

# Responding to the Legal Challenges of the EU Carbon Border Adjustment Mechanism from the Perspective of "Belt and Road" Quality Development

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## ABSTRACT

The European Union's Carbon Border Adjustment Mechanism (CBAM) seeks to prevent carbon leakage and encourage global convergence in carbon pricing. However, it presents substantial challenges for developing countries along the Belt and Road, whose export structures rely heavily on carbon-intensive industries. For example, although Vietnam and Indonesia have initiated pilot carbon markets, their coverage and MRV systems remain incomplete. Similarly, China's national carbon market differs significantly from the EU ETS in terms of sectoral scope and carbon pricing levels, making near-term alignment difficult. CBAM has raised disputes regarding consistency with WTO principles of most-favoured-nation treatment, national treatment, and special and differential treatment. Furthermore, the EU faces obstacles in justifying CBAM under the environmental exceptions of GATT Article XX, particularly concerning "unjustifiable discrimination." To respond to these challenges, Belt and Road countries should adopt a three-pronged strategy—litigation pressure, regional coordination, and domestic institutional upgrading—to balance export competitiveness with green transformation.

## KEYWORDS

CBAM; Carbon tariff; WTO; Belt and road initiative; Green trade barriers; GATT

## 1 Introduction

With climate change intensifying, the European Union (EU) formally introduced the Carbon Border Adjustment Mechanism (CBAM) in 2021 to curb carbon leakage within the EU and promote global convergence in carbon pricing <sup>[1]</sup>. CBAM entered a transitional phase in 2021–2025, applying to imports from carbon-intensive sectors such as cement, steel, and aluminium, and will become fully operational in 2026, requiring importers to purchase carbon certificates to offset embedded emissions <sup>[2]</sup>. While presented as an environmental measure, CBAM poses major challenges to developing countries whose foreign trade remains heavily reliant on energy-intensive industries, particularly those participating in the Belt and Road Initiative.

From the perspective of international trade law, CBAM raises controversies regarding its compatibility with WTO obligations—particularly the most-favoured-nation (MFN) and national treatment (NT) principles, as well as the environmental exceptions under GATT Article XX. Furthermore, the mechanism's failure to incorporate substantive special and differential treatment (S&D) for developing members has fuelled concerns about erosion of long-standing equity principles in the multilateral trading system.

Against this backdrop, and within the broader framework of the Belt and Road Initiative's high-quality development, this paper examines the legal implications of CBAM for participating countries, analyses its potential conflicts with WTO rules, and proposes feasible legal response strategies. These include recourse to WTO dispute settlement, strengthening of South-South coordination, and domestic legal and institutional reforms. Together, they provide a pathway for developing countries to safeguard competitiveness while engaging constructively in global climate governance.

## 2 Legal impacts of CBAM on exports from belt and road countries

### 2.1 Weight of high-carbon industries in export structures

Many Belt and Road countries rely on resource-based and energy-intensive manufacturing sectors, with high-carbon products such as steel, aluminium, and cement occupying a key role in exports to the EU. For instance, in 2024 Vietnam's exports of steel and aluminium to the EU amounted to €422 million, representing about 3.44% of its total exports of €12.27 billion <sup>[3]</sup>. Although cement exports were smaller in volume, the high carbon intensity of cement production still exposes exporters to significant CBAM-related costs.

Indonesia exported €625 million worth of base metals and related products to the EU in 2024, accounting for approximately 6.38% of its total exports of €9.79 billion <sup>[4]</sup>. These primarily consisted of ferronickel, primary aluminium, and clinker cement. Since Indonesia's carbon market remains limited to the power sector, exporters lack regulatory guidance for high-emission sectors, creating systemic disadvantages under CBAM.

China exported €517.8 billion worth of goods to the EU in 2024 <sup>[5]</sup>, including €6.73 billion in steel and aluminium, or 1.3% of its total exports <sup>[6]</sup>. Although the share is relatively small, the absolute volume far exceeds that of Southeast Asian countries. Consequently, CBAM levies on Chinese exports could amount to billions of euros annually, depending on

carbon prices.

