Sustainable Capital
RESEARCH FOUNDATION

EDITION 2024-25
REVIEW PERIOD 2024 AND 2025

THE SCRF FLAGSHIP REVIEW

Annual Review of Sustainable Capital 2024-25

Capital Without Consensus

Investment, carbon markets, climate finance and regulation across a divided two years

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Sustainable Capital
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SUSTAINABLE CAPITAL RESEARCH FOUNDATION

Annual Review of Sustainable Capital 2024-25

Capital Without Consensus

ABOUT SCRF

The Sustainable Capital Research Foundation (SCRF) is an independent research institution working on capital markets, financial systems and economic policy, with particular depth in emerging markets and the Global South. SCRF produces research and policy analysis for investors, regulators, development finance institutions and governments.

PUBLICATION DETAILS

Series	SCRF Flagship Publications
Edition	2024-25
Review period	1 January 2024 to 31 December 2025
Authors	SCRF Research Team
Language	English
Format	Open access (PDF and Word editions)

SUGGESTED CITATION

SCRF Research Team (2026). Annual Review of Sustainable Capital 2024-25: Capital Without Consensus. New Delhi: Sustainable Capital Research Foundation.

LICENCE

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FOREWORD

Foreword

The SCRF Annual Review of Sustainable Capital records how capital, markets and public policy moved across 2024 and 2025, and what that movement implies for the institutions that allocate, regulate and govern finance. It is the Foundation's flagship publication, and I am pleased to introduce this edition.

The two years tested a proposition that had become an article of faith in sustainable finance: that political commitment and capital allocation move together. They did not. Political consensus fractured, most visibly in the United States, while investment in the energy transition reached successive records. That divergence is the organising theme of this edition.

The lesson I draw from these two years is that durable progress rests on institutions rather than declarations. Carbon markets with credible registries, sovereign issuance programmes with depth, and disclosure regimes that travel across borders held their ground through the political cycle; voluntary pledges did not. Emerging economies, India foremost among them, showed that market architecture can be built at speed when policy is sequenced with care. SCRF's research agenda for the coming cycle follows from that observation: the cost of capital in emerging markets, the recognition of carbon prices across borders, and the financing of adaptation.

The Review is built on primary and institutional sources. Every quantitative statement carries a numbered reference to the publishing institution, and the methodological annex sets out how conflicting estimates were treated. Where SCRF offers its own analysis, the assumptions are stated and the arithmetic can be reproduced. This expanded edition adds six regional reviews, three thematic chapters and an original scorecard of institutional readiness across eighteen emerging economies.

I thank the SCRF Research Team for the rigour they brought to this edition, and the institutions whose open data make independent analysis possible. Errors of interpretation remain ours.

Shaurya Ritwik

Executive Director

Sustainable Capital Research Foundation, New Delhi

EXECUTIVE SUMMARY

Capital Without Consensus

Across 2024 and 2025, sustainable capital decoupled from the political consensus that had been assumed to underpin it. Investment set records while alliances, mandates and disclosure rules retreated in several advanced economies. The binding constraints on the transition shifted from ambition to plumbing: the cost of capital in emerging markets, the formation of credible carbon prices, and the interoperability of disclosure and taxonomy regimes.

USD 2.3tn
Energy transition investment, 2025[1]

28%
Global emissions under a carbon price, 2025[4]

EUR 791bn
Global compliance carbon market value, 2025[9]

USD 1.4bn
Primary carbon credit market, 2025[10]

USD 6.8tn
Cumulative aligned GSS+ debt, end-2025[15]

USD 137bn
MDB climate finance, 2024[14]

12-14x
Adaptation needs relative to flows[13]

50%
India non-fossil power capacity, June 2025[19]

Twelve findings

01 **Investment outran politics.** Energy transition investment reached a record USD 2.3 trillion in 2025, up 8% on 2024, even as growth slowed from 27% in 2021[1]. Clean energy attracted USD 2.2 trillion against USD 1.1 trillion for fossil fuels[2].

02 **Capital stayed concentrated.** China accounts for nearly one-third of global clean energy investment and Africa for 2%[2]. The cost of capital for clean energy projects in emerging and developing economies remains at least two to three times that of advanced economies[3].

03 **Compliance carbon pricing widened.** Carbon pricing covered about 28% of global emissions in 2025 and raised more than USD 100 billion in 2024[4]. China extended its national ETS to steel, cement and aluminium[5]; Brazil legislated a cap-and-trade system[6]; India notified binding intensity targets[7].

04 **Carbon prices diverged.** The EU allowance price rose 14% in 2025 while China's national allowance price fell 35%[8,9]. Global compliance market value fell to EUR 791 billion, the lowest since 2021[9].

05 **The voluntary market held volume and lost value to quality sorting.** The primary credit market stayed near USD 1.4 billion for a fourth year while average prices fell and higher-rated credits gained share[10,11].

06 **The finance goal was set; the adaptation gap widened.** COP29 agreed USD 300 billion a year by 2035 within a USD 1.3 trillion ambition[12]. International public adaptation finance to developing countries fell to USD 26 billion against needs of USD 310-365 billion a year[13].

07 **Development banks delivered, but mobilisation is skewed.** MDB climate finance reached a record USD 137 billion in 2024[14]. SCRF calculates that each dollar of MDB climate finance mobilised about five times more private capital in high-income economies than in low- and middle-income economies.

08 **Labelled debt plateaued at scale.** Aligned green, social, sustainability and sustainability-linked issuance exceeded USD 1 trillion for the third consecutive year, taking the cumulative market to USD 6.8 trillion[15].

09 **Disclosure fragmented.** Thirty-six jurisdictions moved toward ISSB Standards[16] while the EU cut CSRD scope by about 90% of companies[17] and the US SEC abandoned the defence of its climate rule[18].

10 **India became a leadership case in market-building.** India reached 50% non-fossil power capacity five years ahead of its NDC date[19], notified legally binding intensity targets for 282 industrial units[7] and released a draft climate finance taxonomy[20]. Its sovereign green bond programme, however, lost its pricing advantage[21].

11 **Regions specialised.** North Asia supplied scale, with Chinese green loans of RMB 44.8 trillion[22]; ASEAN+3 issued 29.8% of global sustainable bonds[23]; Gulf issuers set a record of USD 11.4 billion in sustainable sukuk[24]; Latin America built the deepest institutions; Africa reformed but still receives 2% of clean energy investment[2].

12 **Risk transfer scaled; protection did not.** Catastrophe bond issuance reached a record USD 25.6 billion[25], yet 80-90% of catastrophe losses in emerging markets remain uninsured[26]. SCRF's Readiness Scorecard finds that only six of eighteen emerging economies operate a compliance carbon price, and eight are rated below investment grade.

Four priorities

- **Price the cost-of-capital gap as a policy variable.** Currency risk, regulatory predictability and off-taker credit explain more of the emerging-market financing premium than technology risk. Guarantees, local-currency hedging and blended structures deserve the budget share that pledges once received.
- **Build carbon prices that other jurisdictions can recognise.** Border measures reward explicit, verifiable prices. Intensity-based systems in emerging markets should plan a path to recognisable price signals and rigorous measurement, reporting and verification.
- **Treat interoperability as the disclosure objective.** With the EU narrowing and the US withdrawing, the ISSB baseline is the only route to comparability for cross-border capital.
- **Rebalance toward adaptation and non-debt instruments.** The adaptation gap cannot be closed with market-rate debt in fiscally constrained economies.

TABLE ES.1

Regional highlights, 2024-25

Region	Headline indicator	Defining development	Ch.
China and North Asia	Green loans RMB 44.8 trillion, end-2025[22]	Mandatory GX-ETS legislated in Japan; Korea moves power to 50% auctioning by 2030[27,28]	6
India	50% non-fossil power capacity, June 2025[19]	Binding intensity targets for 282 units; S&P upgrade to BBB[7,29]	7
Southeast Asia	ASEAN+3 issued 29.8% of global sustainable bonds, 2025[23]	Pilot ETS in Viet Nam; international trading on IDXCarbon[30,31]	8
The Gulf	Record USD 11.4 billion of sustainable sukuk, 2025[24]	Saudi inaugural sovereign green tranche; UAE climate law in force[32,33]	9
Africa	2% of global clean energy investment[2]	29 Mission 300 compacts; Kenya taxonomy; South Africa upgrade[34,35,36]	10
Latin America	Climate finance USD 108 billion, 2024[37]	Eco Invest auctions; Brazilian taxonomy; thematic issuance down 47% in 2025[38,39,40]	11

Source: SCRF compilation from the chapters indicated.

THE REVIEW PERIOD

2024-25 at a Glance

Selected events that shaped capital markets, carbon pricing and climate finance governance during the review period.

Feb 2024 Japan issues the world's first sovereign climate transition bonds[41].

Mar 2024 ASEAN Taxonomy Version 3 published, following national taxonomies issued by Indonesia and the Philippines in February[42,43,44].

Oct 2024 Ecuador, El Salvador, the Bahamas and Barbados open a wave of debt-for-nature and resilience conversions[45,46].

Nov 2024 COP29 adopts the New Collective Quantified Goal and completes the Article 6 rulebook[12,47].

Dec 2024 Brazil enacts Law 15.042 creating the SBCE; the EU Green Bond Standard applies from 21 December[6,48].

Jan 2025 US Executive Order 14162 directs withdrawal from the Paris Agreement; the Federal Reserve leaves the NGFS; Mission 300 summit in Dar es Salaam[49,50,51].

Feb 2025 Saudi Arabia prices its inaugural sovereign green tranche; COP16 concludes in Rome and launches the Cali Fund[32,52].

Mar 2025 US exits JETPs; China expands its national ETS; SEC ends defence of its climate rule; India publishes its CCTS offset procedure[53,5,18,54].

Apr 2025 China prices its first sovereign green bond in London; Kenya issues its Green Finance Taxonomy[55,35].

Jun 2025 Basel Committee issues a voluntary climate disclosure framework; 36 jurisdictions move toward ISSB Standards; India passes 50% non-fossil capacity[56,16,19].

Jul 2025 FfD4 adopts the Compromiso de Sevilla without US participation; Türkiye enacts its Climate Law; Viet Nam issues a binding green taxonomy[57,58,59].

Aug 2025 S&P upgrades India to BBB; Viet Nam launches its pilot ETS[29,30].

Sep 2025 Second Africa Climate Summit adopts the Addis Ababa Declaration[60].

Oct 2025 NZBA ceases operations; India notifies GHG intensity targets for 282 units; EU adopts CBAM simplification[61,7,62].

Nov 2025 COP30 adopts the Global Mutirão decision; the Tropical Forest Forever Facility launches; Korea approves Phase 4 of its ETS; S&P upgrades South Africa[63,64,28,36].

Dec 2025 EU concludes Omnibus I and agrees a 90% 2040 target; China issues its climate disclosure standard[65,66,67].

PART I

I

Global Conditions

Investment, carbon pricing, climate finance, labelled debt and the information infrastructure of sustainable finance across the global system.

01 The Macro-Financial Setting
02 Carbon Markets
03 The Climate Finance Architecture
04 Sustainable Debt Markets
05 Disclosure, Taxonomies and Prudential Policy

CHAPTER 01

01

The Macro-Financial Setting

Investment set records while the political coalition behind it fractured

> *The defining feature of 2024-25 was a split between the politics and the economics of the transition. Capital continued to flow toward clean energy at record scale. The institutions that had been built to steer it, from bank alliances to supervisory networks, weakened or dissolved.*

1.1 Record investment, slowing growth

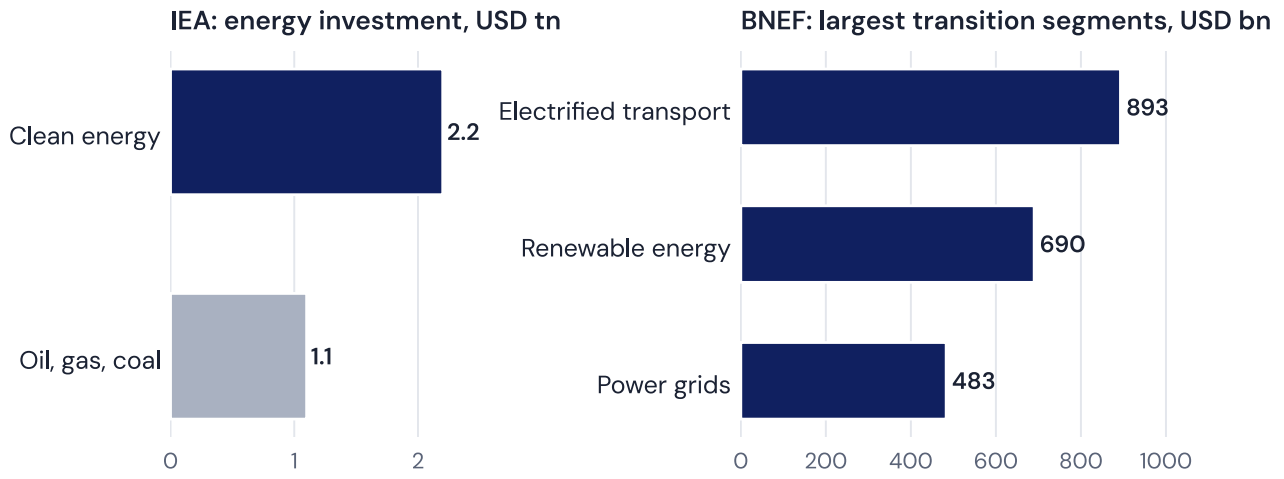
BloombergNEF estimates that global energy transition investment reached USD 2.3 trillion in 2025, up 8% on 2024[1]. Growth has slowed every year since 2021, from 27% to 8%, and China's investment fell for the first time since 2013, to USD 800 billion[1].

Electrified transport was the largest segment at USD 893 billion. Renewable energy fell 9.5% to USD 690 billion as Chinese power-market reforms reduced deployment spending, while grids attracted USD 483 billion[1]. Debt, not venture or public equity, financed most of the transition: transition-related debt issuance reached USD 1.2 trillion, up 17%[1].

The International Energy Agency's broader measure confirms the direction. Total energy investment reached about USD 3.3 trillion in 2025, of which USD 2.2 trillion went to renewables, grids, storage, nuclear, low-emission fuels, efficiency and electrification, twice the USD 1.1 trillion invested in oil, gas and coal[2].

FIGURE 1.1

Global energy investment, 2025



Source: IEA, World Energy Investment 2025[2]; BloombergNEF, Energy Transition Investment Trends 2026[1]. Note: The panels use different source definitions and are not additive. BNEF sector values cover deployment spending only.

1.2 Concentration of capital

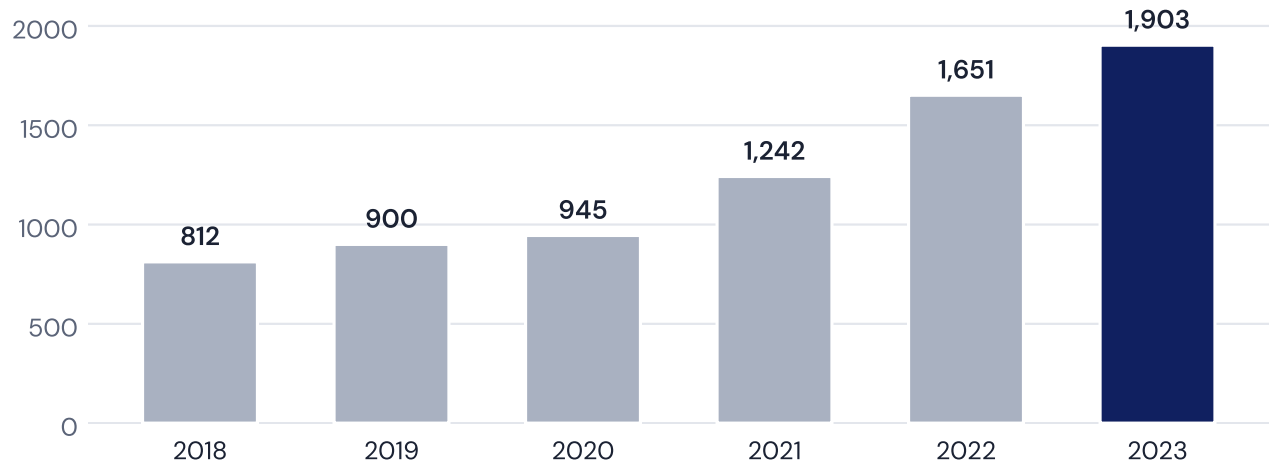
Aggregate growth conceals narrow geography. China's share of global clean energy investment has risen from a quarter a decade ago to nearly one-third, and Africa accounts for 2%[2]. Climate Policy Initiative finds that 79% of tracked climate finance in 2023 flowed to East Asia and the Pacific, Western Europe and North America[68].

Climate finance across emerging and developing economies exceeded USD 1 trillion in 2023, but China accounted for USD 685 billion, or 64%, and international flows were less than 20% of the total[69]. Outside China, the transition in the Global South remains predominantly domestically financed and capital-constrained.

The longer view shows how recent the acceleration is. Tracked global climate finance more than doubled between 2018 and 2023, from USD 812 billion to USD 1.9 trillion, with the largest annual increases in 2021 and 2022[70]. Even at that pace, the lower bound of estimated needs remains about three times current flows[70].

FIGURE 1.2

Global climate finance flows, 2018-2023 (USD billion)



Source: Climate Policy Initiative, Global Landscape of Climate Finance 2025: Executive Summary[70]. Note: Annual tracked flows, nominal USD.

1.3 The cost-of-capital wedge

The IEA's Cost of Capital Observatory finds that perceived and real risks keep the cost of capital for energy projects in emerging and developing economies at least two to three times higher than in advanced economies or China[3]. Financing costs accounted for around half of the levelised cost of a solar plant in these economies, against 25-30% in advanced economies[71].

The IEA estimates that narrowing this gap by one percentage point would reduce financing costs for clean energy in these economies by USD 150 billion a year[72]. In SCRF's assessment, no other single variable in sustainable finance carries comparable leverage.

SCRF ASSESSMENT

The wedge is a policy variable, not a market fact

Investors cite regulatory, political and off-taker risk as the main drivers of the premium, and nearly three-quarters of surveyed financing was denominated in local currency[3]. Each of these is amenable to public instruments: tariff and contract stability, currency hedging facilities and partial risk guarantees. Treating the cost of capital as exogenous understates what policy can achieve.

1.4 The political fracture

The United States reversed course across every channel of climate finance governance during 2025. Executive Order 14162 of 20 January directed withdrawal from the Paris Agreement[49], with effect under the treaty on 27 January 2026[73]. The Federal Reserve withdrew from the Network for Greening the Financial System on 17 January, citing its statutory mandate[50].

On 6 March the United States ended its membership of the International Partners Group for the Just Energy Transition Partnerships with South Africa, Indonesia and Vietnam[53]. On 27 March the SEC voted to end its legal defence of its 2024 climate disclosure rules[18].

Private coalitions followed. The Net Zero Asset Managers initiative suspended activities in January 2025[74], and on 3 October 2025 the Net-Zero Banking Alliance voted to cease operations and convert its guidance into a non-membership framework[61].

TABLE 1.1

What fractured and what held, 2024-25

Domain	Retreat	Continuity or advance
Treaty commitments	US Paris withdrawal[49]	COP29 finance goal and Article 6 rules adopted[12]
Supervision	Federal Reserve exits NGFS[50]	Basel Committee publishes a climate disclosure framework, on a voluntary basis[56]
Disclosure	SEC abandons rule; EU narrows CSRD scope[18,65]	36 jurisdictions move toward ISSB Standards[16]
Private alliances	NZAM suspended; NZBA dissolved[74,61]	Aligned GSS+ issuance above USD 1 trillion again[15]
Development finance	US exits JETPs[53]	MDB climate finance at a record USD 137 billion[14]

Source: SCRF compilation from the sources cited.

The pattern matters for investors. Voluntary architecture proved fragile under political pressure, while statutory regimes, multilateral bank balance sheets and capital-market infrastructure proved durable. Durable progress in the next cycle is more likely to come from the latter.

CHAPTER 02

02
Carbon Markets

Compliance systems deepened, the voluntary market sorted by quality, and Article 6 became operational

> *Carbon pricing widened in coverage and narrowed in price convergence. The world's two largest compliance markets moved in opposite directions, new systems emerged in large middle-income economies, and the international crediting rules of the Paris Agreement were completed.*

2.1 Coverage and revenue

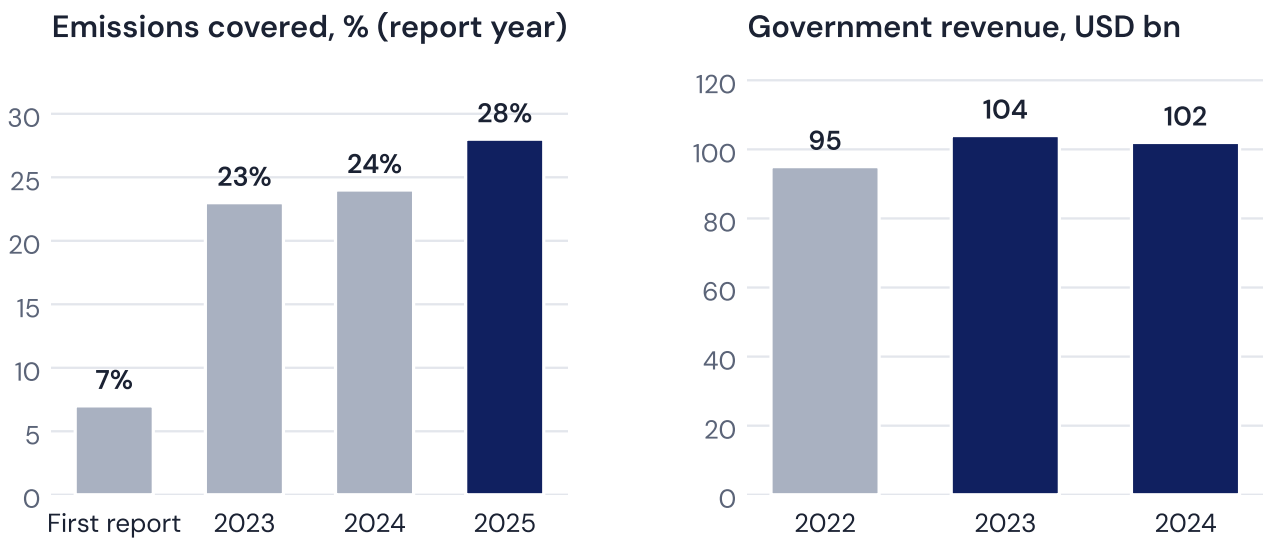
The World Bank counts 80 carbon pricing instruments in operation, a net increase of five over the year, covering about 28% of global emissions in economies that produce nearly two-thirds of global output[4]. Coverage has risen from 12% a decade ago, and revenues exceeded USD 100 billion in 2024[4].

Coverage is uneven by sector. About half of power and industrial emissions are priced, while agricultural emissions remain unpriced[4]. ICAP records 38 emissions trading systems in force as of January 2025, covering 23% of global emissions and raising about USD 70 billion in 2024[75].

The trajectory is steady rather than sudden. Coverage stood at 23% in the World Bank's 2023 report and 24% in its 2024 report, against 7% when the series began[76,77]. Revenues reached about USD 95 billion in 2022 and a record USD 104 billion in 2023 before easing to USD 102 billion in 2024[76,78,79].

FIGURE 2.1

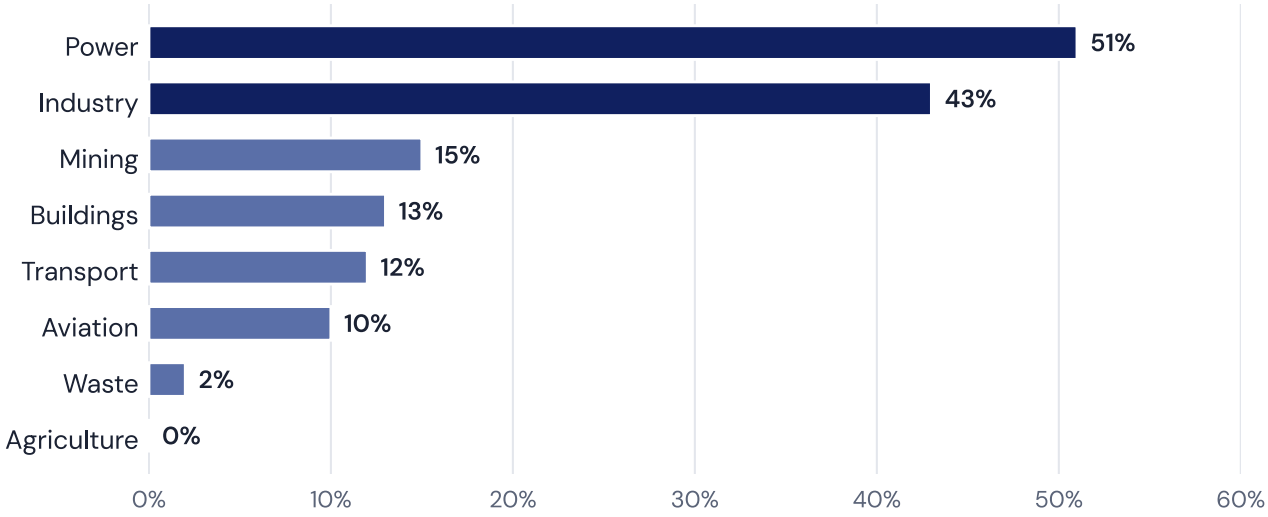
Carbon pricing coverage and government revenue



Source: World Bank, State and Trends of Carbon Pricing 2023, 2024 and 2025[76,78,77,79]. Note: Coverage by report year; revenue by calendar year of collection. The 2022 revenue value is reported as about USD 95 billion.

FIGURE 2.2

Share of emissions covered by carbon pricing, by sector, 2025



Source: World Bank, State and Trends of Carbon Pricing 2025[4]. Note: Covers both emissions trading systems and carbon taxes.

