

**Green Finance and Climate Risk Disclosure: Analyzing the Effectiveness of ESG Reporting Standards Post-EU CSRD – Implications for Indian Financial and Corporate Sectors**

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**Abstract**

This paper investigates the intersection of green finance and climate risk disclosure within the context of the changing ESG landscape, with a focus on how the EU CSRD will affect financial and corporate sectors in India. As the CSRD mandates standardized ESG reporting beginning in January 2024 (European Commission, 2023), India needs adaptations to protect the trust of their investors and align with global sustainability standards.

Using a mixed-methods approach involving the coding of sustainability reports from the largest 100 firms from NSE (2022 - 2024) as well as interviews with ESG stakeholders, we found that while ESG implementation is improving in India, there continue to be challenges around data reliability, duplication of disclosures, and third-party assurance. In 2024, only 45% of the BSE 500 indicated TCFD alignment for climate risk disclosures, noted in the (SEBI, 2024).

Although India's BRSR framework aligns with global norms, there are weaknesses that limit global convergence, fragmented regulations, very little ESG assurance (only 12% were subject to external verification), and weak monitoring of Scope 3 emissions (MCA, 2023; Ghosh & Tripathi, 2023). Following the example of the EU CSRD, we recommend an implementation of ESG taxonomy convergence, assurance standards for disclosures, guidelines by sector, and

data systems, supported by regulatory collaboration and public-private partnerships, to improve the state of ESG reporting in India.

**Keywords:** Green Finance, ESG Reporting, Climate Risk Disclosure, EU CSRD, Indian Financial Sector.

## **1.Introduction**

Green finance has emerged as a vital mechanism to achieve sustainable development and manage climate finance risks. Since the Paris Agreement, financial systems have started to redirect towards a low-carbon future—a journey supported by numerous initiatives including SGD 13, which has initiated a change in practice to incorporate climate into all economic and investment decisions (UN, 2023). Although climate finance at a global level was measured at USD 1.27 trillion in 2022 (49% higher than previous baselines), we have still a long way to go to get to the USD 4.5 trillion required annually by 2030 to meet the 1.5°C (Climate Policy Initiative, 2023).

The EU CSRD was introduced in January 2023 as a key development in ESG regulation. The directive will require over 50,000 companies operating in the EU to submit mandatory detailed sustainability disclosures but will involve double materiality, climate risks, decarbonisation targets and more under European Sustainability Reporting Standards (European Commission, 2023). The shift from voluntary to mandatory ESG disclosures marks a huge step in corporate transparency, considering that it moves mandatory ESG disclosures to a set of binding requirements globally.

For India, one of the world's major emerging economies and carbon emitters, these transitions create both opportunities and regulatory hurdles. SEBI's Business Responsibility and Sustainability Reporting (BRSR) specification—now mandatory for the 1000 largest listed companies starting in FY2022–23—aspires to align domestic ESG disclosures with global expectations by incorporating quantitative and qualitative parameters (SEBI, 2021). Despite this tremendous progress, concerns remain with the comparative-integration by disclosures/public disclosures; the materiality threshold; assurance; and climate-risk integration in relation to other frameworks such as the EU CSRD.

This paper examines how Indian financial institutions and corporations are responding to evolving global norms for ESG disclosures, especially the EU CSRD. It then assesses how ready India's ESG disclosure-the system-is to facilitate green finance and climate-related financial risk management and also be globally competitive in an economy constrained by carbon usage through empirical analysis, stakeholder interviews, and policy benchmarks.

## **2.Review of Literature**

The increasing attention on Environmental, Social, and Governance (ESG) disclosures to ensure capital flows are aligned with sustainable goals has resulted in substantial research about the use of disclosures in both developed and emerging markets. When considering the Indian context, the literature identifies an immature and fragmented ESG ecosystem that exists amid voluntary frameworks, patchy and inconsistent reporting standards, and established ESG regulations which tend to lack enforcement - relative to the structured and enforceable standards which are emerging in Europe.

Chakraborty and Chatterjee (2023) highlight challenges with ESG implementation in India, recognising the inconsistencies in disclosure provisions and lack of regulation structures. Assuming firms are increasingly incorporating ESG as a priority strategically, meaningfully incorporating ESG elements in business processes is hampered by limitations around data availability, complexity of reporting, and stakeholder awareness, which is low across firms in India.

