FINANCING THE SHIFT:
Unlocking Capital for Thailand's Transition to
NET ZERO

Navigating Decarbonization: Policy Updates, Sectoral Transition Roadmaps, and Real-World Use Cases in Transition Finance

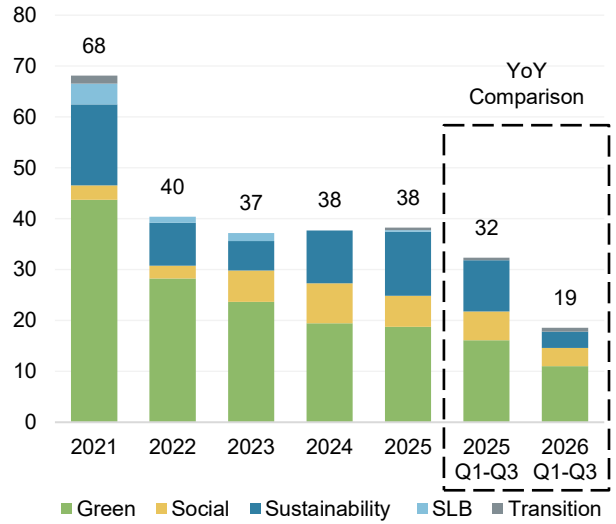


ESG Bond Market Update 2026

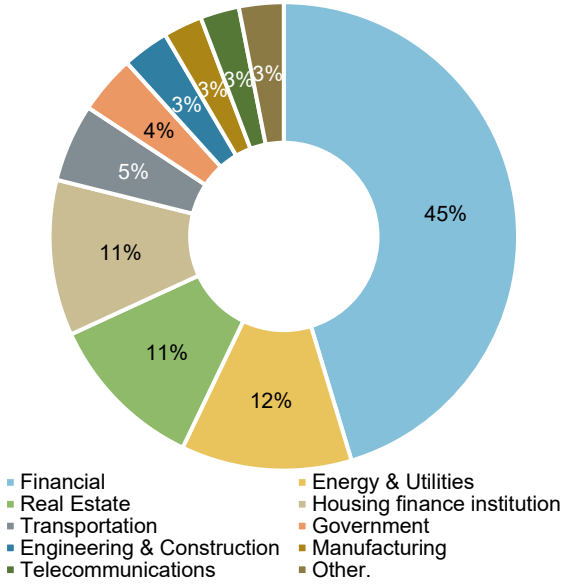
Key Highlights

- In the first three quarters of 2026, **USD ESG bond issuance was down 42%** compared with the same period in 2025.
- **Continued Dominance of Green Bonds:** Green bonds continue to be the most popular label, accounting for 59% of the total issuance in 2026 YTD. Renewable energy has been the most popular use of proceed category among issuers.
- **Breakthrough in Transition Bonds:** Regarding transition bonds, the market has seen a number of debut USD-denominated transition bond issuances in alignment with the ICMA CTBG. Notable issuances included Korea East-West Power's US$500 million transition bond, Korea Midland Power's US$300 million transition bond and Korea Southern Power's US$300 million transition bond, of which the proceeds would be used towards coal-to-gas projects to decarbonize power generation.
- **"Financial", "Energy & Utilities" and "Real Estate" sectors have been the largest three ESG bond issuers**, contributing to 68% of the total volume in 2026 YTD.
- Beyond the ESG bond issuance front, there were also **noteworthy developments on the sustainable finance taxonomy front**. On the taxonomy front, the Hong Kong Taxonomy Phase 2B prototype was launched in September 2026, which has provided transition criteria and pathways for hard-to-abate sectors and introduced more adaptation measures focused on shoreline protection and flood management.
- **12-Month Outlook:** The popularity of thematic ESG bonds is expected to grow as driven by investors' growing interests in niche ESG bond labels and the publication of relevant market guidance in recent years. Of all thematic issuances, Climate Resilience Bonds and Climate Transition Bonds are the themes to watch out for. Notably, recent Climate Transition Bond issuances from the Korea Energy & Utilities sector have set a precedent for CTBG-aligned transactions, enabling more hard-to-abate issuers to finance projects such as the early retirement of high-emission assets and thereby accelerate their transition plans.

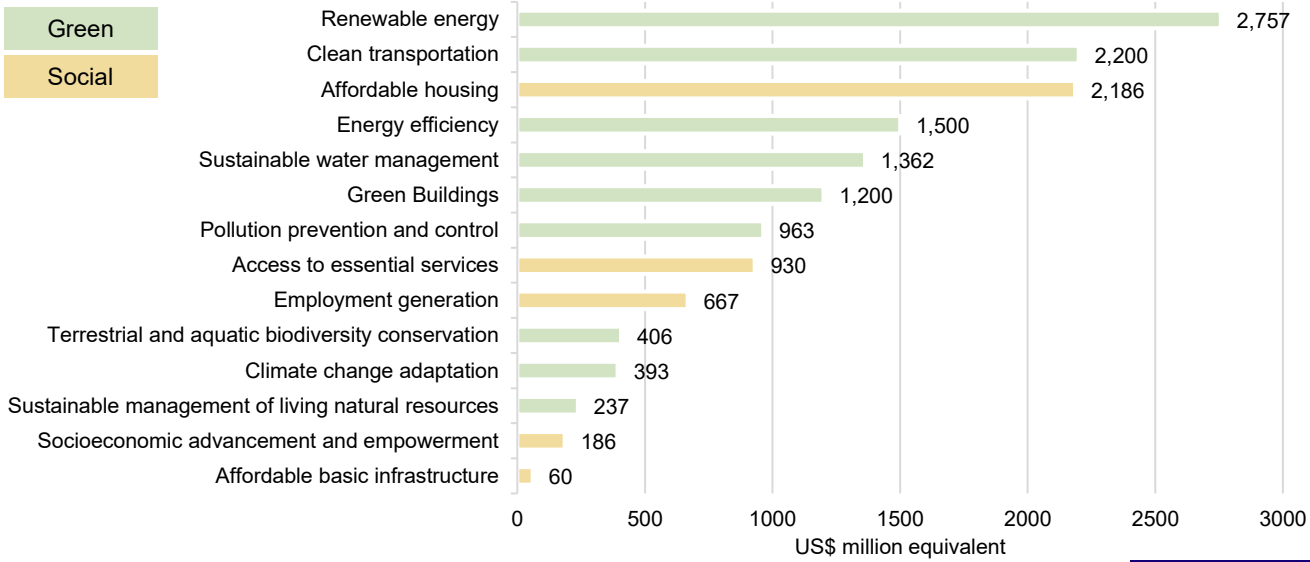
Yearly Breakdown by ESG Label (in US$ billion)



Breakdown by Sector in 2026 Q1-Q3 (in US$)



UoP Category Breakdown of USD UoP Bonds in 2026 Q1-Q3 (in US$ million)[1]



Note (1): The value of bonds with multiple UoP categories was pro rated equally to each UoP category.
Source: Mizuho, Environmental Finance Data As of 30-September-2026. CTBG: Climate Transition Bond Guidelines

SEC Classification : [illegible] (Internal)

Japan's Approach to Sustainable Finance



October 2026

Takayuki MOTOHASHI
Ministry of Economy, Trade and Industry, Japan

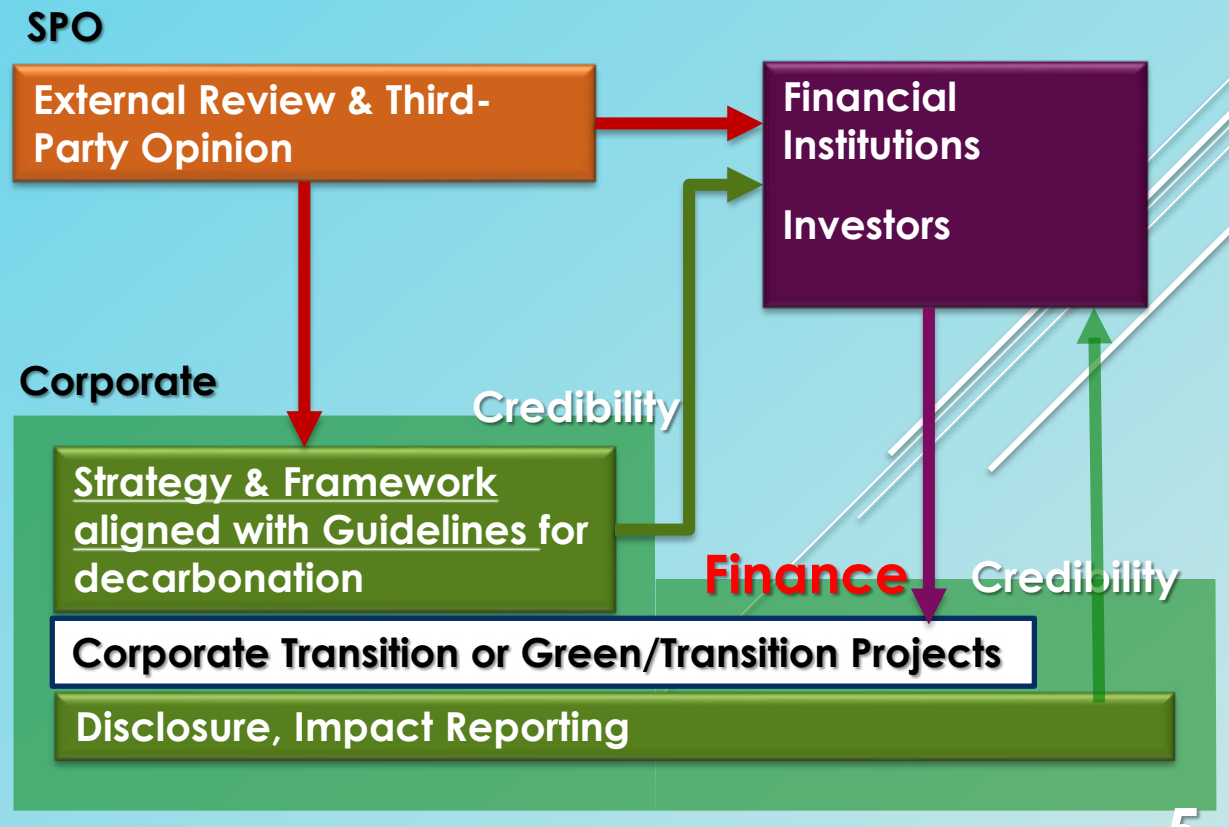
Principle + Criteria/Roadmap-Based rather than Taxonomy-Based

"Japan's sustainable finance framework"

Prioritizes investor confidence through transparency, credible decarbonization strategies and plans, and robust disclosure, supported by government-backed guidelines including eligibility criteria / sectoral technology roadmaps aligned with international standards such as ICMA principles.

JPN Gov.

-Green Bond/Loan Guidelines -Sustainability Link Bond/Loan Guidelines	+Annex Document: Eligibility Criteria for Green Project
-Basic Guidelines on Climate Transition Finance	+Sectoral Technology Roadmaps



Transition Finance is the Key Driver of "GX Strategy"

"Green Transformation (GX)"

Shifting from a fossil fuel-based economy and industrial structure to a clean energy-driven society, while achieving triple breakthrough in **energy security**, **economic growth** and **decarbonization.**

Up-front Investment Support through Japan Climate Transition Bonds – JPY 20 Trillion in 10 years

- ✓ Mobilizing a total of JPY 150 trillion in public & private investment
- ✓ Making renewable energy as a major power sources
- ✓ Investment to energy efficiency, nuclear energy and renewable-energy R&D

Adoption of Pro-Growth Carbon Pricing, including the ETS and Carbon Surcharge

- ✓ Incentivizing corporate transformation while ensuring bond-redumption resources

Japan's 4-step-policy-tools on Transition Finance

"Transition Finance"

Transition finance supports credible long-term decarbonation strategies, particularly in **hard-to-abate and emissions-intensive sectors.** it looks beyond individual uses of proceeds and short–term targets.



Basic Guidelines on Climate Transition Finance

JPN Formulated the Guidelines in alignment with the ICMA's CTBG and CTFH



Sectorial Technology Roadmaps



Model Projects

Selected and published model projects to demonstrate practical applications of transition finance. Around 30 case studies to illustrate



Follow-up Guidance

Guidance supporting post-issuance follow-up for transition finance stakeholders

Sectoral Technology Roadmaps approach for 10 industrial sectors

Materials Manufacturing Industry	Steel	Cement
	Chemistry	Paper Pulp
Energy	Electric Power	Gas
	Petroleum	
Transportation System	Automobile	
	Shipping	Aviation

Issuance of Japan Climate Transition Bonds

The world's first sovereign transition bonds in February 2024.

