

BRIDGING THE POLICY GAP: A COMPARATIVE ASSESSMENT OF CARBON MITIGATION FRAMEWORKS IN CHINA AND THE EUROPEAN UNION FOR INDIA'S NET-ZERO TRANSITION

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ABSTRACT

The urgent need for climate action has prompted countries worldwide to adopt net-zero targets and carbon mitigation strategies. India, now the world's third-largest greenhouse gas emitter, has pledged to reach net-zero emissions by 2070 as part of its updated Nationally Determined Contribution. Despite this ambition, India's climate strategy has relied on sectoral policies and traditional environmental laws, including the Environment (Protection) Act, 1986, that predate the climate discourse and do not explicitly address greenhouse gas emissions, creating a policy gap between India's climate commitments and the binding legal instruments needed to achieve them. By contrast, the European Union and China have developed comprehensive carbon mitigation frameworks through binding climate laws, emissions trading systems and related regulation from which India may draw lessons. This paper conducts a comparative analysis of India's climate-related legislation against the European Union's and China's legal instruments, focusing on international, environmental and comparative law dimensions, and identifies concrete insights for bridging India's policy gap. It argues that India's net-zero transition is constrained not by ambition or technological capacity but by a structural legal deficit that separates climate intent from enforceable governance, and it proposes a context-sensitive legislative architecture that draws selectively on both comparators without transplanting either wholesale.

KEYWORDS: Carbon Mitigation Law; Climate Governance; Comparative Environmental Law; Net-Zero Transition; Carbon Markets

1. INTRODUCTION

Climate change governance is anchored in a patchwork of international agreements and norms, the cornerstone being the Paris Agreement of 2015, a legally binding treaty under which parties commit to Nationally Determined Contributions for emissions reduction, updated every five years under Article 4.9.¹ India, the European Union and China are all parties to the Agreement and successive Conference of the Parties decisions. India's latest Nationally Determined Contribution, submitted in 2022, sets economy-wide targets including approximately forty-five per cent renewable electricity by 2030 and net-zero emissions by 2070.² The Paris framework, however, imposes no direct

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¹ Paris Agreement to the United Nations Framework Convention on Climate Change, art. 4.9, Dec. 12, 2015, T.I.A.S. No. 16-1104.

² Government of India, India's Updated First Nationally Determined Contribution Under the Paris Agreement (2022).

enforcement mechanism of its own; it supplies objectives and obligations of conduct, while compliance enforcement remains a matter for domestic law and soft instruments such as reporting and public accountability.³ International environmental law principles, including the precautionary principle, common but differentiated responsibilities and the polluter-pays principle, inform national climate legislation in turn, and India asserts its developing-country status under the differentiated-responsibilities principle to emphasise its distinct obligations relative to industrialised economies.⁴

India's constitutional environmental provisions fall under the Concurrent List, permitting both Parliament and state legislatures to legislate on the subject and theoretically enabling coordinated climate legislation, yet India's domestic framework remains fragmented among general environmental statutes, the Air and Water Acts, the Environment (Protection) Act 1986, and the Forest Conservation Act, and sectoral regulations, many of which do not explicitly address carbon dioxide or methane emissions.⁵ This concurrent legislative competence is, in principle, an institutional advantage largely unavailable to the European Union, whose environmental competence remains constrained by the constitutional limits of conferred powers under the Treaties; India's Parliament could, without any prior constitutional amendment, legislate a comprehensive climate statute occupying the field currently left to sectoral instruments. That this constitutional capacity has not yet been exercised is itself a telling indicator that India's climate policy gap reflects a deficit of legislative will rather than constitutional constraint. The 1986 Environment (Protection) Act contains no explicit mention of emission reduction, though courts have interpreted "pollutants" under the Act to encompass greenhouse gases.⁶ Climate matters have accordingly emerged in India's highest courts principally through public interest litigation: the 2017 petition in *Ridhima Pandey v. Union of India* invoked the Paris Agreement and fundamental rights to urge government action but was dismissed by the National Green Tribunal in 2019, before the Supreme Court, on appeal in 2025, recognised the need for a meticulous examination of existing statutes to incorporate climate mandates and directed central ministries to coordinate on climate law.⁷ This pattern, in which environmental statutes and institutions such as the National Green Tribunal are pressed into service in the

³ Lavanya Rajamani, *The 2015 Paris Agreement: Interplay Between Hard, Soft and Non-Obligations*, 28 J. Envtl. L. 337, 351 (2016).