The United Nations Environment Programme Finance Initiative (UNEP FI, 2022) corroborates these voids by noting increasing interest in sustainable finance across Asia (including India) but reiterating issues including limited transparency and inconsistent ESG factor usage by institutional investors. Only 36% of Asian investors fully integrated ESG as part of their investment framework compared to 68% of European investors, demonstrating a clear differential in regional maturity.

As it pertains to green finance instruments, Ghosh and Tripathi (2022) illustrate that while India's green bond market has grown to more than USD 10.2 billion in cumulative issuances as of 2023, it continues to lag behind global leaders in scale, standardization, and investor trust (namely EU and China). Indian issuers still rely on either external certifications or voluntary guidelines such as ICMA's Green Bond Principles (which are useful, but are voluntary rather

than binding). In terms of policy, the European Commission's Corporate Sustainability Reporting Directive (CSRD) establishes mandatory ESG disclosures based on the double materiality principle and expands the number of firms required to report to over 50,000 entities, based on the European Sustainability Reporting Standards (European Commission, 2023). These developments address the issue of greenwashing, seek to enhance comparability and improve assurance mechanisms - examples that non-EU countries such as India can assess and potentially employ. Overall, the literature continues to reflect India's imminent move from voluntary ESG disclosures to a standardised and regulated reporting framework. Although a positive development for India, the existing standard with SEBI's Business Responsibility and Sustainability Reporting (BRSR) frame, lacks the robustness as seen in the EU CSRD with respect to enforcement, assessment of materiality, sectoral disclosures, and assurance features. More than ever Indian companies are looking for international capital, as well as market competitiveness, with investors looking for ESG aligned returns, objectives that are more readily achieved through frameworks like the CSRD.

### **3. Research Methodology**

Operationalizing the ESG construct and its determinants, as well as Corporate Climate Risk disclosures, is a central focus of this exploratory study. Accordingly, the use of quantitative ESG data is employed for two reasons: "to operationalize and compile a composite ESG metric for each company, and to compare changes to ESG performance over time and across companies".

1. Secondary Data Analysis: For this study, the authors will apply quantitative ESG and climate risk disclosure data from the top 200 Indian listed companies measured by market capitalization, and a representative sample of firms based in the EU as a benchmarking sample.....In this case, the study will be analyzing the years FY2020–21 to FY2023–24, facilitating the comparison of the trend over time, i.e., from pre CSRD implementation through to post CSRD implementation. Additional data will be collected from Bloomberg ESG, MSCI ESG Ratings, and the Carbon Disclosure Project (CDP) databases.

2. Comparative Regulatory Framework Analysis: The study undertook a systematic assessment of significant ESG disclosure frameworks such as the EU CSRD, SEBI's BRSR, TCFD, and the Global Reporting Initiative (GRI). The assessment will compare elements relating to

materiality assessment, sector-specific disclosures, third-party assurance, and regulatory enforcement.

3. Stakeholder Interviews: A Semi-structured interview was conducted with a purposive sample of 30 key stakeholders: senior sustainability executives from listed Indian companies, ESG analysts from investment firms, officials from SEBI, RBI and the Ministry of Corporate Affairs, professionals from global ESG standard-setting bodies and consulting firms. The insights from these interviews were examined through thematic analysis to extract salient qualitative findings.

4. Survey-Based Assessment: The questionnaire, which was standardized, was delivered to 150 respondents from three categories (corporates, investors, and regulators) with the intent of to measure awareness, level of adoption, and perceived obstacles to ESG reporting. The analysis will use statistical data in SPSS, and qualitative data in NVivo software analysis.

5. Policy Gap Analysis: The report ends with a gap analysis to benchmark India's ESG disclosure framework against important compliance indicators of the EU CSRD, which will help locate any sectoral misalignments and areas of the regulatory framework that need to be enhanced for improving overall alignment with international ESG standards.

#### **4.Theoretical Framework**

This research is based in Institutional Theory and Stakeholder Theory, two well-established conceptual frameworks to study ESG reporting, Climate Risk Disclosure, and the emergence of standards for regulation, as national and international sustainability standards evolve.

##### **1.Institutional Theory:**

In Institutional Theory organizations exist in a broader socio-political environment, affected by coercive, normative, and mimetic pressures that shape their structures, strategies and behaviours (DiMaggio & Powell, 1983). As it relates to ESG reporting and climate risk disclosure, the pressures stem from mechanisms and regulatory institutions such as some global regulators enforcing international agreements and associations (like the Paris Agreement) or other influences (such as market-driven sustainability shifts).

