FICCI | Centre for SUSTAINABILITY LEADERSHIP

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4th ESG SUMMIT

Unlocking Capital for a Future-Ready Economy

25th March 2026 I Mumbai

Experts' Voice

A compendium of articles



Foreword

As India advances along a sustainable growth pathway, the discourse on Environmental, Social and Governance (ESG) considerations has evolved significantly. The Economic Survey 2025–26 underscores the growing integration of sustainability into India's development strategy, reflecting the country's commitment to balancing economic growth with climate action. What began as a framework for responsible corporate conduct is now actively shaping capital allocation, business strategy and policy frameworks globally.

Advancing these objectives will require unprecedented mobilisation of capital and innovation. Accelerating the energy transition, enabling low-carbon industrial growth and strengthening sustainable supply chains will require collaborative action across governments, financial institutions, corporates and the broader ecosystem.

Recognising the importance of such multi-stakeholder collaboration, FICCI's Centre for Sustainability Leadership has been playing a catalytic role in driving this agenda forward. The Centre has been at the forefront of fostering these conversations and supporting the adoption of sustainable business practices. In recent years, the Centre has created platforms that convene policymakers, regulators, industry leaders and experts to deliberate on emerging priorities, promote innovation and facilitate the flow of capital towards climate-aligned investments.

On the occasion of the 4th edition of the ESG Summit, we are pleased to present The Experts' Voice—a compendium of thought leadership on *Unlocking Capital for a Future-Ready Economy*. The publication brings together perspectives on the role of capital markets and financial institutions in financing the energy transition, innovative approaches to mobilising green finance across supply chains, implications of emerging global climate regulations for Indian businesses, and the broader opportunities sustainability presents for India's economic transformation.

We take this opportunity to thank the Government and regulators for their continued support to FICCI's ESG initiatives. We extend our sincere appreciation to the Founding Members of the FICCI Centre for Sustainability Leadership—Hindustan Unilever Limited and HSBC India—for their continued guidance and support. We also thank our members for their support and valuable contributions to this compendium.

We do hope you will find this publication insightful.

Jyoti Vij
Director General
FICCI

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A Future Ready Economy Needs Independent and Effective Boards

Mr Amit Tandon, Founder & Managing Director, Institutional Investor Advisory Services (IIAS)

At the recent Annual Directors' Conclave, SEBI's chairman, Tuhin Kanta Pandey, delivered his assessment of Indian boards, asking them to swap ceremonial formality for intellectual grit. His central metaphor was apt: companies are ships with CEOs at the helm, but who watches the compass for "ethical fog" and "regulatory icebergs"?

Governance, he argues, is less about ticking boxes and more about steering a corporate "ship" through geopolitical squalls, technological disruption and fickle public opinion.

Despite India's robust regulatory framework - strengthened by the 2013 Companies Act and SEBI's listing regulations, the Chairman identified a troubling gap between structure and spirit.

India's governance foundation is sound, but boards all too often confuse "compliance with culture". Independent directors are do not feel empowered; diversity is counted, not heard. Too many treat governance as mere box-ticking rather than breathing values, sitting as "honorary appointees" rather than genuine stewards of accountability.

Boardrooms should not be comfortable places

As the thrust of Mr Pandey's talk was on what corporate governance must become, he prescribes four key shifts: treat culture as seriously as balance-sheets; recruit independent directors from beyond cozy networks and equip them to dissent; harness technology for real-time risk dashboards; and embrace cognitive diversity to provoke better decisions. "A board that never disagrees is not aligned - it's asleep," he observed. The boardroom, as the governance adage tells us, should not be a comfortable place.

The boardroom of the future, he suggests, should be a learning organisation that earns trust by asking uncomfortable questions. In an era of AI-driven decisions and viral reputational risks, analogue boardroom tools prove inadequate. The real governance test comes not during steady growth but when crises strike. Then, governance is measured not by policy manuals, but by the calibre and courage of those around the table.

Effective boards

Executing on this is key, but there are at least two intractable questions: What makes boards effective? And what constitutes true independence? Are boards with independent chairs more effective than boards where the Chair and CEO roles are combined? Are larger boards more effective or smaller ones? What role does a director's age play in this mix? Their professional qualifications? As David F. Larcker and Brian Tayan observe "(a) cottage industry of correlation-hunting has yielded disappointingly little. Most structural features show no meaningful relationship with corporate outcomes." The authors also highlight the gaps around board practices. How does information flow between management and directors? What distinguishes effective board leadership from ceremonial box-ticking that the Chairman rightly worries about? Boards unfortunately cannot be scrutinized by those sitting outside the boardroom.

Consider the recent case of IndusInd Bank, where the board is believed to have been kept in the dark about accounting shenanigans and their impact on the bank's profitability. This incident also brings focus to oversight and information flow, which differ widely across boards and companies. The Reserve Bank's directive for banks to log time spent on each agenda item is aimed at this, but like giving students a textbook - it doesn't guarantee they'll read or understand it.

Board independence

Another issue, board independence is governance's holy grail. The Companies Act 2013 and Sebi's Listing Obligations and Disclosure Requirements (LODR) regulations both provide detailed definitions of independent directors. The Companies Act defines independent directors by what they are not. They cannot have any material pecuniary relationships or transactions with the company, its promoters, directors, or senior management that could compromise their independence; they cannot have been employed by the company or its associates for the past three financial years; they cannot be a promoter or related to promoters; they cannot have a material pecuniary relationship with the company that constitutes more than 2% of its turnover; they cannot be substantial shareholders defined as 2% or more equity shares; they cannot have close family members in key management positions; they cannot be former employees of the company without a mandatory cooling off period. There are a few other red lines.

SEBI's LODR regulations build on this foundation, outlining the roles and responsibilities of independent directors in listed companies to ensure transparency and protect minority shareholders' interests.

Regulations specify that at least one in three directors on the board (and in some circumstances, one in two) must be independent, ensuring meaningful oversight.

Despite the reliance on independent directors to look out for minority shareholders' interests, most legal frameworks do not mandate that independent directors on public companies be directly elected by minority shareholders themselves - although countries including Chile, Mexico, Italy, Sweden and Turkey are attempting to address this.

Our own Ministry of Corporate Affairs seeks to address this through maintaining a directors database cantered on an online proficiency self-assessment test. These tests fundamentally misunderstand independence by conflating regulatory knowledge with independent judgment. This approach ignores boardroom psychology, social pressures, and relationship dynamics that truly determine whether directors can challenge management effectively. Independence requires courage and behavioural integrity that cannot be tested online, while the system fails to address how directors are selected and the subtle forces that compromise genuine oversight.

Howsoever you select an independent director, the processes attract criticism. To paraphrase from another context: if independent directors did not exist, we would have to invent them. And as another governance adage reminds us, independence is in the mind - it is the willingness to challenge, question, and dissent when necessary.

These gaps matter enormously. As the SEBI Chairman observed, governance failures often stem not from inadequate policies but from human failings around the boardroom. Until we move beyond structural bean-counting toward understanding the practices and psychology that drive board behaviour, corporates will find it challenging to unlock capital for a future-ready economy.

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A modified version of this article under the title 'Corporate Boards: The Governance Compass' was published in Business Standard in its print edition dated 22 August 2026.

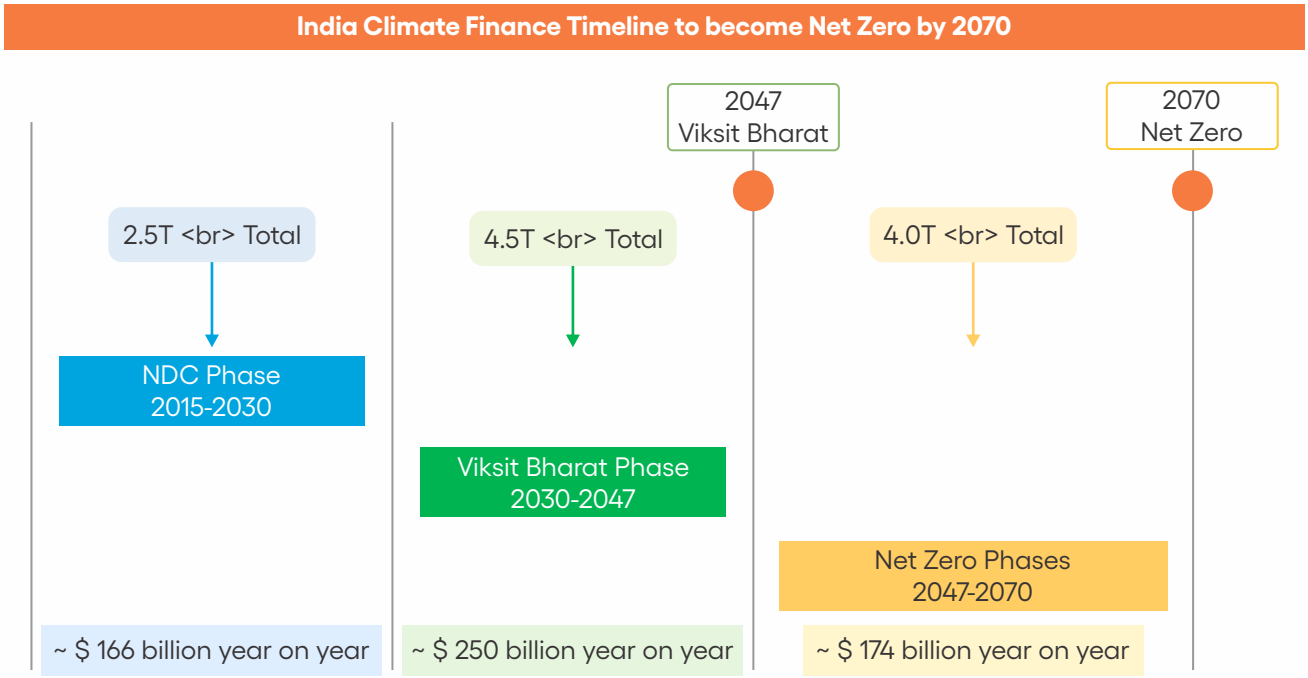
Building India's Green Equity Market: How Capital Markets Can Finance The Next Phase Of India's Energy Transition

Mr Mukul Bilayia, Chief Manager, National Stock Exchange and
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India's journey toward a Net Zero economy by 2070 will require one of the largest financial transformations in the country's history. Over the next five decades, India must transform its energy systems, industrial production, transport networks, and urban infrastructure to reduce emissions while continuing to grow economically.

But the biggest challenge is not only technological. It is financial.

Recent estimates as shown in the figure suggest that India will require nearly USD 10.9 trillion in climate-related investment to reach its net-zero target.



This includes investments in renewable energy, electric mobility, green hydrogen, climate-resilient infrastructure, and low-carbon manufacturing.

Public funds alone cannot finance this transition. Governments can create policy direction and initial incentives, but the scale of investment required means private capital markets must play the leading role.

Over the past decade, India has already taken meaningful steps in building climate finance through its financial markets. Debt markets have begun supporting sustainability-linked investments, municipal bonds are slowly gaining traction, and investors are increasingly looking at climate-aligned sectors.

However, an equally powerful source of capital remains underdeveloped: green equity markets.

The Evolution of Sustainable Finance in India

India's capital markets have gradually started supporting sustainability-focused investments, particularly through debt instruments.

Through the SEBI-regulated exchanges, ESG-focused debt securities have mobilized over ₹11,023 crore since 2017. These issuances include several green bonds that financed renewable energy, energy efficiency projects, and sustainable infrastructure.

One notable development has been the rise of green municipal bonds. Cities such as Surat and Nashik have raised capital through exchange-listed municipal bonds to fund urban infrastructure projects. These instruments demonstrate how transparent capital market platforms can help channel funding toward projects that directly improve environmental sustainability and urban resilience.

Alongside green bonds, India's municipal bond market itself has slowly matured. Over the past nine years, around ₹4,540 crore has been raised through 31 municipal bond issuances by 22 municipal corporations through exchange platforms.

While this may appear small compared to global markets, it marks an important structural shift. Municipalities that once depended entirely on government transfers are now beginning to access market-based financing mechanisms to fund water systems, waste management, and urban infrastructure.

Research on climate finance repeatedly highlights the importance of capital markets in enabling this transition[1] [2]. Studies show that well-developed financial markets help lower the cost of capital and accelerate investments in renewable energy and climate technologies.

