

Potential implications of the EU's Carbon Border Adjustment Mechanism

No. 408

21-March-2024

Anandita Gupta, Radhika Pandey and Sanhita Sapatnekar



National Institute of Public Finance and Policy
New Delhi

Potential implications of the EU's Carbon Border Adjustment Mechanism

Anandita Gupta* Radhika Pandey Sanhita Sapatnekar

March 21, 2024

*Anandita Gupta is a Research Fellow and Radhika Pandey is associate professor at the National Institute of Public Finance and Policy (NIPFP), New Delhi. Sanhita Sapatnekar is at the Department of Economics, University of Navarra, Spain. The views expressed in this paper are the authors' personal opinion.

Contents

| | |
|---|----|
| Acronyms | 4 |
| Abstract | 5 |
| 1 Introduction | 6 |
| 2 Overview of CBAM design | 8 |
| 3 Potential impact on India’s Aluminium and Iron & Steel exports | 11 |
| 3.1 Impact on carbon liability with free allowances reduction | 13 |
| 4 Issues concerning CBAM | 14 |
| 4.1 CBAM can impact trade competitiveness | 14 |
| 4.1.1 Relative emission intensity and export dependence | 14 |
| 4.1.2 Deductions from domestic carbon pricing policies | 15 |
| 4.1.3 Emissions reporting and application of default values | 15 |
| 4.1.4 Precursors to CBAM goods | 16 |
| 4.1.5 Developing vs. developed economies | 17 |
| 4.2 Concern that CBAM violates the CBDR principle | 18 |
| 4.3 Concerns over CBAM compliance with WTO rules | 18 |
| 4.4 Challenges with CBAM’s carbon pricing | 19 |
| 4.5 CBAM prioritises EU’s needs | 20 |
| 4.6 Risks from CBAM’s evolving scope | 21 |
| 5 India’s evolving stance on CBAM | 22 |
| 6 Recommendations | 23 |
| 6.1 Need to adapt to a changing global trade landscape | 23 |
| 6.2 Comprehensive assessment of CBAM’s impact on exports | 23 |
| 6.3 Proposal for carbon tax proportionate to per capita income | 24 |
| 6.4 CBAM revenue for climate-vulnerable countries | 25 |
| 6.5 Need to ensure accountability | 25 |
| 6.6 Need for change in nomenclature of coal cess in India | 25 |
| 6.7 Considerations for India’s Emissions Trading System | 25 |
| 6.8 Task force for sustained engagement on evolving issues | 27 |
| 7 Annexure | 28 |
| 7.1 Definitions | 28 |
| 7.2 India Coal Cess | 29 |

List of Figures

| | |
|---|----|
| 1 Overview of emissions-related requirements for CBAM Sectors | 10 |
|---|----|

List of Tables

| | |
|---|----|
| 1 India’s exports to the EU with CBAM sectors (2018-2023) | 11 |
|---|----|

| | | |
|---|--|----|
| 2 | Carbon Liability based on exports of Aluminum and Iron & Steel to the EU from India, adjusted for free allowances. | 14 |
| 3 | Carbon tax proportionate to per capita income - based on GST Compensation Cess on Coal in India | 24 |

Acronyms

ADB Asian Development Bank.

BCA Border Carbon Adjustment.

C-a-T Cap and Trade.

CAGR Compound Annual Growth Rate.

CBAM Carbon Border Adjustment Mechanism.

CBDR Common But Differentiated Responsibilities.

CCTS Carbon Credit Trading Scheme.

ETS Emissions Trading System.

EU European Union.

GHG Greenhouse Gas.

GST Goods and Services Tax.

I & S Iron & Steel.

LAC Latin America and Caribbean.

LDCs Least Developed Countries.

MFN Most-Favoured-Nation.

MRV Monitoring, Reporting and Verification.

MSME Micro, Small & Medium Enterprise.

NCEEF National Clean Energy and Environment Fund.

NDC Nationally Determined Contribution.

PAT Perform, Achieve and Trade.

PFC Perfluorocarbon.

WB World Bank.

WTO World Trade Organisation.

Abstract

In May 2023, the European Union (EU) implemented the Carbon Border Adjustment Mechanism (CBAM) to prevent carbon leakage risks associated with its ambitious climate policies. Examining CBAM in conjunction with the EU Emissions Trading System (EU ETS), the paper highlights potential CBAM implications and discusses proposals to address key issues. CBAM is likely to impact exporters' profitability and trade competitiveness, favouring nations with faster decarbonisation ability and robust carbon pricing systems. The paper advocates for non-EU countries to strengthen their emissions monitoring, reporting, and verification (MRV) systems and carbon pricing frameworks. For India, changing the nomenclature of the coal component under the GST Compensation Cess to a 'carbon tax' could be considered to reduce industries' potential carbon liabilities. The development of India's national emissions trading system could consider CBAM-related impacts, international standards, and insights from other jurisdictions, to strengthen its carbon market and achieve its climate commitments. Lastly, the paper highlights the need for a task force under the leadership of the Prime Minister for continuous engagement on evolving carbon market issues and the dynamic global trade landscape.

1 Introduction

The 2015 UN Paris Agreement set a target to limit global warming to 1.5 degrees Celsius above pre-industrial levels by 2100, to curb the adverse impacts of climate change. Achieving this goal requires a substantial 43% reduction in Greenhouse Gas (GHG) emissions by 2030 compared to 2019 levels.^[1] Given the task at hand, member countries of the Paris Agreement have been submitting their legally binding national climate action plans, known as Nationally Determined Contributions (NDCs). Each updated iteration signifies a country's heightened commitment to climate action, considering its unique development priorities as well as constraints.

In this context, the European Union (EU) has been at the forefront in aligning its economic growth strategy with increasingly ambitious climate goals. In 2019, the EU introduced the European Green Deal which emphasises its commitment to becoming the world's first climate-neutral economy by 2050.^[2] Additionally, the EU has set the target to cut its net GHG emissions (emissions after deduction of removals) by at least 55% by 2030, compared to 1990 levels. This represents a more ambitious interim goal compared to its prior NDC target of a 40% reduction. Both of these pivotal objectives have been formally incorporated into the European Climate Law (2021) calling for an economy-wide approach to materialise these climate objectives.^[3]

At the heart of the EU's emissions reduction strategy lies the EU Emissions Trading System (ETS). Introduced in 2005, the EU ETS is a carbon pricing framework that upholds the principle that a polluter must pay for its emissions ('the polluter pays principle').^[4] The EU ETS works on a Cap and Trade (C-a-T) mechanism. The EU sets a limit, i.e. a 'cap' on the total amount of GHG emissions released by energy-intensive industrial sectors, and issues tradable emissions allowances (right to emit) as per this limit. The cap is designed to decline annually in accordance with EU's climate objectives. This serves as a long-term market signal to plan and invest in decarbonisation. Domestic industrial manufacturers have to surrender one emission allowance for each tonne of emissions released in the production of their goods. They can purchase allowances primarily through auctions or on the secondary market, or can receive allowances for free to a certain extent. They also have the flexibility to trade allowances as needed, creating a dynamic market for allowances. This demand and supply of allowances helps establish a carbon price, which is borne by EU producers for their respective emissions.

The carbon price serves as an incentive for EU producers to reduce their emissions. Under the EU ETS, a declining cap, reflecting a lowering supply of allowances, puts upward pressure on the carbon price (all other things being equal). A rising price provides a stronger signal for EU producers to drive emission reduction.^[5]

¹IPCC. *Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)]* 2023. URL: https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_FullVolume.pdf.

²Communication from the (EU) Commission *The European Green Deal, 2019*.

³Regulation (EU) 2021/1119 of 30 June 2021 establishing the framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999 ('European Climate Law').

⁴European Commission. *What is the EU ETS*. URL: https://climate.ec.europa.eu/eu-action/eu-emissions-trading-system-eu-ets/what-eu-ets_en.

⁵International Carbon Action Partnership. *Emissions Trading in Practice: A Handbook on Design and Implementation (Second Edition)*. 2021. URL: <https://icapcarbonaction.com/system/files/>

Often non-EU producers are not subjected to the same or similar carbon pricing obligation as faced by an EU producer under the EU ETS. This disparity in carbon costs can impact an EU producer's competitiveness, especially in the case of rising carbon prices.

Also, the prevalence of EU's ambitious climate policies relative to less stringent ones in other jurisdictions exposes European production to the risk of carbon leakage.⁶ This involves the risk of EU producers relocating their businesses to non-EU jurisdictions with relatively lax environmental standards to circumvent costs associated with climate policies within the EU. Additionally, the EU runs the risk of getting flooded with carbon-intensive imports, despite its domestic commitment to create a low-carbon economy. The EU asserts that such leakage could also shift emissions to non-EU countries, thereby undermining domestic and global climate efforts.

To mitigate the risk of carbon leakage, the EU has introduced the Carbon Border Adjustment Mechanism (CBAM). The CBAM applies a carbon price on the emissions embedded in the production of carbon-intensive goods imported into the EU. These goods pertain to certain sectors that are deemed to be at high risk of carbon leakage under the EU ETS. The carbon price under CBAM will mirror the carbon price prevalent under the EU ETS. This ensures that imports are subjected to a carbon price that would have been paid, had the goods been produced under EU's carbon pricing rules.⁷ Therefore, by applying a carbon price to imported goods similar to the one imposed on domestic goods, the CBAM seeks to minimise the risk of carbon leakage affecting the European economy.

The CBAM officially came into force on 16 May 2023, as a part of EU's 'Fit-for-55' legislative package.⁸ The existing mechanism under the EU ETS to address carbon leakage is the free allocation of emission allowances. Sectors at 'significant risk of carbon leakage' receive a higher amount of free allowances to safeguard the competitiveness of these sectors.⁹ The CBAM seeks to gradually replace the free allocation mechanism to address the risk of carbon leakage. For this transition, the equivalent carbon pricing for imports and domestic goods under CBAM will be progressively phased-in while free allowances under the EU ETS will be phased out.

The EU asserts that CBAM will prevent the undermining of its emissions reduction efforts. Concurrently, it would encourage non-EU jurisdictions to enhance their decarbonisation endeavours and institute carbon pricing systems. While these might be potential outcomes, it is important to analyse the design and the underlying rationale of CBAM which would be critical in shaping its implications.

More specifically, it is crucial to discern the differences between the EU ETS and CBAM. The EU ETS functions as a domestic emissions pricing and reduction measure. The

[document/ets-handbook-2020_finalweb.pdf](#).

⁶Regulation (EU) 2023/956 of 10 May 2023 establishing a carbon border adjustment mechanism.

⁷European Commission. *Questions and Answers: Carbon Border Adjustment Mechanism (CBAM)*. 2024. URL: https://taxation-customs.ec.europa.eu/document/download/cddf6ac9-2cce-4f8c-8d97-779c1a291167_en?filename=Questions%20and%20Answers_Carbon%20Border%20Adjustment%20Mechanism%20%28CBAM%29.pdf.