## 2.2 Carbon intensity differences and compliance pressures

CBAM compliance costs are determined by the carbon intensity of imported products combined with the EU ETS carbon price <sup>[7]</sup>. Because developing countries' industries are generally less energy-efficient, their carbon intensity is typically higher than EU standards, thereby increasing compliance burdens. For instance, Chinese steel products are 5–25% more carbon-intensive than their EU counterparts. Semi-finished non-alloy steel (2.07 tCO<sub>2</sub>e/t) is 6.7% higher than the EU average (1.94), while stainless steel hot-rolled products (3.78) exceed EU levels (3.02) by 25% <sup>[8]</sup>. The disparity largely stems from China's reliance on coal-based blast furnace processes (BF-BOF routes), whereas the EU increasingly employs electric arc furnaces (EAFs) and gas-based reduction technologies.

Vietnam's planned BF-BOF plant in 2025 will emit approximately 1.9 tonnes of CO<sub>2</sub> per tonne of crude steel, compared with 1.3 tonnes in the EU in 2015 <sup>[9–10]</sup>. Given that 65–75% of Vietnam's production will rely on BF-BOF processes, compliance challenges remain significant.

Carbon price disparities exacerbate these difficulties. In 2024, the average auction price under the EU ETS was €64.74 per tonne, while China's secondary carbon market averaged only ¥95.96 (~\$13.33). Indonesia's secondary market price was even lower, averaging \$0.76–3.66 per tonne <sup>[11]</sup>. Such wide gaps mean exporters face sharp cost increases when selling into the EU market.

## 2.3 Institutional capacity and regulatory challenges

Despite being labelled a “market mechanism,” CBAM functions as an environmental border measure, requiring exporters to adhere to EU-imposed MRV standards. Exporters must provide third-party verified emissions data and submit quarterly compliance reports <sup>[12]</sup>. Many developing countries lack established MRV systems or verification capabilities, turning this into a de facto barrier to trade.

Vietnam has introduced a pilot ETS <sup>[13]</sup>, but its MRV framework remains underdeveloped. Indonesia launched a pilot carbon market in 2023, covering only the power sector, with no clear regulatory pathway for exports of steel, aluminium, or cement <sup>[14]</sup>. Although China operates a national carbon market, it does not yet include steel and aluminium; coverage may expand after 2025 <sup>[15]</sup>. Moreover, domestic carbon prices remain far below EU levels, complicating system alignment in the short term.

This regulatory asymmetry undermines compliance and risks breaching WTO principles. By applying uniform standards regardless of development stage, CBAM disregards special and differential treatment (S&D). Moreover, the EU's failure to provide technical assistance for MRV alignment could constitute discriminatory regulatory requirements, raising potential disputes under MFN and NT provisions.

# 3 WTO legal challenges to CBAM

## 3.1 Potential violation of MFN and NT principles

At first glance, CBAM appears consistent with the MFN principle, as it applies equally to all import sources <sup>[16]</sup>. However, in practice, it creates implicit discrimination by tying compliance costs to exporting countries' carbon intensity, which depends on energy structure, technology, and emissions capacity <sup>[17]</sup>. Low-carbon producers enjoy lower or exempt CBAM charges, while exporters from high-emission countries face heavier burdens. This effectively discriminates by origin, contravening MFN.

Similarly, CBAM may violate the national treatment principle. Article III:2 of the GATT prohibits treating imports less favourably than like domestic products <sup>[16]</sup>. WTO jurisprudence emphasises competitiveness factors—end-use, consumer preferences, physical characteristics, and substitutability—while generally excluding production methods (PPMs) from “likeness” determinations <sup>[18]</sup>. CBAM's MRV requirements, reporting deadlines, and compliance obligations disadvantage foreign producers relative to EU firms, undermining their competitiveness and breaching NT obligations <sup>[19]</sup>.

## 3.2 Difficulties with GATT article XX environmental exceptions

The EU may seek to justify CBAM under Article XX(b) (health) or (g) (resource conservation). <sup>[16]</sup> Yet WTO case law requires that such measures not constitute disguised trade restrictions or result in arbitrary/unjustifiable discrimination <sup>[20]</sup>.

