maturity extend beyond policy ambition to the systems, governance arrangements, and implementation capacity that support carbon markets. These findings suggest that regional co-operation should recognise national diversity while focusing on areas where greater convergence would strengthen carbon market development.

Domestic Carbon Market Diversity Will Persist

One of the clearest findings from this assessment is that diversity in carbon market development is likely to remain a defining characteristic of the AZEC region. The maturity assessment shows that countries occupy different stages of development across reporting systems, carbon pricing, carbon crediting, registry infrastructure, and Article 6 implementation, while the institutional assessment shows equally diverse governance arrangements reflecting different administrative systems, legal traditions, and policy priorities.

These differences are shaped by structural factors including economic development, emissions profiles, industrial composition, energy systems, and national climate policy objectives. Some countries are prioritising domestic compliance markets, others continue to focus on voluntary carbon markets, while several are pursuing Article 6 co-operation as their principal international market strategy. Likewise, governance arrangements range from highly centralised institutional models to systems where responsibilities are distributed across multiple ministries and specialised agencies.

Interoperability, Rather Than Harmonisation, Provides the Most Realistic Basis for Regional Convergence

The technical assessment shows that many regional challenges arise not from the absence of carbon market systems, but from differences in how those systems exchange and manage information. Variations in carbon accounting methodologies, registry architecture, digital infrastructure, and Article 6 implementation create practical barriers to cross-border co-operation.

¹⁴ Asia Zero Emission Community (AZEC). 2026. *5th Asia Zero Emission Community International Conference to Develop Carbon Markets (AZEC-DCM)*.

Strengthening interoperability therefore offers a realistic pathway. By improving data compatibility, common technical references, and registry connectivity, countries can support international transactions while preserving nationally appropriate policy approaches.

Capacity Needs Will Become Increasingly Differentiated

Capacity needs are becoming more diverse as carbon markets mature. Early-stage markets continue to prioritise foundational capabilities such as GHG accounting, MRV, registry development, and carbon crediting, while more advanced systems increasingly require professional expertise in market operation, validation and verification, corporate implementation, and international carbon market participation.

Countries engaging in Article 6 also require strategic capabilities beyond technical implementation, including negotiation, transaction management, and co-ordination between domestic CPIs and international carbon market activities. Capacity-building programmes will therefore need to reflect differing stages of market development rather than adopt a single regional approach.

Shared Regional Public Goods Offer the Greatest Opportunity for Co-operation

Despite differences in national carbon market development, the assessment also identifies several areas where co-operation would provide common benefits across the region. Many of the technical, institutional, and capacity gaps identified in this chapter concern enabling functions that support all carbon market systems regardless of the specific policy instruments adopted by individual countries.

Examples include technical guidance on registry interoperability, digital MRV systems, carbon accounting methodologies, validation and verification practices, Article 6 implementation, professional competency development, and information sharing on emerging international standards. Unlike domestic CPIs or governance arrangements, these enabling functions can often be strengthened collectively without requiring countries to adopt common regulatory models.

Trade-Related Carbon Measures and CBAM Implications

The country-level stocktake indicates that developments in corporate GHG reporting, MRV systems, reporting infrastructure, and carbon pricing arrangements are increasingly relevant to external trade-related carbon requirements. The EU's CBAM is an important external driver in this context, particularly for emissions-intensive sectors covered by the mechanism. Its implementation increases the importance of facility-level emissions data, third-party verification, and reliable reporting infrastructure, while potentially creating implications for regional supply chains and industrial competitiveness.

These implications highlight the interconnection between the emissions transparency and carbon market systems assessed in this study. Countries with more established reporting and MRV systems may be better positioned to respond to emerging international carbon-related trade requirements, while differences in reporting

methodologies, verification capacity, and digital infrastructure may create additional compliance challenges. Regional co-operation could therefore support knowledge sharing, technical capacity building, and greater alignment of emissions accounting and MRV approaches.

Chapter 4

Opportunities for Regional Co-operation

The assessment shows that AZEC partner countries are progressing along different carbon market pathways and at different levels of maturity. While countries such as Australia, Japan, Thailand, and Indonesia have developed domestic methodologies and credit issuance systems, many others continue to take advantage of internationally recognised crediting programmes. Regional collaboration could support joint development, adaptation, and peer review of methodologies for priority sectors, drawing on experience from internationally recognised crediting programmes, as well as domestic crediting programmes, while respecting national circumstances and policy priorities. The following sections identify practical areas where co-operation could accelerate carbon market development, facilitate knowledge exchange, and support the development of high-integrity and interoperable carbon markets across the region.