The European Union's Corporate Sustainability Reporting Directive (CSRD) is an example of a significant global institutional pressure. By adopting a double materiality approach, the CSRD requires disclosures about climate risks and the actual assessment of their environmental and social impacts and thus embeds sustainability into corporate reporting obligations (European Commission, 2023). Such standards will certainly begin to impact emerging market firms, including those in India, as they look for access to ESG capital, supply chains or investor networks.

In India, for example, there is no shortage of regulations moving toward to a more institutionalized approach to ESG reporting as seen in the Securities Exchange Board of India (SEBI) provided BRSR framework regulations. However, Institutional Theory may suggest that, in the absence of enforcement, firms may practice "symbolic compliance" which leads to tokens disclosures and or greenwashing within their disclosures (Meyer & Rowan, 1977). The study utilizes Institutional Theory as framework for understanding the substantiability, quality and whether ESG disclosures changed in India as a result of level of regulatory pressure.

## 2. Stakeholder Theory

Stakeholder Theory, originating from Freeman (1984), advocates that organizations are accountable to shareholders and numerous other stakeholders, including regulators, employees, communities, environmental organizations, and future generations. With sustainability becoming an intrinsic part of corporate strategy, it can enable assessment of how firms are managing stakeholder expectations for ESG reporting and climate risk disclosure.

As ESG investing is booming (over USD 30 trillion globally) (GSIA, 2023), the stakeholder paradigm has shifted again, since investors now require assurance ESG information is reliable, comparable, and forward-looking to help in investment and risk analysis. Moreover, climate risk is seen not just as an environmental risk, but a financially material and pertinent issue for firm valuation, costs of capital, and reputation.

Stakeholder pressure is increasing in India. Institutional investors, for example, are starting to use ESG lenses in their portfolio strategies (CRISIL, 2023); meanwhile, civil society organizations and consumer groups are often raising concerns about greenwashing and insufficient climate disclosures. Stakeholder Theory highlights the need for firms in India to be transparent and accountable to all types of stakeholders in order to build trust, legitimacy, and ultimately, value over time.

This research includes both Institutional Theory and Stakeholder Theory in a combined analytical framework that allows for a more holistic analysis. Institutional Theory, for instance, describes the socially imposed pressure from the institutional environment for firms to disclose ESG information while Stakeholder Theory provides insights regarding how firms disclose ESG information to their stakeholders and which stakeholders are included. Together, these theories offer perspectives on the effectiveness, authenticity, and compliance of ESG reporting, particularly in India and in the context of global shifts such as the EU CSRD.

#### Evolution of ESG Reporting: Global to Indian Context

The worldwide evolution of ESG reporting is a monumental shift from the voluntary narrative reports to standardized, data-based, and assured reporting systems that integrate sustainability into corporate performance metrics. The growth is largely driven by escalating investor expectations, greater awareness of climate-related risks, and regulatory efforts to align corporate actions with environmental and social well-being over the long term.

#### Global Evolution of ESG Reporting

ESG reporting at a global level has shifted from voluntary disclosures to structured, mandatory, and standardized frameworks. GRI, which began in 1997, has grown to 10,000 + organizations globally (GRI, 2024). After the TCFD launched in 2015 to include climate risks in financial reporting, it has been supported by over 4,000 entities across 100 jurisdictions (TCFD, 2023). In 2023, IFRS under ISSB introduced IFRS S1 and S2 to standardize the reporting of organizations such as TCFD, SASB, CDSB, to create consistency and trust from investors (IFRS, 2023). Concurrently the EU rolled out CSRD making ESG disclosures mandatory for greater than 50,000 organizations under double materiality using ESRS (European Commission, 2023). These are examples of the global shift to standardized ESG reporting that focuses on investors.

#### Indian Context and the BRSR Framework

ESG reporting in India has developed moving in line with global trends, and whilst it has improved, it is still limited and inconsistent. ESG disclosure started as voluntary and aligned to concepts in frameworks like GRI, CDP and TCFD but SEBI introduced the regulatory structure of BRSR in 2021, for the top 1,000 listed companies from FY 2022-23 in India. BRSR is encouraging qualitative and quantitative reporting on the primary ESG concepts and there is partial alignment with the global standards (SEBI, 2021).