⁸Communication from the (EU) Commission 'Fit for 55': delivering the EU's 2030 Climate Target on the way to climate neutrality, 2021.

⁹Sectors at risk of carbon leakage are identified based on their emission and trade intensities. European Commission. *EU ETS: Carbon Leakage*. URL: https://climate.ec.europa.eu/eu-action/eu-emissions-trading-system-eu-ets/free-allocation/carbon-leakage_en.

CBAM, although presented as a climate action measure, can be seen to primarily safeguard the competitiveness of EU producers amidst its stringent climate goals and increasing carbon price. It can also lead to unfair trade implications, favouring countries that can decarbonise their production faster and keep up with EU’s climate obligations.

Nevertheless, the operationalisation of EU’s CBAM is an indication of a changing global trade landscape - one that factors the emission intensity of the production of goods. Countries like the United States, United Kingdom, Canada, and Australia are considering their own Border Carbon Adjustments (BCAs), citing ‘mitigating risk of carbon leakage’ as the reason.¹⁰ Other jurisdictions, such as Turkey, Vietnam, Thailand, and Indonesia, intend to introduce carbon pricing frameworks to reduce their exposure to EU’s CBAM.¹¹ Some jurisdictions, like South Korea and China, are strengthening their existing domestic carbon pricing mechanisms in preparation for EU’s CBAM.¹²

With this context, the paper delves into issues concerning EU CBAM and how they relate to its design. It specifically discusses the potential impact of CBAM on Indian exports of Aluminium and Iron & Steel (I & S) sectors. Lastly, it proposes pathways to address emerging issues, while also suggesting possible approaches for Indian stakeholders.

2 Overview of CBAM design

The CBAM targets GHG emissions embedded in the production process of certain carbon-intensive goods imported into the EU. At present, CBAM’s scope extends to goods falling under the sectors of **cement, fertilisers, aluminium, chemicals (hydrogen), electricity, and iron and steel**. This also includes some input materials, i.e. ‘relevant precursors’, and some downstream products. These sectors have been selected due to their high emission intensity and high risk of carbon leakage.¹³

Embedded emissions determination accounts for emissions that can be attributed to the production of a given quantity of goods. This includes direct emissions, i.e. those released

¹⁰World Resources Institute. *4 US Congress Bills Related to Carbon Border Adjustments in 2023*. 2023. URL: <https://www.wri.org/update/4-us-congress-bills-related-carbon-border-adjustments-2023>; UK Government. *New UK levy to level carbon pricing*. 2023. URL: <https://www.gov.uk/government/news/new-uk-levy-to-level-carbon-pricing#:~:text=Goods%20imported%20into%20the%20UK,those%20produced%20in%20the%20UK.>; Government of Canada. *Exploring Border Carbon Adjustments for Canada*. 2023. URL: <https://www.canada.ca/en/department-finance/programs/consultations/2021/border-carbon-adjustments/exploring-border-carbon-adjustments-canada.html>; Australian Government. *DCCEEW Carbon Leakage Review: Consultation paper*. 2023. URL: https://storage.googleapis.com/files-au-climate/climate-au/p/prj2a056033efffb0b89f5fe/public_assets/Carbon%20Leakage%20Review%20consultation%20paper%20-%20November%202023.pdf.

¹¹World Bank Group. *State and Trends of Carbon Pricing 2023*. 2023. URL: <https://openknowledge.worldbank.org/bitstreams/bdd449bb-c298-4eb7-a794-c80bfe209f4a/download>.

¹²International Carbon Action Partnership. *Korea Emissions Trading Scheme*. URL: https://icapcarbonaction.com/system/files/ets_pdfs/icap-etsmap-factsheet-47.pdf; S&P Global. *China’s compliance emission trading system to accelerate coverage of CBAM-eligible sectors*. 2023. URL: <https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/energy-transition/050923-chinas-compliance-emission-trading-system-to-accelerate-coverage-of-cbam-eligible-sectors>.

¹³Emissions intensity refers to the total CO₂e emissions per a metric (such as tonnes or dollar value) of goods produced. Under CBAM, the specific embedded emissions refer to the embedded emissions of one tonne of goods, expressed as tonnes of CO₂e emissions per tonne of goods.

in production, as well as indirect emissions, i.e. emissions from electricity consumed for the production process. This also applies to the embedded emissions (direct and indirect) from the production of relevant precursors of goods, wherever applicable (see Section 4.1.4). The GHG emissions that will be covered under CBAM are CO₂, and where relevant, nitrous oxide (N₂O) and Perfluorocarbons (PFCs).

The CBAM's transitional phase started on 1 October 2023. In this period, importers are required to report on the quantity of imported goods, their embedded emissions, and the carbon price due in the country of origin (if any). For this purpose, the importers would rely on the emissions data furnished by the exporters of those goods. When actual embedded emissions cannot be adequately determined, default values would be applied. The default values are based on the best-available secondary data on the embedded emissions of CBAM goods. In the absence of reliable data, default values will be based on the average emissions intensity of a certain level of worst performing EU ETS installations for those goods (see Section 4.1.3). Additionally, the total declared emissions would need to be verified by accredited verifiers. The emissions Monitoring, Reporting and Verification (MRV) system under CBAM is designed similar to that under EU ETS to subject EU producers and importers to similar standards.

In CBAM's definitive period, i.e. 2026 onwards, importers will face a financial obligation linked to the reported embedded emissions of CBAM goods. The importers are obligated to purchase a CBAM certificate for each tonne of carbon dioxide or an equivalent amount of other GHGs (CO₂e) emissions. This is similar to the allowances (permits to emit) auctioned or freely allocated under the EU ETS. The price of a CBAM certificate will mirror the EU ETS allowance price. Specifically, the price of a CBAM certificate will be calculated using the weekly average auction prices of EU ETS allowances (expressed in EUR per tonne of CO₂e). The importers are mandated to surrender CBAM certificates corresponding to the total embedded emissions of the relevant goods from the preceding year. It should be noted that during this period, only the financial obligation for Cement and Fertiliser goods will account for indirect emissions (see Figure 1).

In case a carbon price has been 'effectively paid' by a non-EU producer for the embedded emissions of CBAM goods in the country of their origin, then the corresponding cost can be deducted from the CBAM financial obligation. Thus, importers can claim a reduction in the number of CBAM certificates to be surrendered. This financial adjustment also accounts for any carbon price already paid or due on the relevant precursor of goods. CBAM recognises carbon pricing systems such as a carbon tax or an emissions trading system prevalent in other jurisdictions. The non-EU countries wherein production is subject to the EU ETS or that have a carbon pricing system fully linked with the EU ETS are exempt from the application of CBAM.¹⁴

Unlike the EU ETS, the CBAM is not a *cap-and-trade* system. The importers do not face a limit on their embedded emissions (cap) nor on the CBAM certificates they can purchase. While importers can purchase the CBAM certificates throughout the year, they cannot trade or carry them forward. However, the EU Commission can repurchase

¹⁴Countries that don't fall under CBAM's scope include: Iceland, Liechtenstein, Norway, Switzerland, Büsingen, Heligoland, Livigno, Ceuta, and Melilla. Moreover, non-EU countries with fully integrated electricity markets with the EU could be exempted from CBAM, given that the electricity exporting country meets certain obligations and establishes an ETS equivalent to the EU's by 2030. [Regulation \(EU\) 2023/956 of 10 May 2023 establishing a carbon border adjustment mechanism](#).

Figure 1: Overview of emissions-related requirements for CBAM Sectors

| Issue | CBAM good | | | | | |
|--|--|--|--------------------------------|---|----------------------|---|
| | Cement | Fertilisers | Iron/Steel | Aluminium | Hydrogen | Electricity |
| Reporting metrics | (per) Tonne of good | | | | | (per) MWh |
| Greenhouse gases covered | Only CO ₂ | CO ₂ (plus nitrous oxide for some fertiliser goods) | Only CO ₂ | CO ₂ (plus perfluorocarbons (PFCs) for some aluminium goods) | Only CO ₂ | Only CO ₂ |
| Emission coverage during transitional period | Direct and indirect | | | | | Only direct |
| Emission coverage during definitive period | Direct and indirect | | Only direct, subject to review | | | Only direct |
| Determination of direct embedded emissions | Based on actual emissions, but estimations (including default values) can be used for up to 100% of the specific direct embedded emissions for imports until 30 June 2024 (i.e. CBAM reports due until 31 July 2024) and for up to 20% of the total specific embedded emissions for imports until 31 December 2025 | | | | | Based on default values, unless several cumulative conditions are met |
| Determination of indirect embedded emissions | Based on actual electricity consumption and default emission factors for electricity, unless conditions are met (i.e. direct technical connection or power purchase agreement). Estimations (including default values) can be used for up to 100% of the specific indirect embedded emissions for imports until 30 June 2024 | | | | | Not applicable |

Source: [European Commission Questions and Answers: CBAM, 31 Jan 2024](#)

one-third of excess surrendered certificates, upon request.

Nevertheless, the interaction with EU ETS is critical to the design of CBAM. CBAM's financial obligation will be progressively phased in during the 2026-2034 period. This will be in direct proportion to the reduction in free allowances allocated under the EU ETS for CBAM-covered sectors. In this period, CBAM will only apply to the proportion of emissions that do not benefit from free allowances under the EU ETS. From 2034 onwards, importers would need to purchase certificates for all emissions released in the production of CBAM goods. Section 3.1 expands on the reduction in free allowances and highlights its impact on Indian Aluminium and I & S sectors. Once CBAM is fully phased in, it is expected to represent more than 50% of the emissions of the industry sectors covered by the EU ETS.¹⁵

The European Commission will be responsible for reviewing declarations by importers. It will also manage a central platform for the sale and repurchase of CBAM certificates. Penalties will be imposed in case an importer fails to comply with CBAM obligations. For

¹⁵European Commission, [Questions and Answers: Carbon Border Adjustment Mechanism \(CBAM\)](#).

example, during the transitional period, the amount of penalty is expected to be between EUR 10 and EUR 50 per tonne of unreported emissions. The penalty can increase in accordance with the European index of consumer prices.¹⁶

3 Potential impact on India’s Aluminium and Iron & Steel exports

Starting from 2026, EU importers would need to purchase CBAM certificates corresponding to the embedded emissions of CBAM imports to the EU. At present, CBAM covers goods spanning across six sectors: *Cement, Electricity, Fertilisers, Iron and Steel, Aluminium, and Chemicals*. In theory, this approach would have the same effect as levying a tax at the EU border.¹⁷ The carbon costs associated with the purchase of certificates can make the exported CBAM goods more expensive in the European market. This can impact a country’s exports of a given CBAM sector and their competitiveness, based on the emission intensity of production and export dependence on the EU. This section discusses the potential impact of CBAM on India’s Aluminium and I & S exports.¹⁸ It further explores the potential effects on the carbon liability for these sectors with the gradual reduction in EU ETS free allowances from 2026 to 2034.

