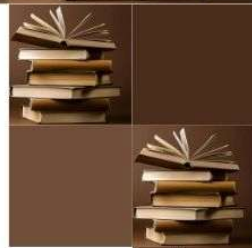
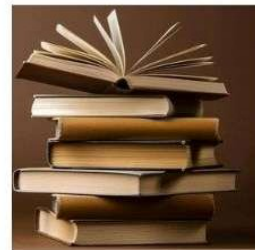


# GLOBAL PERSPECTIVES IN INTERDISCIPLINARY RESEARCH

FIRST EDITION  
2026

EDITOR-IN-CHIEF

DANIEL JAMES



ASDF UK

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Editor-in-Chief: Daniel James  
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# Sustainable Finance and ESG Integration in Modern Banking: An Indian Perspective

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## ABSTRACT

This chapter provides a comprehensive scholarly examination of the integration of Environmental, Social, and Governance (ESG) criteria and sustainable finance principles within the Indian banking and financial system. Drawing upon a structured review of regulatory instruments, market data, and extant theoretical literature, the chapter traces the evolution of ESG from a peripheral investment consideration to a central pillar of contemporary banking strategy and regulatory compliance. The analysis situates India's sustainable finance trajectory within the broader global context, referencing the Paris Agreement (2015), the United Nations Sustainable Development Goals (UN SDGs), and the Net-Zero Banking Alliance (NZBA). Key regulatory developments examined include the Securities and Exchange Board of India's (SEBI) Business Responsibility and Sustainability Report (BRSR) framework, the Reserve Bank of India's (RBI) Master Directions on Green Deposits and Climate Finance, and the issuance of sovereign green bonds totalling INR 477 billion by the end of 2024. Market data sourced from Climate Bonds Initiative and MUFG (2024) reveal that India's cumulative aligned GSS+ debt reached USD 55.9 billion by December 2024, representing a 186% increase since 2021, positioning India as the fourth largest emerging market source of such instruments globally. The chapter identifies structural challenges including data scarcity, regulatory fragmentation, greenwashing risk, and capacity gaps at smaller financial institutions. It concludes with forward-looking policy recommendations for a coordinated regulatory, institutional, and market-driven approach to sustainable finance in India.

**Keywords:** *ESG, sustainable finance, green banking, Reserve Bank of India (RBI), Securities and Exchange Board of India (SEBI), climate risk, green bonds, green deposits, BRSR, India, emerging markets, stakeholder theory*

## 1. Introduction

The global financial system stands at a pivotal juncture. The twin imperatives of climate change mitigation and the pursuit of socially inclusive economic growth have fundamentally redefined the responsibilities of financial institutions, compelling banks and capital markets to move well beyond the traditional boundaries of profit-maximisation and credit intermediation. Sustainable finance, broadly defined as the process of integrating Environmental, Social, and Governance (ESG) considerations into financial decision-making so as to direct capital toward long-term, sustainable economic activities, has emerged as one of the most consequential intellectual and policy movements in twenty-first-century economics (World Bank, 2021). Within the banking sector specifically, ESG integration refers to the systematic incorporation of material ESG factors into credit assessment, risk management, product design, disclosure practices, and strategic planning. The three dimensions of ESG — environmental factors pertaining to climate change, biodiversity, and resource efficiency; social factors encompassing financial inclusion, human capital, and community impact; and governance factors relating to board structure, transparency, and anti-corruption — together constitute a multi-dimensional lens through which banks are increasingly expected to evaluate and manage their exposures and responsibilities (UNEP FI, 2019).

The global urgency underpinning this shift is unmistakable. The Paris Agreement (2015) committed signatory nations to limiting global average temperature rise to well below 2°C above pre-industrial levels, with aspirational efforts to contain warming to 1.5°C, necessitating a fundamental transformation of energy systems, industrial processes, and financial flows. The United Nations Sustainable Development Goals (UN SDGs, 2015) further articulated a comprehensive agenda for sustainable development encompassing poverty eradication, clean energy access, climate action, and reduced inequality, all of which require substantial and sustained financial mobilisation. In the financial sector, the Net-Zero Banking Alliance (NZBA), launched under the UN Race to Zero initiative in 2021, has committed member banks — representing over 40% of global banking assets — to aligning their lending and investment portfolios with net-zero greenhouse gas emissions by 2050 (UNEP FI, 2021). These global frameworks have catalysed unprecedented regulatory and institutional change, with 19 of 24 Financial Stability Board (FSB) member jurisdictions having enacted climate disclosure regulations by 2024 (FSB, 2024).

India's position within this global transformation is at once complex and compelling. As the world's most populous nation and one of its fastest-growing major economies, India confronts acute climate vulnerability — ranked among the countries most exposed to extreme weather events, sea-level rise, and water stress (Reserve Bank of India, 2024b). Simultaneously, India has committed to ambitious climate targets, including achieving net-zero emissions by 2070 and installing 500 GW of non-fossil fuel electricity capacity by 2030. These commitments necessitate an estimated climate investment of USD 1.3 trillion by 2030, of which private sources are expected to contribute USD 756 billion (Climate Bonds Initiative and MUFG, 2024). India is simultaneously an emerging leader in sustainable finance, having issued sovereign green bonds, expanded ESG disclosure requirements, and built a growing domestic GSS+ (Green, Social, Sustainability, and Sustainability-Linked) debt market that reached USD 55.9 billion by December 2024 (Climate Bonds Initiative and MUFG, 2024).

This chapter aims to provide a rigorous, evidence-based account of the integration of ESG principles and sustainable finance frameworks within Indian banking. Specifically, the chapter pursues four objectives: first, to establish the theoretical and conceptual foundations of ESG in banking; second, to survey the global ESG regulatory architecture and its implications for Indian institutions; third, to provide a detailed analysis of India's evolving domestic ESG regulatory landscape and market developments; and fourth, to identify barriers, risks, and policy pathways that will determine the trajectory of sustainable finance in India through 2030 and beyond. The chapter is structured as follows: Section 2 examines the theoretical foundations; Section 3 surveys global regulatory frameworks; Section 4 analyses India's domestic regulatory architecture; Section 5 reviews market trends in India's sustainable debt market; Section 6 discusses ESG risk integration in banking operations; Section 7 explores green banking products and case studies; Section 8 assesses challenges and barriers; Section 9 presents policy recommendations; and Section 10 concludes.

## **2. Theoretical Foundations of ESG in Banking**

The intellectual trajectory of ESG in banking reflects a profound shift in how financial theory conceptualises the purpose, obligations, and risk exposures of financial intermediaries. Classical financial theory, rooted in neoclassical economics and the shareholder primacy doctrine articulated by Friedman (1970), posited that the sole social responsibility of a business enterprise is to maximise returns to its shareholders, within the limits of the law. Under this paradigm, environmental and social considerations were treated as externalities, appropriately managed through government regulation rather than corporate strategy. The financialisation of economies through the latter decades of the twentieth century



further entrenched short-termism in lending and investment practices, privileging quarterly financial performance over the assessment of long-horizon systemic risks (Kay, 2012).