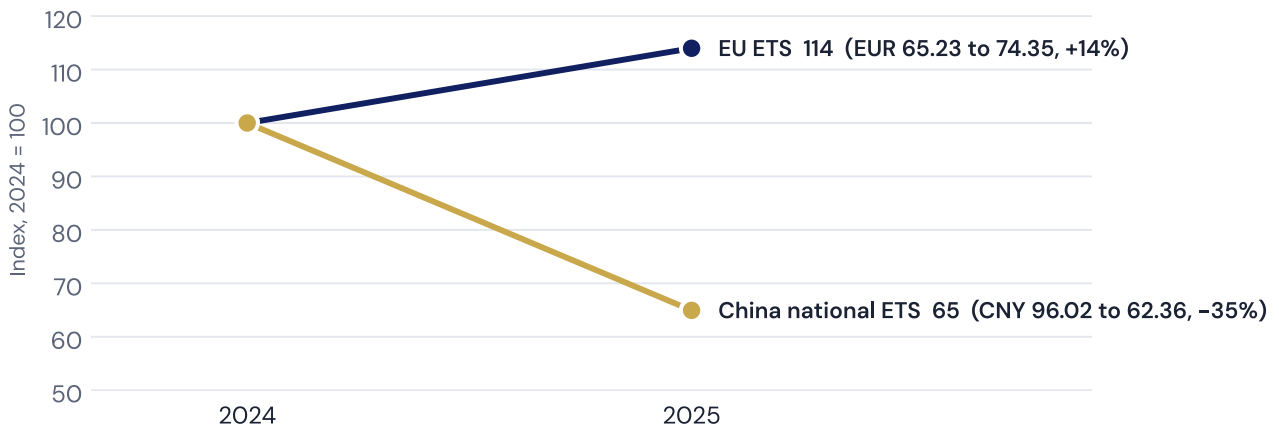
2.2 Prices and market value

The EU Emissions Trading System remained the price anchor. The average secondary market price rose from EUR 65.23 in 2024 to EUR 74.35 in 2025, an increase of 14%[8], after falling from EUR 83.6 in 2023[80]. ESMA records EU carbon market trading value of EUR 777 billion in 2025[81].

China's national ETS moved the other way. The weighted average allowance price fell 35%, from CNY 96.02 to CNY 62.36, as LSEG reports, despite major policy developments[9]. LSEG estimates the value of global compliance markets at EUR 791 billion in 2025, the lowest since 2021, after a marginal rise to just above EUR 800 billion in 2024[9,82].

FIGURE 2.3

Average allowance prices in the two largest compliance markets, indexed (2024 = 100)



Source: ICAP EU ETS factsheet, secondary market averages[8]; LSEG Carbon Research[9]. Note: EU: EUR 65.23 (2024), EUR 74.35 (2025). China: CNY 96.02 (2024), CNY 62.36 (2025), weighted average of listed and bilateral trades.

Price divergence has a structural cause. China's system allocates against intensity benchmarks and remains long on allowances, while the EU cap tightens in absolute terms. As border adjustment mechanisms take effect, the gap between these price levels becomes a trade variable as well as a climate one.

2.3 New systems in large emerging economies

On 26 March 2025 China's Ministry of Ecology and Environment extended the national ETS to steel, cement and aluminium smelting[5]. The expansion adds about 1,500 companies and 3 billion tonnes of CO2-equivalent, taking coverage to around 8 billion tonnes, roughly 15% of global emissions[5]. LSEG records 3,378 regulated entities in the fourth compliance period and a compliance rate of 99.99%[9].

Brazil enacted Law 15.042 in December 2024, creating the Brazilian Greenhouse Gas Emissions Trading System, the SBCE[6]. India notified its first legally binding intensity targets under the Carbon Credit Trading Scheme in October 2025, analysed in Chapter 7[7]. ICAP identifies Brazil, India, Indonesia, Türkiye and Vietnam as the centre of current ETS momentum[75].

The European Union moved in the opposite direction on timing. In December 2025 the Council and Parliament agreed a 90% emissions reduction target for 2040, allowed up to five percentage points to come from international credits from 2036, and postponed the buildings and road transport system, ETS2, to 2028[66]. The credit provision creates a prospective sovereign demand channel for Article 6 units.

2.4 The voluntary carbon market

MSCI estimates the primary carbon credit market at just over USD 1.4 billion in 2025, the fourth consecutive year at about this level[10]. Retirements, which had been flat at about 180 MtCO2e in 2024[83], rose 3% in 2025 to match the 2021 record, while MSCI's global credit price index fell from USD 4.3 to USD 3.5 per tonne[10].

Value has shifted toward higher-integrity supply. By the first half of 2025, credits rated BBB or higher accounted for more than one-third of retirements, against roughly one-quarter in 2019[11]. Ecosystem Marketplace reports traded value of USD 535 million in 2024, down 29% from 2023, with volume at its lowest since 2018[84].

Demand composition is also changing. The World Bank notes that compliance demand for crediting units nearly tripled in the year to mid-2025 while voluntary demand growth was negligible[4]. The voluntary market is becoming a supplier to compliance and sovereign buyers rather than a self-contained market.

USD 1.4bn	+3%	USD 3.5/t	>1/3
Primary credit market, 2025[10]	Retirements, 2025[10]	MSCI price index, 2025[10]	Retirements rated BBB+, H1 2025[11]

2.5 Article 6 becomes operational

COP29 completed the operational rules for Article 6 after nine years of negotiation[47]. The decisions adopted detailed guidance on authorisation, first transfers and registries under Article 6.2, and confirmed standards for methodologies and removals under the Paris Agreement Crediting Mechanism, Article 6.4[47,85].

The first transfer of an internationally transferred mitigation outcome is now the trigger for corresponding adjustments, closing a double-counting risk[85]. The Article 6.4 Supervisory Body approved its first methodology, for landfill gas, in October 2025[86].

SCRF ASSESSMENT

Carbon markets in 2026

- Compliance demand, not voluntary demand, will set the marginal price of high-quality credits. The EU 2040 credit allowance and Asian sovereign buyers are the channels to watch.
- Price recognition is becoming a competitiveness issue. Systems with low or implicit prices will face border adjustments without offsetting credit.
- Article 6 now has rules; it needs supply. Host-country authorisation capacity is the binding constraint in most of the Global South.

CHAPTER 03

03

The Climate Finance Architecture

From the Baku goal to the Belém package

> *COP29 replaced the USD 100 billion goal with a larger and more diffuse target. COP30 added an adaptation commitment and a roadmap but no binding mechanism. Multilateral development banks carried the operational weight, and the adaptation gap widened.*

3.1 The New Collective Quantified Goal

The New Collective Quantified Goal adopted at Baku sets a target of at least USD 300 billion a year by 2035, with developed countries taking the lead, and calls on all actors to scale finance for developing countries from all public and private sources to at least USD 1.3 trillion a year by 2035[12].

The adoption was contested. India's delegation described the outcome as "nothing more than an optical illusion" and objected to the manner of its adoption[87]. The objection reflected a substantive gap: the USD 300 billion figure covers mitigation and adaptation together and is measured in nominal terms.

3.2 The Belém package

COP30 concluded with the Global Mutirão decision. It called for tripling adaptation finance by 2035, launched a work programme on climate finance and a dialogue on climate and trade, and formally recognised the Baku to Belém Roadmap to USD 1.3 trillion[63]. Parties took note of the roadmap rather than adopting it[88].

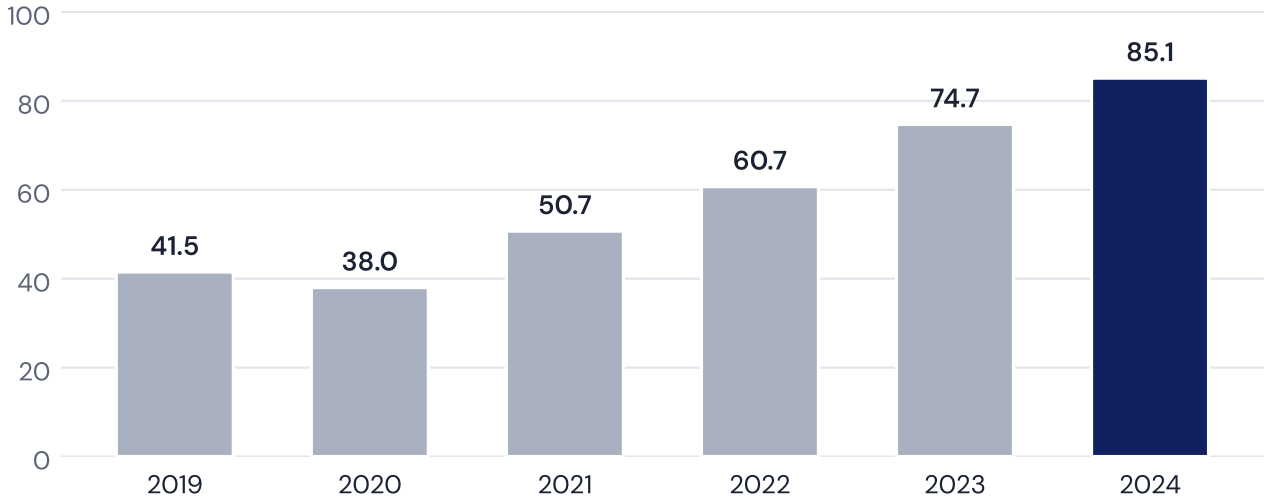
More than 80 countries supported a call for a roadmap to transition away from fossil fuels, but the final text contained no such language[88,89]. Outside the negotiated text, Brazil launched the Tropical Forest Forever Facility, an endowment-style mechanism to pay countries for standing forests[64]. Initial pledges included up to USD 3 billion from Norway and USD 1 billion each from Brazil and Indonesia[90].

3.3 Multilateral development banks

The trend is one of sustained expansion. MDB climate finance to low- and middle-income economies rose from USD 41.5 billion in 2019 to USD 60.7 billion in 2022 and USD 74.7 billion in 2023[91,92], after a dip to about USD 38 billion in 2020[93]. The share delivered as grants fell from 10% in 2022 to 6.7% in 2023[92].

FIGURE 3.1

MDB climate finance to low- and middle-income economies, 2019-2024 (USD billion)



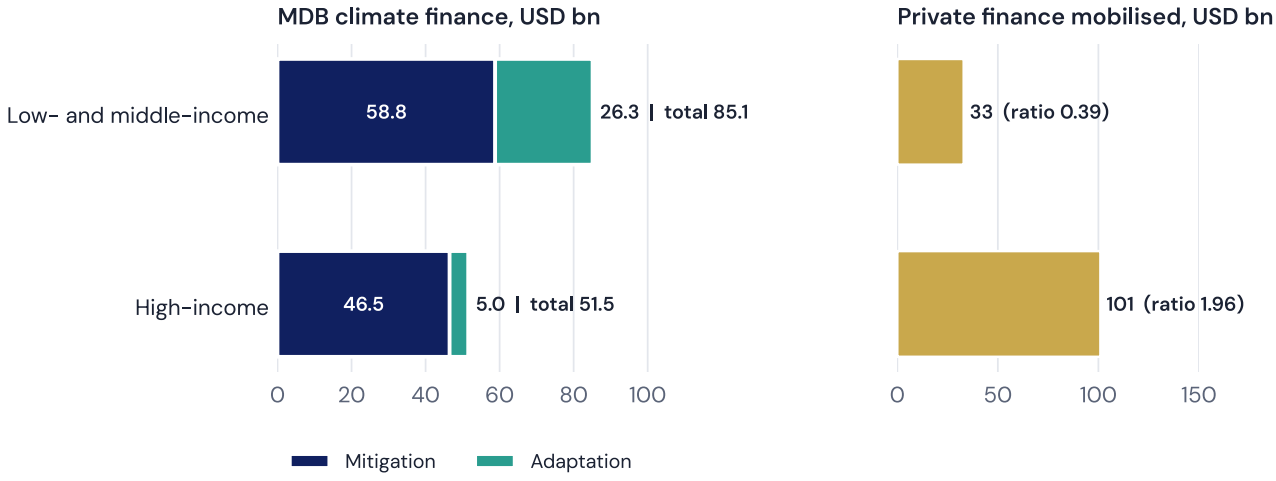
Source: EIB[91]; WRI analyses of the Joint MDB Reports[93,92]; 2024 Joint Report[94,14]. Note: Income-group classification used in the Joint Reports since 2019. 2020 value derived from the reported 2021 level and increase.

MDB climate finance reached a record USD 137 billion in 2024, up 10%[14]. Low- and middle-income economies received USD 85.1 billion, of which USD 58.8 billion supported mitigation and USD 26.3 billion adaptation; high-income economies received USD 51.5 billion[94,14].

Private mobilisation tells a different story. MDBs mobilised USD 33 billion of private climate finance in low- and middle-income economies and USD 101 billion in high-income economies[14].

FIGURE 3.2

MDB climate finance and private finance mobilised, 2024



Source: EIB et al., 2024 Joint Report on MDBs' Climate Finance[94,14]; SCRF calculation. Note: Mobilisation ratio = private finance mobilised divided by MDB own-account climate finance.

SCRF ANALYSIS

The mobilisation asymmetry

Dividing private finance mobilised by MDB own-account climate finance gives a mobilisation ratio of 1.96 in high-income economies (101 / 51.5) and 0.39 in low- and middle-income economies (33 / 85.1). Each MDB dollar therefore mobilised about five times more private capital where it was least needed.

The ratio reflects risk, not intent. It is the cost-of-capital wedge of Chapter 1 expressed in development-bank terms. Closing it requires instruments that transfer currency and political risk, not larger lending envelopes alone.

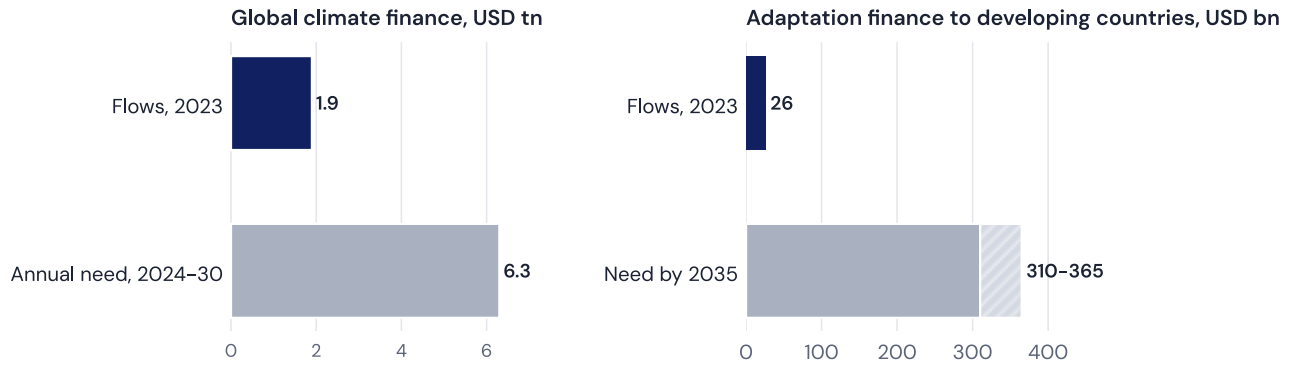
3.4 The adaptation gap

UNEP's Adaptation Gap Report 2025 estimates adaptation finance needs in developing countries at USD 310 billion a year by 2035 on modelled costs, or USD 365 billion on country-reported needs[13]. International public adaptation finance flows fell to USD 26 billion in 2023 from USD 28 billion, leaving needs 12-14 times current flows[13].

On current trends, the Glasgow goal of doubling adaptation finance by 2025 will not be met[13]. The broader picture is similar. Climate Policy Initiative records global climate finance of USD 1.9 trillion in 2023, against estimated needs of USD 6.3 trillion a year to 2030, with mitigation receiving 94% of tracked flows[68].

FIGURE 3.3

Flows against needs: global climate finance and adaptation finance



Source: Climate Policy Initiative, Global Landscape of Climate Finance 2025[68]; UNEP, Adaptation Gap Report 2025[13]. Note: Adaptation need shown as the USD 310–365 billion range for 2035. Flows are the latest available year (2023).

3.5 The Sevilla Commitment

The Fourth International Conference on Financing for Development, held in Seville from 30 June to 3 July 2025, adopted the Compromiso de Sevilla by consensus after the United States withdrew from the process[57]. The text reaffirms reform of the international financial architecture but remains largely general and non-binding[57]. For climate finance, its significance lies in linking debt, development and climate agendas in a single framework.

CHAPTER 04

04 Sustainable Debt Markets

A trillion-dollar plateau, sovereign innovation and a fading greenium

> *Labelled debt issuance stabilised at about USD 1 trillion a year. Growth came from new sovereign formats and new issuers rather than from volume, and the pricing advantage of the green label narrowed in several markets.*

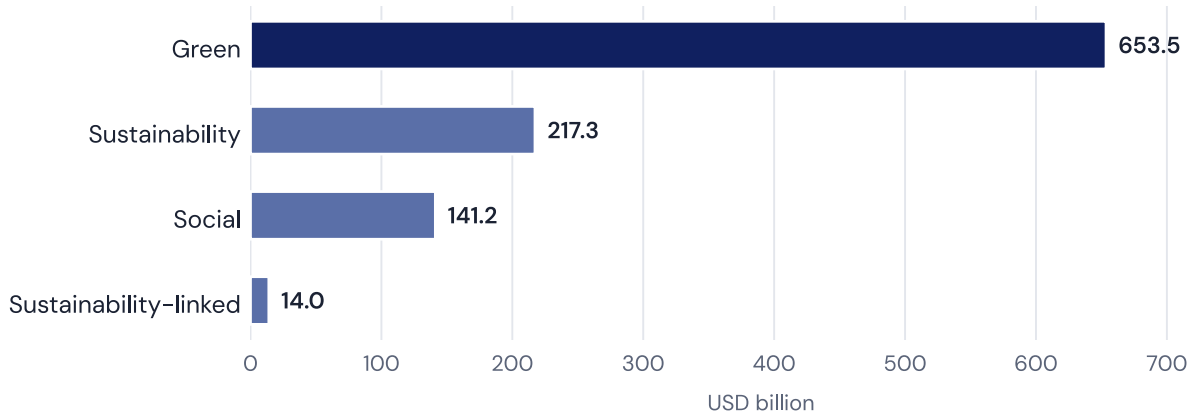
4.1 Volumes

The Climate Bonds Initiative recorded USD 1.05 trillion of aligned green, social, sustainability and sustainability-linked (GSS+) issuance in 2024, up 31% on 2023[95]. In 2025 aligned issuance reached USD 1.0 trillion, the third consecutive year above that threshold, taking the cumulative aligned market to USD 6.8 trillion[15].

Green bonds totalled USD 653.5 billion in 2025, 64% of aligned issuance and the second-highest annual volume on record. Sustainability bonds contributed USD 217.3 billion, social bonds USD 141.2 billion and sustainability-linked bonds USD 14 billion[15]. Europe accounted for 45% of aligned volume, USD 467 billion, and Asia-Pacific for USD 305.6 billion[15].

FIGURE 4.1

Aligned GSS+ issuance by label, 2025



Source: Climate Bonds Initiative, Sustainable Debt Global State of the Market 2025[15]. Note: Aligned with Climate Bonds methodologies. Total USD 1,026 billion.

METHODOLOGICAL NOTE

Why provider estimates differ

Market totals depend on scope. ICE, which counts all labelled instruments across fixed-income types, records about USD 1.1 trillion in both 2024 and 2025[96]. Moody's, using a narrower bond-only definition, lowered its 2025 forecast to about USD 900 billion[97]. The Climate Bonds Initiative counts only issuance aligned with its methodologies[15].

The providers also disagree on direction for sustainability-linked bonds: ICE records a fourth consecutive annual decline[96], while aligned SLB issuance in the CBI dataset rose 46% from a small base[15]. This Review uses CBI aligned data for levels and states the source wherever another series is used.

4.2 Sovereign innovation

Sovereigns supplied the most significant structural developments. Japan began issuing Climate Transition Bonds in February 2024, the world's first sovereign transition bonds, within a programme of about JPY 20 trillion over ten years[41]. Issuance in fiscal 2024 totalled about JPY 1.4 trillion across four auctions[98].

China's Ministry of Finance priced its first sovereign green bond in London on 2 April 2025: CNY 6 billion across three- and five-year tranches, 6.9 times subscribed[55]. The EU Green Bond Standard has applied since 21 December 2024; the Italian utility A2A issued the first European Green Bond, EUR 500 million, on 23 January 2025[99]. Corporates issued EUR 11 billion under the standard in 2025, and Denmark became the first sovereign issuer with EUR 900 million[48].

ICE identifies China as the largest sustainable bond issuer of 2025, at USD 177 billion, of which 86% was green[96]. LSEG reports that green bonds outstanding passed USD 3 trillion for the first time in the third quarter of 2025[100]. The shift of the market's centre of gravity toward Asia is now visible in issuance data, not only in investment data.

Regional data confirm the shift. ASEAN+3 issuers raised USD 275.9 billion of sustainable bonds in 2025, 29.8% of the global total, slightly above the share of the EU-20[23]. Emerging-market issuance overall rose 2.2% to USD 186.8 billion, but only because Chinese issuance grew by half[101].

4.3 The greenium

The pricing advantage of green bonds has become market-specific. BloombergNEF observed discounts of more than 14 basis points for some Asia-Pacific issuers in November 2025[102], while India's sovereign programme saw the premium disappear (Chapter 7). A label alone no longer secures cheaper funding; investor base depth, liquidity and impact reporting do.

CHAPTER 05

05

Disclosure, Taxonomies and Prudential Policy

A global baseline advanced as two major jurisdictions retreated

> *The information infrastructure of sustainable finance fragmented. The ISSB baseline gained adopters across emerging and advanced economies, while the EU narrowed its regime and the United States withdrew from federal climate disclosure.*

5.1 The ISSB baseline

In June 2025 the IFRS Foundation reported that 36 jurisdictions had adopted or were finalising steps to introduce ISSB Standards[16]. Of the first 17 jurisdictional profiles, 14 target full adoption, two target the climate requirements and one partial incorporation[16]. By November 2025 the count had reached 37[103].

5.2 The European recalibration

The European Commission proposed the Omnibus I simplification package in February 2025. The final text, adopted by the European Parliament on 16 December 2025, limits CSRD reporting to companies with more than 1,000 employees and more than EUR 450 million in net turnover[65]. The PRI estimates this exempts around 90% of companies previously in scope, leaving about 5,000[17].

Due diligence obligations under the CSDDD now apply only above 5,000 employees and EUR 1.5 billion in turnover[65]. The EU remains the most demanding disclosure jurisdiction, but its regime now covers the largest companies only.

5.3 United States

The SEC voted on 27 March 2025 to end its defence of the climate disclosure rules adopted in March 2024[18]. Together with the Federal Reserve's exit from the NGFS[50], this removed federal supervisory and disclosure drivers for climate risk in the world's largest capital market.

5.4 Prudential standards

On 13 June 2025 the Basel Committee published its framework for the disclosure of climate-related financial risks as a voluntary framework, leaving each jurisdiction to decide whether to implement it[56]. The 2023 consultation had proposed integration into Pillar 3. The final outcome confirms that prudential climate standards will advance through national supervisors rather than a binding global floor.

5.5 Taxonomies and labels

Taxonomies became the main instrument of definitional sovereignty. India's Department of Economic Affairs released a draft Climate Finance Taxonomy framework on 7 May 2025 covering power, mobility, buildings, agriculture and hard-to-abate sectors, and explicitly recognising transition activities[20]. The EU Green Bond Standard, applicable since December 2024, requires use of proceeds aligned with the EU Taxonomy[48].

SCRF ASSESSMENT

Interoperability is now the objective

Fragmentation raises the cost of cross-border capital. For emerging-market issuers, the practical route to comparability is the ISSB baseline combined with national taxonomies that map transparently to international ones. Taxonomies that recognise credible transition activity in hard-to-abate sectors are an asset for capital mobilisation, provided their criteria are science-based and their thresholds tighten on a published schedule.

PART II

II

Regional Reviews

China and North Asia, India, Southeast Asia, the Gulf, Africa, and Latin America and the Caribbean.

06 China and North Asia
07 India: A Leadership Case in Market-Building
08 Southeast Asia
09 The Gulf
10 Africa
11 Latin America and the Caribbean

CHAPTER 06

06
China and North Asia

The largest green balance sheet, the weakest carbon price and a sequenced transition model

> *North Asia supplied most of the world's clean energy hardware, most of its green credit and the most carefully sequenced transition policy of the period. China expanded green lending and clean power at unprecedented scale while its carbon price fell. Japan and Korea moved from voluntary and partial carbon pricing toward mandatory, auctioned systems.*

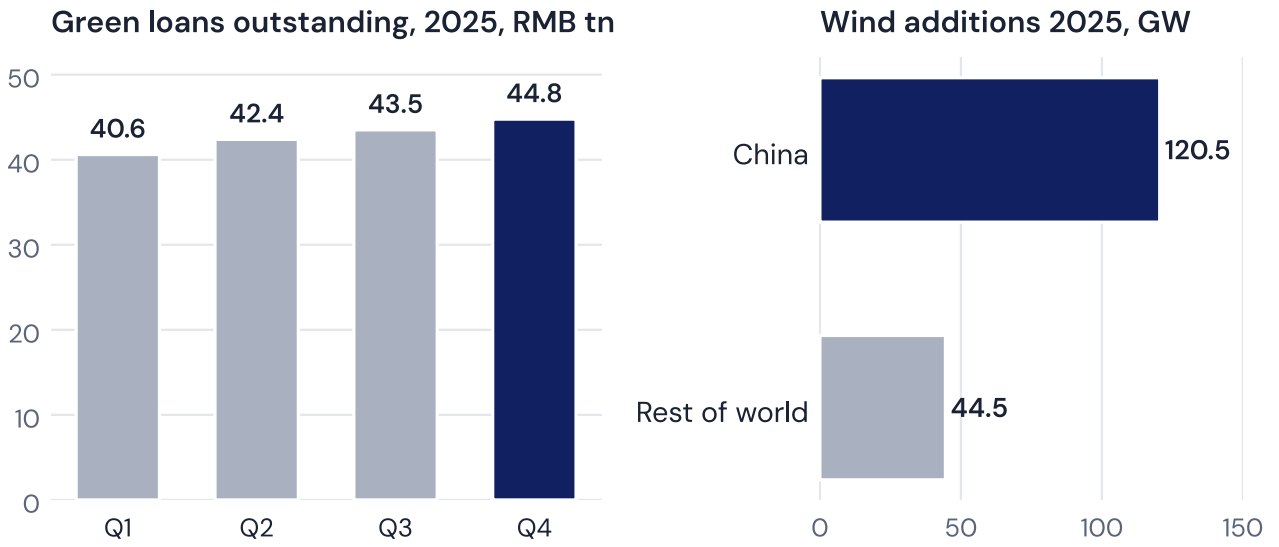
6.1 China: green credit at system scale

China's banking system is the single largest pool of labelled sustainable finance in the world. The People's Bank of China reports that green loans in domestic and foreign currencies reached RMB 44.8 trillion at the end of 2025, up 20.2% on a year earlier[22]. Outstanding green loans rose by RMB 7.72 trillion during the year, against RMB 40.61 trillion at the end of the first quarter[104,22].