As shown in Table 1, India’s total export value to the EU increased from USD 67836.4 million in FY 2018-19 to USD 102345.6 million in FY 2022-23. India’s total exports from CBAM sectors (excluding electricity and chemicals) to the EU stood at USD 7908.7 million in FY 2022-23, accounting for approximately 8% of India’s total exports to the EU. Among the CBAM exports to EU in FY 2022-23, the Aluminium and I & S commodities dominated the export basket, holding around 34% and 66% share, respectively.

Table 1: India’s exports to the EU with CBAM sectors (2018-2023)

| Exports (USD Million) | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 |
|-------------------------------------|---------|---------|---------|---------|----------|
| All commodities | 67836.4 | 64343.7 | 58526.1 | 90571.2 | 102345.6 |
| Fertilisers | 6.4 | 5.6 | 4.9 | 3 | 3.4 |
| Aluminium, products of aluminium | 1428.8 | 507 | 600.6 | 3313.1 | 2678.9 |
| Iron and steel | 2894.7 | 2412.7 | 2993.8 | 8007.1 | 5208.4 |
| Cement, clinker and asbestos cement | 11.7 | 12.4 | 12.2 | 16.8 | 18 |

Source: CMIE Economic Outlook

A study by Goldar et al. (2023) indicates that CBAM will adversely impact India’s trade with the EU, majorly affecting India’s I & S exports.¹⁹ Using a partial equilibrium

¹⁶ Commission Implementing Regulation (EU) 2023/1773 of 17 August 2023 laying down the rules for the application of Regulation (EU) 2023/956 of the European Parliament and of the Council as regards reporting obligations for the purposes of the carbon border adjustment mechanism during the transitional period.

¹⁷World Bank Group. *The Trade and Climate Change Nexus*. 2021. URL: <https://openknowledge.worldbank.org/server/api/core/bitstreams/5d543ded-1163-5fc6-8fe8-319d913cf269/content>.

¹⁸This section does not account for the potential application of a carbon price in India for these exports. A carbon price paid in India can lead to a corresponding deduction in CBAM’s obligation and, thus, can alter the discussion on India’s competitiveness.

¹⁹Amrita Goldar et al. “Carbon Border Adjustment Mechanism (CBAM): Impact on India’s Steel Exports to the EU and Carbon Tax Incidence”. In: *Indian Council for Research on International Economic Relations* (2023).

approach, the paper finds that India’s steel exports to the EU will reduce by 8-14% because of the carbon prices imposed under CBAM.

On the other hand, a study by Majumder et al. (2023) shows that the impact of CBAM on Indian exports will be negligible.²⁰ The study finds that Indian exports, relative to competing nations, are expected to slightly decline for fertiliser, cement, aluminium, and iron and steel CBAM sectors by 0.07%, 0.62%, 0.004%, and 0.06%, respectively.

The findings above indicate that the potential impact of CBAM on Indian exports is ambiguous and necessitates additional scrutiny as more information about CBAM’s definitive period becomes available.

In the context of evolving literature, the World Bank (WB) has developed the ‘Relative CBAM exposure Index’. This Index assesses CBAM’s impact on a country’s competitiveness in the EU markets.²¹ It accounts for a country’s exports of CBAM products to the EU, as a share of its total CBAM products exported to the world.²² This indicates the level of a country’s trade dependence on the EU for these products. This is supported by the rationale that countries with high reliance on EU would find it more challenging to shift their production to other markets and, therefore, will be more exposed to CBAM. As per the Index, India’s CBAM exports to the EU stood at 19% (as % of total CBAM exports to the world). This makes India the third most exposed country in Asia (following Georgia and Cambodia) based on export dependence.²³ Among CBAM sectors, the share for India’s I & S sector was found to be the highest at 23.5%, followed by aluminium sector at 9.1%.

The Index is calculated by “multiplying the same export share [as discussed above] by the difference between the exporter’s emissions intensity and the EU average emissions intensity for the CBAM product, scaled by the assumed CBAM price (USD 100 per ton).”²⁴ This calculation gauges the excess cost of CBAM certificates for exporters compared to the average EU producer of the same output, due to the differences in carbon-intensities of production. It implies that countries with a positive relative exposure have an emission intensity higher than the EU average and, thus, will incur higher costs under CBAM. Therefore, relatively clean exporters may gain competitiveness.

India has a positive aggregate relative index score (across all sectors) of 0.031.²⁵ This suggests that India’s emission intensity of production across CBAM sectors is higher than the EU average. Based on the score, the additional cost from CBAM implementation for

²⁰Majumder, Piyali and Mathur, Somya and Pohit, Sanjib. *Smoky Affair. EU’s CBAM is unfair in principle*. 2023. URL: <https://www.ncaer.org/news/smoky-affair-eus-cbam-is-unfair-in-principle>.

²¹World Bank Group. *Relative CBAM Exposure Index*. 2023. URL: <https://www.worldbank.org/en/data/interactive/2023/06/15/relative-cbam-exposure-index#3>.

²²The Index uses 2019 export data.

²³Asian Development Bank. *European Union Carbon Border Adjustment Mechanism: Economic Impact and Implications for Asia*. 2023. URL: <https://www.adb.org/sites/default/files/publication/928466/adb-brief-276-eu-carbon-border-adjustment-mechanism.pdf>.

²⁴World Bank Group. *Technical Note for the CBAM exposure index*. 2023. URL: <https://www.worldbank.org/en/topic/trade/brief/technical-note-for-the-cbam-exposure-index>.

²⁵“The Aggregate Relative CBAM Exposure Index calculates the sum of the total excess embodied carbon payments (the assumed price (USD 100 per ton) times the sum across all covered sectors of the product of exports to the EU multiplied by the difference between their own emissions intensity and the EU average intensity), divided by the sum of the country’s total value of exports of CBAM products to the world.” [ibid.](#)

India will be USD 3.01 per ton of carbon emitted. At a sectoral level, the Indian I & S sector is expected to incur the highest additional cost of USD 4.36 per ton of emissions, signifying the sector's heightened exposure to CBAM implementation. This is followed by the Aluminium sector, facing an additional cost of USD 0.24, i.e. less than USD 1 per ton of emissions. In comparison to India, countries facing lower additional costs for the CBAM products stand to gain a competitive advantage.

3.1 Impact on carbon liability with free allowances reduction

The previous section discussed the potential impact on the competitiveness of India's Aluminium and I & S exports based on their relative exposure to CBAM. Alternatively, the impact on exports can be studied in absolute terms based on the potential cost of purchasing CBAM certificates. This approach is similar to the absolute CBAM exposure analysis conducted by the World Bank (2023).²⁶

This section evaluates the impact on the carbon liability, i.e. potential cost of purchasing CBAM certificates, for India's Aluminium and I & S exports with the reduction in free allowances under the EU ETS. The carbon liability is expected to increase as the free allowances gradually decrease for CBAM sectors under the EU ETS over the 2026-2034 period. During this period, CBAM will only apply to the proportion of emissions not covered by free allowances under the EU ETS.

This reduction will be achieved by applying a 'CBAM factor' to the free allowances allocated to the covered sectors. The allocation of free allowances will gradually decrease over the years: from 100% until 2025, to 97.5% in 2026, 95% in 2027, 90% in 2028, 77.5% in 2029, 51.5% in 2030, 39% in 2031, 26.5% in 2032, and 14% in 2033. Starting from 2034, no (0%) CBAM factor will be applicable.²⁷ Consequently, all embedded emissions of a good will be subject to a carbon price under CBAM from 2034 onwards.

Table 2 presents the potential impact of free allocation reduction on India's carbon liability for Aluminium and I & S exports. This analysis involves adjusting the CBAM carbon liability from the total carbon liability for exports to the EU, based on the free allowances reduction trajectory. A carbon price of EUR 45 per tonne of CO₂ is assumed for this analysis. Additionally, to isolate the impact analysis from exchange rate fluctuations, a constant EUR-INR exchange rate is considered over time. This indicative exercise assumes average CO₂ emissions from Aluminium and I & S sectors, and are based on the exports of these sectors to the EU, adjusted based on historical Compound Annual Growth Rate (CAGR).

As per the approximate cost of the purchase of CBAM certificates presented in Table 2, the annual carbon liability for Aluminium and I & S sectors is estimated to increase from INR 190 crore in 2026 to INR 9048 crore in 2034 with the gradual reduction in free allowances under CBAM.

²⁶The Absolute CBAM exposure index represents the total potential cost of CBAM certificates for exporters. It is "measured by multiplying the export share by the embodied carbon payment per dollar of export to the EU (the exporter's emission intensity times USD 100 per ton carbon price)." WBG, *Technical Note for the CBAM exposure index*.

²⁷European Commission, *EU ETS: Carbon Leakage*.

Table 2: Carbon Liability based on exports of Aluminum and Iron & Steel to the EU from India, adjusted for free allowances.

| Year | Free allowances pathways (%) | CO ₂ emission exports to EU (in mn MT) | Total carbon liability for exports to the EU (INR crore) | Carbon Liability for CBAM (INR crore) |
|------|------------------------------|---|--|---------------------------------------|
| 2026 | 2.5 | 20 | 7601 | 190 |
| 2027 | 5 | 21 | 7766 | 388 |
| 2028 | 10 | 21 | 7935 | 794 |
| 2029 | 22.5 | 22 | 8109 | 1824 |
| 2030 | 48.5 | 22 | 8287 | 4019 |
| 2031 | 61 | 22 | 8470 | 5166 |
| 2032 | 73.5 | 23 | 8657 | 6363 |
| 2033 | 86 | 23 | 8850 | 7611 |
| 2034 | 100 | 24 | 9048 | 9048 |

4 Issues concerning CBAM

4.1 CBAM can impact trade competitiveness

The implementation of CBAM 2026 onwards will result in adjustments to the prices of exported CBAM goods in the EU market, reflecting the carbon cost (purchase of CBAM certificates) associated with the emission intensities of production.²⁸ This can significantly impact the competitiveness of exported CBAM goods, especially those from developing countries.²⁹ Such effects can potentially lead to trade-distortions³⁰, with relatively cleaner exporters likely to gain competitiveness.³¹

Therefore, the impact of CBAM on trade competitiveness will depend on several factors concerning the entire production process of a CBAM export. These factors include the emission intensity of production across jurisdictions, trade dependence on the EU, existing carbon pricing policies, technical capacities, and the accuracy of embedded emissions data. Additionally, the ability of exporting countries to enhance their competitiveness depends on how quickly they can decarbonise their production processes and limit their exposure. The following subsections elaborate on these factors.

4.1.1 Relative emission intensity and export dependence

The negative impact on the trade competitiveness of a country depends on the emission intensity of its CBAM exports, in comparison to that of other countries. If a country's CBAM goods have lower specific embedded emissions vis-a-vis its competitors, then the potential impact on its CBAM exports is expected to be relatively lower.³² This also

²⁸Online Presentation. Asia Clean Energy Forum, Asian Development Bank. *Spotlight Session: Impact of the EU's Carbon Border Adjustment Mechanism on Southeast Asia's Energy Transformation and its Regional Implications*. 2023. URL: <https://asiacleanenergyforum.adb.org/spotlight-session-impact-of-the-eus-carbon-border-adjustment-mechanism/>.