The progressive displacement of this paradigm by ESG-oriented approaches has been shaped by several converging theoretical traditions. The most foundational is Freeman's (1984) Stakeholder Theory, which challenged the shareholder primacy model by arguing that a firm's long-term success depends on its ability to create value for all stakeholders — including employees, customers, communities, suppliers, and the natural environment — not merely for shareholders. Applied to banking, Stakeholder Theory provides a normative basis for ESG integration: banks that fail to account for environmental degradation or social harm in their lending decisions are, in effect, externalising costs onto society, thereby eroding the social licence upon which their operations ultimately depend. Freeman's (1984) framework has been enormously influential in subsequent debates on corporate purpose, most recently crystallised in the Business Roundtable's (2019) statement that major corporations should serve all stakeholders rather than shareholders alone — a direct challenge to the Friedmanite orthodoxy.

A complementary theoretical lens is provided by Legitimacy Theory (Suchman, 1995), which holds that organisations must continuously justify their existence by demonstrating that their activities conform to the norms and expectations of the social systems within which they operate. For banks, which are uniquely dependent on public trust and operate under extensive public regulatory oversight, legitimacy concerns are acutely salient. Increasingly, regulators, institutional investors, and civil society organisations are demanding that banks demonstrate credible ESG performance as a condition of their social licence to operate. Legitimacy Theory thus helps explain why many banks have moved to adopt ESG disclosure and integration frameworks even in advance of binding regulatory requirements, seeking to signal alignment with evolving societal expectations (Deegan, 2002).

At the macro-level, the concept of sustainable development itself — defined by the World Commission on Environment and Development (1987, p. 43) as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" — has provided the normative anchor for international policy frameworks including the UN SDGs and the Paris Agreement. The Brundtland Commission's formulation (1987) remains foundational in sustainable finance discourse, underpinning the argument that financial systems must be restructured to internalise intergenerational equity considerations. The Principles for Responsible Investment (PRI), launched in 2006 with UNEP FI support and now encompassing over 5,000 signatory organisations managing over USD 120 trillion in assets, operationalised these normative commitments within mainstream investment practice by embedding ESG criteria into portfolio construction and stewardship (PRI, 2023). The Principles for Responsible Banking (PRB), launched by UNEP FI in 2019 and now endorsed by over 300 banks representing more than USD 80 trillion in assets, extended the same logic specifically to commercial banking, requiring signatory banks to align their strategies, portfolios, and governance with the SDGs and the Paris Agreement (UNEP FI, 2019).

The three pillars of ESG manifest in banking operations through distinct but interrelated mechanisms. The Environmental pillar addresses a bank's exposure to climate-related physical and transition risks through its loan book and investment portfolio, its direct operational carbon footprint, and its role in financing the low-carbon transition through green and sustainable lending products. The Social pillar encompasses a bank's commitment to financial inclusion, fair and responsible lending practices, employee welfare, community investment, and the social impact of financed activities on vulnerable populations. The Governance pillar relates to the quality of a bank's board oversight, the transparency and integrity of its financial and non-financial disclosures, executive remuneration structures aligned with long-term value

creation, and robust anti-corruption and anti-money laundering frameworks. Table 1 below provides a structured overview of the three ESG pillars and their banking-specific dimensions.

**Table 1: Three Pillars of ESG and Their Relevance to Banking Operations**

| ESG Pillar               | Core Dimensions                                                                                                                         | Banking Applications                                                                                                                                                              | Key Performance Indicators                                                                                                                                               |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Environmental (E)</b> | Climate change & GHG emissions; biodiversity; water & resource management; pollution prevention; transition to clean energy             | Green lending portfolios; climate risk assessment in credit appraisal; green bonds and deposits; financed emissions reporting; TCFD-aligned disclosures                           | Scope 1, 2 & 3 financed emissions; green loan ratio; renewable energy financing share; climate stress test results; carbon intensity of loan book                        |
| <b>Social (S)</b>        | Financial inclusion; fair lending; human capital; community development; labour rights; data privacy; customer protection               | Priority Sector Lending (PSL) targets; microfinance support; affordable housing loans; sustainable supply chain finance; employee diversity metrics; responsible credit practices | Financial inclusion penetration rate; women & marginalised group lending share; employee turnover and training hours; customer complaint resolution rate; gender pay gap |
| <b>Governance (G)</b>    | Board composition & independence; executive remuneration; transparency; anti-corruption; risk governance; ESG accountability structures | Board-level ESG committee oversight; BRSR/TCFD disclosure compliance; ESG-linked executive KPIs; whistleblower mechanisms; robust audit and internal control frameworks           | Board independence ratio; women on board (%); ESG disclosure score; audit committee effectiveness; anti-corruption training coverage; regulatory compliance violations   |

Note. Compiled from UNEP FI (2019), TCFD (2017), SEBI (2023), and Freeman (1984). KPI = Key Performance Indicator; BRSR = Business Responsibility and Sustainability Report; PSL = Priority Sector Lending.

### 3. Global ESG Regulatory Frameworks and Standards

The past decade has witnessed a proliferation of international ESG regulatory frameworks, disclosure standards, and supervisory guidelines, reflecting a growing recognition among policymakers and regulators that voluntary commitments alone are insufficient to drive systemic change in the financial sector. While this regulatory landscape remains somewhat fragmented, a clear convergence toward mandatory, internationally comparable climate and sustainability disclosure is underway, with significant implications for banks operating across multiple jurisdictions.

The Task Force on Climate-related Financial Disclosures (TCFD), established by the Financial Stability Board in 2015 and publishing its landmark recommendations in 2017, has been perhaps the most influential single framework in shaping climate disclosure practice for financial institutions globally. The TCFD framework organises climate-related disclosures around four thematic pillars: Governance (board oversight of climate-related risks and opportunities); Strategy (actual and potential impacts on business, strategy, and financial planning); Risk Management (processes for identifying, assessing, and managing climate risks); and Metrics and Targets (the data used to assess and manage climate risks, including Scope 1, 2, and 3 greenhouse gas emissions). The TCFD's scenario analysis approach, which requires institutions to assess the resilience of their strategies under different climate scenarios including a 2°C or lower

pathway, has become a standard tool for climate risk stress testing (TCFD, 2017). By the time the TCFD was formally disbanded in 2023 and its monitoring responsibilities transferred to the ISSB, its recommendations had been endorsed by over 4,000 organisations globally.

