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# Beyond the Brussels Carbon Order: Rebalancing Global Carbon Politics, Trade Justice, and the Right to Development

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**ABSTRACT**

The European Union has converted domestic climate ambition into a form of global regulatory power through the European Union Emissions Trading System (EU ETS), the Carbon Border Adjustment Mechanism (CBAM), and the European Union Deforestation Regulation (EUDR). This qualitative literature review examines whether that emerging Brussels-centred carbon order can remain environmentally effective and politically legitimate when its adjustment costs are disproportionately borne by developing economies. Drawing on journal literature published mainly since 2020, the article synthesizes scholarship on global carbon politics, the Brussels Effect, carbon leakage, border adjustment, deforestation-free supply chains, climate justice, and the right to development. It finds that EU instruments can stimulate cleaner production and improve supply-chain transparency, but also transmit measurement, reporting, verification, traceability, certification, and financing costs down value chains in regressive ways. These effects can operate as non-tariff barriers even when the measures pursue legitimate environmental objectives and are formally imposed on EU importers. Palm oil illustrates the problem clearly: although palm oil is not a CBAM commodity, EUDR and related European sustainability rules can exclude smallholders whose environmental performance may be acceptable but whose land records, geolocation data, or chain-of-custody systems remain incomplete. The article argues that durable global carbon governance requires more than unilateral diffusion of European rules. It proposes an inclusive compact based on co-design, differentiated obligations, recognition of equivalent policies, revenue recycling, technology transfer, smallholder-centred traceability, and accessible review mechanisms. Climate leadership will command followers only when decarbonization is aligned with distributive justice and credible development pathways.

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## Introduction

The politics of decarbonization is increasingly the politics of market access. For two decades, the European Union (EU) has sought to demonstrate that a large economy can reduce greenhouse-gas emissions while modernizing industry, and it has used the EU Emissions Trading System (EU ETS) as the institutional centre of that strategy. More recently, the Carbon Border Adjustment Mechanism (CBAM) and the European Union Deforestation Regulation (EUDR) have extended the reach of European climate and environmental governance into the production systems of trading partners. This development is not merely a technical refinement of climate policy. It changes who writes the operational rules of global decarbonization, whose data count as credible, which forms of climate action receive recognition, and who finances the transition necessary to preserve access to a major consumer market [1-4].

The literature that motivated this review asks whether the world will continue to follow Europe when carbon prices, industrial pressures, and political resistance make the costs of leadership increasingly visible. Its central insight is that European climate instruments have two faces. They are designed to correct genuine environmental problems carbon leakage, regulatory arbitrage, and imported deforestation but they also alter competitive conditions and can shift adjustment costs toward non-EU producers. The question is therefore not whether climate action is necessary. It is whether unilateral regulatory leadership can produce a durable global settlement when developing countries have limited influence over the design of standards that affect their exports, employment, fiscal space, and development strategies [5-7].

This concern is especially important because formal legal symmetry does not guarantee substantive equality. CBAM is imposed on authorized EU importers and is framed as an equalization of carbon costs between domestic and imported goods. EUDR similarly places due-diligence duties on operators and traders that place covered products on the EU market. Yet the information, verification, traceability, segregation, and financing requirements generated by these laws travel upstream. Exporters can face demands for plant-level emissions data; farmers can be required to provide plot geolocation and evidence of legality; traders may consolidate suppliers to reduce audit risk; and buyers may discount products when documentation is incomplete. When bargaining power is unequal, the location of the legal obligation and the location of the economic burden need not coincide [4-10].

Developing-country criticism cannot be dismissed as opposition to environmental responsibility. Many developing economies are highly exposed to climate harm and have strong reasons to accelerate low-carbon development. Their objection is commonly directed at the distribution of authority and cost: historical emitters retain greater fiscal and technological capabilities, while countries with smaller historical contributions must make rapid, expensive adjustments to rules established elsewhere. This tension activates the principles of equity and common but differentiated responsibilities and respective capabilities (CBDR-RC), as well as the right to development. These principles do not create a license for unlimited emissions. They require climate governance to distinguish between comparable environmental outcomes and unequal capacities to achieve them [11-13].

Palm oil offers a revealing illustration. Palm oil is not among the initial CBAM sectors; treating it as a CBAM commodity would be analytically incorrect. It is, however, covered by EUDR, and it has long been affected by European debates over deforestation, biofuels, sustainability certification, and land-use change. The commodity is produced through heterogeneous systems ranging from vertically integrated estates to millions of smallholders. A rule requiring geolocation, legality evidence, risk assessment, and traceability may improve environmental accountability, but it can also favour firms already equipped with digital records and segregated supply chains. Smallholders may be environmentally compliant in practice yet commercially non-compliant because they lack formal titles, mapping, organizational support, or affordable verification [14-17].

This article addresses three questions. First, through what mechanisms has the EU transformed domestic climate ambition into a Brussels-centred carbon and sustainability order? Second, how do the EU ETS, CBAM, and EUDR transmit environmental incentives and adjustment burdens to developing countries, and when do those effects resemble non-tariff barriers? Third, what institutional reforms could reconcile environmental integrity with the right to development and thereby create carbon governance that developing countries can legitimately support? The article contributes a qualitative synthesis connecting literatures that are often treated separately: EU regulatory power, carbon pricing and leakage, climate-trade law, deforestation-free supply chains, smallholder inclusion, climate justice, and development rights.

**literature Review and Analytical Foundations**

Global carbon politics is characterized by regime complexity rather than a single hierarchical authority. The Paris Agreement establishes collective temperature goals and nationally determined contributions, but operational instruments are adopted through national and regional legal systems, carbon markets, financial standards, procurement rules, and private certification. This fragmentation enables experimentation, but it also creates opportunities for powerful markets to define practical benchmarks. Carbon prices, product standards, and emissions-accounting methods become consequential beyond the jurisdiction that adopted them when firms cannot economically maintain separate production and information systems for different markets [18-20].