JPY 20 trillion in upfront investment to mobilize over JPY 150 trillion in public/private investment

A bond framework aligned with Japan's Basic Guidelines on Climate Transition Finance and ICMA standards

GX Promotion Act & GX promotion Strategy



Basic Guidelines on Climate Transition Finance



The Japan Climate Transition Bonds Framework (Nov.2023)

- Issuer's Transition Strategy
- Use of Proceeds
- Management Proceeds
- Report

Major Categories	Typical Use of Proceeds
Energy Efficiency	Promotion of related appliances, Housing and Buildings, DX for decarbonatization, Battery..
Renewable Energy	Perovskite cells, Infrastructure for decarbonation
Low Carbon & Decarbonized Energy	Next gen. advanced reactors, Subsea DC transmission system
Clean Transportation	Next gen. vehicles, Zero emission ships..
Circular Economy Adapted Products, Technology & Processes	Decarbonized Cement production, Green Steal, CCS/CCUS..
Environmentally Sustainable Management of Living Natural Resources & land Use, Circular economy	SAF, Decarbonation of agri., forestry and fisheries..

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5 October 2026 | Phayathai 4, 6th Floor, Eastin Grand Phayathai



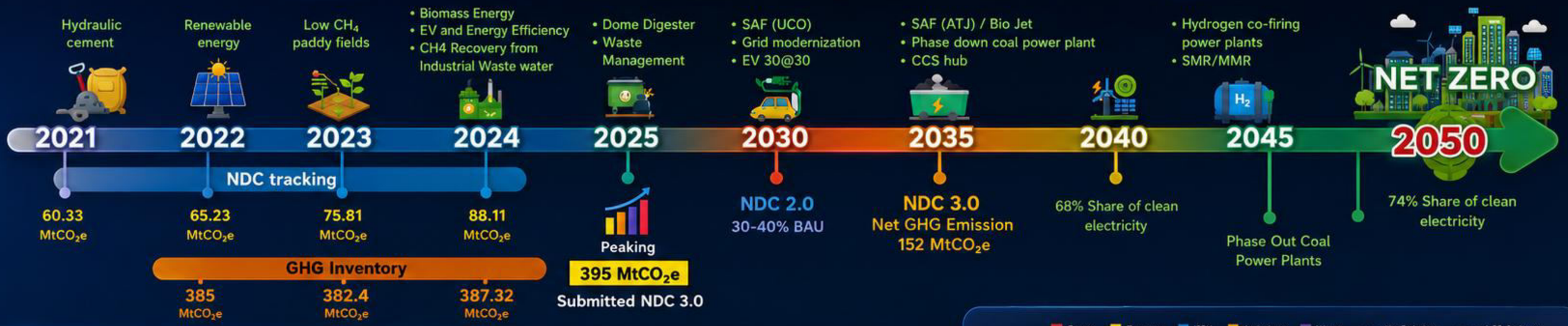
Dr. Napaporn Tangtinthai
Director of Climate Finance and Investment Subdivision
Strategy and International Cooperation Division
Department of Climate Change and Environment

Round 1

What are Thailand’s key decarbonization or transition policies and national targets, and how does Thailand plan to achieve them?

Thailand's Pathway to Net Zero and Low-Carbon Cities

Higher Ambition, Faster Funding, Sooner Net Zero



Climate Finance and Investment

Current landscape

Finance mobilized in 2018-2026:
THB 2 trillion (THB 279.5 billion for adaptation)

Investment Needs by 2035: THB 7 trillion for Net Zero

International Support Needs by 2035: THB 230 billion for NDC 3.0

Estimated Incoming International Support: THB 2.3 billion until 2050

Incoming International Support

GCF Fund	THB 2.77 billion | 4 projects approved
GEF Fund	THB 44.74 million Pending Allocation (Oct 2026–Jan 2027)
IKI Fund	THB 0.96 billion Pending Review and Negotiation

Estimated international funding THB 100 million per year until 2050

Carbon Finance

Voluntary Carbon Market (VCM)

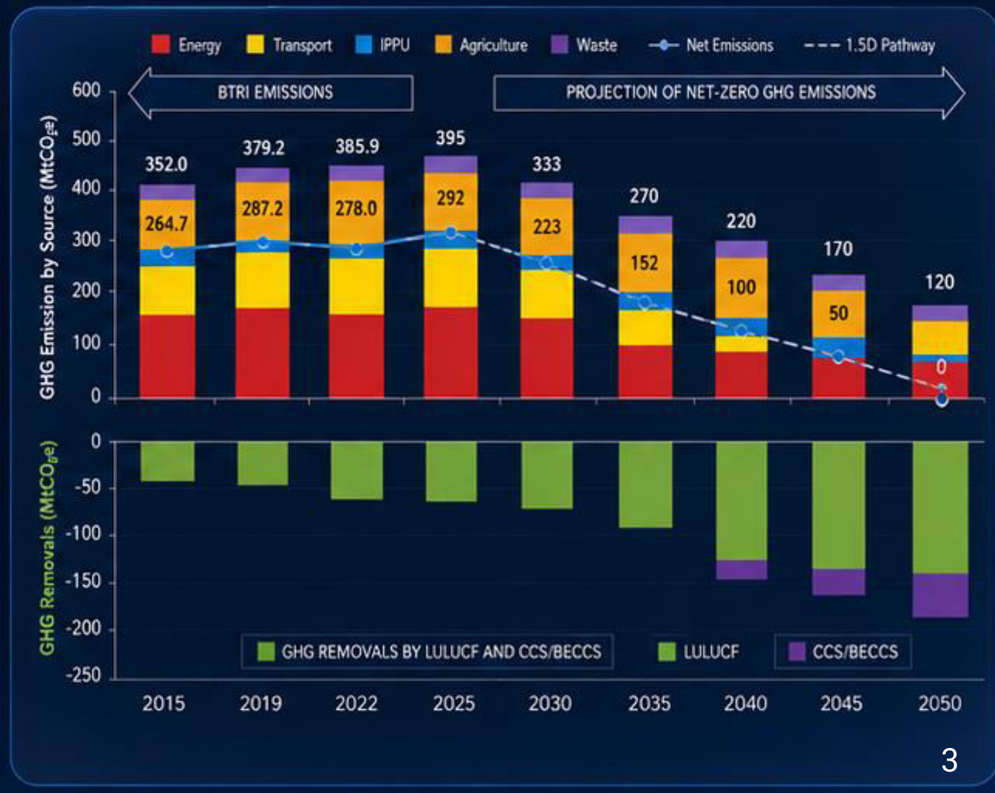
Thailand Voluntary Emission Reduction: T-VER

T-VER: 424 Projects | 26.5 $MtCO_2e$ Certified (issued credit)

Premium T-VER: 11 Projects | 26,051 tCO_2e/yr (Expected GHG Reduction (tCO_2e/yr))

Article 6 of the Paris Agreement

- Signed: 24 Jun 2022
  Pilot: Bangkok E-Bus Programme
  1st ITMOs Transfer: 1,916 tCO_2e
- Signed: 8 Jul 2024 | 2 Projects Authorized
  1st ITMOs Transfer: 1,009 tCO_2e
- Signed on 19 Aug 2025
  Announced the call for project proposals



Thailand's Long-term Low Greenhouse Gas Emission Development Strategy (LT-LEDs) Revised Version, 2026

1 & 2: Introduction Vision, Goals, and Priorities

- Aligned with the long-term goals of Paris Agreement (1.5°C pathway)
- Net Zero Emissions 2050
- Just Transition
- NDC Action Plan on Mitigation 2021 -2030

3: GHG Emission Projection for NDCs

- Analysis using AIM model, linking to economy, energy, technology, and GHG emissions while accounting for Marginal Abatement Costs (MAC)
- NDC 3.0: Shift from BAU ➔ Absolute Emission Reduction (AER) covering all economic sectors (Economy-wide)

4: Sector-Specific Pathways for Emission Reduction in NDC 3.0

- 152 $MtCO_2eq$ Net GHG emissions in 2035
- 5 Key Sectors Covering all economic sectors
- Supporting Factors Carbon market mechanisms, Premium T-VER, ITMOs

5: Sectoral Pathways to Net-Zero GHG Emissions by 2050



Energy & Transport
Increase share of clean energy to 74% by 2050



IPPU
- Development of cement incorporating calcined clay
- CCS/ CCU



Agriculture
Laser land leveling



Waste
Effective community waste management



LULUCF
achieve a carbon sink of 120 $MtCO_2eq$ annually by 2037

6: Just Transitions to Net-Zero GHG Emissions by 2050

- Caring for vulnerable groups
- Upskilling / Reskilling
- Economic growth

NEXT

To be submitted to the Cabinet for approval prior to submission to the UNFCCC Secretariat in November 2026

Thailand's 14th National Economics and Social Development Plan (2028 – 2032)

FOUNDATIONAL FRAMEWORKS & TOOLS

SDGS

Global targets for sustainable development used to align Thailand's national environmental goals with international standards for a better and more sustainable future

SEP
(Sufficiency Economy Philosophy)

A Thai development approach focusing on moderation, reasonablene, and self-immunity as a shield against internal and external shocks.

BCG

An economic model for inclusive and sustainable growth, leveraging Thailand's biological diversity and cultural richness through technology and innovation.

ESG

A framework used to evaluate a business's sustainability and societal impact ensuring that development is ethical and environmentally responsible.

Survival: Ecosystem Management



Manage natural resources within the limits of ecosystem capacity to reduce pollution and utilize resources as efficient production factors for long-term sustainability

Adaptation: Climate Resilience



Build economic and social immunity by preparing for climate change impacts, reducing hidden costs, and increasing stability for vulnerable sectors

Transition: Low-Carbon Transition



Shift towards a low-carbon society to prevent international trade barriers in the short term and boost long-term global competitiveness

STRATEGIC ACTION ITEMS

1. Resource-Based Economic Growth: Implementing management systems that turn natural resources and the environment into a stable foundation for the country's economic expansion.
2. Building Social & Economic Immunity: Enhancing the nation's ability to withstand climate-related disasters and fluctuations through proactive environmental planning.
3. Enhancing Competitive Capability: Driving the transition to low-carbon technologies and green industries to ensure Thailand remains a leader in the modern global market.

Kingdom of Thailand's Sustainability-Linked Bond (SLB)

Using NDC 2.0 & NDC 3.0 Targets

SLB 1 (SLB406A) using NDC 2.0 Target



150% **Fundraising Achievement**

30,000 Million THB raised

(vs. 20,000 Million THB target)



As of fiscal year 2026, 230 Billion THB

Outstanding total Sustainability-Linked Bonds: 230,000 Million THB

KPI Progress Tracking

KPI 1 GHG Emissions





Under 2030 Celling: 388.5 MCOpe

On Track

385.9 $MtCO_2e$

(2022's BTR)

KPI 2 Annual registrations of ZEV passenger cars and pick-up trucks





Target: **444,000 new ZEVs** by 2030 (Challenging due to market fluctuations)



Need for Policy Intervention: Government coordination recommended to assess support measures and promote public sector EV use

SLB 2 (SLB425A) using NDC 3.0 target

2.8x

of announced offering size

Total Demand

42,064 Million THB

Target

15,000 Million THB

Bond Issuance: 17 September 2026

KPI 1 Net GHG Emissions



≤ 152 $MtCO_2eq$

47% Below 2019 Net Emissions
All IPCC sectors including LULUCF

KPI 2 Protected Areas & OECMs



≥ 30 % BY 2030

Terrestrial and inland water areas
Baseline: 18.44 % in 2024

Round 2

What policy or regulatory measures do you think will be most important to support businesses in their transition? And what transition-related requirements should organisations be preparing for, including any upcoming mandatory requirements?

(Draft) Thailand's Climate change Act B.E. ....

Policy and Plan

Chapter 1
General Provisions
Recognizes rights of the public to access information and to submit policy proposals

Chapter 2
National Climate Change Targets
Thailand aims to Net Zero emission by 2050

Chapter 3
National Climate Change Policy Committee
Proposes policies, oversees implementation, and issues subordinate regulations

Chapter 5
National Climate Change Master Plan
Establishes national directions and implementation frameworks, including short-term and long-term action plans

Mitigation

Chapter 6
GHG Data and Reporting
Entities whose energy use exceeds the prescribed threshold shall be required to report GHG emissions

Chapter 7
National GHG Reduction Action Plan

Chapter 11
Carbon Credits
Voluntary carbon credits GHG reductions not exceeding 15% under conditions and use of Article 6 of the Paris Agreement

Economic Instruments

Chapter 8
Emissions Trading Scheme (ETS)
Provides for allowance allocation plan and regulated entities whose GHG from production processes are subject to control. Emitters exceeding their cap must obtain additional

Chapter 9
Carbon Border Adjustment Mechanism (CBAM)
Aims to safeguard Thailand's international competitiveness

Chapter 10
Carbon Tax
Tax on high-emission products

Chapter 14
Penalties
Legal enforcement to ensure compliance

Adaptation

Chapter 12
Climate Change Adaptation
Requires an adaptation plan, 6 sector implementation plan, and national climate information. To build national resilience and enable effective adaptation, especially for vulnerable groups

Revenue

Revenue

Revenue

Financing Support

Financial Mechanism

Chapter 4
Climate Fund
Provides grants and concessional loans to government agencies, local authorities, environmental organizations, legal entities, educational institutions, and communities for GHG mitigation, climate change adaptation, research and development, and domestic technology development

Chapter 13
Standards for Classifying Economic Activities Related to Climate Change and Environment (Thailand Taxonomy)
Used for policymaking, consideration of climate fund financing, promotion of green investment, and reporting by entities regulated under ETS

Status of the Draft Climate Change Act, B.E. ...