The International Sustainability Standards Board (ISSB), established by the IFRS Foundation in 2021, represents the most significant attempt to date to create a unified global baseline for sustainability disclosure. The ISSB's inaugural standards — IFRS S1 (General Requirements for Disclosure of Sustainability-related Financial Information) and IFRS S2 (Climate-related Disclosures), published in June 2023 — built directly upon the TCFD framework while extending its scope. IFRS S2 mandates disclosure of climate-related risks and opportunities, industry-based metrics, cross-industry metrics including Scope 1, 2, and 3 GHG emissions, and climate-related targets. By 2024, 17 FSB member jurisdictions had adopted, required, or were actively considering adoption of the IFRS sustainability disclosure standards, signalling a substantive movement toward global harmonisation (FSB, 2024).

The European Union has developed the most comprehensive regional sustainable finance regulatory architecture globally. The EU Sustainable Finance Disclosure Regulation (SFDR, 2021) imposes mandatory ESG disclosure requirements on asset managers and financial advisers operating within the EU. The EU Taxonomy Regulation (2020) establishes a science-based classification system of economic activities deemed environmentally sustainable, providing a definitive standard against which green financial products can be verified. The Corporate Sustainability Reporting Directive (CSRD), effective for the largest companies from January 2025, requires extensive sustainability reporting under the European Sustainability Reporting Standards (ESRS), extending mandatory disclosure obligations to a far wider universe of companies than its predecessor, the Non-Financial Reporting Directive (NFRD). These EU frameworks, while primarily applicable to EU entities, exert significant extraterritorial influence on Indian banks with EU-based counterparties or investors.

At the prudential regulatory level, the Basel Committee on Banking Supervision (BCBS) has issued principles for the effective management and supervision of climate-related financial risks, articulating expectations for banks regarding governance, internal control frameworks, capital adequacy, liquidity risk management, and disclosure (Basel Committee, 2022). The Network for Greening the Financial System (NGFS), a coalition of central banks and financial supervisors including the RBI, has developed climate scenario analysis frameworks that have become the de facto standard for climate risk stress testing at major financial institutions globally (NGFS, 2022). NGFS scenarios provide three broad climate pathways — orderly transition, disorderly transition, and "hot house world" — against which banks can assess the sensitivity of their credit portfolios and capital positions (NGFS, 2022). Table 2 below summarises the key global frameworks and their applicability to banks.

**Table 2: Key Global ESG Frameworks and Their Applicability to Banks**

| Framework                                | Issuing Body                    | Year | Scope                                                  | Key Requirements for Banks                                                                                      |
|------------------------------------------|---------------------------------|------|--------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| <b>TCFD Recommendations</b>              | Financial Stability Board (FSB) | 2017 | Global; voluntary (increasingly mandated domestically) | Governance, strategy, risk management, and metrics & targets disclosure; scenario analysis; Scope 1–3 emissions |
| <b>IFRS S1 &amp; S2 (ISSB Standards)</b> | IFRS Foundation / ISSB          | 2023 | Global; adopted by 17 FSB jurisdictions by 2024        | General sustainability disclosures (S1);                                                                        |

|                                                 |                                           |                     |                                                           |                                                                                                              |
|-------------------------------------------------|-------------------------------------------|---------------------|-----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
|                                                 |                                           |                     |                                                           | climate-specific disclosures including GHG emissions and scenario analysis (S2)                              |
| <b>EU SFDR</b>                                  | European Commission                       | 2021                | EU financial market participants; extraterritorial impact | Product-level ESG disclosure; sustainability risk integration; Principle Adverse Impact statements           |
| <b>EU Taxonomy Regulation</b>                   | European Commission                       | 2020                | EU; reference standard globally                           | Classification of environmentally sustainable activities; green asset ratio disclosure for banks             |
| <b>CSRD / ESRS</b>                              | European Commission                       | Effective 2025      | Large EU companies & subsidiaries of non-EU groups        | Double materiality assessment; full ESRS sustainability reporting; third-party assurance                     |
| <b>BCBS Climate Risk Principles</b>             | Basel Committee on Banking Supervision    | 2022                | Global banking supervisors                                | Climate risk governance; integration into ICAAP; scenario-based capital assessment; Pillar II disclosures    |
| <b>NGFS Scenario Framework</b>                  | Network for Greening the Financial System | 2019 (updated 2022) | Central banks & supervisors; adopted by most major banks  | Climate scenario analysis for credit and market risk stress testing; transition and physical risk assessment |
| <b>Principles for Responsible Banking (PRB)</b> | UNEP FI                                   | 2019                | Voluntary; 300+ signatory banks globally                  | Strategic alignment with SDGs and Paris Agreement; impact analysis; target-setting; transparency reporting   |

Note. Compiled from TCFD (2017), ISSB (2023), European Commission (2020, 2021, 2022), Basel Committee (2022), NGFS (2022), UNEP FI (2019), and FSB (2024). SFDR = Sustainable Finance Disclosure Regulation; CSRD = Corporate Sustainability Reporting Directive; ESRS = European Sustainability Reporting Standards; ICAAP = Internal Capital Adequacy Assessment Process.

The movement toward unified global disclosure is gaining momentum, though significant divergences persist. The United States, notably, has experienced regulatory retrenchment in ESG requirements under successive administrations, creating uncertainty for globally operating financial institutions and contributing to what some analysts have characterised as a fragmentation of the global sustainability reporting landscape (FSB, 2024). For Indian banks with international capital market access or cross-border operations, navigating this divergent regulatory environment constitutes a material strategic and compliance challenge.

#### **4. ESG Integration in Indian Banking: Regulatory Architecture**

India's ESG regulatory architecture for banking and finance has evolved rapidly and with considerable sophistication over the five years to 2026, shaped by interventions from multiple regulatory bodies including the Securities and Exchange Board of India (SEBI), the Reserve Bank of India (RBI), the International Financial Services Centres Authority (IFSCA), and the Ministry of Environment, Forest and Climate Change (MoEFCC). While the architecture remains pluralistic rather than unified under a single taxonomy or regulator, the cumulative weight of these interventions represents a substantive and accelerating regulatory transformation.

SEBI's Business Responsibility and Sustainability Report (BRSR) framework, introduced in 2021 as a replacement for the earlier Business Responsibility Report (BRR), constitutes the cornerstone of India's non-financial disclosure regime for listed entities. The BRSR mandates disclosures structured around nine principles aligned with India's National Guidelines on Responsible Business Conduct, covering a broad range of ESG matters including energy consumption, water management, GHG emissions, human rights, community engagement, and governance (SEBI, 2023). Mandatory BRSR reporting was phased in for the top 1,000 listed entities by market capitalisation from financial year 2022-23. A significant expansion of the framework was implemented in 2023, introducing BRSR Core — a set of key performance indicators with defined "essential" and "leadership" disclosures — and requiring third-party reasonable assurance for essential indicators. Crucially, BRSR Core mandates the disclosure of Scope 1 and Scope 2 GHG emissions as essential indicators for the top 1,000 listed entities, and extends Scope 3 GHG emissions and value chain sustainability disclosures to the top 250 listed entities from financial year 2025-26 (SEBI, 2023). The December 2024 amendment to the NCS Regulations further expanded the sustainable finance regulatory perimeter by formally introducing a new asset class of ESG Debt Securities — encompassing green debt securities, social bonds, sustainability bonds, and sustainability-linked bonds — and retaining SEBI's authority to prescribe detailed conditions for their issuance (SEBI, 2024).

