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NAVIGATING LEGAL COMPLEXITIES IN INDIA'S CARBON CREDIT MARKET: ISSUES AND PROSPECTS

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ABSTRACT

India's carbon credit market is poised to become a pivotal component of its climate governance and sustainable development strategy. As the country advances toward its commitments under the Paris Agreement and seeks to achieve net-zero emissions by 2070, the establishment of a robust carbon trading system has become imperative. However, the legal and regulatory architecture underpinning this market is still in a nascent and evolving phase, characterized by ambiguity, institutional overlaps, and regulatory fragmentation. This paper undertakes a critical analysis of the legal complexities surrounding carbon credits in India, with an emphasis on the structural and procedural challenges that hinder effective implementation and enforcement.

The article first explores the existing regulatory framework, including recent legislative developments such as the Energy Conservation (Amendment) Act, 2022, and their implications for carbon trading. It then identifies legal and institutional bottlenecks, such as the absence of a unified carbon registry, lack of clarity in market mechanisms, and issues related to the verification and validation of emission reductions. The study also examines the role of private actors in voluntary carbon markets, and the emerging legal risks associated with private registries, cross-border transactions, and greenwashing claims.

Additionally, the paper contextualizes India's domestic efforts within the broader international legal landscape, analyzing the compatibility of Indian mechanisms with Article 6 of the Paris Agreement and other global carbon market standards. Finally, it outlines the prospects for legal reform, highlighting pathways for harmonizing regulatory approaches, improving transparency, and fostering investor confidence.

Through a comprehensive legal lens, this study aims to contribute to the discourse on carbon market development in India by offering actionable insights and policy recommendations to create a credible, equitable, and efficient carbon credit ecosystem.

KEYWORDS - Carbon Credit Market, Environmental Law, Climate Policy, Paris Agreement, Regulatory Framework

Introduction

Climate change has emerged as one of the most pressing global challenges of the 21st century, demanding urgent and sustained action from governments, industries, and civil societies. Among the various mechanisms adopted to mitigate greenhouse gas (GHG) emissions, carbon markets—particularly carbon

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credit trading systems—have gained increasing prominence as policy instruments that incentivize emission reductions through market-based approaches. In this context, carbon credits represent a tradable permit or certificate that allows the holder to emit one tonne of carbon dioxide or its equivalent. These credits can be bought, sold, or traded, thereby creating financial value for emission reductions and facilitating investment in green technologies and sustainable practices.

India, as one of the world's fastest-growing economies and the third-largest emitter of GHGs, occupies a critical position in the global climate governance landscape. The country has committed to ambitious targets under its Nationally Determined Contributions (NDCs) as part of the Paris Agreement, including a reduction in emissions intensity and an increase in the share of non-fossil fuel energy. Recognizing the need for innovative policy instruments to meet these goals, India has embarked on the development of a formal carbon credit market, which includes both voluntary and compliance mechanisms. Recent legislative developments, such as the Energy Conservation (Amendment) Act, 2022, and the proposed creation of a domestic carbon trading scheme by the Bureau of Energy Efficiency (BEE), signify a decisive policy shift toward institutionalizing carbon trading within India's environmental and energy law framework.

Despite this momentum, the legal and regulatory infrastructure governing India's carbon credit market remains fragmented, underdeveloped, and fraught with ambiguities. Key challenges include the absence of a unified regulatory authority, unclear definitions and classifications of carbon credits, procedural inconsistencies in credit issuance and verification, and limited guidance on the role of private entities and international actors. These legal uncertainties create barriers to investment, limit private sector participation, and risk undermining the credibility and effectiveness of the market. Furthermore, with the growing prominence of voluntary carbon markets and increasing scrutiny over issues such as greenwashing and double counting, there is an urgent need to re-examine the legal tools and institutions that underpin the carbon credit ecosystem in India.

This paper aims to provide a comprehensive legal analysis of India's carbon credit market by mapping its regulatory evolution, identifying core legal and institutional challenges, and exploring potential pathways for reform. It places India's efforts within the broader global context, drawing comparisons with international best practices and examining the implications of Article 6 of the Paris Agreement on cross-border credit transactions. Through this examination, the article seeks to offer actionable insights for policymakers, legal practitioners, and market participants on how to build a credible, transparent, and future-ready carbon market in India.