NET ZERO 2050

2031
Launch of ETS Phase 1, Implementation of **TH-CBAM**

2030
Climate Fund in operation

2029
Commencement of **carbon data reporting** under Section 6, Part 2, together with the **ETS pilot phase**, Commencement of **carbon tax** collection in accordance with the Act

December 2027
The Act is expected to come into force

December 2026
Expected to be submitted for consideration by **Legislative Branch**

May 2026
Council of State legal review

March–April 2026
Third round of public consultation through the central government legal consultation platform

2 December 2025
The Cabinet approved in principle

19 December 2024
The National Climate Change Policy Committee approved the principles of the Draft Climate Change Act

16 May 2025
The National Climate Policy Committee resolved to establish Climate Change Fund

November 2024
Second round of public consultation through central government legal consultation platform

April 2024
First round of public consultation through central government legal consultation platform

Chapter 6 : National greenhouse gas data

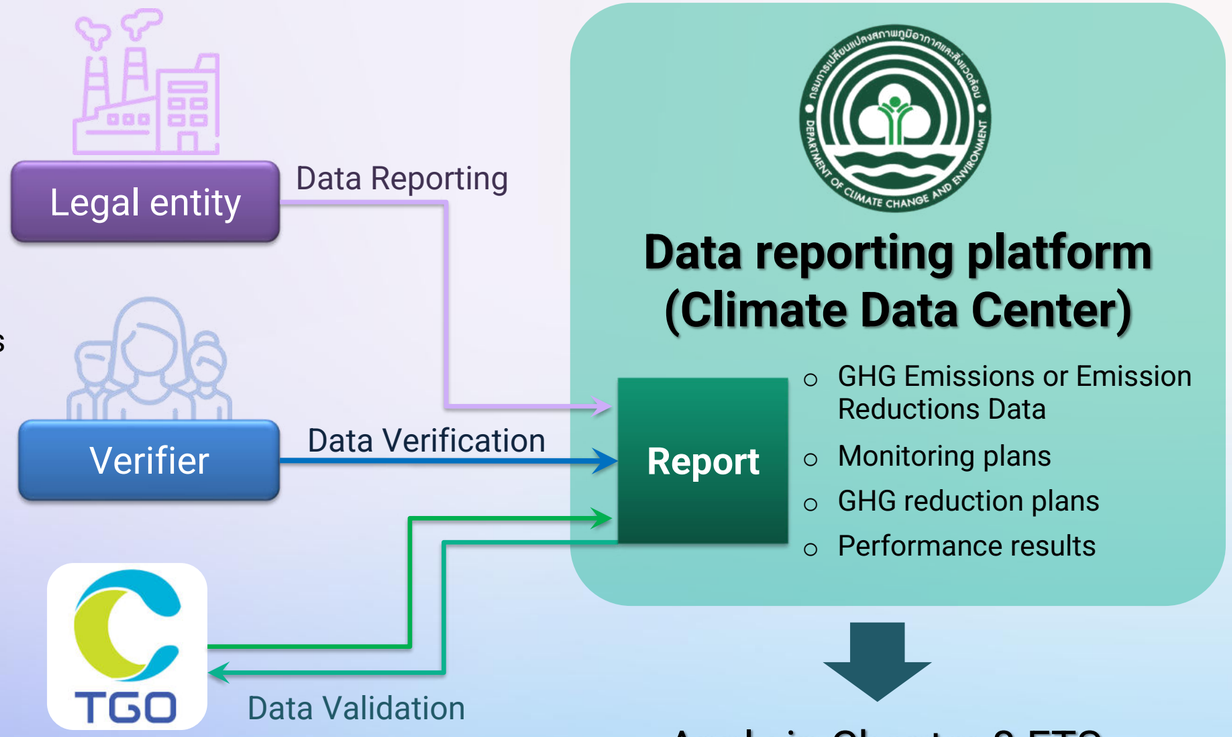
Part 1: Thailand GHG Emissions Information System (TGEIS)
Part 2: GHG Emissions Reporting for Regulated Entities

GHG Emissions Reporting (CFO Scope 1 & 2)

Issue a ministerial regulation for establishments in industries that emit high greenhouse gases and consume a lot of energy

Certified by the National Standards Act B.E. 2551 and registered with the Office of the Industrial Standards Board

- ❑ Verify accuracy
- ❑ Has the authority to verify and determine GHG emissions if a legal entity fails to submit a report



Apply in Chapter 8 ETS

Secondary Legislation and Related Plans

- ➢ Regulated Entities Subject to GHG Emissions Reporting
- ➢ Criteria and Methods for Corporate GHG Emissions Reporting
- ➢ GHG Emissions Reporting Formats and Disclosure Details
- ➢ Data Security and Cybersecurity Measures

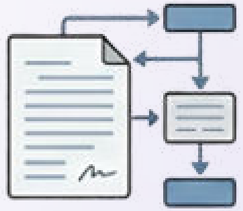
Legal entities required to report information → Designated industrial groups (high GHG emissions) → One establishment within the corporation uses energy exceeding the specified limits → All establishments in the juristic person use energy exceeding the specified criteria

Chapter 8 : Emissions Trading System (ETS)

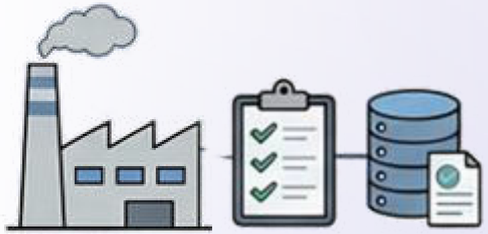
1. Planning & Identification



Allocation Plan (Cap Setting)



Regulatory Planning



Covered Entities: Registration for Permits

Government creates an allocation plan (Cap Setting)
- The Department prepares the plan for a period of no more than five years.

Who is a "Covered Entity"?
- Entities defined by law, required to register and enter the system.

2. Allocation





Free Allocation



Actioning

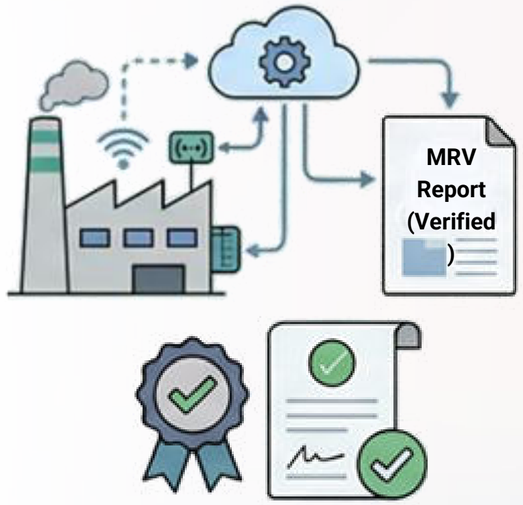


New Entrant Reserve: The State holds reserves to accommodate expanding entities or new market entrants during the year.

Emission Permit Allocation

- Entities will receive permits via 2 main methods: 'Free Allocation' or 'Auctioning'.
- There is a 'New Entrant Reserve' for new entries.

3. Monitoring & Reporting

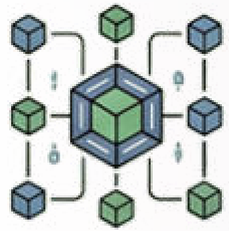


Report Verified Emissions

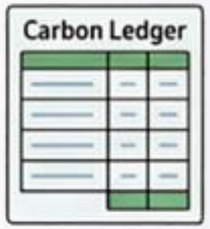
Monitor and submit MRV Report
- Entities must measure and report actual emissions, verified by an external verification body.

Department verifies the results
- Department will check the report and verify actual emissions within 5 months from the end of each operational year.

4. Settlement & Trading



Actual > Permits



Carbon Ledger



Trading Center/ Direct OTC Deal

Submit permits equal to actual emissions
- If emissions > permits, must buy more.
- If emissions < permits, can keep/sell them.

Use Carbon Credits for offset (Max 15%)
- Entities can use carbon credits that are verified to be offset against their obligations, up to 15%.

Permits are "Tradable Assets"
- Can be traded via a forward market trading center or directly between legal entities (OTC).

Chapter 8 : Greenhouse gas emission rights management and carbon pricing mechanisms

Option 3. Auction for GHG emission rights from DCCE based on the specified reserve rights

Money from the auction

Allocation of rights and reserve rights

Climate Fund

A controlled entity that emits GHGs exceeding the specified ceiling can choose the option to offset/offset its GHG emissions

Option 2. Purchase Carbon Credits to offset according to established criteria

Sell on the carbon market

Voluntary GHG Reduction Project*

- T-VER
- Premium T-VER

Carbon credit usage capped at 15%

* Subject to prescribed criteria and legally certified under the Royal Decree Establishing the Thailand Greenhouse Gas Management Organization (TGO)

Carbon Credits Market

Option 1. Purchase rights to compensate for the excess

Release the exceeding GHG emissions

Cap-and-Trade Market

Amount of GHG reduction

Allocated Allowances by Factory Type and Size

Actual GHG emissions

Plant A

Regulated entities exceeding GHG caps can choose options to offset or compliance-match their emissions

Plant B

Actual GHG emissions

Chapter 11 : Carbon Credit

Types of projects eligible for carbon credit transfer

- Capture, storage or utilization of greenhouse gases
- Develop renewable energy or replace fossil fuels
- Other types of projects approved by Climate Change Policy Committee
- Improving energy efficiency in buildings
- Reducing greenhouse gas emissions from forest areas
- Improving the efficiency of electricity or heat production
- Management of wastewater, industrial waste, or solid waste via advanced technologies
- Improvement of production processes or management of agricultural & livestock waste
- Greenhouse gas reduction in the transportation sector
- Improvement of production processes or industrial waste management

Carbon Credits

"Carbon credits are recognized as property, which may be transferred, acquired, traded, or otherwise disposed of, either in whole or in part."

Voluntary Market

Trading Mechanisms



Exchange

Operated under statutory regulations (e.g., Digital Asset and Securities Laws) to meet international standards.



Direct Trading

Bilateral agreements made directly between buyers and sellers, in accordance with the criteria and methods prescribed by the Committee.

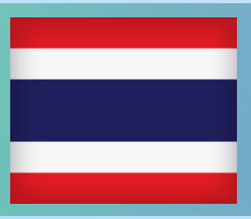
Compliance Market

CORSIA
CARBON OFFSETTING AND REDUCTION SCHEME FOR INTERNATIONAL AVIATION

International Guideline

- NDC-Aligned and Continuous (Beyond the Target Period)
- Corresponding Adjustment
- Promote Sustainable Development (SD Criteria) & Ensure Additionality

Current Article 6.2 Mechanisms



Switzerland

Japan

Singapore

The Role of Climate Finance

as a linkage mechanism between Government Policy, the Financial Sector, and the Private Sector

Driving Thailand towards a low-carbon economy & sustainable growth

1. Government/ Policy

Set national policies and targets
e.g., NDC, Net Zero 2050, Master Plan, 14th National Economic and Social Development Plan, NDC Action Plan, NAP Action Plan.

Enact laws and supportive measures
Climate Change Act, Climate Fund under the draft Climate Change Act to support SMEs in transitioning to a low-carbon economy.

Allocate budget and financial support
Subsidies, risk guarantees, Soft Loan programs for energy transition.

Establish standards and data disclosure
Taxonomy, reporting standards, MRV for transparency and credibility.

Facilitate and reduce barriers
Permitting, access to data, capacity building

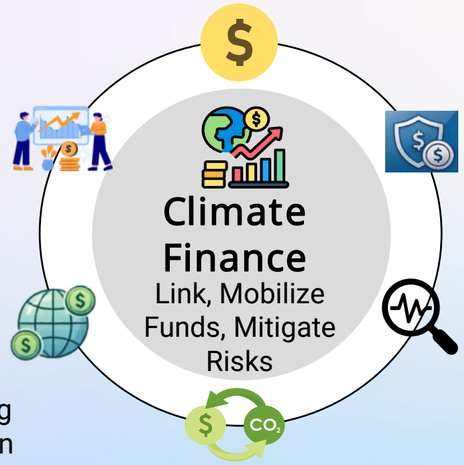
2. Climate Finance

Policy and supportive measures

Funding sources and business opportunities

Financial Instruments
Loans, Investments, Green Bonds, Mutual Funds

Fund Management
Transparent Allocation, Monitoring and Evaluation, Measurable Impact



Risk Mitigation
Guarantees, insurance, Blended Finance.

International Cooperation
International funding sources, cooperation with banks, MDBs, DFIs.

Data and Innovation
Climate data, technology, Digital Platform.

