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GIP Green Investment Principles ASEAN Chapter

Research Paper

Green Finance Landscape in ASEAN: Trends, Challenges, and Opportunities

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TENGGARA STRATEGICS

Green Finance Landscape in ASEAN: Trends, Challenges, and Opportunities

Research paper by CSIS Indonesia, Green Investment Principles (GIP) ASEAN Chapter and Tenggara Strategics

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This research paper serves as a platform for the research community to disseminate research findings and create a space for dialogue to exchange ideas.

The writing team extends sincere appreciation to all parties who contributed to the completion of this paper. Special thanks are also extended to GIP ASEAN Chapter Co-Chairs, Mari Elka Pangestu and Rino Donosepoetro, for their valuable support and guidance.

The view expressed here belong to the writing team and are not intended to be associated with CSIS Indonesia

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IKI International Climate Initiative

SIPA Sustainable Infrastructure Programme in Asia

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List of Abbreviation

ACGF	ASEAN Catalytic Green Finance Facility
ACMF	ASEAN Capital Markets Forum
ACSR	Advisory Committee on Sustainability Reporting
ADB	Asian Development Bank
AFMGM	ASEAN Finance Ministers and Central Bank Governors' Meeting
AGBS	ASEAN Green Bond Standard
AIF	ASEAN Infrastructure Fund
AIIB	Asian Infrastructure Investment Bank
AIRM	ASEAN Insurance Regulators' Meeting
AMBD	Brunei Darussalam Monetary Authority
AMS	ASEAN member states
APG	ASEAN Power Grid
ASEAN	Association of Southeast Asian Nations
ATB	ASEAN Taxonomy Board
ATFG	ASEAN Transition Finance Guidance
AUM	Assets under management
BI	Central Bank of Indonesia/ Bank Indonesia
BNM	Central Bank of the Malaysia/ Bank Negara Malaysia
BOL	Bank of the Lao P.D.R.
BOT	Bank of Thailand
BPR	Rural bank/ Badan Perkreditan Rakyat
BSP	Central Bank of the Philippines/ Bangko Sentral ng Pilipinas
CAGR	Compound Annual Growth Rate
CBAM	Carbon Border Adjustment Mechanism
CBM	Central Bank of Myanmar
CCPT	Climate Change and Principle-based Taxonomy
CDL	City Developments Limited
CDM	Clean Development Mechanism
CFPP	coal-fired power plant
CIX	Climate Impact X
COVID-19	Corona virus disease
CPO	Crude Palm Oil
CRST	Climate Risk Stress Testing
DCCE	Department of Climate Change and Environment
DCFD	Dutch Fund for Climate and Development
DFI	Development Finance Institutions
ECB	European Central Bank
EO	Environmental Objectives
ESG	Environmental, Social, and Governance
ETS	Emissions Trading Scheme
EU	European Union
FAST-P	Financing Asia's Transition Partnership
FCY	Foreign Currency
FF	Foundation Framework
FI	Financial Institution
FTV	Financing to Value
GBP	Green Bond Principles
GCF	Green Climate Fund
GHG	Green House Gas
GIP	Green Investment Principle for the Belt and Road
GRI	Global Reporting Initiative
GSG	Green and Sustainability-Linked Loan Grant Scheme
GSS+	Green, Social, Sustainable and Other Labeled
GTFS	Green Technology Financing Scheme
ICMA	International Capital Market Association
IDXCarbon	Indonesia Carbon Exchange
IFC	International Finance Corporation
IFRS-S1	International Financial Reporting Standards - Sustainability Disclosure Standard 1
IFRS-S2	International Financial Reporting Standards - Sustainability Disclosure Standard 2
IPCC	Intergovernmental Panel on Climate Change
IPG	International Partner Group

IPP	Independent Power Producers
IRA	Inflation Reduction Act
ISSB	International Sustainability Standards Board.
JCM	Joint Crediting Mechanism projects
JETP	Just Energy Transition Partnership
kWh	kilowatt-hour
LCY	Local Currency
LTV	Loan to Value
MAS	Monetary Authority of Singapore
MDB	Multilateral Development Bank
MOF	Ministry of Finance
MOPF	Ministry of Planning and Finance
MOU	Memorandum of understanding
MSME	Micro, Small and Medium Enterprises
MW	Megawatt
NBC	National Bank of Cambodia
NBS	Nature-based Solution
NDC	Nationally Determined Contribution
NGO	Non-governmental organization
NSRF	National Sustainability Reporting Framework
OJK	Financial Services Authority/ Otoritas Jasa Keuangan
PLC	Public Listed Companies
PLN	State Electriciy Company/ Perusahaan Listrik Negara
PS	Plus Standard
RE	Renewable Energy
REDD+	Reducing Emissions from Deforestation and Forest Degradation
SBGS	Sustainable Bond Grant Scheme
SBV	State Bank of Vietnam
SDG	Sustainable Development Goals
SEC	Securities and Exchange Commission
SLC	ASEAN Senior Level Committee on Financial Integration
SRI	Sustainable and Responsible Investment
SRN	National Registry System/ Sistem Registri Nasional
TCFD	Task Force on Climate-Related Disclosure
tCO2e	tonnes of carbon dioxide equivalent
THB	Thailand Baht
TRACTION	Transition Credit Coalition
TSC	Technical Screening Criteria
UNEP-FI	United Nations Environment Programme Finance Initiative
US	United States
VCM	Voluntary carbon markets
WWF	World Wide Fund for Nature

Executive Summary

Globally, green finance has gained momentum, with significant growth in green bonds, carbon markets, and sustainable investment funds. Financial institutions are embedding environmental, social, and governance (ESG) criteria into investment strategies, signaling a shift in global capital flows. This growth trend is also observed in Southeast Asia, with countries like Indonesia, Thailand, and Vietnam implementing green bond frameworks, while others are collaborating with regional platforms such as the ASEAN Catalytic Green Finance Facility (ACGF). However, persistent issues such as limited private sector engagement and the absence of standardized metrics hinder progress. Addressing these challenges through coordinated, region-specific strategies will be key to unlocking the region's green finance potential.

To analyze green finance in Southeast Asia, we categorize its key components into four aspects: regional progress and conditions, regulatory frameworks, governance, and financial instruments.

- Regional condition and dynamics reflect the evolution of green finance over time and its impact on Southeast Asia.
- Policy and regulation encompass the regulations and standards adopted to support green finance in the region.
- Governance refers to how green finance initiatives are managed and monitored by regulators, financial authorities, and industry stakeholders.
- Financial instruments include the various tools used in the green finance landscape, such as green debt instruments and carbon pricing policies.

Regional condition and dynamics

ASEAN initially adopted green finance to meet climate goals before expanding its scope to broader sustainability targets. However, economic constraints have slowed the transition to renewable energy, creating a strong demand for green finance to fund energy sector reforms. As time passed, it became increasingly clear that ASEAN as a whole needs to cooperate to maximize the transition capacity of the region. For this reason, ASEAN adjusted its green finance strategy into launching multilateral initiatives to develop the region's green finance capacity, which is why the modern green finance landscape in the region is characterized by multilateral initiatives, such as the ASEAN Catalytic Green Finance Facility (ACGF), that facilitate the mobilization of blended finance models.

Moving forward, ASEAN member states are progressing toward more market-based mechanisms to drive decarbonization, particularly the carbon trade. While much of the framework for a mandatory carbon trading system is still under development, individual ASEAN countries have already taken significant steps in the global voluntary carbon market. Singapore, as a leading financial hub, has positioned itself as a regional center for carbon trading by hosting major carbon exchanges such as Climate Impact X (CIX). Meanwhile, Indonesia, with its vast carbon offset potential from tropical forests, peatlands, and mangroves, has emerged as a key supplier of high-quality carbon credits

To increase green finance in Southeast Asia, ASEAN member states need to work more closely together. This means creating a shared green finance framework and aligning financial tools, such as taxonomies, carbon pricing, and sustainability standards. A more consistent and coordinated approach will help attract investors by making the region's green

finance landscape clearer and easier to navigate. It will also strengthen ties between national economies and support more cross-border investments.

By using ASEAN's regional platform, countries can team up on green projects, pooling resources and sharing risks. Joint efforts in areas like renewable energy and climate resilience can open up more funding opportunities and make it easier for private companies to get involved.

Policy and regulation

ASEAN operates as a platform for intergovernmental collaboration rather than a highly integrated political and economic union like the European Union, resulting in a regulatory framework that relies on voluntary cooperation rather than binding mandates. Its regulations, including those in green finance, are structured as guidelines and standards that allow member states to align on shared objectives while maintaining sovereignty over domestic policies. Key initiatives such as the ASEAN Taxonomy for Sustainable Finance and the ASEAN Green Bond Standards provide clarity and consistency but remain non-binding. This facilitative approach aims to catalyze investment and regional cooperation in green finance, ensuring flexibility to accommodate the diverse economic and regulatory landscapes of Southeast Asia while fostering sustainable development.

While ASEAN's soft regulatory approach provides flexibility, it also has significant downsides, particularly in terms of local engagement and enforcement. The absence of binding mandates leads to inconsistent frameworks and standards across member states. Furthermore, without regulatory pressure, financial institutions and businesses in some ASEAN countries may lack the incentive to fully integrate sustainable finance principles, slowing progress toward climate and sustainability goals. Additionally, the region's non-binding frameworks make it challenging to achieve seamless interoperability with global markets. Foreign markets such as the EU enforce stricter disclosure requirements and legally binding sustainability standards, creating barriers for ASEAN-based financial products and investments to be recognized internationally. This disparity limits the scalability of ASEAN's green finance sector beyond the regional level, reducing its competitiveness in attracting global capital and integrating with advanced sustainable finance ecosystems.

With the diverse national-level policies, institutional capabilities, and economic landscape, it is important to support wider adoption and harmonization across ASEAN member states. This challenge can be addressed by promoting the harmonization of green standards, which results in the interoperability of the green taxonomy at the regional and national level. The integration of the framework can be further incorporated in the national system, which can reduce the transaction cost, foster trust among investors and higher capital flows in the region.

Governance

At the regional level, ASEAN member states adopt principles that promote inclusivity, ensuring that green finance initiatives align with the diverse needs of each country and drive sustainable growth across Southeast Asia. In 2023, ASEAN member states agreed on the ASEAN strategy for carbon neutrality. Aligned with the regional target, almost every country in Southeast Asia has also expressed its commitment to carbon neutrality by setting carbon neutrality targets from 2050 to 2065, except for the Philippines and Myanmar.

The achievement of the goals set by each country and ASEAN as a whole depends on effective implementation by the key authorities and industry players. The key authorities in green finance have crucial roles in strengthening the governance of green finance in ASEAN. Policy coherence among ASEAN member states could enhance the potential of green finance in Southeast Asia through coordination among national financial authorities. This aspect becomes a crucial policy as ASEAN member states face potential major disruption of global trade with the current United States trade policy dynamics. The financial and technical support from multilateral development bank (MDBs) could also exercise the potential in the green initiative.

As for the green finance industries–real sector companies and financial institutions–improvements in market infrastructure have been made in the past few years. They have released sustainability reports disclosing sustainability practices and emissions-related data. However, the shortcomings, including the various standards of interoperability, lack of supply chain data, sophisticated modeling techniques and organization capacity constraints, diminish their efficacy. Similar problems hinder climate risk stress testing (CRST), which relies on data availability in Southeast Asia, including supply chain data and sector-specific data.

Pressure from both shareholders and stakeholders to engage in sustainable practices can increase the demand for green finance, but reforms to governance of green finance in Southeast Asia are necessary. For instance, regulators should step in to require companies to make comprehensive sustainable investment plans prior to the sustainability reporting formulation, and they should provide clear guidance that incorporate various standards to make sustainability reporting comparable among companies. In addition, regulators should also synchronize the regulation of the environment-related data for both financial institutions and real sector players to ensure comparable and comprehensive data disclosure. In terms of the systemic risk of the financial system, the financial regulator should incorporate the macroprudential instrument such as capital buffers incorporating climate risk.

Financial instruments

To support both transition finance and green finance, ASEAN utilizes various financial instruments, including green debt and carbon pricing policies. Green debt instruments, such as green loans and green bonds, allow market participants to raise capital while enhancing their sustainability credentials. Over the past decade, these instruments have expanded significantly, with Singapore emerging as the largest sustainable debt market in ASEAN. Under the ASEAN Green Bond Standards, green bond issuances in the region had already reached a cumulative of US$53 billion by the start of 2023.

To fully unlock the potential of green finance, regulators and market actors must expand the use of innovative financial instruments designed to de-risk investments. Transition finance can serve as a strategic bridge toward a green economy, while blended finance can improve the bankability of green projects. However, transition finance must be guided by clear and strict criteria to ensure it supports genuine emissions reductions and aligns with long-term climate goals. Blended finance—supported by governments and development finance institutions (DFIs)—can include concessional capital, loss guarantees, junior equity tranches, or technical assistance, all of which help enhance the risk-return profile of green investments and generate more green projects.

Beyond financial innovation, regulators can accelerate the adoption of green finance by aligning regulations across the financial and industrial sectors. This involves harmonizing sustainability-related policies and strengthening law enforcement to promote sustainable business practices and improve the quality of value chains. Additionally, regulators can lower capital-raising barriers by offering incentives to help offset the costs of external reviews for green bonds and loans.

Emissions pricing initiatives are also essential, as they disincentivize emissions. ASEAN has adopted both mandatory and voluntary carbon pricing mechanisms. The total potential carbon market revenue in Southeast Asia is estimated to range between US$946 billion and US$3 trillion from 2025 to 2050. Mandatory policies include Indonesia's Emissions Trading Scheme (ETS) and Singapore's carbon tax. Voluntary carbon markets (VCMs) have also emerged in all ASEAN member states, except Brunei, enabling companies to trade carbon credits. Southeast Asia has high potential for carbon credit generation, particularly through nature-based solutions, such as forest restoration and coastal ecosystem protection.

However, several challenges hinder the effectiveness of ASEAN's carbon pricing policies, including limited implementation of mandatory carbon pricing policies across member states, lagging behind regions like Latin America; low carbon prices that fail to create strong financial incentives for emissions reduction; and fragmented trading platforms that reduce market efficiency.

In the case of Indonesia's ETS, regulatory gaps, data inconsistencies, and compliance issues diminish the system's efficacy in encouraging companies to achieve actual emissions reductions. Additionally, the absence of a central governing body at a national level for climate-related policies weakens coordination efforts. In the meantime, financial institutions in Indonesia have voluntarily adopted standardized reporting standards, such as GIP, to improve data consistency and transparency. Industry associations and NGOs also run training programs to help companies develop robust emissions monitoring systems that align with emerging ETS requirements.

To strengthen carbon pricing in ASEAN, an integrated ASEAN carbon market should be considered to enhance market liquidity and scale, as well as providing a balance of incentive and disincentive in carbon pricing to support actual emissions reduction. Higher carbon prices are also needed to ensure the effectiveness of the carbon market to reduce emissions. On top of that, carbon taxes ahead of ETS adoption need to be implemented to gradually prepare industries for carbon pricing mechanisms.

1. Introduction

The urgency of sustainable development has never been more apparent. As the world grapples with the crises of climate change and environmental degradation, the imperative to shift toward sustainable practices across all sectors has gained unprecedented momentum. For developing and emerging economies, the stakes are particularly high. These regions face the dual challenge of achieving rapid economic growth while ensuring that this growth is environmentally sustainable and socially inclusive. To bridge this gap, significant financial investments are required. However, the high up-front capital costs of many sustainable development investments discourage traditional investment. As a result, there is a strong demand for investments that go beyond traditional funding models and embrace innovative approaches tailored to sustainability objectives. This is where green finance emerges as a pivotal solution.

Green finance, which encompasses financial instruments and investments aimed at promoting environmentally sustainable projects, holds the key to unlocking the potential for sustainable development. It offers a pathway to channel global capital toward projects that mitigate environmental harm, foster resilience, and advance social equity. This is especially important for Southeast Asia, a region uniquely positioned at the intersection of urgent climate vulnerability and immense green potential. With its abundant natural resources, Southeast Asia boasts extraordinary capacity for renewable energy development — including solar, wind, geothermal, and hydropower.

To maximize this enormous potential, various initiatives have been launched, both at the regional and country level, for the purpose of increasing the ease of disbursing green finance in the region. However, the impact of these initiatives, especially for parties outside of the region of Southeast Asia, is difficult to grasp. Furthermore, the green finance landscape of ASEAN member countries is heterogeneous, with each country adopting an approach that best suits current national circumstances. While this diversity of approaches helps maximize the green finance capacity of each country, it also creates a fragmented landscape that complicates cross-border investments and regional integration of green financial markets.

This study aims to provide a comprehensive overview of the current landscape and progress of green finance in Southeast Asia. By examining the current initiatives' progress, regulatory frameworks, governance structure, and financial instruments, the study will identify the achievements, unique elements, and the persistent challenges that hinder the growth of green finance. This study hopes to identify actionable insights that can guide policymakers in crafting more effective regulations, support financial institutions in scaling sustainable finance, and help investors identify opportunities that align with environmental and social

objectives. Through this, the study seeks to contribute meaningfully to ASEAN's collective pursuit of a low-carbon, inclusive, and resilient future.

Global trends and the role of ASEAN

To ensure the relevance of this policy paper, it must situate Southeast Asia's green finance landscape within the broader global context, highlighting its strengths, opportunities, and challenges. It must offer a comprehensive overview of key initiatives, policy frameworks, and financial mechanisms. Globally, the momentum for green finance has accelerated, driven by commitments to nationally determined contributions (NDCs) under the Paris Agreement and the Sustainable Development Goals (SDGs). In recent years, green bonds, carbon markets, and sustainable investment funds have experienced exponential growth:

- The issuance of green bonds has surged, with global volumes increasing from US$227 billion in 2018 to US$587 billion in 2023.[1] [2]
- The amount of capital raised and committed to be invested in carbon-credit activities has increased significantly, rising from US$6.1 billion in 2021 to US$14.2 billion in Q3 2024. This resulted in a total of US$43.4 billion raised between 2021 and Q3 2024.[3]
- Assets under management (AUM) in sustainable investment funds have experienced notable growth, rising from US$1.75 trillion to US$3.56 trillion in 2024.[4]

These developments underscore a paradigm shift toward sustainability-focused financial markets. Institutions worldwide are increasingly embedding environmental, social, and governance (ESG) criteria into their investment strategies, signaling a fundamental transformation in global capital flows.

While Southeast Asia shares this global vision, the region's trajectory is shaped by its unique socio-economic, environmental, and financial contexts. In Southeast Asia, green finance is gaining traction, yet the scalability of its green finance schemes varies widely among countries. Countries such as Indonesia, Thailand, and Vietnam have introduced green bond frameworks, while other countries collaborate with regional platforms like the ACGF or the ASEAN Infrastructure Fund (AIF) for the mobilization of capital. Despite these efforts, the region faces persistent challenges, such as poor private sector engagement and a lack of standardized metrics for green investment, leading to fragmented disclosure standards and incomplete data for financial institutions. These hurdles underscore the need for a coordinated, region-specific approach to catalyze green finance and align it with Southeast Asia's sustainability priorities.

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[1] Climate Bonds Initiative, "$500bn Green Issuance 2021: social and sustainable acceleration: Annual green $1tn in sight: Market expansion forecasts for 2022 and 2025", Jan.31, 2022, https://www.climatebonds.net/2022/01/500bn-green-issuance-2021-social-and-sustainable-acceleration-annual-green-1tn-sight-market

[2] Climate Bonds Initiative, Sustainable Debt Global State of the Market 2023, 2024, https://www.climatebonds.net/files/reports/cbi_sotm23_02h.pdf

[3] MSCI Carbon Market, Investment Trends and Outcomes in the Global Carbon Credit Market, 2024, https://www.msci.com/documents/10199/010c4d7d-636a-12c5-ed7b-68e35cb2307f

[4] Morgan Stanley, "Sustainable Fund Returns Lag Peers' in Second Half of 2024", Mar.4, 2025, https://www.morganstanley.com/insights/articles/sustainable-funds-performance-second-half-2024

Research framework and objective

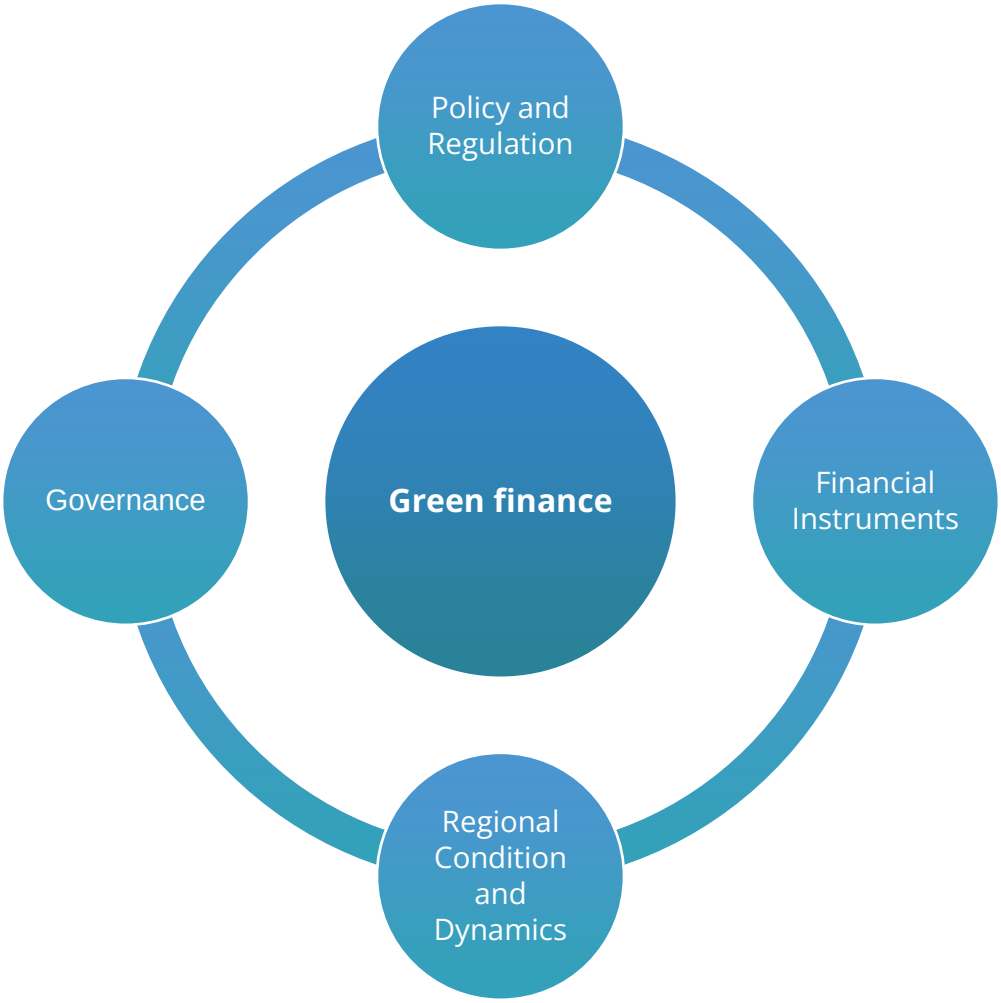
This study is designed to bridge the knowledge gap among policymakers, financial institutions, and investors by providing a comprehensive analysis of Southeast Asia's green finance landscape. Given the region's diverse approaches to green finance, the study seeks to identify key trends, challenges, and opportunities that shape the current regulatory and investment environment. The goal of this report is to present an informed analysis of the green finance landscape that can enhance understanding among stakeholders within ASEAN and potential investors from outside the region.

The research questions guiding this study are: 1) What are the key trends, challenges, and opportunities shaping the green finance landscape in Southeast Asia? 2) How do national policies and regulatory frameworks across ASEAN countries influence the mobilization of green finance? 3) What are the recommendations to accelerate the mobilization of green finance in Southeast Asia? To answer these, the study analyzes the regional conditions and dynamics, evaluates the effectiveness of existing green finance initiatives, regulatory frameworks, governance structures, and financial instruments. By examining these aspects, it aims to offer evidence-based recommendations that can facilitate the integration and expansion of sustainable finance in the region.