Regulatory Framework Governing Carbon Credits in India

The regulatory framework for carbon credits in India has evolved significantly over the past two decades, shaped by global climate imperatives, domestic policy considerations, and the emerging role of market-based mechanisms in achieving environmental sustainability. Initially influenced by international mechanisms under the Kyoto Protocol, particularly the Clean Development Mechanism (CDM), India became one of the leading host countries for CDM projects. The early 2000s saw a surge in project-based emissions reduction initiatives in sectors such as renewable energy, energy efficiency, and waste management. However, this period was marked by an absence of comprehensive domestic legislation specifically governing carbon credits. The issuance and regulation of such credits remained largely project-specific and externally governed by the CDM Executive Board under the United Nations Framework Convention on Climate Change (UNFCCC).

The international orientation of India's carbon market began to shift with the adoption of the

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Paris Agreement in 2015, which emphasized nationally determined contributions (NDCs) and ushered in a new era of climate governance where all countries, including developing economies, were expected to take measurable climate action. The Paris Agreement's Article 6 further introduced mechanisms for voluntary cooperation among countries in achieving their NDCs through carbon markets, signaling a transition toward more formal and domestically integrated carbon trading systems. In this context, India began to reconsider its approach to carbon credit governance by initiating policy dialogues and institutional frameworks to develop an indigenous carbon market aligned with its national priorities and international obligations.

At the national level, the Ministry of Environment, Forest and Climate Change (MoEFCC) has historically played a central role in climate policy formulation, while the Bureau of Energy Efficiency (BEE), operating under the Ministry of Power, has emerged as a key institution in implementing market-based instruments. The Perform, Achieve, and Trade (PAT) scheme, launched in 2012, represents one of India's earliest efforts to integrate market-based incentives into energy efficiency regulation. Though not a carbon credit scheme per se, PAT provides valuable institutional insights into how tradable certificates—known as Energy Saving Certificates (ESCerts)—can be used to incentivize emission reductions in large-scale industrial sectors. Similarly, the Renewable Energy Certificates (REC) mechanism, administered by the Central Electricity Regulatory Commission (CERC), facilitates the trading of surplus renewable energy generation, indirectly contributing to carbon mitigation by promoting cleaner energy sources.

However, the absence of a unified legal instrument governing carbon credits remained a significant gap until recently. A landmark development occurred with the enactment of the Energy Conservation (Amendment) Act, 2022, which introduced key legislative changes to strengthen the legal basis for carbon trading in India. The Act amended the parent Energy Conservation Act of 2001 and authorized the central government to establish a domestic carbon credit trading scheme. It explicitly empowered the government to issue carbon credit certificates and designate agencies to oversee their accreditation, registration, and trading. This marked a paradigmatic shift by introducing a statutory framework for carbon markets, thus transitioning India from a fragmented, scheme-based system to a potentially integrated and nationally coordinated regime.

Under the amended law, the Bureau of Energy Efficiency is expected to function as the central nodal agency responsible for implementing the carbon market framework. The Act envisions a centralized carbon registry to track credit issuance, ownership, and transactions, and mandates rules to govern the eligibility criteria for projects, methodologies for emission reduction calculation, third-party verification standards, and mechanisms for dispute resolution. The carbon credits issued under this scheme will be tradable in a regulated marketplace, possibly in coordination with existing energy exchanges such as the Indian Energy Exchange (IEX) and Power Exchange India Limited (PXIL). This model aspires to mirror best practices from mature carbon markets, such as the European Union Emissions Trading System (EU ETS), while adapting them to India's institutional and developmental context.

Nonetheless, several layers of regulatory complexity continue to shape the evolution of the carbon credit market in India. One such complexity pertains to the interaction between the voluntary carbon market and the proposed compliance market under the 2022 amendment. Voluntary carbon credits—typically issued by private registries like Verra or Gold Standard—have long been used by Indian companies and project developers to access global markets and attract carbon finance. These credits, although not mandated by domestic law, often meet rigorous international standards for verification and permanence. The

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relationship between these voluntary credits and government-issued compliance credits remains legally ambiguous. Questions arise as to whether voluntary credits can be fungible within the domestic compliance market, how their additionality is to be assessed vis-à-vis national targets, and whether the government will regulate or oversee private credit issuers operating in India.

Moreover, regulatory overlaps and jurisdictional uncertainties complicate the governance landscape. While MoEFCC, BEE, and CERC play central roles, other ministries and regulatory bodies—such as the Ministry of Power, Ministry of Finance, and SEBI (Securities and Exchange Board of India)—may also influence aspects of carbon trading, particularly in areas like financial regulation, taxation, and investor protection. For instance, the classification of carbon credits as financial instruments or commodities could bring them under SEBI's purview, necessitating rules on disclosure, transparency, and insider trading. The lack of inter-agency coordination mechanisms can result in fragmented policymaking, inconsistent enforcement, and regulatory duplication, which in turn discourage private investment and innovation in the carbon space.