The Brussels Effect describes the EU's capacity to externalize regulation through the size, wealth, and relative non-divisibility of its internal market. De facto diffusion occurs when multinational firms adopt an EU standard throughout their operations because separate systems are costly. De jure diffusion occurs when foreign governments incorporate similar rules to preserve market access or reduce transaction costs. In climate governance, however, diffusion is not neutral. It can represent productive upward harmonization, but it can also prioritize European definitions of acceptable evidence, risk, and enforcement. The boundary between normative leadership and market coercion therefore depends on procedural inclusion, proportionality, recognition of equivalent approaches, and the distribution of implementation costs [21-23].

EU climate leadership itself is multidimensional. Scholarship describes the Union as a normative power, a market power, a diplomatic coalition builder, and an experimental regulator. Its credibility has benefited from legally binding domestic targets and a willingness to impose adjustment costs on European firms. At the same time, climate policy is increasingly linked to industrial strategy, strategic autonomy, energy security, and technology competition. This linkage does not invalidate environmental objectives, but it complicates claims that trade-facing measures are solely ecological. If an instrument simultaneously prevents leakage, protects investment, encourages reshoring, raises revenue, and exports EU standards, partners will reasonably evaluate the entire package rather than its official environmental label [24-25].

The EU ETS is the world's most mature multinational cap-and-trade system. It establishes a declining emissions cap and requires covered installations to surrender allowances. Its evolution has included tighter caps, auctioning, market-stability reforms, and gradual reduction of free allocation. Empirical studies find that the system has reduced emissions and stimulated low-carbon innovation without producing the scale of deindustrialization once feared. Evidence also indicates that carbon pricing can affect productivity, investment, and trade patterns in heterogeneous ways across firms and sectors, making complementary industrial and social policies important [26-28].

Carbon leakage remains the political hinge connecting the EU ETS to CBAM. Leakage can occur when production shifts to jurisdictions with less stringent climate policy, when investment relocates, or when changes in global energy prices stimulate emissions elsewhere. Free allocation has been used to protect emissions-intensive and trade-exposed sectors, but it weakens the carbon-price signal and can generate windfall profits. Border adjustment is therefore presented as a way to preserve domestic ambition while phasing down free allowances. Model-based studies often find that border measures can reduce leakage more efficiently than free allocation, although results depend on sectoral scope, treatment of indirect emissions, foreign responses, and assumptions about technology and trade substitution [29-32].

CBAM operationalizes this logic by requiring the carbon content of covered imports to face a cost linked to the EU ETS, with credit for an explicit carbon price effectively paid in the country of origin. Its initial sectors iron and steel, aluminium, cement, fertilizers, electricity, and hydrogen—are emissions-intensive and politically salient. The mechanism can encourage exporters to measure and lower embedded emissions, and it can motivate governments to introduce carbon pricing so that revenue is retained domestically rather than transferred through CBAM obligations. Yet it also rewards countries with existing monitoring infrastructure and low-carbon energy systems, while exposing carbon-intensive developing economies to costly adjustment [33-34].

The distributional literature is more cautionary than the aggregate-efficiency literature. Studies of least-developed countries and emerging economies show that small absolute trade volumes can still represent high shares of national exports, employment, or foreign exchange. Vulnerability depends not only on direct sectoral

exposure but also on upstream linkages, fiscal capacity, access to green electricity, and the ability to verify actual emissions rather than accept conservative default values. A policy that produces modest EU-wide welfare effects may therefore generate severe localized shocks in countries with narrow export structures and constrained adjustment capacity [35-36].

Legal scholarship offers neither a simple verdict of WTO illegality nor a blank endorsement. Properly designed environmental trade measures may be defensible under non-discrimination disciplines and environmental exceptions, particularly when they are closely related to environmental objectives and administered flexibly. The harder challenges concern comparability across different climate policies, recognition of non-price measures, avoidance of arbitrary discrimination, and meaningful negotiations with affected partners. CBDR-RC belongs formally to the climate regime rather than WTO tariff schedules, but ignoring differentiated responsibilities can weaken political legitimacy even if a measure survives a narrow trade-law test [37-38].

EUDR represents a related but distinct form of externalization. It requires covered commodities and derived products placed on, made available in, or exported from the EU market to be deforestation-free, legally produced, and supported by due diligence [38]. The regulation responds to the EU's contribution to imported deforestation and addresses a genuine governance gap: voluntary commitments and certification have not consistently delivered traceable, deforestation-free supply chains. Nevertheless, the EUDR's plot-level geolocation, cutoff date, legality requirements, and risk-based controls can create high fixed costs. These costs are especially consequential where land administration is incomplete and supply chains aggregate output from many small producers [39 -40].

Research on deforestation-free regulation emphasizes potential unintended effects on smallholders, Indigenous peoples, and local communities. Buyers may respond to legal liability by sourcing from fewer, larger, easier-to-audit suppliers rather than investing in inclusion. Certification can support due diligence but does not automatically satisfy every EUDR requirement; data ownership, chain-of-custody integrity, and verification remain contested. Studies also stress that producer-country institutions matter: credible land-use monitoring, cooperative organization, extension, and national traceability can lower costs and improve environmental outcomes. Therefore, EUDR's success should be judged not only by the cleanliness of products reaching Europe but also by whether deforestation is reduced rather than displaced and whether vulnerable producers remain in sustainable value chains [41].