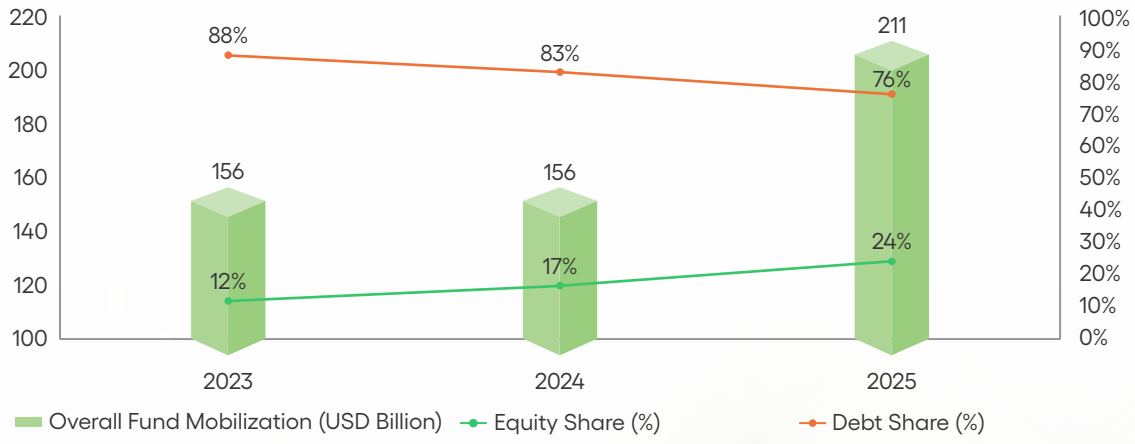
India's experience with green bonds and municipal bonds shows that capital markets can play this role effectively.

Yet an important piece of the puzzle is still missing.

The Missing Piece: Green Equity

From the overall fund mobilization statistics for last three Calendar years, it has been observed that there is a rise in equity share from 12% to 24% (2X) which clearly shows the investor increasing confidence in the IPO market.

Fund Mobilization by SEBI Regulated Exchange



[1] *Li, B. (2023). The role of financial markets in the energy transition: An analysis of investment trends and opportunities in renewable energy and clean technology. Environmental Science and Pollution Research.* https://link.springer.com/article/10.1007/s11356-023-29014-6

[2] *Polzin, F., Sanders, M., & Täube, F. (2017). A diverse and resilient financial system for investments in the energy transition. Current Opinion in Environmental Sustainability.* https://research-portal.uu.nl/files/37909994/1.pdf

While sustainable debt markets have grown steadily, equity markets have not yet fully emerged as a channel for climate finance.

Equity capital is critical because many climate solutions such as renewable energy platforms, battery technologies, electric mobility, and green hydrogen require long-term patient capital. Unlike debt financing, which expects predictable cash flows, equity investors are willing to support innovation and growth over longer periods.

Encouragingly, early signs of this shift are already visible in India's primary markets.

In calendar year 2024, about 16% of IPO proceeds approximately ₹27,000 crore (around USD 3.2 billion) raised from Mainboard and SME listings on NSE were directed toward sectors supporting the energy transition and sustainability.

In 2025, this figure is estimated to rise further to ₹29,000 crore (around USD 3.5 billion).

These investments span sectors such as:

- Renewable energy generation
- Electric mobility and charging infrastructure
- Energy storage technologies
- Clean manufacturing
- Sustainable infrastructure

This trend suggests that green equity is already emerging organically within India's capital markets. But for this market to grow meaningfully, investors need clarity. They need to know which companies genuinely contribute to sustainability and which are still transitioning. Without a clear framework, it becomes difficult for investors to differentiate between companies making real progress and those merely using sustainability as a marketing narrative.

Creating a Green Equity Pathway

To unlock the potential of green equity markets, a voluntary **Green Equity Pathway** can be introduced for companies listing on the **SEBI Regulated Exchanges Mainboard and SME platforms**.

The idea is simple.

Companies that raise capital through public markets can choose to classify themselves under a transparent sustainability framework that clearly shows how their business contributes to environmental goals.

Importantly, this framework can be implemented **without changing existing regulations.**

The exchange already has the authority to introduce voluntary disclosure and governance standards under:

- **SEBI LODR Regulation 27(1)** and **Schedule II Part E,** which allow exchanges to prescribe voluntary discretionary requirements for listed companies.
- **SEBI ICDR Regulations (2018),** which allow exchanges to apply additional prudential norms when reviewing SME listing documents. By using these existing provisions, a green equity classification system can be introduced quickly and efficiently, without the long process of regulatory amendments.

A Simple Three-Shade Classification

To make the framework easy to understand for investors, companies can be grouped into three categories based on the share of their business linked to environmentally sustainable activities.

Dark Green: Dark Green companies are those whose core business is already fully aligned with sustainability. These companies generate at least 75% of their revenues from green activities and deploy all fresh capital raised through public offerings toward environmentally beneficial projects.

Examples include:

- Renewable energy companies
- Electric vehicle manufacturers
- Green hydrogen producers

These companies represent the pure-play climate solutions sector.

Light Green: Green companies may have diversified business models but still derive a significant portion of their revenues at least 50% from sustainable activities. They also commit that a substantial share of capital raised through public markets will be invested in green projects.

Examples include:

- Utilities expanding renewable capacity
- Sustainable infrastructure developers
- Companies investing heavily in clean technologies

Orange (Transition): Many industries cannot become green immediately. Heavy sectors such as steel, cement, chemicals, and conventional energy are critical to economic development but must gradually reduce their emissions.

The **Orange category** recognizes this reality.

Companies in this category may currently derive around 25% of revenues from green activities, but they commit to investing significantly in decarbonization and publish a clear transition roadmap. This category ensures that the framework supports real economic transition rather than excluding traditional industries.

Ensuring Credibility

For any sustainable finance framework to work, **credibility is essential.**

Investors must trust that the sustainability claims made by companies are genuine.

India already has a strong ecosystem of ESG verification agencies that can provide independent assessments. These include SEBI-registered ESG rating providers and internationally recognized reviewers such as DNV, Bureau Veritas, and Climate Bonds Initiative-accredited verifiers, along with major professional firms such as KPMG, EY, PwC, and Deloitte.

Companies participating in the Green Equity Pathway will publish an **annual verified green report** explaining:

- how much revenue comes from green activities
- how IPO proceeds are being used
- progress toward sustainability targets

This transparency would help build **investor confidence and reduce the risk of greenwashing.**

A Gradual Implementation Approach

The Green Equity Pathway can be introduced gradually to ensure smooth adoption.

The first phase can begin with voluntary adoption by Mainboard companies, allowing the market to test the framework and build investor familiarity.

In the following years, exchanges can conduct awareness programs for SMEs, merchant bankers, and institutional investors.

Once the framework matures, it can be extended to the Emerge platforms, enabling smaller growth companies to raise capital for sustainability-linked businesses.

This gradual approach ensures that companies are encouraged to participate rather than burdened by new compliance requirements.

Why This Matters for India

India's transition to a low-carbon economy will require massive investment in new technologies, infrastructure, and industries.

Capital markets are uniquely positioned to provide the long-term financing required for this transformation.

Equity markets, in particular, play a critical role because they:

- provide long-term risk capital
- support innovation and emerging industries
- attract global institutional investors
- improve transparency and governance

Research consistently shows that countries with deeper capital markets are better able to finance large structural transitions such as the shift to renewable energy[3][4]. India already has one of the largest and most dynamic equity markets in the world. By aligning this market with sustainability goals, the country can unlock a powerful new channel for climate finance.

A Market Waiting to Be Built

India's climate transition will not be financed by one instrument alone. It will require a combination of public funding, development finance, green bonds, municipal finance, and private investment. But as the experience of the past decade shows, capital markets have the ability to scale solutions quickly once the right framework is in place.

The emergence of green bonds demonstrated this. Municipal bonds are beginning to do the same for urban infrastructure.

The next step is to enable green equity markets.

By creating a voluntary, transparent Green Equity Pathway, Indian exchanges can help investors identify sustainability-aligned companies, channel capital toward climate solutions, and support businesses that are transitioning toward cleaner operations.

In doing so, capital markets can become not just a place where companies raise money, but a powerful engine for financing India's journey toward a sustainable and resilient economy.

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[3] *Hall, S., Foxon, T., & Bolton, R. (2017). Investing in low-carbon transitions: energy finance as an adaptive market. Climate Policy.* https://www.tandfonline.com/doi/pdf/10.1080/14693062.2015.1094731

[4] *Best, R. (2017). Switching towards renewable energy: The effects of financial capital on energy transitions. Energy Economics.* https://openresearch-repository.anu.edu.au/bitstreams/ab3b78fc-c684-4ebf-ae69-7e8a261c25be/download

Carbon At The Border: How EU, UK and Australian Measures Will Reshape The Strategy for Indian Exporters

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I. Introduction

Global capital is increasingly favouring businesses and jurisdictions that demonstrate credible low-carbon transition pathways. Capital flows for decarbonisation are being guided by tightening regulatory measures that make decarbonisation an essential condition for market access. One of the most important policy tools is the rapid emergence of border carbon adjustment (BCA) measures, which have now moved from concept to reality. Sitting at the intersection of climate policy, trade regulation and finance, these measures will increasingly influence the competitiveness and bankability of Indian exporters.

Three key jurisdictions are setting the pace:

i. The European Union's **(EU)** Carbon Border Adjustment Mechanism **(CBAM),** already in its definitive phase;

ii. The United Kingdom's **(UK)** proposed CBAM, which mirrors many EU design elements and is set to enter its definitive phase from 1 January 2027;

iii. Australia's evolving work on carbon leakage and competitiveness, which is moving the policy debate towards the imposition of a BCA measure.

These are not simply environmental instruments or "green taxes". They operate as non tariff, capital shaping measures that influence market access, cost of capital and investor perception for Indian exporters. How Indian businesses and policymakers respond will go a long way in determining whether carbon at the border becomes a drag on growth or a catalyst for upgrading production and unlocking new pools of sustainability linked finance.

II. Understanding Carbon Border Measures

Under the Kyoto Protocol, and subsequent international climate agreements, several countries, including India, have set their own decarbonisation targets. The EU aims to become the first carbon-neutral continent by 2050, the UK has committed to reduce emissions by 68% by 2030 (from 1990 levels) and to reach net-zero by 2050, and Australia has also committed to becoming carbon neutral by 2050.

An important part of the decarbonization strategy for countries is establishing their own Emissions Trading Systems ("ETS"). These systems require domestic industries in carbon intensive sectors to pay for their emissions. This leads to companies being incentivised to reduce their emissions as increase in emissions leads to a carbon price. However, it also contributes to carbon leakage.

Understanding Carbon Leakage: While ETS frameworks cut emissions within countries, they also make production of covered goods more expensive. Increased carbon prices at home incentivise businesses to relocate production to jurisdictions with less stringent environmental rules and encourages downstream industries to import cheaper, and carbon-intensive goods.

What are border carbon adjustment measures? BCA measures are a response to the concern of carbon leakage. They are brought in to curb the risk that ambitious climate policy in one jurisdiction will merely

push emissions intensive industries to countries with weaker rules, undermining both competitiveness and global emissions reductions. To address this, countries with internal carbon pricing instruments are extending the coverage to imported products.

In simple terms, a border measure links the **embedded emissions** of an imported product to a **price signal,** usually reflecting the prevailing carbon price or equivalent cost faced by domestic producers. Importers are required to:

i. Measure or estimate the greenhouse gas emissions associated with the production of the imported good;

ii. Report this information to authorities in the importing jurisdiction; and

iii. Purchase certificates, pay a levy or demonstrate equivalent carbon costs paid in the country of origin.

III. Existing Border Carbon Adjustment Measures

The EU's CBAM currently covers sectors such as iron and steel, aluminium, cement, fertilisers, electricity and hydrogen. Its definitive phase began on 1 January 2026. Importers are now required to submit verified details of the carbon emissions of covered imported products and pay a carbon price based on these emissions. Over the next few years, EU plans to expand the scope of CBAM so that it eventually covers all products included under the EU ETS.

The UK has announced its plan to introduce a similar CBAM regime from 2027. It would cover iron and steel, aluminium, cement, fertilisers, and hydrogen. The underlying logic of UK CBAM is aligned with that of the EU: protect domestic decarbonisation efforts, avoid leakage and level the playing field between domestic and foreign producers.

Australia, meanwhile, is actively reassessing how its domestic carbon pricing and safeguard mechanisms affect the competitiveness of trade-exposed industries. While a formal border carbon adjustment has not yet been introduced, the government's recently released Carbon Leakage Review Report recommends its imposition. The review proposes an initial focus on cement and clinker, with the potential phased expansion to lime, hydrogen, ammonia, iron and steel, and glass products.

The below table summarises key aspects of BCA measures in these countries:

	EU CBAM	UK CBAM	Australia Border Carbon Measure
Domestic Carbon Market Design	Cap And Trade System	Cap and trade System	Baseline and credit system
Link to Domestic Carbon Price	Explicitly linked to EU ETS. CBAM certificates are linked to the EU ETS allowance price.	CBAM rates will be set in reference to the UK's primary carbon pricing mechanism, the UK ETS.	Liability will be linked to safeguard compliance cost in Australia.
Sectors Covered	Iron and Steel Aluminium Fertilizers Hydrogen Cement Electricity	Iron and Steel Aluminium Fertilizers Hydrogen Cement Initially Glass and Ceramics Sector were also supposed to	Initially it has been recommended only for cement and clinker.