The Reserve Bank of India has pursued a parallel and complementary regulatory agenda. The RBI's Framework on Green Deposits, issued as Master Directions under Sections 21 and 35A of the Banking Regulation Act, 1949, in February 2024, represents a landmark instrument in India's green finance regulatory landscape (Reserve Bank of India, 2024a). The Master Directions require regulated entities — including scheduled commercial banks, small finance banks, and deposit-taking non-banking financial companies — to establish a board-approved Financing Framework specifying the eligible green categories for which green deposit proceeds may be deployed. Eligible categories include renewable energy, energy efficiency, clean transportation, green buildings, sustainable water management, pollution prevention and control, biodiversity conservation, and climate change adaptation. The framework mandates third-party verification of the Financing Framework by an independent external reviewer, and requires the proceeds of green deposits to be tracked separately in a ring-fenced account. Significantly, green deposits are rendered eligible for classification under the Priority Sector Lending (PSL) framework, and pending deployment, their proceeds may be temporarily parked in Level 1 High-Quality Liquid Assets (HQLAs), providing regulated entities with meaningful liquidity management flexibility (Reserve Bank of India, 2024a).

In the domain of climate risk management, the RBI has issued Master Directions on Climate Finance and Climate Risk Management, enabling commercial banks to assess physical and transition climate risks, integrate them systematically into enterprise risk management frameworks, optimise green credit flows, and address the risk of greenwashing in the presentation of climate-related financial products (Reserve Bank of India, 2024b). These directions signal the RBI's intention to progressively embed climate risk

considerations into the prudential regulatory framework, consistent with the guidance issued by the Basel Committee (2022) and the NGFS (2022).

The International Financial Services Centres Authority (IFSCA) has also moved to integrate ESG considerations into fund management regulation. Under the IFSCA (Fund Management) Regulations 2025, Fund Management Entities (FMEs) with Assets Under Management (AUM) exceeding USD 3 billion are required to disclose their sustainability risk identification and management frameworks in annual reports, while ESG-designated schemes face full disclosure of investment objectives and performance metrics against stated sustainability outcomes. The Government of India's Sovereign Green Bond Programme, launched in January 2023, has been equally transformative. By the end of 2024, the Government had issued eight tranches of sovereign green bonds totalling INR 477 billion (approximately USD 5.8 billion), directed toward expenditures in renewable energy, energy efficiency, clean transportation, water and sanitation, and sustainable agriculture (Climate Bonds Initiative and MUFG, 2024). The sovereign programme has served a critical market development function, establishing a domestic green yield curve against which corporate and sub-sovereign green issuers can price their instruments, and catalysing broader investor interest in Indian sustainable debt.

**Table 3: India's ESG Regulatory Framework for Banking and Finance**

| Regulator   | Instrument                          | Year                | Scope                                                                                       | Key Obligations                                                                                                                                                                  | Compliance Timeline                                                                  |
|-------------|-------------------------------------|---------------------|---------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| <b>SEBI</b> | BRSR Framework (incl. BRSR Core)    | 2021; expanded 2023 | Top 1,000 listed entities by market cap; top 250 for value chain disclosures                | Nine-principle ESG disclosure; Scope 1 & 2 GHG (essential); Scope 3 & value chain disclosure for top 250; third-party assurance on BRSR Core                                     | Mandatory from FY2022-23 (top 1,000); Scope 3/value chain from FY2025-26 (top 250)   |
| <b>SEBI</b> | NCS Amendment (December 2024)       | 2024                | All issuers of ESG Debt Securities; stock exchanges; merchant bankers; ESG rating providers | Introduction of ESG Debt Securities class (green bonds, social bonds, sustainability bonds, SLBs); SEBI-prescribed issuance conditions; enhanced disclosure quality requirements | Effective from December 2024; operational framework circular issued June 2025        |
| <b>RBI</b>  | Master Directions on Green Deposits | February 2024       | Scheduled commercial banks; small finance banks; deposit-taking NBFCs                       | Board-approved Financing Framework; eligible green categories; third-party verification; separate proceeds tracking; PSL eligibility; HQLA                                       | Effective from date of issue; compliance required for all green deposit mobilisation |

|                            |                                                                  |                   |                                                              |                                                                                                                                                                          |                                             |
|----------------------------|------------------------------------------------------------------|-------------------|--------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|
|                            |                                                                  |                   |                                                              | temporary parking                                                                                                                                                        |                                             |
| <b>RBI</b>                 | Master Directions on Climate Finance and Climate Risk Management | 2024              | All scheduled commercial banks                               | Climate risk assessment; integration into enterprise risk management; green credit flow optimisation; greenwashing prevention; TCFD/NGFS-aligned scenario analysis       | Phased implementation from FY2024-25        |
| <b>Government of India</b> | Sovereign Green Bond Programme                                   | From January 2023 | Central government expenditures in eligible green categories | Eight tranches issued; INR 477 billion (~USD 5.8 billion) by end-2024; eligible categories include renewable energy, clean transport, sustainable water, green buildings | Ongoing; annual issuance calendar           |
| <b>IFSCA</b>               | IFSCA (Fund Management) Regulations 2025                         | 2025              | FMEs with AUM > USD 3 billion; ESG fund schemes              | Annual sustainability risk disclosure; full investment objective and performance disclosure for ESG schemes                                                              | Effective from 2025; annual reporting cycle |

Note. Compiled from SEBI (2023, 2024), Reserve Bank of India (2024a, 2024b), Climate Bonds Initiative and MUFG (2024), and IFSCA (2025). NBFC = Non-Banking Financial Company; PSL = Priority Sector Lending; HQLA = High-Quality Liquid Asset; FME = Fund Management Entity; SLB = Sustainability-Linked Bond.

Despite this impressive regulatory edifice, significant gaps remain. India does not yet possess a unified green taxonomy comparable to the EU Taxonomy Regulation, which would provide a comprehensive, science-based classification of environmentally sustainable economic activities applicable across all sectors and financial instruments. While the Union Budget for FY2024-25 announced the development of a climate finance taxonomy, its finalisation and operationalisation remain works in progress as of 2026. Mandatory Scope 3 emissions disclosure is limited to the largest 250 listed entities and does not yet extend uniformly to the banking sector's financed emissions. Capacity constraints at regional rural banks (RRBs), cooperative banks, and small finance banks limit the effective implementation of climate risk assessment frameworks, even where regulatory requirements nominally apply. These gaps represent both a challenge and an opportunity for India's sustainable finance agenda.