Analyzing green finance in the ASEAN region requires a holistic approach, not only analyzing the types of green instruments and their implementation, but also considering other aspects, including the regional progress and dynamics. Therefore, in this report, we explore four key aspects that will be analyzed in greater depth (Figure 1):

1. **Regional condition and dynamics**: This aspect represents how green finance has progressed over time in the ASEAN region. It encapsulates how green finance interacts with the socio-economic conditions in Southeast Asia, examining factors such as economic landscape, energy transition, and climate vulnerabilities. This pillar also assesses the impact of green finance initiatives on regional development, highlighting key milestones, challenges, and opportunities in advancing sustainable finance.
2. **Policies and regulations:** This aspect represents policies and regulations that define the landscape of green finance in Southeast Asia. It covers the standards and requirements applied to green finance, including taxonomy classifications, disclosure obligations, and compliance mechanisms. This section also explores the role of financial regulators, central banks, and government agencies in shaping policies that facilitate sustainable investment while ensuring financial stability.
3. **Governance:** This aspect represents how green finance is managed and overseen by various institutions, including regulators, financial authorities, and industry stakeholders. It examines the roles of different entities in ensuring compliance, enforcing sustainability standards, and preventing issues such as greenwashing. Governance also covers coordination between national and regional bodies to create a cohesive green finance ecosystem.
4. **Financial instruments:** This aspect represents the kind of instruments that make up the green finance landscape in Southeast Asia, including green debt, carbon pricing, transition finance, and blended finance mechanisms. It explores how these instruments are structured, their market adoption, and the role they play in mobilizing capital for sustainable projects.

Figure 1. Research framework



2. Regional Condition and Dynamics

ASEAN, like all other regions, initially adopted green finance to meet climate goals, before then expanding it to include other sustainability targets, including other environmental priorities (e.g., biodiversity preservation) and social development goals. All ASEAN member countries signed and ratified the Paris Agreement and have been making significant strides in aligning their development trajectories with global climate goals. Central to these efforts has been the submission and periodic updating of their NDCs, which outline each country's commitments to reduce GHG emissions and adapt to the impacts of climate change. These NDCs reflect the region's growing recognition of the importance of transitioning toward low-carbon and resilient economies. The year 2025 marks a pivotal moment in the NDC process, as all parties to the Paris Agreement are expected to submit updated NDCs following the first global stocktake, which noted that global efforts are still not on track to meet the Agreement's climate objectives.

For most ASEAN member countries, the first order of business was to reduce the reliance on fossil fuels, particularly coal, which have met nearly 80 percent of Southeast Asia's rising energy demand since 2010. As of 2023, the reliance on coal was gradually decreasing with a 50 percent share of the region's electricity, but coal still accounts for over 80 percent of power sector emissions.[5] While there is growing momentum globally to phase out coal, progress has been comparatively slow in Southeast Asia. For instance, 60 national governments have committed to phasing out coal entirely and have signed up to the Powering Past Coal Alliance. Singapore is the only ASEAN member state to have done so to date.[6] In terms of investments, the results are mixed, although trending toward a deceleration of coal capacity build-up. As reported by the Global Coal Plant Tracker, Southeast Asia has seen 12,435 MW of new coal power generation capacity announced, pre-permitted or permitted, while proposed plants with a combined capacity of 171,036 MW have been canceled since 2010 and projects representing a further 11,106 MW have been shelved.[7]

The progress of energy sector reform in ASEAN is slowed down by the economic realities of many of the region's countries. Almost all countries needed to maintain their economic growth rate aspect limiting the economy's capacity to grow renewable energy industries

[5] International Energy Agency, Southeast Asia energy outlook 2024: Executive summary., 2024, https://www.iea.org/reports/southeast-asia-energy-outlook-2024/executive-summary
[6] Powering Past Coal Alliance, Member of The Alliance, https://poweringpastcoal.org/members/
[7] Global Energy Monitor, Global Coal Plant Tracker, Jan. 2025, https://docs.google.com/spreadsheets/d/1syW5vTgJhSpAh_z-QvlMf33oViVEk1cjJqOAHO5iYSs/edit?gid=1448094952#gid=1448094952

organically, especially with the complexity of renewable energy integration into national grids that required modernization of infrastructure. On the other hand, this needs for capital to drive energy sector reform created the initial demand for green finance in the region.

Since then, renewable energy projects in Southeast Asia have flourished, such as the Cirata floating solar plant in Indonesia and the Bac Lieu wind farm in Vietnam. These established renewable energy projects have paved the way for green finance in Southeast Asia, but greater efforts are still being made to improve the reach of green finance.

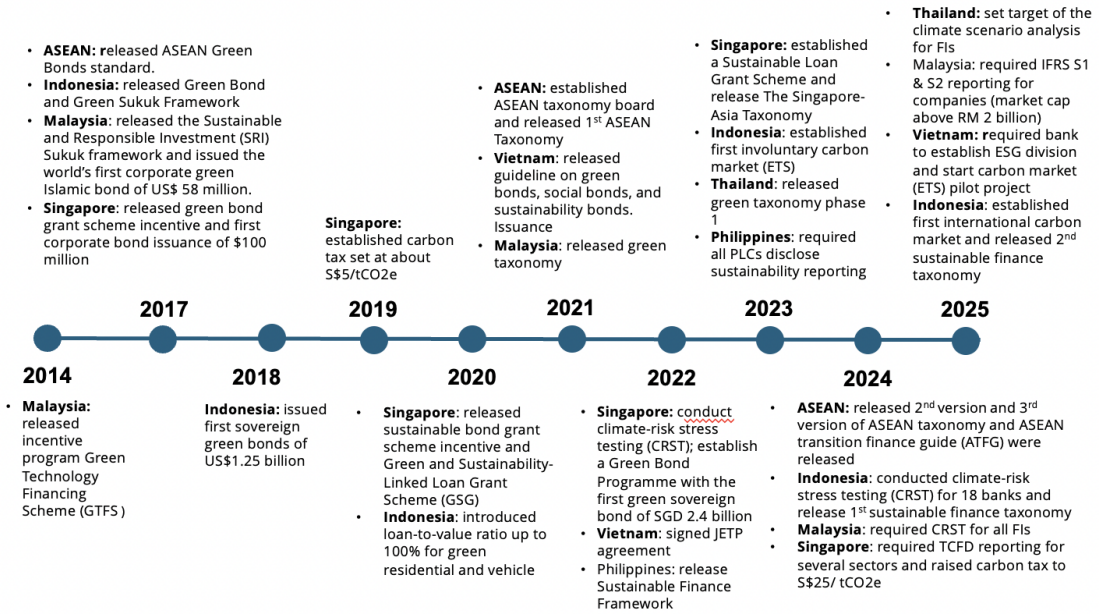
Development of Green Finance in ASEAN

Since the adoption of the Paris Agreement in 2015, ASEAN member countries have made significant strides in aligning their development trajectories with global climate goals. Central to these efforts has been the submission and periodic updating of their NDCs, which outline each country's commitments to reducing GHG emissions and adapt to the impacts of climate change. These NDCs reflect the region's growing recognition of the importance of transitioning toward low-carbon and resilient economies. Recent updates to the NDCs by ASEAN countries have demonstrated increased ambitions, especially in the case of Thailand, Singapore, and Vietnam, which will be further extrapolated upon in later chapters.

In the initial phase from 2010 to 2018, regional governments focused on establishing foundational policies and frameworks to enable sustainable finance flows. Key developments included the release of national-level green bond frameworks by Malaysia in 2014 and Indonesia in 2017. Following these national initiatives, the AGBS were introduced in November 2017. Under this framework, cumulative green bond issuances reached US$53 billion by 2024. In 2017, Malaysia and Singapore also initiated incentive programs to lower the cost of green bonds issuance, which has driven the first private issuance of green bonds. As of 2018, Indonesia spearheaded the first issuance of sovereign green bonds and remains the largest sovereign green bonds market in Southeast Asia. The formation of ASEAN-level working groups on sustainable finance lays the foundation for the issuance of various guidelines in Southeast Asia, including the ASEAN taxonomy and ASEAN Transition Finance Guidance. These early efforts helped build market confidence and regulatory clarity, allowing green finance mechanisms to gain traction. The region also benefited from growing international interest in sustainable investment, with development banks and global investors beginning to channel capital into ASEAN's renewable energy and climate-resilient infrastructure projects. This foundational period set the stage for the remarkable expansion of green bonds, carbon markets, and sustainable investments that followed between 2018 and 2021, as markets matured and climate ambitions were scaled up across the region.

In the green bond market, between 2018 and 2024, the green bonds outstanding grew from US$4 billion to US$40 billion, marking a 48 percent compound annual growth rate (CAGR). Carbon markets also began exhibiting growth during this period, with major milestones being Singapore's introduction of a carbon tax system in 2019, Indonesia's cap-and-trade carbon market system and subsequent pilot programs in the power sector, while Thailand and Vietnam are developing their own emissions trading framework.

Figure 2. Key development of green finance in ASEAN



Source: Compiled from a variety of sources

Green Finance Initiative

As time passed, it became increasingly clear that ASEAN as a whole needed to cooperate to maximize the transition capacity of the region. For this reason, ASEAN has launched a number of multilateral initiatives to develop the region's green finance capacity. These initiatives work in complementary alignment with frameworks like the ACMF, the ASEAN taxonomy and the AGBS.

ASEAN Catalytic Green Finance Facility (ACGF)

The ACGF, launched in April 2019 by the ADB and ASEAN finance ministers, aims to bridge Southeast Asia's green financing gap by mobilizing investments in renewable energy, sustainable transport, and climate-resilient infrastructure. Operating under the AIF and managed by the ADB, the ACGF provides funding, technical support, and policy guidance to align green finance initiatives with both regional and local sustainability goals. Through innovative financial instruments like green bonds, the ACGF fosters systemic change, ensuring long-term scalability and impact. By leveraging regional cooperation, it strengthens ASEAN's ability to meet its climate commitments and accelerate sustainable infrastructure development. [8]

[8] Asian Development Bank, "The Asian Development Bank's Green Finance Initiatives and Their Impacts", 2021, https://www.adb.org/sites/default/files/institutional-document/691951/ado2021bn-adb-green-finance-initiative.pdf

The ACGF's programmatic approach integrates green finance into a structured, long-term agenda, ensuring consistency and scalability. This approach aligns investment priorities with ASEAN's sustainability goals and provides a cohesive framework for monitoring and evaluation. A notable outcome of this approach has been the ADB's GSS+ bond program, which channels private and institutional investments into climate-positive projects.

Equally transformative is the ACGF's innovative finance approach, which deploys blended financing and risk-sharing mechanisms to mobilize capital for green infrastructure projects. This strategy has proven critical in addressing the financing barriers faced by projects in less developed markets. A prime example is Cambodia's 100 MW National Solar Park Project, launched in 2019 as the first of its kind in Cambodia. By utilizing innovative financing solutions, the ACGF successfully catalyzed investment in this groundbreaking initiative, which marked a significant milestone in Cambodia's transition to renewable energy, as it marked a record low procurement price for the region at US$0.026 per kWh. The project not only expanded access to clean energy in Cambodia but also served as a landmark for all Southeast Asian countries, as it demonstrated the viability of solar power investments in the region.[9]

ASEAN Infrastructure Fund (AIF)

While no longer a major player in green finance, the AIF still plays a notable role in the region. Before the establishment of the ACGF, the AIF played a foundational role in advancing regional connectivity and sustainable development in the region. Established in 2011 as a collaborative initiative between the ADB and ASEAN member states, the AIF was designed to mobilize long-term financing for critical infrastructure projects across the region. Its core mission was to support inclusive economic growth through investments in transport, energy, water, and other key infrastructure sectors. With an initial equity base contributed by ASEAN member countries and the ADB, the AIF became one of the region's first pooled infrastructure financing mechanisms under ASEAN ownership.

During the early days of climate action, the majority of what is classified as green finance now, only dealt with clean energy development and its necessary infrastructure, which was within the scope of the AIF. But as time passed, the complexities of green finance became better understood, which revealed the need for a specialized institution for managing multilateral green funds. Now, the ACGF receives a portion of its capital from the AIF and operates as part of the AIF, but heads most of its operations by itself.

Green Investment Principles (GIP) for the Belt and Road

The Green Investment Principles (GIP) ASEAN Chapter is an initiative to promote green finance in the Southeast Asia. Established in 2018, the GIP was designed to raise awareness of sustainable financing practices in development projects. With its main secretariat based in Beijing and additional regional chapters in Central Asia, Africa, and Southeast Asia, the GIP has facilitated dialogue and cooperation among financial institutions worldwide to support the transition toward greener economies. As part of GIP's global vision, the ASEAN Chapter aims to build effective local networks that disseminate knowledge, share best practices, and create tangible green investment opportunities.

[9] Asian Development Bank, "ADB-supported National Solar Park in Cambodia Connects to Grid", 2022, https://www.adb.org/news/adb-supported-national-solar-park-cambodia-connects-grid

The GIP framework consists of seven core principles that guide financial institutions in integrating sustainability and ESG considerations into their operations. Principles 1 and 2 promote the incorporation of these factors into corporate strategies and management systems from the highest levels of leadership. Principles 3 and 4 emphasize stakeholder engagement through environmental risk analysis, transparent information sharing, and conflict resolution mechanisms. Principles 5 to 7 focus on fostering innovation, collaboration, and capacity building by encouraging the use of green financial instruments, sustainable supply chain practices, and collective knowledge exchange to support the scaling of green investments.

The GIP's achievements are facilitated by its secretariats in Beijing (hosted by the Institute of Finance and Sustainability) and London, alongside four member-led working groups and its regional chapters. Key outputs include the Climate and Environmental Risk Assessment Toolbox (CERAT), a curated green project database, and a series of sustainability-themed research reports produced by its working groups or regional chapter. Within the Southeast Asia region, the GIP Chapter continues to be instrumental in supporting the region's transition to low-carbon development by building institutional capacity, encouraging responsible investment practices, and aligning regional financial flows with broader sustainability goals.

Just Energy Transition Partnership

The JETP entered Southeast Asia with the goal of fostering a fair and inclusive energy transition in the region. The JETP, a multilateral initiative supported by the International Partner Group (IPG) of developed nations and international financial institutions, sought to address the imbalance in the global energy transition narrative, where the 'just' aspect—ensuring equitable socio-economic impacts—often takes a backseat to environmental goals.

Among ASEAN member states, the JETP has partnered with Vietnam and Indonesia. In Vietnam, the JETP proposed a comprehensive framework to transition from coal dependency to renewable energy sources. However, challenges arose due to Vietnam's cautious stance on international financing conditions and concerns about sovereignty in energy policymaking. While the country welcomed international support, the partnership failed to align fully with Vietnam's national priorities, resulting in a tepid response.

Meanwhile in Indonesia, the JETP presented a significant opportunity given Indonesia's status as one of the world's largest coal producers. The initiative aligned with Indonesia's ambitious energy transition goals, including phasing out coal and expanding renewable energy. Despite the promise of substantial funding and technical assistance, the reception from the Indonesian government was mixed. Concerns over the terms of funding, perceived external interference, and the feasibility of meeting the JETP's ambitious timelines led to reservations.

The JETP's attempt to gain traction in Southeast Asia highlights the complexities of implementing a 'just' energy transition in developing nations. While the initiative underscores the importance of equitable socio-economic considerations, its reception underscores the need for a more nuanced approach that aligns with local priorities, addresses economic dependencies, and respects national sovereignty.

Despite these challenges, the JETP remains a significant opportunity to improve green finance governance in Southeast Asia. By introducing frameworks for mobilizing large-scale

international funding for renewable energy projects, the JETP has the potential to set benchmarks for transparency, accountability, and alignment with national development goals. It can serve as a platform for fostering collaboration between governments, private investors, and multilateral institutions, ensuring that funding mechanisms are both accessible and equitable. Furthermore, the JETP's focus on integrating socio-economic considerations into energy transition strategies could inspire the creation of policies that better balance environmental imperatives with economic inclusivity, laying the groundwork for a more sustainable and fair energy future in the region.

Challenges and Trends

i. Relative neglect of nature-based projects

As mentioned at the start of this chapter, green finance in Southeast Asia has its roots in energy sector reform, which means that it has a strong emphasis on investments targeted toward developing new technology. In comparison, despite the region's bountiful natural resources, a lack of focus has led to limited financial support for nature-based solutions, which play a crucial role in carbon sequestration and climate resilience. Compared with large-scale renewable energy and EV initiatives, nature-based projects such as afforestation, mangrove restoration, and sustainable agriculture have received significantly less funding. A key reason for this disparity is that most nature-based projects in Southeast Asia are conservation-focused, meaning they do not generate immediate financial returns, making them less attractive to investors that are not specifically targeting green projects. For example, while carbon offset markets have gained traction globally, Southeast Asia's nature-based projects remain dominated by government and NGO-led conservation efforts rather than commercially driven models that can appeal to private sector investors.

Without a balanced approach that integrates both technological and nature-based solutions, Southeast Asia's green transition may face challenges in achieving long-term sustainability and climate resilience, especially as deforestation and land degradation continue to threaten the region's carbon sinks. Expanding investment frameworks to incentivize commercially viable nature-based projects, such as sustainable forestry, agroforestry, and blue carbon initiatives, could help bridge this gap and complement the ongoing shift toward renewable energy and clean technology.

Mangrove shrimp farming in Vietnam

Nature-based green projects are rarely conceptualized as such by their project owners. In most cases, they are projects that emerge from traditional livelihoods or sustainability practices rather than explicit environmental goals. One of the strongest examples of this in Southeast Asia is the mangrove shrimp farm in Ca Mau, Vietnam, a project headed by one of Vietnam's top shrimp suppliers, Minh Phu. The mangrove shrimp farm in Ca Mau was not launched with the ultimate goal of commercializing the protection of Vietnam's mangrove forests. Rather, it was designed to produce high-quality, organic shrimp in an ecologically balanced environment—where mangrove preservation became a byproduct of maintaining the necessary conditions for shrimp health and yield.

Nevertheless, the impact of Minh Phu's mangrove shrimp farm was significant. Due to increased economic opportunities, farmers no longer needed to clear the region to open up more farmland, an activity that had been damaging the Mekong delta before the establishment of the shrimp farm. Preventing the sinking of the delta also helped prevent Minh Phu from having to move its production facilities in the region, which would have been a costly undertaking for the company and also damage the local economy.

Minh Phu engaged with financiers and agriculture experts with the goal of sustainable farming, but it was during this engagement that Minh Phu was introduced to the model in Ca Mau, utilizing rice crops together with shrimp to create a pesticide-free sustainable farm. Furthermore, the sustainable approach to this farm also fulfilled the sustainability standards of markets abroad, such as Europe, allowing Minh Phu to export its shrimp at up to three times the price in Vietnam, resulting in almost fourfold profit growth and an improvement in the welfare of the Vietnamese farmers. The success of this project underscores the need to capture the opportunities available in nature-based projects in the ASEAN region.[10]

ii. Potential impact from global dynamics

Green finance cannot thrive solely at the level of individual countries because environmental challenges like climate change, deforestation, and pollution are inherently global in nature, crossing national borders and affecting ecosystems worldwide. Financing solutions to these problems—such as renewable energy development, carbon trading, and sustainable infrastructure—require shared standards, coordinated regulations, and pooled resources that no single country can provide alone. This is the reason behind the majority of climate funding initiatives, such as the Green Climate Fund or the Global Environment Facility, being structured as multinational efforts—to pool resources from as wide as possible and to promote accountability and cooperation across borders.

[10] Interview with Dutch Fund for Climate and Development (DCFD) on Feb.10, 2025.

When the US last withdrew from the Paris Agreement in 2020, it sent ripples through global climate finance systems and significantly affected regions like ASEAN that rely heavily on multinational support for their green transition. This incident led to a greater demand for more robust regional initiatives to reduce dependence on a few major donors and to build internal financing mechanisms.

With the US withdrawing from the Paris Agreement once more in 2025, the direct consequences of this specific action has been less severe. However, the broader geopolitical system fostered by the US—marked by the trade war initiated by the Donald Trump administration—is exerting significant pressure on global green finance, particularly for ASEAN member states. The imposition of 10 percent minimum tariffs and higher tariffs on exports from ASEAN member states, has forced nations to fortify their own economic security, diverting public and private funds that might have otherwise been channeled into climate initiatives toward trade stabilization measures, industrial subsidies, and currency defense. This reactive shift in fiscal priorities will stall green investment pipelines, delaying climate infrastructure projects, and weakening multilateral alignment just as the region faces escalating environmental vulnerability.

Despite these headwinds, ASEAN continues to strengthen its internal green finance initiatives while simultaneously working to keep the door open for participation in global climate mechanisms. Policymakers across the region recognize that domestic resource mobilization alone is insufficient to meet the scale of investment needed for a just and inclusive transition. As a result, countries are refining regulatory frameworks, improving transparency, and aligning national taxonomies with international standards to remain attractive to global financiers. Over the years, ASEAN has also drawn valuable lessons from past engagements with international climate funds—particularly the importance of flexibility, local ownership, and policy coherence.

One such example is the JETP's entry in Indonesia, which was launched with high expectations but encountered implementation hurdles due to the rigid structure of the country's energy sector. Indonesia's inflexible coal contracts and state-dominated governance limited the pace at which JETP-linked reforms could be realized. In addition, US withdrawal as co-leader may also become a challenge for climate funding, as it contributed US$2 billion. These lessons have highlighted the gaps in international green finance mechanisms but, on the other hand, they also lead to the founding of more streamlined platforms such as the ACGF. With this evolving understanding, ASEAN is increasingly positioning itself not only as a recipient of climate finance, but also as a co-architect in shaping more responsive, regionally grounded approaches to global green investment.

3. Policy and Regulation

While ASEAN is a political and economic union of countries in the Southeast Asia region, the scope of this union is limited when compared with other regional unions such as the EU. Unlike the EU, which operates with a high degree of political and economic integration, including a shared currency and supranational legal structures, ASEAN functions primarily as a platform for intergovernmental collaboration and consensus-building. The EU has the authority to enact binding regulations across its member states, while ASEAN's regulatory influence is generally non-binding and relies on voluntary cooperation among its members.

The scope of policies and regulations in ASEAN reflects this difference. Policies and regulations in ASEAN are framed as guidelines, standards, or frameworks that allow member states to retain sovereignty over their domestic policies while aligning on shared objectives. This approach enables flexibility, ensuring that policies can accommodate the diverse political, economic, and social conditions across member states. However, it also limits the union's ability to enforce uniform policies or standards across the region.

In the context of green finance, ASEAN's regulatory framework is designed to support rather than govern the sector. Key initiatives, such as the ASEAN Taxonomy for Sustainable Finance, serve as tools to provide clarity and guidance on what qualifies as sustainable economic activities. Similarly, the ASEAN Green Bond Standards (AGBS) and related frameworks are voluntary guidelines aimed at promoting transparency and consistency in the issuance of green bonds without imposing mandatory requirements. These frameworks focus on harmonizing efforts, building investor confidence, and facilitating the flow of capital into sustainable projects, rather than enforcing stringent regulatory controls.

The focus of ASEAN's regulatory framework lies in catalyzing and facilitating sectoral development rather than prescribing governance structures. By providing non-binding yet standardized frameworks, ASEAN aims to unlock private and public investments in green finance while fostering regional cooperation. This approach aligns with ASEAN's broader mandate, which prioritizes fostering economic growth and development, strengthening resilience, and addressing transnational challenges through collaborative solutions. Such a facilitative stance is crucial in a region as diverse as Southeast Asia, where varying levels of financial market development and regulatory maturity require a flexible and inclusive approach to policymaking.

However, this facilitative approach also presents challenges for the acceleration of green finance in Southeast Asia. Due to the diverse economic development progress in Southeast Asia, ASEAN's flexible approach faces challenges in pushing private actors toward more ambitious climate-aligned investments. Regions like the EU and the United States have implemented mandatory sustainability practices that exert real pressure on companies to integrate ESG principles into their operations. These legally binding requirements not only drive corporate accountability but also create strong market incentives for green innovation and investment.

ASEAN Taxonomy

Green projects in Southeast Asia are characterized by a strong effort to ensure a just transition, avoiding large scale losses of industry such as when the US relocated much of its domestic automotive manufacturing in the 1990s or when the United Kingdom began rapidly closing down its coal mining in the 1980s. Both of these events resulted in a staggering spike in unemployment that led to serious collapse in welfare quality for the period. This approach to accommodate transitional approaches is most easily observed in the ASEAN taxonomy, which provides a multi-tiered approach that addresses the diverse range of its potential users. The ASEAN taxonomy avoids an overly standardized 'one-size-fits-all' structure that would struggle to capture the complexities of ASEAN sectors.