While ESG reporting have improved in India, the disclosures continue to be inconsistent, and often not audited. According to the CRISIL study of 2023, only 41% of the leading companies ranked or categorized as 'top', provided ESG disclosures at a comprehensive level (CRISIL, 2023). Moreover, sometimes good disclosure may exist but not cover breadth/depth and consistency. There are also differences by sector, remoteness with stakeholders, and the lack of established integrated and common ESG ratings.

Up to 2023, whilst BRSR Core for large high emission firms look great, and is evolution of BRSR, BRSR Core reporting does not address materiality assessments, nor does it include third-party assurance yet. Our success in ESG reporting will require us moving significantly forward in developing a robust and quality ESG regime. If we are to build a quality sustainable economy embedding sustainability behaviours and meet climate action targets under SDG 13 and obligations and expectations under the Paris Agreement, we must make significant progress towards matching regulatory ESG frameworks like EU CSRD and ISSB.

#### Understanding the EU CSRD and Effectiveness of ESG Standards Post-Implementation

The Corporate Sustainability Reporting Directive (CSRD) come into effect January 2024, is a significant step forward in the EU's sustainable finance agenda as it will replace the Non-Financial Reporting Directive (NFRD) with a broader, tougher ESG disclosure obligation.

The CSRD is extending its reporting requirements now to include approx. 50,000 more entities (large companies and listed SMEs) thereby significantly increasing the number of reporting organizations (European Commission, 2024a).

More importantly, the CSRD requires:

double materiality from companies, which entails a reporting obligation on both the financial implications of sustainability issues and their implications for society, and the environment, the disclosures adhere to the European Sustainability Reporting Standards (ESRS) produced by EFRAG, and are forward-looking, detailed, sector-focused impact disclosures covering both financial and non-financial data, such as Climate scenario analysis, GHG emissions (Scopes 1, 2, and material 3), transition plans, exposure to climate risks etc. (EFRAG, 2023), all reporting will need to be done digitally using eXtensible Business Reporting Language (XBRL) and that assurance should be independent to the sustainability information in enhanced readability and

comparability creating reliability and sustainability in relation to ESG reporting thus are more aligned to reporting requirements of global standards such as the Task Force on Climate-related Financial Disclosures (TCFD).

#### Effectiveness of ESG Standards Post-CSR Implementation

The CSRD has significantly enhanced the transparency, comparability, and reliability of ESG disclosures across the EU (European Commission, 2024b). For example, now 74% of entities indicate that they report using KPIs specific to their individual sector - previously this represented 42% under the NFRD - demonstrating better standardization and data that is more relevant to investors' decision-making. Additionally, EU banks have included ESG indicators in IRB models linked to CSRD requirements and applied an 18% increase in green exposures on their balance sheets, as evidenced by EBA guidance (2024), despite overall longevity of the applicable regulatory incentives.

ESG assets in Europe reached more than €6.2 trillion in 2023 with more than 70% of institutional investors reported to indicate preferred disclosures that comply with the CSRD, resulting in increasing market trust and preventing further greenwashing (Morningstar, 2024). Mandatory XBRL tagging and third-party assurance further enhanced traceability and auditability of data, allowing enforcement by regulators like ESMA as well as facilitating sufficient and comparable ESG assessments across industries, now more effectively than previous voluntary measurements.

The global establishment of a standard in ESG disclosures has arrived with the CSRD. The incorporation of double materiality, digital disclosures, and assurance represents an exemplary level of transparency in reporting ESG disclosures to key stakeholders, foster capital flows, and ensure trust. Therefore, the CSRD represents a leading model for India, particularly for Indian companies working through the mandated BRSR by SEBI, requiring alignment to global reporting standards generate sufficient international capital flow and reduce financial exposure to climate-related risks (European Commission, 2024).

#### Climate Risk Disclosure Practices in India

India, as a rapidly growing economy that has signed the Paris Agreement, is under pressure to develop a financial system that is consistent with low-carbon, climate-resilient objectives. We

see an increased demand from investors for climate-risk disclosures to be clear, but in India, a partially broken reporting landscape means no standardization, assurance, or regulatory oversight (Paris Agreement, 2015).

### SEBI's BRSR Framework: A Progressive Step

As demands for ESG increased globally as well as in the Indian context, we (SEBI) launched the Business Responsibility and Sustainability Reporting (BRSR) framework in 2021 and mandated it for the top 1,000 listed companies from FY 2022–23. BRSR pointed to a timeliness and transition towards structured ESG Reporting through metrics-based ESG reporting.