In addition to institutional challenges, there is also a dearth of secondary legislation and implementing rules to operationalize the 2022 amendment. As of early 2025, many critical details—such as the precise methodologies for calculating emission reductions, procedures for credit validation and issuance, eligibility of sectors and entities, and rules governing market access for foreign investors—remain either undefined or under consultation. Without timely and comprehensive subordinate legislation, the implementation of the carbon credit framework may face significant delays or inconsistencies. Furthermore, the absence of publicly accessible data on emission baselines, project inventories, and credit performance undermines market transparency and accountability.

Despite these challenges, the regulatory trajectory indicates a growing commitment to institutionalize and expand India's carbon credit market. The government's National Action Plan on Climate Change (NAPCC), along with state-level action plans and sector-specific mitigation strategies, provides an overarching policy framework within which the carbon market is expected to operate. Recent policy initiatives, such as the push for green hydrogen, electric mobility, and sustainable agriculture, offer fertile ground for developing new credit-generating projects. The integration of carbon pricing into industrial and financial decision-making processes could serve not only environmental goals but also economic and social objectives, such as energy security, rural employment, and technology transfer.

International collaboration will also be critical in shaping the legal contours of India's carbon market. The operationalization of Article 6 of the Paris Agreement, particularly Articles 6.2 and 6.4, will influence how countries account for emissions reductions, avoid double counting, and authorize the transfer of carbon credits across borders. India will need to establish robust legal safeguards to ensure that international transfers do not compromise its national climate targets or undermine the environmental integrity of its domestic mitigation actions. Bilateral agreements, such as those with Japan, Switzerland, or the European Union, could offer templates for harmonizing verification standards and credit accounting systems.

In conclusion, the regulatory framework governing carbon credits in India is at a critical inflection point. While significant strides have been made in establishing a statutory foundation for carbon trading through the Energy Conservation (Amendment) Act, 2022, much remains to be done to transform this framework into a functional and credible market mechanism. The success of India's carbon credit market will ultimately depend on the clarity, coherence, and credibility of its legal and regulatory structures. A concerted effort is

required from policymakers, regulatory institutions, and stakeholders to bridge existing gaps, align domestic mechanisms with international norms, and create an enabling environment for climate finance and green innovation. As India moves forward in its climate journey, the legal architecture of its carbon market will play a foundational role in achieving both environmental sustainability and economic resilience.

Challenges in Legal and Institutional Implementation

Despite recent legislative progress and India's growing climate ambitions, the implementation of carbon credit mechanisms in the country remains mired in a complex web of legal and institutional challenges. While the Energy Conservation (Amendment) Act, 2022 has provided a statutory basis for a carbon credit trading framework, translating this legislative vision into effective regulatory and institutional practice is proving to be a daunting task. The lack of coherence between various governing bodies, absence of detailed subordinate legislation, and the persistence of structural inefficiencies continue to pose serious barriers to the smooth functioning and credibility of the carbon market in India.

One of the most significant legal challenges lies in the absence of a harmonized regulatory regime that comprehensively governs carbon credit generation, verification, and trading across sectors and jurisdictions. While the amended Energy Conservation Act provides enabling provisions, it stops short of laying down granular rules that could guide the implementation of the carbon market. Critical components such as standardized methodologies for emissions reduction calculations, procedures for accreditation of third-party verifiers, conditions for project eligibility, and enforcement mechanisms in the event of non-compliance remain largely undefined. The lack of these operational details creates uncertainty for market participants and deters private and foreign investment. Without robust and transparent frameworks, the risk of inconsistent application of the law, regulatory arbitrage, and legal disputes remains high.

Another core challenge is the institutional fragmentation that characterizes the carbon governance architecture in India. The responsibility for environmental regulation is dispersed across multiple ministries and regulatory authorities, including the Ministry of Environment, Forest and Climate Change (MoEFCC), the Bureau of Energy Efficiency (BEE), the Central Electricity Regulatory Commission (CERC), and the Securities and Exchange Board of India (SEBI). While the BEE has been designated as the nodal agency for implementing the carbon credit trading scheme, the role of other institutions in related areas such as project finance, energy auditing, verification, and trading has not been clearly delineated. This results in a lack of coordination, duplication of efforts, and policy incoherence. Furthermore, state-level agencies often lack the technical capacity or resources to implement national-level directives effectively, leading to asymmetrical implementation across regions.