The right to development supplies the normative counterweight to purely territorial regulation. Contemporary interpretations understand development as a process that expands human capabilities, participation, and equitable access to the benefits of economic, social, cultural, and political progress. Climate change threatens that right, but poorly designed mitigation can also restrict it by narrowing fiscal space, employment opportunities, energy access, and industrialization pathways. The central question is not whether development or climate protection should prevail. It is how the remaining carbon budget, transition finance, technology, and adjustment time should be allocated so that all societies can pursue dignified low-carbon transformation [42-43].

Historical responsibility sharpens this claim. Attribution research shows that the accumulated emissions of industrialized economies have generated substantial cross-border climate damages. Equity scholarship consequently distinguishes equal formal obligations from fair obligations that account for past contribution, present capability, and basic needs. An equitable carbon order can require all countries to act while still assigning faster reductions and greater financial responsibility to wealthy historical emitters. The right to development is thus best interpreted not as a claim to reproduce fossil-intensive development, but as a claim to the resources and institutional space necessary to avoid that pathway without sacrificing poverty reduction and structural transformation [44-45].

The analytical framework used here has three dimensions. Rule-setting power asks who defines objectives, methods, timelines, acceptable evidence, and sanctions. Burden transmission traces direct prices, compliance costs, capital requirements, opportunity costs, and risks of exclusion across states, firms, workers, and smallholders. Legitimacy evaluates environmental effectiveness, procedural voice, distributional fairness, policy coherence, and availability of remedy. A measure can be environmentally rational yet politically brittle if it concentrates authority and externalizes costs; conversely, development sensitivity without credible environmental conditions can preserve high-carbon lock-in. The relevant standard is therefore simultaneous effectiveness and justice.

## Method

This study uses a qualitative literature review rather than a systematic literature review. Its purpose is interpretive synthesis: to connect conceptual, empirical, legal, and policy literatures that illuminate the political economy of EU-centred carbon governance. It does not claim exhaustive database coverage, does not apply a PRISMA protocol, and does not calculate pooled effect sizes. This design is appropriate because the research questions concern meanings, mechanisms, institutional tensions, and normative trade-offs across bodies of scholarship that use different methods and units of analysis [34,46].

The review draws primarily on peer-reviewed journal articles published from 2020 through July 2026. Literature was identified through combinations of terms including global carbon politics, EU climate leadership, Brussels Effect, EU ETS, carbon leakage, CBAM, developing countries, WTO, CBDR-RC, EUDR, deforestation-free supply chains, palm oil, smallholders, climate justice, and right to development. Recent official EU legal and implementation materials were consulted to verify institutional scope and timing, but the analytical claims are grounded mainly in journal scholarship. The initial Indonesian-language essay served as a problem-framing document: it supplied the core question of whether other countries will continue to follow Europe and highlighted the tension between climate leadership, competitiveness, and the distribution of transition costs.

Sources were selected for relevance to at least one of five domains: EU regulatory power; environmental and economic performance of the EU ETS; design and international effects of CBAM; EUDR and commodity-chain governance; or climate justice and development rights. Priority was given to reputable journals, transparent methods, direct treatment of distributional effects, and studies that included developing-country perspectives. Literature confined to purely technical carbon accounting was used selectively unless it clarified a burden-transmission mechanism. Commentary without identifiable analytical or evidentiary value was excluded.

Thematic synthesis proceeded in three stages. First, the literature was coded for stated policy objectives, mechanisms, affected actors, benefits, costs, and proposed safeguards. Second, findings were compared across instruments to identify recurring themes: extraterritorial rule diffusion, unequal compliance capacity, proof burdens, revenue allocation, supplier consolidation, and policy contestation. Third, counter-arguments were incorporated. The review therefore recognizes evidence that the EU ETS reduces emissions and that border adjustment can reduce leakage, while also examining evidence of regressivity and exclusion. This avoids treating EU regulation as either inherently benevolent or inherently protectionist [47].

The study has limitations. Many CBAM results are modelled projections because the definitive financial phase is recent, and estimates depend on assumptions about prices, technologies, trade elasticities, and policy responses. EUDR implementation continues to evolve, and observed effects may differ from anticipated effects. The palm oil discussion is illustrative rather than a causal evaluation of the regulation. Finally, English-language publication patterns may underrepresent local scholarship and producer perspectives. These limitations strengthen the case for periodic empirical review rather than weakening the conceptual synthesis.