Market Mechanism
Carbon Market (ETS, Carbon Credit), Taxonomy

Reduce long-term costs

Increase competitiveness

Grow sustainably

3. Private Sector

Invest capital in green projects/businesses
Clean energy, sustainable transport, green buildings, waste management, sustainable agriculture.

Transfer knowledge and new technology
Share best practices, clean technology, and operational standards.

Support and develop SME partners
Help analyze carbon footprints, provide advice, and co-plan GHG emission reductions.

Create market demand
Set green procurement criteria and create opportunities for SMEs to access domestic and international markets.

Co-invest, create innovation and new business models
Develop eco-friendly products/services, scale up green businesses and innovations together with SMEs.

Collaborate with all sectors: Government, financial institutions, communities, international entities.

Draft – Awaiting establishment and submission for consideration

Policy Framework: Operationalizing the Transition Finance Strategy

National Committee on Climate Change (NCCC)

↑

Sub-committees on Climate Change Policy and Planning Integration

↑

Working Group on Driving the Transition Finance Strategy

- **Plan for 2027, after LT-LEDs submission**
- **Not yet approved**

Core Mandates / Key Objectives

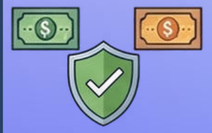


Supporting Hard-to-Abate Sectors Towards Sustainability Focusing on assisting medium and large enterprises in the energy and key industrial sectors to access funding for greenhouse gas mitigation and climate change adaptation.

Establish strategic directions & support mechanisms, integrate collaboration across the supply chain, and monitor the issuance of financial products.



Public Private



Utilize Blended Finance and de-risking mechanisms to combine public & private capital, while using financial instruments to mitigate risks in transition investments

Phase 1: Initial Pilot

Implement the initial pilot phase In key main sectors. This will rely on integration and extension of operations across the supply chain

For example



Energy Sector



Steel Industry



Cement Industry

Phase 2: Scaled Up

Operations scaled up to new sectors

For example



Building & Real Estate



Agriculture



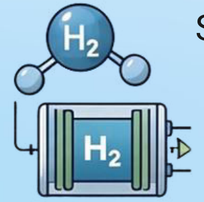
Transport



Waste

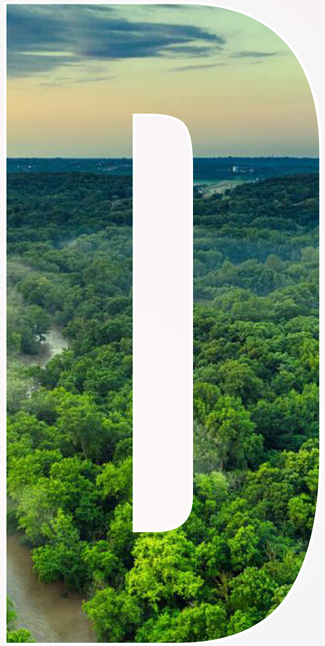
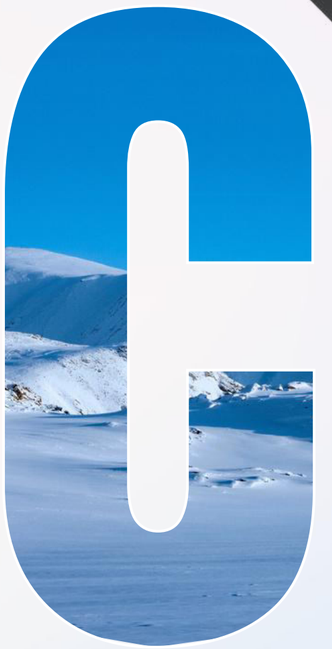
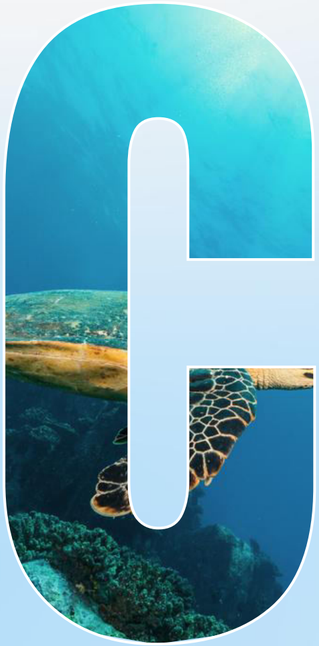


Petro chemical



Supporting key technologies, including Hydrogen & CCS/ CCUS, coupled with capacity building for relevant agencies.




THANK YOU

FOR YOUR ATTENTION

Department of Climate Change and Environment
49 Soi 30, Rama VI Road, Phaya Thai, Bangkok 10400
E-mail : saraban@dcce.mail.go.th
Website: https://www.dcce.go.th/
Telephone: 0-2278-8400 ext. 1700

Navigating Decarbonization:

Cement Transition to Net Zero

DR. Chana Poomee
Honourary Chairman
Thai Cement Manufacturers Association (TCMA)



From National Ambiton to Industry Action

Turning Thailand's climate commitments into Industry Transformation and ASEAN Collaboration



THAILAND COMMITMENT

2050 • Achieving Net Zero Greenhouse Gas Emission

2035 • Achieving NDC 47%
THAILAND NDC 3.0

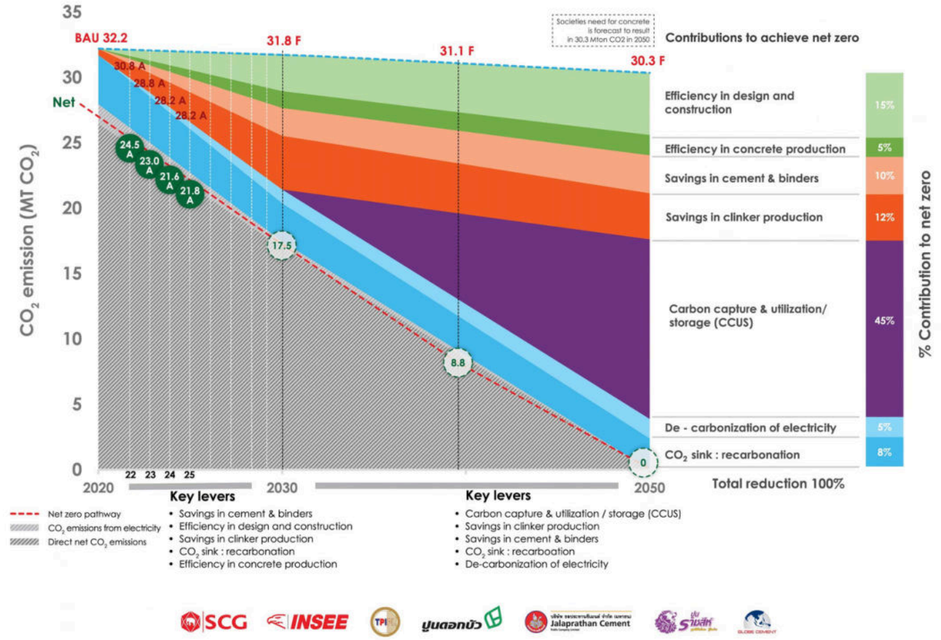
THE INDUSTRIAL SECTOR (Cement Industry)

AREA-BASED APPROACH (Saraburi Province)

SARABURI SANDBOX
LOW CARBON CITY

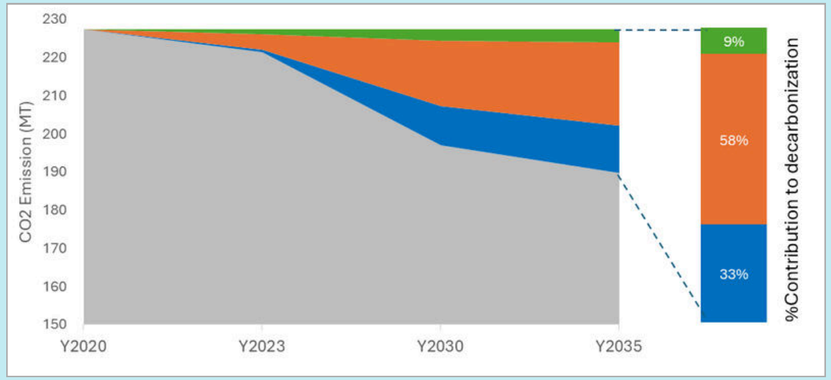
THAILAND 2050
NET ZERO CEMENT AND CONCRETE ROADMAP

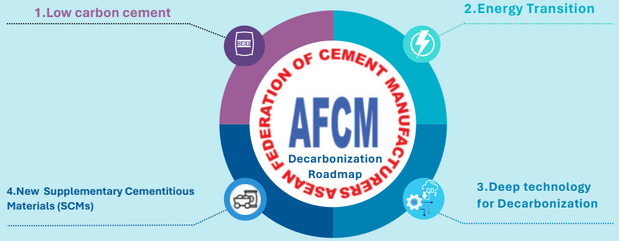
COP27 Officially announcement at COP27 November 2022



SCG INSEE TPI Jalaprathan Cement

AFCM Decarbonization Pathway





Heidelberg Materials ASPERSS C&CA CNCAS CeMAP TCMA

SARABURI SANDBOX
LOW CARBON CITY
FTI Saraburi | TCMA

SARABURI SANDBOX: Turning Transition Ambition into Real-World Impact

วิวัฒนาการ (EVOLUTION)

ปี 2023 เริ่มต้นและวางรากฐาน

- ประกาศเจตนารมณ์ความร่วมมือ (MOU)
- กำหนดวิสัยทัศน์ "สระบุรี เมืองคาร์บอนต่ำ"
- จัดตั้งคณะทำงานและคณะกรรมการร่วม 3 ฝ่าย
- ศึกษาศักยภาพและจัดทำแผนงานเบื้องต้น

ปี 2024 เริ่มต้นโครงการนำร่อง (Pilot Projects)

TCMA Lead
- Low Carbon Cement
- Alternative Fuels (RDF, Biomass)
- Waste Heat Recovery
- CCUS Feasibility Study

จังหวัดสระบุรี Lead
- นโยบาย/กฎระเบียบสนับสนุน
- การจัดการของเสีย (Waste Management)
- พัฒนาพื้นที่ต้นแบบ
- การมีส่วนร่วมของทุกภาคส่วน

FTI Saraburi Lead
- หญ้าเนเปียร์ (Napier Grass)
- นาเปียกสลับแห้ง (AWD)
- Green Area
- SME & Green Supply Chain
- Community Engagement

ปี 2025 ขยายผลและบูรณาการ

- Clean Energy (พลังงานสะอาด)
- Green Industry (อุตสาหกรรมสีเขียว)
- Low Carbon Agriculture (เกษตรคาร์บอนต่ำ)
- Waste Management (การจัดการของเสีย)
- Green Area & Biodiversity (พื้นที่สีเขียวและความหลากหลายทางชีวภาพ)

ลดการปล่อย GHG สะสม
2.5 – 3 ล้านตัน CO_2e

ปี 2026+ ต้นแบบเมืองคาร์บอนต่ำ

- ระบบนิเวศคาร์บอนต่ำครบวงจร
- เศรษฐกิจสีเขียวและคุณภาพชีวิตที่ดี
- รองรับเป้าหมาย Net Zero ของประเทศ
- ขยายผลสู่จังหวัดอื่น

ลดการปล่อย GHG สะสม
5 ล้านตัน CO_2e ขึ้นไป

เป้าหมายสูงสุด

NET ZERO 2050

สระบุรี
เมืองน่าอยู่
เศรษฐกิจดี
สิ่งแวดล้อมยั่งยืน

กลไกความร่วมมือ 3 ภาคส่วน ขับเคลื่อนสระบุรีแซนด์บ็อกซ์

TCMA Lead : ขับเคลื่อนอุตสาหกรรมคาร์บอนต่ำ


Low Carbon Cement
พัฒนาปูนซีเมนต์คาร์บอนต่ำ


Alternative Fuels
ใช้เชื้อเพลิงทดแทน (RDF, Biomass, Waste)


Waste Heat Recovery
นำพลังงานความร้อนกลับมาใช้ประโยชน์



CCUS & Carbon Management
ศึกษาความเป็นไปได้และเตรียมความพร้อม

จังหวัดสระบุรี Lead : ขับเคลื่อนนโยบาย พื้นที่ และการจัดการ


นโยบายและกฎระเบียบ
สนับสนุนการทดลองนวัตกรรมและการลงทุน


การจัดการของเสีย (Waste Management)
ส่งเสริมการคัดแยก การรีไซเคิล และแปรรูปของเสียเป็นพลังงานและวัสดุ (Waste to Resource)