	EU CBAM	UK CBAM	Australia Border Carbon Measure
Emissions Covered	Direct emissions for iron and steel, and aluminium products. Both Direct and indirect emissions for other sectors like fertilizers and cement.	Initially direct emissions. Indirect emissions are delayed in the UK until 2029 at the earliest.	Direct emissions
Timeline	Entered its definitive phase from 1 January 2026	It should become operationalised from 1 January 2027	No BCA yet; however, a phased import-only BCA for selected commodities has been recommended.
Downstream Extension	Proposed to be extended to downstream products from 2028	Review scheduled for 2027.	Later inclusions can include products like lime, hydrogen, ammonia and derivatives, steel and iron, glass once coverage and design complexities are resolved.
Liable person	Importer of CBAM goods	Importer of CBAM goods	Importer of CBAM goods

India has also launched its own Carbon Credit Trading Scheme (CCTS), but its framework differs significantly from the models in the EU, UK and even Australia. The CCTS is built on an emission-intensity target system, under which companies face performance benchmarks rather than an absolute cap on total emissions. These differences in market design raise the risk that Indian exporters could, in effect, pay twice for the same tonne of emissions - once under the CCTS and again at the border through CBAM-type charges. Until India and its trading partners reconcile these approaches, exporters will need to navigate both regimes and factor the combined cost into their competitiveness and investment plans.

For Indian businesses, the signal is clear: embedded carbon is becoming a tradable attribute of every product that crosses borders. It must be measured, verified and, increasingly, priced.

IV. Why This Matters for Indian Exporters and for Capital

For many Indian exporters, the first instinct is to view BCA measures as one more non tariff barrier to market access. However, they also act as a lens through which global buyers, banks and investors evaluate long-term risk.

i. **Market access and contractual risk.** Exporters to the EU and UK in covered sectors will face higher landed costs if their emissions performance lags that of competitors or specified benchmarks. Over time, overseas buyers will consciously re route their sourcing towards suppliers with lower embedded emissions to minimise CBAM liabilities.

ii. **Signal to capital providers.** Banks, export credit agencies and funds are under pressure to align portfolios with climate goals. Unmanaged carbon price risk, or the absence of credible decarbonisation plans, is now treated as a material credit and reputational risk. This can translate into a higher cost of capital, and tighter covenants.

iii. **Opportunity for leaders.** The flip side is equally important. Exporters that invest early in emissions measurement, third party verification and process improvements position themselves as preferred counterparties. For such firms, carbon border regimes can become a *badge of readiness* that helps secure long term offtake contracts, strategic alliances and sustainability linked financing.

V. Turning a Non Tariff Barrier into a Capital Catalyst

To convert risk into opportunity, Indian companies and policymakers must consciously reframe carbon border measures as a catalyst for mobilising capital into decarbonisation, rather than treating them purely as an external cost imposed by trading partners.

i. **Internal carbon pricing and risk assessment.** Introducing an internal "shadow price" of carbon allows companies to test the resilience of projects and export strategies against plausible CBAM type costs. This disciplines capital allocation and helps prioritise investments that will remain competitive in a carbon constrained world.

ii. **Strengthening measurement, reporting and verification (MRV).** Product level emissions data, which is credible, auditable and updated, will be central to compliance. Building MRV systems, engaging suppliers and investing in data infrastructure are, therefore, prerequisites for continued access to premium markets and high quality capital.

iii. **Using disclosure to unlock capital.** Robust carbon accounting and transparent disclosure can significantly improve ESG scores and climate risk assessments. This, in turn, opens the door to sustainability linked loans, transition bonds and climate funds that are actively seeking investable decarbonisation stories in emerging markets like India.

VI. Conclusion

Carbon at the border is no longer just a distant policy experiment; it is a durable feature of the trading system that will increasingly shape both market access and the cost of capital. For Indian exporters, the strategic question is how quickly they can anticipate and internalise these signals. Businesses that invest early in credible emissions data, operational efficiency and transition-aligned financing structures will not only manage compliance risk but also differentiate themselves in the eyes of global buyers and investors.

CBAM and Green Finance Opportunity for Indian Industry

Mr Ribhu Deo, Sustainability Consultant and Lead in Operations and Business Development, EKI Energy Services Ltd

The European Union (EU) has enforced the Carbon Border Adjustment Mechanisms (CBAM) to address the carbon leakage, which began its "Definitive Period" from 1st Jan 2026. On similar lines, the United Kingdom (UK) has also put together its own UK-CBAM starting 1st Jan 2027. This changes the world trade patterns, economy, and global climate policy in a significant way. Previously, putting a price on carbon emissions through regulatory measures was localized such as domestic Emissions Trading Systems (ETS). With the introduction of CBAM, the carbon intensity of industrial production has become a direct factor in international market access and export competitiveness. It creates considerable financial risks for exporters from emerging economies, and thus makes the need for industrial decarbonization urgent and imminent. But transition pathways for hard-to-abate sectors like iron and steel, cement, aluminium etc require massive capital expenditure (CAPEX) at scale.

This article analyzes how the EU and UK CBAM rules and MRV requirements affect the Indian exporters and explores the green financing mechanisms that can be used as a strategic tool to fund the industrial decarbonization for hard-to-abate sectors by aligning the verified embedded emissions data with sustainability linked KPIs for Sustainability-Linked Loans (SLLs), Green, Social, and Sustainability Bonds (GSSB), and Deep-Tier Supply Chain Finance (DTSCF) programs.

1. Structure of Global Carbon Border Adjustments

In order to understand the scale of the financial risks for exporters around the world, we must look at the EU and UK border adjustment mechanisms, which are although different but similar regulatory structures. Both aim to stop carbon leakage by bringing parity in the carbon price for goods produced in their own jurisdiction and goods imported from other countries. Still, they are quite different in how they are set up.

1.1 EU-CBAM Definitive Phase

The EU-CBAM entered its final compliance phase on January 1, 2026 marking the end of the 2023-2025 transitional reporting period (European Commission, n.d.-a). The mechanism is in place for six high-emitting industries and are thought to be the most likely to leak carbon. The industrials sectors being cement, iron and steel, aluminum, fertilizers, electricity, and hydrogen. The implementation of the definitive phase is governed by a comprehensive set of eleven legislative acts and thirteen supporting materials, and influenced recently by the "Omnibus" simplification package. (ICAP, 2026) (Evans et al., 2020).

Under the definitive regime, the importers of these goods (or CBAM Goods) must report the emissions that are embedded (ie. from input material or precursor production and facility level emissions from exported material production) in the goods and give up a certain number of CBAM certificates each year. The first CBAM certificate surrender deadline is set for September 30, 2027, and it covers all of the emissions from 2026(European Commission, n.d.-a) (Dolphin & Ferrucci, 2025). The EU Emissions Trading System (ETS) ties the financial price of these certificates to the clearance price of ETS Allowances (EUAs). The prices of certificates for 2026 are based on the quarterly average of EU Allowance (EUA) auction clearing prices. This ensures that market volatility is introduced slowly. But starting on January 1, 2027, this will change to a much more dynamic weekly average calculation(Banerjee, n.d.) (Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 Establishing a System for Greenhouse Gas Emission Allowance Trading within the Union and Amending Council Directive 96/61/EC (Text with EEA Relevance), 2024).

One of the major changes from the Transition period (Oct 2023- Dec 2025) to the Definitive phase has been the mandatory requirement of primary MRV data. The actual embedded emissions for the CBAM goods must be verified by an EU-accredited verifier. Earlier, the transitional default intensities based on global averages were previously permitted during the 2023-2025 period, Now, the Commission has introduced new country and product-specific default emission values for all CBAM-covered goods(*Annex to IA Default Values.Docx,* n.d.). In order to disincentivize reporting of default values and to incentivize exporters to submit actual installation-level data, the regulation imposes a highly punitive "mark-up" mechanism. Most newly established default values are subject to an adjustment of 10% in 2026, 20% in 2027, and 30% from 2028 onwards with the exception being the fertilizer sector where default values increase by only 1% annually(European Commission, n.d.-a) (European Commission, n.d.-b). Essentially, it is financially disadvantageous to report default emissions of the CBAM goods because they are set at a higher than industry average.

Under Omnibus package, a *de minimis threshold* was officially established, which exempted importers bringing in less than 50 tonnes of covered goods per year from CBAM requirements. Thus excluding 90% of individual, small-scale importers while still capturing 99% of embedded carbon emissions(*ACEA_Position_CBAM_simplification-.Pdf,* n.d.) .

1.2 UK CBAM Framework

Similar to the EU, the United Kingdom has drafted the structure for its own border adjustment mechanism, ready for plunged implementation on January 1, 2027(EY Global, n.d.) (Gov.UK, n.d.-b). The UK framework exhibits some noteworthy deviations in sectoral scope, emissions coverage, and its timelines than from that of EU's. The UK CBAM will initially apply to aluminium, cement, fertilizers, hydrogen, and iron and steel (Gov.UK, n.d.-b). Glass and ceramics, which were initially proposed for inclusion, have been excluded from the 2027 launch.

The UK mechanism focuses exclusively on direct emissions embodied in imported goods and relevant precursor goods further up the value chain. The inclusion of indirect emissions (primarily electricity consumption) has deliberately been delayed until at least 2029. The UK has established a financial minimum threshold for liable importers. UK CBAM mandates registration with HM Revenue and Customs (HMRC) only if the value of CBAM imports exceeds £50,000 over a 12-month rolling period(Gov.UK, n.d.-a).

With regards to verification, UK importers have the option to report embedded emissions using either independently verified actual emissions data or government-published default values. The product-specific default values are expected to be published ahead of 2027. The UK CBAM certificate will directly reflect the effective carbon price faced by domestic producers under the UK ETS and the Carbon Price Support to ensure parity. The first reporting period will be annual, covering 2027, with the carbon tax due by May 2028, before shifting to a quarterly cycle.

2. Financial Risks and Macroeconomic Impacts on Exporters

The implementation of these mechanisms attempts to internalize and territorialize the cost of carbon and intends to project domestic carbon tax onto upstream supply chains. The direct financial implications for exporting nations are profound. Early analysis indicates that while the direct impact on EU countries overall trade may be small, adding 0.1 percent to the value of aggregate EU imports, the targeted sectoral consequences are massive(Dolphin & Ferrucci, 2025). European imports for the CBAM goods are estimated to decline in the coming decade. The expected export decline could be 4% for aluminum, 12% for iron and steel, 15% for cement, and an astounding 26% for fertilizers(*CBAM_impacts_and_opportunities,* n.d.).

2.1 Exposure of the Indian Industrial Sector

India serves as a highlighting case study to understand the structural risks posed by border carbon adjustments. As the world's second-largest producer of crude steel, with annual manufacturing of 125.32 million tonnes in FY23, India is deeply integrated into global base metal supply chains(*CBAM_impacts_and_opportunities,* n.d.). Over the past decade, nearly 25% of India's global steel exports were destined for the European Union. This makes the sector highly sensitive to European regulatory shifts(*Green Steel Report September 2023,* n.d.).

The risks from CBAM arise due to the production route of Indian steel. The Indian steel industry operates with an average carbon intensity of 2.5 tonnes of CO2 equivalent per tonne of crude steel (tCO2/tcs), which is substantially higher than the global average of 2.18 tCO2/tcs (*ICRA,* n.d.) (World Steel Association, n.d.). The steel production is heavily reliant on fossil fuels as both a reducing agent and an energy source. Approximately 43% of Indian steel is produced via the Blast Furnace-Basic Oxygen Furnace (BF-BOF) route using metallurgical coke, while another 26% relies on Direct Reduced Iron (DRI) and Induction Furnaces (IF) which utilized highly polluting non-coking coal(*Green Steel Report September 2023,* n.d.). The utilization of high-ash domestic coal and high-alumina iron ore further reduces the thermal energy efficiency, and thus elevating the carbon footprint.

The coupling of this high emission intensity with the EU CBAM certificate pricing creates a serious financial liability. A comprehensive report by the Federation of Indian Chambers of Commerce & Industry (FICCI) forecasts that the Indian steel and aluminum sectors face an unprecedented export tax burden ranging from 20% to 35% upon the full phase-in of the European tariff(FICCI, n.d.). Specifically for steel shipments to Europe, producers have been warned that they may face cumulative duties ranging from $102 to $119 per tonne over the next decade. Producers are forced into a binary economic choice. Either absorb the massive carbon tariff and suffer total margin collapse, or deploy unprecedented CAPEX to decarbonize production and aggressively reduce specific embedded emissions.