Bond markets reinforced the credit channel. Over the 14th Five-Year Plan period, cumulative green bond issuance reached RMB 5.2 trillion, with RMB 2.4 trillion outstanding[22]. The central bank's carbon emission reduction facility had guided more than RMB 1.38 trillion of carbon reduction loans by mid-2025, and in 2025 the PBOC released China's first national green finance standard on terminology[105].

FIGURE 6.1

China's green credit stock and its share of global wind additions, 2025



Source: People's Bank of China, quarterly credit structure reports[104,106,107,22]; Global Wind Energy Council data as reported in[108]. Note: Green loans in domestic and foreign currencies, end of quarter. Wind additions: China 120.5 GW of 165 GW installed globally in 2025.

China's international profile changed in parallel. The Ministry of Finance priced its first sovereign green bond in London in April 2025[55], and ICE identifies China as the largest sustainable bond issuer of 2025[96]. IFC finds that emerging-market sustainable bond issuance rose 2.2% to USD 186.8 billion in 2025, with China's issuance up 51%[101]. Excluding China, the emerging-market total contracted.

6.2 Clean power at unprecedented scale

China added about 430 GW of wind and solar capacity in 2025, taking combined installed wind and solar capacity above 1.8 TW for the first time[109]. Installed solar capacity reached about 1.2 TW, an increase of 35.4% in a year[109]. China installed 120.5 GW of new wind capacity, 73% of a global record of 165 GW[108]. IRENA records global renewable additions above 690 GW in 2025[110]; China accounted for most of them.

The macroeconomic weight of the sector is now material. Analysis by the Centre for Research on Energy and Clean Air estimates that clean energy sectors contributed RMB 15.4 trillion, about 11.4% of GDP, in 2025, and more than 90% of the growth in investment[111]. The IEA estimates China's clean energy investment at more than USD 625 billion, more than double its 2015 level[2].

6.3 The carbon price problem

China's national ETS expanded in coverage while its price weakened. The 2025 extension to steel, cement and aluminium brought about 1,500 companies into the system[5]. Yet the allowance price fell 36% from an all-time high of RMB 105.66 on 13 November 2024 to RMB 67.51 on 3 June 2025, the steepest decline in the market's history[112], and dropped below RMB 60 in late September for the first time since July 2023[113].

LSEG reports an average allowance price of CNY 62.36 in 2025, against CNY 96.02 in 2024, and attributes the decline to the bearish effect of the carry-over policy[114]. With the expected wind-down of carry-over, tighter supply and a ramp-up of the relaunched voluntary crediting programme, LSEG expects upward price pressure in 2026[114]. Until then, the world's largest ETS by covered emissions sends one of the weakest price signals.

6.4 A national disclosure architecture

China built a national sustainability disclosure system in three steps. The Ministry of Finance and eight other authorities issued the Basic Standards in November 2024, the Application Guidelines on 3 September 2025 and the first thematic standard, on climate, on 19 December 2025[67,115]. The original plan had targeted completion by 2027; the climate standard arrived ahead of schedule[67]. The design draws on IFRS S2 but retains a double-materiality orientation.

6.5 Japan: subsidise first, price later

Japan's Green Transformation strategy pairs JPY 20 trillion of GX Economy Transition Bonds over ten years with a target of more than JPY 150 trillion of public and private investment[27]. The sovereign issued about JPY 1.4 trillion of Climate Transition Bonds in fiscal 2024[98], and a JPY 299.8 billion five-year issue in July 2025 was four times oversubscribed[116].

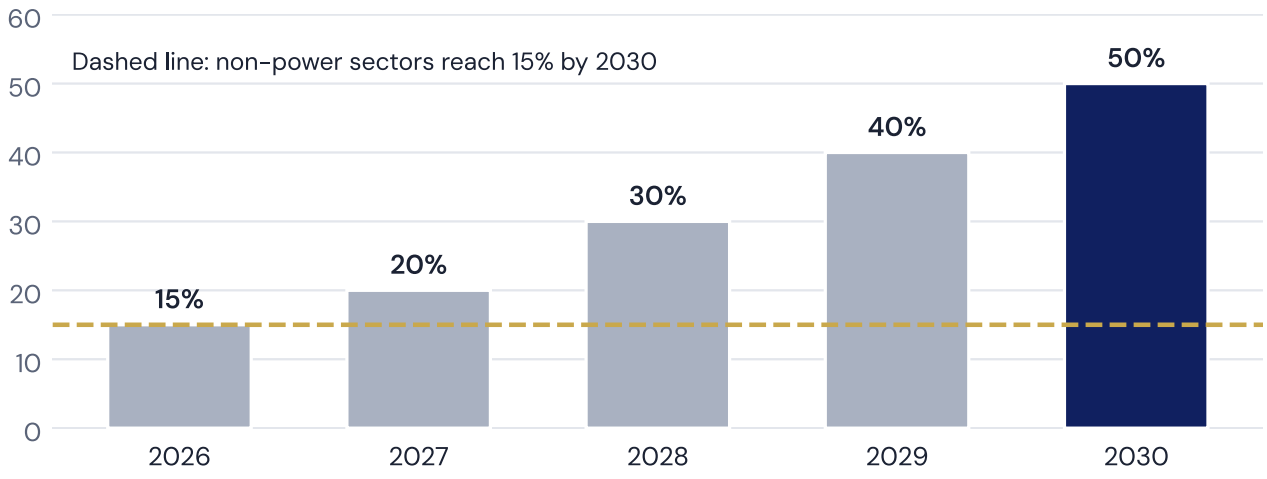
Carbon pricing follows the subsidy phase. The revised GX Promotion Act, enacted in May 2025, makes participation in the GX-ETS mandatory from fiscal 2026 for businesses that emit carbon dioxide above a set scale, with auctions for power generation and a fossil fuel surcharge to follow[27]. The mandatory phase began on 1 April 2026 and runs to fiscal 2032[117].

6.6 Korea: from free allocation to auctioning

On 11 November 2025 Korea approved the Phase 4 allocation plan for its emissions trading system, covering 2026-2030[28]. The plan sets a cap of 2,537.3 MtCO2e, introduces a quantity-based market stability reserve and raises the auctioned share of power-sector allowances from 15% in 2026 to 50% by 2030[28,118]. Sectors exposed to carbon leakage, including steel, petrochemicals, cement and semiconductors, retain full free allocation[28].

FIGURE 6.2

Korea ETS Phase 4: auctioned share of power-sector allowances



Source: ICAP, Korea Emissions Trading System factsheet[118]; ICAP news[28]. Note: Non-power sectors subject to auctioning reach 15% by 2030; trade-exposed sectors retain 100% free allocation.

TABLE 6.1

North Asia: carbon pricing and transition finance instruments at end-2025

Jurisdiction	Carbon pricing	Transition finance and disclosure
China	National ETS extended to steel, cement and aluminium; average 2025 price CNY 62.36[5,114]	Green loans RMB 44.8 trillion; climate disclosure standard issued December 2025[22,67]
Japan	GX-ETS mandatory from fiscal 2026; power auctions and fossil surcharge to follow[27]	JPY 20 trillion sovereign transition bond programme[27,41]
Korea	Phase 4 cap 2,537.3 MtCO2e; power auctioning rises to 50% by 2030[28]	Market stability reserve introduced in Phase 4[28]

Source: SCRF compilation from the sources cited.

SCRF ASSESSMENT

Volume in China, design in Japan and Korea

China's transition is financed through bank balance sheets and industrial policy rather than price signals. That model delivers volume, but a weak allowance price leaves exporters exposed to border adjustments and gives little guidance to private capital outside state priorities.

Japan's sequence of transition bonds first and a mandatory price later, and Korea's gradual move to auctioning, offer a more transferable template for emerging economies with large incumbent industries. The sequence works only if the later price is legislated in advance, as both countries have now done.

CHAPTER 07

07

India: A Leadership Case in Market-Building

Capacity ahead of target, a carbon market under construction, and a sovereign green curve to repair

> *India met its 2030 non-fossil capacity commitment in 2025, legislated binding industrial intensity targets and advanced the institutional architecture of a domestic carbon market. Its experience offers lessons for other large emerging economies on sequencing, credibility and the cost of green capital.*

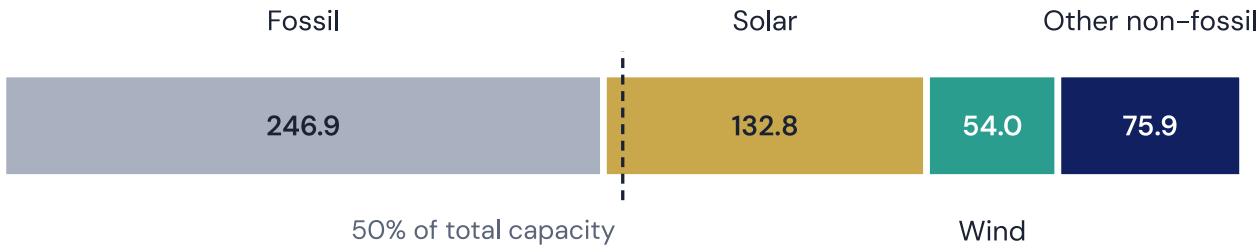
7.1 The power transition

As of 30 June 2025, India's installed capacity stood at 484.82 GW, of which 242.78 GW, or 50.1%, came from non-fossil sources[19]. India's updated NDC committed to 50% of cumulative installed power capacity from non-fossil sources by 2030[119]; the milestone was reached five years early[19].

By the end of November 2025, non-fossil capacity had reached 262.74 GW, 51.5% of a total of 509.64 GW[120]. Solar capacity reached 132.85 GW and wind 53.99 GW[121,120].

FIGURE 7.1

India's installed power capacity by source, 30 November 2025 (GW)

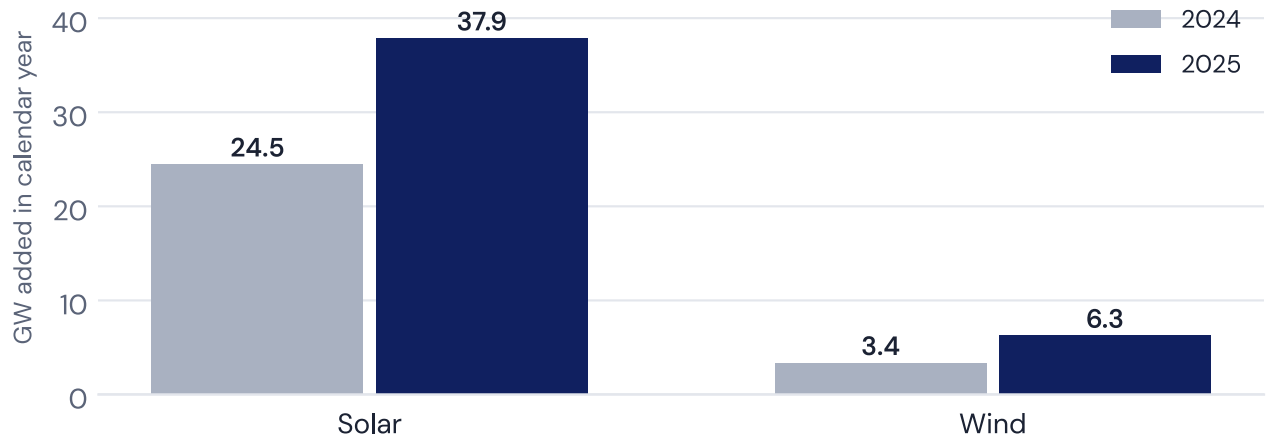


Source: MNRE data as reported in[120,121]; SCRF calculation of residuals. Note: Other non-fossil = large hydro, nuclear, small hydro and bioenergy (262.74 - 132.85 - 53.99). Fossil = 509.64 - 262.74.

Calendar 2025 set a deployment record: 37.9 GW of solar and 6.3 GW of wind, increases of 54.7% and 85.3% on 2024[122]. Capacity share overstates the generation share, because solar and wind run at lower load factors than coal; the milestone is a capital-allocation achievement that the grid must now convert into energy.

FIGURE 7.2

India's annual solar and wind capacity additions (GW)



Source: MNRE data as reported in[122]. Note: 2024 values are implied by the reported 2025 additions and year-on-year growth rates.

7.2 The Carbon Credit Trading Scheme

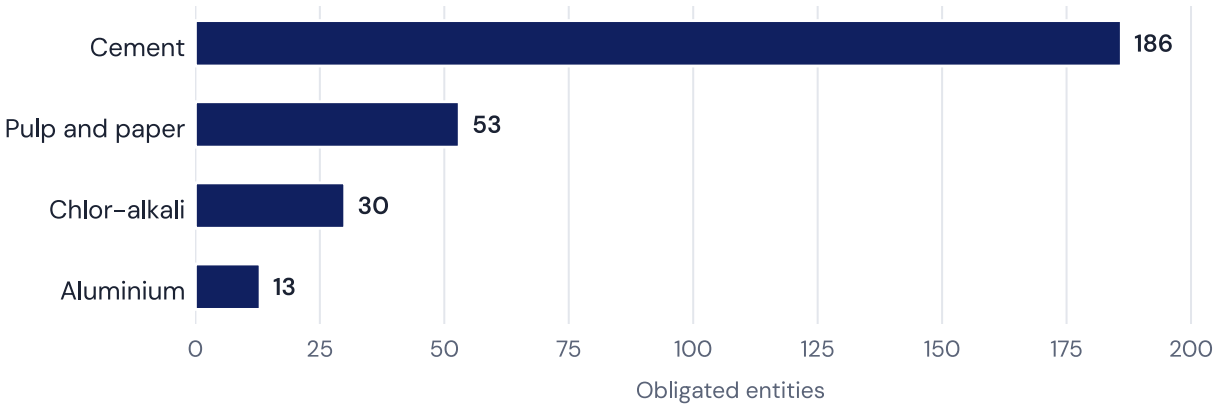
India's carbon market combines a compliance mechanism for energy-intensive industry with a voluntary offset mechanism. The Bureau of Energy Efficiency administers the scheme, the Grid Controller of India operates the registry, and trading will initially take place only on regulated exchanges[54].

On 8 October 2025 the Ministry of Environment, Forest and Climate Change notified the Greenhouse Gases Emission Intensity Target Rules, 2025, setting binding targets for 282 units in aluminium, cement, chlor-alkali and pulp and paper against a 2023-24 baseline, for compliance years 2025-26 and 2026-27[7]. Draft targets for the remaining sectors were released in June 2025[123].

The offset mechanism became operational in March 2025, when BEE released its detailed procedure and the government approved eight methodologies[54]. ICAP estimates initial compliance coverage at over 700 million tonnes of CO2-equivalent, and the nine designated sectors at about 16% of national emissions[54].

FIGURE 7.3

CCTS obligated entities with notified targets, by sector, October 2025



Source: MoEFCC, GHG Emission Intensity Target Rules, 2025[7]. Note: Total 282 entities. Baseline year 2023-24.

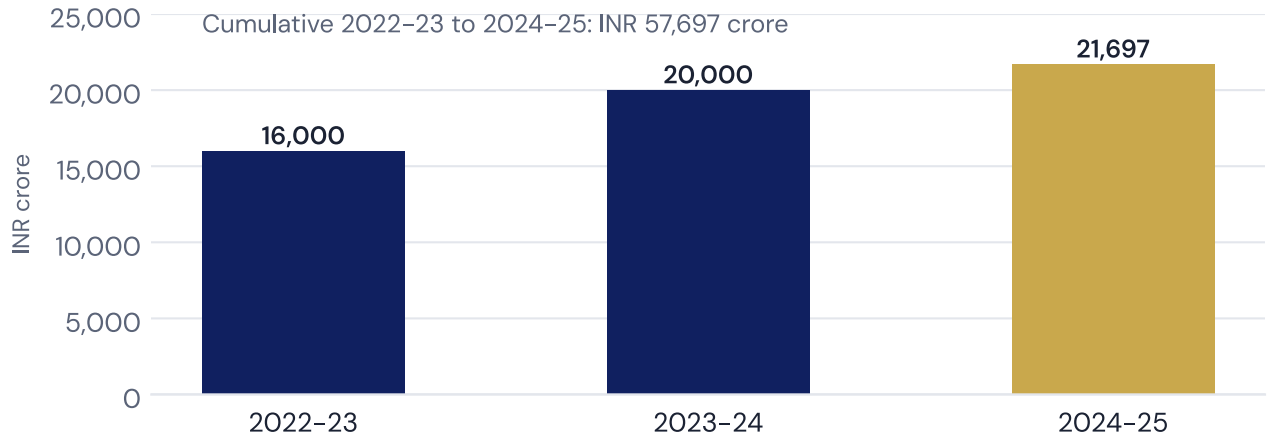
Ambition is the open question. The Centre for Science and Environment estimates that the notified targets reduce sectoral reduction potential relative to the April 2025 drafts by about 16% in aluminium, 17% in cement, 11% in chlor-alkali and 16% in pulp and paper[123]. An intensity system with lenient early targets risks the oversupply that weakened India's earlier Perform, Achieve and Trade scheme.

7.3 Sovereign green bonds

The Government of India raised INR 57,697 crore through sovereign green bonds between 2022-23 and 2024-25[124]: INR 16,000 crore in the inaugural year, INR 20,000 crore in 2023-24[125] and INR 21,697 crore in 2024-25.

FIGURE 7.4

Sovereign green bond issuance by fiscal year (INR crore)



Source: Rajya Sabha, Unstarred Question 2000, 18 March 2025[124]; Union Budget 2025-26, Statement 15A[125]; SCRF calculation. Note: 2024-25 derived as the cumulative total less the two earlier years.

Demand weakened as the government sought a pricing premium. A May 2024 auction of INR 6,000 crore was cancelled, an August 2024 auction accepted only INR 1,697 crore, and later 2024-25 auctions devolved substantially on primary dealers[126]. On 13 June 2025 the RBI cancelled a 30-year green bond auction despite bids of INR 10,940 crore, more than twice the amount offered[21].

Investors priced the green bonds at parity with conventional sovereign paper. Small issue sizes, thin secondary trading and a narrow buyer base limit the premium, and a sovereign that insists on a greenium it cannot obtain sacrifices volume and curve-building for a few basis points.

7.4 The wider sustainable debt market

India's cumulative aligned GSS+ issuance reached USD 55.9 billion by end-2024, an increase of 186% since 2021, making it the fourth-largest emerging-market source after China, South Korea and Chile[127]. Seven aligned social bonds added USD 5.5 billion in 2024[127]. Measured against India's investment requirements, the market remains small.

The sovereign credit backdrop improved. On 14 August 2025 S&P raised India's long-term rating to BBB from BBB-, its first upgrade in 18 years, citing growth, fiscal consolidation and an improved monetary policy framework[29]. A higher rating lowers the reference cost of capital for every Indian transition borrower in international markets.

7.5 CBAM exposure and the recognition problem

The EU Carbon Border Adjustment Mechanism entered its definitive period on 1 January 2026, after a transitional reporting phase that ran to 31 December 2025[128]. The October 2025 simplification introduced a 50-tonne annual exemption threshold per importer and moved certificate sales to February 2027[62]. Further implementing acts were expected in 2026[129].

CBAM permits a deduction for carbon prices effectively paid in the country of origin[128]. The design of India's scheme determines how much of that deduction Indian exporters can claim.

SCRF ANALYSIS

Why price level matters less than design

Under an intensity-based baseline-and-credit system, a facility that meets its target pays no explicit carbon price. A facility that misses it buys certificates only for its shortfall. If the shortfall equals a share *s* of the facility's embedded emissions and the certificate price is *p*, the effective price per embedded tonne is *s* x *p*.

Comparing that effective price with the 2025 average EU allowance price of EUR 74[81] gives the share of the per-tonne CBAM price that a deduction could at most offset. The CCTS has no market price yet, so the prices below are illustrative.

TABLE 7.1

Maximum share of the CBAM per-tonne price offset by a CCTS deduction (%)

Shortfall share of emissions (s)	CCC price EUR 5	CCC price EUR 10	CCC price EUR 20
2%	0.14	0.27	0.54
5%	0.34	0.68	1.35
10%	0.68	1.35	2.70
Reference: explicit price on all emissions	6.8	13.5	27.0

Source: SCRF calculation: offset share = (s x p) / EUR 74. EU price from ESMA[81].

Even at a high shortfall and a EUR 20 certificate price, the deduction offsets less than 3% of the CBAM price. The levers that matter are the EU's methodology for recognising third-country prices, the quality of verified installation-level emissions data, and whether India adds an explicit price component for export-exposed sectors.

SCRF ASSESSMENT

Lessons from India for other emerging economies

- **Sequence institutions before prices.** India built the registry, verification and target-setting architecture first. That is sound, but target stringency must rise on a published schedule to avoid oversupply.
- **Build sovereign curves before seeking premia.** Regular issuance, larger benchmarks and index eligibility create the liquidity on which a greenium depends.
- **Design for recognition.** Exporters need carbon prices that trading partners can verify and credit.

CHAPTER 08

08 Southeast Asia

Interoperable rules, emerging carbon prices and a persistent investment gap

> *Southeast Asia combined the most developed regional taxonomy in the emerging world with a fast-spreading but fragmented set of carbon pricing instruments. Labelled debt grew strongly. Clean energy investment did not keep pace with the region's economic weight.*

8.1 The investment gap

Southeast Asia accounts for 9% of the world's population and 6% of global GDP, but only about 2% of global clean energy spending[130]. Investment in low-emission power has risen steadily since 2021 and is expected to exceed USD 19 billion in 2025, yet the IEA identifies a high cost of capital and a limited pipeline of bankable projects as the binding constraints[131]. Its latest Cost of Capital Observatory survey covered Indonesia, Viet Nam, the Philippines, Thailand and Malaysia[131].

External support became less predictable. The US withdrawal from the Just Energy Transition Partnerships removed more than USD 3 billion of commitments to Indonesia and Vietnam, mostly commercial loans[132]. The remaining partners continue, but the episode confirmed that transition finance resting on a single sponsor's political cycle carries its own risk premium.

8.2 The ASEAN Taxonomy and national definitions

The ASEAN Taxonomy for Sustainable Finance combines a principles-based Foundation Framework with a Plus Standard of technical screening criteria. Version 3, published in March 2024 and updated with effect from 20 December 2024, added criteria for transportation and storage and for construction and real estate, alongside earlier criteria for energy, carbon capture and coal phase-out[42].

The coal phase-out provisions are the taxonomy's most consequential design choice. Phase-out completed by 2040 can qualify as green, while later phase-out is classified as amber[133]. This explicit treatment of managed retirement gives the region a definitional basis for transition finance that most taxonomies lack.

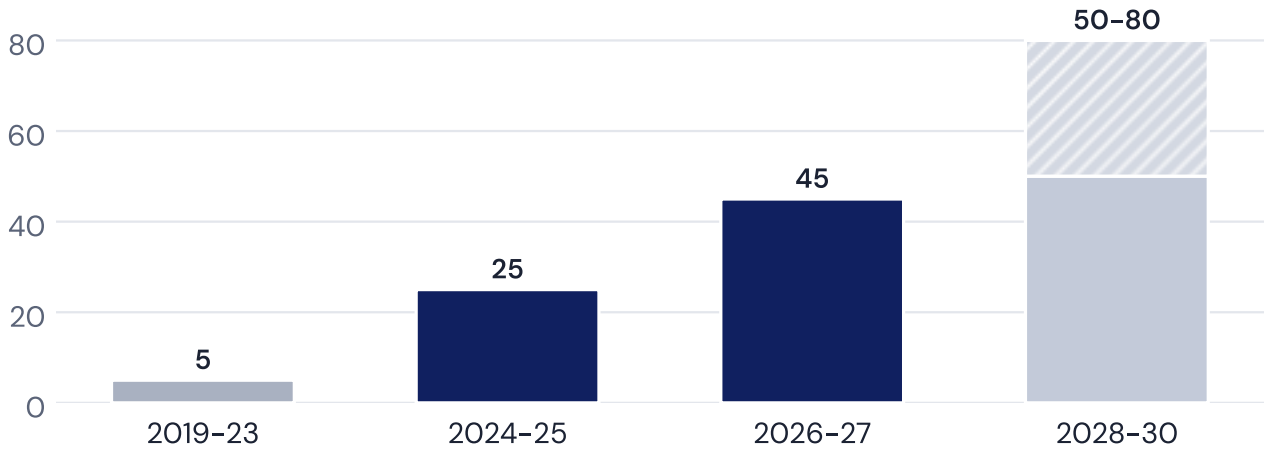
National rules are converging on the regional model. Viet Nam issued Decision 21/2025/QD-TTg on 4 July 2025, effective from 22 August 2025, establishing the country's first legally binding green taxonomy for green credit and green bonds[59].

8.3 Carbon pricing spreads across the region

Singapore remains the regional price anchor. Its carbon tax rose from SGD 5 per tonne in 2019-2023 to SGD 25 in 2024-2025 and will reach SGD 45 from 2026, with an expected SGD 50-80 by 2030[134]. Since January 2024 taxable facilities may surrender eligible international carbon credits for up to 5% of taxable emissions, supplied through Article 6 implementation agreements with partners including Papua New Guinea, Ghana, Peru, Bhutan, Chile, Paraguay and Rwanda[134,135].

FIGURE 8.1

Singapore carbon tax rate, SGD per tonne of CO2-equivalent



Source: IETA, Business Brief: Singapore, July 2025[134]. Note: The 2028-2030 band reflects official guidance of SGD 50-80 and is not yet legislated.