⁴ Rio Declaration on Environment and Development, June 14, 1992, 31 I.L.M. 874, princs. 15-16.

⁵ The Constitution of India, 1950, art. 246, sch. VII, list III.

⁶ The Air (Prevention and Control of Pollution) Act, No. 14 of 1981 (India); The Water (Prevention and Control of Pollution) Act, No. 6 of 1974 (India); The Environment (Protection) Act, No. 29 of 1986 (India).

⁷ *Ridhima Pandey v. Union of India*, Original Application No. 187 of 2017 (N.G.T. 2019); Civil Appeal No. 388 of 2021 (S.C. 2025) (India).

continued absence of a dedicated climate law, recurs throughout the analysis that follows.

By contrast, the European Union approaches climate governance largely through Treaty-based regulation; its founding treaties, notably Article 191 of the Treaty on the Functioning of the European Union, enshrine environmental protection and sustainable development as objectives directly applicable across Member States.⁸ The European Climate Law, Regulation 2021/1119, codifies binding climate-neutrality by 2050 and at least fifty-five per cent emissions reduction by 2030 relative to 1990 levels, requiring Member States to align national policy with these targets.⁹ China, meanwhile, treats climate goals as state policy rather than international obligation: its "dual carbon" targets, peak carbon dioxide emissions by 2030 and carbon neutrality by 2060, announced at the seventy-fifth session of the United Nations General Assembly, are implemented through national plans and administrative regulation rather than a standalone climate statute, most prominently the "1+N" climate policy system and successive Five-Year Plans.¹⁰ China's Fourteenth Five-Year Plan explicitly reaffirms these targets and calls for an action plan to achieve peak emissions by 2030 focused on carbon-intensity reduction, alongside expanded market mechanisms for carbon trading.¹¹ International law thus provides a common backdrop and target structure across all three jurisdictions, but the binding legal effect diverges sharply: the European Union has enshrined its targets in law, China governs through planning documents and regulation, and India relies substantially on policy targets and piecemeal legal mandate.

1.1 Objectives

This paper pursues two objectives. First, it critically examines the adequacy of India's existing legal and policy framework for carbon mitigation against its 2070 net-zero commitment, identifying the structural gaps arising from the absence of a comprehensive, binding climate law and India's consequent reliance on sector-specific statutes, executive policy and judicial intervention. Second, it undertakes a comparative legal assessment of the European Union's and China's carbon mitigation frameworks, analysing how binding legislation, emissions trading mechanisms and institutional coordination in each jurisdiction translate climate ambition into enforceable governance, with a view

⁸ Consolidated Version of the Treaty on the Functioning of the European Union art. 191, Oct. 26, 2012, 2012 O.J. (C 326) 47.

⁹ Council Regulation 2021/1119, 2021 O.J. (L 243) 1 (EU).

¹⁰ State Council of the People's Republic of China, Working Guidance for Carbon Dioxide Peaking and Carbon Neutrality (2021).

¹¹ Outline of the 14th Five-Year Plan (2021-2025) for National Economic and Social Development (adopted by the Nat'l People's Cong., Mar. 11, 2021) (China).

to distilling context-sensitive legal and institutional insights capable of informing a coherent Indian carbon mitigation framework.