## **5. India's Sustainable Debt Market: Growth, Trends, and Opportunities**

The quantitative expansion of India's sustainable debt market over the five years to 2024 represents one of the most remarkable developments in the country's financial landscape. According to the India Sustainable Debt State of the Market 2024 report, published by the Climate Bonds Initiative in collaboration with MUFG Bank, India's cumulative aligned GSS+ debt — encompassing Green, Social, Sustainability, and Sustainability-Linked (SLB) instruments — reached USD 55.9 billion by December 2024, reflecting a 186% increase from the USD 21.4 billion recorded in the 2021 baseline (Climate Bonds Initiative and MUFG, 2024). This growth trajectory has established India as the fourth largest emerging market source of aligned GSS+ debt globally, following China (USD 555.5 billion), South Korea (USD 339.2 billion), and Chile (USD 65.2 billion), and the eighteenth largest source globally across both developed and emerging markets (Climate Bonds Initiative and MUFG, 2024).

The structural composition of the market is revealing. Green debt remains overwhelmingly dominant, accounting for 83% of India's cumulative aligned GSS+ volume, with the energy sector — particularly solar and wind power — constituting the largest segment of financed activities. Within the green segment, green loans rather than green bonds have become increasingly important, constituting 39% of total green volume by end-2024 and with 2024 alone recording USD 5.5 billion in labelled green-loan deals across 19 corporates (Climate Bonds Initiative and MUFG, 2024). A total of 76 Indian issuers had accessed the GSS+ market through 179 deals by end-2024, with non-financial corporates holding the largest issuer share at 56% of overall volume. This corporate dominance reflects the significant role of independent power producers and renewable energy developers in driving green debt issuance, with entities such as ReNew Power and Avaada Energy among the most prolific issuers (Climate Bonds Initiative and MUFG, 2024).

Social finance, historically a marginal segment of India's sustainable debt market, experienced remarkable acceleration in 2024. Seven aligned social bonds raised USD 5.5 billion during the year, lifting cumulative social bond volume to USD 6.6 billion, while Non-Banking Financial Companies (NBFCs) raised an additional USD 1.8 billion in social loans primarily for microfinance, affordable housing, and education activities (Climate Bonds Initiative and MUFG, 2024). This surge in social bond issuance reflects both growing investor appetite for impact-labelled instruments and the increasing sophistication of Indian issuers in structuring social use-of-proceeds frameworks aligned with international standards. The sub-sovereign sustainable finance market also registered a landmark development with the Vadodara Municipal Corporation's issuance of what was recognised as Asia's first Climate Bonds-certified municipal green bond, valued at INR 1 billion, directed toward urban infrastructure improvements (Climate Bonds Initiative and MUFG, 2024).

The currency composition of India's GSS+ market reflects the continued predominance of cross-border capital, with USD-denominated instruments accounting for approximately 55% of total volume and INR-denominated instruments for 44%, with JPY and EUR emerging as alternative currency options for Indian issuers seeking to diversify their investor base (Climate Bonds Initiative and MUFG, 2024). The dominance of foreign currency issuance underscores both the depth of international investor interest in Indian sustainable assets and the relative underdevelopment of the domestic institutional investor base — pension funds, insurance companies, and provident funds — as buyers of INR-denominated sustainable instruments.

The scale of India's unmet financing need provides the most compelling context for the market's growth potential. The country requires an estimated USD 1.3 trillion in climate investment by 2030 to meet its nationally determined contributions under the Paris Agreement, of which private sources are expected to contribute USD 756 billion (Climate Bonds Initiative and MUFG, 2024). The transition financing gap for



hard-to-abate sectors alone is staggering: steel and cement together require an estimated USD 650 billion in transition investment, yet these sectors remain largely underserved by existing GSS+ market structures, which are predominantly oriented toward renewable energy (Climate Bonds Initiative and MUFG, 2024). The development of credible transition finance frameworks for carbon-intensive industries thus represents both an urgent challenge and a significant market development opportunity for Indian banks and capital market participants.

Major Indian banks have played an active, if still nascent, role in the growth of the sustainable debt market. The State Bank of India (SBI), Bank of Baroda, HDFC Bank, and ICICI Bank have variously served as issuers of green bonds, arrangers and underwriters of corporate green debt, and providers of green lending products. SBI has incorporated green finance into its corporate banking strategy, including through the issuance of green bonds to finance renewable energy projects. Bank of Baroda issued a USD 500 million green bond in 2021, the proceeds of which were directed toward renewable energy, clean transportation, and green building projects (Bank of Baroda, 2021). HDFC Bank has developed ESG-linked supply chain finance programmes for large corporate clients, embedding sustainability performance incentives into commercial lending structures. These banking sector initiatives, while significant, remain small relative to the scale of India's financing need and relative to the green lending portfolios of major banks in China, Europe, and North America, signalling substantial room for expansion.

**Table 4: India's GSS+ Sustainable Debt Market — Key Statistics (as of December 2024)**

| Indicator                                          | Value / Detail                                                                                               |
|----------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| <b>Total Cumulative Aligned GSS+ Volume</b>        | USD 55.9 billion (as of December 2024)                                                                       |
| <b>Growth Since 2021 Baseline</b>                  | 186% increase from USD 21.4 billion in 2021                                                                  |
| <b>Green Debt Share of Total GSS+ Market</b>       | 83% (bonds + loans); green loans = 39% of green segment                                                      |
| <b>Number of Issuers / Number of Deals</b>         | 76 issuers; 179 total deals                                                                                  |
| <b>Non-Financial Corporate Issuer Share</b>        | 56% of total cumulative aligned volume                                                                       |
| <b>Sovereign Green Bonds Issued</b>                | 8 tranches; INR 477 billion (~USD 5.8 billion) by end-2024; domestic green yield curve established           |
| <b>Social Bonds (2024 annual issuance)</b>         | USD 5.5 billion (7 aligned deals); cumulative social bond volume: USD 6.6 billion                            |
| <b>Global &amp; EM Ranking</b>                     | 4th largest EM source; 18th globally (after China: USD 555.5bn, South Korea: USD 339.2bn, Chile: USD 65.2bn) |
| <b>Currency Mix</b>                                | USD ~55%; INR ~44%; JPY and EUR emerging alternatives                                                        |
| <b>Climate Investment Need by 2030</b>             | USD 1.3 trillion total; USD 756 billion from private sources                                                 |
| <b>Transition Finance Gap (Steel &amp; Cement)</b> | USD 650 billion                                                                                              |
| <b>Municipal Market Milestone</b>                  | Vadodara Municipal Corporation: Asia's first Climate Bonds-certified municipal green bond (INR 1 billion)    |

Note. All data sourced from Climate Bonds Initiative and MUFG (2024). GSS+ = Green, Social, Sustainability, and Sustainability-Linked; EM = Emerging Market.