Indonesia opened its carbon exchange, IDXCarbon, to international buyers on 20 January 2025, with 1.78 million tonnes of authorised units from five power-sector projects[31]. Cumulative trading from launch in September 2023 to mid-January 2025 had reached only 1.131 million tonnes[136], but first-quarter 2025 volume of 690,675 tonnes exceeded the full-year totals of both 2023 and 2024[137]. IEEFA notes that activity slowed again later in the year, and that Presidential Regulation 110/2025 restructured national carbon governance[138].

Viet Nam launched a pilot ETS under Decree 119/2025/ND-CP in August 2025, covering thermal power, steel and cement, with free allocation during the 2025-2028 pilot and a full market from 2029[30]. Covered entities may use credits, including Article 6 units, for up to 30% of liable emissions, and auctioning is scheduled from 2029[139].

Thailand's cabinet approved a carbon price of THB 200 per tonne embedded in fuel excise duties on 21 January 2025, leaving retail fuel prices unchanged[140]. On 2 December 2025 the cabinet approved a draft Climate Change Act providing for an ETS around 2029 and a Thai border adjustment mechanism targeted for 2031[141]. Malaysia announced in its 2026 budget that a carbon tax would apply from 2026, starting with iron, steel and energy[142].

TABLE 8.1

Southeast Asia: carbon pricing instruments and status at end-2025

Country	Instrument	Status and design
Singapore	Carbon tax	SGD 25/t in 2024-25, SGD 45/t from 2026; up to 5% offset with Article 6 credits[134]
Indonesia	ETS (power) and carbon exchange	International trading on IDXCarbon from January 2025[31]
Viet Nam	Pilot ETS	Power, steel, cement from August 2025; free allocation; auctions from 2029[30,139]
Thailand	Fuel carbon tax; draft ETS	THB 200/t in excise; ETS around 2029 under draft Act[140,141]
Malaysia	Carbon tax (announced)	From 2026 for iron, steel and energy[142]

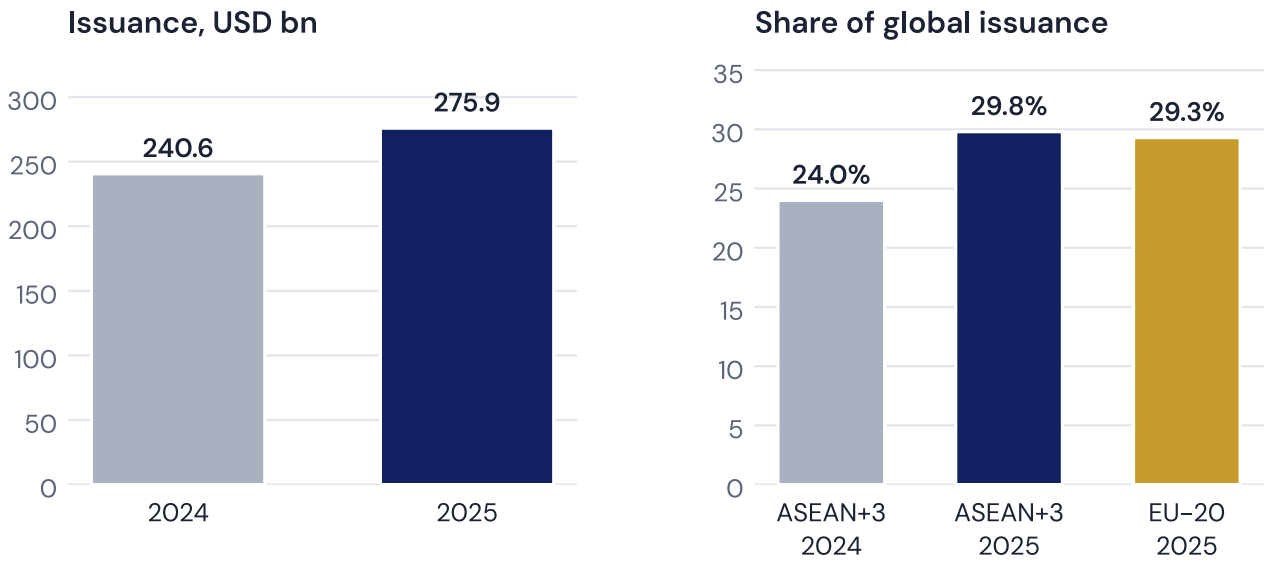
Source: SCRF compilation from the sources cited.

8.4 Capital markets

Sustainable bonds outstanding in ASEAN+3 markets reached USD 917.6 billion at the end of 2024[143]. Issuance rose 14.7% to USD 275.9 billion in 2025, lifting the region's share of global sustainable bond issuance from 24.0% to 29.8%, above the 29.3% share of the EU-20[23]. For the first time, East and Southeast Asia together issued more sustainable bonds than Europe.

FIGURE 8.2

ASEAN+3 sustainable bond issuance and share of global issuance



Source: Asian Development Bank, Asia Bond Monitor, March 2026[23]. Note: ASEAN+3 comprises the ten ASEAN members plus China, Japan and Korea.

Sovereigns have led in the ASEAN core. Thailand issued ASEAN's first sovereign sustainability bond, USD 964 million, in 2020[144], and the World Bank ranks it among the largest emerging-market sovereign issuers of labelled bonds, with USD 18 billion issued by June 2025[145].

SCRF ASSESSMENT

ASEAN's advantage is the interoperable middle

The region's comparative advantage lies in rules that sit between the EU's stringency and the absence of definitions elsewhere: a tiered taxonomy that classifies transition and coal retirement explicitly, and a carbon credit network built through bilateral Article 6 agreements. The risk is fragmentation of carbon pricing designs across members. Mutual recognition of measurement, reporting and verification, starting with Singapore's implementation agreements, would turn national experiments into a regional market.

CHAPTER 09

09 The Gulf

Sovereign balance sheets, sukuk and a renewables build-out at scale

> *The Gulf Cooperation Council economies became the most dynamic source of labelled debt outside Asia and Europe. Sovereign and sovereign-wealth issuers entered the euro green market, sustainable sukuk set records and Saudi Arabia contracted renewable capacity at a pace few markets have matched. Domestic carbon pricing remained absent.*

9.1 Sustainable sukuk and labelled debt

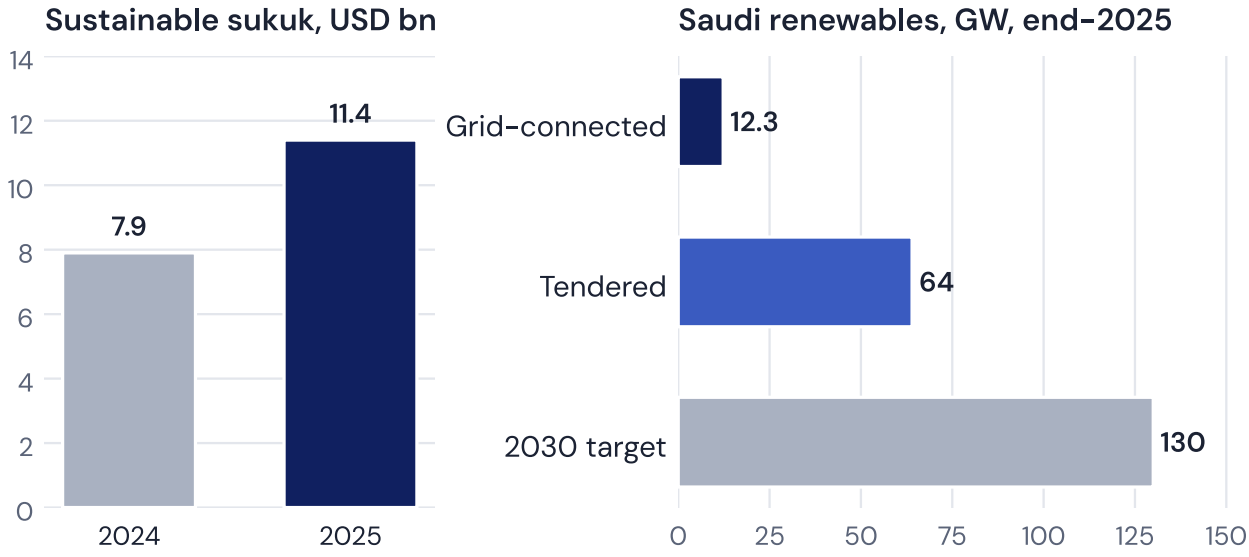
S&P Global Ratings reports that sustainable bond issuance in the Middle East rose by about 3% in 2025, led by Saudi Arabia and the UAE, which together accounted for about 80% of regional issuance by value[24,146]. Sustainable sukuk reached a record USD 11.4 billion, up from USD 7.9 billion in 2024, and now represent more than 45% of regional sustainable bond issuance by value[24].

The base is a deep Islamic capital market. Global sukuk issuance rose to USD 264.8 billion in 2025, with Saudi Arabia raising USD 72.5 billion and the UAE USD 22.1 billion; GCC issuers accounted for about 45% of the global total[147]. Green bond and sukuk issuance from the UAE rose to USD 5.6 billion from USD 3.8 billion in 2024[148].

Issuer composition shifted between the two years. In 2024 financial institutions set a regional record of USD 12.6 billion while sovereign sustainable issuance fell 56% to USD 1.7 billion[149]. In 2025 sovereigns and sovereign-wealth funds returned with landmark transactions.

FIGURE 9.1

Middle East sustainable sukuk and Saudi Arabia's renewable programme



Source: S&P Global Ratings as reported in[24]; Vision 2030 Annual Report 2025 as reported in[150]; MEED[151]. Note: Renewable capacity: grid-connected and tendered at end-2025 against the 2030 target of 130 GW.

9.2 Sovereign and sovereign-wealth issuance

On 25 February 2025 Saudi Arabia's National Debt Management Center priced a EUR 2.25 billion two-tranche bond including the Kingdom's inaugural green tranche; the order book reached about EUR 10 billion, four times the issue size[32]. The green tranche was EUR 1.5 billion with a seven-year maturity[152]. The World Bank records Saudi Arabia as the only inaugural emerging-market sovereign issuer of labelled bonds in the first quarter of 2025[153].

The Kingdom's green financing framework includes adaptation expenditure, a feature S&P expects other regional issuers to adopt as physical climate risks rise[146]. The Public Investment Fund followed in October with a debut EUR 1.65 billion green bond to finance renewables, efficiency, water and waste projects[154]. S&P raised Saudi Arabia's sovereign rating to A+ in March 2025[155], lowering the cost at which these programmes can scale.

9.3 The renewables build-out

Saudi Arabia nearly tripled its 2030 renewable capacity target to 130 GW in 2023[151]. By the end of 2025 about 64 GW had been tendered, including 20.6 GW during 2025, and 12.3 GW connected to the grid[150]. In July 2025 a consortium of ACWA Power, Badeel and Saudi Aramco Power Company signed agreements to invest about USD 8.3 billion in 15 GW of solar and wind projects, within the Public Investment Fund's commitment to develop 70% of the national target[156].

The gap between tendered and connected capacity is the programme's principal execution risk. Connecting more than 100 GW in five years would require a build rate several times that achieved to date, together with commensurate grid and storage investment.

9.4 Policy architecture

The UAE enacted Federal Decree-Law No. 11 of 2024 on the Reduction of Climate Change Effects on 28 August 2024; it entered into force on 30 May 2025 and applies to public and private entities, including those in free zones[33]. The law requires emissions measurement and reporting and is supported by a National Register for Carbon Credits established under Cabinet Resolution No. 67 of 2024[33].

The UAE also anchored the region's outward climate investment. ALTÉRRA, launched at COP28 with a USD 30 billion commitment, comprises a USD 25 billion acceleration vehicle and a USD 5 billion risk-mitigation vehicle for the Global South, with an aim of mobilising USD 250 billion by 2030[157]. Its first commitments of USD 6.5 billion went to climate funds managed by BlackRock, Brookfield and TPG[158].

Saudi Arabia's Regional Voluntary Carbon Market Company, established by the Public Investment Fund and the Saudi Tadawul Group, launched the Kingdom's first carbon credit trading exchange in Riyadh on 12 November 2024 and held an auction in Baku during COP29[159]. No GCC economy operates a compliance carbon price.

TABLE 9.1

Selected Gulf sustainable finance milestones, 2024-25

Date	Issuer or authority	Milestone
Nov 2024	RVCMC (Saudi Arabia)	First carbon credit exchange launched in Riyadh[159]
Feb 2025	Kingdom of Saudi Arabia	EUR 1.5 billion inaugural sovereign green tranche[32,152]
May 2025	United Arab Emirates	Federal climate law in force; emissions reporting mandatory[33]
Jul 2025	ACWA Power, Badeel, SAPCO	USD 8.3 billion for 15 GW of renewables[156]
Oct 2025	Public Investment Fund	Debut EUR 1.65 billion green bond[154]
2025	Regional issuers	Record USD 11.4 billion of sustainable sukuk[24]

Source: SCRF compilation from the sources cited.

SCRF ASSESSMENT

A transition balance sheet without a price

The Gulf has the fiscal capacity, sovereign-wealth reach and Islamic capital-market depth to finance its own transition and to export capital to others. What it lacks is a domestic carbon price and a published pathway for hydrocarbon production. As European border adjustment expands and investors scrutinise transition plans, the credibility of Gulf green issuance will increasingly depend on those two elements rather than on use-of-proceeds frameworks alone.

CHAPTER 10

10 Africa

Reform, rating upgrades and a financing gap measured in multiples

> *Africa's climate finance rose but remained a fraction of need, heavily external and concentrated in a few countries. The period nonetheless brought institutional progress: energy compacts, national taxonomies, carbon market frameworks and the first sovereign rating upgrades in years for several large economies.*

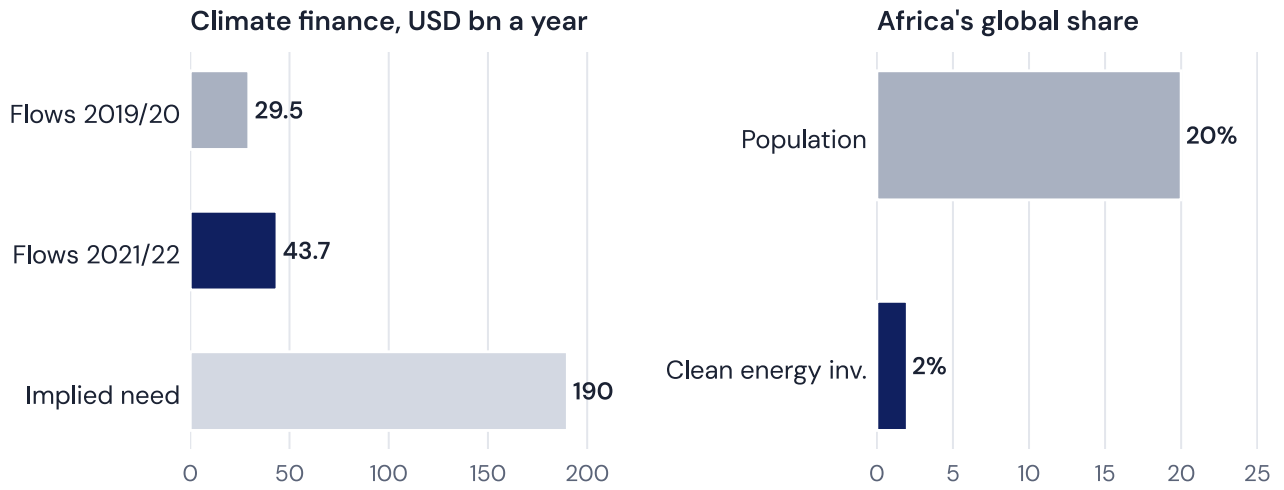
10.1 Flows, needs and concentration

Climate Policy Initiative finds that climate finance flows to Africa grew by 48%, from USD 29.5 billion in 2019/20 to USD 43.7 billion in 2021/22, with annual flows exceeding USD 50 billion for the first time in 2022[160]. Current flows meet only 23% of the estimated needs of Africa's NDCs, and would have to at least quadruple annually to 2030[160].

The finance is external and concentrated. International sources provided 87% of tracked flows[160]; funding from African governments fell from USD 1.6 billion to USD 1 billion over the period, while multilateral development finance institutions provided 43%, or USD 19 billion[161]. The ten largest recipients received half of all flows and the bottom 30 countries 10%; half of private climate finance went to South Africa, Egypt and Nigeria[162].

FIGURE 10.1

Africa's climate finance against need, and its share of clean energy investment



Source: Climate Policy Initiative, Landscape of Climate Finance in Africa 2024[160]; IEA, World Energy Investment 2025[2]; SCRF calculation. Note: Implied annual need = 43.7 / 0.23, based on CPI's finding that flows meet 23% of estimated needs. Population share as reported by the IEA.

Debt dominates even where distress is greatest. In debt-distressed countries debt still accounts for 36-43% of climate finance despite significant grant flows[162]. Africa receives 2% of global clean energy investment while hosting about one-fifth of the world's population[2].

10.2 Energy access and the compact model

Mission 300 aims to connect 300 million Africans to electricity by 2030, 250 million through the World Bank Group and 50 million through the African Development Bank[163]. Twelve countries presented National Energy Compacts at the Dar es Salaam summit in January 2025[164], and seventeen more followed in September, bringing the total to 29[34].

Implementation data are now public. The World Bank's progress portal records 32 million people connected through World Bank Group operations between July 2023 and September 2025, across 84 projects in 39 countries[165]. The Bank reports USD 8.5 billion of its own commitments and USD 1.2 billion of co-financing behind the effort[163]. The compact model ties concessional finance to measurable utility and regulatory reform, which is the mechanism most likely to lower country risk premia.

South Africa's Just Energy Transition Partnership survived the US exit. The United States withdrew USD 1.063 billion from an USD 11.6 billion package[132], and South Africa reported remaining pledges of USD 12.8 billion with the other partners committed[53,166].

10.3 Capital markets

African issuers account for less than 1% of global sustainable bond issuance[167]. The first quarter of 2024 set a record of USD 4.9 billion of labelled issuance[168], including a USD 1.1 billion sustainability bond from Côte d'Ivoire due 2033[169]. African sovereign green issuance had totalled only USD 500 million in 2022, from South Africa and Angola, and USD 1.9 billion in 2023[169].

Nigeria returned to the market in June 2025 with its third sovereign green bond, its first in six years[145]. Debt swaps also re-emerged: Côte d'Ivoire and Benin closed debt conversion transactions in late 2024 and early 2025, following earlier deals by Gabon and others[170].

10.4 Policy architecture

On 4 April 2025 the Central Bank of Kenya issued the Kenya Green Finance Taxonomy and a Climate Risk Disclosure Framework for banks[35]. Application is voluntary for 18 months before becoming mandatory[171]. Kenya had gazetted the Climate Change (Carbon Markets) Regulations on 17 May 2024, establishing project approval, benefit-sharing and Article 6 procedures[172].

Nigeria approved a National Carbon Market Framework on 31 October 2025 and operationalised its Climate Change Fund, with the stated aim of unlocking USD 2.5-3 billion a year of carbon finance[173]. Egypt established a regulated voluntary carbon market on the Egyptian Exchange through amendments to its capital markets regulations[174]. Ghana, Kenya, Nigeria, Tanzania and Zambia have finalised approaches to ISSB adoption[175].

Continental ambitions remain well ahead of delivery. The Africa Carbon Markets Initiative's targets of 300 million credits a year, USD 6 billion of revenue and 30 million jobs by 2030 remain ambitions rather than outcomes[176].

10.5 Sovereign credit and the Addis agenda

Reform began to register in credit ratings. S&P raised Kenya to B in August 2025[177] and Egypt to B in October[178]. On 14 November 2025 it upgraded South Africa to BB, the country's first upgrade by a major agency in over 16 years, citing improved growth, fiscal performance and reduced contingent liabilities at Eskom[36]. The same day it

revised Nigeria's outlook to positive[179].

The Second Africa Climate Summit, held in Addis Ababa from 8 to 10 September 2025, adopted the Addis Ababa Declaration, which puts adaptation first, calls for grant-based finance at scale and urges reform of the global financial architecture[60]. Leaders launched the Africa Climate Innovation Compact and the African Climate Facility with an aim of mobilising USD 50 billion a year of catalytic finance[180].

TABLE 10.1

Africa: selected market and policy milestones, 2024-25

Date	Country or body	Milestone
Jan 2024	Côte d'Ivoire	USD 1.1 billion sovereign sustainability bond[169]
May 2024	Kenya	Carbon Markets Regulations gazetted[172]
Jan 2025	Mission 300	Twelve National Energy Compacts presented[164]
Apr 2025	Kenya	Green Finance Taxonomy and climate risk disclosure framework[35]
Jun 2025	Nigeria	Third sovereign green bond[145]
Sep 2025	African Union	Addis Ababa Declaration at ACS2[60]
Oct 2025	Nigeria	National Carbon Market Framework approved[173]
Nov 2025	South Africa	First S&P upgrade in two decades, to BB[36]

Source: SCRF compilation from the sources cited.

SCRF ASSESSMENT

Africa's binding constraint is the price of risk

Africa's problem is not an absence of projects but the price at which they can be financed. The period's rating actions show that macroeconomic and utility reform is rewarded; the compact model shows how concessional finance can be tied to it. The next step is local-currency depth: hedging facilities and domestic institutional investors that can hold long-dated infrastructure debt without importing currency risk.

CHAPTER 11

11

Latin America and the Caribbean

Institutional depth, domestic capital and a retreat in labelled issuance

> *Latin America entered the period with the deepest institutional architecture for sustainable finance in the emerging world: carbon taxes, sovereign sustainability-linked bonds and national taxonomies. Brazil used its COP30 presidency to add new instruments. Labelled international issuance nonetheless contracted sharply in 2025.*

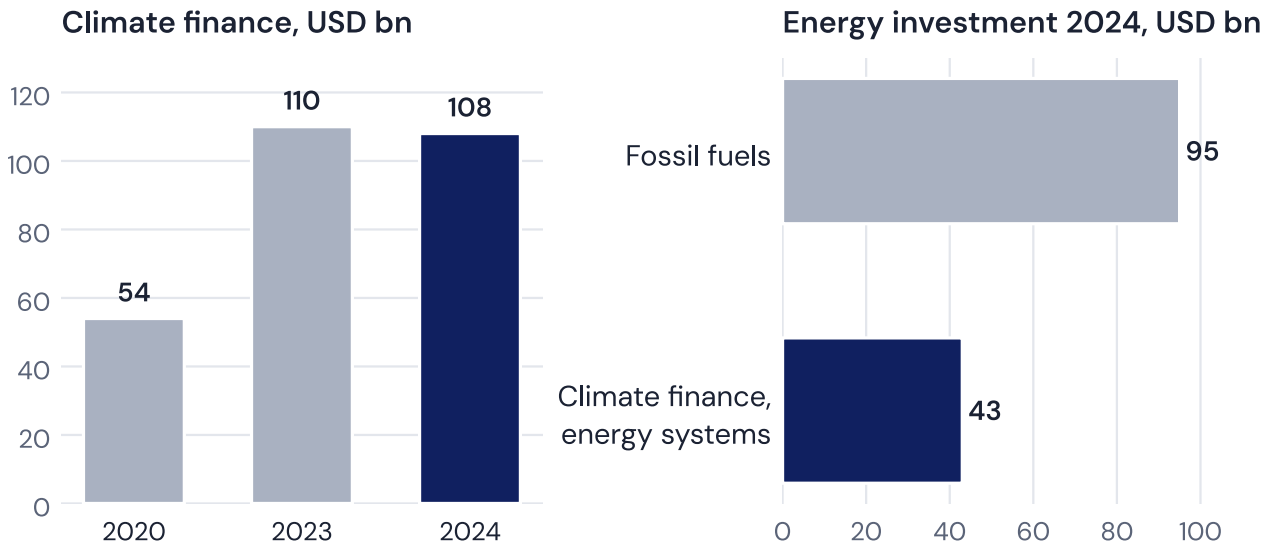
11.1 Flows, needs and the fossil fuel comparison

Climate Policy Initiative's first regional landscape finds that climate finance in Latin America and the Caribbean doubled from USD 54 billion in 2020 to USD 108 billion in 2024, broadly unchanged from about USD 110 billion in 2023[37]. Brazil accounted for more than half of regional flows, growing at 28% a year since 2020, and about 69% of tracked finance came from domestic sources[181].

Needs are far larger. Estimated mitigation needs of USD 467–847 billion a year imply a gap of four to eight times current flows[181]. Fossil fuel investment of about USD 95 billion in 2024 was more than twice the USD 43 billion of climate finance tracked for energy systems, in a region where renewables already supply close to 60% of electricity[37].

FIGURE 11.1

Climate finance in Latin America and the Caribbean, and energy investment by type, 2024



Source: Climate Policy Initiative, Landscape of Climate Finance in Latin America and the Caribbean[37,181]. Note: The 2023 value is reported as about USD 110 billion.

11.2 Brazil: building instruments at home

Eco Invest Brasil, launched by the National Treasury in 2024 with support from the Inter-American Development Bank and the UK government, addresses the currency risk that deters foreign capital[182]. It provides blended concessional capital in local currency through competitive auctions, alongside a liquidity facility and currency hedging lines[182,183].

The first auction, ratified in November 2024, drew BRL 6.8 billion of demand for catalytic funds with the potential to mobilise about BRL 44.6 billion[184]. The second, focused on restoring degraded land, drew BRL 17.3 billion of demand with potential investment of BRL 31.4 billion[38]. Third and fourth auctions in late 2025 targeted equity investment and the Amazon bioeconomy[183].

The sovereign extended its sustainable bond curve. After a debut in November 2023, Brazil issued a second sustainable bond in June 2024 with a 6.125% coupon[185] and a third in November 2025[186]. The Brazilian Sustainable Taxonomy was approved on 25 August 2025[187] and established by Decree No. 12,705 on 31 October 2025[39]. Its first edition prioritises mitigation, adaptation and the reduction of socio-economic inequalities, including gender and race[188].

Brazil's labelled debt market is the most diversified in the region. Climate Bonds records USD 67.8 billion of cumulative GSS+ debt from Brazil to June 2025, of which USD 49.3 billion is aligned, 19% of the regional total, from 152 issuers against 39 in Mexico and 28 in Chile[189]. Alignment of new issuance rose to 93% in the first half of 2025[189].