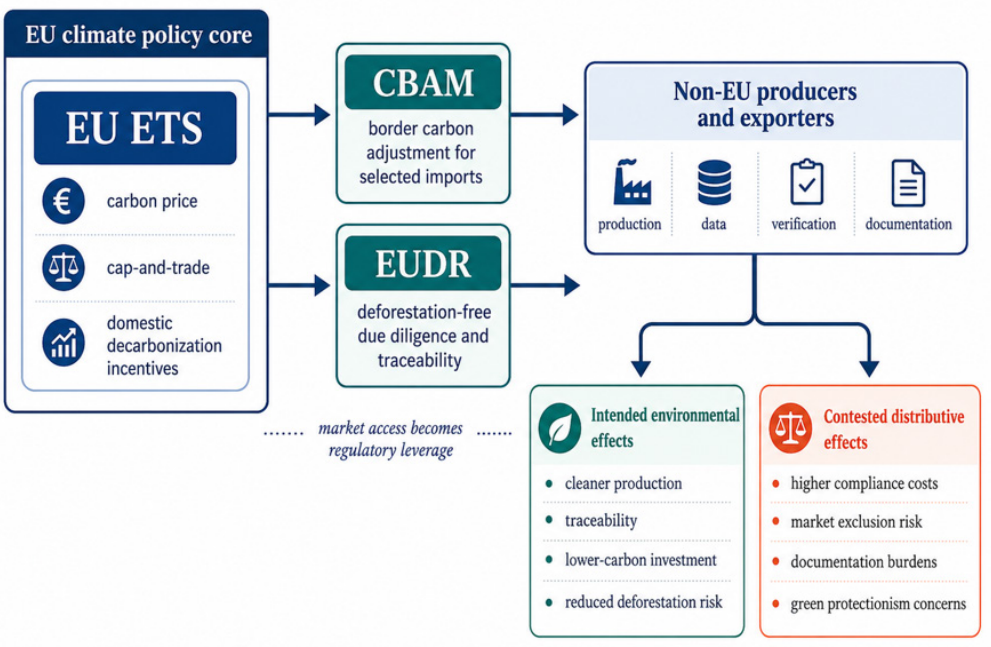
**Results: Thematic Findings**

The first thematic finding is the emergence of a Brussels-centred carbon order. The EU's influence no longer derives only from diplomatic advocacy or its own emissions reductions. It increasingly derives from the ability to condition access to a large market on compliance with European carbon-accounting, due-diligence, and traceability systems. In this order, domestic regulation becomes international leverage because producers must adapt to sell into Europe, and governments may alter national policy to protect exporters. The Brussels Effect is therefore visible not as automatic legal transplantation but as a cascade of commercial decisions, data requests, investments, and policy responses [3,21,22].

A second component is the coupling of climate and industrial strategy. EU ETS creates a carbon-cost differential between European production and production in jurisdictions with weaker or different climate constraints. CBAM seeks to close that differential for selected imports while free allocation is phased down. This architecture can strengthen the credibility of domestic decarbonization and prevent the political erosion of the cap. At the same time, it protects the value of low-carbon investment made under EU rules and can shift comparative advantage toward firms with clean electricity, advanced process technology, and sophisticated data systems. Climate integrity and industrial advantage are not mutually exclusive; the difficulty is determining when the latter begins to dominate the design of the former [25,29,48].

Figure 1 summarizes this movement from territorial climate policy to extraterritorial market discipline. It shows that the EU ETS creates a domestic carbon-price architecture, while CBAM and EUDR translate European objectives into conditions affecting foreign production and documentation. The same channel can generate intended environmental effects and contested distributive effects.

**Figure 1. From European decarbonization to extraterritorial market discipline**




***Source:*** Author's synthesis based on the reviewed literature.

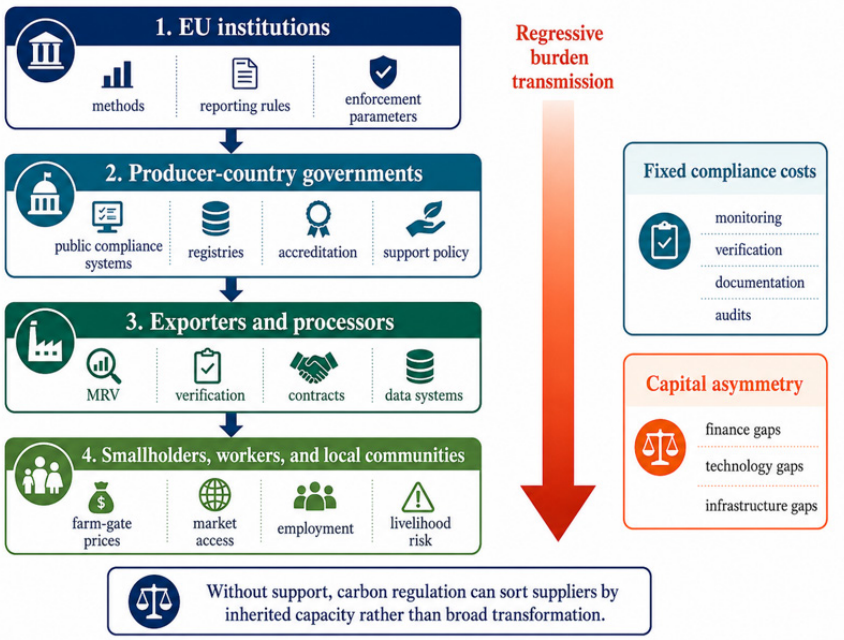
The figure clarifies why debate cannot be resolved by assigning a single label such as climate policy or protectionism. The instruments alter incentives, but their incidence depends on the organizational and technological capacity of actors outside the EU. A cleaner foreign producer with credible facility data can gain market share; a similarly clean producer without recognized records may be penalized. Thus, environmental performance and documentary performance become intertwined, and regulatory power is exercised through the definition of auditable proof.

The second major finding concerns burden transmission. CBAM creates direct exposure when embedded emissions attract a certificate obligation after crediting recognized carbon prices paid abroad. Even before a large payment arises, producers face monitoring, reporting, verification, contracting, and data-quality costs. These are partly fixed costs and therefore proportionally heavier for smaller firms and low-volume exporters. Governments may also need registries, accreditation systems, laboratories, customs capabilities, and electricity-emissions factors to help their firms demonstrate actual performance [5,6].

Burden transmission is intensified by capital asymmetry. Decarbonizing steel, aluminium, fertilizer, or cement requires reliable low-carbon electricity, process innovation, and long-lived investment. Firms in high-income economies typically have better access to concessional finance, green procurement, research support, and deep capital markets. A border price can reveal the carbon intensity of production, but it does not itself create the financing needed to change that production. When the policy penalty arrives faster than technology and finance, CBAM risks sorting suppliers by inherited capacity rather than generating broad transformation [36,49,50].

Figure 2 depicts the regressive potential of this chain. EU institutions set methods and enforcement parameters; national governments build public compliance systems; exporters purchase data and verification services; and smallholders or workers may absorb residual costs through lower prices, reduced demand, or employment restructuring.