Enforcement and compliance mechanisms constitute another major area of concern. In the absence of a fully developed regulatory regime, there is currently no clear penalty structure for fraudulent credit claims, data manipulation, or non-compliance with emission reduction obligations. This regulatory lacuna opens the door for malpractices such as double counting, over-crediting, or misreporting of emissions data. While the establishment of a centralized carbon registry has been proposed, it is yet to be operationalized, leaving a critical gap in monitoring and verification functions. A lack of robust dispute resolution mechanisms further compounds the problem, as there is currently no specialized forum to address grievances or resolve conflicts arising out of credit transactions or project disputes.

The implementation of verification and validation processes also presents significant legal and procedural challenges. Third-party

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verifiers are central to maintaining the integrity of carbon markets, yet India currently lacks a comprehensive accreditation system for such entities. Without clear guidelines on the qualification, independence, and accountability of verifiers, the system remains vulnerable to conflicts of interest, biased assessments, and credibility erosion. The absence of a transparent, technology-driven monitoring, reporting, and verification (MRV) system further weakens the process, as manual or inconsistent data collection practices may result in inaccuracies and inefficiencies.

Another significant legal complication arises from the interface between voluntary and compliance markets. India has historically been an active participant in the voluntary carbon credit market, with many Indian projects generating Verified Emission Reductions (VERs) through international standards such as Verra or Gold Standard. These markets have developed independently of any national regulation, relying instead on transnational norms and private governance. With the government now seeking to establish a regulated compliance market, the question of how voluntary credits will be treated within the new regime remains unresolved. Key concerns include whether voluntary credits can be converted into compliance credits, how additionality will be re-evaluated, and what role—if any—private registries will play under the new system. The lack of legal clarity on these issues creates uncertainty for existing credit holders and undermines investor confidence.

Moreover, legal ambiguities persist regarding the ownership and taxation of carbon credits. Since carbon credits represent intangible, tradable rights, their legal classification remains a subject of debate. Are they to be treated as financial instruments, commodities, or sui generis regulatory entitlements? The answer to this question has significant implications for how carbon credits are taxed, disclosed, and transferred. For instance, if credits are classified as financial instruments, SEBI regulations on trading, disclosures, and investor protection may apply. If treated as commodities, the Forward Markets Commission or commodity exchanges may have jurisdiction. Currently, the lack of a definitive legal position results in inconsistent treatment of carbon credits across sectors and increases the risk of litigation and regulatory scrutiny.

The issue of price discovery and market design also raises institutional challenges. For a carbon market to function efficiently, there must be a transparent mechanism for price determination based on demand and supply of credits. However, India's carbon pricing strategy remains underdeveloped. The absence of a functioning carbon exchange, insufficient market participants, and lack of reliable data on emissions reductions hinder effective price discovery. Additionally, the credibility of the market is undermined by information asymmetry, as project developers and credit purchasers often operate with unequal access to technical data and legal advice. Unless a level playing field is established through capacity-building initiatives and publicly accessible data platforms, the market will remain shallow and vulnerable to manipulation.

Capacity constraints across both public and private institutions further hinder implementation. Government agencies often lack the technical expertise and manpower required to assess complex emissions data, approve methodologies, and oversee large-scale trading operations. Similarly, many private entities—especially small and medium enterprises—are unfamiliar with carbon accounting techniques, legal compliance procedures, and market participation requirements. Without targeted capacity-building efforts, including training programs, technical support, and awareness campaigns, the benefits of the carbon market will remain concentrated among a few large players, limiting its broader developmental potential.

Additionally, the lack of clear legal safeguards to prevent greenwashing—where companies make unsubstantiated or misleading claims

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about their climate efforts—poses a serious threat to the integrity of the carbon market. In the absence of specific consumer protection laws or regulatory oversight related to carbon offset claims, companies may exploit the market for reputational gains without undertaking meaningful mitigation action. The need for clear disclosure norms, audit requirements, and penalties for deceptive practices is therefore urgent to uphold market credibility and protect public trust.

Finally, legal preparedness to engage in cross-border credit transactions is still limited. With Article 6 of the Paris Agreement now in the process of implementation, countries are expected to follow rigorous standards for authorizing the international transfer of mitigation outcomes (ITMOs), ensuring transparency, environmental integrity, and the avoidance of double counting. India currently lacks detailed regulations to operationalize such international cooperation. Bilateral agreements, international registry linkages, and reporting obligations will require a new level of legal sophistication and institutional coordination. Without this, India may miss out on opportunities to export credits or attract international finance under the global carbon market architecture.