2.2 Decarbonization CAPEX and the Threat of Carbon Lock-In

The transition from conventional BF-BOF or coal-based DRI to low-carbon pathways requires high capital deployments at an industrial scale. It is estimated that India alone requires approximately $467 billion in additional climate finance between 2022 and 2030 to decarbonize its four key CO2 emitting sectors (power, steel, cement, and transport), This translates to an annual average CAPEX requirement of $54 billion(Raj & Mohan, n.d.). Globally, the Organization for Economic Co-operation and Development (OECD) estimates that annual investment in net-zero-aligned production plants for steel, cement, aluminum, and chemicals must increase from an meagre $15 billion today to at least $70 billion by 2030(*Financing Industrial Decarbonization,* n.d.). For the global steel sector, an additional annual investment of $8 billion to $11 billion is required to scale net-zero compliant technologies to meet the anticipated demand of low carbon steel.

These figures reveal a systemic bottleneck. The capital required for deep industrial decarbonization is far higher than balance sheet reserves of producers. High CAPEX is required for entirely new advanced furnaces, massive grid electrification, dedicated renewable energy generation assets, green hydrogen electrolysis systems, and Carbon Capture, Utilization, and Storage (CCUS) infrastructure (B. D. B., 2025). Coordinated investments across the steel value chain would be required.

This urgency is amplified by the risk of "carbon lock-in". In India, 92% of the planned steel capacity expansion growing from 180 million tonnes to 300 million tonnes is not yet built(Trivedi & Vishwanathan, n.d.). Steel plants typically operate for three to four decades. If these new plants are constructed using conventional BF-BOS, coal-heavy technologies due to lack of transition finance, the resulting carbon emissions will be locked in until 2060 or 2070. This can completely jeopardize India's 2070 net-zero goals and permanently expose the exports to EU and UK border taxes. Therefore, early and massive financial intervention is required immediately to change the technological trajectory of emerging market capacity expansion.

2.3 MRV as strategic asset

The challenge of financing this massive CAPEX requirement has been hindered by severe information asymmetry. Sustainable finance markets have struggled with "greenwashing" concerns and the distinct lack of standardized and auditable metrics to assess decarbonization at the facility level. The strict and rigit Monitoring, Reporting, and Verification (MRV) requirements mandated by the EU and UK CBAM regulations are inadvertently, but profoundly, solving this issue.

To avoid the punitive 10% to 30% mark-ups applied to default values under the EU CBAM, exporters are legally compelled to implement precise, installation-level monitoring methodologies. The EU's calculation methodology requires highly granular data. For most of the steel production routes, a carbon mass balance method needs to be deployed which tracks the total carbon entering a production system versus the carbon emitted, or output in the final product (*CBAM.Pdf,* n.d.). This complex accounting process also requires tracking specific upstream precursor goods such as isolating hydrogen and ammonia as 100% inputs in fertilizer production, or tracing sintered ore and crude steel through the metallurgical value chain. Exporters need to invest in internal data management systems, integrate carbon pricing into strategic planning. They need coordinated efforts across legal, finance, operations, and environmental teams at industry, corporate, and facility level(WEF, 2025).

Once an exporter establishes the Monitoring Methodology Document (MMD) as specified in the Annex to the to monitor, report, and independently verify these embedded emissions for European customs authorities, they suddenly possess the exact and reliable data required by global capital markets for advanced sustainable finance instruments(*Annex to Implementing Act on Calculation Methodlogy,* n.d.). The verified, product-level carbon intensity metric transitions for regulatory compliance becomes a highly bankable corporate asset. Without this comparable view of carbon intensity at the facility level, capital cannot reliably flow to top decarbonization opportunities.

2.4 Capitalizing on MRV through Sustainability-Linked Loans (SLLs) and Margin Ratchets

The most direct and immediate application of CBAM data is in the structuring of Sustainability-Linked Loans (SLLs). Unlike conventional Green Bonds or Green Loans, which are strictly ring-fenced to fund specific environmental projects (like building a solar farm or installing pollution control measures), SLLs provide entirely flexible capital for general corporate purposes(RBS International, n.d.) for the use of proceeds. One of the key characteristics of an SLL is the conditionality of the cost of capital. The loan's interest rate is linked to the borrower's achievement of predefined, measurable Sustainability Performance Targets (SPTs) assessed against Key Performance Indicators (KPIs)(*Guidelines on Green and SLLs,* n.d.).

The CBAM regulatory pressure directly feeds the SLL ecosystem by solving its primary historical vulnerability. In the nascent stages of the SLL market, the structures were criticized for utilizing unambitious or internally opaque KPIs. If and once CBAM's verified Specific Embedded Emissions (SEE) are treated as core KPI, the credibility of the SLL is mathematically guaranteed. It satisfies guidelines such as the Loan Market Association's (LMA) Sustainability-Linked Loan Principles (SLLP) and the ICMA guidelines (ICMA, n.d.) (*LMA SustainabilityLinkedLoanPrinciples,* n.d.).

These loans feature margin ratchets that operate as a highly effective financial feedback loop (Glennon, 2023). If a heavy industrial manufacturer successfully reduces the specific embedded emissions of its exported CBAM goods and lowers its future CBAM tax liability at the European border, it triggers a "step-down" in the SLL margin, This can result in active reduction of its interest rate and debt servicing costs(Colfer, n.d.). On the other hand, a failure to meet the decarbonization trajectory can trigger a "step-up" penalty, and can increase the borrowing costs.

Investments in energy efficiency and low-carbon technologies can reduce border tariffs and service costs on corporate debt. The market for these instruments has proven remarkably resilient and

substantial despite broader economic headwinds. The value of SLLs increased to $610 billion globally in 2024, an increase of approximately 10% from 2023(BBVA CIB, n.d.). Financial institutions like the Nordic Investment Bank (NIB) utilize frameworks like the Mandate Rating Framework to specifically target SLLs toward hard-to-abate sectors where operational transitions drive immense environmental impact (*Nib-Mrf-Summary-20250909.Pdf,* n.d.).

3. Transition Finance Frameworks and Green Bonds (GSSB)

The public debt markets offer a variety of financing options, particularly through Green, Social, Sustainability, and Sustainability-Linked Bonds (GSSB). The International Capital Market Association (ICMA) has established guidelines, such as the Sustainability-Linked Bond Principles (SLBP), which provide detailed frameworks for KPI calibration and mandate that post-issuance verification of the issuer's performance against targets be made publicly available (ICMA, n.d.).

For hard-to-abate sectors like steel and cement, standard "green" financing is often inaccessible. The required technologies for these industries such as CCUS, blast furnace retrofits, or coal-to-gas transition usually do not meet the definitions of deep-green taxonomies(*HSBC Global Research,* n.d.). To address this gap, the global financial sector has developed specialized Transition Finance frameworks to funnel capital into these high-emitting sectors that are committed to decarbonization.

The Glasgow Financial Alliance for Net Zero (GFANZ) recently released technical guidelines aimed at expanding transition finance to aid decarbonization efforts (*GFANZ Recommendations and Guidance,* n.d.). These guidelines underscore the shortcomings of current methods that rely exclusively on historical performance and fixed datasets. GFANZ advocates for a move toward metrics that look ahead, specifically tailored to gauge the decarbonization potential of high-emission sectors. This assessment hinges on the borrower's commitment to a solid, ambitious transition plan (*GFANZ Transition Finance,* n.d.).

Major international banks are deploying capital aggressively under these evolving frameworks to support their corporate clients' compliance with mechanisms like CBAM. Standard Chartered, for instance, has launched a dedicated Transition Finance Framework that covers carbon capture activities for industrial plants, low-carbon hydrogen production, and deep transition of metal production facilities (*SC Transition Finance Framework,* n.d.) with heavy focus on high-emitting clients in India, Indonesia, and South Africa (Sujeeth, n.d.). Similarly, HSBC published an updated Net Zero Transition Plan. The bank mobilized $54.1 billion in sustainable finance in the first half of 2025 alone. HSBC has reported a total contribution of $447.7 billion since 2020 (HSBC, n.d.). Barclays, in addition, has outlined its strategy through a Sustainable Finance Framework (SFF), which includes Green Loans and Sustainability-Linked Loans (SLLs) intended to finance qualifying green assets and facilitate the enduring cost reductions linked to energy efficiency (*Barclays Transition Finance Framework Version 1.0,* n.d.).

3.1 Deep-Tier Supply Chain Finance (DTSCF) for MSME Integration

Even with transition finance and the issuance of Green, Social, and Sustainability Bonds (GSSBs) by major corporations, the global decarbonization of deep supply chains remains considerably vulnerable. Consider, for example, markets like India, where the secondary sector, largely consisting of Micro, Small, and Medium Enterprises (MSMEs), accounts for almost half of the total steel production.

These companies use induction furnaces and secondary re-rolling mills (TERI 2023, n.d.). They are unable to implement the rigorous tracking systems required by the EU CBAM due to financial and technical limitations(FICCI, n.d.). Additionally, MSMEs often hesitate to share data because of confidentiality concerns, which creates significant obstacles(*Centre for Social and Economic Progress (CSEP), 2025,* n.d.).

To address this vulnerability, financial institutions are increasingly using Deep-Tier Supply Chain Finance (DTSCF) mechanisms. Traditional supply chain finance only includes first-tier, direct suppliers.

In contrast, DTSCF uses technological. DTSCF utilizes technological innovations such as Internet of Things (IoT) traceability, tokenization, blockchain, and distributed ledger technology to extend financing visibility down to tier-two, tier-three, and base raw material suppliers(PwC India, 2024).

By participating in a DTSCF program, a buyer can leverage its strong corporate credit rating to provide its deep-tier suppliers with access to working capital at highly favourable rates (Asian Development Bank, 2024). The provision of this subsidized liquidity hinges on suppliers' adherence to designated environmental KPIs and their submission of the verified emissions data necessary for the buyer's CBAM declarations (*TONZ 2024,* n.d.).

Furthermore, multilateral development banks and private entities are actively participating in the capitalization of this green financing market. The International Finance Corporation (IFC), in collaboration with DBS Bank, initiated a $500 million facility within the Global Trade Liquidity Program (GTLP) to facilitate trade flows in emerging markets throughout Asia, Africa, and Latin America (IFC, n.d.). Twenty percent of this facility's capacity is earmarked for trade transactions that align with climate eligibility standards. This allocation facilitates the global movement of renewable energy equipment and climate-friendly products throughout the supply chain.

The International Chamber of Commerce (ICC) has just approved the Principles for Sustainability-Linked Supply Chain Finance (PSL-SCF) (audrey, 2025) This framework provides a detailed governance structure, aiming to standardize key performance indicators, targets, and the coordination of multiple banks within these intricate global supply chains (Barclays IB, n.d.). By utilizing DTSCF, the financial burden of establishing a carbon border adjustment mechanism (CBAM)-compliant monitoring, reporting, and verification (MRV) system is lessened for micro, small, and medium-sized enterprises (MSMEs). This is achieved by immediately reducing their working capital costs (Asian Development Bank, 2024).

3.2 Offtake Agreements with Green Premium

Green/transition finance frameworks and DTSCF address incremental operational improvements and working capital optimization. The viability of these capital-intensive projects hinges entirely on securing buyers who are willing to pay this "green premium". Long-term offtake agreements are a crucial method for reducing risk in these large, multi-billion-dollar investments.

Project developers can prove future, stable cash flows to debt providers, turning the project bankable. This can be achieved by securing legally binding commitments from downstream consumers to purchase a set volume of green steel/green material at a premium price over a long term horizon. Most recently, we saw one of the biggest offtake agreements for Green Ammonia between Uniper and AM Green (Uniper, n.d.).

3.3 The H2 Green Steel Project Finance Validation

One of the prominent examples of this financial model could be the H2 Green Steel project in Europe. The venture aims to construct the world's first large-scale green steel plant, which bypasses coal-fired blast furnaces with a hydrogen-based DRI process that lowers carbon emissions by up to 95% compared to traditional methods(Directory, n.d.). In the first months of 2024, the project wrapped up its financing, bringing in almost €6.5 billion. This included €4.2 billion in loans from commercial banks and the European Investment Bank, along with €2.1 billion in equity. The European Union's Innovation Fund also chipped in, providing a €250 million non-dilutive grant.

One of the main reasons for securing this finance was the project's ability to secure binding offtake agreements for its finished steel (*GH2,* n.d.). The project employed an innovative pricing model that decoupled the product's unit costs from standard fossil-based commodity indices. This established a negotiated green premia ranging from 15% to 100% above conventional prices (RMI, n.d.). H2 Green Steel invited its downstream offtakers like Schaeffler and Hitachi Energy to participate directly as equity investors in the project.