²⁹United Nations Conference on Trade And Development. *A European Union Carbon Border Adjustment Mechanism: Implications for developing countries*. 2021. URL: https://unctad.org/system/files/official-document/osginf2021d2_en.pdf.

³⁰NCAER, *Smoky Affair. EU's CBAM is unfair in principle*.

³¹World Bank Blogs. *How developing countries can measure exposure to the EU's carbon border adjustment mechanism*. 2023. URL: <https://blogs.worldbank.org/trade/how-developing-countries-can-measure-exposure-eus-carbon-border-adjustment-mechanism>.

³²NCAER, *Smoky Affair. EU's CBAM is unfair in principle*.

factors in the differences in the adoption level of decarbonisation and energy-efficient technologies used across jurisdictions.³³

Additionally, countries that have a relatively high degree of export dependence on EU for carbon-intensive CBAM goods will be most exposed to the negative consequences of CBAM.³⁴ The main exporters of CBAM commodities to the EU fall in Europe, Central Asia, Africa, and the Middle East.³⁵

There can also be disproportionate impacts at a sectoral level. Asian Development Bank (ADB) (2023) notes that although the overall impact of CBAM on the Asian economy is limited, some economies can face significant cost increases at a sectoral level. For instance, Kazakhstan in aluminum, Georgia in fertilizer, and India in the I & S sector.³⁶

Example: Maliszewska et al. (2023) study CBAM's impact on countries' competitiveness and find that Mozambique is the most exposed CBAM aluminum exporter.³⁷ This is because Mozambique exports 97% of its aluminium to the EU - signifying a high degree of export dependence. It majorly produces primary (non-recycled) aluminium which has high direct emissions intensity (emissions from the production of goods).³⁸ Consequently, Mozambique faces the highest additional cost for aluminium, compared to the average EU producer, estimated at USD 5.9 per ton of CO₂. This is based on its export share, emissions intensity compared to an average EU producer, and a carbon price of USD 100 per tonne of CO₂ (refer to Section 3).

4.1.2 Deductions from domestic carbon pricing policies

The impact of CBAM on trade competitiveness will also depend on the existence or level of development of carbon pricing systems in exporting countries. Jurisdictions with a carbon pricing system or those that move faster towards setting up one are likely to benefit in the long run. This is because such jurisdictions would be able to offer a deduction in CBAM's financial obligation corresponding to the carbon price already paid domestically for CBAM goods. Exporting countries that can provide a larger deduction because of their domestic carbon pricing policies stand to gain under CBAM.

4.1.3 Emissions reporting and application of default values

The ability of an exporter to comply with the CBAM's emissions reporting obligations is an important factor in assessing competitiveness. Exporting countries, especially de-

³³Asian Development Bank. *Asian Economic Integration Report 2024: Decarbonizing Global Value Chains*. 2024. URL: <https://www.adb.org/sites/default/files/publication/945596/asian-economic-integration-report-2024.pdf>.

³⁴WB, *How developing countries can measure exposure to the EU's carbon border adjustment mechanism*.

³⁵WBG, *The Trade and Climate Change Nexus*.

³⁶ADB, *European Union Carbon Border Adjustment Mechanism: Economic Impact and Implications for Asia*.

³⁷WB, *How developing countries can measure exposure to the EU's carbon border adjustment mechanism*.

³⁸Mozambique uses hydropower for the production of aluminium, which means its indirect emissions (emissions from electricity consumption) are low. However, at present, indirect emissions for Aluminium sector are not accounted under CBAM's financial obligation. Therefore, Mozambique has the highest level of exposure to CBAM in both absolute and relative terms. If indirect emissions are accounted for with the expansion of CBAM's scope, then Mozambique's relative exposure will reduce. *ibid.*

veloping countries, may be constrained in their technical capacity to monitor and report embedded emissions.

In the absence of adequate actual emissions data, default values would be used to calculate the emission intensity of exported goods. Default values are based on best-available secondary data on the embedded emissions of CBAM goods. During CBAM's transitional period (Oct 2023 - Dec 2025), default values apply independently of the country of origin (global values).³⁹ However, in the definitive period (2026 onwards), default values will be set at the average emission intensity of each exporting country, increased by a proportionately designed markup.⁴⁰ The data gathered during the transitional period will inform these values. In the absence of reliable information, the default values will be based on the average emission intensity of a certain level of worst-performing EU ETS installations for a particular good.⁴¹

Although easier to implement, the application of default values can lead to significant misrepresentations of actual emissions.⁴² Moreover, the emissions intensity of a good can vary widely across countries as per the production technology used and the energy mix in production.⁴³ Therefore, the default values used can significantly influence the impact of CBAM. The use of inaccurate default values can lead to importers overpaying for their goods. Consequently, importers are likely to prefer exporters that can provide reliable emissions-related information in a timely manner.

4.1.4 Precursors to CBAM goods

A non-EU exporter of complex CBAM goods is required to furnish data on the embedded emissions of relevant precursors (input materials) used in the production process.⁴⁴

This is irrespective of whether the precursor is self-produced or purchased.⁴⁵ When purchased, the exporter has to obtain the corresponding data from the suppliers of those precursors. Additionally, a carbon price due for relevant precursor materials is also taken into account, which can lead to a corresponding deduction in CBAM's financial obligation.

³⁹European Commission. *Default Values for the Transitional Period of the CBAM between 1 October 2023 and 31 December 2025*. 2023. URL: <https://taxation-customs.ec.europa.eu/system/files/2023-12/Default%20values%20transitional%20period.pdf>.

⁴⁰*Regulation (EU) 2023/956 of 10 May 2023 establishing a carbon border adjustment mechanism*.

⁴¹This level will be specified in CBAM's implementing act(s) that will be published for CBAM's definitive period. *ibid.*

⁴²Columbia Center on Sustainable Investment. *Event Highlights: Carbon Border Adjustments in the EU, the U.S., and Beyond*. 2021. URL: <https://ccsi.columbia.edu/sites/default/files/content/docs/ccsi-eu-cbam-border-carbon-adjustment-event.pdf>.

⁴³WBG, *The Trade and Climate Change Nexus*; Asian Development Bank, *Asian Economic Integration Report 2024: Decarbonizing Global Value Chains*.

⁴⁴Complex CBAM goods refer to those goods which include relevant precursors that themselves have embedded emissions. At present, the Implementing Regulation (EU) 2023/1773 for CBAM's transitional period provides the list of relevant precursors and associated reporting obligations. For example, cement clinker is considered a relevant precursor to the production of Portland cement, a complex CBAM good.

⁴⁵It should be noted that if a relevant precursor is produced within the same installation and in the same production process of a complex CBAM good, then the embedded emissions can be monitored and calculated by defining a joint (single) production process ('bubble approach'). This applies, however, only if the relevant precursor is not sold separately. European Commission. *Guidance Document on CBAM Implementation for Installation Operators outside the EU*. 2023. URL: https://taxation-customs.ec.europa.eu/system/files/2023-08/CBAM%5C%20Guidance_non-EU%5C%20installations.pdf.

The implications of this system are far-reaching. This is because the reporting capacity of relevant precursor producers and the domestic carbon price applied to precursors can influence the financial obligation incurred under CBAM.

Additionally, the cost adjustment impacts faced by exporters could also trickle-down to non-EU producers of relevant precursors. In this sense, even non-EU producers that do not directly export CBAM goods to the EU may not be completely isolated from the impacts of CBAM, in terms of reporting and/or financial obligations.⁴⁶

4.1.5 Developing vs. developed economies

The CBAM is designed to incentivise carbon-efficient production. The implementation of CBAM is expected to alter international trade patterns, favoring countries that are relatively more carbon-efficient than others.⁴⁷ With this context, the section highlights the differential impacts of CBAM on developed and developing economies, alongside challenges unique to the latter.

- *Reduction in exports*: A study by UNCTAD (2021) indicates that developing countries as a group are likely to face a decline in their energy-intensive exports to the EU with the introduction of CBAM, in favour of developed economies.⁴⁸ The study shows that in a scenario when CBAM is implemented with an EU carbon price of USD 44 per tonne of CO₂, developing countries across targeted energy-intensive sectors experience a limited average export reduction of 1.4%. This reduction increases to 2.4% when the EU carbon price rises to USD 88 per tonne. In contrast, developed economies do not witness any decline in exports. This contrast is attributed to the relatively carbon-intensive production processes employed in developing countries compared to their developed counterparts.
- *Negative impact on income*: The UNCTAD (2021) study underscores the negative impacts of CBAM on income for developing economies.⁴⁹ The study shows that the introduction of CBAM over an EU carbon price of USD 88 per tonne could lead to a decrease in global real income by USD 8.3 billion, with developing countries collectively bearing a greater share of the income loss.
- *High exposure due to technical constraints*: Developing countries often lack the necessary infrastructure and technical capacities to furnish detailed emissions data. Consequently, developing countries may face constraints in providing reliable emissions data and meeting CBAM's stringent MRV requirements. A study by Eicke et al. (2021) highlights that large economies, characterized by higher statistical capacity and robust internal markets, face lower relative risks from CBAM than smaller developing economies.⁵⁰ Additionally, the reliance on default values in the absence of actual emissions determination may lead to a higher financial CBAM

⁴⁶WBG, [The Trade and Climate Change Nexus](#).

⁴⁷UNCTAD, [A European Union Carbon Border Adjustment Mechanism: Implications for developing countries](#).

⁴⁸Ibid.

⁴⁹Ibid.

⁵⁰Laima Eicke et al. "Pulling up the carbon ladder? Decarbonization, dependence, and third-country risks from the European carbon border adjustment mechanism". In: *Energy Research & Social Science* 80 (2021), p. 102240. URL: <https://www.sciencedirect.com/science/article/pii/S2214629621003339>.

obligation.⁵¹

- *Potential exposure to multiple BCAs*: Developing countries may encounter adverse effects if economies other than the EU also adopt border carbon adjustments (BCAs). For example, if the United States and Canada implement carbon prices and BCAs covering goods similar to EU’s CBAM, it is anticipated that a substantial proportion of exports from certain developing countries could be affected. The estimates suggest that 75% of I & S exports from Brazil, 91% from Costa Rica, and 83% of Chile’s fertiliser exports could potentially fall under the coverage of such mechanisms.⁵²

4.2 Concern that CBAM violates the CBDR principle

There are concerns that CBAM undermines the decentralised approach applied in the formulation of Nationally Determined Contributions (NDCs) under the Paris Agreement. The NDCs encapsulates the Common But Differentiated Responsibilities (CBDR) principle. This principle suggests that “In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities”.⁵³ This allows countries to have a disparity in climate ambition based on their country-specific circumstances. However, CBAM challenges this ethos.