## 6. ESG Risk Integration in Banking Operations

The embedding of ESG risks into the core risk management frameworks of banks represents a fundamental evolution in prudential banking practice, moving beyond disclosure and product innovation to reshape how credit risk, market risk, liquidity risk, and operational risk are assessed, quantified, and managed. This evolution is being driven simultaneously by regulatory mandates, investor expectations,

and a growing body of empirical evidence that ESG risk factors — particularly climate-related risks — are financially material across multiple risk categories and time horizons (Basel Committee, 2022).

The TCFD framework's foundational distinction between physical risks and transition risks has become the organising taxonomy for climate risk management in banking. Physical risks — those arising from the direct impacts of climate change such as extreme weather events, rising sea levels, drought, and shifting precipitation patterns — can impair the value of collateral assets, disrupt borrower cash flows, and generate direct operational losses. Physical risks are further disaggregated into acute risks (event-driven, such as cyclones or floods) and chronic risks (long-term shifts, such as sea-level rise or average temperature increases). Transition risks — those arising from the policy, technological, market, and reputational shifts associated with the transition to a lower-carbon economy — include the risk that high-carbon assets and business models lose value as carbon pricing, regulatory restrictions, and changing consumer preferences reshape competitive dynamics. For Indian banks, both categories of risk are salient: physical risks are acute given India's geographic exposure to monsoon variability, coastal flooding, and heat stress, while transition risks are significant given the banking sector's substantial legacy exposure to coal, steel, and other carbon-intensive industries (Reserve Bank of India, 2024b).

ESG factors are increasingly influencing credit risk assessment at major financial institutions. The incorporation of ESG considerations into credit scoring — including the assessment of borrowers' climate risk exposure, carbon transition plans, and ESG performance track records — is advancing, with a 2025 KPMG survey of significant financial institutions finding that the impact of ESG risks on credit risk assessment is an area of advancing practice globally (KPMG, 2025). Approximately 34% of surveyed significant institutions have introduced ESG Economic Capital (ECAP) buffers, averaging approximately 1.5% of total ECAP, representing an acknowledgement that ESG risks carry material capital implications that are not yet fully captured by existing Pillar I standardised models (KPMG, 2025). The full integration of ESG risks into Pillar II internal capital adequacy models is seen by many institutions as a medium-term goal, pending the development of richer ESG risk data sets and validated quantification methodologies.

Climate scenario analysis and stress testing have emerged as critical tools for assessing the portfolio-level implications of climate risks. The NGFS scenario framework, providing three broad climate pathways, has become the de facto standard for climate risk stress testing at most major global banks (NGFS, 2022). These scenarios enable banks to assess the differential impact on credit quality, market valuations, and capital ratios under varying assumptions about the pace and orderliness of the low-carbon transition and the severity of physical climate impacts. Despite this progress, biodiversity risk — encompassing the financial risks associated with ecosystem degradation, habitat loss, and species decline — remains at an early stage of integration: only 34% of institutions surveyed by KPMG (2025) incorporate biodiversity risk into their stress testing frameworks, while 66% have at least conducted a biodiversity materiality analysis, suggested growing awareness but limited operational integration.

Greenwashing risk has emerged as a distinct and increasingly prominent risk category within the sustainable finance space. Defined as the misrepresentation or overstatement of the environmental or sustainability credentials of a financial product, institution, or financed activity, greenwashing exposes banks to legal, reputational, and regulatory risks of potentially significant magnitude. KPMG's (2025) survey found that 94% of surveyed institutions consider greenwashing risks, yet a substantial proportion have not yet formalised internal processes for identifying, monitoring, and mitigating greenwashing exposure. In India, the RBI's Framework on Green Deposits (2024a) directly addresses greenwashing risk by mandating third-party verification of green deposit financing frameworks and requiring transparent,

ring-fenced tracking of green deposit proceeds, thereby establishing procedural safeguards against the misallocation of green-labelled funds.

India-specific ESG risk dimensions deserve particular analytical attention. The agricultural sector, which accounts for the majority of rural bank lending — particularly through priority sector lending requirements — is acutely exposed to physical climate risks including monsoon variability, drought, and heat stress, with cascading implications for agricultural credit quality and rural bank portfolio performance. Infrastructure lending to coastal and low-lying flood-prone regions carries escalating physical risk exposure as sea-level rise projections worsen. Public sector undertaking (PSU) banks, which hold the largest share of Indian banking sector assets, retain substantial legacy exposures to coal-based power generation, iron and steel, and other carbon-intensive industries, creating concentrated transition risk in their credit portfolios. The orderly management of these stranded asset risks, in coordination with government transition policies and just transition frameworks, will be among the most complex governance and risk management challenges facing Indian banking regulators and institutions in the coming decade.

## **7. Green Banking Practices: Products, Innovation, and Case Studies**

Green banking, as a concept and practice, refers to the orientation of a bank's business model, products, processes, and culture toward the promotion of environmental sustainability and the minimisation of the ecological footprint of both the bank's own operations and the activities it finances. While green banking shares conceptual space with the broader framework of sustainable finance, it is more specifically focused on the environmental (E) pillar of ESG, and is manifest most visibly through the design and distribution of green financial products (Biswas, 2011). In the Indian context, green banking has evolved from a largely voluntary and reputational initiative in the early 2010s into a multi-dimensional strategic and regulatory imperative by the mid-2020s, encompassing an increasingly diverse ecosystem of products, institutional arrangements, and technological enablers.

The portfolio of green banking products available through Indian financial institutions has expanded substantially in recent years. Green deposits, now governed by the RBI's 2024 Master Directions, enable retail and corporate depositors to direct their savings into ring-fenced pools that finance eligible green projects, providing a retail-accessible mechanism for participation in the green finance market. Green home loans and green building finance products are offered by several major banks, typically providing preferential interest rates for properties meeting certified green building standards such as those of the Indian Green Building Council (IGBC). Green vehicle loans, targeted at the purchase of electric and hybrid vehicles, have grown in significance alongside India's rapidly expanding electric vehicle market, supported by government incentives under the FAME scheme. Sustainable supply chain finance — whereby banks offer preferential lending terms to suppliers meeting predefined sustainability performance criteria — represents an increasingly important mechanism for extending ESG incentives beyond large corporations to their smaller supply chain partners. Sustainability-linked loans (SLLs) and sustainability-linked bonds (SLBs), instruments whose financial terms (typically interest rates or coupon rates) are tied to the borrower's performance against specific, predetermined, and externally verified sustainability key performance indicators, represent the most sophisticated end of the green banking product spectrum and are gaining traction among India's larger corporate borrowers (SEBI, 2024).

Digital and fintech-driven innovation is increasingly reshaping the delivery of ESG-integrated banking services. ESG scoring platforms embedded in corporate banking portals enable relationship managers to assess the ESG profile of borrowers as an input to credit decisions. Carbon footprint tracking tools integrated into retail and SME banking applications allow customers to monitor the environmental impact

of their consumption and transactions. Artificial intelligence-driven ESG data analytics, drawing on alternative data sources including satellite imagery, supply chain records, and public regulatory filings, are beginning to address the chronic ESG data gap for SMEs and unlisted entities that has historically constrained the application of ESG criteria in credit assessment (Tariq et al., 2023).