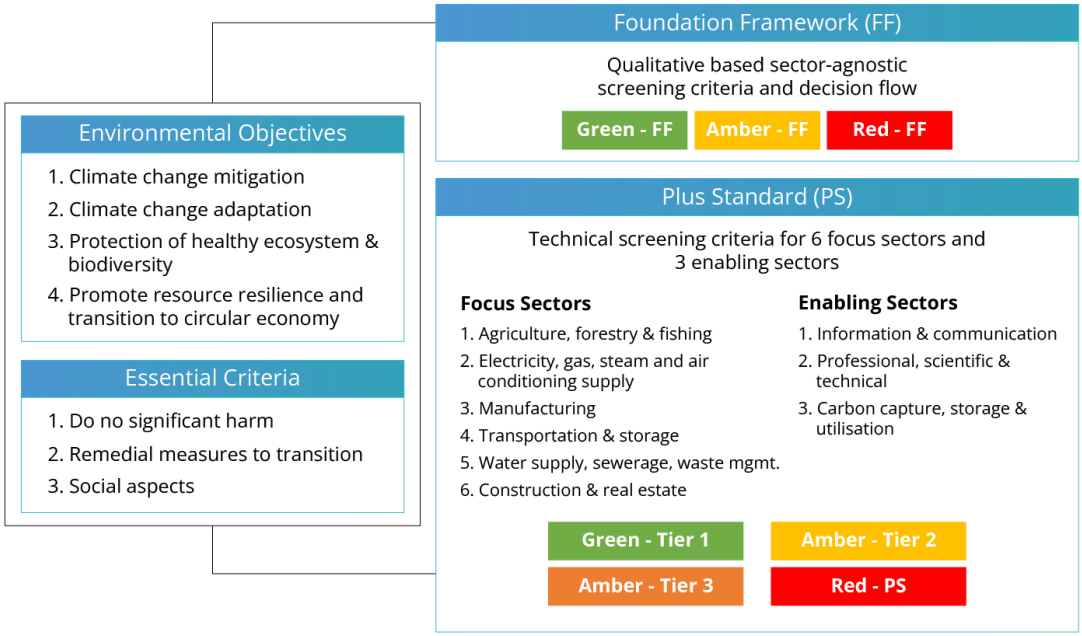
The ASEAN taxonomy was first published on November 10, 2021 by the ASEAN Taxonomy Board (ATB) as a multi-tiered classification framework, with the latest version released on March 27, 2024. It is intended to be the overarching guide and common language used to identify and classify sustainable projects and economic activities in ASEAN member states. In addition, it is designed to be an inclusive, credible, and where possible, science-based classification system for sustainable activities and will be one of the key building blocks in orienting capital toward sustainable activities to enable a just transition toward sustainable finance in the region.

While the ASEAN taxonomy is relatively easily adapted for use among member states, it has a few notable issues that make it less popular for green financing activities beyond the Southeast Asia region. One key point is that the ASEAN taxonomy provides direction on the classification at the activity level of projects and currently does not mandate a specific method of classifying portfolios, entities, or financial instruments. This has led to questions regarding the interoperability of the ASEAN taxonomy with international standards or other green taxonomies.

Nevertheless, the objective of the ASEAN taxonomy is to share and standardize best practices, which means that alignment with other international taxonomies would provide potential benefits by bridging ASEAN member states with international investors. Because of this, the development of the ASEAN taxonomy is being done in parallel with other taxonomies in other parts of the world, including but not limited to the EU, Australia, Canada, and South Africa. All these taxonomies are seeking to address similar environmental objectives and recognize the increasingly international nature of sustainable finance.

Case Study:
Enabling coal phase-out through the ASEAN Taxonomy's tiered classification

Figure 3. Structure of the ASEAN Taxonomy



Source: ASEAN Taxonomy version 3[11]

ASEAN's multi-tiered approach essentially means that the ASEAN taxonomy has a design that incorporates two parallel structures. As illustrated in Figure 2**,** the ASEAN taxonomy has two assessment approaches, the Foundation Framework (FF) and the Plus Standard (PS).

The FF was developed based on the principles of inclusivity and is intended as a 'starter' assessment approach for member states. The principles-based assessment approach of the FF allows activities to be assessed and classified using qualitative guiding questions. The PS was developed as an advanced form of assessment approach with defined technical screening criteria (TSC).

This adaptable approach makes the ASEAN taxonomy more adaptable to bridge the effort of greening the economy, including the critical transition-related projects that might otherwise fall outside conventional green investment definitions. One such example is the Just Transition program, which aims to ensure that the social and economic consequences of moving away from carbon-intensive sectors are addressed fairly—particularly for workers and communities that are most affected.

In practice, Just Transition projects often include reskilling initiatives for workers previously employed in fossil fuel industries. These reskilling programs are typically managed by the companies themselves, as they bear the responsibility for transitioning their workforce into sustainable employment pathways. Some examples of this include

[11] ASEAN Taxonomy Board, "ASEAN Taxonomy for Sustainable Finance", 2024, https://asean.org/wp-content/uploads/2024/12/ASEAN-Taxonomy-Finalised-Version-3-4.pdf

the reskilling programs of Semirara Mining and Power Corporation in the Philippines, which manages them internally.[12] While these programs are critical to ensuring a fair and equitable energy transition, they do not always align neatly with the technical or emissions-focused criteria of other sustainable finance taxonomies.

Under more rigid taxonomies, such as the EU taxonomy, such reskilling initiatives may not be classified as sustainable unless certain stringent conditions are met. For example, to qualify, the reskilling initiative might be required to involve a third-party supervisory institution that can provide independent validation and oversight of the process. This additional requirement, while intended to offer credibility and assurance, introduces another layer of administrative complexity and cost.

This prerequisite would become even more difficult in regions where mining companies are state-owned or operate under constrained institutional ecosystems, the feasibility of involving external supervisory institutions can be limited. Many such companies may not have the capacity—or legal flexibility—to partner with third parties, especially in jurisdictions where trust in external actors is lower or regulatory frameworks are less accommodating.

The ASEAN taxonomy's inclusive, principles-based approach in the Foundation Framework offers a more pragmatic pathway. It allows for such Just Transition efforts—like in-house reskilling programs—to be recognized and assessed based on their intention, structure, and outcome, rather than penalized for lacking formal oversight mechanisms that may be impractical in the local context. This positions the ASEAN taxonomy as a more accessible and context-sensitive tool for Southeast Asian countries seeking to pursue a just and equitable transition.

The ASEAN taxonomy has established a unified framework for the region, where five ASEAN member states (Indonesia, Malaysia, the Philippines, Singapore, and Thailand) have developed national taxonomies tailored to their specific contexts, focusing on climate change mitigation, adaptation, and other environmental goals. Although differences exist in categorizing environmental objectives, national taxonomies are increasingly harmonized and aligned with the ASEAN taxonomy.

AMS taxonomies adopt a principles-based assessment framework, with Indonesia, Singapore, and Thailand incorporating technical screening criteria (TSC) for quantitative and sector-specific evaluations, and sectoral coverage varies across member states' taxonomies due to differing economic structures and policy priorities, whereas the ASEAN taxonomy offers broader sectoral inclusion, covering most areas addressed by individual national taxonomies.[13] Based on UNEP-FI, the table below presents an assessment of how ASEAN and ASEAN member states' taxonomies address environmental objectives (EOs) and the

[12] Semirara ning and Power Corporation "Annual and Sustainability Report 2022", 2023 https://www.semiraramining.com/uploads/documents/PDFs/2022%20SMPC%20ASR.pdf

[13] UNEP FI, "How are ASEAN Member States approaching sustainable finance taxonomies? New analysis reveals trend toward regional harmonization", Mar.10, 2025, https://www.unepfi.org/regions/asia-pacific/asean-taxonomies-analysis/

assessment approach.[14] Despite the advancements in sector-specific criteria, national taxonomies show redundancy, highlighting the need of alignment with the ASEAN taxonomy to promote regional harmonization to support green and transition finance.

Figure 4. EOs and choice of assessment approaches of ASEAN member states taxonomies

Taxonomy	Environmental objectives					Assessment approaches	
	E01: Climate change mitigation	E02: Climate change adaption	E03: Biodiversity protection	E04: Circular economy transition	Other listed objectives	Principles-based assessment	Technical screening criteria
ASEAN Taxonomy	✓	✓	✓	✓	/	✓ (Foundation framework)	✓ (Plus standard)
Indonesia	✓	✓	✓	✓	/	✓ (for MSME)	✓ (for non-MSME)
Malaysia-CCPT	✓	✓			/	✓	/
Malaysia-SRI Taxonomy	✓	✓	✓	✓	/	✓	/
Philippines	✓	✓	To be addressed	To be addressed	/	✓	/
Singapore	✓	✓	✓	✓	Pollution prevention and control	/	✓
Thailand	✓	✓	✓	✓	Sustainable use and protection of marine and water resources. Pollution prevention and control	/	✓

Source: UNEP-FI (2025)

ASEAN Green Bond Standard (AGBS)

The AGBS are a voluntary set of rules for the issuing of green financing instruments in the Southeast Asia region that were created by the ASEAN Capital Markets Forum, (ACMF). The standards created by the ACMF were developed in collaboration with the International Capital Market Association (ICMA) based on the ICMA's Green Bond Principles (GBP), ensuring compliance with global best practices for green bonds. By aligning with the ICMA GBP, the AGBS provide a recognized and credible framework that enhances transparency, promotes consistency, and builds investor confidence in green bond issuances within the region.[15] Moreover, the AGBS are widely recognized for their strict guidelines, similar to

[14] UNEP FI, "How are ASEAN Member States approaching sustainable finance taxonomies? New analysis reveals trend toward regional harmonization", Mar.10, 2025, https://www.unepfi.org/regions/asia-pacific/asean-taxonomies-analysis/

[15] Interview with Asian Development Bank on Jan.17, 2025

those of the ICMA, but with more stringent requirements. As a result, they are easily accepted in the market.[16] ASEAN member states, as well as multinational institutions such as the World Bank and ADB use the AGBS for bond issuance.[17]

This alignment also facilitates cross-border investment by ensuring that ASEAN green bonds meet international expectations for environmental sustainability, project evaluation, and reporting standards. As a result, issuers in ASEAN markets can attract a broader base of global investors who prioritize green finance while ensuring that their green bond offerings meet internationally accepted benchmarks.

According to the guidelines, a project being funded by green finance 'must provide clear environmental benefits' with renewable energy being in the first category listed by the AGBS to be eligible for green finance. The rules also include disclosure requirements on the use of bond funds. ASEAN member states can issue bonds that comply with voluntary guidelines using various financial instruments for various projects, with financial markets playing a crucial role in driving these projects as investors align with sustainability goals.[18]

The AGBS have expanded through the development of the ASEAN Social Bond Standards, the ASEAN Sustainability Bond Standards and the ASEAN Sustainability-Linked Bond Standards, leading to a successful increase in thematic bonds issuance in Southeast Asia. US$53 billion worth of bonds labeled under the ASEAN bond standards have been issued.[19]

However, in ASEAN nations, green finance is still in its infancy and confronts a number of significant obstacles. Investors and green bond issuers face these difficulties. As for the issuers, the problems are mainly the expense of complying with green bond standards and their limited ability to absorb credit.[20] In addition, despite the emergence of taxonomies and standards, the term 'green' still lacks a rigid definition, which tends to cause uncertainty for the issuer and may lead to greenwashing risks.[21]

Green finance regulations in Southeast Asia are still a work in progress: Thailand's Climate Change Act

The implementation of green finance, while also ensuring that its disbursement is sustainable, is a complex process. Green finance requires robust monitoring to avoid greenwashing and disclosure processes that are entirely different from conventional financing, which adds a barrier to entry for potential green investments.

When combining this reality with the comparatively late entry of green finance in the Southeast Asia region, it becomes evident that many of the regulatory standards in individual ASEAN member states are still a work in progress. This is why multilateral green finance frameworks, such as the AGBS, were able to play such a large role in catalyzing green investment in the region. On an individual country basis, the regulatory

[16] Interview with Sustainable Finance Institute Asia on Feb.7, 2024
[17] Interview with Sustainable Finance Institute Asia on Feb.7, 2024
[18] James Guild, "The political and institutional constraints on green finance in Indonesia", *Journal of Sustainable Finance & Investment*, Vol.1, pp.157-170, 2020.
[19] Interview with Sustainable Finance Institute Asia on Feb.7, 2024
[20] Dina Azhgaliyeva, Anant Kapoor and Yang Liu , "Green bonds for financing renewable energy and energy efficiency in Southeast Asia: A review of policies" , ADB Working paper Series, No.1073, 2020.
[21] Anh Huu Nguyen, et.al., "The Development of Green Bond in Developing Countries: Insights from Southeast Asia Market Participants", *The European Journal of Development Research,* 35:196–218, 2023.

frameworks come after, while utilizing and incorporating insights learned from the multilateral regulatory frameworks.

To take one example in Thailand, the Thailand Climate Change Act is predicted to be a landmark piece of legislation that will revolutionize green finance in Thailand by providing a legal and institutional framework for the country's response to climate change. While excitement for the act is high, it was introduced rather recently, around March 2024. The act is projected to be implemented around 2026 at the earliest. The act is seen as a central pillar of Thailand's broader decarbonization and sustainable development strategy as it introduces a wide range of regulations, from establishing the standards for green monitoring, reporting, and verification (MRV), to setting the foundation for carbon market instruments.

The latest draft of the Climate Change Act was published in November 2024 and is expected to enter Parliament for review by late 2025. For the purposes of complete information, below are the key features of Thailand's latest draft and the basic legal infrastructures for climate governance that the act will establish:

Figure 5. Thailand Climate Change Act key features, November 2024 draft

Key features of the Thailand Climate Change Act	Details
Establishment of national climate governance	Creation of a National Climate Change Policy Committee, chaired by the Prime Minister.
	Appointment of the Department of Climate Change and Environment (DCCE) as the main implementation body.
National Climate Plan and budgeting	Mandated development of a National Climate Change Plan aligned with the Paris Agreement.
	Requires line ministries and local governments to incorporate climate considerations into their policies and budgets.
Monitoring, reporting, and verification (MRV)	Introduces obligations for greenhouse gas (GHG) emitters to report emissions.
	Proposes a national MRV framework to ensure data transparency and compliance.
Foundations for carbon market instruments	Setting the legal groundwork for future establishment of a carbon pricing mechanism—including both an emissions trading system (ETS) and carbon tax.
	Establishing a Carbon Border Adjustment like the EU's Carbon Border Adjustment Mechanism (CBAM).

4. Governance

The governance structure reflects its core principles of non-interference and consensus-driven decision-making. These principles, enshrined in ASEAN, have shaped a regional approach to governance that prioritizes voluntary cooperation over binding commitments. While this structure fosters inclusivity and accommodates the diverse political and economic systems of its member states, it also defines the limits of ASEAN's capacity to enforce regional policies or regulations.

This approach has proven effective in maintaining regional stability and fostering economic integration in the region, whereby its member countries deeply value national sovereignty, but it also tempers the association's ability to act decisively in areas requiring uniform implementation, such as environmental governance and sustainable finance. Instead, ASEAN relies on shared commitments and collaborative mechanisms to address regional challenges, with member states adapting these frameworks to their national contexts

Key Institutions

MDBs and international partners

Asian Development Bank

In Southeast Asia, the ADB plays a crucial role in addressing development challenges and fostering economic growth. The institution focuses on key areas such as infrastructure development, climate change mitigation and adaptation, sustainable urbanization, and financial inclusion. Through its projects and partnerships, the ADB aims to enhance regional connectivity, strengthen resilience against environmental and economic shocks, and promote inclusive and sustainable development.

The ADB has been instrumental in supporting green finance and sustainability in the region as a capital provider to the public sector in developing member countries. It also provides financing toward private companies that are engaging in sustainable investments. And most importantly, it provides guidance, technical assistance, and expertise to assist the member countries in crafting policies.[22]

At the regional level, the ADB has launched initiatives like the ACGF to mobilize investments for low-carbon and climate-resilient infrastructure projects, partnered with global frameworks such as the Just Energy Transition Partnership (JETP), and in collaboration with international entities like the Green Climate Fund (GCF) to mobilize resources for climate-resilient projects.

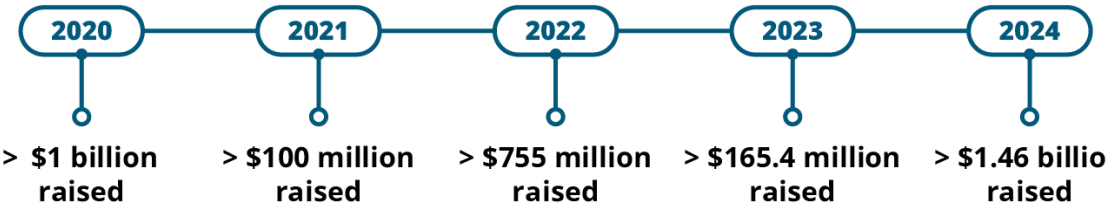
[22] Interview with Asian Development Bank on Jan.17, 2025

For instance, under the ADB and the ACGF, the Green, Social and Sustainability and Other Labeled Bonds (GSS+ bonds) initiative was established with a target to scale up GSS+ bonds issuances across Southeast Asia by US$1 billion by 2025. This initiative was launched to address the relatively small portion of GSS+ bonds that have been issued in Southeast Asia. In the first half of 2022 alone, GSS+ bonds in Southeast Asia only represented US$8 billion or 2 percent of global issuance. This initiative helps prospective issuers through technical assistance, including capacity and policy development, facilitating external review and assisting in project selection, third-party certification, and annual reporting.[23] [24]

For example, the ADB provided technical assistance to support ASEAN's first sovereign sustainability bond, which was issued by the government of Thailand with a volume of THB 30 billion (US$860 million) to fund green infrastructure projects, including the Mass Rapid Transit Orange Line (East) Project, and social initiatives for COVID-19 recovery. The bond saw overwhelming investor demand, with bids exceeding three times the offering amount, and was issued at a favorable 1.585 percent interest rate. Certified by the Climate Bonds Initiative and listed on the Luxembourg Green Exchange, it won multiple awards for sustainability. The bond's outstanding amount reached THB 210 billion (US$6 billion) by May 2022.[25]

The ADB's GSS+ program has successfully assisted new GSS+ bond issuances worth around US$3 billion. Moreover, those who have been assisted continue to raise debt through GSS+ bond issuances and bringing the total issuance with direct or indirect support to more than US$13 billion. The ADB assists these issuers by providing guidance through the green taxonomy and its impact to ensure that the issuers are able to issue the bond based on the standards.[26] [27]

Figure 6. Annual GSS+ bonds issuance volume, 2020-2024



Source: Asian Development Bank (2025)

[23] Asian Development Bank, "The Green, Social, Sustainable and Other Labeled (GSS+) Bonds Initiative from Southeast Asia", https://www.adb.org/sites/default/files/publication/844911/green-social-sustainable-bonds-initiative-southeast-asia.pdf

[24] Asian Development Bank, "Accelerating Climate Transitions through Green Finance in Southeast Asia", Nov. 2022, https://www.gtai.de/resource/blob/1032032/73d6a685b27647488026c8c484679889/PRO20221010906790.pdf

[25] Asian Development Bank, "The Green, Social, Sustainable and Other Labeled (GSS+) Bonds Initiative from Southeast Asia", https://www.adb.org/sites/default/files/publication/844911/green-social-sustainable-bonds-initiative-southeast-asia.pdf

[26] Interview with Asian Development Bank on Jan.17, 2025

[27] Asian Development Bank, "GSS+ Bonds Initiative: Impacts on Pipeline and Capital Mobilization", Feb.2025, https://asianbondsonline.adb.org/events/2025/42nd-abmf-meeting/abmf-12feb-session11-puongsophol.pdf

Additionally, the ADB collaborates with ASEAN member states to develop policies, build institutional capacities, and attract private sector investments that align with SDGs. By leveraging its resources and expertise, the ADB serves as a critical partner in advancing Southeast Asia's transition toward a greener future. In the case of Indonesia, the ADB, the United Nations Development Programme (UNDP) and the Indonesian Financial Services Authority (Otoritas Jasa Keuangan, OJK) collaborated to launch an Accelerator Program in thematic sustainability bonds, including corporate and sub-sovereign issuances, such as the West Java provincial government.[28]

In the context of governance, the ADB plays a pivotal role in bridging the gap between ASEAN member countries and global financial institutions. Developing nations often face challenges in meeting the stringent compliance requirements and governance standards set by international financiers. The ADB, with its adherence to globally recognized standards of accountability, transparency, and sustainability, acts as an intermediary that reduces these barriers. Through its robust internal governance systems and stringent project evaluation frameworks, the ADB instils confidence in global financial institutions, effectively offloading much of the compliance burden that individual countries might otherwise struggle to meet.

Asian Infrastructure Investment Bank

A relatively more recent player in the ASEAN region is the Asian Infrastructure Investment Bank (AIIB), which was established in 2016 as a multilateral development bank. In Southeast Asia, the AIIB plays a compound role in addressing the region's infrastructure deficit while promoting sustainability. The AIIB supports projects in key sectors such as energy, transportation, urban development, and water resource management. Also worth noting is that the AIIB services in the ASEAN region include not only financing, but also advisory services, to further ensure that their financing efforts are carried out justly.

Similar to the ADB, the AIIB's commitments to sustainability, reflected in its Environmental and Social Framework (ESF), ensures that all its projects adhere to rigorous ESG standards. This alignment with global best practices makes the AIIB a trusted partner for international investors and development agencies. As a result, the bank is able to connect international investors with ASEAN member states to integrate sustainability into infrastructure planning, ensuring that projects not only address immediate needs but also contribute to long-term environmental and social goals.

IFC

The International Finance Corporation (IFC), a member of the World Bank Group, is a global development institution that focuses on private sector development in emerging markets. In Southeast Asia, the IFC is instrumental in mobilizing private sector financing for critical areas such as renewable energy, infrastructure, agriculture, and financial inclusion. Over time, these mobilization efforts shifted to adopt principles and practices that align sustainability and development goals, resulting in greater focus on enhancing high-impact sectors such as the commercialization of clean energy and sustainable agriculture. For instance, the IFC helps Vietnam in providing guidelines for sustainability reporting to encourage better ESG disclosure in the capital market to align with the international framework of the Global Reporting Initiative (GRI).

[28] Written Interview with the Indonesian Financial Services Authority (or Otoritas Jasa Keuangan, OJK)

In the context of green finance, the IFC is a key player in mobilizing private capital for climate-smart investments in Southeast Asia. This can be seen in the IFC's advisory services, which range from helping companies reduce their carbon footprint to guiding them in integrating gender equality into their operations.[29]

ASEAN regional institutions

ASEAN Capital Markets Forum

The ACMF is a high-level platform that brings together capital market regulators from ASEAN to foster integration, harmonization, and development of capital markets across the region. As the only capital market regulator, the ACMF is one the four pillar institutions driving sustainable finance in Southeast Asia.[30]

The ACMF's primary focus areas include fostering cross-border investment, enhancing market access and aligning regulatory frameworks to facilitate the free flow of capital within ASEAN. The forum has contributed to sustainable development governance in ASEAN by creating standardized frameworks and mechanisms that enhance accountability, transparency, and access to sustainable finance. Through its flagship initiatives, such as the AGBS, ASEAN Social Bond Standards, and ASEAN Sustainability-Linked Bond Standards, the ACMF has established regionally tailored guidelines for sustainable investment. These frameworks not only align with global principles like those set by the ICMA but also consider the unique economic and social contexts of ASEAN member states, enabling stronger regional governance of SDGs. By providing these unified standards, the ACMF has made it easier for member states to attract global investors looking for credible and ESG-compliant opportunities.

The ACMF also plays other critical roles. Firstly, it facilitates capacity-building programs for regulators and market participants to strengthen their understanding and implementation of sustainable finance principles. Secondly, it also plays a coordinating role, ensuring that other institutions that manage multilateral initiatives such as the ASEAN Taxonomy Board (ATB) are able to align their frameworks with regional ecosystems, supporting the ultimate goal of interoperability.

The goal of these efforts is to build investor confidence by promoting transparency, improving corporate governance, and enhancing market infrastructure. Key initiatives include the ASEAN Corporate Governance Scorecard and efforts to harmonize disclosure standards, which collectively help ensure that ASEAN markets meet global best practices.