4.1. Technical Co-operation

Collaboration on Carbon Crediting Methodologies and High-Integrity Standards

The assessment identified significant variation in the maturity of domestic carbon crediting systems and methodology development across AZEC. While countries such as Australia, Indonesia, Japan, and Thailand have developed domestic methodologies and credit issuance systems, many others continue to primarily utilise independent crediting standards. Participants at the 5th AZEC-DCM also highlighted the need for methodologies covering emerging mitigation activities, including agriculture, biochar, transport electrification and carbon capture technologies, where existing methodologies remain limited.

Regional collaboration could support joint development, adaptation, and peer review of methodologies for priority sectors or activity types, drawing on experience from the JCM, PACM, CDM, and other internationally recognised crediting programmes, as well as domestic standards. Such co-operation could facilitate the adaptation of existing methodologies to national circumstances while promoting common principles for methodological quality, environmental integrity, and appropriate social safeguards, including benefit sharing. Co-operation on high-integrity standards would also improve methodological consistency, expand opportunities for project development, and strengthen confidence in carbon credits generated across the region.

Carbon Registry Development, Digital MRV, and Interoperability

Registry systems and digital MRV infrastructure have expanded considerably across AZEC, but differences in registry architecture, data structures, metadata, and reporting formats continue to limit interoperability. Regional co-operation could facilitate the

development of common technical references for registry design, interoperable data standards, and digital reporting protocols, building on initiatives such as the G20 Common Carbon Credit Data Model, Indonesia's registry interoperability approach, Singapore's participation in the Climate Action Data Trust, and ongoing development of the international registry by the UNFCCC secretariat. Shared technical guidance would reduce development costs for emerging registries while improving transparency and facilitating future cross-border carbon market transactions.

Strengthening Regional Validation and Verification Capacity

Independent validation and verification are fundamental to maintaining market integrity, yet accredited validation and verification bodies remain limited across the region. Expanding regional technical co-operation on verifier competency, accreditation practices, and mutual recognition arrangements by leveraging the Asia Pacific Accreditation Co-operation would improve access to high-quality validation and verification services, particularly for countries with relatively small project pipelines. AZEC-DCM initiative could also support the development of regional professional networks and technical exchanges amongst validation and verification bodies, helping to reduce project development costs while strengthening confidence in emissions reductions generated within AZEC countries.

Joint Monitoring of Emerging International Standards

International carbon market rules continue to evolve through developments under Article 6 of the Paris Agreement, sustainability disclosure standards, integrity initiatives, and voluntary carbon market frameworks. Monitoring these developments individually places significant demands on national institutions, particularly those with limited technical resources. Regional co-operation could establish a shared mechanism for monitoring emerging international standards, assessing their implications for domestic carbon market systems, and disseminating technical guidance across AZEC. A common understanding of evolving international requirements would help countries adapt more efficiently while maintaining compatibility with international carbon markets and supporting long-term regional interoperability.

4.2. Policy and Institutional Co-operation

Policy Dialogue on Domestic Carbon Markets and Article 6

Carbon market policies continue to evolve across AZEC as countries develop domestic CPIs, carbon crediting mechanisms, and Article 6 frameworks. Many countries are addressing similar governance issues, including institutional co-ordination, project authorisation, corresponding adjustments, registry management, and the relationship between domestic carbon markets and international carbon market participation.

A structured regional policy dialogue could facilitate the exchange of implementation experience, lessons learned, and regulatory approaches while supporting countries to strengthen their own governance systems according to national circumstances. Existing

platforms under AZEC, ASEAN, and the Article 6 Implementation Partnership provide practical foundations for expanding this dialogue.