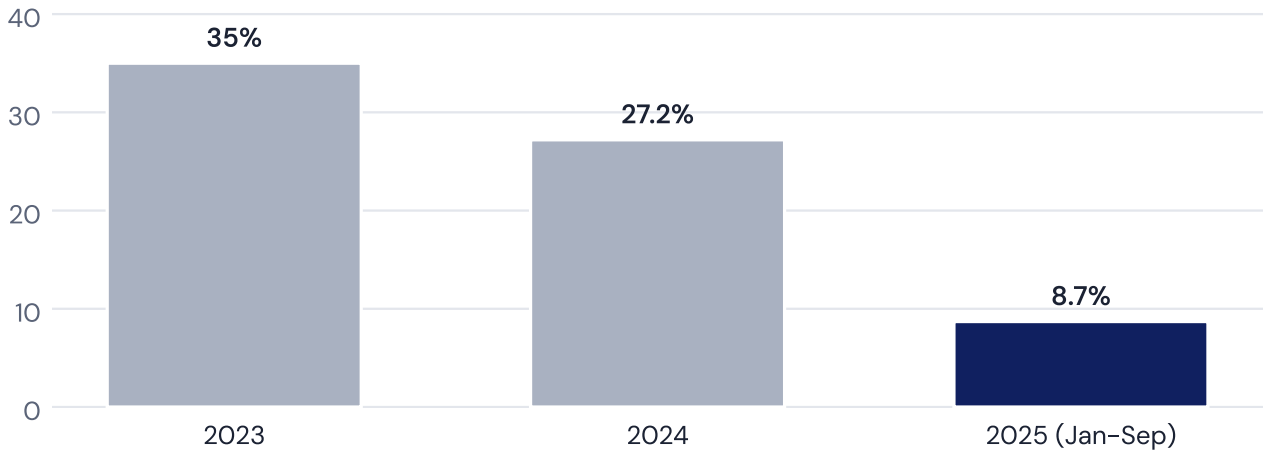
11.3 Regional labelled debt

ECLAC reports that international bond issuance by Latin American and Caribbean issuers rose 36% to USD 121.8 billion in 2024, while green, social, sustainability and sustainability-linked bonds rose 6% to USD 33.1 billion[190]. Their share of the total fell to 27%, from a record 35% in 2023[190].

In 2025 the divergence widened. Overall international issuance set a new record within nine months, while thematic issuance contracted 47% over the year[40]. In the first nine months its share of the region's international issuance fell to 8.7%[191]. The retreat reflects the concentration of regional supply in a few sovereigns whose funding calendars moved toward conventional benchmarks; it does not yet indicate abandonment of the instruments.

FIGURE 11.2

Thematic bonds as a share of Latin American and Caribbean international bond issuance



Source: ECLAC, Capital Flows to Latin America and the Caribbean[190,191]. Note: 2025 covers January to September.

The region remains the laboratory for sovereign sustainability-linked debt. Chile issued the world's first sovereign sustainability-linked bond, USD 2 billion, in February 2022, followed by Uruguay[192]. S&P expects Latin America to represent 4.0-4.5% of global sustainable bond issuance in 2025, with nature-linked financing a distinctive regional feature[193].

11.4 Carbon pricing and taxonomies

Latin American carbon taxes remain low but are increasingly linked to credit markets. Chile's tax stands at USD 5 per tonne and Colombia's at about USD 6[194]; in Colombia, credits retired against the tax rose to 45% of taxable emissions in 2024[195]. Mexico City and Morelos introduced subnational carbon taxes from January 2025[194]. Colombia is preparing a pilot ETS, Chile plans one for 2026-27 and Brazil's SBCE is expected to become operational from 2028 at the earliest[196,6].

Taxonomies are now widespread. Colombia published the first green taxonomy in the Americas in 2022[197], Mexico published its sustainable taxonomy in March 2023[198], Chile launched its Taxonomy of Environmentally Sustainable Economic Activities in July 2025[199], and Brazil's taxonomy followed in October 2025[39].

TABLE 11.1

Latin America: carbon pricing and taxonomy status at end-2025

Country	Carbon pricing	Taxonomy
Brazil	SBCE legislated December 2024; operation from 2028 at the earliest[6,196]	Established by decree, October 2025[39]
Chile	Carbon tax, USD 5/t; ETS pilot planned 2026-27[194,196]	T-MAS launched July 2025[199]
Colombia	Carbon tax about USD 6/t with offsetting; ETS pilot in preparation[195]	Green taxonomy 2022[197]
Mexico	Federal carbon tax; pilot ETS; subnational taxes[194,196]	Sustainable taxonomy, March 2023[198]

Source: SCRF compilation from the sources cited.

SCRF ASSESSMENT

Domestic capital, external risk

Latin America finances most of its transition domestically, and its binding constraint is the currency and macroeconomic risk that deters foreign capital at scale. Eco Invest addresses that constraint directly, by pricing currency hedging and blending concessional capital through competitive auctions. If its mobilisation ratios hold through disbursement, it is the most replicable country platform of the period for other large emerging economies.

PART III

III

Thematic Frontiers

Transition and blended finance, nature and biodiversity finance, and physical risk, insurance and loss and damage.

12 Transition and Blended Finance
13 Nature and Biodiversity Finance
14 Physical Risk, Insurance and Loss and Damage

CHAPTER 12

12

Transition and Blended Finance

Financing the hard middle of the transition and pricing the risk others will not bear

> *Two instruments moved to the centre of sustainable finance during the review period. Transition finance gained definitional and sovereign backing, particularly in Asia. Blended finance held its volume as development budgets contracted, and its deals grew larger and more commercial.*

12.1 From label to policy instrument

Transition finance began as a market label for issuers that could not meet green criteria. In 2024-25 it became a policy instrument. Japan's Climate Transition Bonds made the sovereign the anchor issuer[41], within a strategy that pairs JPY 20 trillion of public bonds with a mandatory carbon price from fiscal 2026[27].

Taxonomies supplied the definitions. The ASEAN Taxonomy classifies coal phase-out completed by 2040 as green and later phase-out as amber[133]. India's draft Climate Finance Taxonomy explicitly recognises transition activities in hard-to-abate sectors[20]. Indonesia's taxonomy, issued in February 2024, rests on a statutory definition of sustainable finance that expressly includes financing for the transition[43].

The common feature is that credibility rests on what follows the label: a published decarbonisation pathway, a carbon price that tightens over time, or a dated retirement schedule. Where those are absent, transition finance is indistinguishable from conventional finance for incumbent assets.

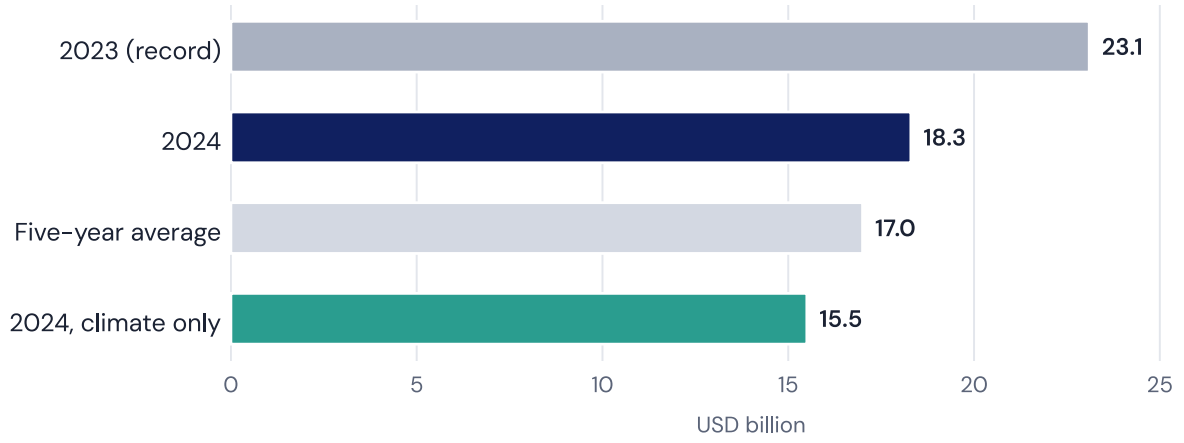
12.2 Blended finance under fiscal pressure

Convergence recorded 123 blended finance transactions worth USD 18.3 billion in 2024, below the record USD 23.1 billion of 2023 but above the five-year average of about USD 17 billion[200]. The median deal size rose to USD 65 million from USD 38 million over 2020-2023, supported by three transactions above USD 1 billion[201].

The composition of capital shifted. Private investors contributed USD 6.9 billion of commercial capital in 2024, outpacing development finance institutions and multilateral banks for the first time[200]. Climate-focused blended finance reached USD 15.5 billion across 84 deals, the second-highest total in six years[202].

FIGURE 12.1

Blended finance deal volume, 2023 and 2024



Source: Convergence, State of Blended Finance 2025[201,200]; State of Climate Blended Finance 2025[202]. Note: Five-year average as reported by Convergence. Climate blended finance is a subset of total volume.

The outlook is weaker than the 2024 data suggest. Convergence warns that cuts to official development assistance, led by the closure of USAID, will reduce concessional capital, the scarce ingredient in blended structures, and that smaller, high-impact transactions are most at risk[200].

12.3 Country platforms and currency risk

The period's most instructive innovations were national platforms that address currency risk directly. Brazil's Eco Invest combines local-currency concessional capital with liquidity and hedging lines and allocates them through competitive auctions in which bidders commit to mobilisation multiples (Chapter 11)[182]. The Mission 300 energy compacts tie concessional finance to measurable sector reform (Chapter 10)[163]. ALTÉRRA dedicated USD 5 billion of its USD 30 billion commitment to risk-mitigation capital for the Global South[157].

These platforms share a design principle: public capital absorbs the risks that private investors cannot price, and competition determines how much private capital each unit of concession must attract. The approach responds directly to the mobilisation asymmetry identified in Chapter 3.

SCRF ANALYSIS

Mobilisation is a currency problem

MDBs mobilised USD 0.39 of private climate finance per dollar of own-account finance in low- and middle-income economies in 2024, against USD 1.96 in high-income economies (Chapter 3)[14]. Nearly three-quarters of financing surveyed by the IEA in emerging economies is denominated in local currency[3]. Instruments that convert hard-currency concessional capital into local-currency risk capacity, through hedging facilities, local-currency guarantees and auction-based allocation, address the binding constraint more directly than additional hard-currency lending.

CHAPTER 13

13 Nature and Biodiversity Finance

New funds, new disclosures and the revival of debt-for-nature conversions

> *Nature finance moved from pledges toward financial architecture. The biodiversity convention agreed a resource mobilisation strategy and launched a private benefit-sharing fund. Nature-related disclosure gained adopters and a path into the ISSB. Debt conversions for conservation reached record size.*

13.1 The Kunming-Montreal finance agenda

The resumed session of the sixteenth Conference of the Parties to the Convention on Biological Diversity, held in Rome in February 2025, agreed a strategy for resource mobilisation and a roadmap to permanent arrangements for the Convention's financial mechanism[52]. Parties reaffirmed the target of mobilising at least USD 200 billion a year by 2030 from all sources, including USD 20 billion a year in international flows by 2025, rising to USD 30 billion by 2030[52].

The Cali Fund, launched in Rome on 25 February 2025, will receive contributions from companies that commercially use digital sequence information on genetic resources[203]. It is the first multilateral fund designed to collect payments from private beneficiaries of biodiversity rather than from donor budgets.

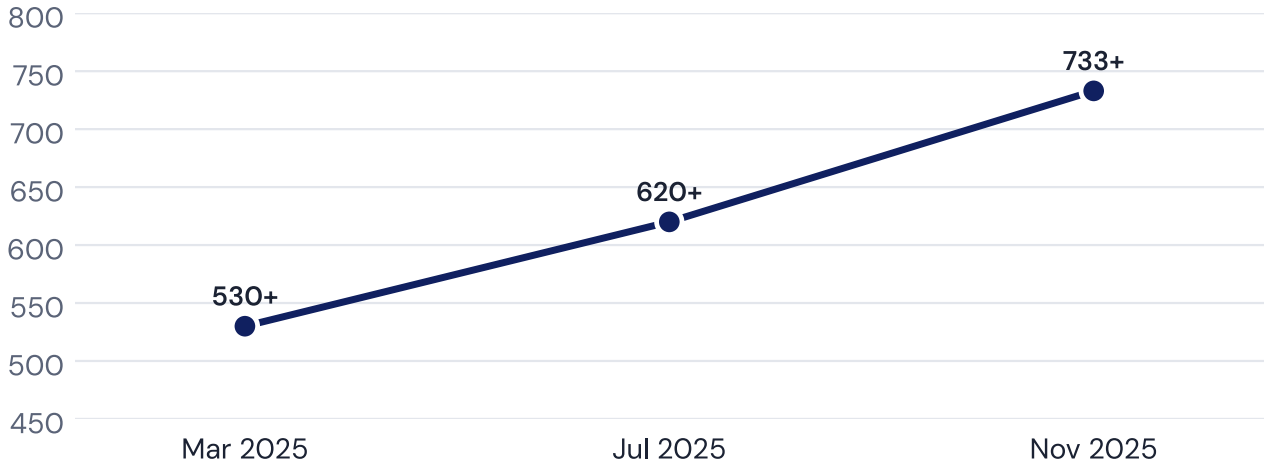
The Tropical Forest Forever Facility, launched at COP30, applies a similar logic to standing forests: sponsor capital is invested and the return spread pays forest countries for verified conservation[64]. Initial pledges included up to USD 3 billion from Norway[90].

13.2 Nature-related disclosure

By March 2025 more than 530 organisations had committed to reporting in line with the Taskforce on Nature-related Financial Disclosures, and 129 financial institutions with USD 17.7 trillion of assets under management were registered as adopters[204]. By July 2025 the number had passed 620 organisations representing USD 20 trillion of assets, and more than 1,800 organisations had joined the TNFD Forum[205]. Ahead of COP30, adopters exceeded 733 across 56 countries and areas[206].

FIGURE 13.1

Organisations committed to TNFD-aligned reporting



Source: TNFD[204,205]; TNFD adoption update ahead of COP30[206]. Note: Cumulative adopters at each announcement date.

Quality remains uneven. Reports identified by the TNFD addressed on average 8.7 of its 14 recommended disclosures[205]. In April 2025 the TNFD and the IFRS Foundation signed a memorandum of understanding to support the ISSB's research on biodiversity, ecosystems and ecosystem services[207], creating a route from voluntary framework to global baseline.

13.3 Debt-for-nature and debt-for-resilience conversions

Sovereign debt conversions became the largest single channel of new conservation finance. In the closing months of 2024, El Salvador, the Bahamas, Barbados and Ecuador completed conversions that refinanced sovereign debt on enhanced terms and committed part of the savings to conservation or resilience[46,208,45]. Côte d'Ivoire and Benin followed with debt-for-development conversions in late 2024 and early 2025[170].

TABLE 13.1

Selected debt-for-nature and debt-for-resilience conversions, 2023-2025

Country, date	Structure	Conservation or resilience outcome
Ecuador, May 2023	USD 1.6 billion buyback (Galápagos)	About USD 450 million for marine conservation[46]
El Salvador, Oct 2024	USD 1 billion loan refinanced USD 1.031 billion of bonds	Savings above USD 352 million for the Río Lempa watershed[46]
Bahamas, Nov 2024	USD 300 million loan	More than USD 120 million for oceans and mangroves[208]
Barbados, Sep and Nov 2024	Debt-for-climate-resilience conversions with IDB support	Water and resilience investment[45]
Ecuador, Dec 2024	Amazon conversion, largest to date	About USD 460 million over 17 years[209]

Source: SCRF compilation from the sources cited.

The instrument's economics depend on credit enhancement. Guarantees and political risk insurance from development institutions allow distressed or sub-investment-grade sovereigns to refinance at near-investment-grade spreads, and part of the saving is committed to conservation[45]. The model is replicable only where such enhancement is available and the refinanced debt trades at a discount.

SCRF ASSESSMENT

From pledges to balance sheets

Nature finance is acquiring the features of a capital-market asset class: funds with private contributors, disclosure standards with a route into the ISSB, and sovereign transactions with measurable fiscal savings. The constraint is scale. The USD 20 billion international target for 2025 is small relative to need, and debt conversions depend on scarce credit enhancement. Blended guarantee facilities dedicated to nature-linked sovereign refinancing would be the most efficient use of concessional capital in this field.

CHAPTER 14

14

Physical Risk, Insurance and Loss and Damage

Rising losses, record risk transfer and a protection gap concentrated in emerging markets

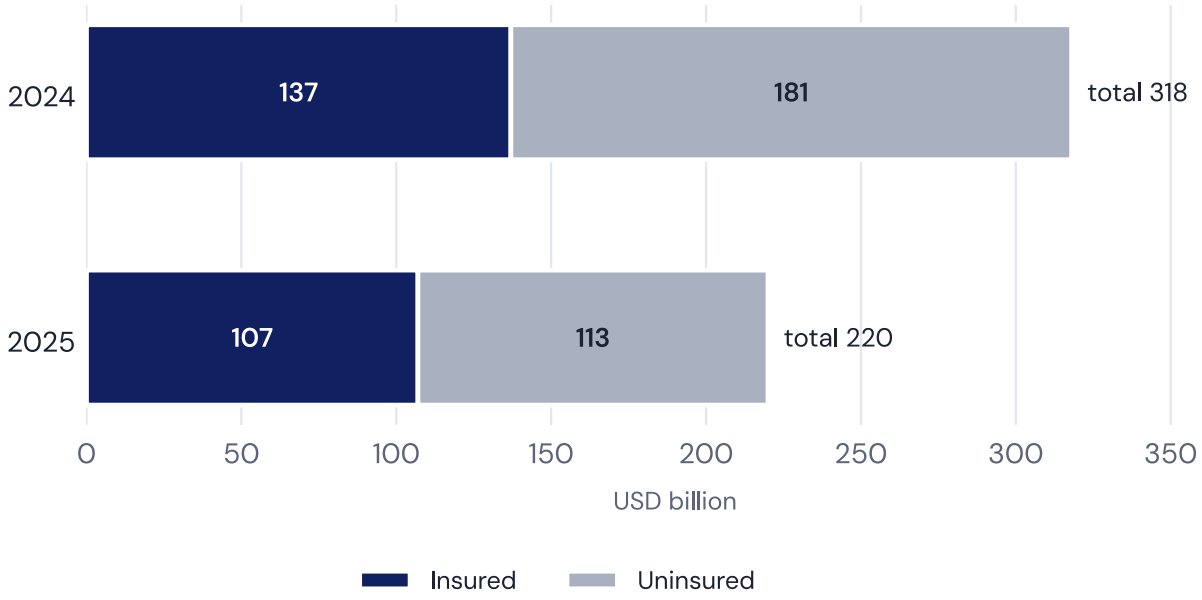
> *Insured catastrophe losses exceeded USD 100 billion in both years of the review period. Capital markets absorbed record volumes of catastrophe risk. The protection gap, however, remained concentrated in the economies least able to bear it, and the new loss and damage fund began operations with modest resources.*

14.1 Losses and the protection gap

Swiss Re estimates global insured losses from natural catastrophes at USD 137 billion in 2024, with economic losses of USD 318 billion; 57% of losses, USD 181 billion, were uninsured[210]. In 2025 economic losses fell to USD 220 billion, of which about 49% was insured, the highest share on Swiss Re's records[211]. The Los Angeles wildfires caused about USD 40 billion of insured losses, the largest insured wildfire event recorded[211].

FIGURE 14.1

Global natural catastrophe losses: insured and uninsured, 2024 and 2025



Source: Swiss Re Institute, sigma 1/2025[210]; Swiss Re press release on sigma 2025 results[211]; SCRF calculation of the 2025 split. Note: 2025 uninsured losses calculated as economic losses of USD 220 billion less insured losses of USD 107 billion.

The global average conceals the distribution. Swiss Re notes that 80-90% of catastrophe losses in emerging markets are typically uninsured[26]. Natural catastrophes in Asia caused about USD 65 billion of economic losses in 2025, of which about 8% was insured[212]. Munich Re records Asia-Pacific losses of about USD 73 billion in 2025 with a protection gap of 92%[213], and African losses of USD 3 billion, less than one-fifth insured[214].

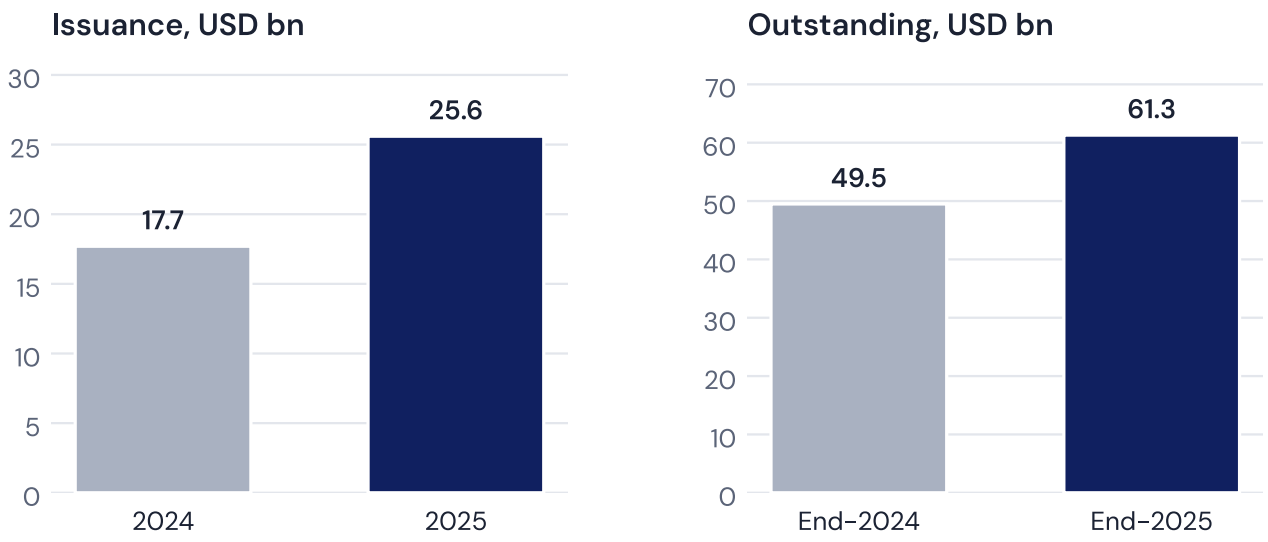
For financial systems, the uninsured share is a credit exposure. It falls on household and corporate balance sheets, on bank collateral and ultimately on sovereign budgets. Supervisory attention to physical risk weakened in the period, most visibly with the Federal Reserve's exit from the NGFS[50], just as the scale of uninsured loss in emerging markets became clearer.

14.2 Risk transfer through capital markets

Catastrophe bond issuance reached a record USD 25.6 billion in 2025, up 45% on the previous record of about USD 17.7 billion set in 2024[25]. The outstanding market grew 24% to a record USD 61.3 billion at the end of 2025, from about USD 49.5 billion a year earlier[215].

FIGURE 14.2

Catastrophe bond market: issuance and outstanding risk capital



Source: Artemis, catastrophe bond market records 2025[215,25]. Note: Rule 144A and private catastrophe bonds tracked by Artemis.

Capital-market capacity is concentrated in advanced-economy perils, led by US hurricane and severe convective storm. Sovereign and regional pools in emerging markets use the market, but at a fraction of the scale of their exposure. Extending parametric cover to emerging-market sovereigns and cities is the most direct way to convert market capacity into a smaller protection gap.

14.3 The Fund for responding to Loss and Damage

The Fund for responding to Loss and Damage moved from design to operation. Its Board established the Barbados Implementation Modalities, a start-up phase of USD 250 million for 2025 and 2026, with grants of USD 5-20 million per proposal and a minimum allocation of 50% to small island developing states and least developed countries[216]. The Board approved the operational policies at its seventh meeting in Manila on 7-9 October 2025[217].

The call for funding requests opened during COP30, with submissions accepted from 15 December 2025[218]. Pledges stood at USD 788.8 million, of which USD 431.14 million had been paid in, against loss and damage needs estimated in the hundreds of billions of dollars a year[218].

14.4 Adaptation as a financial stability issue

The protection gap and the adaptation gap are two measures of the same deficit. UNEP estimates adaptation needs of USD 310-365 billion a year by 2035 against international public flows of USD 26 billion in 2023[13]. Every unit of adaptation investment that reduces expected loss also improves insurability and lowers the cost of risk transfer, which is why the two agendas should be financed together.

SCRF ASSESSMENT

The protection gap is an emerging-market capital problem

- Physical risk is migrating from insurers' balance sheets to banks and sovereigns in economies where insurance penetration is lowest.
- Record catastrophe bond issuance shows that capital markets will hold climate risk when it is modelled and priced; the task is to extend that capacity to emerging-market perils.
- Loss and damage finance, at its current scale, is a signal rather than a solution. Pre-arranged parametric finance and adaptation investment will carry most of the load.

PART IV

IV

Synthesis and Outlook

The SCRF Emerging Market Readiness Scorecard, scenarios for 2026-2030 and policy priorities.

15 The SCRF Emerging Market Readiness Scorecard
16 Outlook, Scenarios and Policy Priorities

CHAPTER 15

15

The SCRF Emerging Market Readiness Scorecard

Eighteen economies, five verifiable indicators, one measure of institutional readiness

> *The Scorecard asks a narrow question: at the end of 2025, did each economy have in place the institutional elements that allow sustainable capital to be priced, classified, disclosed and raised at reasonable cost? It measures architecture, not ambition or outcomes.*

15.1 Design

The Scorecard covers 18 emerging economies across Asia, Africa, the Gulf, Latin America and Europe. Each is scored 0, 1 or 2 on five indicators chosen because they can be verified from public primary sources and because each affects the cost or availability of transition capital. The maximum score is 10. The status date is 31 December 2025.

TABLE 15.1

Scorecard indicators and scoring rules

Indicator	Score 2	Score 1	Score 0
Carbon price	Carbon tax or ETS in force with a compliance obligation	Legislated, piloted, announced or crediting-only framework	None
Disclosure	IFRS Foundation profile: finalised approach to ISSB Standards	IFRS snapshot, or mandatory national climate disclosure regime	None
Taxonomy	Official national taxonomy in force	Draft or mandated by law but not yet issued	None
Sovereign GSS+	At least one sovereign green, social, sustainability or sustainability-linked bond	Framework published, no issuance identified	None
Credit	S&P foreign-currency rating investment grade	BB category	B category or below

Source: SCRF methodology. Sources for each country assessment are listed in Annex B.