ASEAN Taxonomy Board

The ATB is the regional body responsible for developing and overseeing the ASEAN Taxonomy for Sustainable Finance, a classification system that provides a common framework for identifying environmentally sustainable activities across ASEAN member states. The ATB was established under the support of the ASEAN Finance Ministers and Central Bank Governors' Meeting (AFMGM), the ASEAN Capital Markets Forum (ACMF), the ASEAN Insurance Regulators' Meeting (AIRM), the ASEAN Senior Level Committee on Financial Integration (SLC), and the ASEAN Working Committee on Capital Market

[29] International Finance Corporation, Advisory Service, https://www.ifc.org/en/what-we-do/products-and-services/advisory-services
[30] Interview with Sustainable Finance Institute Asia on Feb.7, 2024

Development (WC-CMD). In the context of governance, the ATB promotes regulatory coherence and aims to reduce greenwashing risks in the ASEAN region.[31]

Through the taxonomy, the ATB facilitates easier cross-border collaboration among ASEAN member states, fostering a more integrated financial ecosystem. Through its work, the ATB strengthens investor confidence and encourages private sector participation in sustainable initiatives.

Financial authorities of ASEAN member states

The different ways that a country implements or executes its green strategy is often reflective of which institutions are assigned as the primary drivers of green finance, whether they are fiscal authorities, monetary authorities, or external partners such as multilateral organizations. Figure 7 illustrates the various financial authorities in ASEAN and classifies them based on their type of engagement and role in the green finance sector. The authorities can be classified as the primary regulators who directly regulate the sector or drive the development of green finance, co-regulators who work alongside primary regulators by implementing complementary policies, facilitating compliance, or overseeing specific segments of the financial system, or supporting regulators who support green finance by providing technical assistance, policy recommendations, or coordination to the primary regulators or market participants.

Figure 7. Financial authorities in ASEAN member states and their type of engagement with the country's green finance sector

Country	Institution	Type of institution	Type of regulator
Indonesia	Ministry of Finance	Fiscal Authority	Co-regulator
	Central Bank of Indonesia, Bank Indonesia	Monetary Authority	Supporting regulator
	Financial Services Authority (OJK)	Finance Sector Regulatory authority	Primary regulator
Vietnam	Ministry of Finance (MOF)	Fiscal Authority	Primary regulator
	State Bank of Vietnam (SBV)	Monetary Authority	Co-regulator
Singapore	Ministry of Finance	Fiscal Authority	Co-regulator
	Monetary Authority of Singapore (MAS)	Monetary Authority	Primary regulator
Thailand	The Ministry of Finance	Fiscal Authority	Co-regulator
	Bank of Thailand (BOT)	Monetary Authority	Primary regulator
Malaysia	Ministry of Finance (MOF)	Fiscal Authority	Co-regulator
	Central Bank of the Malaysia, Bank Negara Malaysia (BNM)	Monetary Authority	Primary regulator
Philippines	Department of Finance (DOF	Fiscal Authority	Primary regulator

[31] Sustainable Finance Institute Asia, "The ASEAN Taxonomy Board", https://www.sfinstitute.asia/asean-taxonomy/asean-taxonomy-board/

	Central Bank of the Philippines, Bangko Sentral ng Pilipinas (BSP)	Monetary Authority	Co-regulator
Myanmar	The Ministry of Planning and Finance	Fiscal Authority	Co-regulator
	Central Bank of Myanmar (CBM)	Monetary Authority	Supporting regulator
Laos	The Ministry of Finance and Treasury	Fiscal Authority	Co-regulator
	Bank of the Lao P.D.R. (BOL)	Monetary Authority	Primary regulator
Cambodia	The Ministry of Economy and Finance	Fiscal Authority	Co-regulator
	National Bank of Cambodia (NBC)	Monetary Authority	Primary regulator
Brunei Darussalam	Ministry of Finance and Economy (MOFE)	Fiscal Authority	Co-regulator
	Brunei Darussalam Monetary Authority (AMBD)	Monetary Authority	Primary regulator

The type of regulator which pioneers the regulatory landscape for green finance in a country determines how green finance is approached in said country. Countries where fiscal authorities take the lead adopt a more centralized approach, leveraging state budgets and assets to directly fund sustainable projects, whereas countries where monetary authorities take the lead focus more on creating regulatory frameworks and incentives to stimulate private sector participation.

In countries without a primary regulator for green finance, the role is typically shared among multiple entities or taken on by external organizations. This is the case for Myanmar, where the Ministry of Planning and Finance (MOPF) and the CBM split the duty of regulating the green finance sector relatively evenly. The MOPF oversees fiscal policies related to green finance, while the CBM is responsible for integrating sustainability into banking regulations. These efforts are further supported by external organizations and initiatives, such as the ACGF, which works with national regulators to promote green investments by mobilizing private sector capital and providing policy recommendations in coordination with ASEAN bodies.

The ACGF plays a role in many ASEAN member states, their degree of coordination with local regulators is particularly high with not only Myanmar, but also Laos, Cambodia and Brunei Darussalam. This approach demonstrates an alternative pathway by relying heavily on partnerships with multilateral organizations and frameworks to bridge resource and capacity gaps. These varied approaches highlight the diversity of strategies within ASEAN to address the challenges of green financing and sustainable development.

ASEAN Strategy for Carbon Neutrality

A significant initiative made by ASEAN to pave a way toward decarbonization is the ASEAN Strategy for Carbon Neutrality. In 2023, ASEAN established a pivotal opportunity for future climate governance in ASEAN through the ASEAN Strategy for Carbon Neutrality, which stipulates eight strategies that will deliver four key outcomes for the region namely:

i. development of green industries
ii. interoperability within ASEAN
iii. globally credible standards
iv. development of green capabilities.

The goal of the ASEAN Strategy for Carbon Neutrality is to promote sustainable growth and support national policies of ASEAN member states in reaching their individual NDC targets to expedite an inclusive shift toward a green economy. Achieving a carbon-neutral future could boost ASEAN's GDP by between US$3 trillion and US$5.3 trillion by 2050. This has the potential to bring in between US$3.7 trillion and US$6.7 trillion in green investments and create an additional 49 million to 66 million jobs in ASEAN.[32]

In the meantime, eight of ten ASEAN members have announced their national goals to achieve net-zero GHG emissions, which corresponds to the IPCC's 1.5°C target. The Philippines and Myanmar are the only ASEAN nations that have not yet committed to either carbon neutrality or an economy-wide net-zero target.[33]

Figure 8. ASEAN Countries long-term low greenhouse gas emission development strategies

Brunei	Net-Zero by 2050
Cambodia	Carbon Neutrality by 2050
Indonesia	Net-Zero by 2060 or sooner
Laos	Net-Zero by 2050
Malaysia	Carbon Neutrality by 2050
Myanmar	No economy-wide Net-zero but a conditional target to achieve net-zero in the Forestry and Other Land Use (FOLU) sector by 2040
Philippines	no net-zero or carbon neutrality target
Singapore	Net-Zero by 2050
Thailand	Carbon neutrality by 2050, net zero emissions by 2065
Vietnam	Net -Zero by 2050

Source: Martinus (2024)

[32] ASEAN Secretariat, "ASEAN Sets Course for a Carbon Neutral Future", *ASEAN for Business Bulletin January,* 2024, https://asean.org/wp-content/uploads/2024/01/ASEAN-for-Business-Bulletin-January-2024.pdf
[33] Melinda Martinus, "The ASEAN Strategy for Carbon Neutrality: How to Move It Forward?", *Building an ASEAN Economic Community Beyond 2025*, 2024, https://lkyspp.nus.edu.sg/docs/default-source/cag/building-an-asean-economic-community-beyond-2025.pdf

In the domain of green finance and sustainability, this governance model is evident in ASEAN's regional-level frameworks, which emphasize facilitation and guidance rather than direct oversight. For example, initiatives such as the ACGF and the ASEAN Taxonomy for Sustainable Finance are designed to support member states in aligning with global sustainability goals while allowing flexibility in implementation. These efforts are complemented by knowledge-sharing platforms, capacity-building programs, and collaborative projects that strengthen regional cooperation without imposing mandatory requirements.

This chapter delves into the regional-level governance mechanisms of ASEAN, focusing on sustainability disclosure and the authorities and institutions that play a pivotal role in shaping and implementing its green finance and sustainability agenda. By exploring the interplay between regional frameworks and national implementation, it seeks to provide a comprehensive understanding of how ASEAN balances its facilitative role with the need for cohesive action on shared priorities.

Corporate Governance

Corporate governance is a system where ownership and control are separated. Shareholders provide finance with the goal of maximizing wealth. Therefore, based on shareholder theory, shareholders hire a board of directors to run the company to increase profitability and serve the shareholders' goal.[34] However, as financial management evolved throughout time, this idea gradually modified into the stakeholder theory, where individual groups with disparate goals and interests unite to contribute for common advantages. In these days, businesses are focusing more on the long-term advantages of appeasing their stakeholders, which consist of society, customers, governments, and employees. The effort to meet the goals of the stakeholders is the concept of sustainability. As a result, the board of directors should prioritize meeting the goals of all stakeholders in addition to profit. [35]

Government as a company stakeholder plays an important role in increasing green financing by mandating ESG disclosure. In the EU, the 2014 Non-Financial Reporting Directive imposed by European authorities is effective in encouraging a broader willingness among publicly listed companies (PLCs) to report their ESG initiatives. The effect has even spread to US companies that voluntarily disclose ESG information.[36] This is similar to Malaysia where there is significant compliance with a 2016 government regulation regarding environmental disclosure and a 2014 ESG indicator. Moreover, PLCs in Malaysia already disclosed ESG information prior to the establishment of the regulations to outperform their peers.[37]

The mandatory requirement from the regulator also helps to ease the pressure from stakeholders as people believe businesses are following the stricter disclosure requirements. [38] Therefore the role of the regulator is central to pushing ESG disclosure, which leads to

[34] Andrei Shleifer and Robert W. Vishny. "A survey of corporate governance." *The journal of finance*, Vol.52 No.2, 1997, pp.737-783.
[35] Sajeewani Jayathilake, "Impact of Green Financing for the Corporate Governance in the Banking Industry", OIDA International Journal of Sustainable Development, Vol.12, No.11, 2019
[36] Enrica Bolognesi, et.al., "Stakeholders and regulatory pressure on ESG disclosure", *International Review of Financial Analysis*, 2025.
[37] Raja Elyn Maryam Raja Ezuma and Nitanan Koshy Matthew ,"The perspectives of stakeholders on the effectiveness of green financing schemes in Malaysia", *Green Finance,* Volume 4, Issue 4, pp.450–473.
[38] Enrica Bolognesi, et.al., "Stakeholders and regulatory pressure on ESG disclosure", *International Review of Financial Analysis*, 2025.

better sustainable practices and increased demand for green financing from the real sector. In Southeast Asia, several countries have mandated their banks as well as PLCs to make annual sustainability reports. However, this mandatory requirement should be expanded to the other countries that have not enacted these requirements, such as Vietnam, Laos, Myanmar, Cambodia, and Brunei. Greater transparency can help these countries to increase their sustainable practices and improve the flow of green financing.

Furthermore, in Malaysia's case, it has been observed that companies prioritizing their workers and environmentally sensitivity have a stronger dedication to ESG disclosure.[39] With such transparency, companies can improve the public perception for their stakeholders and lead to organizational change that ensures sustainable practices. Not only that, ESG disclosure can attract global investors and institutional investors to invest and provide higher liquidity for the firms. This benefit is important for Southeast Asian nations, as foreign investment is necessary to generate economic growth in the developing countries due to insufficient domestic liquidity.

Financial sector climate risk assessment

Banking is the most heavily regulated sector in the world. This regulation is constructed through multiple layers of risk mitigation as problems can cause a domino effect on the economy. In this regard, climate change becomes an escalating concern.

One of the tools used by the financial sector is to stress test. Stress testing is a common approach for the financial sector to assess the impact of economic and financial shocks on financial companies. The results of stress tests assist supervisors in identifying vulnerabilities and addressing them at an early stage.[40]

Central banks have a crucial role in ensuring financial system stability through macroprudential policy. Adequate macroprudential safeguards are necessary for any systemic financial risk, and climate concerns are no different. With the increasing awareness of climate change's impact on financial markets, financial regulators have attempted to incorporate climate risks into the evaluation of overall financial risk through stress tests and scenario analysis.[41]

In 2021, European Central Bank (ECB) issued a methodology for supervisory climate risk stress testing (CRST) for banks, which requires credit risk projections, quantification of exposure to GHG emissions from industries and reporting GHG emissions. The Southeast Asia region has followed the ECB in establishing a methodology for CRST. There are three main aspects to the CRST conducted by the ECB, including transition risk and physical risk from climate change.

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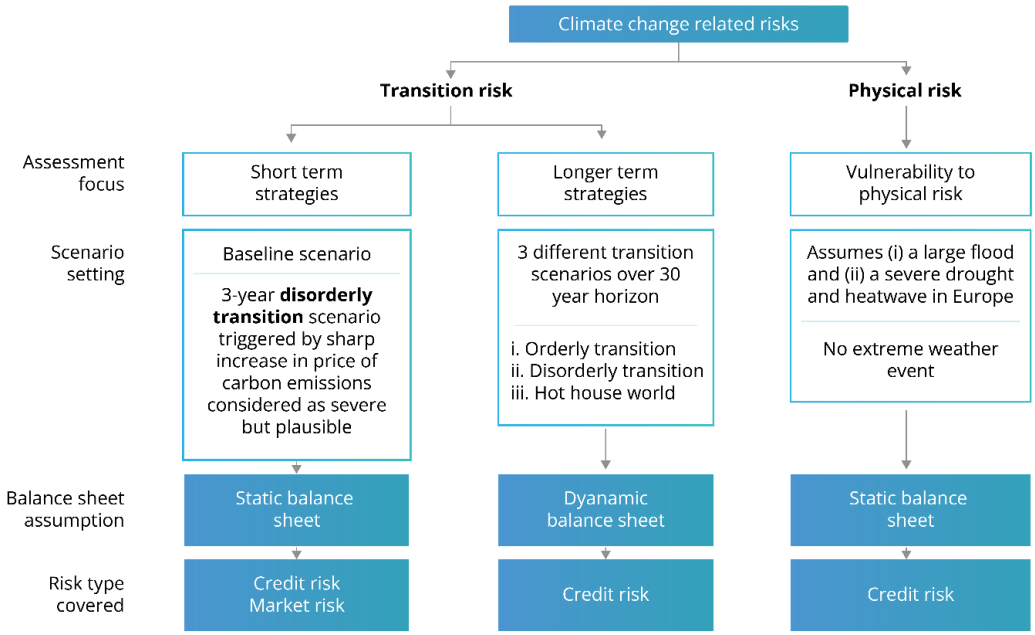
[39] Enrica Bolognesi, et.al., "Stakeholders and regulatory pressure on ESG disclosure", *International Review of Financial Analysis*, 2025.
[40] European Central Bank, Stress Tests, https://www.bankingsupervision.europa.eu/activities/stresstests/html/index.en.html
[41] Otoritas Jasa Keuangan, "Panduan Climate Risk Stress Testing Perbankan", Vol.1, 2023, https://keuanganberkelanjutan.ojk.go.id/keuanganberkelanjutan/BE/uploads/siaranpers/files/file_43c58be0-de3f-48a1-bfe6-b4ce47232812-14032024105702.pdf

Figure 9. Main components to ECB climate risk stress testing

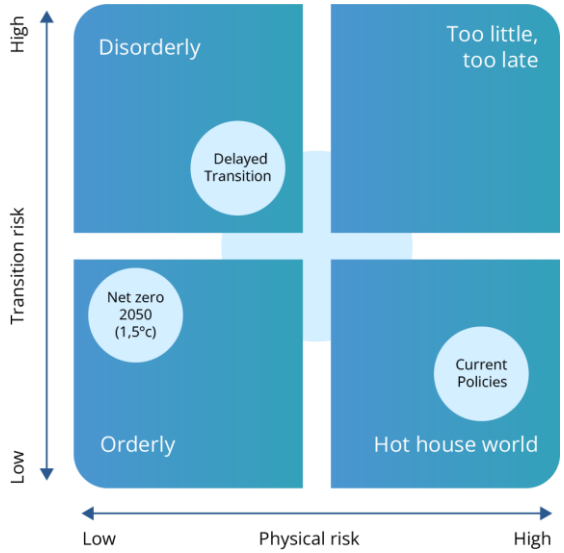


Source: PWC (2022)

Climate stress testing adoption in Southeast Asia

In order to require banks to conduct CRST, several countries already provide guidance, such as Malaysia, Singapore, and Indonesia. Other countries are currently preparing guidelines on CRST, such as the Philippines and Thailand. They use the scenarios produced by the Network for Greening the Financial System (NGFS) to conduct this stress testing. [42]

Figure 10. NGFS climate scenario



Source: Bank Mandiri (2024)

Among Southeast Asia countries, Singapore spearheaded industry-wide CRST. In 2018, as part of an industry-wide stress test exercise, the Monetary Authority of Singapore (MAS) put insurers through a scenario in which Singapore experienced severe flooding which would possibly result in more claims for damaged property and

[42] Interview with ASEAN+3 Macroeconomic Research Office (AMRO), Feb.14, 2024

affect the insurer's balance sheets.[43] Since 2022, banks in Singapore have had to conduct climate-risk stress testing aside from regulatory disclosure to enhance their capability in handling climate risks tied to their borrowers.[44]

Indonesia and Malaysia started to implement CRST in 2024. In Indonesia, Bank Indonesia (BI) initiated CRST in 2024 for 11 major banks which will be expanded to all banks in 2026. The implementation was implemented after the Indonesian Financial Services Authority, (Otoritas Jasa Keuangan, OJK), released the guidelines for CSRT in 2023. As of the reporting in July 2024, the OJK refined the CSRT framework and expanded the CSRT target toward 18 banks with core capital of more than Rp 14 trillion (US$843 million).[45]

As for Malaysia, the central bank, Bank Negara Malaysia (BNM) requires CRST for all financial institutions except licensed digital banks, licensed Islamic digital banks, and licensed investment banks, where participation is optional. The mandate was following the issuance of the 2024 Climate Risk Stress Testing Exercise – Methodology Paper, by BNM in February 2024.

In Thailand, banks have also started to conduct CRST. The Bank of Thailand aims for the implementation of climate scenario analysis with physical risk in 2025 and transitional risk in 2026.[46] Due to this target, banks in Thailand are currently preparing to meet the requirements.

The Central Bank of the Philippines (Bank Sentral ng Philipinas, BSP) has conducted stress testing and incorporated climate scenarios focusing on forward-looking transition-based forecasts such as the NGFS scenarios. BSP already requires banks to incorporate ESG risks into stress testing procedures.[47] To improve the implementation for banks, BSP will work with the industry to create guidelines for CSRT so that banks are better prepared to meet this need.[48]

In Vietnam, the State Bank of Vietnam already requires banks to integrate ESG risks as part of a bank's credit risk assessment.

Southeast Asia regulators had made significant progress by beginning CRST before the Basel Committee released the guidelines on climate risk with the idea of reducing the cost of green financing for industry and increase the cost of financing for high polluting industries.[49]

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[43] Monetary Authority of Singapore, "Regulatory and Supervisory Approach", https://www.mas.gov.sg/development/sustainable-finance/regulatory-and-supervisory-approach
[44] The Straits Times, "Singapore aims to curb 'greenwashing' via stress tests, technology: MAS", Nov.8, 2021 https://www.straitstimes.com/business/banking/singapore-aims-to-curb-greenwashing-via-stress-tests-technology-mas
[45] Otoritas Jasa Keuangan, "Climate Risk Management & Scenario Analysis Perbankan 2024", https://ojk.go.id/id/berita-dan-kegiatan/info-terkini/Documents/Pages/Climate-Risk-Management-and-Scenario-Analysis-CRMS/
[46] Interview with Kasikorn Bank, Mar.11, 2025
[47] Bangko Sentral ng Pilipinas, "Sustainable Central Banking Strategy", 2022, https://www.bsp.gov.ph/StrategicPrograms/SCBS-final%20(1).pdf
[48] Bangko Sentral ng Pilipinas, Sustainability Report 2023, 2024, https://www.bsp.gov.ph/Media_And_Research/Publications/2023_BSP_Sustainability_Report.pdf
[49] Interview with ASEAN+3 Macroeconomic Research Office (AMRO), Feb.14, 2024

CRST challenges

In general, climate-risk assessment poses challenges for financial institutions to adopt. There are inherent difficulties with the current approaches because climate assessments are complex and often rely on approximations. Financial sector players frequently run into similar problems when attempting to fully evaluate the potential and hazards associated with climate change. There are several key challenges in the assessment such as:

- Sector specific analysis: Each sector has distinctive complexities in risk assessment due to the sensitivity to climate variables and dependence on locations
- Evaluating unlisted assets: Data gaps and unavailability are challenges to risk assessment for unlisted asset and SMEs, which could possibly affect the breadth and accuracy of the climate-risk assessments
- Supply chain analysis: It is still difficult to conduct a thorough assessment of supply chains, particularly when taking interdependencies and the possibility of cascading effects into account.[50]

Furthermore, CRST in Southeast Asia faces more challenges when compared with the EU. First, in terms of economic structure, Southeast Asia has larger extractive and agricultural sectors, resulting in a different profile of GHG emissions, including scope 1 (direct emissions) and scope 3 (value chain emissions). Second, the different kind of acute weather events in Southeast Asia could include hypothetical scenarios such as once-in-a-hundred-year floods that inundate towns and agricultural heartlands or severe storms and typhoons that cause infrastructure damage. As Southeast Asia relies heavily on the oil and gas industry for exports, under the high transition risk scenario these stranded assets can cause collateral values to be adversely impacted.[51]

Therefore, it can be difficult for Southeast Asian financial institutions to conduct CRST with the limited data availability, geographical circumstances, and economic landscape. Although CRST and green taxonomy have been put in place they are not sufficient to increase green financing. The unavailability of financial emission data contributes to the effectiveness of green financing. CRST is also an issue for banks in Thailand as it must relate to the international reporting standards, such as the Task Force on Climate-Related Disclosure (TCFD). The scenarios used in CRST consist of the physical risk and transition risk and it is difficult for banks to quantify transition risks and improve data availability to quantify physical risks.[52]

[50] United Nations Environment Programme Finance Initiative, "2024 Climate Risk Landscape Report", 2024, https://www.unepfi.org/wordpress/wp-content/uploads/2024/04/Climate-Risk-Landscape-2024.pdf
[51] Price Waterhousecooper, "Risk and Regulatory Outlook 2022", 2022, https://www.pwc.com/my/en/assets/publications/2022/pwc-risk-regulatory-outlook-2022-rising-tides1.pdf
[52] Interview with Kasikorn Bank, Mar.11, 2025

Sustainability reporting

Sustainability reporting is a major part of the corporate governance initiative to increase green financing. If sustainability reporting comes from the real sector then it can be followed by financial institutions that provide financing. Therefore, sustainability reporting serves two goals for economic players. First, sustainability reporting needs to provide information for the investor providing financing. Second, sustainability reporting must provide accountability, including supply chains and stakeholders.[53]

Sustainability reporting is mandatory in several Southeast Asia countries for PLCs as well for financial institutions. In Indonesia, Malaysia, Singapore, Thailand, and Philippines, sustainability reporting is mandatory for PLCs. These countries also provide guidelines for PLCs in sustainability reporting with international sustainability standards such as the TCFD. Some of them also prepare guidelines with recently issued standards, such as IFRS S1 and IFRS S2. In Singapore, the Singapore Exchange has even expanded the requirement for sustainability reporting to big non-listed companies for 2027.[54]

Indonesia, Malaysia, and Singapore have mandated their banks to make sustainability reports annually, and the financial regulators have issued guidance to be followed by banks. However, in the case of Thailand, banks are not obliged to release sustainability reports. Nevertheless, the Bank of Thailand has released a policy statement on environmental and climate transition assessments, encouraging financial institutions to align their activities with pertinent reporting criteria.[55]

Although in Vietnam there is no sustainability reporting mandate for banks and PLCs, it is currently on the path toward requiring sustainability reporting by mandating that PLCs report their GHG emissions. As for banks, they are required to establish climate analysis divisions by 2025. [56] Multilateral organizations such as the International Finance Corporation (IFC) also help with the guidelines to encourage better ESG disclosure in the capital market and to align with the international framework of the Global Reporting Initiative (GRI).[57] This path can be also followed by other Southeast Asia Nations that have no sustainability reporting mandate to increase green financing activities in their respective countries, such as Cambodia, Myanmar, Laos and Brunei.

There are several sustainability reporting standards such as the GRI, TCFD, IFRS S1, and IFRS S2.