2. INDIA'S POLICY AND LEGAL FRAMEWORK FOR CARBON MITIGATION

India's climate approach combines voluntary targets, sectoral policy and traditional environmental law rather than a unified climate statute. The National Action Plan on Climate Change of 2008 and its eight constituent missions, spanning solar energy, enhanced energy efficiency and sustainable habitat among others, remain guidelines rather than binding law.¹² Parliament has twice considered dedicated climate legislation without enactment: the Climate Change (Carbon Neutrality) Bill of 2022 proposed a National Climate Council chaired by the Prime Minister, alongside State Councils and statutory definitions for "net carbon account" and greenhouse gas baselines, while a private member's Net Zero Target Bill followed in 2023, signalling sustained legislative attention without corresponding legislative action.¹³

India's operative carbon mitigation framework instead rests on the Energy Conservation (Amendment) Act, 2022, which establishes the National Carbon Credit Trading Scheme administered by the Bureau of Energy Efficiency, and the Electricity Act, 2003, which mandates renewable purchase obligations, supplemented by the Environment (Protection) Act, 1986 and the Air (Prevention and Control of Pollution) Act, 1981, which supply the broad regulatory power to define greenhouse gases as pollutants and enforce emission standards.¹⁴ Under Section 26 of the 2022 Amendment Act, designated consumers who fail to meet mandatory non-fossil energy consumption targets face a fixed penalty of up to ten lakh rupees per failure, together with a variable penalty of up to twice the market price of the oil-equivalent energy consumed in excess of prescribed norms.¹⁵ In July 2024, the government adopted detailed Carbon Credit Trading Scheme regulations covering baseline-setting, credit issuance for verified reductions and registry operation, establishing India's first compliance carbon market, focused initially on energy-intensive industries including steel and cement.¹⁶ The Electricity (Amendment) Rules, 2023 further emphasise renewable energy procurement, complemented by Renewable

¹² Prime Minister's Council on Climate Change, National Action Plan on Climate Change (2008) (India).

¹³ The Climate Change (Carbon Neutrality) Bill, 2022, Bill No. 165 of 2022 (India); The Net Zero Target Bill, 2023, Bill No. 67 of 2023 (India).

¹⁴ The Energy Conservation (Amendment) Act, No. 57 of 2022 (India); The Electricity Act, No. 36 of 2003 (India).

¹⁵ The Energy Conservation (Amendment) Act, No. 57 of 2022, § 26 (India).

¹⁶ Ministry of Power, Carbon Credit Trading Scheme, 2023, S.O. 2824(E) (June 28, 2023), as amended (July 2024) (India).

Purchase Obligations, the Perform, Achieve and Trade scheme for energy-intensive industries, and the National Green Hydrogen Mission.

These measures, however, remain incentives and mandates confined to specific sectors rather than an economy-wide carbon price; India has imposed no carbon tax and no economy-wide emissions cap. Commentators have observed that India's policy portfolio lacks the enforceable "teeth" of binding law, since existing sectoral focus may prove insufficient to drive India's ambitious emission reduction target absent an overarching legal framework.¹⁷ This sectoral concentration carries a structural consequence worth noting explicitly: because the Carbon Credit Trading Scheme, the Renewable Purchase Obligations and the energy-efficiency schemes each target a distinct slice of the economy, industrial energy consumers, electricity distribution utilities, and specified energy-intensive sectors respectively, no single instrument captures the diffuse emissions sources, agriculture, transport, informal industry, that fall outside these categories, leaving substantial shares of India's overall emissions profile effectively unaddressed by any binding legal instrument at all.

The judiciary has taken note of this gap directly: in *M.K. Ranjitsinh v. Union of India*, the Supreme Court recognised India's Paris commitments while questioning their enforceability, called for climate considerations to be integrated into environmental clearance decisions, and directed a detailed mapping of all rules and regulations concerning carbon emissions, a direction that itself underscored the piecemeal character of India's existing legal architecture.¹⁸ Experts have repeatedly proposed an umbrella Climate Change Act to consolidate air, water and environmental law and to include explicit greenhouse gas provisions, setting national carbon budgets, creating institutional coordination mechanisms such as a climate commission, and integrating climate considerations into environmental impact assessment and planning.¹⁹ The National Green Tribunal and Supreme Court have likewise urged harmonisation of existing statutes to reflect climate goals, observing that ministries currently operate in institutional silos. India thus possesses a mosaic of policies and incremental new legal instruments, on efficiency, on carbon trading, but the absence of a binding, cross-cutting climate statute remains, on the weight of this evidence, the central obstacle to achieving the 2070 net-zero target.