การพัฒนาพื้นที่ต้นแบบ
พัฒนาพื้นที่ Sandbox และโครงสร้างพื้นฐานสีเขียว


การมีส่วนร่วมของทุกภาคส่วน
เชื่อมโยงภาครัฐ เอกชน ชุมชน สถาบันการศึกษา

FTI Saraburi Lead : ขับเคลื่อนเศรษฐกิจและสังคมสีเขียว


โครงการหญ้าเนเปียร์ (Napier Grass)
ปลูกพืชพลังงานทดแทน สร้างรายได้ให้ชุมชน


นาเปียกสลับแห้ง (AWD)
ลดการปล่อยมีเทนจากนาข้าว และใช้น้ำน้อยอย่างมีประสิทธิภาพ


โครงการ Green Area
เพิ่มพื้นที่สีเขียว ปลูกป่าในชุมชน และพื้นที่สีเขียวในนิคม/โรงงาน


SME & Green Supply Chain
พัฒนาเครือข่ายอุตสาหกรรมสีเขียวและ SMEs


Community Engagement
สร้างการมีส่วนร่วมและจิตสำนึกคาร์บอนต่ำในชุมชน

กลไกความร่วมมือแบบ TEST & LEARN

1. POLICY SANDBOX
- ทดลองกฎระเบียบ มาตรการจูงใจ และสิทธิประโยชน์
- ปรับปรุงกฎหมาย/ข้อบังคับให้เอื้อต่อการทดลอง
- เรียนรู้ ปรับแก้ และขยายผลสู่พื้นที่อื่น

ตัวอย่าง : มาตรการสนับสนุน RDF, Carbon Credit ข้อกำหนดการจัดการของเสีย, Incentive ด้านภาษี

2. TECHNOLOGY SANDBOX
- ทดสอบเทคโนโลยีใหม่ในสภาพแวดล้อมจริง
- ร่วมวิจัย พัฒนา และสาธิตเทคโนโลยี
- ประเมินผล ประสิทธิภาพ และความคุ้มค่า

ตัวอย่าง : Low Carbon Cement, CCUS, Waste Heat Recovery, AWD, Waste to Energy

TEST – LEARN – SCALE – ADAPT
COLLABORATION
ร่วมมือ ร่วมเรียนรู้ ร่วมพัฒนา

3. FINANCE SANDBOX
- ทดสอบรูปแบบการเงินและการลงทุนใหม่
- สนับสนุนเงินทุนสีเขียว (Green Finance)
- สร้างโมเดลธุรกิจที่ยั่งยืนและขยายผลได้

ตัวอย่าง : Green Loan, Blended Finance, Carbon Finance, Impact Investment

4. GOVERNANCE SANDBOX
- ทดลองรูปแบบการบริหารจัดการร่วม
- ข้อมูลเปิด (Open Data) และติดตามผลร่วมกัน
- สร้างกลไกการมีส่วนร่วมและความโปร่งใส

ตัวอย่าง : คณะกรรมการร่วม 3 ฝ่าย, Multi-stakeholder Platform, Dashboard

ผลลัพธ์ที่คาดหวัง (OUTCOMES)

- ลดการปล่อยก๊าซเรือนกระจกอย่างเป็นรูปธรรม
- เศรษฐกิจสีเขียว สร้างงาน สร้างรายได้
- ทรัพยากรธรรมชาติได้รับการฟื้นฟูและใช้ประโยชน์อย่างยั่งยืน
- คุณภาพชีวิตและสุขภาพของประชาชนดีขึ้น
- ต้นแบบเมืองคาร์บอนต่ำของประเทศไทย
- ขยายผลสู่จังหวัดอื่นและภูมิภาคอาเซียน

ร่วมสร้าง "สระบุรี เมืองคาร์บอนต่ำ" เพื่ออนาคตที่ยั่งยืนของทุกคน

From Transition to Shared Value

CLIMATE IMPACT



- Lower GHG emission
- Net Zero
- Carbon Sink

INDUSTRIAL COMPETITIVENESS



- Energy & Resource efficiency
- Low carbon product
- New material & technology innovation

PEOPLE & COMMUNITIES



- Better environment
- Local economy opportunity
- Community participation
- Quality of life

THAILAND



- Invesment opportunity
- Replicable solutions
- Technology collaboration
- Regional model

Making the Transition Investible: Building the Ecosystem

From Transition Finance to Economic Value

1 POLICY & ENABLING FRAMEWORKS

- Policy & Incentives
- Taxonomy
- Standards
- Carbon Pricing

2 FINANCE & INVESTMENT

- Grant
- Transition Finance
- Risk Sharing
- Blended Finance
- Bankable Project

3 TECHNOLOGY & GLOBAL PARTNERSHIP

- Technology & Innovation
- Knowledge & Capacity Building
- Technology Transition
- International Cooperation

4 ECONOMIC & SOCIAL VALUE

- Industrial Competitiveness
- New Revenue Streams
- Local Economic Opportunities
- Green Jobs

COLLABORATION PARTNER FOR NET ZERO

AFCM ASEAN FEDERATION OF CEMENT MANUFACTURERS
ACPAC
BRUNEI · CAMBODIA · INDONESIA · MALAYSIA
Heidelberg Materials
ASPERSS · C&CA
PHILIPPINES · SINGAPORE · THAILAND · VIETNAM
CeMAP · CNCAS · TCMA
JAPAN · KOREA · TAIWAN
Japan Cement Association · 한국시멘트협회 KOREA CEMENT ASSOCIATION

Environment and Climate Change Canada / Environnement et Changement climatique Canada
UNIDO UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION — Progress by innovation
gcca Global Cement and Concrete Association
WORLD ECONOMIC FORUM
WBCSD World Business Council for Sustainable Development
CLIMATE CLUB
giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
Saskatchewan Canada

To achieve Thailand's 5 Future Industries, we need to open the gates

The right technology, behavior and policy must come together so that Thailand can turn potential into real growth.

NET ZERO 2050

Source: World Bank Group



Advanced Manufacturing

Sustainable & Wellness Tourism

Digital Services

Agrifood

Creative Industries

PPPP

Public-Private-People Partnership

A mechanism to test, experiment, create Sandbox initiatives, and unlock every 'Gate'.

- Policy
- Private Sector
- People / Community
- Sandbox — Scale Up

1 Green Infrastructure

Supporting new industries with competitive infrastructure



- Clean energy
- Grid infrastructure
- Green and digital infrastructure
- AI challenges: GHG/token, water footprint

2 Climate Adaptation

Because climate change is unavoidable — Learn to live with it



- Invest in resilient infrastructure
- e.g. Dual use, floodways, drainage systems
- Risk management and insurance
- Water Economy
- Climate-smart agriculture

3 Human Capital

Build skilled talent and develop capabilities



- Attract and retain specialized skills
- Upskill / Reskill
- Create new talent

Carbon is the new currency | How to make sustainable investment to create long-term value

Credit: SCG



TCMA
THAI CEMENT MANUFACTURERS ASSOCIATION

THANK YOU

COLLABORATIVE

WORKING PROCESS

Collaborative **Mindset**

Collaborative **Action**

Collaborative **Value**

FINANCING THE SHIFT:
Unlocking Capital for Thailand's Transition to
NET ZERO

ESG Bond Supportive Measures



FINANCING THAILAND'S SUSTAINABILITY TRANSITION THROUGH CAPITAL MARKETS

Experiences and Lessons from Sustainable Finance Development

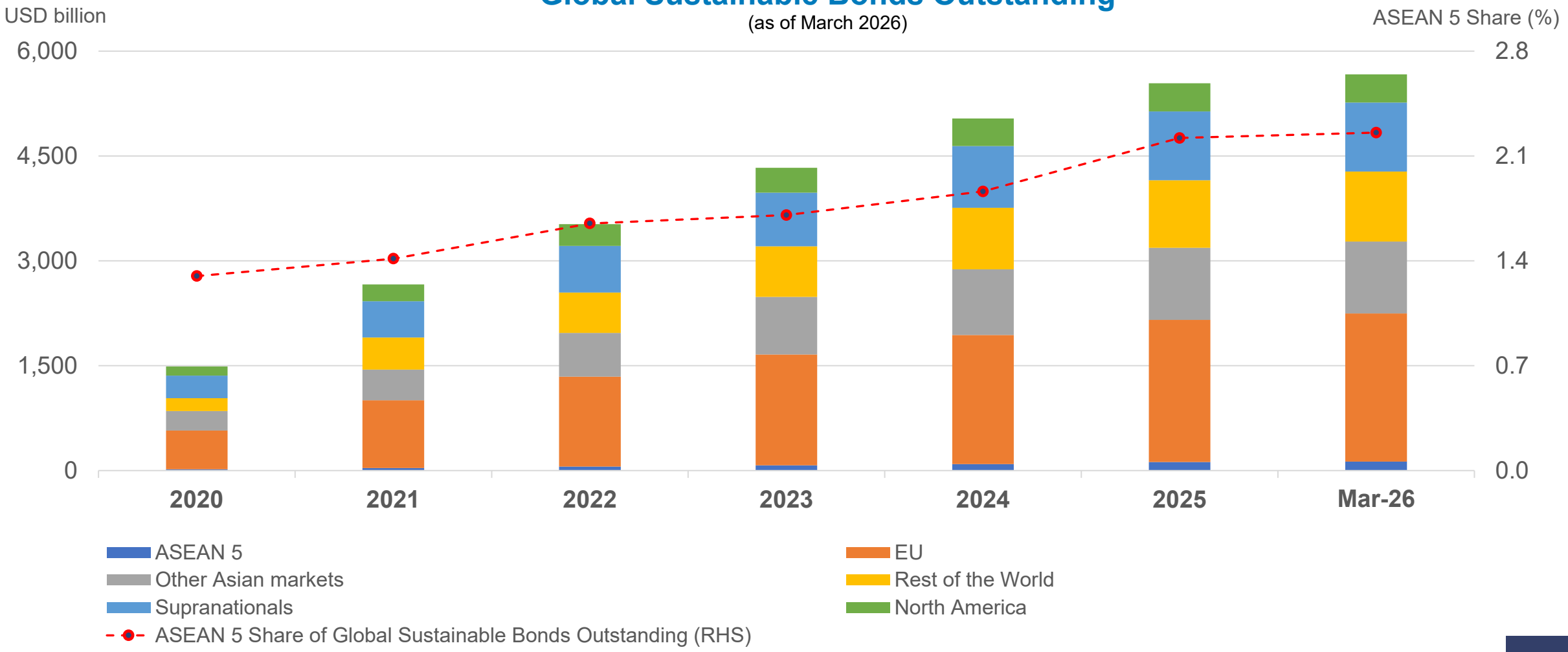
Kosintr Puongsophol
Principal Economist
Economic Research and Development Impact Department
Asian Development Bank
Email: kpuongsophol@adb.org



STATE OF SUSTAINABLE BOND MARKET

Global Sustainable Bonds Outstanding

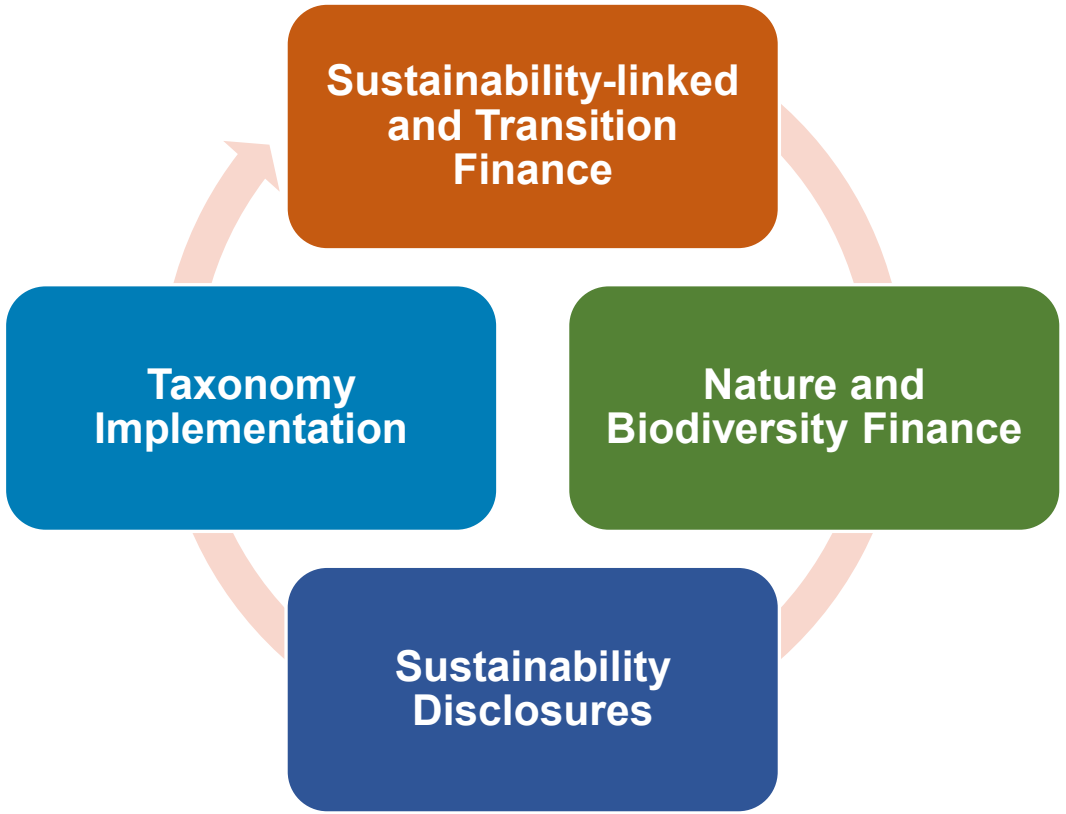
(as of March 2026)