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[53] Interview with Sustainable Finance Institute Asia on Feb.7, 2024

[54] Channel News Asia, "More Singapore businesses will have to report sustainability information, starting with listed firms in 2025", Feb.28, 2024, https://www.channelnewsasia.com/singapore/singapore-mandatory-climate-disclosures-listed-companies-2025-4155586

[55] Crisil, "Climate risk regulation in Asia-Pacific", 2023, https://www.crisil.com/content/dam/crisil/our-analysis/reports/global-research-and-risk-solutions/2023/09/climate-risk-regulation-in-asia-pacific/climate-risk-regulation-in-asia-pacific.pdf

[56] Council on economic policies, "How the State Bank of Vietnam Deals With Climate Risks", Dec.13, 2022, https://www.cepweb.org/how-the-state-bank-of-vietnam-deals-with-climate-risks/

[57] Sustainable Banking and Finance Network and International Finance Corporation, "Vietnam Country Progress Report", 2022, https://www.sbfnetwork.org/wp-content/uploads/pdfs/2021_Global_Progress_Report_Downloads/2021_Country_Progress_Report_Vietnam.pdf

Global Reporting Initiative (GRI)

The GRI standards were issued by the Global Sustainability Standards Board (GSSB), which was founded in 1997. The GRI is the first and most widely used global sustainability reporting standard adopted by more than 10,000 companies around the world.[58] In Asia Pacific, GRI standards were adopted by a majority of companies and remain the dominant sustainability reporting standard, including for companies based in Southeast Asia. In 2022, more than 80 percent of companies in Singapore, Indonesia, Thailand, Philippines, and Malaysia adopted the GRI. While the TCFD is adopted by around 60 percent of companies in Singapore, Malaysia, Thailand, and the Philippines.[59]

Task Force on Climate-related Financial Disclosure (TCFD)

The Financial Stability Board (FSB), headquartered in Basel, Switzerland, brings together representatives from national financial stability authorities, international financial institutions, and regulatory bodies. It established the TCFD to provide a framework that could be followed by companies and financial institutions on the information they should disclose to help investors, lenders, and insurers assess climate-related risks. The framework consists of climate governance, strategy, financial risk of climate change management, metrics and targets.[60]

ESG reporting using the TCFD is now mandatory in Group of Seven (G7) countries, including Canada, France, Germany, Italy, Japan, the UK, and the US. In Southeast Asia, Singapore has required TCFD reporting for issuers in the financial, agriculture, and energy sectors since 2023, with reports due in 2024. In Malaysia, the national stock exchange, Bursa Malaysia, has mandated that issuers listed on the Main Market follow TCFD guidelines in their sustainability reports as of December 31, 2025. [61] Meanwhile, in Indonesia and Thailand some companies have voluntarily adopted the TCFD framework. In addition, the Bank of Thailand expects Thai banks to be able to report within the framework of the TCFD by 2025.[62] Multilateral organizations such as the ADB also support and implement the TCFD framework for their portfolios across countries.[63]

[58] GRI, "Global Sustainability Standards Board", https://www.globalreporting.org/standards/global-sustainability-standards-board/
[59] Pricewaterhouse Cooper, Sustainability Counts II, 2023, https://www.pwc.com/gx/en/issues/esg/esg-asia-pacific/sustainability-counts-2023.html
[60] PT Cikarang Listrindo Tbk, Sustainability Report 2022, https://www.idx.co.id/StaticData/NewsAndAnnouncement/ANNOUNCEMENTSTOCK/From_EREP/202303/e3f65ba782_cb944ecf26.pdf
[61] BDO Malaysia, "Navigating the next phase of sustainability reporting", 2024, https://www.bdo.my/en-gb/insights/featured-insights/navigating-the-next-phase-of-sustainability-reporting
[62] Interview with Kasikorn Bank representative on March 11, 2025
[63] Asian Development Bank, "ADB Announces Support for Task Force on Climate-Related Financial Disclosures", Nov.26, 2021, https://www.adb.org/news/adb-announces-support-task-force-climate-related-financial-disclosures

International Financial Reporting Standards (IFRS)

The ISSB was established by the IFRS Foundation in November 2021 at COP26 in Glasgow with a strong global demand to provide a timely, accurate, and thorough baseline of sustainability disclosure.[64] The ISSB released two documents on a sustainability disclosure framework, IFRS S1 and IFRS S2, in June 2023. A month later, in July 2023, The FSB said that the ISSB standards represent the 'culmination of the work of the TCFD', indicating that the TCFD had finished its work. After carrying out its mandate, the TCFD dissolved in October 2023.[65]

Several countries in Southeast Asia have moved toward the adoption of IFRS S1 and IFRS S2 for sustainability reporting. In 2024, the Singapore Exchange made a groundbreaking enhancement to require all listed companies as well as large non-listed companies to report climate-related disclosure with the local reporting standard that are aligned with IFRS S1 and IFRS S2. The mandatory climate-related reporting will be implemented through a phased approach, beginning with PLCs in 2025 and then for unlisted big companies in 2027. All companies must report on scope 1 (direct) and scope 2 (indirect) emissions in the first year then on scope 3 in the next year, allowing time to prepare for the more complex reporting on value chain emissions.[66]

Malaysia has followed a phased approach similar to that of Singapore. On September 2024, the Advisory Committee on Sustainability Reporting (ACSR) issued a National Sustainability Reporting Framework (NSRF), which incorporates IFRS S1 and IFRS S2. The regulation targets publicly listed issuers with over RM 2 billion in market capitalization for reporting beginning in January 1, 2025, gradually expanding toward all PLCs.[67]

As for Indonesia, Thailand, and the Philippines, the implementation of IFRS S1 and IFRS S2 is still underway. The Philippine Sustainability Reporting Committee (PSRC) is responsible for assessing the IFRS S1 and IFRS S2 interpretation and guidance in the Philippines to be able to be implemented in the financial sector. [68] [69] [70]

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[64] IFRS, "International Sustainability Standards Board", https://www.ifrs.org/groups/international-sustainability-standards-board/

[65] IFRS, "ISSB and TCFD", https://www.ifrs.org/sustainability/tcfd/

[66] Channel News Asia, "More Singapore businesses will have to report sustainability information, starting with listed firms in 2025", Feb.28, 2024, https://www.channelnewsasia.com/singapore/singapore-mandatory-climate-disclosures-listed-companies-2025-4155586

[67] Securities Commission Malaysia, "National Sustainability Reporting Framework", https://www.sc.com.my/nsrf#:~:text=The%20National%20Sustainability%20Reporting%20Framework,Climate%2DFirst%20Approach

[68] Bangko Sentral ng Pilipinas, Sustainability Report 2023, 2024, https://www.bsp.gov.ph/Media_And_Research/Publications/2023_BSP_Sustainability_Report.pdf

[69] Written Interview with Ototritas Jasa Keuangan

[70] Interview with Kasikorn Bank representative on March 11, 2025

Challenge of the sustainability reporting

Sustainability reporting is a fundamental tool to promote green financing. Through disclosure of reliable environmental-related data, it can be the basis for banks to lend money and attract investors in the equity market. Although sustainability reporting has been implemented for more than a decade in various institutions in Southeast Asia, there are still many challenges that may hinder green financing in Southeast Asia.

First, with the existing international sustainability reporting standards available, companies have the flexibility to adopt their standards. However, different standards will cause difficulties in comparing sustainability reports among companies. Therefore, interoperability across sustainability reporting is a crucial aspect of sustainability reporting in Southeast Asia.[71]

Another important issue with sustainability reporting is supply chain data. Sustainability reporting serves as the basis for financial institutions to provide green financing instruments to market players. If they lack environmental-related data such as GHG emissions from companies involved in the supply chain that do not have data, it could hamper green financing.[72]

This aligns with findings from the TCFD implementation in Malaysia, where low-quality GHG emissions data from the supply chain poses challenges in assessing climate-related risks and opportunities.[73] The lack of supply chain data is especially concerning given that micro, small, and medium enterprises (MSMEs) account for the largest share of Southeast Asia's economy. While several countries in Southeast Asia already impose sustainability reporting as a requirement, there is no guideline and requirement for MSMEs, which could hinder access to green finance. MSMEs—due to limited capacity—are in fact the group most in need of support for sustainability disclosure.[74] In the case of Indonesia, the MSME potential will be a challenge to be explored, especially for banks with core capital of less than Rp 5 trillion (BUKU 1 and BUKU 2) and rural banks (BPR).[75]

Moreover, in the case of Malaysia, TCFD reporting requires sophisticated modeling techniques to evaluate various climate scenarios, which requires in-house capability. Malaysian financial actors may need to undergo significant organizational changes, such as updating policies and procedures and improving internal capabilities, in order to integrate TCFD reporting with financial reporting.[76] In the case of Indonesia, organization capabilities have also emerged as an issue, as the demand for sustainable financing increases.[77] Lack of expertise and uneven expertise across the banking sector can lead to different experiences for borrowers as banks require different requirements to be submitted.[78]

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[71] Interview with Sustainable Finance Institute Asia on Feb.7, 2024
[72] Interview with Sustainable Finance Institute Asia on Feb.7, 2024
[73] BDO Malaysia, "Navigating the next phase of sustainability reporting", 2024, https://www.bdo.my/en-gb/insights/featured-insights/navigating-the-next-phase-of-sustainability-reporting
[74] Interview with Sustainable Finance Institute Asia on Feb.7, 2024
[75] Focus Group Discussion on Feb.6, 2024 from ISD Division BRI
[76] BDO Malaysia, "Navigating the next phase of sustainability reporting", 2024, https://www.bdo.my/en-gb/insights/featured-insights/navigating-the-next-phase-of-sustainability-reporting
[77] Written Interview with Ototritas Jasa Keuangan
[78] Focus Group Discussion on Feb.6, 2024 from Goods Corporate Governance and Sustainability of CIMB Niaga

The need for expertise also extends beyond the financial sector, as the demand for green financing originates from the real economy. Sustainability reporting did not begin with banks but with real economy players.[79]In addition to a bank's internal emissions data, there are also financed emissions—emissions generated by the bank's portfolio. It is crucial to assess the emissions data for each portfolio, yet comprehensive data is often scarce, except for portfolios specifically focused on environmental initiatives. This poses a challenge, highlighting the need for greater awareness among borrowers to prioritize sustainability issues. [80]

The implementation of sustainability reporting also serves to prevent greenwashing, which is contrary to the spirit of green financing. Greenwashing is a practice where companies convey a false impression or misleading information about how a company's products are environmentally sound. The greenwashing problem exists globally, and it is a real challenge for the economy. With green financing increasing over the years in Southeast Asia, we have to carefully assess the risk of greenwashing in camouflaged data." [81] Therefore, sustainability reporting should focus not just on the amount of financing but on how effectively it is used for climate change mitigation and adaptation.[82]

[79] Interview with Sustainable Finance Institute Asia on Feb.7, 2024
[80] Focus Group Discussion on Feb.6, 2024 from ISD Division BRI
[81] Interview with Sustainable Finance Institute Asia on Feb.7, 2024
[82] Interview with Glasgow Financial Alliance for Net Zero (GFANZ) on Jan.23, 2025.

5. Financial Instruments

Transition Finance

Transition finance, in this context, is a category of financing for the purpose of supporting businesses and industries in their shift from high-carbon to low-carbon operations. Unlike green finance, which primarily funds projects that are already sustainable, transition finance provides capital to industries that are currently reliant on fossil fuels or other environmentally intensive processes but are committed to adopting greener practices over time. This type of financing is particularly relevant for sectors such as energy, heavy industry, transportation, and manufacturing, where the decarbonization process requires significant investment and technological upgrades.

In the ASEAN region, transition finance plays a crucial role due to the unique economic and energy landscapes of its member states. Many ASEAN economies are still in the process of transitioning from fossil fuel dependency toward renewable energy adoption. Countries such as Indonesia, Vietnam, and the Philippines have substantial coal-based energy infrastructure, and an immediate shift to renewable energy is neither economically nor logistically feasible. Transition finance bridges this gap by enabling companies and governments to implement gradual, science-based decarbonization strategies while maintaining economic stability.

Furthermore, ASEAN's industrial sectors, including manufacturing and transportation, are integral to regional economic growth but remain significant sources of greenhouse gas emissions. Transition finance supports these industries in adopting energy efficiency measures, carbon capture technologies, and alternative fuels, aligning them with national and regional climate goals. Additionally, financial mechanisms such as sustainability-linked loans and transition bonds help ensure that financing remains performance-based, incentivizing measurable environmental improvements over time. In response to the importance of the transition finance, the ASEAN Transition Finance Guide (ATFG) released a second edition in October 2024. The guidance includes the combination of six types of transition finance globally, consisting of climate ambition and implementation strategy. The right climate ambitions are needed to set the right targets. After the targets are set, there should be an implementation strategy to deliver on the ambitions. On top of that, there needs to be disclosure that relies on independent verification for credibility. [83]

Similar to the ASEAN taxonomy, the ATFG provides contextualized guidance for ASEAN member states to provide ease of adoption for companies in Southeast Asia in transition

[83] Interview with Sustainable Finance Institute Asia on Feb.7, 2024

finance. The main difference between the ATFG and other guidance globally is that most of them aim for the 1.5° target. But like the ASEAN taxonomy, many companies in Southeast Asia know that many companies cannot achieve the 1.5° target. [84]

However, transition finance poses several challenges in implementation. Transition finance assessments face difficulty in ensuring the data provided by the company in its transition effort is valid. It is challenging to believe companies' plans due to the technology they use not having been commercialized. [85] As a result of the difficulty in assessment, the product availability from the financial institutions is still limited, as seen in the case of Indonesia.[86]

In conclusion, with the current diverse economic and development stage in Southeast Asia, transition finance acts as a tool to facilitate the just transition in the region. Transition finance serves as the bridge for ASEAN member states to decarbonize their economies, while maintaining the balance between economic growth and climate commitments in the medium term. However, transition finance could only be effective in decarbonizing an economy with a clear sectoral pathway in the long term. This clear sectoral pathway includes the gradual decarbonization of key sectors generating the highest emissions such as manufacturing, energy, and transportation. Only with clear and gradual actions toward net-zero emissions, can transition finance ultimately foster a more resilient and sustainable regional economy.

Blended Finance

Decarbonizing an economy requires effort from private players and the public sector. While the potential for impact is substantial, certain investments in demand management may not offer clear or immediate returns for private investors. Some initiatives might even require innovative funding models. As a result, blended finance will play a crucial role in reducing investment risks and encouraging private sector participation.[87]

Blended finance is becoming increasingly popular as a method to expand development aid, which involves using development finance strategically to attract extra funding for sustainable development in developing countries.[88] Blended finance in Southeast Asia has already been mobilized to an extent by MDBs and green funds such as the ADB, the World Wide Fund for Nature (WWF), and Dutch Fund for Climate and Development (DCFD). The mechanism of blended finance, unlike traditional financing, is more robust and can improve the bankability of the projects they fund. On one hand, the specialized nature of blended financing significantly lowers the price of financing for pioneering green projects that would otherwise struggle to receive conventional credit or even green loans. On the other hand, the specialized nature of blended finance means it needs to be mobilized along with technical assistance from the financiers.[89]

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[84] Interview with Sustainable Finance Institute Asia on Feb.7, 2024
[85] Interview with Sustainable Finance Institute Asia on Feb.7, 2024
[86] Interview with Glasgow Financial Alliance for Net Zero (GFANZ) on Jan.23, 2025.
[87] Price Waterhousecooper, "Tapping into the power of blended finance", 2024, https://www.pwc.com/id/en/pwc-publications/industries-publications/energy--utilities---mining-publications/tapping-into-the-power-of-blended-finance.html
[88] Organisation for Economic Co-operation and Development (OECD), "Making Blended Finance Work for the Sustainable Development Goals", 2018, https://www.oecd.org/content/dam/oecd/en/publications/reports/2018/01/making-blended-finance-work-for-the-sustainable-development-goals_g1g88c68/9789264288768-en.pdf
[89] Interview with Dutch Fund for Climate and Development (DCFD) on Feb.10, 2025.

Nevertheless, multinational institutions help private players to shift their operations toward sustainable practices, subsequently helping them to qualify for green certification and allowing them to enter wider export markets with higher green standards, such as US and Europe. As a result, the assistance provided can help private players to commercialize their green projects.[90]

Case Study:
Financing transition efforts in Singapore

Singapore's Financing Asia's Transition Partnership (FAST-P) and Transition Credit Coalition (TRACTION) initiatives represent innovative approaches to mobilize for financing sustainable transitions while safeguarding stakeholder welfare. FAST-P is a public-private partnership launched to mobilize capital for Asia's low-carbon transition by establishing a platform that ensures the economic viability and social inclusivity of financing mechanisms. The FAST-P platform connects funds from development banks, DFIs, and philanthropic organizations with projects that prioritize a just transition, such as worker reskilling programs and support for communities affected by the shift away from carbon-intensive industries.

Without the FAST-P platform, these types of transition projects would be overlooked for large scale green projects. Understandably, clean energy projects such as the construction of renewable energy power plants are immediately recognizable as green at face value, which is why transition projects have a greater need for a specialized platform.

TRACTION, on the other hand, focuses on developing a transition credit system that supports decarbonization efforts in hard-to-abate sectors such as energy, heavy industry, and transport. Unlike conventional carbon credits, which primarily measure carbon offset or avoided emissions, TRACTION's transition credits emphasize measurable emissions-reductions efforts while ensuring that projects maintain the sustainability of their own operations. This model helps attract investment into transition efforts that might otherwise struggle to secure funding due to high upfront costs and long payback periods. By establishing clear criteria for credit issuance and ensuring compliance with rigorous environmental and social standards, TRACTION enhances investor confidence while promoting equitable economic adjustments for affected workers and communities.

Together, these initiatives have set a precedent for financing sustainable transitions by balancing environmental goals with socio-economic considerations. FAST-P's ability to de-risk transition investments and TRACTION's focus on integrity-based credits create a robust framework that aligns financial incentives with climate action. Their emphasis on stakeholder welfare—through social safeguards, capacity building, and fair compensation mechanisms—ensures that sustainability efforts do not disproportionately burden vulnerable groups. This integrated model serves as a blueprint for other economies seeking to finance transition efforts without exacerbating social inequalities.

[90] Interview with Dutch Fund for Climate and Development (DCFD) on Feb.10, 2025.

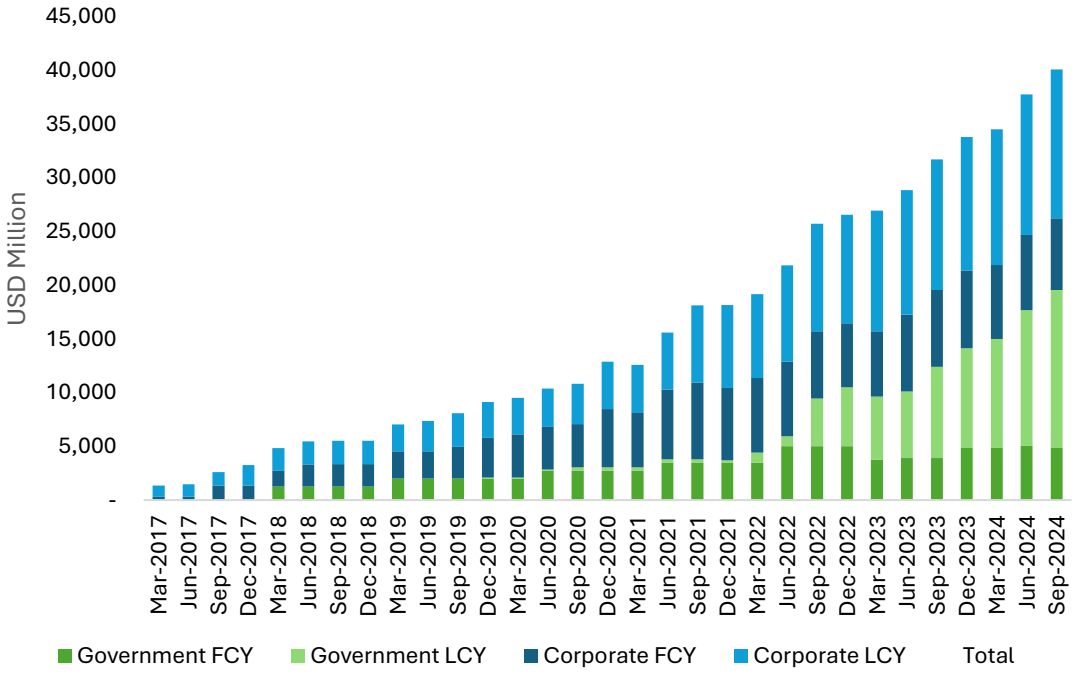
Green Bond and Green Loan (Debt Market)

The World Bank defines a green bond as a debt security issued to raise funds specifically for climate-related or environmental projects. Green bonds are an appealing financing option for businesses investing in energy efficiency, as they typically offer lower borrowing costs and fewer restrictions compared with traditional bank loans. The growing demand for green bonds is driven by a greater awareness of the negative environmental impact of economic activities.

Based on the purpose of the green bond issuance, almost half (around 43 percent) of the green bonds in Southeast Asia were used to fund green building development, far exceeding the global level of 18 percent. Meanwhile at the global level, the largest share of green bonds (38 percent) was used to fund renewable energy projects.[91]

In terms of the issuer type, just over half of outstanding green bonds (51 percent) in Southeast Asia were issued by private companies, mostly in Singapore, Thailand, Malaysia, and Indonesia. The majority of outstanding bonds in Southeast Asia, around 71 percent, are denominated in the local currency (LCY), reflecting local demand within the region to finance green projects in Southeast Asia (Figure 11).

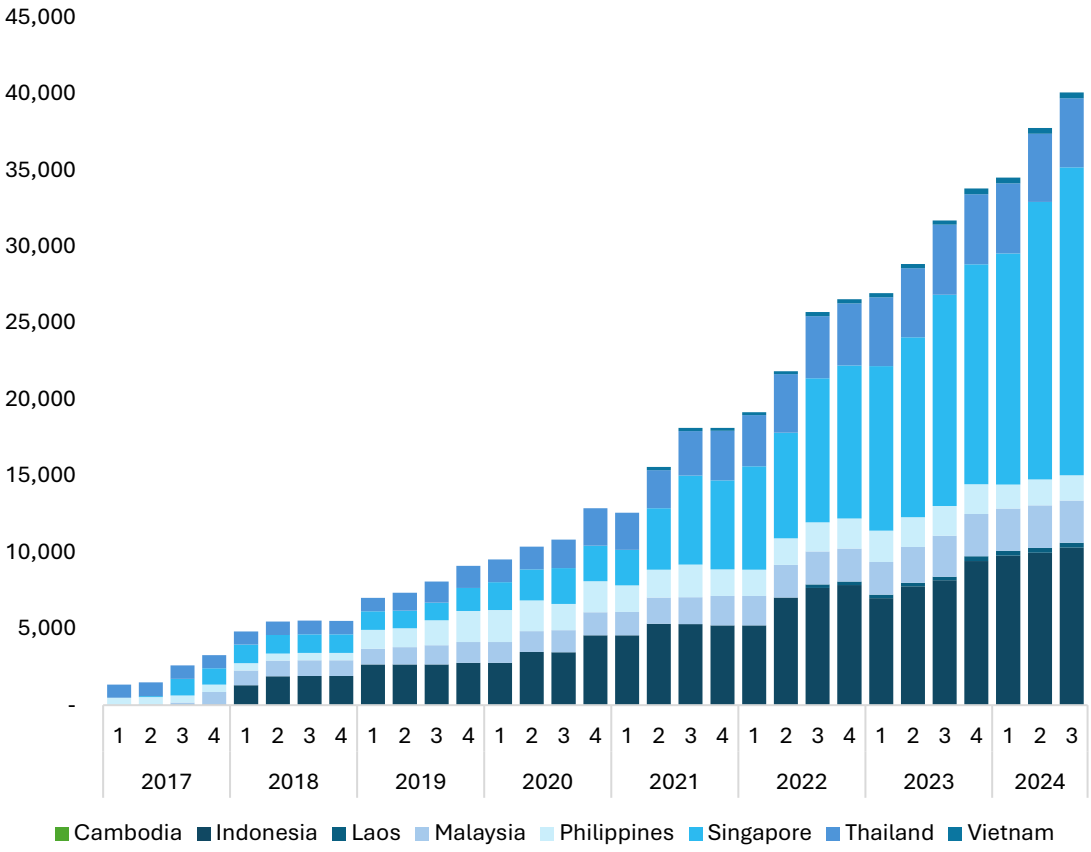
Figure 11. Green bonds outstanding in ASEAN based on the issuer type, 2017-2024



Source: Asian Bonds Online (2025)

[91] Dina Azhgaliyeva, Anant Kapoor and Yang Liu , "Green bonds for financing renewable energy and energy efficiency in Southeast Asia: A review of policies" , *ADB Working paper Series*, No.1073, 2020.