¹⁷ Shibani Ghosh, *The Legal and Institutional Framework for Climate Change in India*, in *Climate Change Law: Comparative, Interdisciplinary and International Perspectives* 517 (C.P. Carlarne et al. eds., 2016).

¹⁸ *M.K. Ranjitsinh v. Union of India*, 2024 INSC 280 (India).

¹⁹ Navroz K. Dubash, *India's Climate Governance: Explaining Strategy and Policy and Institutions*, 31 *Climate Pol'y* 1 (2021).

3. THE EUROPEAN UNION'S CLIMATE AND CARBON MITIGATION FRAMEWORK

The European Union has developed one of the most comprehensive climate legal regimes among comparable jurisdictions. The European Climate Law, Regulation 2021/1119, writes into binding law the European Green Deal's objective of climate neutrality by 2050, setting an interim milestone of at least fifty-five per cent emissions reduction by 2030 relative to 1990 and requiring EU institutions and Member States to ensure that all Union policy contributes to this goal, a legally binding structure that contrasts sharply with India's non-binding policy targets.²⁰ The Climate Law further establishes a process for setting a 2040 target, recently agreed at ninety per cent reduction, illustrating a dynamic, legally anchored ambition that adjusts over time within a stable statutory framework rather than through periodic policy reannouncement.²¹

This framework is implemented through detailed directives and regulations across sectors, centred on the EU Emissions Trading System, launched in 2005 as the world's first cap-and-trade carbon market and now covering power generation, energy-intensive industry and, since 2021, aviation within Europe.²² The system caps emissions at descending annual levels, allocates or auctions allowances to emitters, and has achieved over forty per cent of the Union's emissions reductions to date, currently operating in its fourth phase spanning 2021 to 2030. The "Fit for 55" legislative package revised the Trading System to cover new sectors including shipping and parts of transport and buildings, tightening caps in line with the 2030 target, and introduced the Carbon Border Adjustment Mechanism, which imposes a carbon cost on imports of specified goods, externalising the Union's climate law to trade relationships in a manner designed to protect domestic competitiveness while pressuring trading partners toward decarbonisation.²³ Enforcement within the Trading System is deliberately punitive: installations failing to surrender sufficient allowances face an excess-emissions penalty of one hundred euros per tonne of carbon dioxide under Article 16 of the governing Directive, and as of January 2026 the Carbon Border Adjustment Mechanism has entered its definitive phase, requiring importers to purchase certificates priced between roughly eighty-

²⁰ Council Regulation 2021/1119, 2021 O.J. (L 243) 1 (EU).

²¹ Communication from the Commission, Securing Our Future: Europe's 2040 Climate Target and Path to Climate Neutrality by 2050, COM (2024) 63 final (Feb. 6, 2024).

²² Council Directive 2003/87/EC, 2003 O.J. (L 275) 32 (EU).

²³ Council Directive 2023/959, 2023 O.J. (L 130) 134 (EU); Council Regulation 2023/956, 2023 O.J. (L 130) 52 (EU).

seven and ninety euros per tonne, directly taxing the embedded carbon of goods such as steel and aluminium imported from trading partners including India.²⁴

Beyond the Trading System, the Effort Sharing Regulation sets binding emissions targets for Member States' non-traded sectors including transport, buildings, agriculture and waste, complemented by the Land Use, Land-Use Change and Forestry Regulation and sectoral directives on renewable energy and energy efficiency; the revised Renewable Energy Directive requires a 42.5 per cent renewables share by 2030.²⁵ Enforcement more broadly is backed by the European Commission and the Court of Justice of the European Union, with Member States failing to comply with directives subject to infringement proceedings, while funding mechanisms including the Innovation Fund and Just Transition Fund support the transition and its social fairness.²⁶ The Union's model thus emphasises high coherence and legal integration, with climate neutrality enshrined at the constitutional apex and subordinate legal instruments aligned beneath it, a structure India's still-emergent and compartmentalised framework has yet to approximate. India might draw institutional lessons from this architecture, particularly the stability a legally entrenched net-zero target provides for investors and regulators, while recognising that the Union's supranational regulatory capacity and India's single federal structure with more acute developmental and equity constraints differ fundamentally enough that any transplantation must be selective rather than wholesale.