15.2 Results

FIGURE 15.1

SCRF Emerging Market Readiness Scorecard, status at 31 December 2025

	Carbon price	Disclosure	Taxonomy	Sovereign GSS+	Credit (S&P)	Total
Mexico	2	2	2	2	2	10
Chile	2	2	2	2	2	10
China	2	1	2	2	2	9
Indonesia	2	1	2	2	2	9
Malaysia	1	2	2	2	2	9
Thailand	1	1	2	2	2	8
Brazil	1	2	2	2	1	8
Colombia	2	1	2	2	1	8
India	1	1	1	2	2	7
Philippines	0	1	2	2	2	7
Türkiye	1	2	1	1	1	6
South Africa	2	0	2	0	1	5
Nigeria	1	2	0	2	0	5
Kenya	1	2	2	0	0	5
Saudi Arabia	1	0	0	2	2	5
Egypt	1	1	0	2	0	4
Viet Nam	1	0	2	0	1	4
United Arab Emirates	1	0	0	0	2	3

0 absent 1 partial 2 in place

Source: SCRF assessment based on the sources listed in Annex B, including IFRS Foundation jurisdictional profiles[175,219], national regulators and S&P Global Ratings actions. Note: Scores of 0, 1 or 2 per indicator; total out of 10. Economies ordered by total score, as listed in Annex B.

Mexico and Chile score the maximum. Both combine explicit carbon taxes, ISSB adoption, national taxonomies, established sovereign sustainable issuance and investment-grade ratings[175,198,199]. China, Indonesia and Malaysia follow on 9, each missing one element: a finalised ISSB approach in China and Indonesia, and an operating carbon price in Malaysia.

Three patterns stand out. First, Latin America scores highly on architecture despite sub-investment-grade ratings in Brazil and Colombia: the region built institutions before it earned credit. Second, the Gulf shows the reverse. Saudi Arabia and the UAE carry strong ratings[155,220] but lack compliance carbon pricing, ISSB-based disclosure and national taxonomies, so their architecture lags their balance sheets. Third, Africa's leaders on architecture, Kenya and Nigeria, are held back by credit: both have finalised ISSB approaches[175], but both were rated in the B category at the end of 2025[177,179].

India scores 7. Its strengths are an investment-grade rating upgraded in 2025[29] and an established sovereign green bond programme[124]. Its carbon market is legislated but not yet trading[7], its taxonomy is in draft[20] and its mandatory disclosure regime, BRSR, is not ISSB-based[221]. Each gap is already the subject of active policy work, so India is well placed to reach 9 or 10 within two years.

METHODOLOGICAL NOTE

What the Scorecard does not measure

The Scorecard records whether institutions exist, not how stringent or effective they are. A carbon tax of USD 5 per tonne scores the same as one of USD 30, and a taxonomy is scored regardless of its thresholds. Credit ratings reflect fiscal and macroeconomic factors well beyond climate policy. Absence of an element reflects SCRF's review of the IFRS Foundation's jurisdictional profiles and snapshots, the World Bank Carbon Pricing Dashboard[222] and national sources; it does not exclude initiatives that were not public by the status date. The results should be read as a map of institutional readiness, not as a ranking of climate ambition.

15.3 Implications

1. **Architecture precedes capital, but does not guarantee it.** High scores in Latin America have not prevented a contraction of labelled issuance in 2025 (Chapter 11). Institutions lower the cost of capital only when macroeconomic credibility follows.
2. **Credit is the scarcest element.** Eight of the eighteen economies are rated below investment grade. For them, rating improvement is worth more than any single sustainable finance reform, which is why the 2025 upgrades in South Africa, Egypt and Kenya matter for transition finance[36,178,177].
3. **The carbon price is the most frequently missing element.** Only six of eighteen economies scored 2. Border adjustment will raise the cost of that absence for exporters.

CHAPTER 16

16 Outlook, Scenarios and Policy Priorities

Five judgments, three scenarios and priorities by region

> *The review period ended with record investment, weaker voluntary architecture and stronger statutory and market infrastructure. The following judgments set out where SCRF expects the pressure points to lie.*

16.1 Five judgments

1. **Cost of capital, not commitment, will decide the pace in emerging markets.** The two-to-three-fold financing premium identified by the IEA[3] matters more than any new pledge.
2. **Compliance markets will set carbon prices; voluntary markets will supply them.** EU credit eligibility from 2036[66], CORSIA and Asian sovereign demand will draw high-quality supply into regulated channels.
3. **Border adjustment will turn carbon price recognition into trade policy.** Exporters in systems without explicit prices will face CBAM costs without offsetting deductions.
4. **Labelled debt will grow through sovereigns and Asia.** The aligned market has plateaued near USD 1 trillion a year[15]; new sovereign formats and Chinese issuance are the growth sources.
5. **Adaptation finance will remain the weakest link.** With needs 12-14 times flows[13] and concessional budgets under pressure, adaptation will require new instruments rather than larger pledges.

16.2 Three scenarios for 2026-2030

The judgments above describe the central case. Two alternatives frame the range of outcomes. The scenarios are qualitative and are defined by observable markers so that readers can track which is unfolding.

TABLE 16.1

Scenarios for sustainable capital, 2026-2030

	Fragmented continuation (central)	Institutional convergence	Disorderly retrenchment
Investment	Clean energy investment keeps growing at single-digit rates, concentrated in China[1,2]	Cost-of-capital reforms widen investment beyond China and India	Trade conflict and higher rates cut transition investment outside China
Carbon pricing	Coverage creeps above 30%; prices diverge[4]	Border adjustment drives price recognition and linkage	Price floors weaken; new systems are delayed
Disclosure	ISSB baseline spreads in emerging markets; EU and US diverge[16]	ISSB becomes the de facto global baseline	Fragmented national regimes raise compliance cost
Development finance	MDB volumes rise; grants and concessional resources tighten[92]	Capital adequacy reform and guarantees lift mobilisation ratios	Official finance retreats; debt stress crowds out adaptation
Markers to watch	Aligned GSS+ near USD 1 trillion a year[15]	Rising mobilisation ratios in low- and middle-income economies	Sovereign downgrades in climate-vulnerable economies

Source: SCRF assessment.

16.3 Risks to monitor

TABLE 16.2

Risk register for 2026

Risk	Transmission channel	Indicator to watch
Further retreat of official finance	Lower concessional flows; weaker blended structures	Donor budgets; MDB capital adequacy reforms
Carbon price fragmentation	Border adjustments; competitiveness disputes	EU recognition rules; China allowance price
Integrity shocks in credit markets	Buyer withdrawal; reputational contagion	Share of retirements rated BBB or higher
Disclosure divergence	Higher compliance cost; weaker comparability	ISSB adoption count; EU and US rule changes
Sovereign debt stress	Crowding out of adaptation investment	Debt-service ratios in climate-vulnerable economies

Source: SCRF assessment.

16.4 Recommendations by actor

FOR GOVERNMENTS AND FINANCE MINISTRIES

- Publish multi-year schedules for carbon price or target stringency so that investors can price the trajectory.
- Issue sovereign sustainable bonds at benchmark size and regular frequency; prioritise curve depth over premium.
- Map national taxonomies to the ISSB baseline and major international taxonomies, with published concordance tables.

FOR REGULATORS AND CENTRAL BANKS

- Implement the Basel climate disclosure framework domestically where it is voluntary at the global level.
- Integrate physical climate risk into supervisory stress testing, particularly for agricultural and coastal exposures.

FOR DEVELOPMENT FINANCE INSTITUTIONS

- Report mobilisation ratios by income group and target their convergence.
- Expand local-currency lending and hedging facilities, and scale guarantee products that transfer political and off-taker risk.

FOR INSTITUTIONAL INVESTORS

- Underwrite emerging-market transition assets on the basis of policy credibility indicators, not labels.
- Treat carbon credit exposure as a quality-differentiated asset class, using independent ratings and Article 6 authorisation status.

FOR INDIA

- Publish a stringency path for CCTS targets beyond 2026-27 and a timetable for adding further sectors.
- Restructure the sovereign green bond programme around benchmark issuance, index inclusion and annual allocation and impact reporting.
- Engage the EU early on CBAM recognition methodology and invest in verified installation-level emissions data for export sectors.

16.5 Priorities by region

TABLE 16.3

Regional priorities for 2026-2027

Region	Binding constraint	Priority
China and North Asia	Weak allowance price in China's ETS (Chapter 6)	Tighten allocation and publish an absolute cap pathway; extend auctioning as Korea and Japan have legislated
India	Carbon market not yet trading; taxonomy in draft (Chapter 7)	Finalise the taxonomy, publish CCTS stringency beyond 2026-27 and rebuild the sovereign green curve
Southeast Asia	Cost of capital and project pipeline (Chapter 8)	Mutual recognition of MRV and carbon credits; bankable power purchase frameworks
The Gulf	No domestic carbon price (Chapter 9)	Publish carbon pricing and production pathways to underpin green issuance credibility
Africa	Price of risk and currency mismatch (Chapter 10)	Scale compacts, local-currency hedging and domestic institutional investment
Latin America	Macroeconomic and currency risk (Chapter 11)	Replicate Eco Invest-style auctions; restore sovereign thematic issuance calendars

Source: SCRF assessment.

ANNEX A

Methodology and Data Notes

A.1 Scope and data cut-off

The Review covers calendar years 2024 and 2025. Annual statistics for 2025 are taken from the first full-year releases of the institutions cited, several of which were published in early 2026. Developments after 31 December 2025 are outside scope.

A.2 Source hierarchy

We rely on official statistics, multilateral and intergovernmental institutions, regulators and recognised market data providers. Where an official figure was available only through a press report, the report is cited and the originating institution named. Figures from marketing or aggregator sites are not used.

A.3 Conflicting estimates

Where providers differ, we state the source and definition with each figure rather than averaging. The principal divergences concern labelled bond volumes (Chapter 4), ETS coverage, where ICAP measures emissions trading only and the World Bank includes carbon taxes (Chapter 2), and carbon credit market value, where MSCI measures primary retirements and Ecosystem Marketplace measures traded transactions.

A.4 SCRF calculations

SCRF calculations are labelled as such and use only figures cited in the text: the MDB mobilisation ratio (Chapter 3), the indexed allowance prices (Chapter 2), Africa's implied annual need (Chapter 10), the 2025 split of insured and uninsured catastrophe losses (Chapter 14), India's capacity residuals and 2024-25 sovereign green bond issuance (Chapter 7), and the CBAM deduction analysis (Chapter 7).

A.5 Regional coverage

Regional chapters follow the groupings used by their principal sources: CPI for Africa and for Latin America and the Caribbean, the Asian Development Bank for ASEAN+3, S&P Global Ratings for the Middle East, and ICAP for North Asian emissions trading. Regional totals are therefore not additive across chapters. A few regional series were first published in 2026 but describe 2024 or 2025 activity; they are cited with their publication dates.

A.6 Readiness Scorecard

The Scorecard in Chapter 15 assigns 0, 1 or 2 points on five indicators: carbon pricing, disclosure, taxonomy, sovereign labelled issuance and sovereign credit. Scoring rules are set out in Table 15.1 and country assessments, with sources, in Annex B. The status date is 31 December 2025. For the United Arab Emirates, which S&P does not rate at federal level, the Abu Dhabi rating is used. The Scorecard measures the existence of institutions, not their stringency.

A.7 Units and conventions

Currency values are nominal and in the currency reported by the source. One crore equals ten million. Indian fiscal years run from April to March and are written as 2024-25. GSS+ denotes green, social, sustainability and sustainability-linked debt.

ANNEX B

Scorecard Assessments and Sources

This annex lists the status recorded for each economy on each Scorecard indicator, with the source used. Scores are shown in brackets. Where an element is absent and no source is cited, the assessment reflects SCRF's review of the trackers listed in Chapter 15 as at 31 December 2025.

TABLE B.1

Scorecard assessments by economy, status at 31 December 2025

Economy	Carbon price	Disclosure	Taxonomy	Sovereign GSS+	Credit (S&P)	Total
Mexico	(2) Federal carbon tax and pilot ETS[194,196]	(2) ISSB profile, full adoption[175]	(2) Sustainable taxonomy, 2023[198]	(2) Leading EM sovereign issuer[223]	(2) BBB[224]	**10**
Chile	(2) Carbon tax, USD 5/t[194]	(2) ISSB profile, full adoption[175]	(2) T-MAS taxonomy, 2025[199]	(2) Green and SLB programme[192]	(2) A[225]	**10**
China	(2) National ETS, three new sectors[5]	(1) National standards; IFRS snapshot[67,219]	(2) National green finance standards[105]	(2) Sovereign green bond, 2025[55]	(2) A+[226]	**9**
Indonesia	(2) Power ETS; IDXCarbon[31,75]	(1) IFRS snapshot[219]	(2) TKBI taxonomy, 2024[43]	(2) Leading EM sovereign issuer[223]	(2) BBB[224]	**9**
Malaysia	(1) Carbon tax announced for 2026[142]	(2) ISSB profile, full adoption[175]	(2) National taxonomy in force[227]	(2) Sovereign sustainability sukuk[228]	(2) A-[229]	**9**
Thailand	(1) Fuel carbon tax approved; draft ETS[140,141]	(1) IFRS snapshot[219]	(2) Thailand Taxonomy Phase 2, 2025[230]	(2) Sovereign sustainability bonds[144]	(2) BBB+[231]	**8**
Brazil	(1) SBCE legislated; not yet operating[6]	(2) ISSB profile, full adoption[175]	(2) TSB established, 2025[39]	(2) Three sovereign sustainable bonds[186]	(1) BB[225]	**8**
Colombia	(2) Carbon tax with offsetting[195]	(1) Mandatory climate reporting for issuers[232]	(2) Green taxonomy, 2022[197]	(2) Sovereign green bonds since 2021[232]	(1) BB[233]	**8**
India	(1) CCTS targets notified; trading pending[7]	(1) BRSR mandatory; not ISSB-based[221]	(1) Draft taxonomy, May 2025[20]	(2) Sovereign green bonds since 2023[124]	(2) BBB[29]	**7**
Philippines	(0) No carbon price[222]	(1) IFRS snapshot[219]	(2) SFTG taxonomy, 2024[44]	(2) Active sovereign issuer[234]	(2) BBB+[235]	**7**
Türkiye	(1) Climate Law 2025; ETS pilot 2026[58]	(2) ISSB profile, full adoption[175]	(1) Green taxonomy mandated by law[236]	(1) No sovereign GSS+ benchmark identified	(1) BB-[237]	**6**
South Africa	(2) Carbon tax in force[222]	(0) No mandatory ISSB-based regime[219]	(2) Green Finance Taxonomy[238]	(0) No sovereign GSS+ bond	(1) BB[36]	**5**
Nigeria	(1) Carbon market framework, 2025[173]	(2) ISSB profile, climate first[175]	(0) No national taxonomy	(2) Three sovereign green bonds[145]	(0) B-[179]	**5**
Kenya	(1) Carbon market regulations, 2024[172]	(2) ISSB profile, full adoption[175]	(2) Green Finance Taxonomy, 2025[35]	(0) No sovereign GSS+ bond	(0) B[177]	**5**
Saudi Arabia	(1) Crediting and voluntary exchange only[159]	(0) No mandatory ISSB-based regime[219]	(0) No national taxonomy	(2) Inaugural sovereign green tranche, 2025[32]	(2) A+[155]	**5**
Egypt	(1) Regulated voluntary market on EGX[174]	(1) FRA climate disclosure decrees[239]	(0) No national taxonomy	(2) Sovereign green bond, 2020[240]	(0) B[178]	**4**
Viet Nam	(1) Pilot ETS from August 2025[30]	(0) No ISSB-based regime[219]	(2) Binding green taxonomy, 2025[59]	(0) No sovereign GSS+ bond	(1) BB+[241]	**4**
United Arab Emirates	(1) Climate law with MRV and credit registry[33]	(0) No ISSB-based regime[219]	(0) No national taxonomy	(0) No federal GSS+ bond	(2) AA (Abu Dhabi)[220]	**3**

Source: SCRF assessment from the sources cited.

ANNEX C

References

1 BloombergNEF (2026). Energy Transition Investment Trends 2026. Press release, 26 January 2026. https://about.bnef.com/insights/clean-energy/bloombergnef-finds-global-energy-transition-investment-reached-record-2-3-trillion-in-2025-up-8-from-2024

2 International Energy Agency (2025). World Energy Investment 2025. Paris: IEA. Licence CC BY 4.0. https://www.iea.org/reports/world-energy-investment-2025

3 International Energy Agency (2025). Cost of capital expectations for 2025 diverge amid rising uncertainty. Commentary. https://www.iea.org/commentaries/cost-of-capital-expectations-for-2025-diverge-amid-rising-uncertainty

4 World Bank (2025). State and Trends of Carbon Pricing 2025. Press release, 10 June 2025. https://www.worldbank.org/en/news/press-release/2025/06/10/global-carbon-pricing-mobilizes-over-100-billion-for-public-budgets

5 International Carbon Action Partnership (2025). China officially expands national ETS to cement, steel and aluminum sectors. Updated 10 April 2025. https://icapcarbonaction.com/en/news/china-officially-expands-national-ets-cement-steel-and-aluminum-sectors

6 Senado Federal do Brasil (2024). Sancionada lei que regulamenta mercado de carbono (Lei n. 15.042, de 11 de dezembro de 2024). https://www12.senado.leg.br/noticias/audios/2024/12/sancionada-lei-que-regulamenta-mercado-de-carbono

7 Ministry of Environment, Forest and Climate Change, Government of India (2025). Greenhouse Gases Emission Intensity Target Rules, 2025. Notified 8 October 2025. https://beeindia.gov.in/sites/default/files/Greenhouse_Gases_Emission_Intensity_Target_Rules_2025.pdf

8 International Carbon Action Partnership (2026). EU Emissions Trading System factsheet (2024 and 2025 average secondary market prices). https://icapcarbonaction.com/en/ets_system/43

9 LSEG Carbon Research (2026). Global Carbon Market 2025 Year in Review and 2026 Year Ahead: Summary. https://www.lseg.com/content/dam/data-analytics/en_us/documents/reports/lseg-year-ahead-and-carbon-markets-summary.pdf

10 MSCI Carbon Markets (2026). Carbon Credits Come of Age in 2025. https://www.msci.com/research-and-insights/blog-post/carbon-credits-come-of-age-in-2025

11 MSCI Carbon Markets (2025). 2025 State of Integrity in the Global Carbon-Credit Market. 22 September 2025. https://www.msci.com/research-and-insights/paper/2025-state-of-integrity-in-the-global-carbon-credit-market

12 UNFCCC (2024). New Collective Quantified Goal on Climate Finance, decision adopted at CMA.6, Baku, 24 November 2024. https://unfccc.int/cop29

13 United Nations Environment Programme (2025). Adaptation Gap Report 2025: Running on Empty. Nairobi: UNEP. https://www.unep.org/en/publications/report/adaptation-gap-report-2025

14 African Development Bank Group (2025). Multilateral development banks hit record $137 billion in climate finance. Press release, 9 September 2025. https://afdb.africa-newsroom.com/press/multilateral-development-banks-hit-record-137-billion-in-climate-finance-driving-sustainable-development-worldwide

15 Climate Bonds Initiative (2026). Sustainable Debt Global State of the Market 2025. London: CBI. https://www.climatebonds.net/files/documents/publications/Sustainable_Debt_2025_02C.pdf

16 IFRS Foundation (2025). IFRS Foundation publishes jurisdictional profiles for ISSB Standards. 12 June 2025. https://www.ifrs.org/news-and-events/news/2025/06/ifrs-foundation-publishes-jurisdictional-profiles-issb-standards/

17 Principles for Responsible Investment (2025). PRI responds to final agreement on the EU Omnibus proposal. 16 December 2025. https://public.unpri.org/consultations-and-letters/pri-responds-to-final-agreement-on-the-eu-omnibus-proposal/13571.article

18 US Securities and Exchange Commission (2025). SEC Votes to End Defense of Climate Disclosure Rules. Press Release 2025-58, 27 March 2025. https://sec.gov/newsroom/press-releases/2025-58

19 Down To Earth (2025). India reaches 50% non-fossil fuel power capacity, five years ahead of target (Government of India statement, 14 July 2025). https://www.downtoearth.org.in/energy/india-reaches-50-non-fossil-fuel-power-capacity-five-years-ahead-of-target

20 Business Standard (2025). Govt brings draft framework of India's Climate Finance Taxonomy (Department of Economic Affairs, 7 May 2025). https://www.business-standard.com/india-news/centre-seeks-comments-on-indias-climate-finance-taxonomy-draft-125050701544_1.html

21 Institute for Energy Economics and Financial Analysis (2025). Disappearing greenium: what RBI's shelved green bond auction signals. https://ieefa.org/resources/disappearing-greenium-global-turbulence-and-pricing-realities-what-rbis-shelved-green

22 State Council of the People's Republic of China / Xinhua (2026). China's green loans see notable growth in 2025 (People's Bank of China report). 18 February 2026. https://english.www.gov.cn/archive/statistics/202602/18/content_WS699582a7c6d00ca5f9a092ef.html

23 Asian Development Bank, AsianBondsOnline (2026). Recent Developments in the ASEAN+3 Sustainable Bond Market. Asia Bond Monitor, March 2026. https://asianbondsonline.adb.org/documents/abm/abm_mar_2026_recent_developments_asean3_sustainable_bond_markets.pdf

24 Arab News (2026). Middle East sustainable bond issuance to hit USD 25bn in 2026: S&P Global. https://www.arabnews.com/node/2633326

25 Artemis (2026). Catastrophe bond issuance breaks Q4 and full year records, market grows 24%: report. https://www.artemis.bm/news/catastrophe-bond-issuance-breaks-q4-and-full-year-records-market-grows-24-report

26 Insurance Business (2026). Secondary perils drive 92% of insured catastrophe losses: Swiss Re Institute. https://www.insurancebusinessmag.com/reinsurance/news/breaking-news/secondary-perils-drive-92-of-insured-catastrophe-losses--swiss-re-institute-569164.aspx

27 Ministry of Economy, Trade and Industry, Japan (2025). GX-ETS: overview of the emissions trading system under the revised GX Promotion Act. Subcommittee material. https://www.meti.go.jp/shingikai/sankoshin/sangyo_gijutsu/emissions_trading/pdf/006_06_00.pdf

28 International Carbon Action Partnership (2025). Korea approves Phase 4 K-ETS allocation plan for 2026-2030. https://icapcarbonaction.com/en/news/korea-approves-phase-4-k-ets-allocation-plan-2026-2030

29 The National (2025). S&P raises India's credit rating to BBB in first upgrade for 18 years. 14 August 2025. https://www.thenationalnews.com/business/economy/2025/08/14/sp-raises-indias-credit-rating-to-bbb-in-first-upgrade-for-18-years

30 International Carbon Action Partnership (2025). Vietnam issues rules for pilot ETS, launching August 2025. https://icapcarbonaction.com/en/node/1097

31 Otoritas Jasa Keuangan, Ministry of Environment and Indonesia Stock Exchange (2025). Inauguration of International Carbon Trading. Joint press release, 20 January 2025. https://iru.ojk.go.id/iru/news/detailnews/13302/inauguration-of-international-carbon-trading

32 National Debt Management Center, Kingdom of Saudi Arabia (2025). Completion of international euro-denominated bond issuance including the inaugural green tranche. 25 February 2025. https://www.ndmc.gov.sa/en/mediacenter/news/Pages/news_25022025.aspx

33 Hadef and Partners (2025). UAE Federal Law on Reduction of Climate Change Effects enters into force. https://hadefpartners.com/news-insights/insights/uae-federal-law-on-reduction-of-climate-change-effects-enters-into-force/

34 African Development Bank (2025). Mission 300 progresses as seventeen additional African countries unveil energy compacts. 25 September 2025. https://allafrica.com/stories/202509260561.html

35 Central Bank of Kenya (2025). Kenya Green Finance Taxonomy and Climate Risk Disclosure Framework. Public notice, 4 April 2025. https://www.centralbank.go.ke/2025/04/04/11193/

36 National Treasury, Republic of South Africa (2025). Treasury responds to rating action of S&P Global Ratings, 14 November 2025. https://www.gov.za/news/media-statements/treasury-responds-rating-action-sp-global-ratings-14-nov-2025

37 Climate Policy Initiative (2026). Climate finance in Latin America and the Caribbean doubles to USD 108 billion, but fossil fuels still outpace clean energy transition investment. Press release, 22 September 2026. https://www.climatepolicyinitiative.org/press-release/climate-finance-in-latin-america-and-the-caribbean-doubles-to-usd-108-billion-but-fossil-fuels-still-outpace-clean-energy-transition-investment-as-major-climate-gaps-remain/

38 National Treasury of Brazil (2025). Eco Invest Brasil Auction No. 02/2025: Degraded Land Restoration. https://www.gov.br/tesouronacional/en/sustainable-finance/auctions/auction-02-2025-degraded-land-restoration

39 Mayer Brown (2025). Brazil's Federal Government establishes the Brazilian Sustainable Taxonomy (Decree No. 12,705/2025). Via Mondaq, 18 November 2025. https://www.mondaq.com/brazil/climate-change/1705878/brazils-federal-government-establishes-the-brazilian-sustainable-taxonomy

40 ECLAC (2026). Capital flows to Latin America and the Caribbean in five charts: 2025 year-in-review. https://www.cepal.org/en/notes/capital-flows-latin-america-and-caribbean-five-charts-2025-year-review

41 Ministry of Economy, Trade and Industry, Japan (2026). Japan Climate Transition Bond. https://www.meti.go.jp/english/policy/energy_environment/transition_finance/climate_transition_bond.html

42 ASEAN Secretariat (2024). ASEAN Taxonomy Version 3 covering technical screening criteria for the construction and transportation sectors takes effect. 20 December 2024. https://asean.org/?p=183539

43 Otoritas Jasa Keuangan (2024). Indonesian Taxonomy for Sustainable Finance. Press conference, 20 February 2024. https://keuanganberkelanjutan.ojk.go.id/keuanganberkelanjutan/en/newsmedia/detailpressconference/3373/indonesian-taxonomy-for-sustainable-finance