In summary, the challenges facing the legal and institutional implementation of carbon credits in India are multifaceted and deeply interwoven. They encompass regulatory gaps, institutional fragmentation, inadequate enforcement mechanisms, verification deficiencies, and legal uncertainties around ownership, trading, and market design. Overcoming these obstacles will require not only legislative reforms but also administrative restructuring, inter-agency coordination, stakeholder engagement, and capacity development. As India stands at the threshold of operationalizing its domestic carbon market, addressing these implementation challenges is essential to ensure that the market serves its intended purpose: reducing emissions in an efficient, credible, and equitable manner while aligning with the country's broader climate and developmental goals.

International Linkages and Compliance with Global Norms

India's carbon credit market does not exist in a vacuum. Its legal structure and operational mechanisms are intrinsically linked to the evolving global climate governance regime, particularly under the auspices of the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement. As international carbon markets shift from the Clean Development Mechanism (CDM) of the Kyoto Protocol to the more flexible and cooperative approaches envisioned under Article 6 of the Paris Agreement, India faces the twin challenges of aligning its domestic regulatory architecture with emerging global standards and actively participating in cross-border emissions trading in a way that preserves environmental integrity and advances national interests.

Under the Kyoto Protocol's CDM, India was one of the most active host countries, accounting for thousands of registered projects and a substantial volume of Certified Emission Reductions (CERs). These projects, often in the renewable energy, energy efficiency, and waste-to-energy sectors, allowed India to mobilize international finance while contributing to global emission reduction efforts. However, the sunset of the Kyoto framework and the stagnation of CER prices post-2012 led to a dramatic decline in project registration and investor confidence. This history provides an important backdrop to India's current engagement with global carbon markets: while the country has demonstrated capacity and enthusiasm for carbon finance, it remains cautious of over-dependence on volatile international mechanisms and seeks to balance global cooperation with domestic regulatory sovereignty.

The Paris Agreement, adopted in 2015, introduced a fundamentally different paradigm in international climate cooperation. Unlike the

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Kyoto Protocol, which imposed binding targets only on developed countries, the Paris Agreement requires all Parties to submit Nationally Determined Contributions (NDCs) and encourages voluntary cooperation through mechanisms under Article 6. This article, particularly its sub-articles 6.2 and 6.4, provides the legal framework for international carbon trading in the post-Kyoto era.

Article 6.2 allows for "cooperative approaches" where countries can transfer mitigation outcomes bilaterally or multilaterally, provided they ensure robust accounting and avoid double counting. This creates the possibility for India to link its domestic carbon credit system with that of other nations, potentially allowing Indian projects to generate credits that can be sold to countries seeking to meet their NDC targets. However, such cooperation requires sophisticated legal and accounting systems, including a national registry for internationally transferred mitigation outcomes (ITMOs), bilateral agreements with trading partners, and conformity with guidance issued by the UNFCCC.

Article 6.4, on the other hand, envisions a centralized crediting mechanism akin to the CDM but under a new governance structure and with more stringent environmental and procedural safeguards. This mechanism will issue "Article 6.4 emission reductions" (A6.4ERs), which could be used by countries or private entities towards meeting NDCs or voluntary climate commitments. India's participation in this mechanism would necessitate legal reforms to designate national authorities, set eligibility standards, and define processes for project registration, credit issuance, and benefit-sharing. Moreover, issues related to corresponding adjustments—whereby countries must adjust their greenhouse gas inventories to reflect credit transfers—introduce new legal and technical complexities that India must address through national legislation and institutional coordination.

India's evolving legal framework, particularly following the Energy Conservation (Amendment) Act, 2022, positions the country to engage more formally with these international mechanisms. The Act empowers the central government to design a carbon market that may incorporate both domestic and international trading elements. However, translating this legislative intent into practice will require robust secondary legislation that explicitly addresses compliance with Article 6 rules, defines the interface between domestic and international credits, and outlines procedures for authorization and tracking of cross-border transactions.

In addition to aligning with UNFCCC mechanisms, India must also adapt to norms emerging from global voluntary carbon markets and private governance institutions. Registries such as Verra, Gold Standard, and American Carbon Registry have developed de facto standards for carbon credit quality, verification, permanence, and additionality. Indian project developers have extensively used these platforms to generate and trade credits in international voluntary markets. As scrutiny over these markets increases—especially in light of concerns over greenwashing, poor verification, and lack of community benefits—there is growing pressure on national regulators to adopt more rigorous oversight of projects claiming to generate credits for international sale.