Development of Common Policy Reference Materials

To promote corporate- and facility-level GHG measurement and reporting, the Partnership to Strengthen Transparency for co-Innovation (PaSTI), including the multilateral co-operation supported by the Japan-ASEAN Integration Fund (PaSTI-JAIF), has developed various policy and technical documents, such as the ASEAN Guidelines on Facility-level GHG Measurement and Reporting. PaSTI is positioned to further contribute to strengthening regional transparency-related capacity building and practical knowledge exchange, leveraging its knowledge products and accumulated expertise. In addition, broader regional co-operation initiatives such as CAMPUR (Climate Action for Mutual Prosperity Under Regional co-operation) have contributed to knowledge sharing and analytical exchanges at various levels on pathways for decarbonisation and sustainable economic growth in the region.

Several countries continue to develop detailed guidance required to operationalise carbon market policies, including eligibility criteria, authorisation procedures, and governance arrangements for corresponding adjustments. Developing these instruments independently requires considerable legal and technical resources. Regional co-operation could support the preparation of non-binding reference materials, including positive-list guidance for eligible activities, safeguard principles, and practical guidance for co-ordinating domestic compliance markets with Article 6 implementation. These materials would provide practical references that countries could adapt to their own legal and institutional contexts while reducing duplication of effort.

Improving Policy Predictability and Investment Confidence

Stable and transparent policy frameworks are essential for attracting long-term investment in carbon market activities. The assessment indicates that many countries continue to refine implementing regulations, registry procedures, and market operating rules as their systems mature. Regional co-operation could strengthen transparency through regular exchange of regulatory roadmaps, implementation timelines, and market developments.¹⁵ Greater visibility of policy evolution and enhanced accessibility to regulatory information would improve investor confidence, support project developers planning long-term investments, and strengthen regional understanding of emerging carbon market opportunities. Together with continued policy dialogue, this would contribute to a more predictable regional investment environment while preserving national flexibility in policy design.

¹⁵ Asia Zero Emission Community (AZEC). 2026. *5th Asia Zero Emission Community International Conference to Develop Carbon Markets (AZEC-DCM)*.

Regional Co-operation on Validation, Verification, and Accreditation Governance

Independent validation and verification are fundamental to maintaining confidence in both domestic and international carbon markets. While verification requirements are now incorporated into most carbon market systems across AZEC, [To be confirmed: institutional arrangements governing accreditation and oversight remain diverse. Some countries have established domestic accreditation arrangements, while others continue to use internationally recognised accreditation systems or mechanisms associated with existing carbon standards.] Given this diversity, maintaining consistency and interoperability between domestic and international accreditation approaches is important to ensure the credibility, transparency, and efficiency of market mechanisms.

Regional co-operation could strengthen governance in this area by building on existing accreditation and mutual recognition arrangements rather than seeking to establish a separate regional system. The APAC provides an existing framework for international recognition, with seven AZEC partner countries – Australia, Indonesia, Japan, Malaysia, Singapore, Thailand, and Viet Nam – already full signatories to the APAC MRA for validation and verification.

Against this background, AZEC-DCM co-operation could focus specifically on strengthening VVB accreditation, recognition, competency, and quality assurance for GHG reporting and carbon crediting activities. This could include exchanging accreditation and peer-review practices, strengthening understanding and consistent application of relevant ISO standards, developing or sharing professional competency frameworks, facilitating co-operation amongst national accreditation bodies, and supporting countries seeking broader international recognition where appropriate.

Such co-operation could also explore how existing mechanisms, particularly the APAC MRA, can be more effectively utilised to support cross-border recognition of accredited VVBs for carbon market activities. This could help reduce unnecessary duplication of validation and verification processes, lower transaction costs for market participants, and promote consistent quality assurance across jurisdictions, while making efficient use of existing regional institutional arrangements and expertise.

4.3. Capacity and Market Development Co-operation

Regional Knowledge Exchange and Professional Development

Developing a skilled carbon market workforce remains a common priority across the region. Capacity is required across a broad range of disciplines, including greenhouse gas accounting, MRV, registry administration, validation and verification, carbon credit development, corporate sustainability reporting, carbon finance, and Article 6 implementation. Regional co-operation could strengthen these competencies through co-ordinated training programmes, practitioner exchanges, technical workshops, and communities of practice involving governments, academia, professional associations, development partners, and the private sector. Existing initiatives under the JCM, PACM,

A6IP, GGGI, and other regional programmes provide a strong foundation that could be better connected through a co-ordinated regional capacity-building network.