Figure 12. Green bonds outstanding in ASEAN based on country, 2017-2024



Source: Asian Bonds Online (2025)

In Southeast Asia, three countries lead in green bonds with 80 percent of the green bond outstanding: Singapore, Indonesia, and Thailand. Singapore has the largest base of green bonds outstanding in Southeast Asia with a 35 percent share, followed by Indonesia with 29 percent (Figure 10). The majority of green bonds outstanding in Indonesia are sovereign bonds, with a share of 66 percent. Meanwhile in Singapore, the trend in outstanding green bonds shifted in 2023 from domination by corporate bonds in the market to sovereign bonds. The corporate bonds outstanding now hold a share of 39 percent and government bonds outstanding hold a share of 61 percent. As for Thailand, they hold similar shares of 10 percent of total green bonds outstanding in Southeast Asia, of which 89 percent come from private issuers.

Singapore has steadily expanded its sustainable finance sector and is now the region's largest sustainable debt market, accounting for more than half of the total. [92] However, Indonesia and Malaysia have also made significant progress. Indonesia pioneered sovereign green bonds, while Malaysia led in corporate green Islamic bond–green sukuk–issuance.

[92] Interview with Monetary Authority of Singapore on Mar.21, 2025.

The rising corporate green bond issuance in Malaysia and Singapore arose from the incentive program for corporate issuers. To boost green bond issuance, Singapore introduced the Green Bond Grant Scheme in March 2017, later rebranded as the Sustainable Bond Grant Scheme (SBGS) in 2020, which offsets up to S$125,000 for eligible green, social, sustainability, sustainability-linked, and transition bonds.[93] [94] This program made Singapore the first Southeast Asian country to issue a corporate green bond, with City Developments Limited (CDL) raising US$100 million for sustainable building projects. [95]

In Malaysia, the Securities Commission launched the Sustainable and Responsible Investment (SRI) Sukuk framework in 2014 to encourage green sukuk issuance. [96] Incentives include tax deductions, grants for expert review costs, and tax exemptions under the Green SRI Sukuk Scheme (2018–2020). In July 2017, Malaysia introduced an SRI Sukuk Grant, and later that year, Tadau Energy issued the world's first corporate green sukuk, raising US$58 million for a solar power project. [97]

As for government bonds, Indonesia became the first Southeast Asian country to issue a sovereign green bond (green sukuk) in 2018, raising US$1.25 billion. This was supported by the Green Bond and Green Sukuk Framework (2017) to align Islamic finance with sustainability. Investors included 32 percent from Islamic markets, 25 percent from Asia, 18 percent from the US, 15 percent from the EU, and 10 percent from Indonesia, showing strong global interest. [98]

Indonesia continues to lead in Islamic green finance. As of May 2024, it had raised US$ 2.79 billion in retail green sukuks, with sovereign green bonds being the preferred financing tool. Investors mainly include development banks, commercial banks, and insurance companies, reflecting the rising demand for sustainable investments. [99] This trend highlights Indonesia's leadership in Islamic green finance and the increasing appetite for sustainable investments. [100]

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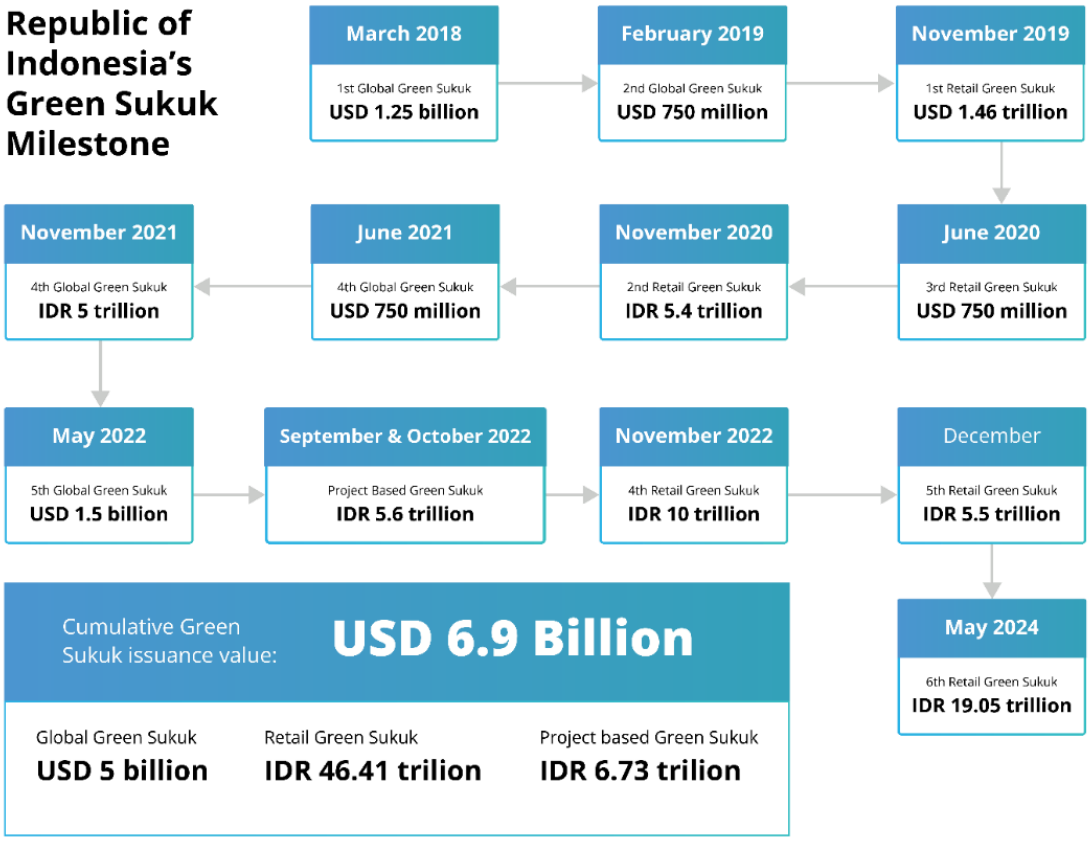
[93] PWC, 2020, "Sustainable finance developments in Singapore", 2020, https://tinyurl.com/3mvd2ypv
[94] Written interview with OCBC
[95] Youngho Chang, "Green Finance in Singapore: Barriers and Solutions", 2019, https://tinyurl.com/2jrc5bd7
[96] Dina Azhgaliyeva, Anant Kapoor and Yang Liu , "Green bonds for financing renewable energy and energy efficiency in Southeast Asia: A review of policies" , ADB Working paper Series, No.1073, 2020.
[97] Dina Azhgaliyeva and Zhanna Kapsalyamova, "Policy Support in Promoting Green Bonds in Asia", *ADB Working Paper Series,* No.1275*,* 2021.
[98] Kementerian Lingkungan Hidup dan Kehutanan, "Indonesia Terbitkan Green Sukuk Pertama di Dunia", Dec.10,2018, https://tinyurl.com/3kep9ha8
[99] Asian Development Bank, "Green Bond Market Survey for Indonesia", 2022, https://tinyurl.com/bdtfdd8n
[100] Asian Development Bank, "Green Bond Market Survey for Indonesia", 2022, https://tinyurl.com/bdtfdd8n

Figure 13. Indonesia's green sukuk issuance, 2018-2023



Source: Ministry of Finance Indonesia (2023), Ministry of Finance Indonesia(2024), Kontan (2024)[101] [102] [103]

Nevertheless, Indonesia is not the only country to issue sovereign green bonds, but also the Philippines, Thailand and Singapore. Singapore has made significant progress through the Green Bond Programme, which intends to issue sovereign green bonds up to S$35 billion by 2030. This hefty amount of debt is issued by government and statutory boards to finance large scale green public projects supporting sustainability goals. In the first launch of Singapore's sovereign green bond in August 2022, it raised S$2.4 billion, the biggest green bond issuance in Southeast Asia at the time. The issuance of sovereign green bonds sparked additional private sector activity, as the corporate green bond market will use these public sector green bond issuances as a benchmark, increase market liquidity for green bonds, and draw in green issuers, investors, and capital. In return, several businesses and financial institutions have issued their own green bonds.[104]

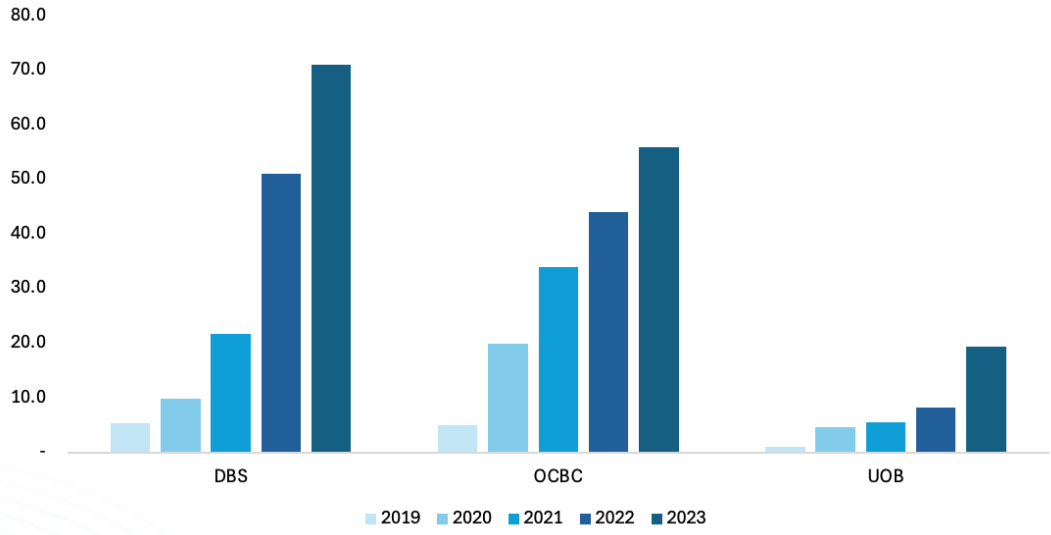
[101] Kementerian Keuangan, "Menutup Tahun 2023 Hasil Penerbitan Sukuk Tabungan seri ST011 Mencapai 20 T", Nov.11, 2023, https://www.djppr.kemenkeu.go.id/hasilpenjualanst011
[102] Kementerian Keuangan, "Green Sukuk Allocation and Impact Report 2023", https://api-djppr.kemenkeu.go.id/web/api/v1/media/18D7F060-7F13-41F5-9FE9-4B254B58D3E6
[103] Kontan, "Penawaran ST012 Resmi Berakhir Hari Ini (29/5), Penjualan Tembus Rp 19,05 Triliun", May.29, 2024, https://investasi.kontan.co.id/news/penawaran-st012-resmi-berakhir-hari-ini-295-penjualan-tembus-rp-1905-triliun
[104] Ministry of Finance Singapore, 2024, https://tinyurl.com/d2rp6vs7

Besides green bonds, companies also raise debt through other green instruments called green loans. Several countries provide incentives to enhance green loans, such as Singapore and Malaysia. Singapore's Monetary Authority (MAS) introduced the Green and Sustainability-Linked Loan Grant Scheme (GSG) in 2020. In 2023, the program was expanded to become the Sustainable Loan Grant Scheme, which helps businesses of all sizes get green, social, transition, and sustainability-related loans by covering the costs of hiring outside service providers to verify the loan's sustainability credentials. Through the Enterprise Financing Scheme-Green, Singapore also addresses the problem of technology-based solutions by supporting system integrators, project developers, and technology and solution enablers who create enabling technologies and solutions to reduce waste, resource use, or greenhouse gas emissions, particularly in the areas of clean energy, circular economy, green infrastructure, and clean transportation. Seventy percent of the risk will be shared by Enterprise Singapore in order to encourage financing from participating financial institutions. [105]

As a financial hub in Southeast Asia, Singapore's banking sector plays a major role in sustainable financing across Southeast Asia, benefiting from low net interest margins, which allow for competitive interest rates on green loans. The three largest Singaporean banks—DBS, UOB, and OCBC—have actively mobilized funds and provided advisory services for sustainable financing. In 2023 alone, S$146.5 billion was mobilized for green financing, with DBS leading at S$71 billion.

The rapid growth of sustainable financing in Singapore has outpaced other major banks in Southeast Asia, with DBS seeing a sevenfold increase, UOB growing fourfold, and OCBC experiencing a threefold rise. This trend highlights Singapore's strong position as a regional leader in green finance, driven by government incentives, a robust banking sector, and increasing corporate demand for sustainability-linked loans (Figure 14).

Figure 14. Sustainable financing in three biggest banks in Singapore, 2019-2023

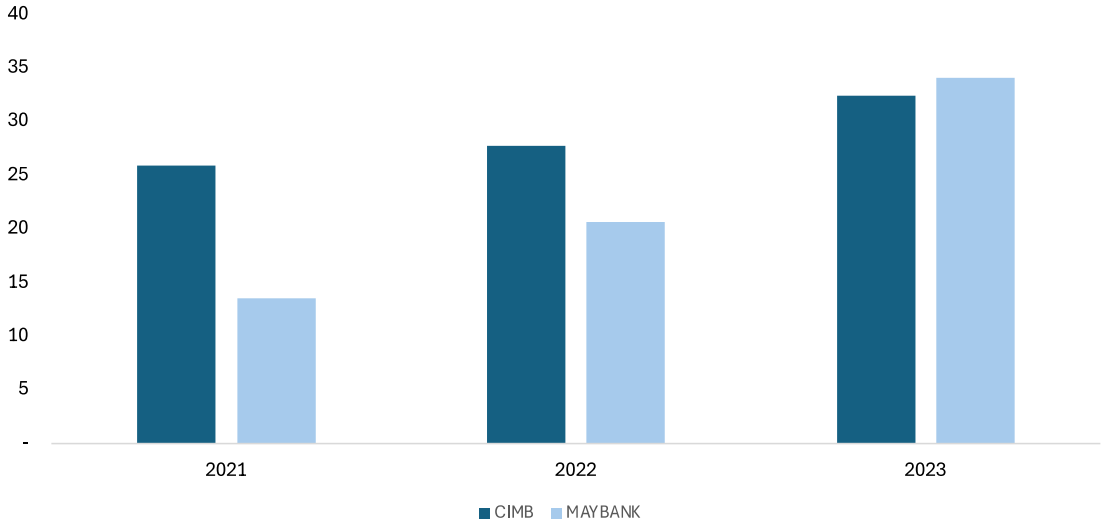


Source: Sustainability report from each bank

[105] Written interview with OCBC

Malaysia also has a similar program to incentivize banks in green loans. The Malaysian government has extended the Green Technology Financing Scheme (GTFS) until December 31 2025 through the GTFS 4.0. This program was initiated in 2010 to cover six key sectors namely energy, manufacturing, transport, building, waste, and water. One of the main enhancements of the GTFS 4.0 is the inclusion of housing developers and low carbon mobility infrastructure to be eligible for financing investments related to building and transportation projects with maximum financing of RM100 million and RM50 million respectively.[106] In 2023, the two biggest banks in Malaysia, CIMB and Maybank, mobilized sustainable financing of around RM 67 billion. In two years, Maybank sustainable financing grew significantly by 151 percent (Figure 15).

Figure 15. Sustainable financing in two biggest banks in Malaysia, 2021-2023



Source: Sustainability report from each bank

While Malaysia and Singapore provide subsidies as incentives for green financing, Indonesia takes a different approach by using macroprudential instruments. Bank Indonesia (BI) incentivizes commercial banks by exempting them from a portion of reserve requirements when they issue a certain amount of green loans. This policy lowers the cost of capital, making green financing more accessible and affordable.

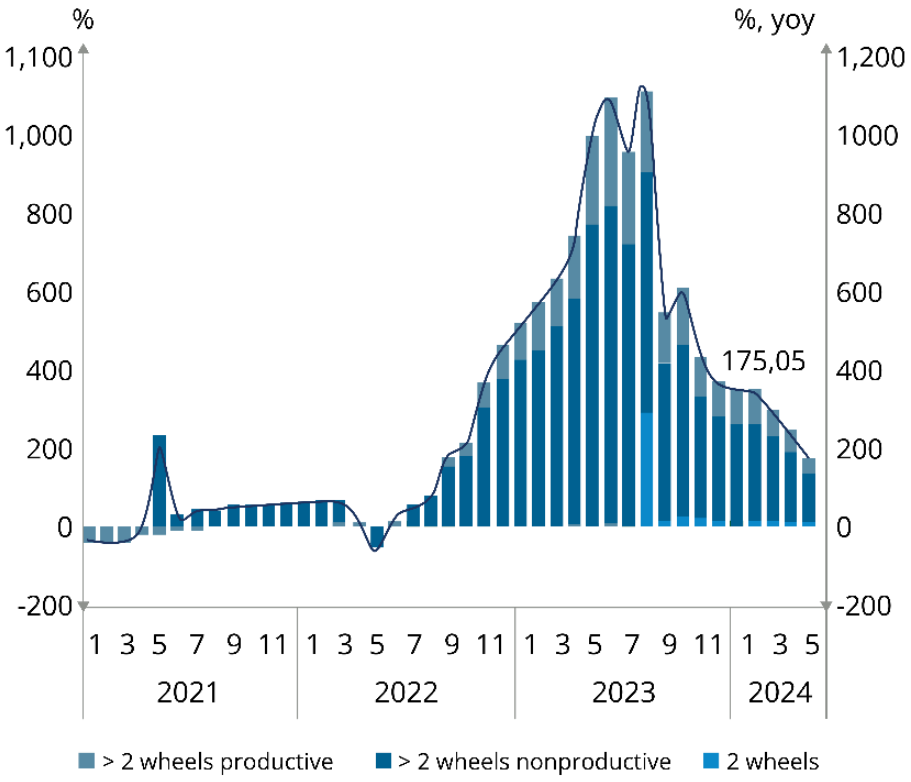
BI has also introduced green loan-to-value (LTV) / financing-to-value (FTV) ratios for real estate and vehicle loans that qualify as green. This allows banks to offer 100 percent financing for real estate projects that meet green building standards, including landed houses, apartments, and commercial buildings, with collateral ranging from Rp 5 billion to Rp 10 billion. For battery electric vehicles (BEVs), minimum down payment requirements have been significantly reduced, which previously ranged between 5 and 20 percent.[107]

These policies, combined with government incentives, have led to rapid growth in green financing. In the first half of 2024, green vehicle loans surged by 175 percent year-on-year (YoY), while green mortgages grew by 207.58 percent. This reflects increasing demand for

[106] Green Technology Financing Scheme, 2024, https://tinyurl.com/2s3sedf9
[107] Banque de France, "Green finance in the Asia-Pacific region: mobilisation spearheaded by central banks and supervisory authorities", 2021.

green investments and the effectiveness of Indonesia's macroprudential measures in driving sustainable finance.

Figure 16. Green vehicle credit growth based on the type of the vehicle, 2021-2024



Source: Bank Indonesia (2024)[108]

Opportunities in green bond and green loan market

Green bond issuance has become an opportunity for companies to improve their brand image among stakeholders, to show that they are engaging in sustainable practices. A few companies in Southeast Asia who issue green bonds do so because the acceptance by financial markets of the green bonds is a proxy for the company's commitment to sustainability from a reputational perspective.[109] As companies move to serve stakeholders as well as shareholders, this improvement can potentially increase the capital for the company through alternative financing. Green bond issuances can be an alternative for companies that work to green their operations and raise capital

The good example in this case is Thai company Thai Union, which has been very successful in the sustainable finance market. The company is involved in fisheries. The fisheries industry is considered contentious because of sustainability concerns. But Thai Union has been able

[108] Bank Indonesia, "Kajian Stabilitas Sistem Keuangan", No.43,September 2024, https://www.bi.go.id/KSK/Documents/KSK_4324_.pdf
[109] Interview with Sustainable Finance Institute Asia on Feb.7, 2024

to use financial discipline to provide credibility for the company as a whole in its sustainability agenda.[110]

Challenge in green bond and green loan market

Green financing is still in its infancy in many markets and confronts a number of significant obstacles for investors and green bond issuers. In terms of the demand side, the green bond market potential is high due to the higher investor appetite. For instance, in the case of Indonesia green bonds released by banks are oversubscribed, while in Thailand bid offers are three times higher.

However, on the supply side there are problems for the green bond issuer. The problems are mainly the expense of complying with green bond standards and their limited ability to absorb credit. [111] In addition, the term 'green' still lacks a globally clear and harmonized definition, which tends to cause uncertainty for the issuer and may increase the risk of greenwashing, especially when there is no clear definition, such as a taxonomy for cross-border investment.[112]

First, the role of small and medium-sized businesses (SMEs) in Southeast Asia in the supply chain is important. Due to the renewable energy industry's infancy, the majority of participants are SMEs, which means they have a lower market capitalization and perhaps worse performance histories than more established conventional energy providers. [113] Moreover, SMEs are mostly unable to issue green bonds since they are relatively smaller and have limited capacity to absorb loans, which impedes access by SME projects to green financing. Due to this constraint, green debt is primarily used to raise capital by larger organizations, which prevents wider participation in the market for green debt.

Second, the bankability of green projects determines whether the project owner can raise capital through the green debt market, including green bonds and green loans to increase the scale in the market. In the case of infrastructure projects, bankability is hard to attain as sustainable infrastructure projects have a distinctive cash flow profile characterized by large upfront costs and a long payback period. Moreover, the project owner has limited capacity to meet project preparation standards. In the case of renewable energy and water projects in Indonesia, low capacity and unreliable off-takers also are a challenge that needs a blended finance mechanism. In a blended finance mechanism, multinational corporations or the public sector usually intervene to offer revenue guarantees or other derisking tools for renewable energy projects, although regulatory reform and government capacity enhancements are also required.

[110] Interview with Sustainable Finance Institute Asia on Feb.7, 2024
[111] Dina Azhgaliyeva, Anant Kapoor and Yang Liu , "Green bonds for financing renewable energy and energy efficiency in Southeast Asia: A review of policies" , ADB Working paper Series, No.1073, 2020.
[112] Anh Huu Nguyen, et.al., "The Development of Green Bond in Developing Countries: Insights from Southeast Asia Market Participants", *The European Journal of Development Research,* 35:196–218, 2023.
[113] Thiam Hee Ng and Jacqueline Yujia Tao, "Bond financing for renewable energy in Asia", *Energy Policy,* Vol.95, pp.509-517, 2016.

Another major barrier to the widespread adoption of green bonds is the absence of a domestic market brought on by the lack of suitable projects at the national level.[114] Although there are a growing number of green projects in Southeast Asia, it is still insufficient to drive the supply of green bonds. This chicken-and-egg problem is a crucial issue in Southeast Asia as the number of green projects, particularly from the renewable energy projects, needs to be accelerated."[115] [116]

The absence of a developed pipeline of bankable green projects will also affect the scale of the debt market, which is a critical aspect that affects the pricing of the bond. In the case of Indonesia, the market for sukuk and debt securities is comparatively illiquid due to the debt market's relatively small size. In addition to making it easier to price new bonds in the primary market, more liquidity in secondary markets would benefit the market's overall growth.[117]

In terms of the process of issuing green bonds, the cost incurred in the green bonds issuance also becomes a factor that impedes green bonds issuance. Since green bonds have a different profile than conventional bonds, green bonds require additional verification costs. The expense of issuing green bonds can be high, ranging from US$10,000–US$100,000, and this is an obstacle for small issuers. The additional cost could cause the green bond issuer to lower the coupon rate for the bond buyer. However, since green bonds are considered superior to conventional bonds, the prospective bond buyer may require an interest rate slightly lower than a conventional bond to gain the maximum benefit for their portfolio. If the green bond issuer proceeds with the lower interest to meet the demand, it could reduce the profit margin for the green bond issuer as it has already spent more on raising the capital through the green bond.[118]

Therefore, several countries offer grants, subsidies, and other forms of assistance. They specifically design such policies to lower the costs of credit rating, external review, credit, and other expenses associated with issuing green bonds, or to offer a tax deduction for such expenses.[119] The green bond grant scheme has successfully promoted green bond issuance in Singapore and Malaysia.[120]

Carbon Market and Carbon Pricing

In line with the ASEAN Strategy for Carbon Neutrality, carbon pricing is a key instrument in the region's transition to a low-carbon economy since it promotes emission reductions and innovation. Additionally, many of ASEAN's major trading partners are including climate considerations into their trade policies, which puts increasing pressure on the region to match its climate policies with international norms, including the EU's Carbon Border Adjustment Mechanism (CBAM) and the US Inflation Reduction Act (US IRA).