3.4 Upstream Decarbonization by OEMs

The legacy steelmakers are leveraging such offtake structures to finance their transitions. Tata Steel UK, with a major £1.25 billion joint investment with the UK Government, is executing a transformational plan to replace its traditional, blast furnaces in South Wales with a 3-million-tonne Electric Arc Furnace (EAF) (Tata Steel UK, n.d.). And support this transition, Tata Steel secured a landmark green steel supply agreement with JCB.

4. Domestic Carbon Pricing and CBAM Deductions

Another important factor embedded within the EU CBAM regulation is the provision for foreign carbon price deductions. If an importer can prove that a carbon price was already paid in the jurisdiction where the goods were produced, that exact financial amount can be deducted from the final CBAM certificate obligation (*(EU) 2023/956,* n.d.). It prevents double taxation and an opportunity to the country of production. They should implement a robust domestic carbon tax or trading system to capture the tax revenue domestically that would otherwise be remitted to the European Commission as a punitive CBAM tariff.

India is rapidly advancing its Carbon Credit Trading Scheme (CCTS) to formalize a domestic carbon market which covers high-emitting sectors like power, steel, and aluminum (BEE, n.d.). Still, a fundamental interoperability challenge exists between the European and Indian systems. The EU ETS, which forms the basis of CBAM operates on an absolute cap-and-trade system where total allowable emissions are strictly capped and reduced annually. The Indian CCTS is currently structured around intensity-based targets, where allowances are allocated based on emissions per unit of output rather than an absolute cap.

For the European Commission to legally recognize and deduct the value of Indian carbon credits under CCTS. The domestic MRV and verification processes of CCTS must meet strict international equivalence standards. Comprehensive recommendations from multiple bodies emphasize the absolute necessity of separating institutional roles with the Bureau of Energy Efficiency (BEE) acting as the Scheme Owner and the Quality Council of India (NABCB) acting as the independent accreditor to avoid duplication and mirror EU ETS oversight (*TIC Council 2025,* n.d.). It is welcoming that the mandatory auditor requirements (like the mandate for Certified Energy Auditors) which in a way align with stringent MRV under CBAM and EU ETS. The legal standing of Accredited Carbon Verification (ACV) agencies should be limited to organizations possessing distinct legal liability, such as Limited Liability Partnerships (LLPs) or corporate structures, rather than conventional partnerships, to satisfy the legal requirements mandated by EU regulatory bodies. Absent these structural modifications, exporting sectors face the potential of incurring a domestic carbon price under the CCTS without commensurate credit at the European border. Consequently, this could expose them to double taxation and significantly undermine their international competitiveness, particularly in light of the recently concluded Free Trade Agreement (FTA) CEEW, 2025).

5. Conclusion

The implementation of the EU and UK-CBAM has redrawn the economics, logistics, and capital requirements of heavy industrial manufacturing. The era is gone by when carbon-intensive sectors could operate insulated from international environmental externalities. This regulatory measure is a powerful catalyst for global capital mobilization. The definitive phases of both the EU and UK mechanisms aggressively penalize opacity and compel the deployment of advanced, installation-level Monitoring, Reporting, and Verification (MRV) systems. By complying the specified calculation and monitoring methodologies specified under these mechanisms, the exporters inadvertently construct the precise, auditable data architecture demanded by the global sustainable finance market.

The convergence of global trade regulation and international capital markets has the potential to act as a unique strategic inflection point. Exporters that master CBAM-compliant MRV can be better positioned to negotiate Sustainability-Linked Loans (SLLs). They can utilize margin ratchets to lower their weighted

average cost of capital. They can access sophisticated transition finance frameworks to fund necessary CAPEX. They can also integrate their vulnerable MSME supplier networks into Deep-Tier Supply Chain Finance (DTSCF) programs to secure low-cost liquidity.

The era of border carbon adjustments requires a paradigm shift in corporate and geopolitical strategy. Decarbonization can no longer be viewed strictly through the siloed lens of voluntary corporate social responsibility or distant environmental goals. Decarbonization is now a core function of financial risk management, international trade compliance, and cost control. Exporters, large manufacturers, and policymakers must act in sync and aggressively align the domestic carbon pricing schemes like the CCTS with international standards. They must establish public credit guarantee to de-risk commercial lending, and view MRV not as an administrative burden, but as an opportunity to unlock the transition capital necessary to secure long-term global economic competitiveness.

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Credibility is The New Capital: Why ESG Integrity Now Determines Who Gets Funded

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Credibility has emerged as the defining currency of modern capital markets. In an environment shaped by escalating climate volatility, tightening regulatory expectations, geopolitical uncertainty and unprecedented investor scrutiny, capital is no longer mobilised by ambition, intent or narrative alone. Investors today are recalibrating how they assess risk and opportunity. The central question is no longer whether companies disclose Environmental, Social, and Governance (ESG) information, but if these disclosures are reliable, comparable, independently validated and capable of informing financial decisions. In this shifting landscape, ESG integrity is moving decisively from a reputational consideration to a core determinant of capital flows, pricing outcomes and long-term investor confidence.

This transition reflects a deeper structural change underway in global finance. As sustainability considerations intersect with credit risk, valuation models and fiduciary responsibilities, weak or unverified ESG claims are increasingly perceived as sources of financial risk. Conversely, credible ESG signals backed by governance discipline, consistent data and independent assessment are beginning to function as risk-mitigating inputs within capital allocation frameworks. By design, capital markets reward certainty and penalise opacity. Therefore, ESG credibility acts as a lens through which investors differentiate resilient, future-ready businesses from those exposed to regulatory, transition and governance shocks.

As one of the world's fastest-growing major economies, this inflection point for India carries particular significance. As the country seeks to unlock large pools of domestic and global capital to finance energy transition, infrastructure build-out, industrial competitiveness and inclusive growth, trust will be as critical as scale. Credibility of ESG signals will increasingly determine not only access to funding, but also investor depth, financing tenure and cost of capital. In this context, ESG ratings and credible external reviews are emerging as essential market infrastructure. They convert sustainability intent into decision-grade intelligence, reduce information asymmetry, and provide capital providers with the confidence required to deploy funds-at-scale. In a future-ready economy, it is credibility, not aspiration that will ultimately determine funding precedence.

Why Credibility Now Determines Capital Access

Capital markets ultimately operate on trust. Where credibility is weak, capital prices in uncertainty; where confidence is strong, capital becomes patient, resilient and willing to engage for longer tenure. As ESG considerations are increasingly embedded in underwriting models, portfolio construction frameworks and valuation assumptions, credibility of ESG information has moved from the periphery of investor conversations to the centre of funding decisions. ESG integrity is no longer an ethical overlay: it is becoming a financial signal.

This shift reflects the growing recognition that poorly governed ESG risks translate to tangible financial consequences. Climate transition missteps, weak labour practices, inadequate governance controls or opaque disclosures now carry implications for cash-flow stability, regulatory exposure and balance-sheet resilience. As a result, investors are recalibrating how they evaluate ESG information. Disclosure alone is insufficient; what matters is whether ESG performance can be trusted, compared across peers and relied on in risk assessment.

Institutional investors today draw a sharp distinction between companies that merely disclose ESG data and those having ESG performance independently assessed, benchmarked and validated. Credible ESG signals significantly reduce information asymmetry between capital providers and issuers. They allow investors to better assess transition risks, governance quality and long-term strategic preparedness, factors that directly

influence expected returns and downside protection. In contrast, inconsistent disclosures, weak board oversight or unverified sustainability claims introduce uncertainty. That uncertainty is increasingly priced through higher risk premia, tighter covenants, shorter tenors or, in some cases, exclusion from investment consideration altogether.

Importantly, credibility also determines quality of capital that flows to an issuer. Companies with robust and credible ESG frameworks are not only more accessible to capital they attract a broader and more stable investor base. Long-term institutional investors, pension funds and global ESG-focused funds exhibit greater willingness to engage where transparency is high and governance is trusted. This confidence often translates into smoother issuance processes, stronger order books and greater resilience during periods of market stress.

India's sustainable finance market offers a clear illustration of this dynamic. With cumulative green, social and sustainability-linked issuances exceeding US$55 billion, the market has moved beyond experimentation into scale. Yet; experience shows that benefits of this market are not distributed evenly. Issuers with strong ESG governance structures and credible external assessments have demonstrated advantages that extend well beyond marginal pricing benefits. These include deeper investor participation, faster execution timelines, stronger reputational standing and a higher degree of post-issuance investor confidence.

As sustainable finance matures, capital markets are becoming more discerning. Funding is not increasingly flowing to the loudest ESG narratives, but to issuers that demonstrate discipline, transparency and integrity over time. In this environment, credibility does not merely facilitate capital access: it defines it.

ESG Ratings: From Disclosure to Decision-Grade Intelligence

As ESG credibility becomes central to capital allocation, ESG ratings have emerged as a vital layer of modern capital-market infrastructure. In an environment characterised by information overload, inconsistent disclosures and heightened scrutiny, ESG ratings perform a critical function: they convert complex, multi-dimensional sustainability data into structured, comparable and decision-useful intelligence that investors, lenders and regulators can consistently interpret. In doing so, ESG ratings help translate sustainability from narrative intent into financial signal.

The growing reliance on ESG ratings reflects a behavioural shift in capital markets. Investors neither have the capacity nor the desire to consume thousands of pages of corporate sustainability disclosures to be customised for a specific purpose. Instead, they seek credible intermediaries that can synthesise data, apply materiality filters and benchmark performance across peers and sectors. ESG ratings meet this demand by compressing diverse environmental, social and governance factors into intelligible assessments that can be embedded directly into investment decision-making, risk models and portfolio analytics.

Crucially, ESG ratings differ fundamentally from self-declared sustainability reports. While disclosures communicate what companies choose to report, ESG ratings evaluate how robustly sustainability is embedded into corporate systems. They assess outcomes and the underlying architecture that delivers those outcomes—board-level oversight, enterprise risk management integration, internal controls, policy frameworks, stakeholder management systems and disclosure discipline. Markets do not price intent; they price execute capability and resilience. Therefore, ESG ratings function as forward-looking indicators of an organisation's ability to manage risk, adapt to regulatory change and sustain performance with time.

A practical implementation can be seen in ESG ratings conducted by CareEdge-ESG for leading Indian corporates. **Union Bank of India's CareEdge-ESG rating of 'ESG 1+ (Leadership)' provided independent validation of the Bank's governance strength, climate-risk integration and sustainability oversight mechanisms.** Importantly, the rating evaluated not just policy commitments, but how ESG considerations are embedded into governance structures, risk management processes and strategic decision-making. The Bank's public recognition of its CareEdge-ESG rating at the India Climate Week reinforced its credibility with investors, lenders and stakeholders at a time when financial institutions face increasing scrutiny on financed emissions, climate-risk exposure and long-term resilience. Such independent validation plays a critical role in strengthening market confidence, particularly for entities operating under heightened regulatory and investor focus.

Beyond individual cases, CareEdge-ESG's ratings across sectors such as cement, power, banking, infrastructure and manufacturing enabled issuers to benchmark performance against peers, identify transition gaps and demonstrate preparedness to domestic and global investors. For companies operating in energy-and-resource-intensive sectors, these ratings provide a structured pathway to communicate transition credibility, distinguishing those with disciplined execution and governance from those reliant on aspirational narratives. As India's capital markets deepen and ESG scrutiny intensifies, such differentiation is becoming indispensable.

From an investor perspective, ESG ratings significantly reduce information asymmetry. They allow capital providers to compare issuers on a like-for-like basis, integrate ESG considerations into credit assessment and equity valuation, and allocate capital more efficiently. For lenders, ESG ratings increasingly inform internal risk scorecards, sectoral exposure limits and engagement strategies, particularly as regulators expect financial institutions to demonstrate climate-risk awareness and governance discipline. For issuers, credible ESG ratings extend beyond reputation, they are enablers of access, confidence and long-term investor engagement.

In this evolving ecosystem, ESG ratings are no longer peripheral sustainability artefacts. They are becoming essential market utilities, bridging the gap between disclosure and decision, between sustainability ambition and financial credibility. In an era where capital rewards trust and penalises uncertainty, ESG ratings serve as the lens, through which markets increasingly decide, who is investable, resilient and future-ready.

Policy Architecture Reinforcing ESG Ratings

India's regulatory environment is increasingly structured to reinforce ESG credibility through standardisation, oversight and institutional accountability. Policymakers and regulators have recognised that for ESG to meaningfully influence capital allocation, the ecosystem must move beyond voluntary disclosure toward supervised, decision-grade intelligence. ESG ratings sit at the centre of this transition, acting as a bridge between corporate disclosure, regulatory expectations and market outcomes.