**Figure 2. Asymmetric transmission of carbon-regulatory burdens**




***Source:*** Author's synthesis based on the reviewed literature.

The central implication is that legal incidence and economic incidence are different. An importer may be the regulated entity, but contracts can transfer documentation duties and price risk upstream. Large exporters can spread fixed costs, negotiate with buyers, or invest in cleaner technology. Small suppliers are more likely to accept discounts or exit the chain. A development-sensitive assessment must therefore identify the final bearer of cost rather than stop at the formal addressee of the rule.

The third finding is that carbon and sustainability regulation can function as a non-tariff barrier through capacity-sensitive mechanisms. Non-tariff effects do not require discriminatory language. They can arise when compliance depends on expensive verification, complex classifications, unfamiliar legal concepts, geospatial data, segregated logistics, or short transition periods. A formally origin-neutral requirement may have unequal effects because institutional capacity, informality, and access to technology are unevenly distributed [7-9].

Default values are a clear example. They can make a system administrable when verified facility data are missing, but conservative defaults can penalize producers that cannot afford measurement even when their actual emissions are lower. Recognition rules create a similar problem. CBAM credits explicit carbon prices, whereas many developing countries rely on renewable-energy mandates, efficiency standards, fuel taxes, public investment, or sectoral regulation. If only a narrow set of instruments receives financial recognition, the system can under-value real mitigation efforts and pressure countries to copy the EU's preferred policy form [38,51].

Supplier consolidation is another pathway. EU buyers facing liability may prefer large suppliers with established compliance departments, traceable inputs, and audited facilities. This reduces transaction risk but can exclude smaller producers. Trade may also be diverted: lower-carbon output is shipped to Europe while more carbon-intensive production goes elsewhere, or covered goods are processed into forms outside the initial scope. Such responses can improve the carbon content of EU consumption without achieving equivalent global emissions reductions, making leakage and reshuffling empirical questions rather than assumptions [52-54].

The fourth finding is that developing countries are not passive rule takers. Some are establishing domestic emissions-trading systems or carbon taxes, upgrading measurement systems, negotiating mutual recognition, and investing in cleaner export sectors. CBAM can accelerate reforms that governments already regard as beneficial. Producer countries can also use collective

diplomacy, WTO committees, UNFCCC negotiations, and bilateral partnerships to demand transition support or contest discriminatory administration. This agency matters because the Brussels Effect is mediated by political choice, domestic coalitions, and market alternatives [2,10,20].

Nevertheless, reactive compliance has limits. Creating a carbon price solely to avoid payments at the EU border may privilege export sectors over domestic development priorities. National systems can be designed to retain revenue and finance transformation, but poorer states may lack administrative capacity and may face pressure to adopt a policy architecture before building social protection and energy alternatives. Diversifying export markets can reduce dependence on Europe but may simply relocate higher-emission products rather than improve production. Agency is therefore strongest when countries can choose among credible pathways rather than respond under deadline pressure.

The palm oil case makes the distinction among instruments concrete. Palm oil is outside the initial CBAM sectoral list, so its main direct exposure in this article is EUDR and the broader history of European sustainability and biofuel governance. EUDR requires deforestation-free and legally produced commodities supported by due diligence and plot geolocation. The environmental rationale is strong because commodity expansion can drive forest conversion. Yet the capacity to prove compliance varies sharply across estates, organized scheme smallholders, and independent smallholders [40,55,56].

Figure 3 identifies the main points at which palm oil suppliers can be excluded. The chain begins with plot mapping and land legality, continues through aggregation and segregation at mills, and culminates in an EU operator's due-diligence statement. Information can be lost or rendered unverifiable at each stage.