It requires disclosure on

- Greenhouse Gas (GHG) emissions, both direct and indirect (Scope 1 and Scope 2);
- Energy use from renewable and non-renewable sources;
- Climate-related financial risk, transition and physical risk assessments;
- Mitigation measures and carbon neutral objectives (if any).

While it aligns with global standards such as TCFD, the BRSR still does not include comprehensive aspects such as sector-specific scenario analysis, risk modeling and third-party assurance in the more advanced frameworks of the EU CSRD and IFRS S2.

## **5. Implementation and Adoption**

The space for accountability regarding climate-related risks is limited in India at present, despite some regulatory advances. According to the RBI (2024), about 38% of companies listed on the BSE made public disclosures on climate-related issues, and were able to perform a rudimentary assessment of climate risk. Most firms in this space claimed that they lacked assessment tools that were future-looking, like scenario analysis, or third-party verification. Such assessments are especially important to firms in carbon-intensive sectors (energy, transport, manufacturing, finance), where both transition and physical risks can directly impact valuations and credit risk portfolios. Furthermore, effective integration of risk into a company's governance framework is complicated by the absence of standardized taxonomies and climate stress-testing frameworks for banks and non-bank financial companies. While the RBI's 2022

Discussion Paper opened the conversation with banks and non-bank financial companies regarding climate-related risk, regulatory actions to date have yet to turn into compelling requirements for firms to abide by.

### Green Bond Issuance: A Growing Market

Despite challenges around disclosure, India has gained some momentum in green finance, particularly through the green bond market. India issued USD 20.6 billion of green bonds in 2023 alone - a 27% increase over last year. Since 2015, India has issued over USD 30 billion of green bonds making it one of the top ten green bond markets in the world today (CBI, 2024). Fund flows primarily support renewable energy, urban infrastructure, electric mobility, and energy efficiency. However, the post-issuance disclosure requirements, third-party impact verification and mechanisms for alignment with regulatory benchmarks (e.g. ICMA Green Bond Principles, EU Green Bond Standard) have gaps that reduce credibility and complicate global comparability.

SEBI's BRSR framework has laid the foundations for climate disclosures in India, but existing BRSR climate disclosures lack depth, assurance, and do not provide forward-looking risk analysis. With climate risks being financially material, it is essential to focus on more closely aligning with global standards e.g., EU CSRD and implement sector-specific risk assessments, regulated taxonomies, and assurance requirements. Shoring up these areas will eliminate disclosure gap and better position India to attract ESG-aligned international capital.

### Comparative Analysis: EU CSRD vs Indian ESG Frameworks

The global push for sustainable finance has resulted in the emergence of mandatory ESG disclosure frameworks, with the EU CSRD setting a new standard by integrating climate disclosures, digital reporting and third-party assurance. Contrasting with the constantly evolving SEBI-led BRSR framework in India, this comparative study highlights key differences (structural, regulatory and methodological) and shows significant gaps and opportunities for the two regimes to align and harmonize.

1. Applicability and Scope: The EU CSRD, which is effective from January 2024, expands the requirements for sustainability reporting for

- All large EU companies (meeting at least two of the following thresholds: €40 million turnover, €20 million total assets and 250 employees).
- All listed companies, including non-EU companies with relevant EU presence (i.e., turnover > €150 million and an EU branch or subsidiary).
- SMEs listed on EU regulated markets (with a phase-in period to apply until 2028).

The Indian BRSR framework, mandated by the Securities and Exchange Board of India (SEBI), is limited to the top 1,000 listed companies in India, as measured by market capitalization (SEBI, 2021). Therefore, the applicability and scope of the Indian BRSR framework (and the environmental footprint and financing dependencies of those companies excluded from the framework) are significant.

2. Materiality Approach: The EU CSRD is unique due to the double materiality principle which requires companies to disclose:

- How sustainability issues affect financial performance (financial materiality)
- Impact of their operations and activity on society and the environment (impact materiality)

This is a more comprehensive approach that facilitates accountability to investors and others (stakeholders) alike, and is in line with European Sustainability Reporting Standards (ESRS) and Global Reporting Initiative (GRI) frameworks.

In contrast, the BRSR approach taken by India only presents a single materiality approach where sustainability issues that are material to the financial performance of the company are the main focus. It encourages impacts on environment and social impacts but there is no double materiality framework and these impacts are most often disclosed in a narrative without a quantitative metric on risk (NSE, 2023).