4. CHINA'S CARBON MITIGATION FRAMEWORK

China's climate strategy is characterised by top-down planning increasingly supplemented by market mechanisms. As the world's largest carbon dioxide emitter, driven substantially by coal-based industrial growth, China's dual targets, peaking emissions by around 2030 and achieving carbon neutrality before 2060, were announced in 2020 and reinforced in subsequent policy documents.²⁷ Unlike the European Union's explicit climate statute, China's targets are implemented through political directive, Five-Year Plans and administrative regulation rather than dedicated legislative mandate, though this position is evolving. The Fourteenth Five-Year Plan, approved by the National People's Congress, reiterates the 2060 neutrality and 2030 peaking targets and

²⁴ Council Directive 2003/87/EC art. 16, 2003 O.J. (L 275) 32 (EU); Council Regulation 2023/956, 2023 O.J. (L 130) 52 (EU).

²⁵ Council Regulation 2018/842, 2018 O.J. (L 156) 26 (EU), as amended by Council Regulation 2023/857, 2023 O.J. (L 111) 1 (EU); Council Directive 2023/2413, 2023 O.J. (L 2023/2413) (EU).

²⁶ Consolidated Version of the Treaty on the Functioning of the European Union art. 258, 2012 O.J. (C 326) 47.

²⁷ President Xi Jinping, Address at the General Debate of the 75th Session of the United Nations General Assembly (Sept. 22, 2020).

mandates an action plan focused on carbon-intensity control and support for leading provinces and industries to reach their emissions peak, alongside expanded renewable energy consumption targets and energy efficiency measures.²⁸

China has built a national carbon market of considerable scale. Following provincial pilot programmes between 2013 and 2019, China launched its national emissions trading system in July 2021, initially covering the power sector's largest emitters and now encompassing over two thousand entities and more than five billion tonnes of carbon dioxide, approximately forty per cent of national emissions, making it the world's largest carbon market by covered volume.²⁹ Until 2024 the system operated under ministerial rules alone; in early 2024, the State Council enacted Interim Regulations for the Management of Carbon Emissions Trading, effective May 2024, elevating governance to State Council level and designating the Ministry of Ecology and Environment as primary regulator, empowered to set thresholds for covered entities, allocate allowances and verify emissions, with the National Development and Reform Commission, the People's Bank of China and market regulators sharing oversight functions.³⁰ The new regulations impose substantially stronger enforcement, including fines of up to five to ten times the compliance gap and production suspension for repeat defaulters, alongside auctioned allowances and expanded coverage; sectors including cement, steel and aluminium were brought under absolute caps during 2024 and 2025, and technical service agencies found complicit in verification fraud face fines up to ten times their illegal gains and licence cancellation, a deliberate move toward high-consequence statutory enforcement as the market's coverage expands.³¹

Beyond carbon markets, China has increasingly woven climate objectives into its broader legal architecture. Although China does not yet possess a dedicated climate change statute, the National People's Congress Standing Committee reviewed a draft Environmental Code in 2025, China's first comprehensive environmental statute, which would merge existing pollution and nature-protection law and include a chapter on green and low-carbon development, setting out principles for carbon peaking and neutrality and clarifying institutional roles by designating the National Development and Reform Commission to coordinate peaking and neutrality efforts and the

²⁸ Outline of the 14th Five-Year Plan (2021-2025), ch. 39 (adopted by the Nat'l People's Cong., Mar. 11, 2021) (China).

²⁹ Ministry of Ecology and Environment, Measures for the Administration of Carbon Emission Trading (Trial) (China 2021).

³⁰ Interim Regulations on the Management of Carbon Emissions Trading (promulgated by the State Council, Jan. 25, 2024, effective May 1, 2024) (China).

³¹ Haitang Li & Yu Liu, Legal Pathways for China's Blue Carbon Conservation, 11 *Frontiers in Marine Sci.* 1, 8 (2024).