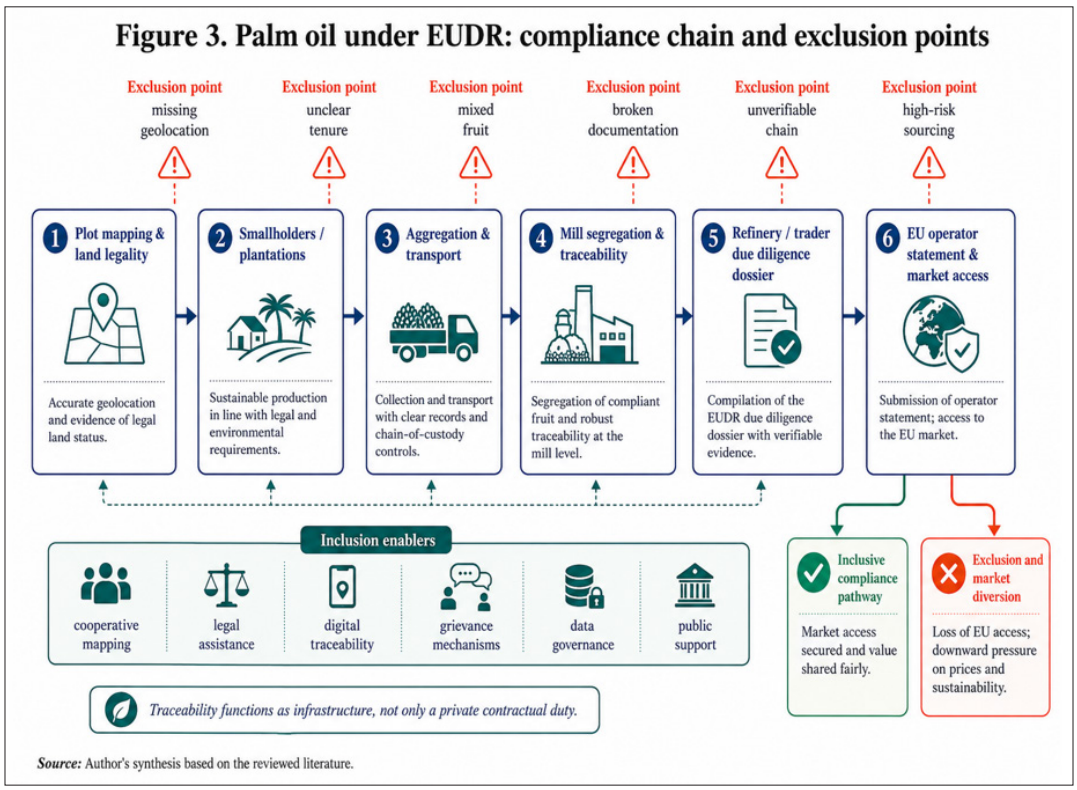



**Figure 3. Palm oil under EUDR: compliance chain and exclusion points**

***Source:*** Author's synthesis based on the reviewed literature.

The figure demonstrates why traceability must be treated as infrastructure rather than merely a private contractual duty. A smallholder cannot individually create authoritative cadastral records, interoperable geospatial platforms, mill-level segregation, or internationally trusted verification. Without collective investment, buyers may manage risk by excluding unknown suppliers. That response can clean a European supply chain while pushing smallholders into less transparent markets and doing little to address deforestation drivers. Smallholder-centred mapping, legal assistance, cooperatives, grievance mechanisms, and data-governance safeguards are therefore environmental policies, not only social add-ons [14,57,58].

Palm oil also reveals the importance of recognizing producer-country systems. Indonesia and Malaysia have national certification, legality, and monitoring initiatives, while companies and producer groups may use voluntary standards. Research suggests that these systems can contribute valuable data and organizational capacity but do not automatically satisfy EUDR's full due-diligence requirements. The appropriate response is neither automatic equivalence nor categorical rejection. It is transparent gap assessment, interoperability, independent quality assurance, and a jointly governed pathway for improvement [9,41,59].

The final thematic finding is that global participation depends on perceived reciprocity. Countries are more likely to support demanding carbon rules when they have voice in design, when comparable mitigation is recognized, when revenue contributes to transformation, and when rules include review and remedy. Conversely, a system that retains revenue in Europe, recognizes only EU-style policy

instruments, and leaves adjustment finance to producer countries can be interpreted as an extraction of regulatory rent. The future of global carbon politics will therefore be determined as much by institutional generosity and burden sharing as by the technical precision of emissions accounting [60].

Discussion And Analysis

The synthesis supports a qualified answer to the question posed by the initial essay: the world may follow Europe selectively, but it will not indefinitely accept a carbon order in which Brussels defines the rules while adjustment burdens are externalized. EU leadership has a legitimate core. The Union has adopted binding domestic constraints, generated evidence that carbon pricing can reduce emissions, and addressed the real risk that unequal climate policy undermines ambitious jurisdictions. Developing countries also benefit from avoided climate damage and from clearer demand for low-carbon goods. Any fair analysis must recognize these contributions [19,27,28].

Legitimacy weakens, however, when unilateral instruments substitute market leverage for negotiated burden sharing. The fact that a measure applies equally to all imports does not answer whether all producers had a meaningful role in designing the method, whether different national circumstances are recognized, or whether compliance is feasible. The EU's normative claim is strongest when its rules are transparent, evidence-based, non-arbitrary, open to equivalent outcomes, and accompanied by assistance. It is weakest when environmental language obscures industrial objectives or when affected countries are invited to comply but not to co-govern [1,22,24].

This distinction can be expressed as the difference between leadership and domination. Leadership creates public goods, accepts domestic costs, demonstrates workable policy, and mobilizes resources that allow others to participate. Domination uses structural market power to define compliance while leaving weaker actors to bear transition costs. The same instrument can contain elements of both. CBAM may reduce leakage and encourage cleaner production, yet it may also protect European industry and collect payments from countries with limited historical responsibility. EUDR may reduce imported deforestation, yet it may also reorganize supply chains around firms capable of producing European-grade proof [61].

Environmental effectiveness and distributive justice are mutually reinforcing over the long term. Rules that exclude vulnerable producers can trigger diplomatic opposition, legal conflict, evasion, trade diversion, or competing regulatory blocs. These responses lower cooperation and may shift rather than reduce emissions and deforestation. Conversely, support for measurement, clean technology, and inclusive traceability can convert a market-access condition into a real productive transformation. Justice is therefore not an ethical constraint added after policy design; it is part of the causal architecture of effective global mitigation [46,60,62,63].

The literature also suggests that incidence analysis should become mandatory. Before expanding CBAM sectors or tightening EUDR enforcement, policymakers should assess effects at country, sector, firm, worker, and household levels. Aggregate trade exposure can hide severe impacts in a port city, industrial cluster, or smallholder region. Development-impact assessment should evaluate administrative capacity, gendered effects, employment, informality, land tenure, access to finance, and the likelihood of supplier consolidation. It should be repeated after implementation because firms adapt in ways that models cannot fully anticipate [7,8,64].

Revenue is the most visible test of reciprocity. If CBAM revenues are absorbed into EU budgets while exporters finance decarbonization alone, the mechanism resembles a transfer from lower-capacity producers to a higher-capacity regulator. Direct earmarking may raise legal and administrative questions, but functionally equivalent arrangements are possible: contributions to multilateral industrial-decarbonization funds, concessional finance linked to verified transition plans, grants for measurement infrastructure, and support for workers and regions. The principle should be that a meaningful share of value generated by border adjustment helps reduce the emissions that gave rise to the adjustment [5,6,20].

Recognition of equivalent policy is equally important. An exclusive focus on explicit carbon prices is administratively simple but normatively narrow. Developing countries may achieve emissions reductions through regulation, public ownership, renewable-energy auctions, efficiency standards, subsidy reform, or sectoral agreements. A future carbon order should develop transparent methods for recognizing comparable effective carbon constraints without forcing institutional cloning. Equivalence should be performance-based, subject to verification, and periodically reviewed. It should reward credible outcomes while preserving policy space [37,38,51].