It can be argued that the uniform application of CBAM forces a standardisation of climate action responsibilities. It does not take into country-specific factors such as the level of economic development, planned decarbonisation trajectory, historical responsibility for emissions, and climate change vulnerability.

4.3 Concerns over CBAM compliance with WTO rules

There are concerns regarding CBAM’s compatibility with the World Trade Organisation (WTO) rules. The EU asserts that CBAM is WTO-compliant, ensuring that imports receive “no less favorable treatment” than domestic EU products due to the imposition of same carbon price on both.⁵⁴ Additionally, the adjustment to CBAM’s financial obligation based on the carbon price paid outside the EU aims to prevent double pricing.

It can be argued that these design features make CBAM compliant with the WTO GATT Article II:2(a) that allows parties to impose import charges equivalent to an internal tax applied to domestic products.⁵⁵

However, the nature of carbon liability imposed under the EU ETS and the CBAM differs. The EU ETS emission allowances are tradable and have market value, thus,

⁵¹WBG, *The Trade and Climate Change Nexus*.

⁵²Center on Global Energy Policy at Columbia SIPA. *EU and LAC Climate Collaboration: Adapting to CBAM*. 2023. URL: <https://www.energypolicy.columbia.edu/eu-and-lac-climate-collaboration-adapting-to-cbam/>

⁵³International Movement ATD Fourth World. *Policy Brief and Proposals: Common But Differentiated Responsibilities*. 2011. URL: <https://sustainabledevelopment.un.org/getWSDoc.php?id=4086>.

⁵⁴European Commission, *Questions and Answers: Carbon Border Adjustment Mechanism (CBAM)*.

⁵⁵World Trade Organization. *The General Agreement on Tariffs and Trade (GATT 1947)*. URL: https://www.wto.org/english/docs_e/legal_e/gatt47_01_e.htm.

cannot be considered as a tax.⁵⁶ In comparison, the CBAM certificates resemble features of a carbon tax as they are not tradable. However, the qualification of CBAM as a tax remains uncertain.⁵⁷

Moreover, the additional costs on imports due to CBAM can differ based on the emission intensities of production and the carbon price already paid by exporters, if any. This can create a discriminatory environment wherein exporters of relatively carbon-efficient goods are favored. Also, misrepresentation of embedded emissions of imports (say, through the use of inaccurate default values) may lead to the less favourable treatment of foreign products.

Therefore, ensuring CBAM's compatibility with the WTO principles of national treatment and Most-Favoured-Nation (MFN) treatment is crucial. These principles mandate that the importing country must treat imported goods no less favourably than domestic products, and it must not discriminate between its trading partners.⁵⁸

Given these concerns, even if countries successfully challenge CBAM at the WTO, they may still face short-term impacts of CBAM for about 30 months due to the WTO's dispute settlement process.⁵⁹

4.4 Challenges with CBAM's carbon pricing

CBAM's financial obligation factors in the difference between the weekly average EU ETS carbon price and the carbon price paid in the exporting country (if any). Based on this difference, an importer can claim a corresponding deduction from the CBAM obligation. This design element of CBAM poses significant challenges, particularly concerning the carbon pricing disparities between the EU and non-EU countries.

The EU carbon price was trading in the EUR 80 - EUR 100 per tonne range in 2023. This is significantly higher than the EUR 20 - EUR 30 per tonne range of the 2019-20 period, and the EUR 5 - EUR 10 per tonne of the 2011-18 period.⁶⁰

In comparison, a carbon pricing system (in the form of a carbon tax or an ETS) is often non-existent in exporting economies, especially in developing economies. In countries that do apply such systems, the carbon prices are relatively lower than the EU ETS prices. For example, carbon prices in Latin America and Caribbean (LAC) countries do not go beyond USD 5 per tonne of emissions (i.e. less than EUR 5).⁶¹ The relatively low carbon prices reflect the nascent stage of climate policy and carbon pricing markets within emerging economies.

Large differences between EU and non-EU carbon prices could imply a smaller deduction

⁵⁶Columbia Center on Sustainable Investment, [Event Highlights: Carbon Border Adjustments in the EU, the U.S., and Beyond](#).

⁵⁷ADB, [European Union Carbon Border Adjustment Mechanism: Economic Impact and Implications for Asia](#).

⁵⁸World Trade Organization. *Principles of the trading system*. URL: https://www.wto.org/english/thewto_e/whatis_e/tif_e/fact2_e.htm.

⁵⁹ADB, [European Union Carbon Border Adjustment Mechanism: Economic Impact and Implications for Asia](#).

⁶⁰Trading Economics. *EU Carbon Permits*. 2023. URL: <https://tradingeconomics.com/commodity/carbon>.

⁶¹CGEP, [EU and LAC Climate Collaboration: Adapting to CBAM](#).

from CBAM’s financial obligation, and impact the carbon competitiveness of exporting countries. This could also lead to net monetary transfers from exporting countries with low carbon prices to the EU, further exacerbating economic and climate action disparities⁶²

In this context, the upward pressure on EU’s carbon prices due to its heightened climate ambition brings additional complexity. Under EU’s ‘Fit-for-55’ legislative package (2021), the EU ETS has been revised to achieve a 62% emissions reduction target by 2030, marking an increase from the previous target of 43%.⁶³ The revisions entail a faster reduction in the total emission allowances (‘cap’) available to EU producers. An increasingly stringent cap is expected to contribute to the rising EU prices. As the carbon price in the EU ETS rises, so would the effective carbon cost under CBAM.

The issue of carbon pricing disparity also emanates from the differences in the design of carbon pricing systems. Internal factors such as emissions coverage, level of free allowances allocation, flexibility measures, and market stability measures can influence the carbon price within a system. However, carbon prices can also face volatility due to external factors like inflation, developments in other markets (e.g. energy commodities), etc. For example, the EU ETS price movements experienced greater volatility in 2022 compared to previous years due to fluctuating energy prices.⁶⁴ With the imposition of CBAM’s financial obligation, exporters will be increasingly exposed to the carbon price volatility in the EU ETS market.

4.5 CBAM prioritises EU’s needs

The EU presents CBAM as a climate measure aimed at promoting both national and global emissions reduction. However, it can be argued that CBAM operates more as a trade policy designed to protect the competitiveness of EU producers, which is impacted by the disparities in climate ambition and carbon costs.

Due to EU’s stringent climate policies and carbon prices (rising) under the EU ETS, EU products run the risk of being outpriced by cheaper imports from jurisdictions with relatively lax climate obligations. The compliance costs for meeting environmental regulations, as compared to business as usual, can be particularly substantial for energy-intensive and hard-to-abate sectors.⁶⁵ This can impact the market share of EU products.

The competitive argument posits that pricing CBAM imports based on their embedded emissions, will restrict carbon-intensive goods from entering the EU market.⁶⁶ Moreover, CBAM will ensure that the imports and domestic products face a similar treatment, in terms of carbon price as well as emissions reporting obligations. This will help retain the EU producer’s competitiveness. It would also discourage EU producers from relocating their businesses to countries with less stringent climate obligations on the production of their goods.

⁶²CGEP, *EU and LAC Climate Collaboration: Adapting to CBAM*.

⁶³European Commission, *What is the EU ETS*.

⁶⁴WBG, *State and Trends of Carbon Pricing 2023*.

⁶⁵Columbia Center on Sustainable Investment, *Event Highlights: Carbon Border Adjustments in the EU, the U.S., and Beyond*.

⁶⁶Goldar et al., “Carbon Border Adjustment Mechanism (CBAM): Impact on India’s Steel Exports to the EU and Carbon Tax Incidence”.

Furthermore, the revenue generated from the sale of CBAM certificates is primarily intended to advance decarbonization efforts within the EU. Approximately 25% of revenues are expected to cover CBAM’s administrative burden, while 75% of the revenues are intended for the EU’s budget to address its domestic climate action impacts and objectives.⁶⁷ The CBAM Regulation (2023) does specify that the EU should provide financial support through its Union Budget to low and middle income-economies, especially Least Developed Countries (LDCs), for facilitating decarbonisation of their manufacturing industries and adaptation towards CBAM.⁶⁸ However, no official commitments have been made so far.

In this sense, it has been argued that the CBAM is a protectionist measure by the EU, imposing a trade barrier under the guise of an emissions reduction objective. The BRICS nations, comprising Brazil, Russia, India, China, and South Africa, have expressed opposition to CBAM, considering it as a discriminatory trade measure.⁶⁹

Moreover, CBAM’s design feature may have unfair implications for non-EU countries. While EU producers can plan their emissions reduction strategy over time with tradable emission allowances under EU ETS, such flexibility is not available to non-EU producers under CBAM. Moreover, CBAM certificates cannot be carried forward to a new compliance period.⁷⁰ The lack of these provisions can put unfair burden on non-EU producers to accelerate their decarbonization efforts for CBAM without having the same flexibility as held by EU producers.

Therefore, CBAM could lead non-EU countries to redirect their domestic policies and resources towards supporting EU’s climate commitments rather than prioritising their own climate commitments based on their domestic needs.⁷¹

4.6 Risks from CBAM’s evolving scope

The scope of goods covered under CBAM is expected to expand over time. CBAM’s coverage will be reviewed by the end of the transitional period (i.e. by December 2025).⁷² This review will assess the potential inclusion of other goods and sectors, which are at risk of carbon leakage under the EU ETS. This could result in the inclusion of other relevant precursors and downstream products as well.

This expansion could also involve accounting of indirect emissions for sectors that are currently exempt from such determination. At present, indirect emissions of only the Cement and Fertiliser sectors are taken into account for CBAM’s financial obligation.

⁶⁷Encompass. *CBAM - another EU acronym to rule them all?* 2023. URL: <https://encompass-europe.com/comment/cbam-another-eu-acronym-to-rule-them-all>.

⁶⁸*Regulation (EU) 2023/956 of 10 May 2023 establishing a carbon border adjustment mechanism*.

⁶⁹Brics XIV Summit. *Joint Statement issued at the BRICS High-level Meeting on Climate Change*. 2022. URL: http://brics2022.mfa.gov.cn/eng/hywj/ODMM/202205/t20220529_10694182.html.

⁷⁰The CBAM Regulation (EU) 2023/956 specifies that “... if importers were able to carry forward and trade CBAM certificates, that ability could have resulted in situations where the price for CBAM certificates would no longer reflect the evolution of the price in the EU ETS.” *Regulation (EU) 2023/956 of 10 May 2023 establishing a carbon border adjustment mechanism*, (24).

⁷¹Ernst & Young. *India Tax Insights- Issue 26*. 2023. URL: https://assets.ey.com/content/dam/ey-sites/ey-com/en_in/topics/tax/india-tax-insights/2023/08/ey-india-tax-insights-september-2023.pdf.

⁷²*Regulation (EU) 2023/956 of 10 May 2023 establishing a carbon border adjustment mechanism*.