A number of Indian banks have established themselves as significant actors in the green banking and sustainable finance space, offering instructive institutional case studies. The State Bank of India (SBI), India's largest public sector bank by assets, has incorporated green finance into its corporate and infrastructure banking strategies through the provision of green car loans for electric and hybrid vehicles, the development of dedicated renewable energy financing desks, and the issuance of green bonds in international capital markets directed toward the financing of solar and wind energy projects. Yes Bank holds the distinction of being the first Indian bank to issue a green bond, having done so in February 2015 — a USD 1 billion equivalent green bond — well in advance of most of its domestic peers and at a time when the global green bond market was still in its early development phase (Yes Bank, 2015). This pioneering issuance established Yes Bank as a thought leader in Indian sustainable finance and catalysed broader market interest. Bank of Baroda issued a USD 500 million green bond in 2021, earmarked for renewable energy generation, clean transportation, and green building projects, attracting strong international investor interest and achieving a green premium (greenium) relative to conventional debt at pricing (Bank of Baroda, 2021).

HDFC Bank has pursued a distinctive approach to sustainable finance through ESG-linked supply chain finance programmes, embedding sustainability performance metrics into the commercial credit terms offered to large corporates and their supplier ecosystems, thereby leveraging the bank's commercial relationships to propagate ESG standards throughout Indian supply chains. ICICI Bank has developed green mortgage and green home loan products and has disclosed Scope 1 and Scope 2 operational GHG emissions in compliance with its BRSR obligations. In the domain of financial inclusion — central to the Social (S) pillar of ESG — India Post Payments Bank (IPPB) and microfinance institutions (MFIs) play a distinctive and structurally important role. By leveraging India's extensive postal network to provide basic banking services to unbanked and underbanked rural populations, IPPB has made a material contribution to financial access for marginalised communities, directly advancing SDG 1 (No Poverty) and SDG 8 (Decent Work and Economic Growth). Similarly, the microfinance sector — predominantly serving women borrowers in rural and peri-urban areas — has channelled significant social capital to economically excluded populations, representing an important dimension of the banking sector's social pillar performance. The SEBI NCS Amendment of December 2024, by formalising the regulatory framework for social bonds and sustainability bonds, has created new capital market pathways for NBFCs and MFIs to raise dedicated social finance at scale (SEBI, 2024).

## **8. Challenges and Barriers to ESG Integration in Indian Banking**

Notwithstanding the considerable regulatory and market progress documented in preceding sections, the integration of ESG principles into Indian banking operations confronts a complex and interrelated set of structural, institutional, and market-level challenges. A rigorous assessment of these barriers is indispensable for the design of effective policy responses and for calibrating realistic expectations about the pace and depth of sustainable finance mainstreaming in the Indian financial system.

The most pervasive and consequential challenge is the scarcity and poor quality of ESG data, particularly for small and medium enterprises (SMEs) and the agricultural sector, which together constitute the dominant segment of India's real economy and a large proportion of the banking sector's credit exposure. Unlike large listed entities, which are subject to BRSR disclosure requirements, the overwhelming

majority of Indian borrowers — including the estimated 63 million SMEs — generate little or no structured ESG data, rendering systematic ESG-informed credit assessment practically very difficult for banks without significant investment in alternative data capabilities (Tariq et al., 2023). This data gap also severely constrains the development of robust ESG risk quantification models and scenario analyses at the portfolio level.

Greenwashing risk — the risk that green or sustainability labels are applied to financial products or financed activities that do not genuinely meet credible environmental criteria — represents a significant challenge to market integrity and investor confidence. While the RBI's green deposit framework mandates third-party verification of financing frameworks, India's ecosystem of qualified environmental auditors and ESG verification specialists remains underdeveloped relative to the scale of the market opportunity, creating bottlenecks in the supply of credible verification services (Reserve Bank of India, 2024a). The absence of a legally mandated, comprehensive Indian green taxonomy further complicates the verification task by leaving room for definitional ambiguity about what qualifies as a genuinely green activity.

Regulatory fragmentation — specifically, the division of ESG regulatory responsibility across RBI, SEBI, IFSCA, the Ministry of Finance, and MoEFCC, without a single unified taxonomy, coordination mechanism, or lead regulator — creates compliance complexity for financial institutions and risks inconsistency in the standards applied to ESG-labelled instruments and activities across different market segments. This fragmentation is compounded by the absence of a legally mandated green taxonomy: while SEBI's BRSR framework and RBI's green deposit directions each specify eligible green categories, these do not constitute a comprehensive, science-based taxonomy aligned with IFRS S2 or the EU Taxonomy, leaving definitional gaps that can be exploited for greenwashing (Bhatt et al., 2022).

Capacity and expertise constraints are particularly acute at the level of regional rural banks (RRBs), cooperative banks, primary urban cooperative banks (UCBs), and small finance banks, which collectively serve large segments of the Indian population but lack the financial resources, human capital, and institutional infrastructure to implement sophisticated climate risk assessment or ESG reporting frameworks. These institutions are also most directly exposed to agricultural and rural economic risks that are among the most climate-sensitive in the Indian economy. Short-termism in credit appraisal — the tendency to weight near-term financial indicators heavily relative to long-horizon ESG risks — reflects a structural misalignment between banks' typical credit cycle durations (one to three years) and the multi-decade time horizons over which physical and transition climate risks materialise at full force (Kay, 2012). This misalignment is compounded by incentive structures that reward short-term loan book growth over long-term portfolio quality management.

For PSU banks, the cost of transition from carbon-intensive legacy lending portfolios to green-aligned portfolios is a material strategic concern. Many large PSU banks retain significant loan exposures to coal-based power generation, thermal power equipment manufacturers, and other brown industries that face transition risk under India's decarbonisation commitments. The management of these exposures — through orderly loan run-off, renegotiation, or structured transition finance — requires both regulatory clarity and significant management bandwidth. Finally, global regulatory divergence — particularly the contrast between the EU's stringent CSRD requirements and the rolling back of ESG-related regulations in the United States — creates strategic uncertainty for Indian banks with international operations or cross-border capital market access, complicating their ESG reporting and compliance strategies.

## **9. Future Outlook and Policy Recommendations**

Looking ahead to 2030 and beyond, the trajectory of sustainable finance in Indian banking is one of considerable promise, tempered by the structural challenges outlined above. Several powerful drivers are likely to propel continued growth. India's ambitious nationally determined contributions under the Paris Agreement — including the net-zero target for 2070 and the 500 GW non-fossil fuel capacity target for 2030 — create a sustained and large-scale demand for green finance that banks are uniquely positioned to intermediate. The progressive deepening of India's domestic capital markets, the growing sophistication of the institutional investor base, and the increasing integration of Indian entities into global sustainable finance networks will expand the supply of capital available for ESG-aligned investments. Technological innovation — particularly in AI-driven ESG data analytics, digital credit assessment, and satellite-based environmental monitoring — promises to address some of the most intractable ESG data challenges in the medium term.