The right to development provides a disciplined basis for differentiation. It cannot justify maintaining inefficient, polluting technology indefinitely, because climate damage itself destroys development opportunities. Nor should it shield elites or firms from reasonable environmental obligations. It does require that decarbonization pathways preserve access to energy, employment, food security, industrial learning, and public revenue. In practice, this means differentiated timelines where justified, additional finance, affordable technology, capacity building, and protection against abrupt market exclusion [12,13,43].

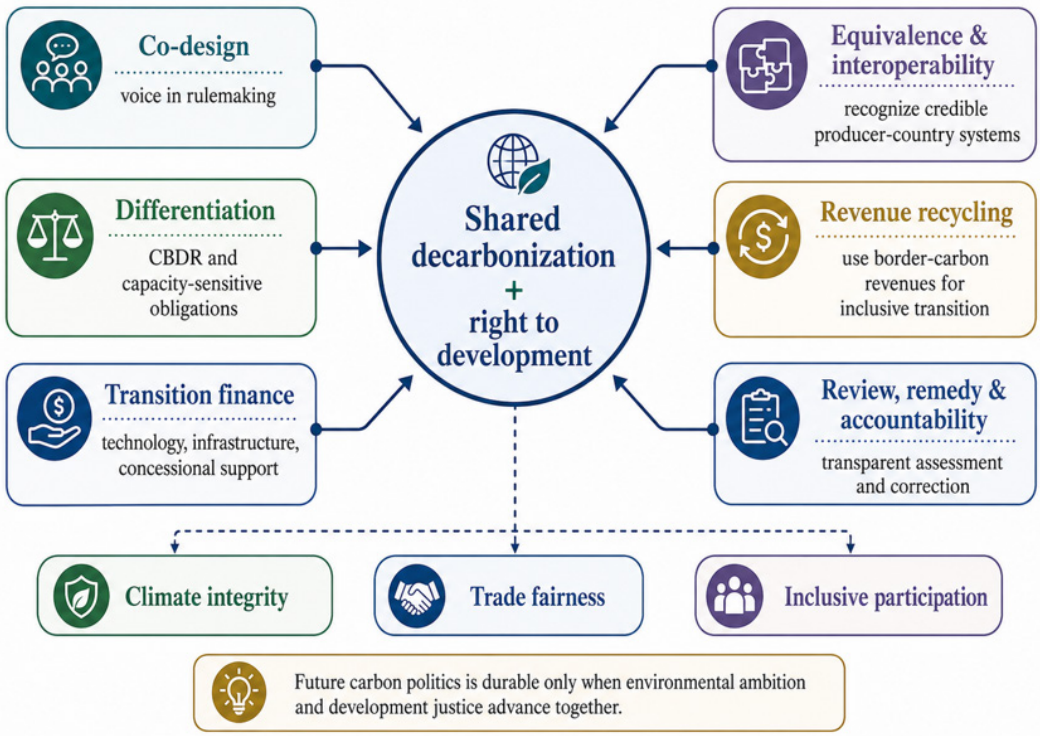
The relevant right is thus a right to feasible low-carbon transformation. Feasibility is not a demand for weak ambition. It is a demand that ambition be matched by means of implementation. A steel producer cannot switch to green hydrogen without infrastructure; a smallholder cannot meet geolocation requirements without mapping and secure data governance; a government cannot verify facility emissions without accredited institutions. When wealthy regulators set a standard that presupposes these capabilities, they acquire a corresponding responsibility to help create them, especially where historical emissions and consumption patterns contributed to the problem [11,13,42,44].

Palm oil illustrates how such a right can be operationalized. Environmental integrity requires a credible cutoff date, reliable geolocation, and controls against laundering products from deforested land. Inclusion requires public or collectively financed mapping, accessible processes for correcting data, protection of legitimate customary tenure, cooperative aggregation, and support for segregated or identity-preserved supply chains. Buyers should be encouraged to remediate and include suppliers rather than simply abandon high-risk regions. A due-diligence regime should distinguish high risk requiring engagement from high risk triggering automatic disengagement [8,39,40].

Producer-country institutions must also improve. Criticism of unilateral EU rules is credible only when accompanied by serious domestic action against deforestation, illegality, and high-carbon production. Governments should clarify land rights, make concession and geospatial data transparent, strengthen independent auditing, reduce corruption, and ensure national certification protects rather than merely brands production. Export associations should support small suppliers and share traceability costs. Developing-country agency is not secured by resisting standards alone; it is secured by shaping standards and building robust alternatives [14,15,65].

Figure 4 presents a governance compact capable of integrating these obligations. It places shared decarbonization and development at the centre and connects six institutional pillars: co-design, differentiation, finance, equivalence, revenue recycling, and accountable review.

**Figure 4. An inclusive compact for future global carbon politics**




***Source:*** Author's synthesis based on the reviewed literature.

The compact would operate through layered governance. At the multilateral level, an integrated climate-and-trade forum could develop principles for border measures, comparability, development impact, and support. At the plurilateral level, sectoral partnerships could coordinate standards and finance for steel, aluminium, fertilizers, or forest-risk commodities. Bilaterally, the EU and producer countries could agree on data interoperability, transition road maps, and recognition of credible national systems. Domestically, social dialogue and distributional safeguards would determine how carbon revenues and adjustment assistance are used [60].

Co-design is the first pillar. Affected developing countries, producer organizations, workers, smallholders, and Indigenous peoples should participate before methodologies are finalized. Consultation should include the power to influence outcomes, not only the opportunity to comment on completed drafts. Technical committees should be geographically balanced, and methodological changes should be accompanied by transition periods. This would reduce information asymmetry and expose unintended consequences early.