Additionally, emissions embedded in the transport of CBAM goods and transportation services may be covered in the future. If the aviation sector is included, it could severely impact countries that heavily rely on air transport for a substantial share of their exports.⁷³

These prospective updates can drastically affect the exposure of countries to CBAM. Moreover, exporters affected by these changes may face challenges in promptly aligning their business strategies with CBAM.⁷⁴

5 India's evolving stance on CBAM

India has contested CBAM at the WTO, in bilateral talks, and other forums. India has argued that CBAM is in violation of the CBDR principle and is a discriminatory trade barrier.⁷⁵ Additionally, India has pointed out that CBAM might in effect be counter-productive for EU's manufacturing sector, especially for the auto sector which utilises steel and aluminium products.⁷⁶

Moving forward, India may impose its own carbon border tax on EU imports based on their embedded emissions, to neutralise the impact of CBAM on Indian exports.⁷⁷ There has also been some discussion on the imposition of a selective levy on CBAM-affected exports to the EU.⁷⁸ However, retaliatory measures in the form of a selective export tax could hamper India's export competitiveness. In comparison, a C-a-T system could be more advantageous in this emerging context.⁷⁹

Regardless, India has underscored that with the intended implementation of a domestic carbon pricing system, the Indian exports will not face a noncompetitive edge to Europe.⁸⁰ The revenue from such a system will be used for domestic clean energy transition.

Also, India is laying the groundwork to strengthen its decarbonisation efforts. Some of these initiatives include the Carbon Credit Trading Scheme (CCTS) (see Section 6.7), the Green Credit Programme, and the Ecomark Certification Scheme.⁸¹ The Indian gov-

⁷³WBG, *The Trade and Climate Change Nexus*.

⁷⁴EY, *India Tax Insights- Issue 26*.

⁷⁵Business Standard. *India, EU officials to discuss New Delhi's concerns over carbon border levy*. 2023. URL: https://www.business-standard.com/economy/news/india-eu-officials-to-discuss-new-delhi-s-concerns-over-carbon-border-levy-123091300972_1.html; Reuters. *India plans to challenge EU carbon tax at WTO*. 2023. URL: <https://www.reuters.com/world/india/india-plans-challenge-eu-carbon-tax-wto-sources-2023-05-16/>.

⁷⁶The Hindu. *CBAM will kill EU manufacturing, India will have its own carbon taxes: Goyal*. 2023. URL: <https://www.thehindu.com/business/Economy/cbam-will-kill-eu-manufacturing-india-will-have-its-own-carbon-taxes-goyal/article67490421.ece>.

⁷⁷Mint. *India brews its own carbon levy to hit back at EU imports*. 2023. URL: <https://www.livemint.com/economy/india-brews-its-own-carbon-levy-to-hit-back-at-eu-imports-11687113102140.html>.

⁷⁸Business Standard. *India mulling its own carbon tax on exports along the lines of CBAM*. 2023. URL: https://www.business-standard.com/economy/news/india-mulling-its-own-carbon-tax-on-exports-along-the-lines-of-cbam-123092500605_1.html.

⁷⁹Mint. *A cap-and-trade system will help slash emissions more efficiently*. 2023. URL: <https://www.livemint.com/opinion/online-views/a-cap-and-trade-system-will-help-slash-emissions-more-efficiently-11698669104571.html>.

⁸⁰The Hindu, *CBAM will kill EU manufacturing, India will have its own carbon taxes: Goyal*.

⁸¹*Carbon Credit Trading Scheme (India), 2023; Green Credit Programme Implementation Rules (India), 2023; Ecomark Certification Rules (India), 2023.*

ernment may also allow the trade of carbon credits in the global markets for few sectors such as green hydrogen and offshore wind.⁸²

6 Recommendations

6.1 Need to adapt to a changing global trade landscape

The ongoing implementation of CBAM serves as a strong geopolitical signal for countries to decarbonise faster. Two major long-term outcomes of CBAM for non-EU countries are: (i) an overall push towards emissions monitoring and reporting across sectors; and (ii) a need to establish/ strengthen a carbon pricing mechanism. Consequently, exporters and their jurisdictions need to adapt to the evolving global trade environment, which is increasingly considering carbon emissions. The need to adapt would be even more crucial if other jurisdictions also introduce BCAs akin to EU's CBAM (e.g. United States, United Kingdom, Canada, and Australia). Resilience-building measures can involve:

- Strengthening emissions monitoring capacity to avoid inaccuracies resulting from default values. Comprehensive emissions accounting can enhance a country's position in terms of carbon competitiveness.⁸³
- Considerations of building or strengthening a robust carbon pricing system. This would allow countries to generate revenue for domestic advancements, and reduce monetary transfers for EU's benefit. Countries with effective carbon pricing systems may even position themselves advantageously to attract financing from investors/lenders that support green and climate-aligned investments.⁸⁴
- Identification of sectors that are likely to be impacted by the adoption of BCAs in jurisdictions other than the EU.
- Efforts to prioritise the rapid adoption of sector-specific decarbonisation and energy-efficient technologies. These initiatives need to be complemented by capacity building and technical assistance programs, reinforcing a climate-conscious transition across various sectors.

6.2 Comprehensive assessment of CBAM's impact on exports

Non-EU countries could conduct a thorough sector-wise analysis of the potential impacts of CBAM on their exports related to competing nations. The findings from this analysis could then be used to formulate recommendations, suggesting targeted decarbonization interventions for each sector. This approach could enhance resilience against potential CBAM impacts and a changing global trade landscape - one that accounts for carbon emissions. Exporting countries could evaluate CBAM's impact based on factors, such as:

- the CBAM exports to EU as a share of the total exports to the world;

⁸²MoneyControl. *Govt to allow carbon credit trade in global market for some sectors: RK Singh*. 2023. URL: <https://www.moneycontrol.com/news/business/govt-to-allow-carbon-credit-trade-in-global-market-for-some-sectors-rk-singh-11100351.html>.

⁸³Columbia Center on Sustainable Investment, *Event Highlights: Carbon Border Adjustments in the EU, the U.S., and Beyond*.

⁸⁴CGEP, *EU and LAC Climate Collaboration: Adapting to CBAM*.

- embedded emissions of CBAM exports;
- comparison of embedded emissions based on actual values and default values;
- the type and share of precursors to CBAM goods exported to the EU as well as their embodied emissions;
- the potential carbon liability with the presence of free allowances, i.e. 2026-2033 (refer to Section 3.1);
- the status and scope of decarbonisation and energy efficient technologies in CBAM-covered sectors;
- technical ability to monitor, report, and verify emissions;
- reduction in the CBAM carbon liability with the application of domestic carbon pricing system (if any); and
- anticipated risks from the volatility in EU ETS carbon prices.

The analysis should specifically cover the impact on Micro, Small & Medium Enterprises (MSMEs) who are likely to require additional capacity building to improve their competitiveness.⁸⁵

6.3 Proposal for carbon tax proportionate to per capita income

CBAM could consider a per capita income basis approach while evaluating the carbon price applied on CBAM goods in the exporting country. This might provide a more accurate representation of the carbon price liability imposed on the exporter.

This approach can be explained by comparing the carbon price for Indian versus EU manufacturers under a per capita basis and value term basis. The Indian manufacturers pay a Goods and Services Tax (GST) compensation cess on coal at INR 400 per tonne of coal (see Annex 7.2). Adjusting for the carbon content in coal (assuming 1.5 CO₂ emissions per tonne of thermal coal consumed), the implied tax rate would be INR 263 per tonne or EUR 3.2 per tonne of CO₂ in India. At the per capita income of INR 171498 in India, the carbon tax liability for the Indian manufacturers will be 0.15% per person per tonne of CO₂ emitted. On the other hand, the carbon liability for the EU producers will be 0.13% considering the EU per capita income of EUR 33471 and an EU ETS carbon price of EUR 45 per tonne of CO₂ emissions.

Table 3: Carbon tax proportionate to per capita income - based on GST Compensation Cess on Coal in India

| | Carbon tax/coal cess per CO ₂ tonne | Per Capita Income (PCI) | Tax as % share to PCI |
|---------------------------------|--|-------------------------|-----------------------|
| India GST compensation (in INR) | 263.2 | 171498 | 0.15 % |
| The EU ETS (in EUR) | 45 | 33471 | 0.13 % |

⁸⁵Asian Development Bank, *Asian Economic Integration Report 2024: Decarbonizing Global Value Chains*.

As presented in Table 3, the above exercise shows that on a per capita basis, the carbon tax liability for the EU manufacturer will be lower than the coal consumption cess paid by the Indian manufacturer. While on a value term basis the difference between the carbon prices appears huge (EUR 3.2 and EUR 45), on the per capita basis the liability is only slightly higher for Indian manufacturers. The per capita basis approach can provide better insights into the carbon liability incurred by producers across jurisdictions. Moreover, such an approach could help design a differential CBAM compliant with the CBDR principle.

6.4 CBAM revenue for climate-vulnerable countries

The revenue generated from CBAM could be utilised, at least partially, for financial and technical assistance to developing and climate-vulnerable countries. This assistance could focus on accelerating decarbonisation initiatives and facilitating the accessibility and adoption of cleaner technologies within CBAM-covered sectors. Such utilization would contribute to a more inclusive and collaborative approach to addressing climate challenges. Additionally, this initiative would help address some concerns related to climate fairness.

6.5 Need to ensure accountability

Trade partners of the EU could advocate for a thorough evaluation of the efficacy of CBAM in preventing carbon leakage and reducing emissions along its progression. It is important to ensure that measures like CBAM provide enough flexibility for covered entities to plan and invest in decarbonisation. Additionally, negotiations could prioritise addressing concerns related to the management of carbon price disparities and precise measurement of carbon emissions. Collaborative efforts could focus on ensuring that the implementation of CBAM considers the unique circumstances and challenges faced by developing economies.

6.6 Need for change in nomenclature of coal cess in India

At present, there is no explicit ‘carbon tax’ in India. Select sources of fuel such as petrol or diesel are taxed through excise duties or state value-added tax while coal is taxed within the GST Compensation Cess at INR 400 per tonne (see Annex 7.2). If the Government of India changes the nomenclature of the coal component under GST Compensation Cess to a form of ‘carbon tax’, at similar amount the industries would not be paying additional tax. It will also become compliant with CBAM regulations and reduce its burden, at least partially. The revenue from carbon tax post-2026 could be marked to fulfil India’s NDCs. Establishing this nomenclature and legal structure of the carbon tax sooner rather than later would demonstrate India’s preparedness and help make Indian exports more competitive.