Source: AsianBondsOnline

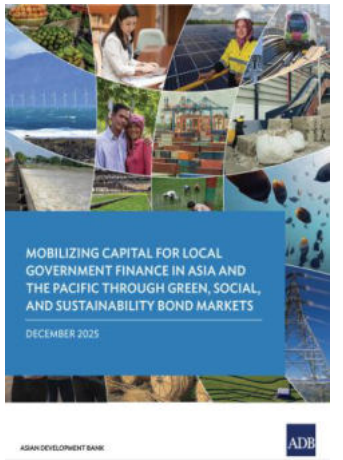
GSS+ INITIATIVE: ADVANCING SUSTAINABLE FINANCE IN SOUTHEAST ASIA

Empowering Resilient and Inclusive Development through Capital Markets

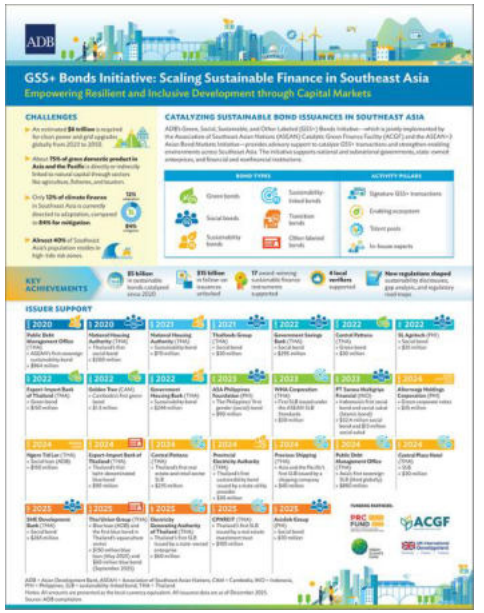




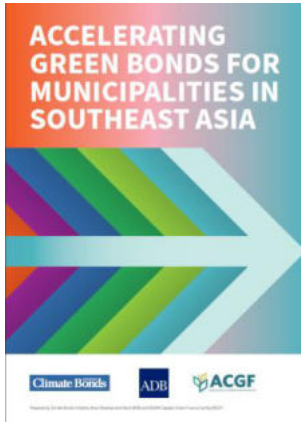
Mobilizing Private Capital for Sustainable Development Through Sustainable Bonds: Case Studies from Indonesia and Thailand



Mobilizing Capital for Local Government Finance in Asia and the Pacific Through Green, Social, and Sustainability Bond Markets



GSS+ Bonds Initiative: Scaling Sustainable Finance in Southeast Asia | Asian Development Bank



Accelerating Green Bonds for Municipalities in Southeast Asia

FUNDING PARTNERS:

PRC FUND

ACGF

GREEN CLIMATE FUND

UK International Development

ADB

GSS+ INITIATIVE: ADVANCING SUSTAINABLE FINANCE IN SOUTHEAST ASIA

Empowering Resilient and Inclusive Development through Capital Markets

Advisory Support

ISSUER SUPPORT

AUG 2020 **Public Debt Management Office** (THA) » ASEAN's first sovereign sustainability bond » $964 million	SEP 2020 **National Housing Authority** (THA) » Thailand's first social bond » $200 million	SEP 2021 **National Housing Authority** (THA) » Sustainability bond » $70 million	NOV 2021 **Thaifoods Group** (THA) » Social bond » $30 million	JUN 2022 **Government Savings Bank** (THA) » Social bond » $295 million	JUN 2022 **Central Pattana** (THA) » Green bond » $30 million	JUL 2022 **SL Agritech** (PHI) » Social bond » $35 million
SEP 2022 **Export-Import Bank of Thailand** (THA) » Green bond » $150 million	DEC 2022 **Golden Tree** (CAM) » Cambodia's first green bond » $1.3 million	DEC 2022 **Government Housing Bank** (THA) » Sustainability bond » $244 million	JUL 2023 **ASA Philippines Foundation** (PHI) » The Philippines' first gender (social) bond » $90 million	OCT 2023 **WHA Corporation** (THA) » First SLB issued under the ASEAN SLB Standards » $30 million	DEC 2023 **PT Sarana Multigriya Finansial** (INO) » Indonesia's first social bond and social *sukuk* (Islamic bond) » $32.4 million social bond and $13 million social *sukuk*	MAY 2024 **Alternergy Holdings Corporation** (PHI) » Green corporate notes » $35 million
JUN 2024 **Ngern Tid Lor** (THA) » Social loan (ADB) » $150 million	JUN 2024 **Export-Import Bank of Thailand** (THA) » Thailand's first baht-denominated blue bond » $90 million	AUG 2024 **Central Pattana** (THA) » Thailand's first real estate and retail sector SLB » $235 million	AUG 2024 **Provincial Electricity Authority** (THA) » Thailand's first sustainability bond issued by a state utility provider » $30 million	OCT 2024 **Precious Shipping** (THA) » Asia and the Pacific's first SLB issued by a shipping company » $40 million	NOV 2024 **Public Debt Management Office** (THA) » Asia's first sovereign SLB (third globally) » $880 million	DEC 2024 **Central Plaza Hotel** (THA) » SLB » $30 million
FEB 2025 **SME Development Bank** (THA) » Social bond » $265 million	MAY 2025 **Thai Union Group** (THA) » Blue loan (ADB) and the first blue bond in Thailand's aquaculture sector » $150 million blue loan (May 2025) and $60 million blue bond (September 2025)	SEP 2025 **Electricity Generating Authority of Thailand** (THA) » Thailand's first SLB issued by a state-owned enterprise » $60 million	OCT 2025 **CPNREIT** (THA) » Thailand's first SLB issued by a real estate investment trust » $180 million	DEC 2025 **Asialink Group** (PHI) » Social bond » $70 million		

FUNDING PARTNERS: PRC FUND, ACGF, GREEN CLIMATE FUND, UK International Development

Winner of 5
Asset Triple A Sustainable Finance Awards 2026

$5 billion
sustainability-themed transactions mobilized since 2020

$>15 billion
in follow-on issuances

$30 billion
by 2030 under **ADB's ASEAN Capital Markets initiative**

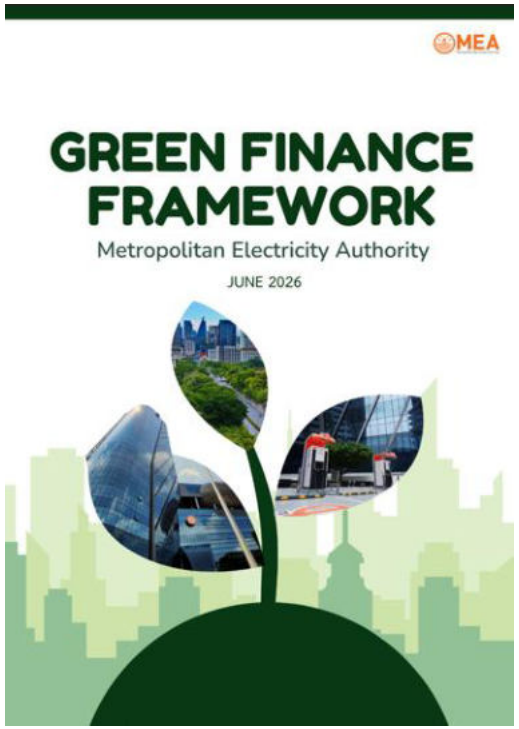
GSS+ Bonds Initiative: Scaling Sustainable Finance in Southeast Asia

Ecosystem Development

- Regulatory Development
- Sustainability-linked / Transition Finance
- Local Verifiers
- Capacity Building
- Sustainability Disclosures / ESG Data
- Taxonomy Development and Implementation

CASE STUDIES:

METROPOLITAN ELECTRICITY AUTHORITY (THAILAND)



Source: MEA's green finance framework

- **First green bond by a non-bank state-owned enterprise**
- THB 2 billion (≈ $70 million), 5 years maturity
- Issued on 11 August 2026
- Bid Coverage Ratio: 3.95 times
- Aligned with **ASEAN Taxonomy for Sustainable Finance and/or Thailand Taxonomy**



	Examples and corresponding impact indicators

Green projects	• **Climate change adaptation** (e.g., underground transmission and distribution cable systems)
	  • *Cumulative length in km of road-aligned routes converted from overhead power distribution systems to underground power cable systems*
	• **Energy efficiency** (e.g., smart meters)
	  • *Amount of energy-efficient equipment installed*
	  • *Estimated annual GHG reduction or avoidance from energy-efficient equipment installed*

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5

CASE STUDIES:

SOVEREIGN SUSTAINABILITY-LINKED BOND: GOVERNMENT OF THAILAND



Asia-Pacific's First Sovereign Sustainability-Linked Bond for Climate and Biodiversity

- Reducing Thailand's net GHG emissions to 152 MtCO2e by 2035, representing a 47% reduction compared to 2019 levels, and
- Achieving at least 30% of total terrestrial and inland water protected areas and Other Effective Area-Based Conservation Measures (OECMs) by 2030, relative to the country's total land area.

Expected to raise at least THB 15 billion (approx. $440 million) through a 15-year tenor

INTEGRATED APPROACH: ADVANCING SUSTAINABLE CAPITAL MARKETS IN SOUTHEAST ASIA

UPSTREAM	MIDSTREAM	DOWNSTREAM
▪ Market Roadmaps ▪ Market Diagnostics	▪ Adoption and Implementation of Sustainability Disclosures ▪ Taxonomy-Aligned Frameworks	▪ Pilot Innovative transactions e.g. nature-related instruments, transition finance, municipal finance ▪ Capital Mobilization

CROSS-CUTTING SUPPORT: Capacity Building, Technical Assistance, Stakeholder Engagement, and Knowledge Sharing

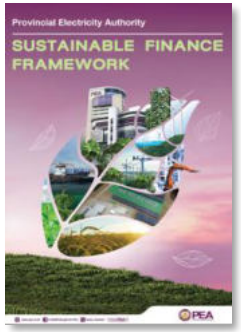


Development and Implementation of Thailand Taxonomy (Phase 2)

Regulatory development including adoption of international sustainability reporting standards



Examples of taxonomy-aligned financing frameworks









Innovative sustainable finance transactions, including Thailand's sovereign sustainability-linked bond with a nature KPI, first ADB-supported blue loan, and green deposit programs






THANK YOU

ABOUT THE GLOBAL GREEN GROWTH INSTITUTE

GGGI: A Treaty-Based International Organization Trusted by Governments and Markets

The Global Green Growth Institute (GGGI) is a treaty-based, intergovernmental organization dedicated to supporting strong, inclusive, and sustainable economic growth in developing countries and emerging economies.

Established at the 2012 Rio+20 Conference by 16 founding countries, GGGI is headquartered in Seoul, Republic of Korea, and today counts 55 Member States with operations in 57 countries.

USD 15bn
Mobilized in climate finance

374
Green growth policies adopted with GGGI support

2.8 million
Green jobs supported across member countries

518 million
Tons of GHG emissions reduced annually

55 Member States · **Operations in 57 countries** · Sustainable finance experts embedded within Ministries of Finance and National Development Banks across Asia, Africa, and Latin America & the Caribbean.

GGGI's Sustainable Finance practice channels this global platform into two complementary, fully-funded programs, introduced on the following pages, that help private sector issuers reach international capital markets.

Two Sustainable Finance Programs Implemented by GGGI

	GGGI Global Trust Fund on Sustainable Finance Instruments	GGGI GGBI Global Green Bond Initiative
Objective	Mobilize financing to close the NDC and SDG gaps	Green national and international capital markets to close the NDC and SDG funding gap
Funding Partner	THE GOVERNMENT OF THE GRAND DUCHY OF LUXEMBOURG	Global Gateway
Focus	Technical assistance to support development of sustainable finance policies, frameworks, and instruments	Transactional technical assistance for green and sustainable bond issuances
Scope	Global	Global

Together, GTF and GGBI give GGGI a full-spectrum sustainable finance offering, from early-stage policy and framework development through to transactional support for an individual bond issuance.

Support Across the Full Bond Issuance Journey

Who We Support: Sovereigns · Quasi-Sovereigns (national development banks, state-owned enterprises, municipal governments) · Private Entities (corporates and financial institutions)

Policy & Capacity Support

Enhanced Ecosystem

Guidelines, policy frameworks, and market development initiatives — including partnerships with stock exchanges and banking associations.

Capacity Building

Strengthening institutional capacity on thematic bonds for issuers and other relevant stakeholders through training and workshops.