Peer Learning and Technical Advisory Support

Many implementation challenges identified in this assessment have already been addressed by individual AZEC partner countries, creating valuable opportunities for peer learning. Practical exchanges on the lifecycle management of registries, domestic carbon pricing, corporate emissions reporting, Article 6 implementation, corresponding adjustments, and carbon crediting can help countries adopt proven approaches while reducing implementation costs and avoiding duplication of effort. Regional co-operation could support regular peer-learning programmes, study visits, institutional twinning, and a rapid technical advisory mechanism that enables countries to access targeted expertise when developing new policies, operational procedures, or market infrastructure. These activities are consistent with the phased regional capacity-building roadmap discussed during the fifth AZEC-DCM Dialogue this year and would provide practical support as countries move from policy design to implementation.

Strengthening Market Information and Strategic Capacity

Efficient carbon markets depend not only on technical capability but also on access to reliable market information and strategic decision-making. Countries increasingly require more comprehensive information on corporate demand for carbon credits, project pipelines, priority mitigation sectors, and investment opportunities, alongside stronger capacity to negotiate bilateral implementation agreements, assess mitigation surplus, develop ITMO pricing approaches, and co-ordinate domestic carbon markets with Article 6 participation. Regional co-operation could facilitate voluntary information sharing, market intelligence, and practical guidance on these emerging issues, helping governments and market participants make more informed decisions while supporting greater transparency and regional collaboration. Strengthening these strategic capabilities would also improve the region's readiness to respond to evolving international carbon market opportunities and strengthen ASEAN's position in global carbon markets. Furthermore, transition finance can complement carbon markets as an important mechanism, particularly to support practical decarbonisation pathways and investment mobilisation in hard-to-abate sectors.

Chapter 5

Conclusion

This report demonstrates that AZEC partner countries have made substantial progress in establishing the technical, institutional, and policy foundations required for carbon market development. Every partner country has established national greenhouse gas inventory systems, and many have introduced corporate emissions reporting, carbon crediting mechanisms, registry systems, CPIs, or institutional arrangements for Article 6 implementation. However, carbon market development across the region presents a varied landscape. Differences in technical maturity, governance arrangements, implementation capacity, and market design continue to shape how countries participate in domestic and international carbon markets.

Diversity is a structural characteristic of carbon market development across AZEC rather than a temporary stage of transition. Partner countries are pursuing different pathways that reflect their national circumstances, policy priorities, economic structures, and climate objectives. Some are prioritising domestic emissions trading systems, others are integrating voluntary carbon markets in national policies, while several are positioning Article 6 co-operation as a central component of their carbon market strategy. Regional co-operation should therefore focus on strengthening interoperability through compatible methodologies, shared technical references, interoperable registry systems, and practical knowledge exchange, rather than pursuing harmonised carbon market models.

The principal challenges facing carbon market development are increasingly those of implementation rather than policy ambition. The assessment shows that the remaining constraints are concentrated in technical interoperability, operational governance, and implementation capacity. Many countries have established legal frameworks and institutional mandates, but continue to develop the operational procedures, professional expertise, digital infrastructure, and co-ordination mechanisms needed to translate policy into functioning carbon market systems. Strengthening these enabling functions will be essential for supporting high-integrity carbon markets, improving investor confidence, and facilitating participation in international carbon markets under Article 6.

The regional and international context is evolving rapidly, creating both opportunities and new expectations for carbon market development. The implementation of Article 6, the expansion of carbon pricing, increasing demand for high-integrity carbon credits, the introduction of the CBAM, and the growing adoption of ISSB-aligned climate disclosures are reshaping the policy and investment landscape. Countries that continue strengthening MRV systems, registry infrastructure, governance arrangements, and professional capacity will be better positioned to respond to these developments and participate in emerging carbon market opportunities.

As carbon markets continue to evolve, AZEC is well placed to serve as a regional platform for co-operation, peer learning, and technical collaboration. By building on the diverse experiences of its partner countries and focusing on shared enabling functions, AZEC can strengthen regional carbon market readiness while respecting national policy autonomy. In this context, expanding the use of transition finance alongside carbon markets could help mobilise investment and support realistic decarbonisation pathways for hard-to-abate sectors across the region. In doing so, it can help partner countries mobilise climate finance, support implementation of NDCs, and contribute to Asia's broader transition towards low-carbon and climate-resilient development.