6.7 Considerations for India’s Emissions Trading System

India is poised to implement an ETS following the enactment of the Energy Conservation (Amendment) Act, 2022.⁸⁶ This legislation enables the Indian central government to

⁸⁶ *The Energy Conservation (Amendment) Act (India), 2022.*

specify a Carbon Credit Trading Scheme (CCTS). A significant step in this direction was taken on 28 June 2023, with the Government of India officially notifying the CCTS. This marks a pivotal moment as India embarks on establishing its inaugural domestic carbon market.⁸⁷

In October 2023, India published the draft procedure for compliance under the CCTS.⁸⁸ To facilitate the development of CCTS, the following recommendations can be considered:

- The system should have a wide coverage to be effective.⁸⁹ It could initially cover a few sectors, such as CBAM impacted sectors, and then gradually expand to include other sectors. For instance, India's Perform, Achieve and Trade (PAT) scheme covers large installations in thermal power generation, I & S, pulp and paper, aluminium, cement, chemicals, fertiliser, and textile sectors.⁹⁰ These are similar to the CBAM-covered sectors as well as those outlined under the draft CCTS guidelines. Countries like Korea and China are also making amendments to their existing ETSs to expand their scope in preparation for CBAM. Sectors can also be identified based on their potential inclusion in other anticipated BCAs.
- As per the draft CCTS guidelines, obligated entities would have to meet annual GHG emission intensity targets, aligned with India's NDCs. The target will be based on a sector-specific emission intensity reduction trajectory spanning over three years. Entities that do better with respect to their targets will be issued 'Carbon Credit Certificates', which can be sold to assist other entities in meeting their targets. This design should be supplemented by robust market stability mechanisms to ensure that the system is effective in incentivising emissions reduction.
- The system should incorporate direct and indirect emissions to ensure comprehensiveness and conformity with international practices. This approach would provide a wide scope to producers to strategise their decarbonization efforts. As per draft guidelines, the CCTS will include direct energy, process (non-energy), and indirect energy-related emissions.
- The effectiveness of a system in meeting climate commitments depends on the quality of emissions data. As per the draft CCTS guidelines, each obligated entity has to submit an emissions monitoring plan. Also, an obligated entity's compliance with emission intensity reduction targets needs to be verified by an accredited carbon verification agency. It is crucial that credible mechanisms for the determination of emissions and system boundaries (where the analysis begins and ends) are prescribed. These mechanisms should align with global standards while also accounting for domestic specificities. Similarly, standards for emissions MRV processes could be outlined to prevent variability in data.
- The revenues from the system could be used for financing climate-conscious, just

⁸⁷ *Carbon Credit Trading Scheme (India), 2023*.

⁸⁸ Bureau of Energy Efficiency (India). *Detailed Procedure for Compliance Mechanism under CCTS*. 2023. URL: https://beeindia.gov.in/sites/default/files/Draft_Compliance_Procedure_October_2023.pdf.

⁸⁹ Mint, *A cap-and-trade system will help slash emissions more efficiently*.

⁹⁰ Bureau of Energy Efficiency (India). *Perform Achieve Trade (PAT)*. URL: <https://beeindia.gov.in/en/programmes/perform-achieve-and-trade-pat>.

transition across sectors, and as public expenditure for meeting climate commitments.⁹¹

- The system should incorporate insights from the experiences of other jurisdictions with ETSs. This would help identify and build preparedness for potential risks to the carbon market from factors both internal and external to the system.

6.8 Task force for sustained engagement on evolving issues

There is a need to establish consistency between environmental measures and trade practices. Therefore, sustained engagement on the evolving issues of domestic needs, climate commitments, emissions monitoring, carbon markets, and the changing global trade landscape is imperative. A task force under the leadership of the Prime Minister should be established to effectively address these issues. This dedicated task force could incorporate insights from the broader international discourse on these matters as well as contribute to shaping it.

⁹¹Mint, *A cap-and-trade system will help slash emissions more efficiently.*

7 Annexure

7.1 Definitions

- **Activity level:** The quantity of goods produced (expressed in MWh for electricity, or in tonnes for other goods) within the boundaries of a production process.
- **Actual emissions:** The emissions calculated based on primary data from the production processes of goods and from the production of electricity consumed during those processes as determined in accordance with the methods set out in Annex IV of the CBAM Regulation (EU) 2023/956.
- **Carbon leakage:** The risk of businesses moving from the EU to countries with lower environmental standards due to the costs associated with climate policies, or that the EU market gets flooded with carbon-intensive goods.
- **Carbon price:** The monetary amount paid in a third country, under a carbon emissions reduction scheme, in the form of a tax, levy or fee or in the form of emission allowances under a GHG emissions trading system, calculated on GHG covered by such a measure, and released during the production of goods.
- **CBAM certificate:** A certificate in electronic format corresponding to one tonne of CO₂e of embedded emissions in goods.
- **CBAM definitive period:** The period starting on 1 January 2026. From 2026 to 2033, the embedded emissions for CBAM goods will be gradually covered by the CBAM obligation, as free allocation under the EU ETS is gradually phased out. From 2034, 100% of embedded emissions of the CBAM goods will be covered by CBAM certificates and no free allocation will be given under the EU ETS for these goods.
- **CBAM transitional period:** The period from 1 October 2023 to 31 December 2025. Designed as a “learning phase”, during which CBAM importers will report a set of data, including emissions embedded in their goods, without paying a financial adjustment for the embedded emissions. However, penalties may be imposed, for example for failing to submit the required quarterly CBAM reports.
- **Complex goods:** Goods other than simple goods, i.e. goods produced in a production process requiring exclusively input materials (precursors) and fuels having non-zero embedded emissions.
- **Default value:** A value, which is calculated or drawn from secondary data, which represents the embedded emissions in goods.
- **Direct emissions:** Emissions from the production processes of goods, including emissions from the production of heating and cooling that is consumed during the production processes, irrespective of the location of the production of the heating or cooling.
- **Embedded emissions:** Direct emissions released during the production of goods and indirect emissions from the production of electricity that is consumed during the production processes, calculated in accordance with the methods set out in Annex IV to CBAM Regulation (EU) 2023/956 and further specified in the implementing acts adopted pursuant to Article 7(7) of the CBAM regulation. This includes the embedded emissions of relevant precursor materials (where applicable) consumed in the production process.
- **EU ETS:** The system for GHG emissions allowance trading within the EU in respect of activities listed in Annex I to EU ETS Directive 2003/87/EC other than aviation activities.

- **EU ETS allowance:** An allowance to emit one tonne of CO₂e during a specified period (as defined in Article 3(a) of EU ETS Directive 2003/87/EC) with respect to activities listed in Annex I to EU ETS Directive other than aviation activities.
- **Importer:** Either the person lodging a customs declaration for release for free circulation of goods in EU in its own name and on its own behalf or, where the customs declaration is lodged by an indirect customs representative in accordance with Article 18 of Regulation (EU) 952/2013, the person on whose behalf such a declaration is lodged.
- **Indirect emissions:** Emissions from the production of electricity which is consumed during the production processes of goods, irrespective of the location of the production of the consumed electricity.
- **Operator:** Any person who operates or controls an installation in a third (i.e. non-EU) country.
- **Production process:** The chemical and physical processes carried out to produce goods in an installation.
- **Rebate:** Any amount that reduces the amount due or paid by a person liable for the payment of a carbon price, before its payment or after, in a monetary form or in any other form.
- **Relevant precursor material:** A simple or complex good which has embedded emissions not equal zero and which is identified as being within the system boundaries for the calculation of embedded emissions of a complex good.
- **Simple good:** Goods produced in a production process requiring exclusively input materials (precursors) and fuels having zero embedded emissions.
- **Specific embedded emissions:** The embedded emissions of one tonne of goods, expressed as tonnes of CO₂e emissions per tonne of goods.
- **Surrender:** Offsetting of CBAM certificates against the declared embedded emissions in imported goods or against the embedded emissions in imported goods that should have been declared.
- **Third country:** A country or territory outside the customs territory of the EU.
- **Tonne of CO₂e:** One metric tonne of CO₂, or an amount of any other GHG listed in Annex I to CBAM regulation (nitrous oxide and perfluorocarbons) with an equivalent global warming potential.

7.2 India Coal Cess

In 2010, India imposed a cess on domestically produced and imported coal, also called as the “Clean Energy Cess”. A portion of the revenues from the coal cess was to contribute to the National Clean Energy and Environment Fund (NCEEF) to enhance research and innovation in clean energy. As the coal cess was introduced to discourage coal consumption by increasing its cost, the coal cess in India serves as a carbon tax equivalent.⁹²

With the introduction of the GST in July 2017, the Clean Energy Cess was abolished. Consequently, a new coal cess was introduced under the gambit of the GST Compensation Cess.

⁹²International Institute for Sustainable Development. *The Evolution of the Clean Energy Cess on Coal Production in India*. URL: <https://www.iisd.org/system/files/publications/stories-g20-india-en.pdf>.

The purpose of the Compensation Cess has been to provide compensation to Indian States for the loss of revenue due to GST implementation. While the levy of the compensation cess was initially set for a period of five years, i.e. till July 2022, this period was extended till 31 March 2026.

The coal compensation cess is broadly levied on the supply of coal and lignite. All taxpayers involved in this supply, other than exporters and composition taxpayers, are subject to the coal cess. An exporter can claim a refund in case a compensation cess is paid on exports. The compensation cess is chargeable on certain imported goods to India as well. At present, the GST Compensation Cess on coal is set at INR 400 per tonne.

Over time, the use of coal cess revenues has been re-directed to support Indian States' budget deficits with the introduction of GST reform, instead of supporting clean energy initiatives or strengthening funding under the NCEEF.