SEBI's formal recognition and regulation of ESG Rating Providers represents a pivotal shift in India's sustainable finance architecture. By bringing ESG ratings within a regulated framework, SEBI introduced governance discipline, transparency requirements and methodological rigour to an area that globally has been criticised for inconsistency and opacity. This regulatory oversight significantly reduces concerns around rating inflation, selective scoring and greenwashing, issues that can undermine investor confidence, particularly in emerging markets.

The introduction of the Business Responsibility and Sustainability Reporting (BRSR) Core framework further strengthens this foundation. BRSR Core provides the baseline data architecture, a standardised, assurance-ready set of ESG indicators that improves consistency and comparability across issuers. However, disclosures alone do not convert data into investment insight. This is where ESG ratings play a critical role. ESG ratings interpret BRSR Core data through a materiality lens, benchmark performance against peers, and translate disclosures into signals that investors and lenders can incorporate into decision-making.

For international investors assessing Indian assets, this combination is particularly powerful. Aligning BRSR Core with global disclosure standards such as ISSB, supported by independent ESG ratings, significantly reduces information risk and translation friction. Indian issuers become easier to compare with global portfolios, enhancing the credibility and attractiveness of the Indian market.

At the same time, the Reserve Bank of India's evolving climate-risk framework is expected to accelerate the institutional use of ESG intelligence within the financial system. As banks and non-banking financial companies (NBFCs) move toward board-level governance of climate risk, portfolio-level assessments and scenario analysis, reliance on credible ESG ratings is likely to deepen. ESG ratings provide lenders with a structured way to evaluate borrower preparedness, governance strength and transition risk, transforming ESG from a soft consideration into a supervised financial variable.

ESG Ratings and Second Party Opinions: Building Trust in Sustainable Finance

While ESG ratings establish issuer-level credibility, Second Party Opinions (SPOs) play an equally critical role at a transaction level, particularly in sustainable, sustainability-linked and transition finance markets. Together, ESG ratings and SPOs form the trust architecture that underpins sustainable capital flows, ensuring that the issuer and the instrument meet expectations of integrity, governance and impact.

A clear and practical illustration of this trust architecture is **CareEdge-ESG's Second Party Opinion for DCM Shriram Limited's Sustainable Finance Framework.** DCM Shriram operates across multiple energy- and resource-intensive businesses, including chemicals, cement, sugar and agri-inputs, placing it squarely at the heart of India's transition challenge. For such diversified industrial groups, access to sustainable finance cannot rely on narrowly defined green projects alone; it requires credible governance, realistic transition intent and transparent capital allocation frameworks.

Through its SPO, CareEdge-ESG undertook an independent, principle-based assessment of DCM Shriram's framework against globally recognised standards. The evaluation went well-beyond label alignment. It examined strategic integration of sustainability objectives within core business operations, robustness of governance and oversight mechanisms, relevance and integrity of use-of-proceeds categories, and the company's readiness for post-issuance allocation and impact reporting. Importantly, the assessment focused on whether sustainability-linked financing would drive incremental transition outcomes, not symbolic or cosmetic improvements.

The outcome of this SPO was not merely regulatory or procedural compliance. **The independent validation enhanced investor confidence, reduced greenwashing risk, and positioned DCM Shriram to access sustainability-linked and transition-aligned capital with credibility.** For lenders and investors, the SPO provided assurance that capital deployment would be governed by clear controls, measurable objectives and transparent reporting, strengthening trust across the financing lifecycle. This trust is particularly valuable for first-time or transition-focused issuers, where investor scepticism can otherwise limit access.

Unlocking Transition Capital for Hard-to-Abate Sectors

India's transition challenge is most acute in hard-to-abate sectors such as steel, cement, power, chemicals and heavy manufacturing. These sectors are capital-intensive, emission-intensive and systemically important to the economy. Excluding them from sustainable finance is neither realistic nor aligned with India's development priorities. What capital markets increasingly demand instead, is credible transition intent.

This is precisely where ESG ratings and SPOs play a decisive role. ESG ratings enable investors to distinguish transition leaders from laggards by assessing governance strength, quality of targets, capex alignment and execution credibility. They provide a forward-looking view of whether a company's transition pathway is disciplined, realistic and resilient to policy or market shocks.

SPOs then complement this issuer-level assessment by providing transaction-level assurance. They help investors evaluate whether specific financing structures genuinely support transition objectives, whether KPIs and targets are calibrated appropriately, and whether governance mechanisms are robust enough to prevent misuse of proceeds or dilution of ambition.

The DCM Shriram case highlights how credible assessment can unlock capital rather than restrict it. By combining issuer-level ESG evaluation with instrument-level SPO validation, CareEdge-ESG enabled markets to differentiate between headline sustainability claims and financeable transition strategies. This distinction is critical as India mobilises large-scale capital for industrial transition without undermining investor trust.

Outlook: ESG Ratings as Financial Infrastructure

The next evolution of ESG will be defined by trust, comparability and integration into core financial decision-making. ESG ratings, regulated external reviews and assurance mechanisms will increasingly influence credit spreads, investor participation, portfolio construction and capital tenor.

For India, this presents a structural opportunity. Strong policy signals, a growing universe of ESG-rated entities and maturing sustainable finance markets position the country to attract long-term, patient capital. As regulatory expectations rise and global investors demand greater transparency, corporates that invest early in independent ESG ratings and credible SPOs will be better equipped to navigate scrutiny, volatility and transition risk.

In this emerging paradigm, ESG ratings function not as peripheral sustainability tools, but as financial infrastructure, lowering information risk, strengthening confidence and enabling more efficient capital allocation. A future-ready economy will not be financed by intent alone. It will be financed by credibility, which is built systematically, measured rigorously and validated independently.

Conclusion: Credibility Backed by ESG Ratings is the New Capital

In a world saturated with sustainability narratives but constrained by trust, capital markets are rediscovering the value of independent validation. ESG ratings and SPOs are no longer optional reputational instruments; they are fast becoming essential components of modern financial architecture.

As India seeks to unlock capital for a future-ready economy, the experience of CareEdge-ESG-rated entities and SPO-validated issuers offers a clear lesson: **capital flows to credibility.** Investors are not funding promises; they are funding proof.

How India Can Turn ESG Into A Competitive Financing Advantage

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India stands at a financing inflection point. Global sustainable assets are consolidating after years of rapid expansion yet still hover near **USD 3.9–4.0 trillion**[1] across sustainable funds—even after 2025 outflows—signaling scale, not retreat. As policy clarity and credible disclosure frameworks spread, investors are re-risking toward transition opportunities, particularly in emerging markets. FICCI's theme—**"Unlocking Capital for a Future-Ready Economy"**—is therefore timely: the constraint is not the quantity of capital, but the credibility of pipelines that can absorb it at speed and scale.[2]

India's ESG financing base is deeper—and more diverse—than commonly perceived

By December 2024, India's cumulative aligned green, social, sustainability and SLB ("GSS+") issuance reached **USD 55.9 billion**[3], a **186%** jump since 2021. Green instruments remain the workhorse at **83%** of aligned volume, and **labelled green loans** surged in 2024 (USD 5.5 billion across 19 corporates). Sovereign leadership has mattered: **INR 477 billion** of sovereign green bonds since 2023 created the domestic green yield curve and widened the investor base. Municipal innovation is visible too—**Vadodara Municipal Corporation's** certified green bond set an **Asia-first** milestone for a city issuer, signaling the rise of urban climate finance.

The opportunity set, however, extends well beyond pure "green." Transition needs are vast: **steel and cement** decarbonization alone could require **USD 650 billion**—a financing lane tailor-made for blended, transition-labelled, or performance-linked structures.

Policy architecture: from disclosure to taxonomy to markets

Three regulatory pillars are aligning India with global baselines while retaining local relevance:

- **Assured ESG disclosure (BRSR Core).** SEBI's BRSR Core requires KPIs and assurance—rolling from the top 150 listed entities in FY24 to wider coverage in subsequent years—while recent revisions allow profession-agnostic **assessment or assurance** and introduce **green credit** disclosures. This reduces verification friction and expands assurance supply. SEBI has also issued **industry standards** for reporting consistency[4].
- **Climate finance taxonomy.** Announced in the **Union Budget 2024–25** and published as a **draft framework** in 2025, India's taxonomy classifies mitigation, adaptation and transition activities across power, mobility, buildings, agriculture and hard-to-abate sectors—explicitly designed to curb greenwashing and channel capital to credible pathways[5].
- **A domestic carbon market (CCTS/ICM). The Carbon Credit Trading Scheme, 2023** establishes an intensity-based, baseline-and-credit compliance market initially spanning nine energy-intensive sectors, with an **offset mechanism** (approved methodologies include RE, green hydrogen and mangrove A/R) to

[1] *Global Sustainable Fund Flow: Morningstar Report*

[2] *ESG Funds: 2025 Closes With Continued Outflows Amid Persistent Headwinds*

[3] *India's sustainable debt market tops USD 55.9 billion - new MUFG-CBI report maps rapid growth and pathways to 2030*

[4] *SEBI framework on BRSR Core and value chain - disclosures and assurance by listed*

[5] *Budget 2024-25: Sitharaman unveils climate finance taxonomy, experts hail move but concerns over greenwashing persist*

monetise voluntary mitigation outside compliance. Phased operation begins mid-decade, integrating lessons from the PAT scheme and building toward broader coverage[6].

Together, these pillars strengthen data quality, define "what counts," and price emissions—de-risking cash flows and lowering the cost of capital for climate-relevant projects.

Global currents: consolidation, not capitulation

Yes, 2025 saw **USD 84 billion** net outflows from sustainable funds globally amid policy noise and performance dispersion. But sustainable fund **assets still rose** in Q4 2025 to approximately **USD 3.9 trillion** on market gains, and institutional surveys show allocators plan to **maintain or increase** sustainable allocations. Meanwhile, strategic analysts still forecast **>USD 40 trillion** in ESG assets by 2030—over a quarter of projected global AUM—on the back of regulatory convergence and investor demand for financially material ESG data[7].

For Indian issuers, the implication is straightforward: capital is selective, not scarce. Credible disclosures, robust KPIs, and clear use-of-proceeds or SPTs will differentiate issuers and maintain pricing power even when "greenium" is episodic[8].

The external reporting lens is tightening—India is ready to compete

Disclosers tied to **European supply chains** will feel the gravitational pull of the **EU's Corporate Sustainability Reporting Directive (CSRD).** Wave-one reports began with FY2024, and late-2025 amendments refocused scope and timelines—but the bar on assured, double-materiality reporting remains high and cascades through global value chains. For Indian exporters, aligning BRSR Core with CSRD/ESRS expectations (governance, impacts, value-chain data, auditability) is becoming a commercial condition, not a compliance option[9].

Concurrently, jurisdictions representing **~60% of global GDP and emissions** are moving to adopt or align with **ISSB** (IFRS S1/S2)[10], providing a global baseline that investors can underwrite. India's BRSR Core is already converging conceptually with ISSB's emphasis on decision-useful, investor-grade data.

Demand is there. What unlocks the next ₹1–2 lakh crore?

a) **Bankable pipelines and portfolio aggregation.** The most scalable deals in 2024–25 were portfolio financings—bundling rooftop solar, e-mobility, distributed waste assets—then refinancing via labelled instruments. Standardised contracts, M&V protocols and servicer performance data lower structuring costs and enable repeat issuance[11].

b) **Transition finance for heavy industry.** Hard-to-abate sectors need target-linked structures: SLBs and sustainability-linked loans with **science-based SPTs** (e.g., clinker ratio, scrap-based EAF expansion, waste-heat recovery, CCUS pilots) and **step-up/step-down** mechanics. The draft taxonomy's Tier-II/transition classification and the carbon market's price signal can anchor credibility and economics[12].

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[6] *India adopts regulations for planned compliance carbon market*

[7] *Global ESG assets predicted to hit $40 trillion by 2030*

[8] *India Sustainable Debt Market 2024*

[9] *Corporate sustainability reporting*

[10] *Adoption status of ISSB Standards*

[11] *India's sustainable debt market tops USD 55.9 billion - new MUFG-CBI report maps rapid growth and pathways to 2030*

[12] *Draft Framework of India's Climate Finance Taxonomy*

c) **Municipal and sub-sovereign issuers.** Post-Vadodara, city-level climate bonds for mass transit electrification, non-revenue water reduction, and urban heat adaptation should scale—supported by pooled-finance structures, state guarantees, and CBI certification for external verifiability[13].

d) **Blended finance to de-risk first-of-kind projects.** Concessional layers (first-loss guarantees, results-based incentives) can crowd in private lenders for green hydrogen, long-duration storage, and industrial fuel-switching—aligned to the **G20 Sustainable Finance Roadmap**[14] priorities on mobilising timely climate finance and scaling new technologies.

e) **Nature and adaptation as investable themes.** With approved **offset methodologies** now including **mangrove afforestation** and **landfill methane,** nature-positive and methane-abatement projects can generate credits and cash yields (tipping fees, carbon, and resilience benefits), fitting impact-first and returns-seeking mandates alike[15].