The need to harmonize Indian law with international best practices also extends to transparency, environmental integrity, and social safeguards. For example, Article 6 mechanisms require detailed reporting under the enhanced transparency framework of the Paris Agreement. India will need to develop technical infrastructure for Monitoring, Reporting, and Verification (MRV) that meets international standards, ensures data accuracy, and facilitates public access. Additionally, environmental and human rights concerns have led many countries to integrate social safeguards, stakeholder consultation processes,

and benefit-sharing mechanisms into carbon project design. India's domestic regulations must increasingly reflect these expectations, especially as Indian credits are used by foreign governments and corporations to meet climate targets under intense public scrutiny.

International engagement also presents legal challenges in the realm of dispute resolution and accountability. Given the transnational nature of carbon transactions, disagreements over credit ownership, project performance, or regulatory compliance could result in complex cross-border disputes. India currently lacks a dedicated legal forum or arbitration mechanism for resolving such issues, and questions remain over which jurisdiction's laws would govern international transactions. This underscores the need for India to either create a specialized climate arbitration framework or incorporate dispute resolution clauses in its bilateral and multilateral carbon agreements.

Moreover, India must navigate complex geopolitical and economic considerations in determining the nature and extent of its participation in global carbon markets. The risk of carbon leakage—whereby stringent regulations in one country push emissions-intensive industries to less-regulated jurisdictions—means that India must carefully calibrate its own policies to avoid competitive disadvantages while still fulfilling its climate commitments. Similarly, mechanisms like the European Union's Carbon Border Adjustment Mechanism (CBAM), which imposes carbon tariffs on imports from countries with lax climate policies, may impact Indian exports unless the country can credibly demonstrate the carbon content of its products and the robustness of its mitigation actions. This calls for the legal integration of product carbon footprint standards and life-cycle analysis methodologies into national regulations, as well as institutional coordination with trade authorities.

At a broader level, India's participation in international carbon trading must align with its national development priorities, including energy security, poverty alleviation, and technological advancement. Legal frameworks must ensure that carbon revenues are not only used to meet climate goals but also reinvested in ways that promote inclusive and sustainable development. This requires laws mandating transparency in credit use, revenue allocation, and project-level impacts. Lessons can be drawn from countries like Colombia and South Africa, which have enacted legislation requiring a portion of carbon revenues to be directed toward environmental justice and community development.

In conclusion, India's carbon credit market stands at the intersection of domestic climate governance and international legal obligations. As the global community moves towards operationalizing Article 6 of the Paris Agreement, India must equip itself with the legal instruments, institutional mechanisms, and technical capacities required to actively and credibly participate in international carbon markets. This includes aligning domestic legislation with international rules, establishing transparent MRV systems, defining procedures for cross-border credit transfers, and embedding safeguards that uphold environmental and social integrity. By doing so, India can not only attract climate finance and promote low-carbon innovation but also emerge as a key player in shaping the global carbon market architecture in the years to come.

Private Sector Participation and Legal Ambiguities

The participation of the private sector is a critical determinant of the success and scalability of India's carbon credit market. Given the capital-intensive nature of climate mitigation technologies and the entrepreneurial potential within sectors such as renewable energy, manufacturing, transport, and waste management, the involvement of private enterprises is indispensable for generating carbon credits and driving market-based

emissions reductions. However, despite the enthusiasm shown by certain corporate actors, private sector participation in India's carbon market continues to face considerable legal uncertainties and institutional barriers that limit its full potential.

One of the key legal ambiguities lies in the classification and ownership of carbon credits. In India, carbon credits are yet to be clearly defined under any specific legislation as a distinct category of property or financial instrument. This legal ambiguity raises questions regarding their treatment under contract law, taxation, insolvency proceedings, and securities regulation. For instance, without clarity on whether carbon credits constitute goods, services, or financial assets, there is confusion regarding the applicable regulatory regime. This has implications for how companies record credits on their balance sheets, whether credits can be used as collateral, and how they are taxed when sold or transferred. Moreover, in the absence of comprehensive judicial precedents or statutory guidance, disputes over credit ownership—particularly in joint ventures or consortium-based projects—pose risks for private entities investing in carbon-reduction projects.

Additionally, the lack of clarity around regulatory jurisdiction presents challenges for private actors. Multiple bodies, including the Bureau of Energy Efficiency (BEE), Ministry of Power, Ministry of Environment, Forest and Climate Change (MoEFCC), and Securities and Exchange Board of India (SEBI), have overlapping interests in the functioning of carbon markets. Yet, the absence of a single-window regulatory framework or a unified code of compliance makes it difficult for companies to navigate the legal landscape. For example, if carbon credits are eventually notified as financial instruments under SEBI's jurisdiction, private entities involved in trading, brokering, or hedging credits may be required to obtain licenses or comply with disclosure obligations under securities law—something that is currently neither mandated nor clarified.