Ministry of Ecology and Environment to oversee the carbon market, emissions inventories and international reporting.³² This would fill significant gaps in China's present legal framework, elevating climate action from administrative practice to statutory authority and signalling a shift from piecemeal regulation toward unified codification. Enforcement in China is driven substantially by the Party-State's command structure rather than judicial review, with local governments and state-owned enterprises implementing central directives, often to secure political or financial incentive, a structure capable of achieving rapid results, exemplified by China's massive deployment of solar and wind capacity, while producing rigidity and uneven enforcement across regions.³³ India cannot replicate this model given its different constitutional structure, separation of powers and space for public participation, but the underlying insight, that a strong central planning framework combined with phased legal codification can mobilise administrative capacity in a large developing economy, remains transferable in principle. The comparison also usefully illustrates that legal formalisation need not precede market mechanisms; China ran its national emissions trading system for nearly three years under ministerial rules before the State Council elevated it to statutory footing in 2024, suggesting a viable sequencing model in which India could pilot and refine its own Carbon Credit Trading Scheme administratively before consolidating it into primary legislation, rather than treating the absence of a finished statute as a reason to delay market development altogether.

5. COMPARATIVE ANALYSIS AND POLICY IMPLICATIONS

The European Union, China and India present three distinct modes of climate governance, legalistic, dirigiste and hybrid respectively, each carrying characteristic strengths and weaknesses.³⁴ The Union's reliance on supranational law and harmonised regulation yields strong legal certainty and coherence: investors and industries confront clear, long-term rules, a steadily descending emissions cap, mandated renewable quotas, and Member States are held accountable through the Commission and courts, though Union lawmaking is comparatively slow, requiring extended negotiation, and enforcement can lag where individual Member States struggle to meet their targets. China's system is coercive and highly adaptable: targets issued by central leadership cascade through administrative orders and industrial policy, enabling rapid resource mobilisation and mid-course recalibration, at the cost of reduced transparency and legal predictability for private investors, who face policy uncertainty until

³² National People's Congress Standing Committee, Legislative Work Plan of the NPC Standing Committee for 2025 (China).

³³ Jiangang Qi & Zhaodi Yu, China's Carbon Labeling Legal System and Green Supply Chain Management, 16 Carbon Mgmt. 1, 14 (2025).

³⁴ Navroz K. Dubash et al., India's Emerging Climate Strategy: Exploring the Policy Landscape, 18 Climate Pol'y 1191 (2018).

rules are formalised, as occurred with the emissions trading system itself; China's recent movement toward a codified Environmental Code suggests recognition of precisely this gap.³⁵

India sits between these models institutionally, as a democratic federal republic with both central and state governments and a common-law legal culture featuring an unusually active environmental judiciary in the National Green Tribunal and Supreme Court capable of compelling policy attention, even as its executive action remains comparatively slow and frequently entangled in statutory barriers spanning land use and federal approval processes.³⁶ India's policies to date have consisted largely of voluntary schemes and soft mandates lacking the enforcement teeth of a European regulation or Chinese directive, and the resulting policy gap arises specifically because India's climate commitments outstrip its legal infrastructure: achieving net-zero by 2070 will require economy-wide transformation, yet current instruments such as the Energy Conservation Act and Electricity Act remain sector-specific rather than economy-wide in their design.³⁷

The comparative record suggests several transferable lessons. From the European Union, India can draw the demonstrated value of embedding targets in binding law rather than policy pronouncement, since legal entrenchment supplies the stability investors and regulators require over a multi-decade decarbonisation pathway; some Indian commentators have accordingly called for a dedicated Climate Change Act to provide precisely this long-term legal mandate.³⁸ From China, India can draw the value of blending command-and-control instruments, such as mandatory renewable targets, with market mechanisms including carbon credits; India's own Carbon Credit Trading Scheme represents an early step in this hybrid direction but requires expansion in scale and clearer linkage to binding sectoral goals.³⁹ Institutional design offers a further comparative lesson: the European Union created specialised bodies including the European Environment Agency and integrated climate units across every relevant agency, while China established dedicated leadership groups to drive reform, whereas in India multiple ministries,

³⁵ Alex Wang, Symbolic State: China's Information Controls and Governance of the Carbon Market, 48 *Ecology L.Q.* 1, 12 (2021); Guizhen He et al., China's Environmental Governance Transition from Individual Agency to Systematic Integration, 21 *Envtl. Dev.* 17 (2017).