Thematic Bond Technical Assistance

Pre-Issuance

- Issuers Needs Assessment
- Development of thematic bond framework aligned with international standards
- Obtain Second Party Opinion (cost covered by GGGI)
- Identification of eligible investment and project pipeline
- Structural and technical parameters of issuance, such as guarantees
- Engagement with investors
- Outreach and marketing

Issuance

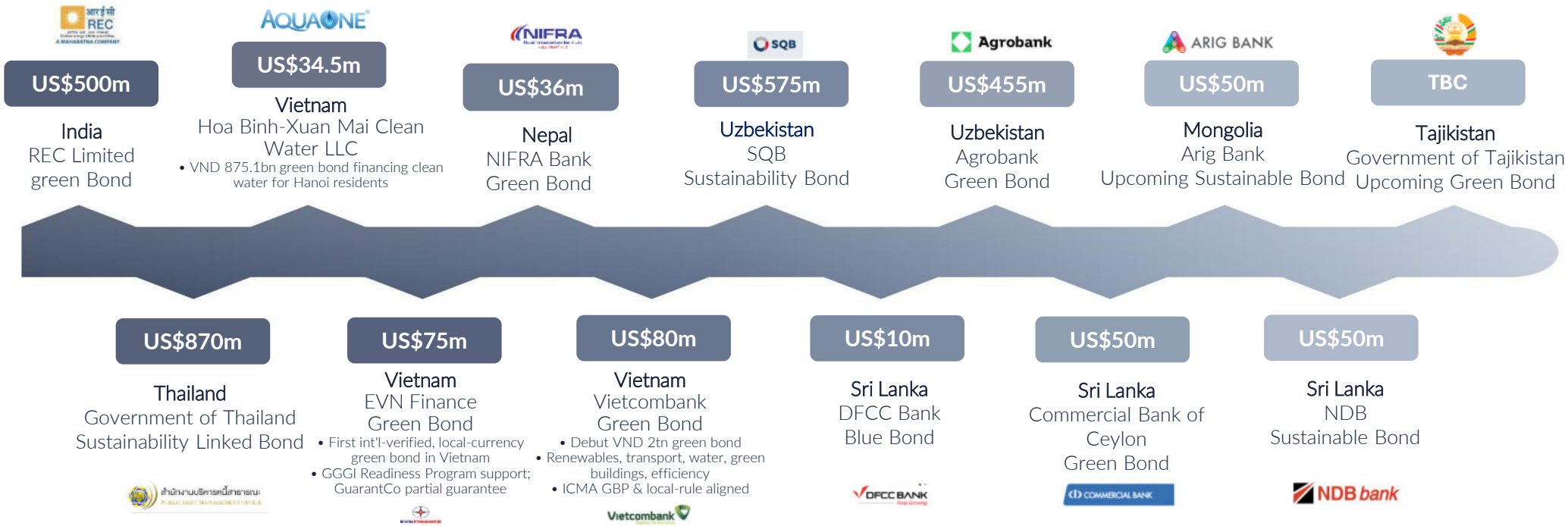
- Organize non-deal roadshows
- Screening and prioritization of underlying pipeline
- Prepare marketing and investor materials
- Identify outreach and visibility opportunities

Post-Issuance

- Developing first annual Impact and Allocation report
- Third-party verification of first impact report (cost covered by GGGI)
- Quantification of environmental & social impacts
- Identify outreach opportunities to showcase issuance impact

Our Asia Track Record

$2.5 B issuances in Asia since 2021 – Across all Funding Partners



Partners

ICMA International Capital Market Association · CFA Institute · Luxembourg Stock Exchange · BRVM Bourse Régionale des Valeurs Mobilières · LSFI Luxembourg Sustainable Finance Initiative · The Green Guarantee Company · S&P · Sustainable Fitch · Environmental Finance

Donors & Funding Partners

North American Development Bank · CAF Banco de Desarrollo de América Latina · The Government of the Grand Duchy of Luxembourg · UK PACT · Green Climate Fund · IDB Inter-American Development Bank · European Commission

Panel Discussion II

Supportive Measures ESG Bonds

5 October 2026 | Bangkok

IFC International Finance Corporation WORLD BANK GROUP

Ministry of Foreign Affairs of the Netherlands

Australian Aid

IFC's Role: Creating Market for GSS+ Finance

Investor + Adviser + Knowledge Partner + Ecosystem Facilitator

INVESTMENT

- Anchor investor
- GSS+ bonds and loans
- Mobilize private capital

ADVISORY

- Issuer readiness
- Frameworks and pipelines
- Impact reporting

UPSTREAM

- Standards and taxonomies
- Sustainable Finance Committee of ICMA, LMA

MARKET IMPACT

- Replicable market-firsts
- New thematic products
- Repeat issuance

GLOBAL FOOTPRINT

200+	22	US$15bn+	70+
green bonds issued by IFC	currencies	cumulative issuance	countries reached through GB-TAP

IFC International Finance Corporation WORLD BANK GROUP

Catalyzing Market-First Transactions

Selected IFC-supported sustainable finance milestones across Thailand and Emerging Markets

THAILAND

Indorama Ventures

First blue loan for plastic recycling in EAP

THAILAND

TMBThanachart Bank

First green bond; first blue bond by a Thai commercial bank

THAILAND

Bank of Ayudhya

First social bond for women entrepreneurs in Asia

CHINA

BONCFC

First equity for green consumer finance

PHILIPPINES

BDO

First blue bond in the Philippines

INDONESIA

OCBC NISP

First sustainability bond in Indonesia

INDIA

HDFC

First green affordable housing finance in Asia

TURKEY

QNB

First-of-its-kind transition bond

COLOMBIA

BBVA Colombia

First biodiversity bond in the financial sector

GREEN → BLUE → SOCIAL → SUSTAINABILITY → TRANSITION + NEW THEMES

Demonstrating new asset classes, building investor confidence, and creating models the market can replicate

IFC International Finance Corporation WORLD BANK GROUP

The Market Is Ready. More Issuers Need to Be Ready.

IFC focuses on the “missing middle” between market frameworks and repeat issuance

STRONGER FOUNDATIONS

- Thailand Taxonomy
- ESG/Transition bonds guidance
- Investor interest
- Pioneer transactions







ISSUER READINESS GAPS

- Eligible asset pipeline
- Transition strategy and targets
- Governance and data
- Impact reporting

Capacity building is not training alone. It builds institution-wide capability for repeat issuance.

IFC SUPPORT

- Strategy and diagnostic
- Framework and eligibility
- Transaction readiness
- Monitoring and reporting

- **Strategic Support**
- **Transaction Support**
- **Implementation Support**

STRATEGY → PIPELINE → FRAMEWORK → ISSUANCE → REPORTING

IFC International Finance Corporation WORLD BANK GROUP

The Capacity Building Program: From Knowledge to Execution

26–28 October 2026 | Day 1 virtual | Days 2–3 in person, Bangkok

Objective: Equip Thai market participants to structure credible, transaction-ready sustainable and transition finance.

Financial institutions | Corporate issuers | Investors | Regulators | Intermediaries



Organized By: SEC, IFC International Finance Corporation WORLD BANK GROUP, GB-TAP Green Bond Technical Assistance Program

With Support From: Ministry of Foreign Affairs of the Netherlands, Australian Aid

Day 1 | Sustainable Finance Foundations

Day 2 | Structuring Sustainability-Linked Finance

Day 3 | Transition Finance in Practice

IFC International Finance Corporation WORLD BANK GROUP

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IFC International Finance Corporation
WORLD BANK GROUP

Creating Markets, Creating Opportunities

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Credit Guarantee & Investment Facility
An Asian Bond Markets Initiative



Financing the Shift: Unlocking Capital for Thailand's Transition to Net Zero

Panel Discussion II: ESG bond supportive measures

JO EE KHOO
PRINCIPAL INVESTMENT SPECIALIST
OCTOBER 5, 2026

SEC Classification : ใช้ภายใน (Internal)

ABOUT CREDIT GUARANTEE & INVESTMENT FACILITY (CGIF)

- Founded in 2010 under the Asian Bond Market Initiative (ABMI)
- Multilateral facility, formed as a trust fund of the Asian Development Bank (ADB)
- Objective: To promote financial stability & long-term investment in ASEAN+3 by providing credit enhancement of local currency bonds
- Guarantee is irrevocable and unconditional over missed payments in bond principal & coupon
- International AA rating by S&P; National AAA rating in Thailand (TRIS), Malaysia (RAM) and Indonesia (Fitch and PEFINDO)

USD 4.94 billion
IN GUARANTEES ISSUED

128 BONDS
GUARANTEED

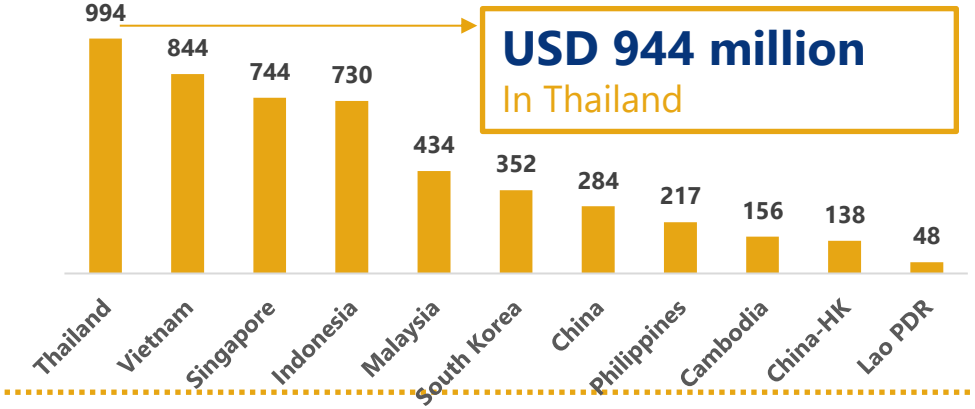
10 ASEAN+3
LOCAL CURRENCIES

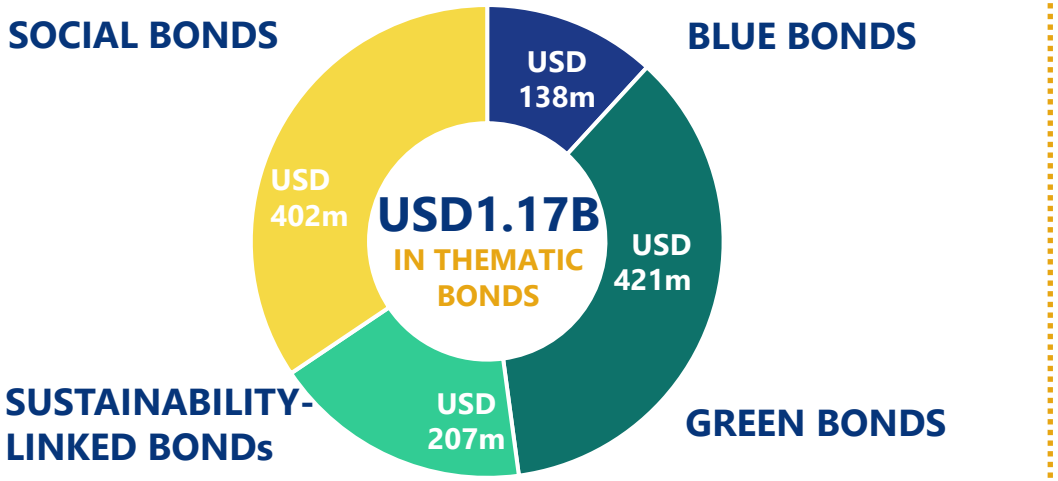
76 ISSUERS
SUPPORTED

21 THEMATIC BONDS
GUARANTEED

Guarantee Issuances by Domicile

IN USD MILLIONS





CGIF IN THAILAND



Over US$ 994 m

(US$758m in THB, US$236m in SGD)

In Capital Mobilized



14 ISSUERS

With 6 first-time issuers



8 THEMATIC BONDS

3 Social Bonds
3 Green Bonds
2 Sustainability-Linked Bonds (SLBs)



23 BONDS

Including 2 project bonds



3 CROSS-BORDER

**as of end-September 2026*

SEC Classification : ใช้ภายใน (Internal)

SUPPORTIVE MEASURES (1)

TRANSACTION	BRIEF OVERVIEW	SIGNIFICANCE / IMPACT
THAILAND **Green & Conventional Project Bonds** by Tropical Wind Co Ltd & K.R.S Three Co Ltd, Thailand (Sept 2026)	• 10-year amortizing project bonds (THB3.5B each) to finance 2 wind projects under PPA with EGAT • **TRIS Rating assigned an "Aligned" SPO to the Green Finance Frameworks of the Issuers** • Green tranches aligned with ICMA & ASEAN Green Bond Principles / Standards, Thailand and ASEAN Taxonomies	**First non-recourse THB project bonds & first THB project bonds for renewable energy.** Power infrastructure has been historically financed by bank loan syndications and sponsor-backed corporate bonds in Thailand. CGIF's support for the project bonds addressed a market gap – overcoming institutional investors' limited appetite and resources to assess and monitor standalone project risks.