Furthermore, the private sector is constrained by insufficient legal guidance on the eligibility criteria for carbon credit generation under the proposed Indian Carbon Market (ICM). Although the Energy Conservation (Amendment) Act, 2022 has laid the groundwork for a regulated market, the details about project registration, validation protocols, baseline standards, and third-party verification processes remain under development. This uncertainty discourages long-term investment, particularly from small and medium enterprises (SMEs), which lack the legal and technical capacity to navigate a constantly evolving regulatory environment. It also limits the ability of private firms to design scalable, bankable projects that meet both domestic and international crediting standards.

Another layer of complexity arises in the interaction between India's domestic carbon market and the voluntary carbon market, which has historically attracted substantial private sector engagement. Indian firms have participated in voluntary carbon offset programs certified by global registries such as Verra or Gold Standard, often selling credits to foreign buyers seeking to meet net-zero targets. However, with the introduction of a national carbon market, the legal status of voluntary credits within India's jurisdiction is uncertain. Can these credits be converted into compliance-grade assets under the Indian Carbon Market? Will private firms need to seek revalidation under domestic standards? Such unresolved issues not only risk undermining past investments but also create a trust deficit among corporate actors seeking regulatory certainty.

Moreover, private entities are increasingly concerned about potential liabilities arising from misreporting or credit invalidation. The absence of clear due diligence standards, MRV (Monitoring, Reporting, and Verification) protocols, and liability clauses in the event of project underperformance or fraud leaves private actors exposed to reputational and financial risks. Legal contracts involving credit sale or transfer often lack enforceability in

cross-border contexts, particularly when buyers or registries are based overseas. The Indian legal system currently lacks a specialized forum to adjudicate such disputes efficiently, which further deters private engagement.

In light of these challenges, fostering a conducive legal environment for private sector participation requires urgent reforms. These include defining the legal status of carbon credits, streamlining regulatory oversight, issuing sector-specific guidelines for project approval, and establishing legal recourse mechanisms for dispute resolution. Furthermore, capacity-building efforts must be scaled up to equip private firms—especially SMEs—with the technical and legal knowledge necessary to participate meaningfully in carbon markets. Transparent rules, predictable timelines, and digital platforms for registration and trading will also go a long way in enhancing private confidence.

In conclusion, while the private sector holds immense potential to accelerate India's carbon market through innovation, investment, and scale, legal ambiguities and institutional fragmentation continue to act as major deterrents. Addressing these challenges through coherent legislation, targeted regulations, and inter-agency coordination will be essential to unlock the full participation of private actors and ensure the long-term sustainability and integrity of India's carbon credit ecosystem.

Future Prospects and the Way Forward

The evolution of India's carbon credit market stands at a pivotal juncture, poised to transform from a fragmented and largely voluntary mechanism into a nationally regulated, globally integrated framework capable of supporting the country's ambitious climate and development goals. As India aspires to achieve net-zero emissions by 2070, the carbon market is expected to play a central role in mobilizing private finance, incentivizing low-carbon technologies, and facilitating cost-effective emissions reductions across sectors. However, realizing the full potential of this instrument demands a forward-looking legal and institutional roadmap that reconciles regulatory rigor with market dynamism, and national priorities with international expectations.

One of the foremost prospects for the carbon credit market lies in its capacity to become a vital policy tool for achieving India's Nationally Determined Contributions (NDCs) under the Paris Agreement. The Energy Conservation (Amendment) Act, 2022 and the launch of the Indian Carbon Market (ICM) in a phased manner indicate the government's intent to institutionalize emissions trading as a compliance-based mechanism rather than a purely voluntary initiative. The convergence of the Perform, Achieve and Trade (PAT) scheme and Renewable Energy Certificates (RECs) into a unified carbon market will provide greater liquidity, improve market efficiency, and attract diverse participants. In this context, the framing of robust secondary legislation will be essential—particularly in areas such as sectoral baselines, crediting thresholds, third-party validation processes, registry management, and the legal enforceability of transactions.

Moreover, the future of India's carbon credit market will be shaped by its ability to align with emerging global norms and market-based cooperation under Article 6 of the Paris Agreement. India has the opportunity to strategically position itself as a supplier of high-quality carbon credits in the international market by ensuring environmental integrity, transparency, and equitable benefit-sharing. This will require not only harmonization of domestic MRV systems with international reporting standards, but also the establishment of institutional mechanisms for the issuance, tracking, and transfer of internationally traded mitigation outcomes (ITMOs). A forward-thinking legal framework must address corresponding adjustments, bilateral cooperation agreements, and safeguards to avoid double counting—especially as India engages in Article 6.2 transactions and

prepares for the operationalization of the Article 6.4 centralized mechanism.