44 Securities and Exchange Commission, Philippines (2024). Memorandum Circular No. 5, Series of 2024: Guidelines on the Philippine Sustainable Finance Taxonomy. https://sec.gov.ph/wp-content/uploads/2024/02/2024MC_SEC-MC-No.-5,-S.-of-2024-Guidelines-on-the-Philippine-Sustainable-Finance-Taxonomy.pdf

45 Inter-American Development Bank (2025). Innovative blended finance to enhance debt-for-nature conversions in Latin America and the Caribbean. https://www.iadb.org/en/blog/nature-climate-and-disaster-risk/innovative-blended-finance-enhance-debt-nature-conversions-latin-america-and-caribbean

46 Reuters factbox (2024). Which countries have completed debt swaps for nature and climate (El Salvador, Ecuador). As republished by GreenFue. https://greenfue.com/climate-change-8/

47 UNFCCC Secretariat (2024). Key Outcomes from COP29: Article 6 of the Paris Agreement. https://unfccc.int/sites/default/files/resource/COP29%20outcomes_A6.2_6.4_6.8.pdf

48 Eurosif (2026). EU Green Bond Standard: policy overview. https://www.eurosif.org/policies/eu-green-bonds-standards/

49 Executive Order 14162, Putting America First in International Environmental Agreements. Federal Register 90(19), 30 January 2025. https://www.govinfo.gov/content/pkg/FR-2025-01-30/html/2025-02010.htm

50 Board of Governors of the Federal Reserve System (2025). Federal Reserve Board announces it has withdrawn from the NGFS. 17 January 2025. https://www.federalreserve.gov/newsevents/pressreleases/bcreg20250117a.htm

51 World Bank (2025). Heads of State commit to concrete plans to transform Africa's energy sector. Press release, 28 January 2025. https://www.worldbank.org/en/news/press-release/2025/01/28/heads-of-state-commit-to-concrete-plans-to-transform-africa-s-energy-sector-with-strong-backing-from-global-partners

52 United Nations (2025). Governments agree on the way forward to mobilise the resources needed to protect biodiversity for people and planet. 28 February 2025. https://www.un.org/sustainabledevelopment/?p=115146

53 Department of International Relations and Cooperation, South Africa (2025). South Africa notes the decision by the United States Government to withdraw from the JETP. 6 March 2025. https://dirco.gov.za/south-africa-notes-the-decision-by-the-united-states-government-to-withdraw-from-the-just-energy-transition-partnership/

54 International Carbon Action Partnership (2025). India notifies emission intensity targets under Carbon Credit Trading Scheme. https://icapcarbonaction.com/en/news/india-notifies-emission-intensity-targets-nine-sectors-under-carbon-credit-trading-scheme

55 State Council of the People's Republic of China / Xinhua (2025). China issues first overseas RMB-denominated sovereign green bond in London. 3 April 2025. https://english.www.gov.cn/news/202504/03/content_WS67ee784cc6d0868f4e8f16bf.html

56 Basel Committee on Banking Supervision (2025). Basel Committee publishes framework for voluntary disclosure of climate-related financial risks. 13 June 2025. https://www.bis.org/press/p250613.htm

57 Global Policy Forum Europe (2025). The Sevilla Commitment: What comes next? Briefing, July 2025. https://www.globalpolicy.org/en/node/3067

58 International Carbon Action Partnership (2025). Türkiye adopts landmark climate law, paving the way for national ETS. https://icapcarbonaction.com/en/news/turkiye-adopts-landmark-climate-law-paving-way-national-ets

59 Watson Farley and Williams (2025). Vietnam's Green Taxonomy: A New Legal Framework for Green Credit and Green Bonds. 29 August 2025. https://www.wfw.com/articles/vietnams-green-taxonomy-new-legal-framework-green-credit-green-bonds/

60 United Nations Development Programme (2025). The Road to Belém: Africa asserts climate leadership at the Second Africa Climate Summit. 10 September 2025. https://www.undp.org/africa/press-releases/road-belem-africa-asserts-climate-leadership-second-africa-climate-summit

61 Carbon Pulse (2025). Net-Zero Banking Alliance votes to cease operations immediately. 3 October 2025. https://carbon-pulse.com/441602/

62 EY (2025). EU adopts CBAM Omnibus Regulation (Regulation (EU) 2025/2083). 22 October 2025. https://www.ey.com/en_gl/technical/tax-alerts/eu-adopts-cbam-omnibus-regulation

63 COP30 Presidency (2025). COP30 approves Belém Package; COP30 outcomes: negotiated decisions. https://cop30.br/en/cop30-outcomes/normative

64 World Resources Institute (2025). Statement: Brazil launches Tropical Forests Forever Facility. 6 November 2025. https://www.wri.org/news/statement-brazil-launches-tropical-forests-forever-facility

65 Clifford Chance (2026). Omnibus I: the European Union concludes CSDDD and CSRD reforms. https://www.cliffordchance.com/insights/resources/blogs/business-and-human-rights-insights/2026/02/omnibus-i-the-european-union-concludes-csddd-and-csrd-reforms.html

66 Eurometal (2025). EU agrees on 90% emissions reduction target for 2040 under revised climate law. Report on the Council and Parliament provisional agreement, December 2025. https://eurometal.net/eu-agrees-on-90-emissions-reduction-target-for-2040-under-revised-climate-law/

67 CMS (2026). ESG in China: First Corporate Sustainability Disclosure Standards on Climate Released. https://cms.law/en/chn/legal-updates/esg-in-china-first-corporate-sustainability-disclosure-standards-on-climate-released2

68 Climate Policy Initiative (2025). Global Landscape of Climate Finance 2025. London: CPI. https://www.climatepolicyinitiative.org/publication/global-landscape-of-climate-finance-2025/

69 Climate Policy Initiative (2025). Global Landscape of Climate Finance 2025: EMDE Spotlight. Press release, 28 October 2025. https://www.climatepolicyinitiative.org/?p=101216

70 Climate Policy Initiative (2025). Global Landscape of Climate Finance 2025: Executive Summary. London: CPI. https://www.climatepolicyinitiative.org/wp-content/uploads/2025/06/GLCF-2025-Executive-Summary.pdf

71 International Energy Agency (2025). Cost of Capital Observatory. Paris: IEA. Licence CC BY 4.0. https://www.iea.org/reports/cost-of-capital-observatory

72 International Energy Agency (2024). Bringing down the cost of capital is key to unlocking clean energy growth in emerging economies. News release. https://www.iea.org/news/bringing-down-the-cost-of-capital-is-key-to-unlocking-clean-energy-growth-in-emerging-economies

73 American Journal of International Law (2025). The Trump Administration Steps Back from International Environmental Cooperation (withdrawal effective 27 January 2026). https://www.cambridge.org/core/product/FC53E70E1EB625EB8B7CACB4B20EE648

74 Manifest (2025). Zeroing Out: NZBA Members Vote to Halt All Activities (including NZAM suspension, January 2025). 6 October 2025. https://www.manifest.co.uk/zeroing-out-nzba-members-vote-to-halt-all-activities

75 International Carbon Action Partnership (2025). Emissions Trading Worldwide: Status Report 2025. Berlin: ICAP. https://icapcarbonaction.com/system/files/document/250613_icap_sr25_es_en.pdf

76 DevelopmentAid (2023). Record high revenues from global carbon pricing near USD 100 billion (World Bank, State and Trends of Carbon Pricing 2023). https://www.developmentaid.org/news-stream/post/162179/global-carbon-pricing

77 WAM (2024). Global carbon pricing revenues top record USD 100 billion (World Bank, State and Trends of Carbon Pricing 2024). 21 May 2024. https://www.wam.ae/en/article/b3a4r4s-global-carbon-pricing-revenues-top-record-100

78 World Bank (2024). Global carbon pricing revenues top a record USD 100 billion. Press release on State and Trends of Carbon Pricing 2024, 21 May 2024. https://www.worldbank.org/en/news/press-release/2024/05/21/global-carbon-pricing-revenues-top-a-record-100-billion

79 S&P Global Commodity Insights (2025). Global carbon pricing coverage hits 28% as compliance demand triples: World Bank. 10 June 2025. https://www.spglobal.com/commodity-insights/en/news-research/latest-news/energy-transition/061025-global-carbon-pricing-coverage-hits-28-as-compliance-demand-triples-world-bank

80 European Environment Agency, ETC-CM (2025). Trends and projections in the EU ETS: ETS Report 2025. https://www.eionet.europa.eu/etcs/etc-cm/products/etc-cm-report-2025-06/@@download/file/ETS-Report_2025_final.pdf

81 European Securities and Markets Authority (2026). EU Carbon Markets Report 2026. https://www.esma.europa.eu/sites/default/files/2026-07/ESMA50-481369926-34622_Carbon_markets_report_2026.pdf

82 LSEG Carbon Research (2025). Carbon Market Year in Review 2024, as reported by Carbon Pulse, February 2025. https://carbon-pulse.com/367790/

83 MSCI Carbon Markets (2025). Frozen Carbon Credit Market May Thaw as 2030 Gets Closer. 6 January 2025. https://www.msci.com/research-and-insights/blog-post/frozen-carbon-credit-market-may-thaw-as-2030-gets-closer

84 Forest Trends' Ecosystem Marketplace (2025). State of the Voluntary Carbon Market 2025: Meeting the Moment. Washington, DC: Forest Trends. https://www.forest-trends.org/pressroom/benchmark-report-finds-the-voluntary-carbon-market-in-transition-demand-holding-steady-as-turnover-stabilizes/

85 Oxford Smith School of Enterprise and the Environment (2024). Article 6 in focus: Outcomes from COP29. https://www.smithschool.ox.ac.uk/news/article-6-focus-outcomes-cop29

86 Fastmarkets (2026). Host country approvals narrow PACM pipeline as backlog and methodology rollout weigh on supply (record of first Article 6.4 methodology approval, October 2025). https://www.fastmarkets.com/insights/host-country-approvals-narrow-pacm-pipeline-as-backlog-and-methodology-rollout-weigh-on-supply/

87 Arab News / Reuters (2024). India opposes COP29 finance deal after it is adopted. 24 November 2024. https://arabnews.com/node/2580518/amp

88 Center for Climate and Energy Solutions (2025). Key negotiations-related outcomes of the UN climate conference in Belém. https://www.c2es.org/document/key-negotiations-related-outcomes-of-the-un-climate-conference-in-belem

89 International Institute for Sustainable Development (2025). COP 30 Outcome: What it means and what's next. https://www.iisd.org/articles/insight/cop-30-outcome-what-it-means-and-whats-next

90 Climate Home News (2025). Norway pledges $3bn in boost for Brazil-led tropical forest fund. 6 November 2025. https://climatechangenews.com/2025/11/06/norway-pledges-3bn-in-boost-for-brazil-led-tropical-forest-fund/

91 European Investment Bank (2023). Multilateral development banks provide record climate finance of close to USD 61 billion for low and middle-income economies in 2022. Press release. https://www.eib.org/en/press/all/2023-376-multilateral-development-banks-provide-record-climate-finance-of-close-to-usd61-billion-for-low-and-middle-income-economies-in-2022

92 World Resources Institute (2024). Multilateral Development Bank Climate Finance: The Good, Bad and the Urgent (2023 Joint Report). https://www.wri.org/insights/mdb-climate-finance-2023

93 World Resources Institute (2022). The Good, the Bad and the Urgent: MDB Climate Finance in 2021. https://www.wri.org/index%2Ephp/insights/good-bad-and-urgent-mdb-climate-finance-2021

94 European Investment Bank et al. (2025). 2024 Joint Report on Multilateral Development Banks' Climate Finance. https://www.eib.org/attachments/lucalli/20250071-2024-joint-report-on-mdbs-climate-finance-en.pdf

95 Climate Bonds Initiative (2025). 5 for 25: provisional 2024 figures; Sustainable Debt Global State of the Market 2024. https://www.climatebonds.net/files/reports/cbi_5_for_25_01b.pdf

96 Intercontinental Exchange (2026). Sustainable Bond Analysis: Full Year 2025. https://www.ice.com/insights/sustainable-bond-report-2025

97 The Asset (2025). Global H1 sustainable bond issuance drops over 18%; Moody's lowers 2025 forecast to US$900 billion. 31 July 2025. https://www.theasset.com/article/54586/global-sustainable-bond-issuance-drops-over-18-in-h1

98 Japan Credit Rating Agency (2025). Japan Climate Transition Bonds (FY2024): Allocation and Impact Evaluation. https://www.jcr.co.jp/download/9d8d88da480ddd2f7c1fce7e7dea2bdc4d433edc8d71c3ecc3/25d1507_en2.pdf

99 Eubelius (2025). The first issuances of European Green Bonds: preliminary conclusions. 27 March 2025. https://www.eubelius.com/en/news/the-first-issuances-of-european-green-bonds-preliminary-conclusions

100 LSEG (2025). Green debt market passes US$3 trillion milestone. https://www.lseg.com/en/insights/green-debt-market-passes-3-trillion-milestone

101 International Finance Corporation (2026). Emerging Market Sustainable Bonds: 2025 Market Report. https://www.ifc.org/content/dam/ifc/doc/2026/emerging-market-sustainable-bonds.pdf

102 The Spokesman-Review / Bloomberg (2025). Green debt sales hit record levels despite climate backlash. 26 December 2025. https://www.spokesman.com/stories/2025/dec/26/green-debt-sales-hit-record-levels-despite-climate

103 IFRS Foundation (2025). ISSB update, Emerging Economies Group, Agenda Paper 5, November 2025. https://www.ifrs.org/content/dam/ifrs/meetings/2025/november/eeg/ap5-issb-update.pdf

104 People's Bank of China (2025). Statistical Report on the Credit Structure of Financial Institutions, Q1 2025. https://www.pbc.gov.cn/en/fileDir/resource/cms/2025/07/2025070114202691777.pdf

105 People's Bank of China (2025). Green finance during the 14th Five-Year Plan period: interview with the Head of the Research Bureau. 19 December 2025. https://camlmac.pbc.gov.cn/en/3688006/5876310/2025121916042729188/index.html

106 People's Bank of China (2025). Statistical Report on the Credit Structure of Financial Institutions, Q2 2025. https://www.pbc.gov.cn/en/fileDir/resource/cms/2025/08/2025080817105197187.pdf

107 State Council of the People's Republic of China / Xinhua (2025). China's new green loans hit 6.47 trillion yuan in first nine months of 2025. 24 October 2025. https://english.www.gov.cn/archive/statistics/202510/24/content_WS68fb7e6ac6d00ca5f9a07017.html

108 Eco-Business (2026). China leads global wind power installations as additions surge 40 per cent in 2025 (Global Wind Energy Council data). https://www.eco-business.com/zh-hans/news/china-leads-global-wind-power-installations-as-additions-surge-40-per-cent-in-2025/

109 CarbonCredits.com (2026). China adds power 7x more than the US in 2025 (National Energy Administration data). https://carboncredits.com/china-adds-power-7x-more-than-the-us-in-2025/

110 GreentechLead (2026). Renewable energy capacity tops 690 GW in 2025 (IRENA Renewable Capacity Statistics 2026). https://greentechlead.com/?p=54051

111 Carbon Brief (2026). China Briefing, 5 February 2026: clean energy's share of the economy (CREA analysis). https://www.carbonbrief.org/china-briefing-5-february-2026-clean-energys-share-of-economy-record-renewables-thawing-relations-with-uk

112 Caixin Global (2025). China Carbon Watch: Supply glut holds down carbon prices. 8 September 2025. https://www.caixinglobal.com/2025-09-08/china-carbon-watch-supply-glut-holds-down-carbon-prices-102360342.html

113 Carbon Pulse (2025). CN Markets: CEAs fall below RMB 60 mark amid permit oversupply. 26 September 2025. https://carbon-pulse.com/439305/

114 LSEG Carbon Research (2026). H1 2026 China ETS Supply, Demand and Price Update: Summary. https://www.lseg.com/content/dam/data-analytics/en_us/documents/reports/lseg-china-ets-supply-demand-and-price-forecast-2026-summary.pdf

115 Linklaters (2026). ESG quick guide: PRC Sustainability Disclosure Standards. https://sustainablefutures.linklaters.com/post/102l78c/esg-quick-guide-prc-sustainability-disclosure-standards

116 Energy Shift Institute (2025). Japan's GX plan, one year on: Industrial decarbonisation or survival guide? July 2025. https://rief-jp.org/wp-content/uploads/Energy-Shift-Inst_Japan-GX-one-year-on_Jul2025.pdf

117 International Carbon Action Partnership (2026). Japan transitions its GX-ETS to the mandatory phase. https://icapcarbonaction.com/en/node/1141

118 International Carbon Action Partnership (2026). Korea Emissions Trading System (K-ETS) factsheet. https://icapcarbonaction.com/zh/ets_system/47

119 UNFCCC. NDC Registry: India, updated first Nationally Determined Contribution (August 2022). https://unfccc.int/NDCREG

120 The Statesman (2025). Govt working to achieve 500 GW non-fossil energy capacity target by 2030 (MNRE Year-End Review 2025 data). https://www.thestatesman.com/business/govt-working-to-achieve-500-gw-non-fossil-energy-capacity-target-by-2030-1503533588.html

121 Energetica India (2025). India achieves record 44.5 GW renewable energy growth in 2025; solar surges past 132 GW (MNRE data). 30 December 2025. https://www.energetica-india.net/news/india-achieves-record-445-gw-renewable-energy-growth-in-2025-solar-surges-past-132-gw

122 pv magazine (2026). India deploys 37.9 GW of solar in 2025 (MNRE data). 14 January 2026. https://www.pv-magazine.com/2026/01/14/india-deploys-37-9-gw-of-solar-in-2025/

123 Down To Earth / Centre for Science and Environment (2025). India notifies GHG emission intensity targets for four sectors. https://www.downtoearth.org.in/climate-change/india-notifies-ghg-emission-intensity-targets-for-four-sectors-delay-derails-ambition-further

124 Rajya Sabha, Government of India (2025). Unstarred Question No. 2000, answered 18 March 2025 (Sovereign Green Bonds raised). https://rsdebate.nic.in/bitstream/123456789/759182/1/PQ_267_18032025_U2000_p311_p311.pdf

125 Ministry of Finance, Government of India (2025). Expenditure Profile 2025-26, Statement 15A: Schemes eligible for Sovereign Green Bonds. https://www.indiabudget.gov.in/doc/eb/stat15a.pdf

126 Business Standard (2025). H1 borrowing calendar: 30-year green bonds likely to see strong demand (FY25 auction record). 28 March 2025. https://www.business-standard.com/markets/news/h1-borrowing-plan-30-year-green-bonds-seen-attracting-strong-demand-125032801228_1.html

127 Climate Bonds Initiative and MUFG (2025). India Sustainable Debt State of the Market 2024. Press release, 27 June 2025. https://www.climatebonds.net/news-events/press-room/press-releases/indias-sustainable-debt-market-tops-usd-55-9-billion-new-mufg-cbi-report-maps-rapid-growth-pathways-2030

128 Regulation (EU) 2023/956 establishing a carbon border adjustment mechanism, Official Journal of the European Union. https://eur-lex.europa.eu/eli/reg/2023/956/oj

129 Reed Smith (2025). What you need to know as CBAM simplification comes into effect. https://www.reedsmith.com/our-insights/blogs/viewpoints/102lr9t/what-you-need-to-know-as-cbam-simplification-comes-into-effect/

130 International Energy Agency (2024). World Energy Investment 2024: Southeast Asia. Paris: IEA. https://prod.iea.org/reports/world-energy-investment-2024/southeast-asia

131 International Energy Agency (2025). High cost of capital and limited project pipeline hinder clean energy investment in Southeast Asia. Commentary. https://www.iea.org/commentaries/high-cost-of-capital-and-limited-project-pipeline-hinder-clean-energy-investment-in-southeast-asia

132 The Jakarta Post / Reuters (2025). United States withdrawing from JETP, sources say. 6 March 2025. https://www.thejakartapost.com/world/2025/03/06/united-states-withdrawing-from-jetp-sources-say

133 Responsible Finance and Investment (2023). The new ASEAN Taxonomy incorporates a coal phase-out classification to support more transition finance. https://gazelle-sealion-f4ta.squarespace.com/rfi-newsletter/20230406-new-asean-taxonomy-incorporates-coal-phase-out

134 International Emissions Trading Association (2025). Business Brief: Singapore. July 2025. https://www.ieta.org/uploads/wp-content/Resources/Busines-briefs/2025/IETA_Business_Brief-Singapore-final.pdf

135 Ministry of Sustainability and the Environment, Singapore (2024). Singapore signs Implementation Agreement with Ghana to collaborate on carbon credits under Article 6. 27 May 2024. https://www.mse.gov.sg/latest-news/press-release-singapore-signs-implementation-agreement-ghana-carbon-credits/

136 Business Indonesia (2025). BEI launches international carbon trading. 21 January 2025. https://business-indonesia.org/news/bei-launches-international-carbon-trading

137 ASEAN Exchanges (2025). Various positive achievements of IDXCarbon in Q1 2025. 17 April 2025. https://www.aseanexchanges.org/content/various-positive-achievements-of-idxcarbon-in-q1-2025/

138 Institute for Energy Economics and Financial Analysis (2025). Two years after launch, Indonesia's carbon market struggles to find momentum. https://ieefa.org/resources/two-years-after-launch-indonesias-carbon-market-struggles-find-momentum

139 S&P Global Commodity Insights (2025). Vietnam to start pilot emission trading in 2025, allow offsetting 30% of emissions. 11 June 2025. https://www.spglobal.com/energy/en/news-research/latest-news/energy-transition/061125-vietnam-to-start-pilot-emission-trading-in-2025-allow-offsetting-30-emissions

140 EY Global Tax News (2025). Thailand set to implement carbon tax on oil and petroleum products. 7 February 2025. https://taxnews.ey.com/news/2025-0433

141 IDE-JETRO (2026). Institutional Reform and Trade Implementation under Thailand's Draft Climate Change Act. Policy Brief No. 276. https://www.ide.go.jp/library/Japanese/Publish/Reports/AjikenPolicyBrief/pdf/276.pdf

142 The Star (2025). Budget 2026: Carbon tax to be introduced next year. 10 October 2025. https://www.thestar.com.my/business/business-news/2025/10/10/budget-2026-carbon-tax-to-be-introduced-next-year

143 Asian Development Bank, AsianBondsOnline (2025). Recent Developments in the ASEAN+3 Sustainable Bond Market. Asia Bond Monitor, March 2025. https://asianbondsonline.adb.org/documents/abm/abm_mar_2025_recent_developments_asean3_sustainable_bond_markets.pdf

144 Asian Development Bank (2025). GSS+ Bonds Initiative for Southeast Asia: signature issuances. https://www.adb.org/sites/default/files/publication/1143136/gss-bonds-initiative-southeast-asia.pdf

145 World Bank Treasury (2025). Labeled Bond Quarterly Newsletter, Issue No. 12. https://thedocs.worldbank.org/en/doc/9a258e226b80204053eabdd50ed1bc08-0340012025/original/Labeled-Bond-Quarterly-Newsletter-Issue-No-12.pdf

146 CarbonCredits.com (2026). Middle East sustainable bonds set to hit USD 25B in 2026 as sukuk surge (S&P Global Ratings). https://carboncredits.com/middle-east-sustainable-bonds-set-to-hit-25b-in-2026-as-sukuk-surge/

147 Khaleej Times (2026). Gulf drives global sukuk boom as issuance set to hit up to USD 280b in 2026: S&P Global. https://www.khaleejtimes.com/business/finance/gulf-drives-global-sukuk-boom-as-issuance-set-to-hit-up-to-280b-in-2026-sp-global

148 Khaleej Times (2026). UAE consolidates its role as a regional debt issuance hub (Markaz GCC fixed income review 2025). https://www.khaleejtimes.com/business/finance/uae-consolidates-its-role-as-a-regional-debt-issuance-hub

149 Enterprise (2025). UAE, Saudi Arabia to lead the region's sustainable bond issuances in 2025 (S&P Global Ratings). https://enterpriseam.com/uae/en/news/story/fb22ebb7-827e-4a0e-ad74-3be8162f6ab8/UAE,%20Saudi%20Arabia%20to%20lead%20the%20region%E2%80%99s%20sustainable%20bond%20issuances%20in%202025

150 Zawya (2026). Saudi Arabia's renewable energy projects reach 64 GW by 2025 end (Vision 2030 Annual Report 2025). https://www.zawya.com/en/projects/utilities/saudi-arabias-renewable-energy-projects-reach-64-gw-by-2025-end-yjh1myi5

151 MEED (2023). Saudi Arabia increases 2030 renewables target to 130 GW. 16 November 2023. https://guest.meed.com/?p=9219

152 Economy Middle East (2025). Saudi Arabia raises USD 2.36 billion in euro-denominated bond issuance with debut green tranche. https://economymiddleeast.com/news/saudi-arabia-raises-2-36-billion-in-euro-denominated-bond-issuance-with-debut-green-tranche

153 World Bank Treasury (2025). Labeled Bond Quarterly Newsletter, Issue No. 11. https://thedocs.worldbank.org/en/doc/c7d5bdd94c82fb169fbdff12d46fe319-0340012025/original/Labeled-Bond-Quarterly-Newsletter-Issue-No-11.pdf

154 Public Investment Fund (2025). PIF announces pricing of debut euro-denominated green bond offering. 16 October 2025. https://www.pif.gov.sa/fr/news-and-insights/press-releases/2025/pif-announces-pricing-of-debut-euro-denominated-green-bond-offering/

155 Investing.com (2025). Saudi Arabia's credit rating upgraded to 'A+' by S&P Global Ratings. 17 March 2025. https://ng.investing.com/news/world-news/saudi-arabias-credit-rating-upgraded-to-a-by-sp-global-ratings-93CH-1819043

156 Public Investment Fund (2025). ACWA Power, Badeel and SAPCO to invest approximately USD 8.3 billion to develop 15,000 MW of renewable energy projects. 14 July 2025. https://www.pif.gov.sa/fr/news-and-insights/newswire/2025/acwa-power-badeel-and-sapco-to-invest-approximately-8-3-billion-to-develop-15000-mw-of-renewable-energy-projects-in-saudi-arabia/

157 The Standard (2023). UAE commits USD 30 billion, world's largest private investment in climate action. 1 December 2023. https://www.standardmedia.co.ke/amp/article/2001486534/uae-commits-usd30-billion-worlds-largest-private-investment-in-climate-action