³⁶ Gitanjali Nain Gill, *Environmental Justice in India: The National Green Tribunal* (2017).

³⁷ The Energy Conservation (Amendment) Act, No. 57 of 2022 (India); The Electricity (Amendment) Rules, 2023 (India).

³⁸ Arpitha Kodiveri, The Case for a Climate Change Act in India, 11 *Nat'l L. Sch. India Rev.* 1, 5 (2021).

³⁹ Jonathan B. Wiener, The Diffusion of Regulatory Oversight, in *The Globalization of Cost-Benefit Analysis* 23 (Michael A. Livermore & Richard L. Revesz eds., 2013).

Environment, Power and Finance among them, each touch climate policy without a single coordinating authority, an institutional fragmentation the Supreme Court itself identified in *Ranjitsinh* when it observed that ministries appeared to be working in silos.⁴⁰ This fragmentation points toward the need for either a central nodal authority or a statutory coordination framework of the kind the unpassed Climate Change Council Bill contemplated.

India must nonetheless balance climate ambition against development and equity considerations that distinguish its position from both comparators: unlike the Union or China, India's per-capita emissions remain comparatively low, and the country continues to confront energy poverty and pressing development priorities that properly inform its willingness to accept binding obligations.⁴¹ The comparative lesson here is that any Indian legal framework must incorporate flexibility and just-transition measures analogous to the Union's Just Transition Fund or China's targeted renewable-sector subsidies, building support for affected states and vulnerable sectors into the legal architecture itself rather than treating equity as an afterthought to be addressed through separate, uncoordinated schemes. This equity dimension is not merely a matter of domestic distributive fairness; it also bears directly on India's negotiating posture within the international climate regime, since a legally entrenched, economy-wide mitigation framework strengthens India's credibility in seeking climate finance and technology transfer under the Paris Agreement's differentiated-responsibilities architecture discussed in Part 1, precisely because it demonstrates a durable domestic commitment that voluntary policy announcements alone cannot convey to international partners or investors evaluating India's long-term decarbonisation trajectory. On enforcement specifically, the Union relies on Commission-led infringement proceedings and judicial sanction, China on administrative punishment and incentive withdrawal from non-compliant officials, while India has relied substantially on judicial intervention as a structural backstop; establishing clear statutory penalties for non-compliance, for instance in emissions reporting, and empowering a regulator such as the Central Pollution Control Board to audit and enforce compliance directly, rather than relying on litigation as the primary enforcement channel, would meaningfully strengthen India's present position.⁴²

6. TOWARDS BRIDGING THE POLICY GAP: RECOMMENDATIONS FOR INDIA

The preceding comparative analysis points toward a coherent set of reforms capable of adapting elements of the European and Chinese frameworks to

⁴⁰ *M.K. Ranjitsinh v. Union of India*, 2024 INSC 280 (India).

⁴¹ The Climate Change (Carbon Neutrality) Bill, 2022, Bill No. 165 of 2022 (India).

⁴² *Vardhaman Kaushik v. Union of India*, Original Application No. 21 of 2014 (N.G.T.) (India).

Indian conditions. India should first enact comprehensive climate legislation, drawing on the European example of an overarching climate law, formally codifying the 2070 net-zero target and associated carbon budgets within statute rather than policy announcement; such legislation could consolidate the Air, Water and Environment Protection Acts under a single code with explicit greenhouse gas provisions, broadly analogous to China's draft Environmental Code, supplying the legal certainty and statutory priority India's framework presently lacks. Second, the legislation should define institutional roles and coordination clearly, reviving and adapting the unpassed Climate Change Council Bill's proposed National Council or creating a statutory climate authority comparable to the coordinating functions China assigns to the National Development and Reform Commission and Ministry of Ecology and Environment, tasked with setting national targets, reviewing state-level progress, integrating action across ministries, and engaging civil society through structured public consultation of the kind the European Union employs in reviewing National Energy and Climate Plans.