3. Assurance Requirements: The EU CSRD requires limited assurance of sustainability disclosures to improve data credibility and investors' trust, with standards for reasonable assurance in the future (European Commission, 2023). However, India's BRSR does not require third-party assurance and voluntary assurance efforts have been inconsistent and

unregulated: leading to little comparability of data and friction with both investors and global ESG investment expectations (RBI, 2024).

4. Digital Tagging and Accessibility: The CSRD introduces digital tagging of sustainability reports using eXtensible Business Reporting Language (XBRL), which allows machine-readable, improved analytics and efficient regulatory oversight. India's BRSR, on the other hand, has no digital taxonomy or tagging requirements and is still only in a static PDF form, which limits data availability and accessibility, real time analysis, and use with AI-enabled ESG tools.

5. Climate Risk Disclosure Emphasis: Climate risk disclosure is a primary area of attention from the EU CSRD. Companies must disclose on:

- Transition risk and physical risks,
- Climate targets that are aligned to net-zero pathways,
- Scenario analysis,
- Capital allocation that is aligned with the EU Taxonomy for Sustainable Activities.

The Indian BRSR requires disclosure on:

- GHG emissions (Scope 1 and 2)
- Energy consumption, and
- Qualitative climate risks, i.e., resource dependency or regulatory exposure.

The framework, however, does not require firms to disclose on quantitative climate scenario analysis, nor alignment with global taxonomies. According to the RBI's 2024 ESG Monitoring Report, only 12% of the top 1,000 listed firms are disclosing forward looking transition plans and less than 8% are using science-based targets (RBI, 2024).

Table 5.1: EU CSRD vs Indian BRSR

Feature	EU CSRD	Indian BRSR
Applicability	All large and listed firms in the EU & non-EU with EU turnover > €150M	Top 1,000 listed firms by market capitalization
Materiality Approach	Double Materiality (financial + impact)	Single Materiality (financial)
Assurance Requirement	Mandatory third-party limited assurance	Not mandatory
Digital Tagging	Required (XBRL format)	Absent
Climate Risk Focus	High (scenario analysis, taxonomy alignment)	Moderate (basic GHG & energy disclosure)

This comparison underscores India's immediate need to move from voluntary and therefore static ESG disclosures to a mandatory, integrated, and, most importantly, assured framework, similar to global standards like the EU CSRD. Improving disclosure quality is critical to attracting international capital to India and the pricing of climate risk and mobilising green finance.

#### Key Case Studies from India:

The maturity of ESG disclosures and climate risk integration in India is highly uneven across sectors; however, there are some companies taking the lead. Infosys Ltd., Mahindra & Mahindra, and HDFC Bank demonstrate best practices in sustainable finance and climate reporting and have established an industry benchmark in their respective sectors (IT, manufacturing, and financial services) against leading global companies.

#### Infosys Ltd.: Science-Based Targets and Integrated Reporting

Infosys Ltd., a sizable IT services establishment authorities climate-risk governance and ESG disclosures, is also a leader in this aspect in India. It was carbon neutral by 2020 and remains so with science based targets in line with 1.5°C under the Science Based Targets Initiative (SBTi).

In its FY 2023–24 Integrated Annual Report, Infosys reported:

- Reduction of 54.4% in its Scope 1 and 2 emissions since 2018 (Infosys, 2024),

- 100% renewable energy usage in all of its India-based operations,
- In-depth TCFD-aligned disclosures on risk, scenario analysis, and processes for governance connected to ESG metrics.

By reporting against the GRI Standards, SASB, and the Integrated Reporting Framework (IR), Infosys is increasing transparency and comparability across the globe, demonstrating a strong alignment with the principles of double materiality and assurance set out in EU CSRD (noting that there are no legal requirements in India currently).

#### Mahindra & Mahindra: ESG-Driven Capital Market Innovation

The company, Mahindra & Mahindra, is a notable player within the automotive and agriculture sectors, demonstrating climate finance leadership through emissions-reducing strategies that address environmental sustainability (ESG). Mahindra is also unique in that Mahindra Finance issued India's first USD-denominated green bond in 2018 to support eligible clean transportation and renewable energy projects (Climate Bonds Initiative, 2023). By FY 2023-24, Mahindra had:

- Version of product-level measurement and disclosure of emissions, and life-cycle assessments,
- Contributed ₹1,500 crore of investment in both EV and battery technology divisions,
- Disclosed alignment with TCFD for its reports and included internal carbon pricing to support investment decision assessments (Mahindra & Mahindra, 2023).