SEC Classification : ใช้ภายใน (Internal)

SUPPORTIVE MEASURES (2)

TRANSACTION	BRIEF OVERVIEW	SIGNIFICANCE / IMPACT
MALAYSIA **Green Data Center Project Sukuk** by Sime Darby Property NEV (Holdings) Sdn Bhd, Malaysia (Aug 2026)	• 5-year Islamic club project financing of a hyperscale data center (MYR2.6B, CGIF's portion c10%) • **Framework received "Gold" Impact Assessment from MARC, aligned with ICMA & ASEAN Green Bond Principles / Standards;** expected to generate meaningful sustainability benefits, in alignment with UN SDGs • Proceeds in relation to the framework will finance eligible expenses i.e. Energy Efficiency, Sustainable Water and Wastewater Management, Green Buildings, Renewable Energy, Clean Transportation	• **First Green DC sukuk and the first club sukuk for digital infrastructure in ASEAN** • Capital market collaboration/co-financing among multilateral development organizations and domestic banks • Combines Islamic financing (sukuk), sustainable financing (green), and non-recourse project/infrastructure financing.

SEC Classification : ใช้ภายใน (Internal)

Thailand's ESG Bond Market

ThaiBMA
สมาคมตลาดตราสารหนี้ไทย

5 October 2026



Thailand ESG Bond Market

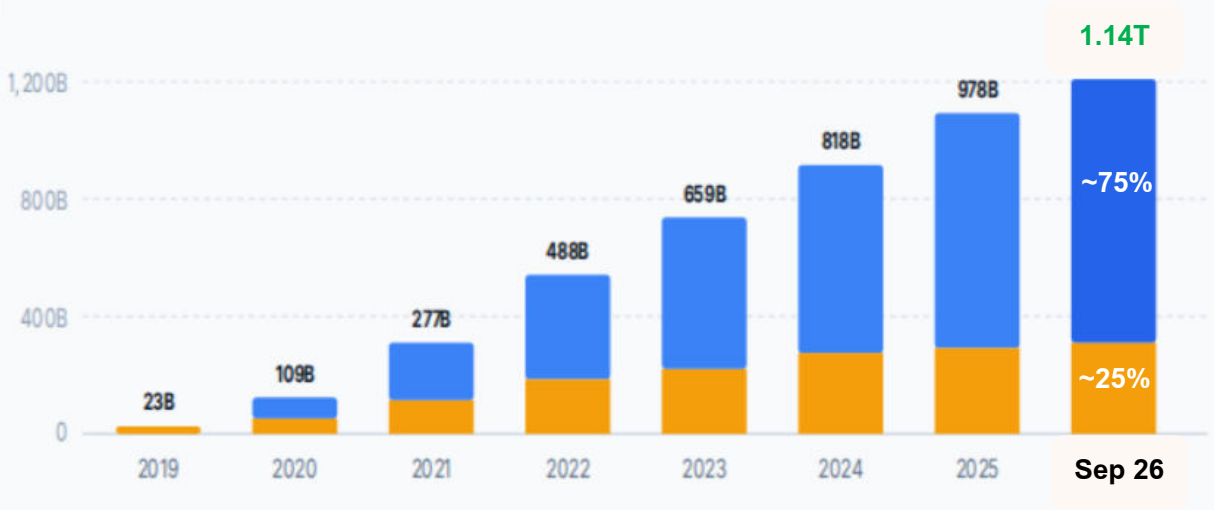
TOTAL ESG OUTSTANDING
THB 1.14 Tn ≈ USD 32 Bn
52% Compound Annual Growth Rate

MARKET SHARE
6.1% of Thai bond market
Up from <0.5% in 2019 baseline

PARTICIPATING ISSUERS
44 Total Issuers
35 Corporate | 9 Govt / SOE

As of 29 Sep 2026

Outstanding of ESG Bonds (THB Billion)



Issuers	'19	'20	'21	'22	'23	'24	'25	'26	Total
Govt / SOE	0	3	2	4	3	4	5	2	9
Corporate	2	4	9	12	8	11	12	8	35

Government & SOE

9 Active Issuers

SECTOR DISTRIBUTION (% OUTSTANDING)

- Ministry of Finance (MOF) 87.46%
- SFIs 9.53%
- Property (NHA) 1.29%
- Energy 1.19%
- Transport 0.53%

ESG INSTRUMENT BREAKDOWN

Sustainability	SLB (Linked)
65.27%	31.63%
Social Bond	**Green Bond**
2.32%	0.78%

Corporate Sector

35 Active Issuers | Green Bonds Lead at 46%

SECTOR BREAKDOWN (% OUTSTANDING) — Energy & Logistics Lead

- Energy & Utilities 38%
- Transportation & Logistics 25%
- Food & Hospitality 16%
- Property 12%
- Tech 9%

ESG INSTRUMENT BREAKDOWN

Green Bond	SLB (Linked)
46.00%	33.00%
Sustainability	**Social Bond**
19.00%	2.00%

SEC Classification : ใช้ภายใน (Internal)

Thailand ESG Bond Market: Demand & Supply side

Demand

UN PRI Signatories – 9 Organizations

Asset Owners

- Government Pension Fund (GPF) — First Mover

Category 2: Asset Managers (4 Firms)

- Kasikorn Asset Management (KAsset)
- SCB Asset Management (SCBAM)
- UOB Asset Management
- Kiatnakin Phatra Asset Management (KKPAM)

Category 3: Insurance Companies (3 Groups)

- AIA Group / AIA Thailand
- Muang Thai Life Assurance
- Allianz Group / Allianz Ayudhya

Service Providers

- Thaipat Institute — Signatory Provider

Supply

Corporate ESG Bond Issuers Classified by SET Listing (35 Firms)

TOTAL CORPORATE ISSUERS	35	SET100 CONSTITUENTS	23 (65.7%)

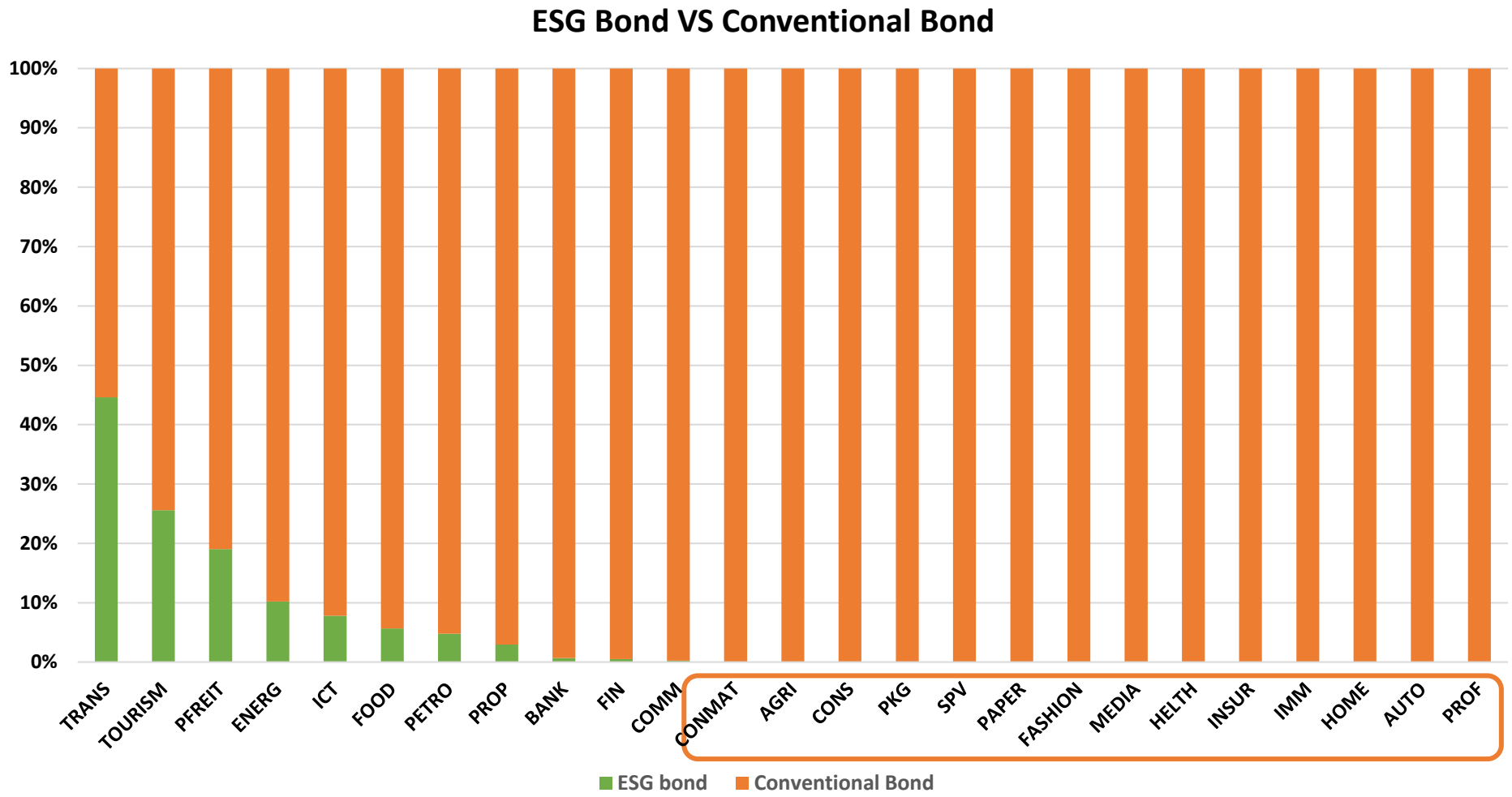
สถานะ (Status)	จำนวน	สัดส่วน	รายชื่อบริษัท (Tickers)
อยู่ใน SET50	14	40.00%	ADVANC BEM CPN CRC EGCO GPSC GULF IVL MINT PTT (PTTC) RATCH TFG TU WHA
อยู่ใน SET51—100	9	25.70%	BCPG BGRIM BTS (BTSG) CENTEL EA IRPC SIRI STGT WHAUP
ไม่อยู่ใน SET100	12	34.30%	BTSC CIMBT CKP CPNREIT EASTW PSL SPCG SSP TLT TPIPP WTHREE WTWO
รวมทั้งหมด (Total)	35	100.00%	65.7% of Issuers are constituents of SET100

Source: https://www.unpri.org/supporters

SEC Classification : ใช้ภายใน (Internal)

Thailand ESG Bond Market: Corporate bond by Sector





Source: Thai Bond Market Association (ThaiBMA)

SEC Classification : ใช้ภายใน (Internal)

Thailand ESG Bond Market: CMDF Grant Scheme

ESG Bond Issuance Grant Scheme

Supporting Equity Issuance for a Sustainable Future

The Capital Market Development Fund (CMDF) allocates a total budget of **THB 100 million** to support expenses related to External Reviews and/or Credit Rating for ESG bond issuance during the period 2023 - 2027.

CMDF Capital Market Development Fund

ThaiBMA

Grant Details

Maximum Grant Support
Up to THB 2 million per equity issuance
within the total project budget of THB 100 million.

Coverage of Reviewer and Credit Rating Costs
Helps reduce the expenses associated with obtaining external reviews and credit ratings.

Programme Period
1 July 2023 to 30 June 2027

Objective
To promote ESG equity issuance and strengthen Thailand's capital market towards sustainability.

Eligible Criteria

Eligible Equity Types
Green, Social, Sustainability, Sustainability-Linked Bonds, and Transition Bonds / Thailand Amber Bonds.

Minimum Issue Size
Minimum issue size of THB 100 million per tranche.

Registration and Reporting
Must be registered with ThaiBMA and submit reports at least 3 times throughout the life of the bond.

Fund Monitoring and Evaluation
ThaiBMA and the CMDF reserve the right to monitor, evaluate, and inspect the use of grant funds for transparency and compliance.

SEC classification : ลับที่สุด (Internal)

Thailand ESG Bond Market: CMDF Grant Scheme

ESG Bond Issuers under Grant Disbursement – 22 Organizations

Sector	Green Bond	Sustainability-Linked (SLB)	Sustainability	Social
ENERG Energy & Utilities	BGRIM, CKP, EA, EASTW, EGCO, SSP, TPIPP, WHAUP, XPCL	EGAT	-	-
TRANS Transportation & Logistics	-	PSL	BEM	-
PROP Property Development	-	CPN, WHA	-	-
TOURISM Tourism & Leisure	CENTEL	CENTEL, MINT	-	-
FOOD Food & Beverage	TU	TU	-	-
COMM Commerce	CRC	-	-	-
FIN Finance & Securities	EXIM	-	EXIM	TLT
ICT Info & Comm Technology	-	-	ADVANC	-
PFREIT Property Funds & REITs	-	CPNREIT	-	-





Source: Thai Bond Market Association (ThaiBMA)

SEC Classification : ใช้ภายใน (Internal)

Thank you

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MEBOND APP