Against this backdrop, several priority policy recommendations merit the attention of policymakers, regulators, and industry stakeholders. First and most fundamentally, India requires the development and legal operationalisation of a unified Indian Green Taxonomy — a comprehensive, science-based classification of environmentally sustainable economic activities aligned with IFRS S2 standards and informed by (though not mechanically replicating) the EU Taxonomy — to provide a definitive, credible, and consistent standard for the use-of-proceeds verification, green product classification, and disclosure requirements applicable across all Indian ESG financial instruments and regulated entities. The taxonomy development process announced in the Union Budget for FY2024-25 should be completed as a matter of priority and its outcomes accorded statutory force through appropriate regulatory instruments.

Second, phased mandatory climate stress testing for all scheduled commercial banks — modelled on NGFS scenario frameworks and calibrated to India's specific physical and transition risk profile — should be introduced by the RBI on a graduated timeline, beginning with the largest PSU and private sector banks and progressively extending to smaller institutions. Third, the PSL framework should be expanded and updated to provide preferential treatment for a broader set of green and social activities, creating a systematic balance sheet incentive for banks to increase their green lending allocations. Fourth, the establishment of a dedicated national green finance institution — a Green Bank of India — modelled on analogous institutions in the United Kingdom, Australia, and Malaysia, could serve as a catalytic intermediary for mobilising private capital into green and transition investments that are commercially viable but currently underserved by the existing financial system.

Fifth, the capacity and credibility of third-party ESG verification and audit — critical for the integrity of India's green bond, green deposit, and BRSR assurance markets — must be strengthened through the accreditation of qualified environmental auditors, the development of Indian verification standards consistent with international best practice, and RBI/SEBI-enforced quality standards for verification service providers. Sixth, building ESG competency at the board and senior management levels of Indian banks should be treated as a regulatory priority, with RBI and SEBI considering the introduction of minimum ESG literacy and oversight requirements for bank directors and senior executives, potentially delivered through mandatory training programmes. Seventh, the mobilisation of domestic long-term capital — from Life Insurance Corporation of India, pension funds, and the Employees' Provident Fund Organisation — as systematic buyers of INR-denominated green bonds and sustainable instruments is essential for reducing the foreign currency dependency of the Indian GSS+ market and building a more resilient domestic investor base.

India's experience offers instructive lessons for other emerging economies navigating the challenge of building sustainable finance systems in the context of rapid development, resource constraints, and acute climate vulnerability. The combination of a strong regulatory push, a credible sovereign anchor through the green bond programme, market development facilitated by multilateral development banks, and the gradual build-out of ESG disclosure infrastructure provides a replicable model that peers across South Asia, Southeast Asia, and Sub-Saharan Africa can adapt to their own institutional contexts.

## **CONCLUSION**

This chapter has provided a comprehensive, evidence-based examination of the integration of ESG principles and sustainable finance frameworks within the Indian banking and financial system, situating India's domestic trajectory within the wider global context of accelerating climate action and evolving financial regulation. The analysis reveals a financial system at an important inflection point: possessing a sophisticated and rapidly maturing regulatory architecture — encompassing SEBI's BRSR framework, the RBI's green deposit and climate risk master directions, sovereign green bonds, and a growing GSS+ debt market of USD 55.9 billion — yet still confronting structural challenges of data scarcity, regulatory fragmentation, capacity gaps, and an enormous unmet financing need estimated at USD 1.3 trillion by 2030 (Climate Bonds Initiative and MUFG, 2024; FSB, 2024).

The theoretical foundations examined in this chapter — stakeholder theory, legitimacy theory, and the sustainable development paradigm — provide a coherent normative basis for ESG integration that goes beyond regulatory compliance, framing sustainable finance as a fundamental reorientation of the banking sector's role in the economy. The global regulatory frameworks surveyed — from TCFD and ISSB standards to the EU Taxonomy and Basel Committee climate risk principles — set the international standards against which Indian regulatory development can be benchmarked and toward which further convergence is both possible and desirable. The case studies and market data presented demonstrate that Indian banks and capital market participants are not merely passive recipients of global sustainable finance trends but are active contributors to the development of innovative products, landmark transactions, and institutional frameworks that are earning India recognition as a rising leader in emerging market sustainable finance.

Realising India's full potential as a sustainable finance leader will, however, require a coordinated, long-term commitment from policymakers, regulators, financial institutions, and the academic community. Policymakers must provide the taxonomic clarity, institutional infrastructure, and incentive structures that mobilise private capital at the scale demanded by India's climate and development objectives. Regulators must ensure that disclosure requirements are credible, consistently enforced, and progressively aligned with international best practice. Financial institutions must invest in the governance, talent, and technology capabilities required to make ESG integration genuinely operational rather than merely performative. And the academic community must provide the rigorous empirical research, conceptual innovation, and critical scrutiny that allows sustainable finance frameworks to be continuously evaluated and improved. ESG integration, properly conceived and effectively implemented, is not merely a compliance obligation or a reputational strategy — it is a driver of long-term banking resilience, systemic financial stability, and enduring value creation in an economy and a planet that cannot afford the externalities of unsustainable growth.

1 The term "GSS+" encompasses Green, Social, Sustainability, and Sustainability-Linked (SLB) debt instruments, as defined by the Climate Bonds Initiative's screening and alignment methodologies.

2 "Aligned" volume refers to GSS+ debt that meets Climate Bonds Initiative's screening criteria for alignment with its Standard and/or Taxonomy, as distinct from all labelled GSS+ instruments.

3 Financed emissions refer to the greenhouse gas emissions associated with a bank's lending and investment activities — i.e., the proportionate share of emissions attributable to entities to which the bank has provided credit or capital — as distinct from the bank's own direct (Scope 1) and indirect (Scope 2) operational emissions.

4 The "greenium" (green premium) refers to the yield differential at which green bonds price relative to comparable conventional bonds from the same issuer, reflecting investor demand for sustainable instruments.

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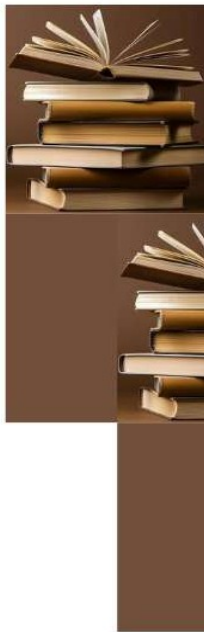


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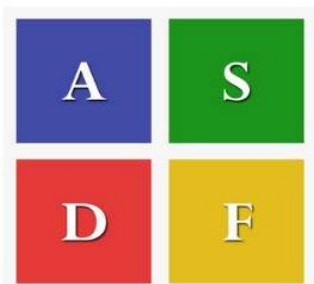


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