Mahindra & Mahindra has since demonstrated strong ESG governance, as well as strategy-related aspects, and was able to disclose stakeholder engagement through the BRSR reports. Mahindra's examples of climate-aligned investment projects, and in particular anticipatory disclosures, demonstrate the ambitions associated with integrating sustainability into the company's core business and financial decisions in accordance with expectations from global investors.

#### HDFC Bank: Financial Sector ESG Disclosure and Financed Emissions

India's largest private sector lender HDFC Bank took an important step towards climate transparency, publishing its first standalone ESG report in 2023, which noted financed emissions, sustainability-linked lending, and internal ESG risk governance.

There were several highlights from HDFC Bank's 2023 ESG disclosures, including:

- Mapped Scope 3 Category 15 emissions (investments and loans);
- Implemented sustainability linked loans (SLLs), which are partly based on the ESG performance of the borrower.
- Included ESG scoring approaches in credit risk assessments and loan pricing (HDFC Bank, 2023).

HDFC Bank has committed to mobilising ₹50,000 crore for green finance by 2030, with a target of ₹10,000 crore by 2025. There is no mandatory auditing under BRSR, but the bank opted for third-party assurance on important ESG disclosures, demonstrating leadership in sustainable finance.

Table 5.2: Comparative Summary of ESG Leadership in Indian Corporates

Company	Sector	Key ESG Innovations	Alignment with CSRD
Infosys Ltd.	IT & Services	SBTi, TCFD reporting, integrated IR/GRI reports, net-zero operations	High – Double materiality, assurance, GRI, IR
Mahindra & Mahindra	Manufacturing	Green bonds, EV transition investments, carbon pricing	Moderate to High – Climate disclosures, TCFD
HDFC Bank	Financial Services	Financed emissions, SLLs, ESG credit frameworks, third-party review	Moderate – Sector-specific ESG KPIs, assurance

These case studies show that Indian corporates - especially at both high-impact sectors - are voluntarily aligning with global ESG frameworks - without EU-style ‘mandates’ - and doing so precisely to establish an 'investment thesis' that builds greater investor confidence, opens up green capital markets, and establishes best-practice benchmarks for compliance in a post-  
CSRD world.

#### Stakeholder Perception Analysis and Sectoral Challenges

Comprehending stakeholder perspectives is vital to assessing the real-world implications of ESG frameworks and uncovering implementation gaps. To that end, a structured survey was implemented among 120 stakeholders, comprising ESG analysts, institutional investors, risk officers, and compliance professionals within India's financial and corporate sectors.

## **6. Survey Findings**

The analysis indicates an inconsistency but developing understanding of ESG practices in India:

- Almost 67% of respondents said SEBI's BRSR has too little depth and sectoral detail on climate risk, citing generally vague narratives, very limited quantitative dimensions, and inadequate integration with financial statements as key weaknesses.
- 81% of respondents supported alignment with the EU CSRD, supporting benefits like better comparability with the EU and obtaining capital globally, with the double materiality principle of the CSRD explicitly valued for addressing to both Financial ESG and societal ESG impacts (European Commission, 2024).
- 59% of professionals cited lack of trained ESG and climate finance practitioners, with limited training and retraining, lack of investment in sustainability roles, and lack of internal capacity for effective ESG implementation, as major barriers (NSE-IFMR, 2023).

## **7. Key Challenges and Gaps**

The research results were additionally reviewed using thematic coding that revealed four main clusters of challenges constraining the maturity of the ESG disclosure ecosystem in India:

1. Various levels of ESG Literacy: Although ESG is receiving more regulatory pressure, the level of ESG literacy and capacity in Indian boardrooms and middle management is limited, particularly in mid-size and family-owned enterprises. The challenges include an inadequate blend of ESG into the curriculum of business education and business executive training.
2. No Standardization Across Sectors: Even though the BRSR lists broad categories of what to disclose, the different sectors are interpreting the disclosures differently – consider the differences between energy and financial services. This makes it impossible to compare

disclosures across sectors because nobody defines or measures ESG in the same angle. In addition, the BRSR does not include metrics specialized for sectors, which is an element of the CSRD's ESRS. Because sectoral considerations are not at the fore and proper metrics are missing, the standardization of disclosures and cross-sector benchmarking is impossible.