What CFOs and Boards should do in the next 12 months

1. **Tighten ESG data governance.** Map BRSR Core KPIs to ISSB S1/S2 and (where relevant) ESRS; implement controls for **assurance/assessment** and **value-chain** data on a risk-based basis. This shortens time to market for labelled issuance and avoids disclosure arbitrage.

2. **Pre-structure financing around taxonomy-eligible uses.** Tag capex and opex to the **draft climate taxonomy** categories (mitigation/adaptation/transition). This improves investor alignment, reduces second-party opinion friction, and positions assets for refinancing via GSS+ markets.

3. **Internal carbon pricing and CCTS readiness.** Simulate CCTS compliance trajectories and credit needs; introduce an internal carbon price for capex screening; assess optionality to generate **Carbon Credit Certificates** via over-performance or **offset projects** in subsidiaries/supply chains.

4. **Diversify instruments and investors.** Blend **green loans** (flexible covenants) with **public bonds** (benchmarking) and **private placements** (speed). For SLBs, adopt **transparent SPTs** with external verification to preserve credibility through cycles.

5. **Look outward: supply-chain and export exposure.** If Europe is in your revenue mix, run a **CSRD gap assessment** against ESRS (double materiality, value-chain, assurance roadmap). Proactive alignment will protect margins and win procurement premiums.

The road ahead: momentum with accountability

Unlocking capital for a future-ready economy is not about chasing labels—it is about building *bankable, assured, and taxonomy-aligned* pipelines that price climate risk correctly and reward credible transition. India has assembled the core pieces: sovereign signaling, evolving standards, a taxonomy, and a carbon market. The next leap will come from issuers that move first—hard-wiring disclosure discipline, structuring innovation, and ecosystem partnerships—so that global capital can do what it is primed to do: finance India's green, resilient growth at scale.

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[13] *India's sustainable debt market tops USD 55.9 billion - new MUFG-CBI report maps rapid growth and pathways to 2030*

[14] *2023 G20 India Sustainable Finance Report*

[15] *Turning Climate Commitments into Action: India's Carbon Offset Plan Hits the Ground*

Large Corporates Can Catalyse The Sustainability Transition of SME'S Through Supply-Chain Finance Guarantees

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India's net-zero ambitions to achieve carbon neutrality by 2070 will not be tested in the boardrooms of large corporates alone. The most critical tests will occur in the factory floors of Pune, the petrochemical clusters of Surat, and the expanding roads of India's cities.

Consider this – the top 1000 listed companies contribute around 43%[1] of India's greenhouse gas emissions. However, for most large companies, only 20-30%[2] of emissions come from their own operations, i.e. direct emissions and electricity-related emissions. The balance 70–80% of emissions occur across their value chains, particularly among the suppliers and logistics partners who support their operations, from providing raw materials to packaging to transportation of finished goods.

The sustainability agenda of corporate India cannot move forward unless suppliers play their part. But these often small enterprises require capital to do so. A simple but powerful financial innovation such as a corporate-backed green guarantee instrument can help unlock the capital needed for this transition.

The scale of the opportunity

India's Micro, Small and Medium Enterprise (MSME) ecosystem sits at the centre of the country's economic development. Over 74 million MSMEs collectively contribute more than 30% of India's GDP[3]. These enterprises form the backbone of the supply chains of large listed companies, supplying everything from automotive components to logistics and processing services.

These MSMEs are also responsible for roughly 10-15%[4] of industrial emission, making them an integral part of any climate and sustainability strategy. India needs an estimated $10 trillion[5] in climate finance by 2070 to meet its climate goals, and a chunk of this financing will need to flow to the MSME sector.

However, despite their central role, MSMEs receive only a small fraction of green finance flows. The challenge really lies not for want of viable projects, but in the absence of financing structures suited to MSME realities. Sustainability-focused investments such as rooftop solar installations and electric delivery fleets can take several years to deliver returns, and lenders often view such investments by MSMEs as risky due to uncertain payback timelines, limited collateral and thin credit histories.

As a result, the sector that represents the largest opportunity for industrial decarbonisation remains the least served by green finance.

Corporate–MSME supply chains: A structural financing advantage

The good news is that the solution to this structural challenge may already exist within India's industrial ecosystem. Large corporates depend heavily on MSME suppliers. These relationships create natural financial linkages that can be leveraged to unlock capital.

Take the example of the automotive vertical. Companies such as Tata Motors and Maruti Suzuki rely on extensive networks of Tier-2 and Tier-3 suppliers — small manufacturers clustered across geographies such as Pune, Chennai and the NCR region. As OEMs transition toward electric mobility, these suppliers must

modernise processes, electrify furnaces and adopt more energy-efficient technologies to remain on approved vendor lists. The OEMs can leverage long-term contracts and payment histories, and have strong incentives to ensure their suppliers remain viable.

A similar dynamic exists in the consumer goods vertical. Companies such as Hindustan Unilever and ITC source from hundreds of packaging manufacturers, agri-processing units and logistics partners. Transitioning these suppliers to recycled packaging, solar-powered operations or cleaner processing technologies is essential for meeting their corporate sustainability commitments.

The e-comm and q-comm companies and their logistics partners represent yet another opportunity. Platforms such as Amazon, Zomato, Blinkit etc depend on thousands of small logistics operators, delivery franchises and warehouse partners. Electrifying a small fleet of 5-10 three-wheelers or light commercial vehicles for last-mile delivery by these players might require investments in the range of ₹25-75 lakhs.

In all these cases, the large corporate possesses three assets that the MSME lacks: fairly strong creditworthiness, detailed operational data on supplier performance, and a direct commercial interest in ensuring suppliers remain competitive and compliant.

Corporate-backed green MSME guarantees: A financing innovation whose time has come

These supply chain relationships can form the foundation of a new financing instrument - a corporate-backed green MSME guarantee facility.

Under such a structure, a large corporate establishes a small guarantee reserve, covering say, 1–2% of a loan pool, which serves as a first-loss or partial credit guarantee for sustainability loans extended to its suppliers. Banks, NBFCs or development finance institutions can then issue green loans to eligible MSME suppliers, with the proceeds ring-fenced for verified sustainability investments such as rooftop solar installations, energy-efficient machinery upgrades, EV fleet conversions, water recycling systems, effluent treatment plants, and the like. The repayment can be structured against future purchase orders or trade receivables from the anchor corporate, significantly reducing default risk.

There are many interesting ways in which such an instrument can be structured and administered.

For instance, a corporate and its banker such as an SBI, HDFC Bank or ICICI Bank could enter into a bilateral arrangement for a supply chain loan facility covering a defined pool of suppliers. Or, corporates could issue sustainability-linked supply chain bonds with interest rates linked to emission reductions across the supplier network. Another possibility is a blended finance structure, where development finance institutions such as SIDBI or NABARD participate alongside commercial lenders, spreading risk across multiple layers of capital.

Such arrangements could meaningfully reduce the borrowing rates for the MSMEs making their investments into decarbonisation more economically attractive. Even conservative adoption could unlock substantial capital. Assuming that an MSME will require on an average between Rs. 20 lakhs to 1.5 Cr in sustainability investments, a large corporate with 50–500 key suppliers could therefore generate a loan pool of Rs. 10 Cr to Rs. 750 Cr, requiring only Rs. 0.1–15 Cr in guarantee backstop. If India's top 500 listed companies each activated such programmes, the addressable financing opportunity could reach Rs. 3.75 lakh Cr, representing a meaningful share of the country's MSME credit market.

From reporting to resourcing: Creating a virtuous circle across stakeholders

Such a financing model would create benefits across the ecosystem.

For MSMEs, it unlocks access to affordable long-term capital without the collateral requirements that often prevent smaller firms from accessing credit. For corporates, the benefits are equally significant. Supporting suppliers in their sustainability transition improves ESG performance metrics, reduces risk, enhances

credibility with global investors and strengthens supply chain resilience. Banks and financial institutions gain access to a new, scalable lending opportunity with significantly reduced credit risk due to corporate guarantees and stable supplier relationships.

India's sustainability transition will ultimately be measured not by disclosures, but by the flow of capital. India's MSME sector is not the problem in the sustainability transition. It is the opportunity. Corporate-backed green guarantee instruments can become the bridge between climate ambition and industrial reality — mobilising large pools of capital through a simple, low-risk financial innovation that can be deployed today.

(Sreelakshmi Hariharan and Dr Mukund Rajan; the authors are respectively Managing Director and Chairperson of ECube Investment Advisors).

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[2] https://zerocarbon.org.in/scope-3-emissions-india

[3] https://www.pib.gov.in/PressReleasePage.aspx?PRID=2219984&reg=3&lang=1#:~:text=Micro%2C%20Small%2C%20and%20Medium%20Enterprises%20(MSMEs)%20form%20the,industrial%20credit%20growth%20during%20H1FY26

[4] https://economictimes.indiatimes.com/news/economy/policy/sops-in-works-for-msmes-green-journey/articleshow/118094754.cms?from=mdr

[5] https://www.ceew.in/press-releases/india-will-require-investments-worth-over-usd-10-trillion-achieve-net-zero-2070-ceew

Unlocking Climate Capital - An Evolving Agenda

Mr Manish Kumar, Head-ESG & CSR, ICICI Bank Limited

Traditionally, the role of an investor has been seen as a provider of capital - detached, analytical, results-driven. The evolving focus on Environmental, Social and Governance (ESG) metrics reframes that role as stewards, co-creators, and long-term partners to deliver positive impact on people and planet in addition to seeking return on investment. Managing risks to capital and business operations from climate change has gained significance due to the increased frequency and severity of natural disasters like floods, droughts, wildfires resulting in enhanced initiatives by organisations to adopt sustainable business practices, make them future proof and ready, which, in the long run, will make them more competitive and also open new doors of opportunities.

Globally, the rise of sustainable finance, and the successful uptake of green/sustainable bonds has made them a prominent tool for mobilising and directing capital towards ESG/climate investment opportunities. At the end of June 2025, the cumulative sustainable debt issuance was about USD 10 trillion[1]. The table below provides details of outstanding sustainable debt securities at the end of September 2025.

Table 1: Outstanding Sustainable Debt Securities, Q3 2025

$ billion	**Debt securities**	Green bonds	Green ABS	Sustainability bonds	Social bonds	Green municipal bonds	Sustainability-linked bonds	**Loans**	Green loans	Sustainability-linked loans	**Total**
Global markets	**5729**	3016	317	1151	788	174	283	**2141**	989	1152	**7870**
Mature markets	**3851**	2220	302	401	542	174	212	**1686**	730	957	**5538**
Emerging & frontier markets	**833**	490	16	192	67	0	69	**319**	198	121	**1153**
China	**367**	301	15	34	4	0	12	**38**	11	27	**406**
Offshore centers	**75**	65	0	2	5	0	3	**135**	61	74	**210**
Supranationals	**970**	241	0	555	174	0	0	**1**	1	0	**971**
Top 7 MMs	**2677**	1424	295	245	388	174	151	**1281**	562	719	**3958**
Top 7 EMs	**622**	401	15	103	54	0	48	**155**	87	69	**777**
2 offshore centers	**74**	64	0	2	5	0	3	**130**	60	70	**204**

*Source: Bloomberg, BNEF, IIF; top 7 mature markets by size include the U.S., France, Germany, the UK, Italy, Spain, and Japan; top 7 emerging markets by size include China, Chile, India, Mexico, the UAE, Brazil, and Saudi Arabia; the 2 offshore centers by size include Singapore and Hong Kong; *compiled by country of risk*

India's Economic Survey 2025-26 report, published in February 2026, highlights that the current levels of climate finance fall short of the requirements of developing countries to meet their climate ambitions. By 2030, developing economies are estimated to need USD 5–6 trillion[2] for climate action. The Fourth International Conference on Financing for Development, titled Compromiso de Sevilla[3] recognised that, despite sustained global efforts, the gap between sustainable development ambitions and available financing has continued to widen, particularly for developing countries, reaching an estimated USD 4 trillion annually. This gap arises from the disparity between where capital is concentrated and where investment needs for sustainable development are most pressing.

Capital tends to flow to economies with deeper financial markets, stable macroeconomic conditions, and those that are generally perceived as having lower risks. Developing countries, however, face higher borrowing costs because of currency volatility, lower sovereign credit ratings, and financial systems that lack depth. As a

[1] *https://www.iif.com/Publications/ID/6339/Sustainable-Debt-Monitor-Sustainable-Debt-Markets-in-the-Crosshairs*

[2] *UNFCCC (2024, September 10). Second report on the determination of the needs of developing country Parties related to implementing the Convention and the Paris Agreement.*

[3] *UNDESA. Sevilla Commitment Fourth International Conference on Financing for Development.*

result, investors often hesitate to finance climate resilience projects in developing countries, even when these nations are more vulnerable to climate change impacts and such investments could yield significant benefits.