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[114] Dina Azhgaliyeva, Anant Kapoor and Yang Liu , "Green bonds for financing renewable energy and energy efficiency in Southeast Asia: A review of policies" , ADB Working paper Series, No.1073, 2020.
[115] Interview with Bangkok Bank on Feb.13, 2025
[116] Focus Group Discussion on Feb.6, 2024 from Goods Corporate Governance and Sustainability of CIMB Niaga
[117] Climate Bonds Initiative, "Green Infrastructure Investment Opportunities: Indonesia Green Recovery 2022 report", 2022, https://www.climatebonds.net/files/reports/cbi_indonesia_giio_en.pdf
[118] Focus Group Discussion on Feb.6, 2024 from Goods Corporate Governance and Sustainability of CIMB Niaga
[119] Dina Azhgaliyeva and Zhanna Kapsalyamova, "Policy Support in Promoting Green Bonds in Asia", *ADB Working Paper Series,* No.1275*,* 2021.
[120] Dina Azhgaliyeva, Anant Kapoor and Yang Liu , "Green bonds for financing renewable energy and energy efficiency in Southeast Asia: A review of policies" , ADB Working paper Series, No.1073, 2020.

The full implementation of the EU CBAM is scheduled for 2026. It will be necessary for importers of specific commodities into the EU to get carbon permits equal to the emissions produced during manufacturing outside the EU. However, the European Commission has recently released an omnibus package to make it easier for companies to pay for carbon emissions on imported goods, including authorization of declarants, the calculation of emissions, the management of CBAM financial liability, and allowance for small CBAM importers to keep 99 percent of embedded emissions on imported goods under the CBAM.[121]

The US hallmark climate funding law, the IRA, works to encourage carbon labeling and supports producers in lowering embodied carbon emissions at every stage of manufacturing through tax credits, grants, and loans worth at least US$370 billion.[122] This policy was designed to accelerate the transition to net-zero emissions, which aligns with US climate objectives of 50 percent emissions reduction pledged under the Paris Agreement.[123] However the funding for the IRA is being frozen due to the administration of President Trump withdrawing from the Paris Agreement.[124] [125] Regardless of the climate policy dynamic in Europe and the US, ASEAN businesses should prepare by improving the way they operate and report carbon emissions, although this possesses risk of rising production costs. The transformation of the Southeast Asia economy is crucial and it can be achieved through the optimum carrot-and-stick approach, including the establishment of a carbon price plan.

Carbon pricing progress in Southeast Asia

Almost all of the ASEAN member states are involved in carbon pricing policies at different phases, from design and assessment to implementation. The only ASEAN nations with carbon pricing schemes in place at the moment are Singapore and Indonesia. Indonesia started its ETS in February 2023, and it is now the only one operating in the area. Coal-fired power station emissions are the specific focus of this ETS.

In 2019, Singapore introduced a carbon tax, marking another important milestone in the region's efforts to implement carbon pricing on facilities emitting over 25ktCO2e annually, covering more than 80 percent of national emissions and aimed at the top 50 polluters.[126] Initially, the carbon tax was set at about S$5/tCO2e then it increased to S$25/ton between 2024 and 2025, S$45/tCO2e in 2026, S$50–80/tCO2e by 2030. Meanwhile, Indonesia has been delaying carbon tax implementation from the initial plan of April 1, 2022 to 2025.[127]

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[121] European Commission, "Carbon Border Adjustment Mechanism", Mar.28, 2025, https://taxation-customs.ec.europa.eu/carbon-border-adjustment-mechanism_en

[122] Melinda Martinus, "The ASEAN Strategy for Carbon Neutrality: How to Move It Forward?", *Building an ASEAN Economic Community Beyond 2025*, 2024, https://lkyspp.nus.edu.sg/docs/default-source/cag/building-an-asean-economic-community-beyond-2025.pdf

[123] Asian Development Bank, "Greening Thy Neighbor: How the US Inflation Reduction Act Drives Climate Finance Globally", 2024, https://www.adb.org/sites/default/files/institutional-document/1007506/apcr2024bp-us-inflation-reduction-act-drives-climate-finance.pdf

[124] Manufacturing Dive, "Trump administration ordered to resume IRA funding", Apr.16, 2025 https://www.manufacturingdive.com/news/judge-orders-trump-reinstate-inflation-reduction-act-funding/745498/

[125] European Parliament, "US withdrawal from the Paris Climate Agreement and from the WHO ", Feb.5, 2025 https://www.europarl.europa.eu/thinktank/en/document/EPRS_ATA(2025)767230

[126] ASEAN Centre for Energy, "Progress of Carbon Pricing in ASEAN to Support the Shift Towards a Low Carbon Economy", *Policy Brief*, No.1, 2024

[127] Badan Pemeriksa Keuangan, "Dua Kali Ditunda, Menkeu Pastikan Pajak Karbon Tetap Berlaku di Tahun Ini", https://jdih.bpk.go.id/Info/Details/2dfad9e7-416d-4983-a31c-d1d250cdd45f

Figure 17. Overview of carbon pricing status in ASEAN

	Carbon pricing in climate change policy	Carbon tax	Emission Trading System (ETS)	Carbon credit
Brunei	✓	X	X	X
Cambodia	X	X	X	✓
Indonesia	✓	X	✓	✓
Laos	X	X	X	✓
Malaysia	✓	X	X	✓
Myanmar	X	X	X	✓
Philippines	✓	X	X	✓
Singapore	✓	✓	X	✓
Thailand	✓	X	X	✓
Vietnam	✓	X	X	✓

Source: ASEAN Centre for Energy (2024)

In regard to voluntary mechanisms, ASEAN member states, with the exception of Brunei Darussalam, have been engaging in VCMs that familiarize member states with carbon credit mechanisms. The market-based mechanisms include Clean Development Mechanism (CDM) projects under the Kyoto Mechanism and Joint Crediting Mechanism projects (JCM) through bilateral collaboration with Japan.[128]

[128] Hoyyen Chan, 'Voluntary Carbon Markets and Mechanisms in Lao PDR's Energy Sector', in Phoumin,H. and A. Phongsavath (eds.), Energy Security White Paper: Policy Directions for Inclusive and Sustainable Development for Lao PDR and the Implications for ASEAN. Jakarta: ERIA, 2024, pp. 254-289.

Figure 18. Voluntary carbon markets in ASEAN

	Experience with CDM (number of registered projects)	Experience with JCM (number of active projects)	Trading platform for coluntary carbon market	MOU partners for cooperation under article 6 of Paris Agreement (or equivalent)
Brunei	0	0	0	0
Cambodia	10	5	0	Japan, Singapore, Korea
Indonesia	156	36	IDXCarbon	Japan, Singapore, Norway
Laos	24	4	0	Japan, Korea
Malaysia	157	0	BCX	0
Myanmar	3	8	0	Japan, Korea
Philippines	77	6	0	Japan, Korea
Singapore	5	0	CIX	As a buyer
Thailand	155	42	FTIX	Japan, Singapore, Switzerland, Korea
Vietnam	260	30	By 2025	Japan, Singapore, Korea

Source: Chan (2024)

As of March 2024, Japan, the Republic of Korea, Norway, Singapore, and Switzerland were the five nations that had bilateral agreements with some ASEAN member states about carbon markets. Most member states collaborate with Japan, with the exception of Brunei Darussalam, Malaysia, and Singapore. A bilateral agreement was recently concluded between Indonesia and Norway. Following the signing of a bilateral agreement with Vietnam, the Republic of Korea started contacting additional possible partners, including Thailand, Cambodia, Laos, Myanmar, and the Philippines. While Switzerland now only works with Thailand, the E-Bus initiative cooperation is the first authorized Article 6 initiative in Asia (Figure 16).

Carbon market opportunities in Southeast Asia

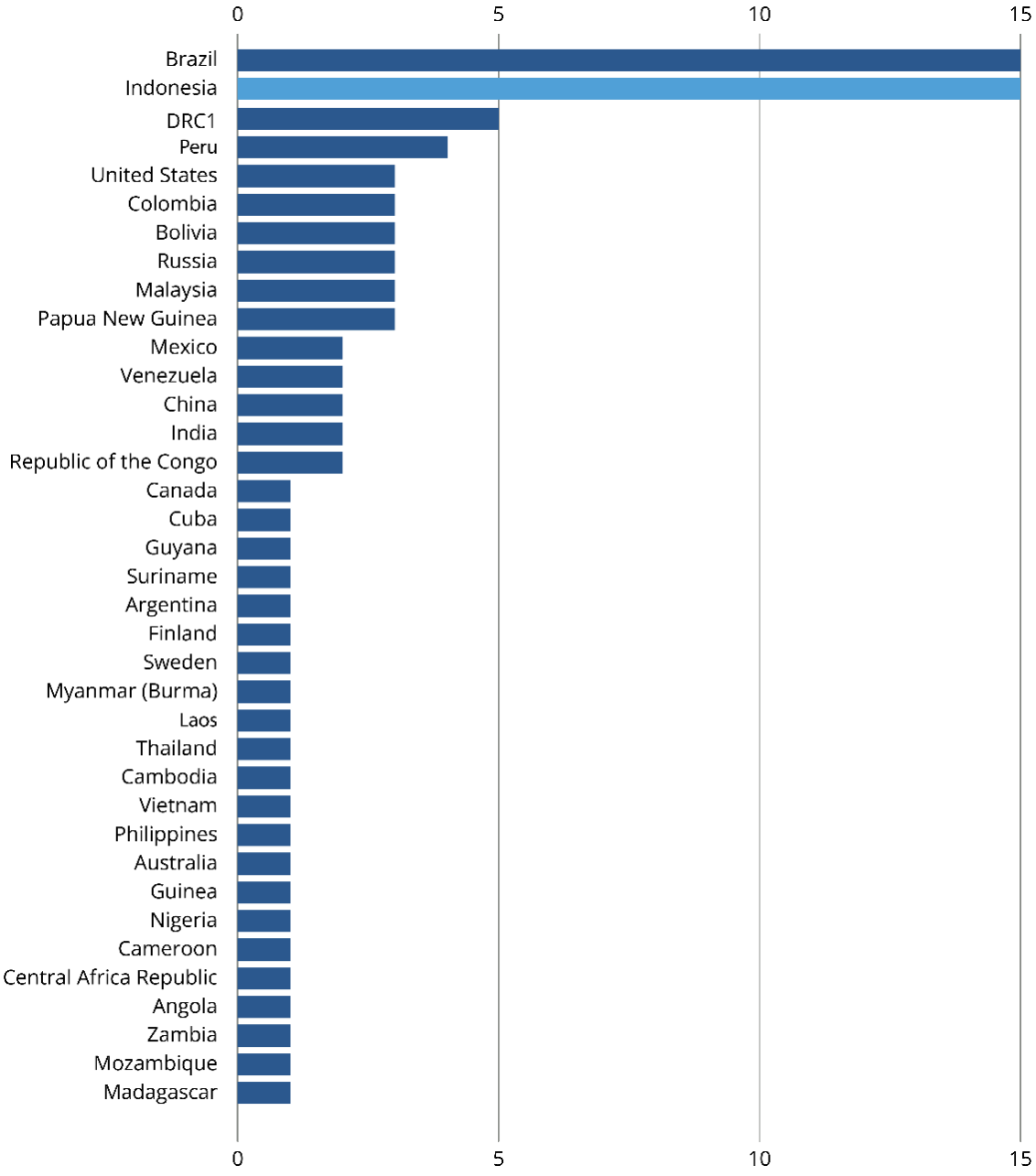
Companies can voluntarily offset their carbon footprint by purchasing carbon credits from activities that reduce or remove CO2 emissions. One key source of these credits is nature-based solution (NBS) projects, which are widely used in emerging markets due to their cost-effectiveness, environmental and social benefits, and abundant natural resources. Southeast Asia has strong potential for generating carbon credits through NBS projects, such as restoring degraded forests, mangroves, and peatlands. These projects enhance carbon sequestration and, when aligned with carbon standards, earn credits based on the amount of emissions reduced or avoided. [129] [130]

Examples of NBS projects in the region include Reducing Emissions from Deforestation and Forest Degradation (REDD+) and Blue Carbon initiatives. REDD+ helps maintain carbon stocks by preventing deforestation and promoting sustainable forest management. Indonesia, home to the world's third-largest tropical forest area implemented REDD+ between 2009 and 2014 on major islands like Sumatra, Sulawesi, and Kalimantan. Other countries, including Malaysia, the Philippines, Vietnam, and Cambodia, have also adopted REDD+.[131] [132] Blue Carbon projects focus on restoring and protecting coastal ecosystems such as seagrass beds, salt marshes, and mangroves, which store large amounts of carbon. [133]

Beyond NBS, technology-based solutions like biochar also offer carbon market opportunities. Biochar is a stable form of carbon produced by heating organic materials without oxygen (pyrolysis). When applied to soil, it enhances fertility while locking away carbon, contributing to climate mitigation efforts. [134]

[129] McKinsey, "Indonesia's green powerhouse promise: Ten bold moves", Apr.22, 2024, https://tinyurl.com/yewf7z8r
[130] McKinsey, "How carbon markets can help Malaysia achieve its climate targets", Sep.19, 2024, https://tinyurl.com/4yeerzx8
[131] Andrea Gatto and Elkhan Richard Sadik-Zada, "REDD+ in Indonesia: An assessment of the international environmental program**",** *Environment, Development and Sustainability,* 2024.
[132] World Rainforest Movement, "Bagaimana REDD berbasis Yurisdiksi di Indonesia Mengancam Hutan dan Menguntungkan LSM: Kasus Kalimantan Timur", Dec.15, 2024, https://tinyurl.com/tz6f6zsm
[133] Abatable, "The opportunity for carbon markets in ASEAN", Dec.9, 2024, https://tinyurl.com/bd6jvvrd
[134] Abatable, "The opportunity for carbon markets in ASEAN", Dec.9, 2024, https://tinyurl.com/bd6jvvrd

Figure 19. Share of nature-based solutions (NBS), in percent



Source: McKinsey (2024)

According to Figure 17, Indonesia and Malaysia rank among the top-ten countries in global NBS. Indonesia holds the largest share at 15 percent, with a carbon credit potential exceeding 1.5 $GtCO_2$. This potential is expected to increase tenfold between 2022 and 2030, driven by the rising number of corporations committing to emissions reductions, which is boosting global demand for carbon credits.[135] In addition to NBS share, Indonesia also has

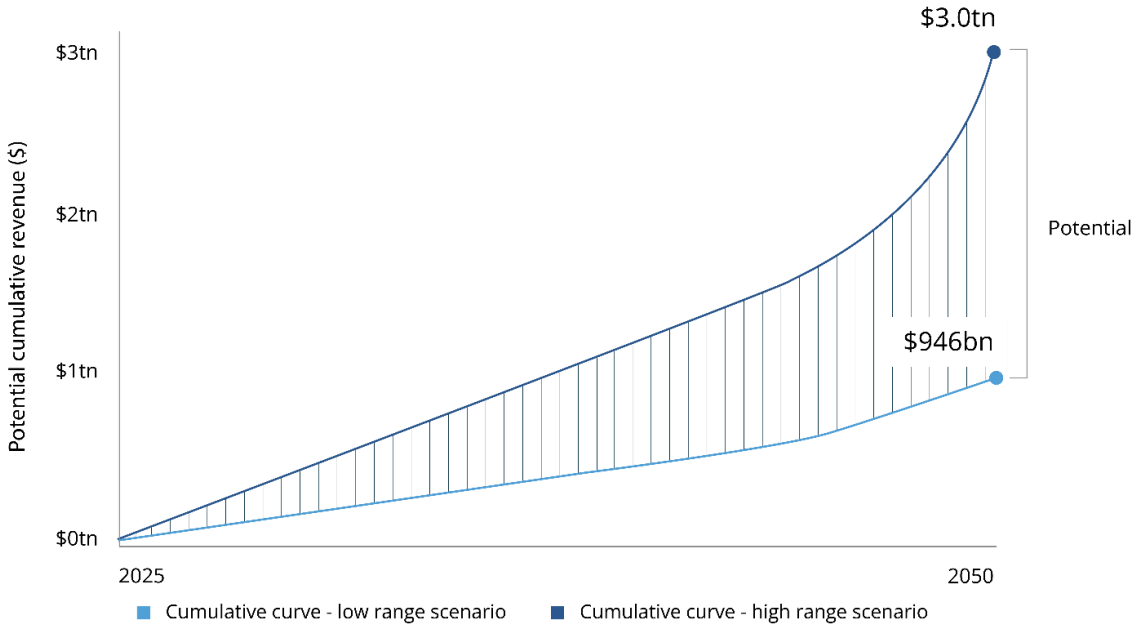
[135] McKinsey, "Indonesia's green powerhouse promise: Ten bold moves", Apr.22, 2024, https://tinyurl.com/yewf7z8r

a reputation for high-quality carbon credit. This is reflected by three out of six global projects receiving the award of best carbon projects coming from Indonesia.[136]

Malaysia follows in second place with a 3 percent share. In addition to Indonesia and Malaysia, Myanmar, Laos, Thailand, and Cambodia each hold approximately 1 percent of the global NBS market.

With the growing momentum of carbon credit generation in Southeast Asia, the region's carbon market could generate up to US$267 billion in annual revenue and create 13.7 million jobs by 2050. As a result, cumulative revenue from the Southeast Asian carbon market is projected to reach between US$946 billion and US$3 trillion between 2025 and 2050, while contributing to a 1.1-gigaton reduction in CO_2 emissions. [137]

Figure 20. Potential cumulative revenue from carbon markets in ASEAN

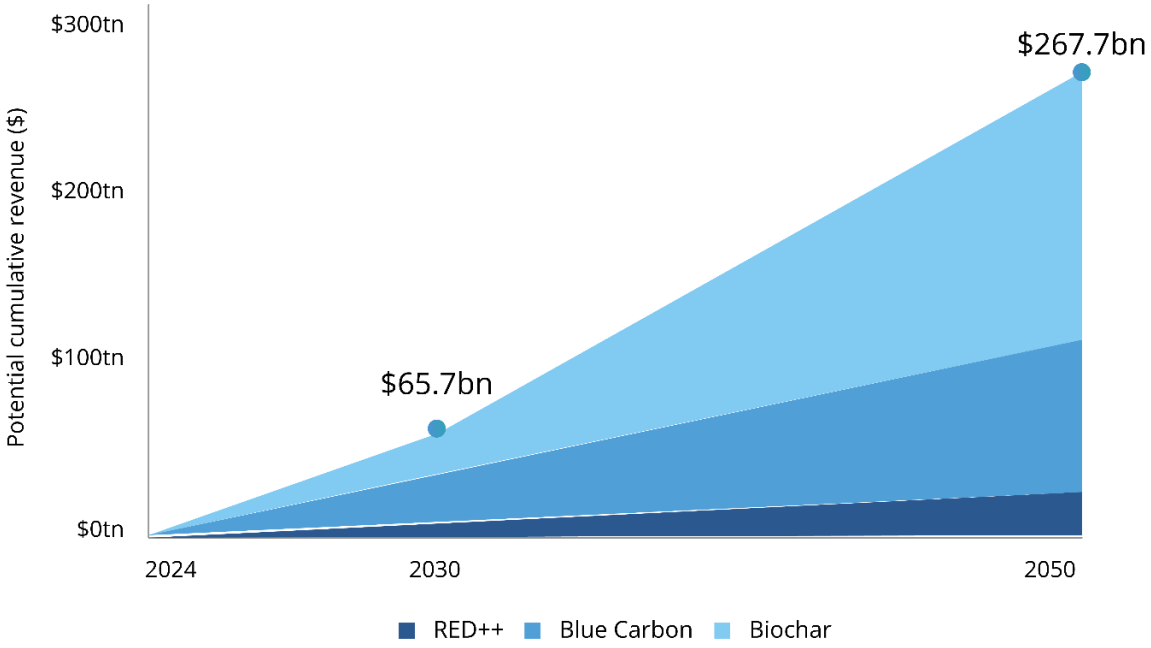


Source: Abatable (2024)

According to the project classification the highest carbon credit revenue potential in Southeast Asia, is generated by biochar with a market value of US$144 billion per year by 2050. The carbon credit revenue contribution is followed by Blue Carbon and REDD+ with market values of US$96 billion and US$27 billion, respectively.[138]

[136] Interview with the Indonesia Carbon Trade Association on Apr.14, 2025.
[137] Abatable, "The opportunity for carbon markets in ASEAN", Dec.9, 2024, https://tinyurl.com/bd6jvvrd
[138] Abatable, "The opportunity for carbon markets in ASEAN", Dec.9, 2024, https://tinyurl.com/bd6jvvrd

Figure 21. Potential annual ASEAN carbon market revenue by project type



Source: Abatable (2024)

Figure 21 shows that Southeast Asia has a solid basis to establish regional offset carbon markets and encourage green financing flows through NBS. The revenue from carbon credit can utilize the power of carbon markets to aid both decarbonization and economic growth in the region.

Given their potential to stimulate inward investments, increase GDP, generate employment, and preserve biodiversity, regulators throughout Southeast Asia are establishing the framework for voluntary and compliant carbon markets. These have the potential to generate millions of jobs and trillions of dollars in economic benefits, highlighting the important role that carbon markets may play in determining the future of the area.

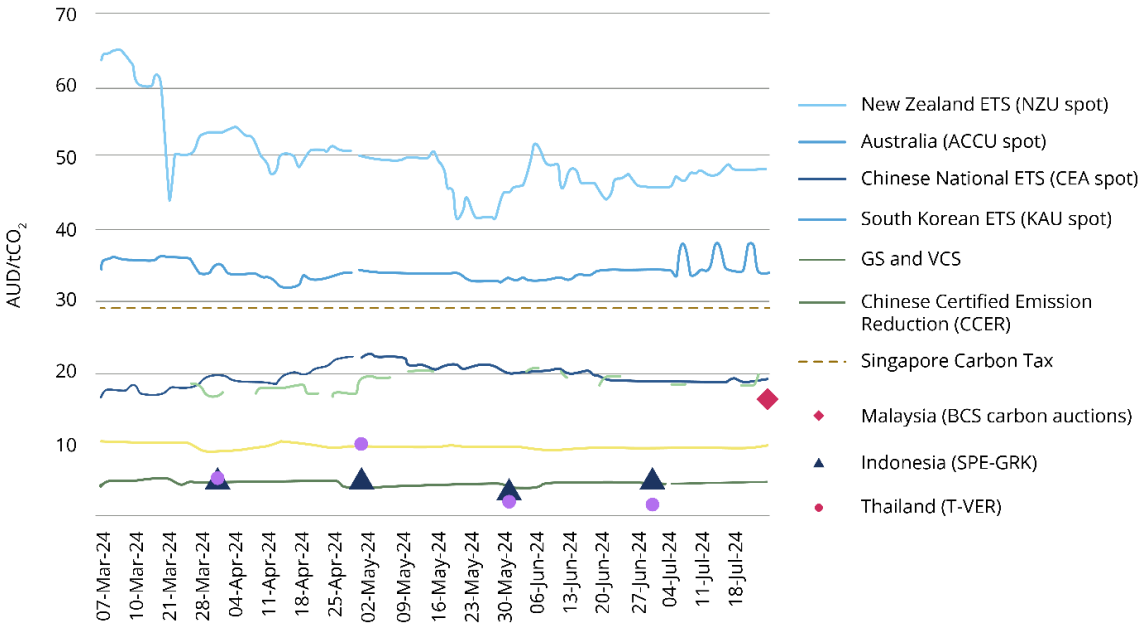
Carbon market challenge in Southeast Asia

Southeast Asia has homework to do to develop carbon pricing policies. Although voluntary carbon mechanisms exist in most of the ASEAN member states, there are challenges in the implementation of the existing carbon pricing policy.