Third, India should accelerate carbon pricing and market mechanisms, ensuring that the Carbon Credit Trading Scheme matures into a robust cap-and-trade system rather than remaining a narrowly targeted voluntary scheme; expanding mandatory caps to key sectors including steel, cement and power, backed by a transparent registry and defined penalties, and exploring international linkage through the Paris Agreement's Article 6 framework to access cost-effective abatement, would meaningfully sharpen the scheme's present impact. Fourth, India should set interim, legally binding targets and strengthen monitoring, mandating five-year carbon budgets or sectoral emissions-intensity targets analogous to the Union's multi-decade target structure and China's Five-Year Plans, incorporating periodic review mechanisms comparable to the Union's climate-law stocktakes and establishing a statutory carbon registry and public emissions inventory responsive to the Supreme Court's own direction to catalogue existing carbon regulation comprehensively.

Fifth, India should strengthen compliance and enforcement authority directly, following both comparators in prescribing clear penalties, for instance for failure to report emissions, and empowering a designated regulator to audit and enforce compliance rather than relying primarily on judicial process, while making the integration of climate criteria into environmental clearance processes, already urged by the National Green Tribunal, a binding statutory requirement rather than a discretionary practice. Sixth, India should promote holistic planning and public participation along the lines of the Union's integrated National Energy and Climate Plans, requiring states and sectors to prepare climate action plans aligned with national targets and instituting formal public input mechanisms, such as hearings on draft climate legislation, to

improve accountability and incorporate local and sectoral concerns into national policy design. Finally, India should leverage international cooperation more deliberately, engaging with European and Chinese approaches to carbon border measures in response to the Carbon Border Adjustment Mechanism's definitive phase, considered in Part 3, potentially through reciprocal carbon tariffs or import standards calibrated to protect domestic industry while incentivising cleaner production, alongside ratification of relevant international instruments such as the Kigali Amendment on hydrofluorocarbons to align India's framework with evolving global norms.

7. CONCLUSION

This paper has argued that India's net-zero transition is not primarily constrained by ambition, technology or the absence of international commitment, but by a structural legal and policy deficit that separates climate intent from enforceable governance. India's pledge to achieve net-zero emissions by 2070 signals a meaningful normative shift within the global climate regime, yet the absence of an integrated, binding, economy-wide legal framework renders this commitment vulnerable to fragmentation, policy inertia and institutional incoherence. The European Union and China, despite vastly different constitutional, political and economic systems, have each succeeded in embedding carbon mitigation into the core of their legal and regulatory architecture, offering instructive, though non-transplantable, lessons for India.

The European Union's central strength lies in the legal constitutionalisation of climate ambition: by transforming climate neutrality into a binding legal obligation through the European Climate Law and operationalising it through an interlocking web of instruments including the Emissions Trading System, the Effort Sharing Regulation and sector-specific directives, the Union has secured policy continuity, legal certainty and institutional accountability, elevating climate governance from environmental regulation to a core element of economic and constitutional planning. China presents a differently instructive model, demonstrating how centralised planning combined with gradual legal formalisation can drive rapid emissions control within a developing economy, its integration of carbon targets into successive Five-Year Plans and the recent statutory strengthening of its national carbon market showing that legal certainty can emerge incrementally from administrative governance rather than only from constitutional entrenchment. India, situated between these models, remains normatively ambitious but legally underdeveloped: its existing statutes were neither designed nor systematically adapted to govern greenhouse gas emissions at the scale a 2070 net-zero commitment requires, and judicial intervention, however doctrinally significant, cannot indefinitely substitute for comprehensive climate legislation without risking exactly the kind of institutional overreach a properly functioning legislature exists to avoid.

India's net-zero transition accordingly requires a shift from policy-led climate action to law-driven climate governance, not through wholesale replication of either comparator but through a context-sensitive legal architecture reflecting India's federal structure, developmental priorities and constitutional values, anchored in a dedicated climate statute that codifies long-term emissions targets, establishes carbon budgeting mechanisms, clarifies institutional responsibility, integrates carbon considerations into environmental clearance and planning law, and supplies enforceable compliance mechanisms within which carbon markets, renewable mandates and efficiency schemes can operate as coordinated instruments rather than isolated regulatory experiments.

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