3. Limited Pressure from Investors Outside of the Institutional Space: Investors who apply the most pressure and create demand for companies to report on ESG through a lens of discipline are global institutional investors. The vast majority of domestic investors and retail participants are still looking for short-term returns. As a result, ESG adoption tends to be compliance-driven, rather than a strategic way to create long-term value.

4. Data Asymmetry and Weak Assurance Structures: The ESG "data ecosystem" in India is poorly defined, with disclosures that are mostly self-reported, not audited, and are received, if ever, inconsistently. Unlike the audit expectations of the CSRD, there is currently no legal or regulatory ability to provide assurance from a third party, which results in a significant absence of reliability, thereby crippling confidence from investors (RBI, 2024).

## **8.Implications**

Those challenges underscore the need for regulatory harmonization and coordinated stakeholder actions. As India shifts to a CSRD-type framework, it requires:

- A national ESG capacity building agenda.
- Sector-specific KPIs and taxonomies.
- Mandated assurance standards.
- Stronger investor activism and stewardship codes.

International capital is increasingly prioritizing sustainability, so India's ability to attract long-term green capital flows will depend on closing structural gaps and aligning ESG reporting in India to international ESG reporting standards.

### **Policy Recommendations for India**

The ensuing policy recommendations seek to further develop climate risk disclosures and bring India closer to a global, post CSRD context based on a comparative review, stakeholder engagement, and gaps in India's ESG landscape.

1. Introduce Compulsory Third-Party ESG Assurance by FY 2025-26: By implementing tiered, compulsory third-party assurance on BRSR filings, it will help build investor trust and credibility into India's ESG disclosures. With less than 20% of confirmations as of now (CRISIL, 2024), it will help build trust, transparency, and mitigate greenwashing through reliability against audited minimum compliance against CSRD equivalent audit standards as applied to the EU last year.
2. Adopt BRSR with Double Materiality: It is important to take consideration of double materiality to make integrated reporting possible and consider both upward and outward impacts, mentioning BRSR in continuing to support shareholder value, lacks an outward materiality perspective. The European ESRS has double materiality as the core norm, providing the basis for India to follow (European Commission, 2024).
3. Provide Tax Breaks or Green Credits to Support ESG compliance: Given the challenges of integrating ESG requirements with operations, the Government of India might consider elements of fiscal incentives like accelerated depreciation, tax breaks or rebates to sustainability linked third-party investments, or other green tax credits, specifically as comparable measures in the EU through the Green Deal Industrial Plan or U.S. through the Inflation Reduction Act (OECD,2023).
4. Enhance Capacity-Building through Partnerships with EU Regulators: In order to help close the ESG talent gap - especially in mid-cap firms and financial services, India should seek to form strategic partnerships with EU regulators such as EFRAG and ESMA. Partnerships would allow for collaboration on developing ESG curriculums, training modules and certified training programs (i.e evenings/weekends courses). Furthermore, cross-border internship opportunities would boost institutional capacity in the long-term.
5. Develop Digital ESG Tagging Platforms Combined with MCA Filings: India should implement a central ESF tagging platform using (XBRL) eXtensible Business Reporting Language which meets the digital requirements of the CSRD (Corporate Sustainability Reporting Directive) to integrate and standardize sustainability data, and digitize filings. By combining this with the MCA21 portal would help solidify compliance and level of consistency across filings, as well as ensuring accounting level data is more readily accessible to investors, regulators and data intermediaries.

## 9. Conclusion

India is at an inflection point in enhancing green finance and sustainability reporting. Though SEBI's BRSR framework has the foundation in place, reform will be required to close the compliance–credibility–capacity gap. The EU CSRD provides a holistic model - with double materiality, mandatory assurance, sector-specific KPIs, digital interoperability - that India can emulate. Following these global standards will both help attract sustainable capital while strengthening financial stability and climate resilience.

Future academic and policy research studies should strongly consider investigating:

- The longitudinal links between ESG disclosure quality and corporate market valuation;
- The effectiveness of fiscal incentives for accelerating ESG integration; and
- The development of an India-specific ESG materiality map by sector.

In order for India to be successful and take the lead in this era of climate-aligned finance and responsible capitalism, it will require a common, accountable, and transparent ESG architecture.

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