First, the low price of carbon in the market may undermine the ultimate goal of decarbonization. Without a cap for industry players in a VCM, efforts by market participants to reduce emissions could be discouraged, as they may choose to purchase offset credits instead. As shown in Figure 20, carbon prices in Malaysia, Indonesia, Singapore, and Thailand remain lower than those in other major economies, including Australia and New Zealand. Even though Singapore recently raised its carbon tax from S$5 to S$25 per ton of CO_2e in 2024, it still lags behind other Asia-Pacific countries. Additionally, Indonesia's upcoming

carbon tax is set at Rp 30,000 per ton of CO_2e (approximately US$2/t$CO_2e$), which remains relatively low by international standards.[139]

Figure 22. Carbon prices in selected APAC countries



Source: Carbon Market Institute (2024)

Second, regional markets are changing quickly but they are still fragmented because of different trading platforms and legal frameworks. Multiple carbon exchanges, such IDXCarbon in Indonesia, BCX in Malaysia, and FTIX in Thailand, have found it difficult to drive investment and operational decisions due to low market liquidity and insufficient price discovery.[140]

Third, Southeast Asia has already launched several initiatives in establishing carbon markets, but it lags behind other similar regions such as Latin America. With similar potential in carbon credit and economic development conditions, four Latin American countries are undergoing preparations to impose a compliance carbon market, namely Brazil, Mexico, Colombia, and Chile. Mexico spearheaded the carbon tax policy in the region in 2014 by targeting fossil fuel producers and importers and has been imposing ETS since 2020, although it is still not fully operational. Besides Mexico, some other countries in the region also have carbon taxes in place, such as Colombia, Chile, and Paraguay. [141]

Meanwhile, in Southeast Asia, carbon taxes have only been implemented in Singapore and the ETS is only imposed in Indonesia for 99 CFPPs. In Vietnam, a pilot ETS is planned to be implemented between 2025 and 2027. While Malaysia and Thailand are still in the exploratory stages.[142]

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[139] Syaiful Iqbal, Shelly Diana, "Predicting Optimal Tariff of Indonesia's Carbon Tax: A Reflection on Japan and Singapore", *International Journal of Science and Business,* Vol.8, No.4, 2024, pp.541-556
[140] Carbon Market Institute, "International Carbon Market Update: States and Trends in the Asia Pacific", 2024 https://tinyurl.com/37hmtht7
[141] Argus, "**LatAm carbon markets continue to evolve**", 2024, https://tinyurl.com/mvysvf82
[142] Carbon Market Institute, "International Carbon Market Update: States and Trends in the Asia Pacific", 2024 https://tinyurl.com/37hmtht7

Case Study:
Challenges to Indonesia's carbon market

Indonesia launched its ETS in September 2023, targeting emissions from CFPPs, with plans to expand to other sectors. This makes Indonesia one of only two Southeast Asian countries, alongside Singapore, to implement direct carbon pricing policies.[143] The ETS operates through IDXCarbon, where two types of carbon units are traded: the allowance market (PTBAE-PU), which enforces emission quotas through cap-and-trade, and the offset market (SPEGRK), which allows companies to purchase carbon credits to meet reduction targets. [144]

After 16 months of implementation, Indonesia expanded its carbon trading market internationally through IDXCarbon. This progressive movement was made shortly after President Prabowo Subianto's inauguration, reflecting the unwavering commitment from the Indonesian government to achieve its climate objective. The Indonesian government has also allowed the international carbon credit standards and registry e.g. Verra standard, gold standard, etc. to be used in Indonesia along with the existing national standard (Sistem Registri Nasional, SRN). The allowance of the international carbon credit standards and registry is aimed at improving investor trust and leading to higher transaction value.[145] In the case of Singapore, the adoption of international standards paralleled with the international cooperation framework with various countries to trade carbon credits, has resulted in 1 million nature-based carbon credit transactions.[146]

The price of carbon credits in the international market has increased from US$4 per ton in 2023 to US$6 per ton for Indonesia Technology-Based Solution (IDTBS) units and US$9 per ton for IDTBS Renewable Energy (IDTBS-RE) units. [147] The carbon credit supply for international trading comes from five strategic energy projects, including natural gas power plants in Priok, Muara Karang, Grati, Muara Tawar, and a hydropower plant in Gunung Wagul, with a total volume of 2.48 million tons of carbon emissions. [148]

Despite its progress, Indonesia's carbon trading faces challenges. Indonesia's carbon market suffers from low liquidity, with trading transactions reaching only US$4.69 million and 111 participating entities—far below the potential of US$140 million and target of 200 entities. [149] [150] The voluntary nature of the market has contributed to slow adoption, indicating the need for policy adjustments to strengthen demand and improve market efficiency.

[143] Monetary Authority of Singapore, "Macroeconomic Review October 2024", 2024, https://tinyurl.com/26xtwpvk
[144] DJKN Kementerian Keuangan, "Mengenal Bursa Karbon Indonesia (Indonesia Carbon Exchange) dan Tantangannya di Masa Depan", 2024, https://tinyurl.com/3tcycapv
[145] Interview with the Indonesia Carbon Trade Association on Apr.14, 2025.
[146] Bain Company, "Southeast Asia's Green Economy 2024 Report", 2024, https://tinyurl.com/2nsrrm2t
[147] VOA, "Bursa Karbon Diresmikan, Catat Transaksi Hampir Rp32 Miliar pada Pembukaan", Sep.26, 2023, https://tinyurl.com/mpbnvcbc
[148] Tempo, "Indonesia Resmi Luncurkan Perdagangan Karbon Internasional", Jan.21, 2025, https://tinyurl.com/bdt5jsyn
[149] Antara, "Target volume perdagangan bursa karbon 2025", Jan.2, 2025, https://tinyurl.com/3266rr4u
[150] Kompas.com, "Bocoran OJK, Volume Perdagangan Bursa Karbon hingga Juli 2024 Belum Sesuai Ekspektasi", Jul.4, 2024, https://tinyurl.com/yc565wj9

Indonesia's carbon price remains relatively low, ranging between US$4 and US$6 per ton, far below the US$25 to US$35 per ton range recommended by the ADB for effective emission reduction. [151] Effective carbon pricing should create a strong financial incentive for domestic industries to reduce their emissions by investing in cleaner technologies or energy-efficiency improvements. However, if carbon prices remain too low, companies may not feel compelled to adopt sustainable practices, delaying the country's transition to a low-carbon economy.[152]

In addition to the domestic impact of low carbon price, moral hazard may arise as foreign companies may exploit this pricing disparity by purchasing Indonesian credits instead of taking more expensive but necessary actions to cut emissions. This situation could lead to carbon leakage, where companies continue emitting at high levels domestically while compensating through cheap international offsets, effectively undermining global emissions-reduction efforts. Ideally, companies should only resort to purchasing carbon offsets when all other emissions-reduction efforts—such as improving energy efficiency or transitioning to cleaner energy sources—are exhausted.[153]

In term of the governance in the existing ETS in Indonesia, a lack of clear emissions data and compliance from industry players has become a major issue in establishing carbon credit. [154] The low demand in Indonesia's carbon market comes from the unavailability of clear paths that rule out precise emissions limits and mandated offsets for specific industries. With strict limits imposed on industry players, carbon market trading can be utilized to accommodate emissions reduction in the short term and eventually lead to emissions reduction in the long term.

Support for the relevant industries is also needed to leverage the carbon market in Indonesia. As Indonesia is gradually shifting toward the green economy, the financial sector's role in encouraging green projects can be improved. Green project availability is the underlying factor in transaction values in the carbon market, which cannot be improved unless funding from financial institutions increases. Although the Financial Services Authority (Otoritas Jasa Keuangan, OJK) has issued a sustainable finance taxonomy, the involvement of financial institutions needs to be increased with the synchronization of policy across industries.

[151] Kompas, "ADB: Harga Karbon Terlalu Rendah untuk Berdampak pada Penurunan Emisi", Nov.2023, https://tinyurl.com/47tnwn3f
[152] The Jakarta Post, "Industry players demand clarity for carbon trade to deliver cuts", Mar.2, 2025, https://tinyurl.com/hryxbtrf
[153] The Jakarta Post, "Industry players demand clarity for carbon trade to deliver cuts", Mar.2, 2025, https://tinyurl.com/hryxbtrf
[154] The Jakarta Post, "Industry players demand clarity for carbon trade to deliver cuts", Mar.2, 2025, https://tinyurl.com/hryxbtrf

6. Recommendations

1. Strengthening the governance of green finance in ASEAN and its member states

It is important to support wider adoption and harmonization across member states. Currently, the implementation and adoption of green finance varies significantly among ASEAN countries due to differing national contexts, institutional capacities, and policy frameworks. One of the key drivers to improve uptake is the establishment of robust and coherent governance structures. Strong governance can provide clear policy direction, enhance regulatory certainty, and build investor confidence. To remain effective, regulatory bodies must also be adaptive and responsive to the evolving nature of green finance.

For instance, multilateral development banks (MDBs) and international partners have a critical role in this process. They could play a stronger role in providing technical assistance, de-risking capital, and building institutional capacity in areas such as regulatory supervision, sustainable banking practices, and public investment planning. Their involvement is particularly important in fostering private sector participation in green and just transition projects across emerging markets.

At the regional level, ASEAN institutions play a pivotal role in promoting policy coherence through both horizontal and vertical integration. Horizontally, this involves aligning efforts across various ASEAN bodies, for example, through the harmonization of green finance standards such as the ASEAN taxonomy and AGBS.

Vertically, ASEAN institutions can strengthen coordination with national financial authorities by identifying the specific needs and capacities of each member state. This approach enables the development of inclusive and context-sensitive policies that support more effective and consistent green finance governance across the region. Moreover, national-level policy coherence must be complemented by deeper integration through ASEAN platforms, particularly in coordinating regional taxonomies, disclosure frameworks, and capital market regulation.

2. Integration of transition finance as a bridge towards green finance

The landscape of energy transition, climate action, and sustainability in Southeast Asia is characterized by the need for a just transition that ensures the welfare of various stakeholders throughout the transition process. This includes creating credible transition plans, introducing differentiated labeling for transition-aligned instruments (e.g., transition bonds or sustainability-linked loans), however it needs to also promote transparency to avoid greenwashing and greenhushing.

Given the urgency of decarbonizing sectors such as manufacturing, energy, and transportation, transition finance frameworks must be supported by clear sectoral pathways and robust reporting standards. Transition finance should be integrated into national green

finance strategies to enable credible, science-based sectoral decarbonization. This approach extends itself into green finance, whereby multilateral initiatives in the region such as the ACGF, the ASEAN taxonomy and the AGBS work to create a green finance landscape that can be integrated with sustainable transition efforts.

Any action plan or policy to accelerate green finance in the region must be made with this principle of enabling transition efforts. If transition credit models were to be scaled up across Southeast Asia, the type of viable projects for green investment would exhibit significant growth. Given the region's diverse economies and varying levels of industrial dependence on carbon-intensive sectors, almost all major economic players would be incentivized to develop a just transition road map for their decarbonization efforts, preventing significant disruption to the local economy. A well-structured transition financing mechanism would ensure that businesses and industries receive the necessary support to shift toward lower emissions without jeopardizing jobs and economic stability.

3. Improve interoperability of green finance frameworks

ASEAN as a region is extremely diverse in various ways, culturally, economically, and socially. Because of this, it is extremely difficult to create a 'one size fits all' approach for green finance in the region. This is why one of the most important financial infrastructures to be established in the region is a 'common language' in the context of green finance, making the green finance market in each country as interoperable as possible to allow a smooth flow of capital between the various financial markets of each country.

One key effort to enhance green finance interoperability in ASEAN is the ASEAN taxonomy, which provides a unified classification system for economic activities that contribute to sustainability goals. Another significant initiative is the AGBS, which set guidelines for issuing green bonds in the region. Both initiatives represent the efforts to address the economic diversity of the region, establishing an adaptable framework for green investors that takes into account the respective needs of the individual countries.

To fully unlock cross-border capital flows, these frameworks must be scaled and integrated into national systems, ensuring alignment between domestic taxonomies and regional or global standards. This alignment will reduce transaction costs, enhance transparency, and build investor trust. Mutual recognition of sustainable finance standards can lower transaction costs, facilitate cross-border capital flows, and foster trust among investors. Institutional collaboration among securities regulators, central banks, and financial ministries must be strengthened to build coherence across markets.

4. Strengthen market infrastructure and transparency

A well-functioning green finance ecosystem requires robust market infrastructure and high levels of transparency to support informed investment decisions and reduce perceived risks. This involves improving data quality and availability, mandating consistent use of updated international disclosure frameworks, such as IFRS S1/S2, the GRI, and TCFD, and promoting ESG reporting as a strategic business tool, not merely a compliance exercise.

Strengthening market infrastructure involves improving data collection and disclosure systems, as well as issuing green taxonomies to guide and enhance sustainability reporting. Upgrading reporting standards and certification mechanisms is essential to increase transparency and credibility in sustainable finance, enabling investors to make more informed and confident decisions. The implementation of internationally aligned standards, as seen in countries like Singapore and Malaysia, is a positive step that should be replicated

across ASEAN. The improvement in international sustainable reporting standard guidelines and mandates should also be taken by other countries in Southeast Asia.[155]

In order to accelerate green financing through corporate governance mechanisms, both shareholder and stakeholder need to increase pressure on companies to conduct sustainability practices. Sound regulation as well as moral pressure from stakeholders will eventually lead to industry-wide transformation. In return, an increase in transparency can lead to an increase in demand for green financing from the real sector and push the financial sector to provide more green financing. The higher demand will also lead to an efficient scale of green financing for the financial sector, which may reduce the cost of providing green financing. [156]

Sustainability reporting should not just be mere compliance for financial institutions, but it should act as the reflection of the financial institution's efforts to increase green financing and prevent greenwashing. Companies should be encouraged to integrate transition finance frameworks into their strategies, including what projects can be funded, before making their sustainability report. In this way financial institutions can make a sustainable financial plan for the size of investment and where it will be distributed.[157]

5. Standardize sustainability disclosures framework

The absence of standardized regulatory frameworks for sustainability disclosures has led to a lack of market discipline in Southeast Asia's green finance landscape. In order to increase green finance, sustainability reporting needs to be implemented by companies both in the real sector and the financial sector. Since there are many companies adopting more than one standard, there needs to be interoperability among sustainability reporting standards as well as constructing a road map and operationalization plan.[158]

Without uniform guidelines, financial institutions and investors face challenges in assessing the credibility of green projects, leading to inconsistencies in funding decisions. This uncertainty discourages capital inflow, as investors struggle to differentiate between projects with genuine environmental impact and those lacking proper risk assessments. Additionally, the absence of harmonized disclosure requirements makes it difficult for smaller projects—often crucial for grassroots sustainability efforts—to access financing, as they lack the resources to produce complex reports that align with international standards.

Moreover, according to interviews with local banks in Indonesia and Thailand, one of the key challenges to connecting green finance with green projects is the difficulty in assessing the risk of the projects. This issue is less apparent in large scale green projects or green projects managed by large corporations, as they are able to work with international institutions or hire experts who follow globally accepted standards, such as the science-based targets initiative (SBTI) methodology, but this is rarely feasible for smaller players.

The move toward harmonized disclosure frameworks is already underway, with IFRS S1 and S2 incorporating elements of the TCFD, and allowing alignment with the GRI standards[159] However, these standards are resource-intensive and may pose a significant burden for

[155] Written Interview with Ototritas Jasa Keuangan
[156] Written Interview with Ototritas Jasa Keuangan
[157] Interview with Glasgow Financial Alliance for Net Zero (GFANZ) on Jan.23, 2025.
[158] Pricewaterhouse Cooper, Sustainability Counts II, 2023, https://www.pwc.com/gx/en/issues/esg/esg-asia-pacific/sustainability-counts-2023.html
[159] Interview with Sustainable Finance Institute Asia on Feb.7, 2024

smaller actors. To bridge this gap, ASEAN member states should harmonize and simplify sustainability disclosure standards, ensuring they are accessible and scalable for SMEs and smaller projects.

Incentivizing early and high-quality disclosures through financial or regulatory benefits, such as preferential loan terms, tax deductions, or expedited licensing, can further promote compliance and foster a culture of transparency. Policymakers should also provide enabling tools like standardized reporting templates, automated carbon footprint calculators, and technical assistance programs to reduce compliance costs and build reporting capacity

6. Better integration of climate change risk in financial institutions

As climate change increasingly poses systemic risks to financial stability, Southeast Asian financial institutions must embed climate considerations into their financial frameworks. One key step is adopting CRST for financial institutions to assess their resilience under various physical and transition risk scenarios. CRST allows banks to identify vulnerabilities in their portfolios, enhance risk management, and prepare for long-term structural shifts in the economy.

The next step that needs to be taken after CRST implementation is establishing a capital buffer as a macroprudential instrument to mitigate the systemic risk associated with climate change. Therefore, banks will have sufficient liquidity to mitigate both financial risk coming from credit risk, operational risk, liquidity risk, as well as climate change risk materializing through a combination of physical risk and transition risk. The ECB has started exploring the feasibility of a systemic capital buffer to address transition risks. [160] This path can be followed by central banks in Southeast Asia, particularly with the escalating transition risk from the heavy reliance on fossil fuels to renewable energy.

However, based on the insights from a focus group discussion with Indonesian bank representatives CRST alone is not sufficient to promote green financing. Robust risk assessment requires high-quality emissions and ESG data from borrowers, especially in carbon-intensive sectors. Data availability can be achieved through good coordination among the industries involved. Real sector players also need to have sustainability reporting and provide ESG-related information that can help financial institutions to provide green financing. [161] Therefore, greater alignment between financial institutions and real sector actors is needed. Regulators should facilitate data-sharing mechanisms and require companies, particularly large emitters, to provide standardized sustainability reports and financial emissions disclosures. This collaborative approach will enable banks to integrate climate risk more effectively into their credit assessments and unlock greater flows of transition and green capital.

7. Enhance the use of innovative financing mechanisms to de-risk investments and financing

To scale up private capital for green investment, particularly in high abatement cost sectors such as heavy industry, energy, and transportation, ASEAN nations must accelerate the use of innovative financing instruments that effectively de-risk investments. Among the crucial approaches is to establish or enhance blended finance facilities that leverage public or concessional funds to crowd in private capital. Governments and development finance

[160] Satoshi Ikeda and Pierre Monnin, "Principle for Addressing Climate Systemic Risk with Capital Buffer", 2024, CEP Policy Brief, 2024.
[161] Focus Group Discussion on Feb.6, 2024 from Bank Rakyat Indonesia (BRI)

institutions (DFIs) can take on a catalytic role by providing loss guarantees, junior equity tranches, or technical assistance facilities that improve the risk-return profile of green projects.

In addition, a broader array of de-risking instruments, such as credit guarantees, can be explored to tackle project-level and macroeconomic risk. These instruments are particularly crucial in countries with higher sovereign risk or less mature capital markets, where investor confidence may be weaker.

It is also important to strengthen country platforms and project preparation facilities to build up investment pipelines. These platforms consolidate and prepare bankable projects, reduce transaction costs, and align international support with national development priorities. Examples of success, such as Indonesia's SDG Indonesia One and Vietnam's Just Energy Transition Partnership (JETP) Investment Plan, demonstrate the potential of coordinated, country-led efforts to mobilize green finance at scale.

8. Advance carbon market and carbon pricing in ASEAN as a tool for green transition

Carbon pricing is a critical policy tool for driving emission reductions and mobilizing finance for decarbonization. While the establishment of an integrated carbon market, such as the EU Emissions Trading System (EU ETS) may be legally and administratively challenging in the ASEAN context, regional collaboration remains essential. ASEAN governments should pursue workable solutions to enhance market interoperability, connect market infrastructure, and develop effective carbon price signals to increase the carbon market scale, which could attract more players. The strong political momentum for cooperation in the Asia-Pacific region offers a strategic foundation to build synergies between diverse carbon market models.[162]

To that end, ASEAN should foster the development of a regional voluntary carbon market (VCM) framework that enables high-integrity offsets across borders. This includes harmonizing methodologies, measurement, reporting, and verification (MRV) protocols, and establishing unified credit registries to enhance transparency and environmental integrity. Creating a regional accreditation and certification mechanism is also critical to ensure the quality of carbon credits and to prevent double counting. This mechanism could be anchored in ASEAN's evolving green taxonomy and aligned with global best practices.

In the case of international carbon trading mechanisms, ASEAN member states can also adopt the path taken by Singapore, which is also conducted in the US to limit 5 percent emissions to be offset with international carbon credit.[163] The EU ETS even took the extreme measure of stopping accepting carbon offsets in 2021, meaning companies within the EU must directly reduce their emissions rather than relying on external carbon credits.[164] This could prevent companies from utilizing the opportunity cost of offset markets instead of making the actual emission reduction.

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[162] Carbon Market Institute, "International Carbon Market Update: States and Trends in the Asia Pacific", 2024 https://carbonmarketinstitute.org/app/uploads/2024/08/International-market-update_August-24.pdf

[163] Bain Company, "Southeast Asia's Green Economy 2024 Report", 2024, https://www.bain.com/insights/southeast-asias-green-economy-2024/

[164] The Jakarta Post, "Industry players demand clarity for carbon trade to deliver cuts", Mar.2, 2025, https://www.thejakartapost.com/business/2025/03/02/industry-players-demand-clarity-for-carbon-trade-to-deliver-cuts.html

However, the effectiveness of carbon markets also hinges on the carbon price itself. Higher carbon prices are also needed to ensure the effectiveness of the carbon market to reduce emissions. Higher carbon prices can act as a disincentive for market players to generate emissions. If the carbon price is too low, companies will have the choice of buying carbon credits instead of making a real emission-reduction effort. Therefore, with the global average carbon pricing of US$10 per ton of CO2e, Indonesia, Thailand, and Malaysia need to increase the carbon price.

Besides the pricing aspect, carbon credits should avoid double counting. The quality of carbon credit is a crucial aspect that ensures the credibility of the carbon market mechanism, as well as the effort to decarbonize the economy. Therefore, this effort requires good governance of the carbon credit mechanism that involves many aspects in the value chain. In addition, there also needs to be a comprehensive calculation process in the carbon unit registration process.[165]

For ASEAN countries that have not yet implemented an ETS, the development of a legal and regulatory foundation for carbon pricing is a crucial step. Carbon pricing policies, not only internalize the environmental cost of emissions but also create fiscal space to fund green investments. For instance, in Thailand, market players are currently waiting for the Climate Change Law to be released as the foundation of involuntary carbon pricing, such as an ETS or carbon tax. [166]

9. Expand green debt market and align with sustainable supply chains

Expanding green financing through debt instruments—such as green bonds and green loans—requires a holistic approach that strengthens both the supply and demand sides of the market. This involves improving the quality of underlying projects, enhancing policy frameworks, and offering the right incentives to mobilize private capital.

On the supply side, Southeast Asia's heavy reliance on extractive industries like crude palm oil (CPO) and nickel underscores the need to embed sustainability into the value chain. Projects backed by green debt must meet rigorous environmental standards and the government can set clear regulations and ensure law enforcement for industry players to conduct sustainable practices. Then private companies across sectors can improve the value chain and obtain green financing.

Second, there needs to be clear and strict guidelines for the direction of the energy transition. Energy transition brings about renewable energy projects to decarbonize the economy. However, this effort can be hampered if the government still relies on fossil-fuel power plants, like coal and gas, particularly if energy prices are still subsidized. Third, the government needs to help the debt issuance for both in green loans and green bonds to create incentives. As a higher cost is involved for banks lending money and green bonds issuers in assessing underlying projects, the government needs to incentivize these assessments. While Singapore, Malaysia, and Thailand offer such incentives, countries like Indonesia, Vietnam, and the Philippines are lagging.

[165] Interview with Glasgow Financial Alliance for Net Zero (GFANZ) on Jan.23, 2025.
[166] Interview with Bangkok Bank on Feb.13, 2025

10. Enhance regional collaboration for market scale and efficiency

To enhance green finance in Southeast Asia, greater coordination among ASEAN member states is essential for establishing a unified green finance framework and harmonizing financial instruments. Aligning taxonomy, carbon pricing, and sustainability standards across the region will create a more efficient market and attract more investors by offering clear and consistent landscapes. Such coordination will also foster deeper integration between national economies, encouraging cross-border investments and facilitating the flow of capital into green initiatives.

Leveraging ASEAN's regional platform, countries can create joint green investment opportunities that pool resources and share risks. By collaborating on large-scale green projects, such as renewable energy infrastructure or climate resilience initiatives, ASEAN can unlock new financing opportunities and reduce barriers for private sector involvement. Furthermore, further development of the ASEAN Power Grid (APG) initiative through cross-border interconnections provides an opportunity to promote a just transition in Southeast Asia. This collective effort will help bridge the financing gap in key sectors that are crucial for the region's sustainable development and low-carbon transition.

Additionally, promoting green bond issuance can enhance market liquidity, enabling better price discovery and reducing barriers for future issuers to raise capital. Therefore, more benchmark-sized bonds (bonds of at least US$500 million equivalent) from a variety of issuers are required to accomplish this.[167] With a robust green bond market, ASEAN can offer larger base investment options for global investors, further fostering capital flow into green projects. By establishing large, well-priced green bonds, ASEAN will create a more stable and transparent market in return, helping issuers raise capital and attract long-term sustainable investments.

[167] Climate Bonds Initiative, "Green Infrastructure Investment Opportunities: Indonesia Green Recovery 2022 report", 2022, https://www.climatebonds.net/files/reports/cbi_indonesia_giio_en.pdf