In the US – Gasoline case (DS2), the WTO acknowledged environmental goals but still ruled that discriminatory certification requirements violated Article XX <sup>[21]</sup>. CBAM risks similar findings. First, it lacks transitional support or capacity-building for developing countries. Second, the EU ETS continues to allocate free allowances domestically, while CBAM imposes full costs on imports, creating asymmetry. Third, CBAM provides no mechanism for recognising equivalent carbon pricing systems in third countries. Together, these flaws may be deemed “unjustifiable discrimination,” making Article XX defences difficult to sustain <sup>[22–24]</sup>.

### 3.3 Evasion of S&D obligations

Perhaps the most controversial aspect of CBAM is its treatment of developing members. GATT Article XVIII recognises developing countries' right to differentiated obligations, including transitional support and technical assistance <sup>[25]</sup>. Yet CBAM provides no such allowances. It applies EU MRV standards rigidly, lacks mechanisms for linking with UNFCCC capacity-building channels, and offers no relief for LDCs <sup>[26]</sup>.

This approach runs counter to WTO jurisprudence emphasising fairness in S&D, such as in EC – Tariff Preferences (DS246), which required that preferences for developing countries be based on objective, non-arbitrary criteria <sup>[27]</sup>. By contrast, CBAM imposes equal burdens across all developing members, creating a new form of structural discrimination.

## 4 Response strategies for belt and road countries

### 4.1 WTO dispute settlement: compliance review and pressure mechanism

Belt and Road countries may initiate WTO consultations under DSU Article 4 and, if unresolved, request a panel under Article 6 <sup>[28]</sup>. Key issues include whether CBAM constitutes indirect discrimination (MFN/NT), whether it meets Article XX's "necessity–non-discrimination" test, and whether the EU has failed to fulfil its S&D obligations.

Although the Appellate Body remains paralysed since 2019, limiting the system's effectiveness <sup>[29]</sup>, countries can still exert institutional pressure and mobilise public opinion. The MPIA, joined by China and Vietnam, offers an alternative adjudicatory avenue for potential CBAM disputes <sup>[30]</sup>.

Relevant jurisprudence—such as Indonesia – Poultry (DS477/478) and India – Solar Cells (DS456)—illustrates arguments concerning technical capacity and transitional obligations, which can strengthen developing countries' positions <sup>[31–32]</sup>.

### 4.2 Regional cooperation and south-south mechanisms

CBAM's systemic impact requires coordinated responses. Regional platforms such as RCEP, the Green Belt and Road Cooperation Platform, and ASEAN+CJK dialogues provide opportunities to enhance resilience. Joint initiatives may include creating a regional carbon data-sharing platform, issuing CBAM response manuals, aligning MRV standards, and training verifiers <sup>[33]</sup>. Such arrangements would enhance collective bargaining power and establish a unified stance on green trade barriers.

### 4.3 Domestic policy and legislative adjustments

Finally, Belt and Road countries must strengthen domestic frameworks. This includes improving enterprise-level carbon footprint databases, implementing mandatory MRV systems, and developing robust carbon pricing mechanisms. Indonesia, for example, is expanding carbon tax coverage to high-emission industries <sup>[34]</sup>. Legislative tools such as Carbon Border Response Laws or Green Export Support Acts could provide financial subsidies, tax relief, and legal safeguards for vulnerable exporters <sup>[35]</sup>.

China's development of a CCER conversion mechanism for exporting enterprises illustrates how domestic reforms can reduce compliance costs while creating negotiation leverage with the EU <sup>[36]</sup>. Ultimately, coordinated domestic reforms will help countries balance competitiveness and decarbonisation under CBAM pressure.

## 5 Conclusion

Belt and Road countries face significant legal and economic challenges under CBAM, ranging from high compliance costs and institutional misalignment to potential breaches of WTO principles. A holistic three-pronged response—leveraging WTO dispute settlement, strengthening regional cooperation, and upgrading domestic systems—can mitigate risks and promote fairer trade during the global green transition.

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