Differentiation is the second pillar. Product-level environmental integrity need not be abandoned, but implementation can account for capacity and responsibility. Least-developed countries and highly vulnerable small economies may receive longer transitions, simplified reporting, or de minimis treatment combined with decarbonization partnerships. Differentiation should be conditional and time-bound, with clear progress indicators, so that it enables transformation rather than permanent exemption [6,36].

Finance and technology form the third pillar. Grants should support public measurement and traceability systems; concessional loans and guarantees should finance industrial conversion; and technology partnerships should address intellectual-property, engineering, and workforce constraints. Support must be additional rather than re-labelled development aid. It should reach smaller firms and suppliers, not only national champions. Transparent transition plans can link support to measurable emissions and livelihood outcomes [47].

Equivalence and interoperability form the fourth pillar. The EU should recognize credible foreign carbon constraints and due-diligence systems based on outcomes rather than institutional resemblance. Common data standards, mutual accreditation, and secure digital interfaces can lower transaction costs. National systems should remain subject to independent testing, and equivalence should be reversible if performance deteriorates. This approach reduces duplication while protecting environmental credibility [47].

Revenue recycling is the fifth pillar. A formula could allocate support according to verified CBAM exposure, development level, transition cost, and emissions-reduction potential. For commodity regulation, buyers and downstream firms could contribute to traceability and remediation funds rather than imposing all costs on farmers. Public reporting should show where revenue and assistance flow. The political message matters: border measures should be seen as financing decarbonization, not monetizing unequal capacity.

Review and remedy are the sixth pillar. Exporters and producer groups need accessible procedures to challenge default values, risk classifications, data errors, and exclusion decisions. Independent review should evaluate both environmental outcomes and development effects. Sunset clauses or mandatory redesign should apply where measures cause significant diversion without global emissions or deforestation benefits. Accountability converts unilateral power into rule-bound leadership.

These reforms would not eliminate conflict. Different countries have competing industrial strategies, and some opposition will reflect interests in preserving carbon-intensive rents. Yet a more inclusive architecture would help distinguish legitimate development concerns from strategic delay. It would also reduce the incentive to build rival carbon blocs with incompatible standards. The objective is not to prevent the EU from acting, but to transform first-mover regulation into shared governance before it hardens into hierarchy [60].

**Conclusion and Policy Recommendations**

The future of global carbon politics will not be decided by the technical elegance of carbon accounting alone. It will be decided by whether climate rules are perceived as a fair basis for collective transformation. The EU has earned influence by adopting binding domestic climate policy and by accepting significant adjustment within its own economy. EU ETS, CBAM, and EUDR can promote cleaner industry, more transparent supply chains, and stronger action by trading partners. Nevertheless, their global legitimacy is conditional. When European market power externalizes costs without comparable voice, finance, or recognition of alternative policies, leadership can be experienced as regulatory domination.

The review identifies three conclusions. First, the Brussels Effect has become a central mechanism of carbon governance: EU rules influence foreign production through market access and supply-chain contracts. Second, the burden of compliance is often regressive because measurement, verification, traceability, and capital costs are easier for large firms and wealthy states to absorb. Third, the right to development is compatible with ambitious mitigation when interpreted as a right to feasible low-carbon transformation supported by finance, technology, time, policy space, and institutional capability.

The palm oil case reinforces these conclusions. Palm oil is not an initial CBAM commodity, but EUDR exposes the same structural problem in a different regulatory form. Plot geolocation and deforestation-free due diligence can advance environmental integrity, yet they can exclude smallholders when land records, data systems, and segregated logistics are missing. A clean European supply chain is not sufficient if deforestation is displaced and vulnerable producers are pushed into opaque markets. Effective policy must improve landscapes and livelihoods, not only documentation at the border.

For the EU, the priority recommendations are to institutionalize developing-country participation in methodology design; recognize equivalent non-EU climate measures; publish country- and livelihood-level impact assessments; finance measurement and traceability as shared infrastructure; recycle a meaningful share of border-related value into exporting-country decarbonization; provide differentiated, time-bound transitions for vulnerable economies; and establish accessible review and remedy. EU industrial objectives should be disclosed and analytically separated from environmental claims so that policy trade-offs are contestable.

For developing countries, the agenda is both defensive and transformative. Governments should coordinate diplomacy, improve carbon and land-use data, strengthen domestic legality and certification systems, retain carbon-pricing revenue where appropriate, negotiate interoperability, diversify markets without abandoning environmental improvement, and direct support toward smaller firms and farmers. Producer-country coalitions should propose concrete alternatives rather than only reject EU measures. Their strongest position is a credible low-carbon development strategy backed by transparent institutions.

For the UNFCCC, WTO, development banks, and other international institutions, the task is to create an integrated venue for climate-trade cooperation. Such a venue should develop principles for border measures, comparability, differentiation, revenue use, and development-impact review; mobilize concessional finance; and prevent incompatible regulatory blocs. Future research should measure actual incidence after implementation, including firm exit, employment, price transmission, emissions reshuffling, smallholder exclusion, and land-use displacement. Comparative studies across steel, fertilizers, cocoa, coffee, rubber, cattle, and palm oil are especially important.

Europe will remain an important climate leader, but followers cannot be commanded indefinitely through market dependence. A durable carbon order must distribute authority as well as obligations and means of implementation as well as penalties. The decisive test is whether global carbon politics expands the capacity of developing societies to prosper without carbon lock-in. If it does, the Brussels Effect can evolve into cooperative leadership. If it does not, carbon regulation will increasingly be contested as green protectionism, and the political coalition required for global decarbonization will become harder to sustain.

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