158 ESG Today (2023). UAE launches USD 30 billion climate fund. https://www.esgtoday.com/uae-launches-30-billion-climate-action-fund

159 S&P Global Commodity Insights (2024). Interview: Lack of climate finance could create carbon credit supply deficit: RVCMC. 13 November 2024. https://www.spglobal.com/commodity-insights/en/news-research/latest-news/energy-transition/111324-interview-lack-of-climate-finance-could-create-carbon-credit-supply-deficit-rvcmc

160 Climate Policy Initiative (2024). Landscape of Climate Finance in Africa 2024. https://www.climatepolicyinitiative.org/publication/landscape-of-climate-finance-in-africa-2024/

161 FSD Africa (2024). Climate financing to Africa grows by 48% to USD 44 bn in 2021/2022 but still only a quarter of what is required. Press release. https://fsdafrica.org/wp-content/uploads/2024/10/24-10-23-Landscape-of-Climate-Finance.pdf

162 Climate Policy Initiative (2024). Climate finance in Africa 2024: press release, 23 October 2024. https://www.climatepolicyinitiative.org/press-release/climate-finance-in-africa-2024-press-release/

163 World Bank (2025). Mission 300: building momentum for energy access in Africa. Africa Can End Poverty blog. https://blogs.worldbank.org/en/africacan/mission-300-building-momentum-for-energy-access-in-africa

164 Mongabay (2025). African nations commit to electricity for 300 million people by 2030. January 2025. https://news.mongabay.com/short-article/2025/01/african-nations-commit-to-electricity-for-300-million-people-by-2030/

165 Global Citizen (2025). Mission 300 initiative: closing Africa's energy gap (World Bank Mission 300 Progress Portal data to 30 September 2025). https://www.globalcitizen.org/en/content/mission-300-initiative-closing-africa-energy-gap/

166 Mail & Guardian (2025). Climate fight continues despite US withdrawal from just energy transition partnership. 16 March 2025. https://mg.co.za/?p=668535

167 S&P Global (2025). Sustainable finance in Africa: growth and challenges. https://www.spglobal.com/en/research-insights/special-reports/look-forward/unlocking-africa/sustainable-finance-africa-growth-challenges

168 The New Times (2024). Green bond issuances surge in Africa in Q1 2024 (Climate Bonds Initiative data). 21 June 2024. https://newtimes.co.rw/article/17834/news/africa/green-bond-issuances-surge-in-africa-in-q1-2024

169 Cleary Gottlieb (2024). Africa's potential for sustainable sovereign finance. Africa Outlook. https://content.clearygottlieb.com/regions/africa-outlook/africas-potential-for-sustainable-sovereign-finance/index.html

170 Cleary Gottlieb (2025). Debt swap transactions: an alternative source of funding for African sovereigns. Africa Outlook. https://content.clearygottlieb.com/regions/africa-outlook/debt-swap-transactions-an-alternative-source-of-funding-for-african-sovereigns/

171 Afriwise (2025). Walking the talk on climate action: Kenya's Green Finance Taxonomy. https://www.afriwise.com/blog/walking-the-talk-on-climate-action-kenyas-green-finance-taxonomy

172 Cliffe Dekker Hofmeyr (2024). Kenya unveils Carbon Market Regulations. Environmental Law Alert, 30 May 2024. https://www.cliffedekkerhofmeyr.com/en/news/publications/2024/Practice/Environmental/environmental-law-alert-31-may-Kenya-unveils-Carbon-Market-Regulations

173 Premium Times (2025). Tinubu approves national carbon market framework, operationalisation of climate fund. 31 October 2025. https://www.premiumtimesng.com/news/top-news/832062-tinubu-approves-national-carbon-market-framework-operationalisation-of-climate-fund.html

174 Chambers and Partners (2025). Establishing a voluntary carbon market in Egypt: legal framework and strategic implications. https://chambers.com/articles/establishing-a-voluntary-carbon-market-in-egypt-legal-framework-and-strategic-implications

175 ICAEW (2025). Jurisdictional profiles provide insights on ISSB adoption. June 2025. https://www.icaew.com/insights/viewpoints-on-the-news/2025/jun-2025/jurisdictional-profiles-provide-insights-on-issb-adoption

176 Africa Policy Research Institute (2025). Reforming African carbon markets. https://afripoli.org/reforming-african-carbon-markets

177 Financial Afrik (2025). Kenya: S&P's upgrade gives breathing space to sovereign debt. 23 August 2025. https://www.financialafrik.com/en/2025/08/23/kenya-sps-upgrade-gives-breathing-space-to-sovereign-debt/

178 WAM (2025). S&P Global Ratings raises its long-term sovereign credit rating on Egypt to 'B' from 'B-'. 11 October 2025. https://www.wam.ae/en/article/15tcfjh-sp-global-ratings-raises-its-long-term-sovereign

179 Nairametrics (2025). S&P upgrades Nigeria's outlook from stable to positive amid economic reforms. 15 November 2025. https://nairametrics.com/2025/11/15/sp-upgrades-nigerias-outlook-from-stable-to-positive-amid-economic-reforms

180 AllAfrica (2025). Africa's Climate Summit Shift: From Recipient to Architect. 29 September 2025. https://allafrica.com/stories/202509290665.html

181 Climate Policy Initiative (2026). Landscape of Climate Finance in Latin America and the Caribbean. https://www.climatepolicyinitiative.org/id/publication/landscape-of-climate-finance-in-latin-america-and-the-caribbean/

182 OECD (2025). Blended Finance Case Studies: Eco Invest Brasil. https://www.oecd.org/en/publications/blended-finance-case-studies_2fb90b9a-en/eco-invest-brasil_0b579b83-en.html

183 National Treasury of Brazil (2025). Eco Invest Brasil: legislation and auctions 3/2025 and 4/2025. https://www.gov.br/tesouronacional/en/sustainable-finance/legislation

184 Demarest Advogados (2025). Eco Invest Brasil: 2nd auction boosts recovery of degraded land (results of Auction 1/2024 and 2/2025). https://www.demarest.com.br/eco-invest-brasil-2o-leilao-impulsiona-recuperacao-de-terras-degradadas-e-mobilizacao-de-capital-para-o-setor-agropecuario/

185 National Treasury of Brazil (2024). Brazil announces second sustainable bonds issuance. 20 June 2024. https://www.gov.br/tesouronacional/en/news/brazil-announces-second-sustainable-bonds-issuance

186 National Treasury of Brazil (2025). Sovereign Sustainable Bonds: programme page, third issuance (6 November 2025) and Allocation and Impact Report 2025. https://www.gov.br/tesouronacional/en/federal-public-debt/sustainable-bonds/sustainable-bonds-home?set_language=en

187 Mayer Brown (2025). Brazilian Sustainable Taxonomy is approved. 15 September 2025. https://www.mayerbrown.com/fr/insights/publications/2025/09/brazilian-sustainable-taxonomy-is-approved

188 Fenacon (2025). Comitê aprova versão final da Taxonomia Sustentável Brasileira. 2 September 2025. https://fenacon.org.br/noticias/comite-aprova-versao-final-da-taxonomia-sustentavel-brasileira/

189 Climate Bonds Initiative (2025). Brazil's sustainable debt market sees strong growth as country builds momentum ahead of COP30. Press release. https://www.climatebonds.net/news-events/press-room/press-releases/brazils-sustainable-debt-market-sees-strong-growth-country-builds-momentum-ahead-cop30

190 ECLAC (2025). Capital flows to Latin America and the Caribbean: 2024 year-in-review and early 2025 developments. LC/WAS/TS.2025/2. https://www.cepal.org/en/publications/81550-capital-flows-latin-america-and-caribbean-2024-year-review-and-early-2025

191 ECLAC (2025). Capital flows to Latin America and the Caribbean in five charts: first nine months of 2025. 18 November 2025. https://www.cepal.org/en/notes/capital-flows-latin-america-and-caribbean-five-charts-first-nine-months-2025

192 Latham and Watkins (2023). Sovereign SLBs pioneered in emerging markets and poised for growth. https://www.lw.com/people/admin/upload/SiteAttachments/Sovereign-SLBs-Pioneered-in-Emerging-Markets-and-Poised-for-Growth.pdf

193 S&P Global Ratings (2025). Sustainable bond outlook 2025: Latin America leading the way for nature financing. 10 March 2025. https://spglobal.com/ratings/en/research/articles/250310-sustainability-insights-sustainable-bond-outlook-2025-latin-america-leading-the-way-for-nature-financing-13422035

194 Carbon Pulse (2025). Mexico City, Morelos join growing list of Mexican jurisdictions with active CO2 tax. 15 January 2025. https://carbon-pulse.com/358400/?site=lac

195 Carbon Pulse (2025). Latin American carbon pricing roundup: Colombian CO2 tax offsetting rebounds; Mexico to operationalise national ETS. https://carbon-pulse.com/385197/?site=lac

196 Carbon Pulse (2025). LATAM Roundup: Mexico eyes ETS as subnational CO2 taxes spread. https://carbon-pulse.com/?p=359821

197 Climate Bonds Initiative (2025). First of its kind: Colombia leads globally in green taxonomy implementation tools. 16 April 2025. https://www.climatebonds.net/news-events/blog/first-kind-colombia-leads-globally-green-taxonomy-implementation-tools

198 Jones Day (2023). Green taxonomy developments in Latin America and the Caribbean. https://www.jonesday.com/en/insights/2023/11/green-taxonomy-developments-in-latin-america-and-the-caribbean

199 Scotiabank Global Banking and Markets (2025). Chile's Taxonomy of Environmentally Sustainable Economic Activities (T-MAS). Market Insights. https://www.gbm.scotiabank.com/en/market-insights/article.sustainable-finance.chile-taxonomy.html

200 Eco-Business (2025). Blended finance held steady in 2024, but could suffer impact from USAID shutdown: report. https://www.eco-business.com/news/blended-finance-held-steady-in-2024-but-could-suffer-impact-from-usaid-shutdown-report

201 Convergence Blended Finance (2025). Convergence report finds blended finance market held strong in 2024 (State of Blended Finance 2025). Press release, 21 May 2025. https://www.convergence.finance/news/urVUbSe6NepM9Gzo9KDdt/view

202 Global Donor Platform for Rural Development (2025). Convergence: State of Climate Blended Finance 2025. https://www.donorplatform.org/post/convergence-state-of-climate-blended-finance-2025/

203 BIOFIN / UNDP (2025). UNDP and UNEP launch the Cali Fund at COP16 in Rome. https://biofin.org/news-and-media/undp-and-unep-launch-cali-fund-cop16-rome-heralding-new-era-biodiversity-financing

204 Taskforce on Nature-related Financial Disclosures (2025). TNFD launches next global adoption campaign ahead of COP30 in Belém. https://tnfd.global/tnfd-launches-next-global-adoption-campaign-ahead-of-cop30-in-belem/

205 Taskforce on Nature-related Financial Disclosures (2025). TNFD 2025 Status Report. September 2025. https://www.svca.org.sg/sites/default/files/2025-10/250918_TNFD-Status-Report_DIGITAL.pdf

206 OneStop ESG (2025). TNFD Status Report 2025 and COP30 adoption update. https://onestopesg.com/esg-news/tnfd-status-report-2025?utm_id=574

207 Slaughter and May (2025). Two years on: where is the TNFD now? https://sustainability.slaughterandmay.com/post/102lpsm/two-years-on-where-is-the-tnfd-now

208 Reuters factbox (2024). Which countries have completed debt swaps for nature and climate. As published by KFGO, December 2024. https://kfgo.com/?p=1076172

209 Impact Investor (2024). Ecuador adds to growing pool of debt conversions for nature. 20 December 2024. https://impact-investor.com/?p=24701

210 Swiss Re Institute (2025). sigma 1/2025: Natural catastrophes: insured losses on trend to USD 145 billion in 2025. https://www.swissre.com/institute/research/sigma-research/sigma-2025-01-natural-catastrophes-trend

211 Swiss Re (2026). Wildfires, storms, floods contribute to record 92% of global insured losses in 2025, says Swiss Re Institute. Press release. https://www.swissre.com/press-release/Wildfires-storms-floods-contribute-to-record-92-of-global-insured-losses-in-2025-says-Swiss-Re-Institute/7b39b1a5-b878-4a55-a5ff-bf5aa561a675

212 Global Reinsurance (2026). Swiss Re sigma: protection gap laid bare as Asian cat losses hit USD 65bn. https://www.globalreinsurance.com/home/swiss-re-sigma-protection-gap-laid-bare-as-asian-cat-losses-hit-65bn/1458440.article

213 Insurance Asia News (2026). Non-peak perils show steady rise amid shifting climate patterns (Munich Re natural catastrophe report 2025). https://insuranceasianews.com/non-peak-perils-show-steady-rise-amid-shifting-climate-patterns-munich-res-tobias-grimm/

214 Arab News / AFP (2026). Natural disaster losses worldwide dropped to USD 224 billion in 2025, Munich Re says. https://arabnews.com/node/2629221/world

215 Artemis (2026). Catastrophe bond market records that were broken in 2025. https://www.artemis.bm/news/catastrophe-bond-market-records-2025/

216 UNFCCC / FRLD Secretariat (2025). Start-up phase of the FRLD: Barbados Implementation Modalities. Presentation, September 2025. https://unfccc.int/sites/default/files/resource/FRLD%20-%20PPT_CW2_Startup%20phase%20update%2001_Sept.pdf

217 Daily Tribune (2025). FRLD launches USD 250-M initiative to aid climate-hit developing nations. 15 October 2025. https://tribune.net.ph/2025/10/15/frld-launches-250-m-initiative-to-aid-climate-hit-developing-nations

218 The New Humanitarian (2025). Loss and damage fund opens first call for funding requests. https://www.thenewhumanitarian.org/node/264240

219 IFRS Foundation (2025). ISSB update: adoption of ISSB Standards, jurisdictional profiles and snapshots. World Sustainability Summit, September 2025. https://www.ifrs.org/content/dam/ifrs/events-and-conferences/2025/september/wss/issb-update-leadership-qa.pdf

220 Arab News (2025). S&P affirms Abu Dhabi, RAK ratings on strong fiscal base. https://www.arabnews.pk/node/2602345

221 Observer Research Foundation (2025). Enhancing the interoperability of India's business sustainability reporting with international standards. https://www.orfonline.org/english/research/enhancing-the-interoperability-of-india-s-business-sustainability-reporting-with-international-standards

222 World Bank (2025). Carbon Pricing Dashboard: instruments in operation, status as of 2025. https://carbonpricingdashboard.worldbank.org/

223 World Bank Treasury (2025). Labeled Bond Market Quarterly Newsletter, Q3 2025. https://thedocs.worldbank.org/en/doc/a0b02007cb79cb92aec74b110b61cd98-0340012025/original/Labeled-bond-market-quarterly-newsletter-Q3-2025.pdf

224 Business Standard (2025). S&P raises credit ratings of SBI, HDFC Bank and other firms after sovereign upgrade (India placed in the BBB category with Mexico and Indonesia). https://www.business-standard.com/economy/news/sp-global-upgrades-banks-sbi-hdfc-tata-capital-india-sovereign-rating-bbb-125081600506_1.html

225 S&P Global Ratings (2024). Americas Sovereign Rating Trends 2025. 18 December 2024. https://spglobal.com/ratings/en/research/articles/241218-americas-sovereign-rating-trends-2025-average-credit-quality-hits-highest-point-since-2017-13363169

226 Argaam (2025). What does Saudi Arabia's credit upgrade signal? (S&P rating peers, including China and Japan at A+). https://www.argaam.com/en/article/articledetail/id/1797950

227 Deloitte Thailand (2025). Thailand Taxonomy Phase II in a bird's eye view: scope, impacts and what's next. https://www.deloitte.com/content/dam/assets-zone1/southeast-asia/en/docs/about/2025/thailand-taxonomy-phase2-en.pdf

228 Sustainable Finance Institute Asia (2025). Issuance of sovereign and private sector green and sustainability bonds: lessons from ASEAN. CAREC presentation, 19 May 2025. https://www.carecprogram.org/uploads/S1_Eugene-Wong_SFIA.pdf

229 The Vibes (2025). S&P reaffirms Malaysia's A- sovereign credit rating with stable outlook. 20 September 2025. https://www.thevibes.com/articles/business/113003/sp-reaffirms-malaysias-a-sovereign-credit-rating-with-stable-outlook

230 Bank of Thailand et al. (2025). Joint press release: Publication of Thailand Taxonomy Phase 2. 27 May 2025. https://www.bot.or.th/en/news-and-media/news/news-20250527.html

231 ThaiPublica (2025). S&P affirms Thailand's credit rating at BBB+ with a stable outlook. November 2025. https://thaipublica.org/2025/11/s-and-p-affirms-thailand-bbb-plus-rating-01/

232 World Bank (2022). Colombia: leading the path to sustainability in Latin America. Feature story. https://www.worldbank.org/en/news/feature/2022/08/31/colombia-leading-the-path-to-sustainability-in-latin-america

233 Finance Colombia (2026). S&P lowers Colombia's foreign currency rating to BB- from BB, 8 April 2026. https://www.financecolombia.com/?p=37176

234 S&P Global Ratings (2025). Sustainable bond outlook 2025: Asia-Pacific issuance could hit record high. 24 February 2025. https://spglobal.com/ratings/en/research/articles/250224-sustainability-insights-sustainable-bond-outlook-2025-asia-pacific-issuance-could-hit-record-high-13416002

235 Manila Bulletin (2025). Philippines stays on track for 'A' rating despite short-term dip (S&P affirms BBB+, positive outlook). 27 November 2025. https://mb.com.ph/2025/11/27/philippines-stays-on-track-for-a-rating-despite-short-term-dip

236 Norton Rose Fulbright (2025). ESG regulatory update: Türkiye Climate Law No. 7552 (green taxonomy and ETS provisions). https://www.nortonrosefulbright.com/en/knowledge/publications/e4b725d7/esg

237 Investing.com (2025). Türkiye's 'BB-/B' ratings affirmed at S&P, outlook stable. 28 April 2025. https://ng.investing.com/news/world-news/turkiyes-bbb-ratings-affirmed-at-sp-outlook-stable-despite-economic-pressures-93CH-1885862

238 ENS Africa (2025). Walking the talk on climate action: Kenya's Green Finance Taxonomy (builds on the South African Green Finance Taxonomy). Via Mondaq. https://webiis08.mondaq.com/financial-services/1612588/walking-the-talk-on-climate-action-kenyas-green-finance-taxonomy

239 Climate Change Laws of the World (2021). Egypt: Financial Regulatory Authority Decrees No. 107 and 108. https://www.climate-laws.org/geographies/egypt/policies/financial-regulatory-authority-decrees-no-107-and-108

240 Sustainable Banking and Finance Network (2024). Egypt country profile: sovereign green bond and FRA disclosure decrees. https://data.sbfnetwork.org/taxonomy/term/184

241 Government of Viet Nam (2026). Fitch Ratings lifts Viet Nam's credit rating (records S&P affirmation of BB+ on 11 August 2025). https://en.baochinhphu.vn/fitch-ratings-lifts-viet-nams-credit-rating-to-bbb-111260123092954463.htm

ANNEX D

Glossary and Abbreviations

ACS2	Second Africa Climate Summit, Addis Ababa, September 2025.
Article 6	Provisions of the Paris Agreement for international cooperation, including bilateral transfers (6.2), the Paris Agreement Crediting Mechanism (6.4) and non-market approaches (6.8).
ASEAN+3	The ten ASEAN member states plus China, Japan and Korea.
BEE	Bureau of Energy Efficiency, administrator of India's Carbon Credit Trading Scheme.
Cali Fund	Multilateral fund for benefit-sharing from digital sequence information on genetic resources, launched in 2025.
Catastrophe bond	Insurance-linked security that transfers defined natural catastrophe risk to capital-market investors.
CBAM	EU Carbon Border Adjustment Mechanism, which prices embedded emissions in imports of covered goods.
CCC	Carbon Credit Certificate, the unit of India's carbon market, equal to one tonne of CO2-equivalent.
CCTS	Carbon Credit Trading Scheme, 2023, India's framework for compliance and offset mechanisms.
CSRD / CSDDD	EU Corporate Sustainability Reporting Directive and Corporate Sustainability Due Diligence Directive.
Debt-for-nature conversion	Refinancing of sovereign debt on improved terms, usually with credit enhancement, in exchange for conservation commitments.
Eco Invest Brasil	Brazilian Treasury programme combining blended finance, liquidity and currency hedging to mobilise foreign private capital.
ETS	Emissions trading system.
EuGB	European Green Bond, issued under Regulation (EU) 2023/2631.
FRLD	Fund for responding to Loss and Damage, operationalised through the Barbados Implementation Modalities.
GEI	Greenhouse gas emission intensity: emissions per unit of output.
Greenium	The yield concession investors accept on a green bond relative to a comparable conventional bond.
GSS+	Green, social, sustainability and sustainability-linked debt.
GX-ETS	Japan's Green Transformation emissions trading system, mandatory from fiscal 2026.
IDXCarbon	Indonesia's carbon exchange, operated by the Indonesia Stock Exchange.
ISSB	International Sustainability Standards Board of the IFRS Foundation.
JETP	Just Energy Transition Partnership.
K-ETS	Korea Emissions Trading System.

KMGBF	Kunming-Montreal Global Biodiversity Framework.
MDB	Multilateral development bank.
Mission 300	World Bank and AfDB initiative to connect 300 million Africans to electricity by 2030.
NCQG	New Collective Quantified Goal on climate finance, adopted at COP29.
NGFS	Network of Central Banks and Supervisors for Greening the Financial System.
PACM	Paris Agreement Crediting Mechanism under Article 6.4.
Protection gap	The share of economic losses from catastrophes that is not insured.
SBCE	Brazilian Greenhouse Gas Emissions Trading System.
SGrB	Sovereign Green Bond issued by the Government of India.
Sukuk	Sharia-compliant certificates representing ownership in underlying assets, used as an alternative to conventional bonds.
TFFF	Tropical Forest Forever Facility.
TNFD	Taskforce on Nature-related Financial Disclosures.
TSB	Taxonomia Sustentável Brasileira, the Brazilian Sustainable Taxonomy.

ANNEX E

Data Underlying the Figures

This annex reproduces the values plotted in each figure so that readers can verify and reuse them. Sources are those given beneath each figure; SCRF calculations are identified in the figure notes.

TABLE E.1

Data underlying the figures

Figure	Series	Values
1.1	IEA energy investment, 2025 (USD tn)	Clean energy 2.2; oil, gas and coal 1.1
1.1	BNEF largest transition segments, 2025 (USD bn)	Electrified transport 893; renewable energy 690; grids 483
1.2	Global climate finance (USD bn)	2018: 812; 2019: 900; 2020: 945; 2021: 1,242; 2022: 1,651; 2023: 1,903
2.1	Emissions covered by carbon pricing (%)	First report: 7; 2023 report: 23; 2024 report: 24; 2025 report: 28
2.1	Carbon pricing revenue (USD bn)	2022: about 95; 2023: 104; 2024: 102
2.2	Share of sector emissions priced, 2025 (%)	Power 51; industry 43; mining 15; buildings 13; transport 12; aviation 10; waste 2; agriculture 0
2.3	Allowance prices	EU ETS EUR 65.23 (2024), 74.35 (2025); China CNY 96.02 (2024), 62.36 (2025)
3.1	MDB climate finance to LMICs (USD bn)	2019: 41.5; 2020: 38.0; 2021: 50.7; 2022: 60.7; 2023: 74.7; 2024: 85.1
3.2	MDB climate finance, 2024 (USD bn)	High-income: mitigation 46.5, adaptation 5.0; LMICs: mitigation 58.8, adaptation 26.3; private mobilised 101 and 33
3.3	Flows against needs	Global flows 1.9 vs need 6.3 (USD tn); adaptation flows 26 vs need 310–365 (USD bn)
4.1	Aligned GSS+ issuance, 2025 (USD bn)	Green 653.5; sustainability 217.3; social 141.2; sustainability-linked 14.0
6.1	China green loans, 2025 (RMB tn)	Q1 40.61; Q2 42.39; Q3 43.51; Q4 44.77
6.1	Wind additions, 2025 (GW)	China 120.5; rest of world 44.5 (global 165)
6.2	K-ETS power auction share (%)	2026: 15; 2027: 20; 2028: 30; 2029: 40; 2030: 50
7.1	India installed capacity, 30 Nov 2025 (GW)	Fossil 246.90; solar 132.85; wind 53.99; other non-fossil 75.90
7.2	India additions (GW)	Solar 24.5 (2024), 37.9 (2025); wind 3.4 (2024), 6.3 (2025)
7.3	CCTS obligated entities	Cement 186; pulp and paper 53; chlor-alkali 30; aluminium 13
7.4	Sovereign green bonds (INR crore)	2022-23: 16,000; 2023-24: 20,000; 2024-25: 21,697
8.1	Singapore carbon tax (SGD/t)	2019–23: 5; 2024–25: 25; 2026–27: 45; 2028–30: 50–80
8.2	ASEAN+3 sustainable bonds	Issuance USD 240.6 bn (2024), 275.9 bn (2025); global share 24.0% and 29.8%; EU-20 29.3%
9.1	Gulf indicators	Sustainable sukuk USD 7.9 bn (2024), 11.4 bn (2025); Saudi renewables 12.3 GW connected, 64 GW tendered, 130 GW target
10.1	Africa climate finance (USD bn)	29.5 (2019/20); 43.7 (2021/22); implied need about 190; population share 20%; clean energy investment share 2%
11.1	LAC climate finance (USD bn)	2020: 54; 2023: about 110; 2024: 108; fossil fuel investment 95 vs energy climate finance 43
11.2	LAC thematic share of international issuance (%)	2023: 35; 2024: 27.2; 2025 (January–September): 8.7
12.1	Blended finance (USD bn)	2023: 23.1; 2024: 18.3; five-year average about 17; 2024 climate: 15.5
13.1	TNFD adopters	March 2025: 530+; July 2025: 620+; November 2025: 733+
14.1	Catastrophe losses (USD bn)	2024: insured 137, uninsured 181; 2025: insured 107, uninsured 113
14.2	Catastrophe bonds (USD bn)	Issuance 17.7 (2024), 25.6 (2025); outstanding 49.5 (end-2024), 61.3 (end-2025)

Source: Sources as given beneath each figure.

Sustainable Capital
RESEARCH FOUNDATION

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