GREEN FINTECH & REGULATORY FRAMEWORKS: LEGAL PATHWAYS FOR CREDIBLE DIGITAL SUSTAINABILITY FINANCE

Dr. Poorvi Singh Chaudhary
Assistant Professor, Department of Law, Techno India University Agartala.
DOI: https://doi.org/10.64558/bllp/632953mmfxyr

The rapid expansion of financial technologies (FinTech) is reshaping the global financial ecosystem by opening new channels for mobilizing capital toward climate goals. Green finance instruments such as blockchain-enabled green bonds, tokenized carbon credits, and ESG- scoring tools are increasingly deployed to support projects aligned with net-zero commitments. These innovations promise efficiency, liquidity, and transparency; however, the legal and regulatory frameworks governing them remain fragmented across jurisdictions, creating risks of greenwashing, investor misinformation, and unenforceable cross-border obligations. This paper critically examines the evolving regulatory landscape of green bonds, carbon credits, and ESG-focused digital assets, with a comparative focus on India, the European Union (EU), and the United States (U.S.).

In India, the Securities and Exchange Board of India (SEBI) revised disclosure norms for green debt securities in 2023, requiring issuers to identify eligible green projects and enhance reporting mechanisms. This aligns with India's broader sustainable finance agenda and the Business Responsibility and Sustainability Reporting (BRSR) framework. Yet regulatory clarity is limited for digital platforms that tokenize carbon credits or issue sustainability-linked assets. By contrast, the EU has introduced a more comprehensive regime. The Sustainable Finance Disclosure Regulation (SFDR) and the Corporate Sustainability Reporting Directive (CSRD) impose mandatory sustainability-related disclosures, require companies to report on climate risks, and establish assurance mechanisms for ESG-related information. These measures aim to harmonize sustainability reporting and reduce information asymmetry across member states. In the U.S., the Securities and Exchange Commission (SEC) proposed climate- related disclosure rules in 2022 and is moving toward mandatory reporting of greenhouse gas emissions and climate risks. However, the proposals face significant litigation and political contestation, highlighting the challenges of advancing sustainability regulation in polarized policy environments.

A central concern across these jurisdictions is the credibility of carbon credits and tokenized environmental assets. While tokenization may enhance efficiency and traceability, unresolved legal questions remain around ownership rights, enforceability of smart contracts, and mechanisms to prevent double counting across registries. Without harmonized globalstandards, tokenized carbon markets risk undermining trust in digital green finance. Similarly, the growing reliance on ESG scoring algorithms raises legal and governance issues related to transparency, data quality, and accountability. As highlighted in scholarship on digital dispute resolution, opaque algorithmic systems can perpetuate bias and erode confidence if not subject to oversight and auditability.

This paper argues that disclosure-based regulation alone is insufficient to ensure credibility in FinTech-enabled sustainable finance. A robust legal framework must integrate mandatory sustainability disclosures with standardized metrics, independent audits, and enforceable accountability mechanisms. Regulators should clarify rules for tokenized carbon credits, including registry interoperability, provenance certification, and property rights. Stronger enforcement against greenwashing is essential for protecting investors and ensuring the integrity of sustainability-linked digital finance. Finally, supervisory cooperation across jurisdictions is necessary to address the extraterritorial reach of digital platforms and to establish coherent global standards that reduce regulatory arbitrage.

By situating green FinTech within a comparative analysis of India, the EU, and the U.S., this paper contributes to the scholarly dialogue at the intersection of digital technology, law, and sustainability. It advances a normative argument for harmonized regulatory frameworks that balance innovation with accountability. Such frameworks would enable FinTech to serve as a credible instrument for financing the global transition to a net-zero economy while safeguarding against risks of greenwashing, misrepresentation, and systemic failures.

Keywords: Green FinTech; Green Bonds; Carbon Credits; ESG Regulation; Greenwashing; Sustainability Disclosure

REFERENCES

- European Commission. (2021). *Proposal for a Corporate Sustainability Reporting Directive (CSRD).* Brussels: European Commission. Retrieved from https://eur- lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0189

- European Commission. (2019). *Regulation (EU) 2019/2088 on sustainability-related disclosures in the financial services sector (SFDR).* Official Journal of the European Union.Retrievedfrom https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32019R2088
- Reuters. (2024). *U.S. SEC climate disclosure rule faces legal challenges.* Retrieved from https://www.reuters.com (update with exact URL when citing).

- Schmitz, A. J., & Rule, C. (2019). *The new era of digital dispute resolution.* Ohio State Journal on Dispute Resolution, 34(3), 443–490.

- Securities and Exchange Board of India (SEBI). (2023). *Framework for green debt securities.* Circular No. SEBI/HO/DDHS/DDHS-RACPOD1/P/CIR/2023/096. Retrieved from https://www.sebi.gov.in

- Securities and Exchange Board of India (SEBI). (2021). *Business*

Responsibility and Sustainability Reporting (BRSR): Circular for listed entities. Circular No. SEBI/HO/CFD/CMD2/CIR/P/2021/562. Retrieved from https://www.sebi.gov.in

- U.S. Securities and Exchange Commission (SEC). (2022). *Proposed rule: The Enhancement and Standardization of Climate-Related Disclosures for Investors.* Release Nos. 33-11042; 34-94478. Washington, D.C. Retrieved from https://www.sec.gov