From an economic and developmental standpoint, the carbon market can offer new avenues of green financing, particularly for hard-to-abate sectors and decentralized renewable energy initiatives. For industries, the carbon market provides both a compliance tool and a reputational asset, enhancing competitiveness in a world where carbon intensity is increasingly tied to market access, particularly under regimes like the EU's Carbon Border Adjustment Mechanism (CBAM). For local communities, carbon revenues can serve as a catalyst for sustainable livelihoods, provided that projects are designed with participatory planning, environmental safeguards, and social co-benefits in mind. The way forward must therefore incorporate legal provisions for revenue-sharing mechanisms, local consent protocols, and grievance redressal systems.

In addition, digital technologies and data governance will play a transformative role in the market's future trajectory. Blockchain-based registries, AI-assisted verification systems, and geospatial monitoring tools can significantly reduce transaction costs, enhance credit traceability, and deter fraud. However, the integration of such technologies into the carbon market will necessitate legal safeguards around data privacy, cybersecurity, and interoperability with global registries. The law must also anticipate and regulate the emergence of novel instruments such as tokenized carbon credits or climate-linked financial products, which are likely to gain traction in the coming years.

Capacity building will remain a cornerstone of future development. For regulators, the challenge is to keep pace with international climate law, market developments, and enforcement best practices. For private actors—particularly MSMEs, local project developers, and financial institutions—there is a need for legal literacy, technical know-how, and access to affordable advisory services. Accordingly, the way forward must include the institutionalization of training programs, public-private knowledge exchanges, and the development of legal toolkits and model contracts tailored to different stakeholders.

Perhaps most importantly, the future of the carbon market must be anchored in principles of fairness, transparency, and long-term credibility. The history of carbon trading in both domestic and international contexts has been marked by skepticism over environmental efficacy, social justice, and financial opacity. India has the opportunity to chart a new path by embedding legal safeguards into the very design of its carbon credit system—ensuring that the market delivers not just on emissions reductions, but also on climate justice, economic equity, and intergenerational sustainability.

In conclusion, India's carbon credit market holds immense promise, but its success will hinge on the ability of lawmakers, regulators, and stakeholders to navigate legal complexities with vision and coherence. The future will require an adaptive legal framework that is at once detailed and flexible, national in scope and global in outlook, market-friendly and environmentally rigorous. By addressing legal ambiguities, strengthening institutions, and fostering inclusive participation, India can build a resilient carbon market that becomes a cornerstone of its climate governance architecture and a model for other emerging economies.

Conclusion

India's carbon credit market stands at a transformative crossroad—rich with potential yet constrained by evolving legal, institutional, and operational complexities. As the nation takes significant strides towards its climate commitments, including the ambitious goal of achieving net-zero emissions by 2070, the legal architecture surrounding carbon trading must evolve in tandem to foster clarity, trust, and effective participation from both public and private sectors.

This research has examined the multilayered legal dynamics shaping India's carbon credit market. From the development of a regulatory framework under the Energy Conservation (Amendment) Act, 2022, to the alignment with international norms such as Article 6 of the Paris Agreement, it is evident that a coherent and future-ready legal structure is essential for unlocking the full benefits of market-based climate instruments. However, challenges persist—ranging from institutional overlaps and definitional ambiguities to limited private sector confidence and compliance uncertainties.

The legal and institutional hurdles, if left unaddressed, risk stalling progress at a time when global climate cooperation and domestic green financing are both gaining critical momentum. To ensure the market's integrity and efficiency, India must prioritize comprehensive legal reforms that define the status of carbon credits, provide robust mechanisms for monitoring and verification, and offer clear pathways for international linkage and dispute resolution. Furthermore, enabling meaningful private sector participation and establishing social and environmental safeguards will be pivotal in building a market that is not only functional but also equitable and inclusive.

Looking ahead, India has a unique opportunity to become a leader among developing nations by designing a carbon market that reflects the country's economic realities, developmental aspirations, and environmental responsibilities. A strategically crafted, legally sound, and ethically grounded carbon credit system can serve as a cornerstone for India's climate governance and a model for other emerging economies navigating similar transitions.

In sum, while legal complexities abound, they are not insurmountable. With political will, institutional collaboration, and stakeholder engagement, India can build a carbon market that is both legally robust and globally credible—one that effectively balances ambition with accountability, and sustainability with sovereignty.

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