Capital providers such as banks and investors are also exposed to climate risks because of micro and macro-transmission channels that lead to climate shock events. Given that these shocks impact economic indicators, the underlying businesses' performance and ultimately, an FI's financial portfolio, any climate shock event may dry up future credit or investment extended to such sectors, creating a double whammy. Given India's high vulnerability to climate change, action is necessary to ensure continuing economic stability, secure and enhanced livelihoods, and to protect infrastructure from risks such as droughts, floods, and rising sea levels. Integrating climate adaptation and resilience into development plans is essential for sustainable growth.

India predominantly relies on domestic resources to support its climate action and ambitions to become Net Zero by 2070. As per the Economic Survey 2025-26 report, although India has successfully reduced its emissions intensity by 36 per cent since 2005 and achieved 50 per cent non-fossil power capacity ahead of schedule,[4] climate finance remains skewed towards mature sectors such as solar, wind energy and energy efficiency. Critical areas, including adaptation, financing for micro, small, and medium enterprises (MSMEs), urban infrastructure, and hard-to-abate industries, remain underfunded. Around 83 per cent of India's finance for mitigation and 98 per cent of finance for adaptation is sourced domestically.[5] However, the gaps in available finance and the needs persist,[6] and relying solely on domestic resources will not be sufficient.

India has taken several steps to mobilise climate finance by enhancing its financial ecosystem through regulatory reforms, streamlining its financial markets and introducing innovative instruments for sustainable finance, including frameworks for thematic bonds like green, blue, yellow, transition, social, sustainability to support sustainable development goals and interventions to address climate action projects. 100 per cent FDI has been permitted under the automatic route for renewable energy projects. The Framework for Sovereign Green bonds introduced in November 2022, helped with policy signalling and subsequent issuances of sovereign green bonds helped backing public sector initiatives focused on environmentally friendly projects. Specialised financial institutions (FIs) such as IREDA, NABARD, SIDBI, PFC, and REC, offer credit lines and schemes for climate-related investments and are playing a vital role in supporting the nation's climate sustainability goals.

At the same time, environmental regulation in India is transitioning from procedural, command-and control approaches toward risk-based, technology-enabled, and outcome-oriented governance that supports both environmental protection and ease of doing business. SEBI's Business Responsibility and Sustainability Reporting (BRSR) framework, green bond guidelines and IFSCA's guidance on sustainability-linked lending have improved disclosure quality and investor confidence in climate-related investments. RBI has also introduced the green deposit framework to facilitate the flow of credit to green activities/projects. Banks and FIs engaging in climate transition financing are encouraged to identify and leverage opportunities which may involve decarbonisation of operations and supply chain activities, low-emission technologies in existing and new sectors, amongst others. Several financiers have created 'sustainable financing' frameworks to provide funds in areas of environment sustainability like renewable energy and green housing and in areas such as affordable housing, accessible healthcare, sanitation, water security.

India is developing its Climate Finance Taxonomy which aims to facilitate greater resource flow to climate-friendly technologies and activities. A climate taxonomy is a structured, hierarchical system for classifying risks associated with climate change and environmental factors, enabling organizations to identify, analyze, and effectively manage risks impacting their operations, supply chains, and financial performance. It categorizes

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[4] *Press Information Bureau. (2025, December 08). Parliament Question: Reduction In Carbon Dioxide Emission.*

[5] *Climate Policy Initiative. 2024. Landscape of Green Finance in India 2024. https://www.climatepolicyinitiative.org/publication/landscape-of-green-finance-in-india-2024/*

[6] *Climate Policy Initiative. 2024. Landscape of Green Finance in India 2024. https://www.climatepolicyinitiative.org/publication/landscape-of-green-finance-in-india-2024/.*

both physical risks, like extreme weather, and transition risks, such as those from shifting to a low-carbon economy. This approach allows for a more detailed understanding and targeted management of climate-related vulnerabilities by identifying and financing activities and projects that are considered climate-supportive and align with climate goals and transition pathways.

The government also introduced incentive-based mechanisms like the Perform, Achieve and Trade (PAT) scheme in 2012, to create tradable Energy Saving Certificates for industrial units that outperform their energy efficiency targets, incentivising innovation and cost-effective efficiency improvements rather than just imposing fixed standards. As a next step, the framework for the Indian carbon market under the Carbon Credit Trading Scheme (CCTS) has been formulated and the Indian Carbon Markets portal (www.indiancarbonmarket.gov.in) has been launched in March 2026[7] to facilitate the implementation and administering of a transparent and credible carbon market. Carbon credit corresponds to a certain volume of carbon dioxide eliminated or prevented from entering the atmosphere, ranking it as a critical instrument to compensate for greenhouse gas emissions. Sellers of carbon credits can plough back the profits from carbon credits to fund more projects for combatting climate change.

Despite these measures, challenges persist in accessing climate finance at scale in India. The cost of capital for climate projects remains high, access to multilateral finance is often complex, and long-term international capital from institutional investors remains limited. Risk-mitigation and risk-sharing mechanisms are still underdeveloped, particularly for emerging technologies and large-scale adaptation projects.

India needs to harness diverse instruments and structures to supplement existing banking system. Using partial, first-loss guarantees or a combination of guarantees at the portfolio level can help banks and non-banks extend credit for climate mitigation. Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE) by SIDBI and the Government of India is an example of such a guarantee structure for unlocking capital for non-collateralised lending. Such a facility could also help derisk technology-related lending risk, e.g., for battery energy storage at both the grid and distributed scale. Once a track record of operations and credit history for such projects is created, banks and non-banks could optimally price risk and extend credit directly to such projects. Beyond guarantee structures, platforms like Alternate Investment Funds (AIF), Infrastructure Debt Funds (IDFs), and Investment Trust (InvIT) could play a role in extending credit for developing and / or refinancing portfolios of sustainability linked assets.

Strengthening and capacity building of the financial ecosystem through technical assistance and training are vital for enhancing the flow of resources for climate action. Expanding insurance coverage is essential to safeguard against economic losses associated with the physical risks of climate change and improve the creditworthiness of climate-exposed borrowers such as farmers and MSMEs.

India's Economic Survey 2025-26 report cautions that while blended finance tools, particularly those involving government support, help in attracting private investment, they also create fiscal trade-offs for governments. Strategies for scaling finance for climate action should strike a balance between attracting investment and the need for fiscal responsibility, transparency, and long-term debt sustainability. Further, excessive use of foreign currency borrowing also exposes projects to exchange rate risks, increasing forex premiums and financing costs, ultimately impacting climate action. Strong governance frameworks are necessary to ensure that climate finance supports growth and resilience without compromising macroeconomic stability. There could be a push towards establishing a credible national platform, backed by predictable and adequate international finance, to help develop climate projects, enhance their bankability, and enable the required climate action.

[7] *https://www.pib.gov.in/PressReleasePage.aspx?PRID=2243377&reg=3&lang=1*

About FICCI Centre for Sustainability Leadership

About FICCI Centre for Sustainability Leadership

The FICCI Centre for Sustainability Leadership is a flagship initiative of the Federation of Indian Chambers of Commerce & Industry (FICCI) designed to support India Inc.'s sustainability journey and climate action in alignment with Government of India's Panchamrit commitments and the Mission LiFE initiative. Acting as a catalyst for change, the Centre promotes the adoption of solutions that enable sustainable production and consumption, circular economy practices, and climate technology innovation. The Centre's Founding Members are Hindustan Unilever Limited (HUL) and HSBC India.

A key priority of the Centre is mainstreaming sustainability and enabling inclusive and scalable climate action. Through capacity-building, policy engagement, and knowledge leadership, the Centre supports businesses in their sustainability and net-zero transition—advancing mitigation, enabling adaptation, and building resilience. The Centre is uniquely positioned to bring together policymakers, industry, investors, funders, experts and start-ups and collaborates actively with each of the stakeholders to promote a more sustainable, resilient and future-ready business ecosystem in India.

Snapshot of Centre's activities

49 Awareness & Knowledge Disseminati on Sessions

8 Clean Tech Showcases with 24 Start ups

11 Public Conferences

9 Knowledge Reports

Through its programs, the Centre has been able to engage over 1600 business entities encouraging them to achieve climate neutrality and meeting their SDGs. Over 6000 professionals have benefitted through Centre's awareness and capacity building programs.

Centre's key recent initiatives:

1. 10th International Sustainable Business Futures Summit | 16–17 March 2026 | New Delhi

The Summit aimed to accelerate the integration of sustainability across industries by fostering collaboration among key stakeholders, promoting innovative financing solutions, and encouraging the adoption of technologies and practices aligned with the Sustainable Development Goals (SDGs). It facilitated meaningful dialogue among industry leaders, policymakers, and experts, resulting in actionable policy recommendations, strengthened commitments to green investments, and enhanced sustainability disclosures. The discussions also highlighted successful industry case studies in areas such as biodiversity conservation, water stewardship and sustainable packaging, demonstrating practical pathways for advancing sustainable industrial practices.



2. 15th India Climate Policy and Business Conclave (ICPBC) | 24-25 September,2025 | Hyderabad

The Summit aimed to accelerate the integration of sustainability across industries by fostering collaboration among key stakeholders, promoting innovative financing solutions, and encouraging the adoption of technologies and practices aligned with the Sustainable Development Goals (SDGs). It facilitated meaningful dialogue among industry leaders, policymakers, and experts, resulting in actionable policy recommendations, strengthened commitments to green investments, and enhanced sustainability disclosures. The discussions also highlighted successful industry case studies in areas such as biodiversity conservation, water stewardship and sustainable packaging, demonstrating practical pathways for advancing sustainable industrial practices.

3. Industry Consultations on India's Climate Finance Taxonomy | 18 June 2025 | New Delhi & 10 July 2025 | RBI Headquarters, Mumbai

In line with global efforts to develop structured climate finance taxonomies to guide sustainable investments, India announced development of its Climate Finance Taxonomy in July 2023 to align capital flows with national development priorities and the country's 2070 net-zero commitment. Developed by the Climate Change Finance Unit under the Department of Economic Affairs (DEA), Ministry of Finance, the draft framework seeks to balance climate ambition with economic growth and energy security, while supporting mitigation, enabling adaptation, and facilitating the transition of hard-to-abate sectors, including MSMEs. FICCI Centre for Sustainability Leadership convened two industry consultations in New Delhi and Mumbai to facilitate stakeholder dialogue on the draft framework. The consultations brought together policymakers, financial institutions, industry representatives and thought leaders to deliberate on the role of a science-based and credible taxonomy in reducing greenwashing risks, strengthening investor confidence and mobilising capital for climate-aligned investments and enabled stakeholders to share perspectives and refine the framework to support India's transition towards a low-carbon and climate-resilient economy.



4. Roundtable on Building a Sustainable Investment Ecosystem in India | 12 March 2025 | New Delhi

The roundtable advanced the dialogue on embedding sustainability within India's financial ecosystem by aligning investment strategies with long-term environmental and economic priorities. It brought together key stakeholders from industry, financial institutions and policy circles to explore pathways for promoting responsible, inclusive and purpose-driven investment practices. The discussions reinforced the critical role of sustainable finance in building a resilient economy, highlighting the importance of innovation, enabling policy frameworks and strong public–private partnerships. The platform also encouraged a more coordinated approach to mobilising capital towards climate action and sustainable development.



5. 3rd FICCI ESG Summit | 31 January 2025 | Mumbai

The Summit brought together regulators, industry leaders and sustainability experts to advance the strategic integration of Environmental, Social and Governance (ESG) principles into core corporate decision-making. It encouraged transparent reporting, strengthened understanding of ESG frameworks—particularly SEBI's Business Responsibility and Sustainability Reporting (BRSR)—and highlighted the importance of credible disclosures and transition planning. The discussions provided participants with valuable insights into emerging ESG trends, green financing opportunities and the role of technology in strengthening ESG data and reporting. The launch of the FICCI publication "The Experts' Voice" further reinforced stakeholder collaboration and collective accountability, positioning ESG not merely as a compliance requirement but as a key driver of sustainable and resilient business transformation in India.



6. **Interactive Session: Blueprint for Sustainability – Designing for a Resilient World | 3 September 2024 | New Delhi**

Featuring global energy and sustainability expert **Dr. Benjamin Sovacool**, Professor, Earth & Environment, College of Arts & Sciences, Boston University; the session explored opportunities in renewable energy transitions, climate resilience and policy pathways for accelerating decarbonisation.



FICCI Centre for Sustainability Leadership continues to work with stakeholders, enable policy dialogue and build knowledge platforms that support businesses in advancing India's journey towards a resilient, inclusive and low-carbon future.

NOTES

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