References

- [1] Asia Clean Energy Forum, Asian Development Bank. *Spotlight Session: Impact of the EU's Carbon Border Adjustment Mechanism on Southeast Asia's Energy Transformation and its Regional Implications*. 2023. URL: <https://asiacleanenergyforum.adb.org/spotlight-session-impact-of-the-eus-carbon-border-adjustment-mechanism/>.
- [2] Asian Development Bank. *European Union Carbon Border Adjustment Mechanism: Economic Impact and Implications for Asia*. 2023. URL: <https://www.adb.org/sites/default/files/publication/928466/adb-brief-276-eu-carbon-border-adjustment-mechanism.pdf>.
- [3] Asian Development Bank. *Asian Economic Integration Report 2024: Decarbonizing Global Value Chains*. 2024. URL: <https://www.adb.org/sites/default/files/publication/945596/asian-economic-integration-report-2024.pdf>.
- [4] Australian Government. *DCCEEW Carbon Leakage Review: Consultation paper*. 2023. URL: https://storage.googleapis.com/files-au-climate/climate-au/p/prj2a056033efffb0b89f5fe/public_assets/Carbon%20Leakage%20Review%20consultation%20paper%20-%20November%202023.pdf.
- [5] Brics XIV Summit. *Joint Statement issued at the BRICS High-level Meeting on Climate Change*. 2022. URL: http://brics2022.mfa.gov.cn/eng/hywj/ODMM/202205/t20220529_10694182.html.
- [6] Bureau of Energy Efficiency (India). *Detailed Procedure for Compliance Mechanism under CCTS*. 2023. URL: https://beeindia.gov.in/sites/default/files/Draft_Compliance_Procedure_October_2023.pdf.
- [7] Bureau of Energy Efficiency (India). *Perform Achieve Trade (PAT)*. URL: <https://beeindia.gov.in/en/programmes/perform-achieve-and-trade-pat>.
- [8] Business Standard. *India mulling its own carbon tax on exports along the lines of CBAM*. 2023. URL: https://www.business-standard.com/economy/news/india-mulling-its-own-carbon-tax-on-exports-along-the-lines-of-cbam-123092500605_1.html.
- [9] Business Standard. *India, EU officials to discuss New Delhi's concerns over carbon border levy*. 2023. URL: https://www.business-standard.com/economy/news/india-eu-officials-to-discuss-new-delhi-s-concerns-over-carbon-border-levy-123091300972_1.html.
- [10] *Carbon Credit Trading Scheme (India), 2023*.
- [11] Center on Global Energy Policy at Columbia SIPA. *EU and LAC Climate Collaboration: Adapting to CBAM*. 2023. URL: <https://www.energypolicy.columbia.edu/eu-and-lac-climate-collaboration-adapting-to-cbam/>.
- [12] Columbia Center on Sustainable Investment. *Event Highlights: Carbon Border Adjustments in the EU, the U.S., and Beyond*. 2021. URL: <https://ccsi.columbia.edu/sites/default/files/content/docs/ccsi-eu-cbam-border-carbon-adjustment-event.pdf>.
- [13] *Commission Implementing Regulation (EU) 2023/1773 of 17 August 2023 laying down the rules for the application of Regulation (EU) 2023/956 of the European Parliament and of the Council as regards reporting obligations for the purposes of the carbon border adjustment mechanism during the transitional period*.
- [14] *Communication from the (EU) Commission 'Fit for 55': delivering the EU's 2030 Climate Target on the way to climate neutrality, 2021*.

- [15] *Communication from the (EU) Commission The European Green Deal, 2019.*
- [16] *Ecomark Certification Rules (India), 2023.*
- [17] Laima Eicke et al. "Pulling up the carbon ladder? Decarbonization, dependence, and third-country risks from the European carbon border adjustment mechanism". In: *Energy Research & Social Science* 80 (2021), p. 102240. URL: <https://www.sciencedirect.com/science/article/pii/S2214629621003339>.
- [18] Encompass. *CBAM - another EU acronym to rule them all?* 2023. URL: <https://encompass-europe.com/comment/cbam-another-eu-acronym-to-rule-them-all>.
- [19] Ernst & Young. *India Tax Insights- Issue 26.* 2023. URL: https://assets.ey.com/content/dam/ey-sites/ey-com/en_in/topics/tax/india-tax-insights/2023/08/ey-india-tax-insights-september-2023.pdf.
- [20] European Commission. *Default Values for the Transitional Period of the CBAM between 1 October 2023 and 31 December 2025.* 2023. URL: <https://taxation-customs.ec.europa.eu/system/files/2023-12/Default%20values%20transitional%20period.pdf>.
- [21] European Commission. *Guidance Document on CBAM Implementation for Installation Operators outside the EU.* 2023. URL: https://taxation-customs.ec.europa.eu/system/files/2023-08/CBAM%5C%20Guidance_non-EU%5C%20installations.pdf.
- [22] European Commission. *Questions and Answers: Carbon Border Adjustment Mechanism (CBAM).* 2024. URL: https://taxation-customs.ec.europa.eu/document/download/cddf6ac9-2cce-4f8c-8d97-779c1a291167_en?filename=Questions%20and%20Answers_Carbon%20Border%20Adjustment%20Mechanism%20%28CBAM%29.pdf.
- [23] European Commission. *EU ETS: Carbon Leakage.* URL: https://climate.ec.europa.eu/eu-action/eu-emissions-trading-system-eu-ets/free-allocation/carbon-leakage_en.
- [24] European Commission. *What is the EU ETS.* URL: https://climate.ec.europa.eu/eu-action/eu-emissions-trading-system-eu-ets/what-eu-ets_en.
- [25] Amrita Goldar et al. "Carbon Border Adjustment Mechanism (CBAM): Impact on India's Steel Exports to the EU and Carbon Tax Incidence". In: *Indian Council for Research on International Economic Relations* (2023).
- [26] Government of Canada. *Exploring Border Carbon Adjustments for Canada.* 2023. URL: <https://www.canada.ca/en/department-finance/programs/consultations/2021/border-carbon-adjustments/exploring-border-carbon-adjustments-canada.html>.
- [27] *Green Credit Programme Implementation Rules (India), 2023.*
- [28] International Carbon Action Partnership. *Emissions Trading in Practice: A Handbook on Design and Implementation (Second Edition).* 2021. URL: https://icapcarbonaction.com/system/files/document/ets-handbook-2020_finalweb.pdf.
- [29] International Carbon Action Partnership. *Korea Emissions Trading Scheme.* URL: https://icapcarbonaction.com/system/files/ets_pdfs/icap-etsmap-factsheet-47.pdf.
- [30] International Institute for Sustainable Development. *The Evolution of the Clean Energy Cess on Coal Production in India.* URL: <https://www.iisd.org/system/files/publications/stories-g20-india-en.pdf>.

- [31] International Movement ATD Fourth World. *Policy Brief and Proposals: Common But Differentiated Responsibilities*. 2011. URL: <https://sustainabledevelopment.un.org/getWSDoc.php?id=4086>.
- [32] IPCC. *Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)]* 2023. URL: https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_FullVolume.pdf.
- [33] Majumder, Piyali and Mathur, Somya and Pohit, Sanjib. *Smoky Affair. EU's CBAM is unfair in principle*. 2023. URL: <https://www.ncaer.org/news/smoky-affair-eus-cbam-is-unfair-in-principle>.
- [34] Mint. *A cap-and-trade system will help slash emissions more efficiently*. 2023. URL: <https://www.livemint.com/opinion/online-views/a-cap-and-trade-system-will-help-slash-emissions-more-efficiently-11698669104571.html>.
- [35] Mint. *India brews its own carbon levy to hit back at EU imports*. 2023. URL: <https://www.livemint.com/economy/india-brews-its-own-carbon-levy-to-hit-back-at-eu-imports-11687113102140.html>.
- [36] MoneyControl. *Govt to allow carbon credit trade in global market for some sectors: RK Singh*. 2023. URL: <https://www.moneycontrol.com/news/business/govt-to-allow-carbon-credit-trade-in-global-market-for-some-sectors-rk-singh-11100351.html>.
- [37] *Regulation (EU) 2021/1119 of 30 June 2021 establishing the framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999 ('European Climate Law')*.
- [38] *Regulation (EU) 2023/956 of 10 May 2023 establishing a carbon border adjustment mechanism*.
- [39] Reuters. *India plans to challenge EU carbon tax at WTO*. 2023. URL: <https://www.reuters.com/world/india/india-plans-challenge-eu-carbon-tax-wto-sources-2023-05-16/>.
- [40] S&P Global. *China's compliance emission trading system to accelerate coverage of CBAM-eligible sectors*. 2023. URL: <https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/energy-transition/050923-chinas-compliance-emission-trading-system-to-accelerate-coverage-of-cbam-eligible-sectors>.
- [41] *The Energy Conservation (Amendment) Act (India), 2022*.
- [42] The Hindu. *CBAM will kill EU manufacturing, India will have its own carbon taxes: Goyal*. 2023. URL: <https://www.thehindu.com/business/Economy/cbam-will-kill-eu-manufacturing-india-will-have-its-own-carbon-taxes-goyal/article67490421.ece>.
- [43] Trading Economics. *EU Carbon Permits*. 2023. URL: <https://tradingeconomics.com/commodity/carbon>.
- [44] UK Government. *New UK levy to level carbon pricing*. 2023. URL: <https://www.gov.uk/government/news/new-uk-levy-to-level-carbon-pricing#:~:text=Goods%20imported%20into%20the%20UK,those%20produced%20in%20the%20UK.>
- [45] United Nations Conference on Trade And Development. *A European Union Carbon Border Adjustment Mechanism: Implications for developing countries*. 2021. URL:

- https://unctad.org/system/files/official-document/osginf2021d2_en.pdf.
- [46] World Bank Blogs. *How developing countries can measure exposure to the EU's carbon border adjustment mechanism*. 2023. URL: <https://blogs.worldbank.org/trade/how-developing-countries-can-measure-exposure-eus-carbon-border-adjustment-mechanism>.
- [47] World Bank Group. *The Trade and Climate Change Nexus*. 2021. URL: <https://openknowledge.worldbank.org/server/api/core/bitstreams/5d543ded-1163-5fc6-8fe8-319d913cf269/content>.
- [48] World Bank Group. *Relative CBAM Exposure Index*. 2023. URL: <https://www.worldbank.org/en/data/interactive/2023/06/15/relative-cbam-exposure-index#3>.
- [49] World Bank Group. *State and Trends of Carbon Pricing 2023*. 2023. URL: <https://openknowledge.worldbank.org/bitstreams/bdd449bb-c298-4eb7-a794-c80bfe209f4a/download>.
- [50] World Bank Group. *Technical Note for the CBAM exposure index*. 2023. URL: <https://www.worldbank.org/en/topic/trade/brief/technical-note-for-the-cbam-exposure-index>.
- [51] World Resources Institute. *4 US Congress Bills Related to Carbon Border Adjustments in 2023*. 2023. URL: <https://www.wri.org/update/4-us-congress-bills-related-carbon-border-adjustments-2023>.
- [52] World Trade Organization. *Principles of the trading system*. URL: https://www.wto.org/english/thewto_e/whatis_e/tif_e/fact2_e.htm.
- [53] World Trade Organization. *The General Agreement on Tariffs and Trade (GATT 1947)*. URL: https://www.wto.org/english/docs_e/legal_e/gatt47_01_e.htm.

MORE IN THE SERIES

- Chakraborty, Lekha and Emmanuel Thomas, (2024). [Fiscal Rules and the Energy Transition: Estimating the Extractive Tax Buoyancy in Indian States](#), WP No. 407 (March).
- Chakraborty, Lekha, Amandeep Kaur, Ranjan Kumar Mohanty, Divy Rangan and Sanjana Das, (2024). [COP28 and Environmental Federalism: Empirical Evidence from an Emerging Economy, India](#), WP No. 406 (February).
- Bhattacharya, Rudrani, (2024). [How did Transition to the GST Regime Affect Inflation in India?](#) WP No. 405 (February).

Anandita Gupta, is Research Fellow, NIPFP
Email: anandita.gupta@nipfp.org.in

Radhika Pandey, is Associate Professor, NIPFP
Email: radhika.pandey@nipfp.org.in

Sanhita Sapatnekar, is at the Department of Economics, University of Navarra, Spain



National Institute of Public Finance and Policy,
18/2, Satsang Vihar Marg,
Special Institutional Area (Near JNU),
New Delhi 110067
Tel. No. 26569303, 26569780, 26569784
Fax: 91-11-26852548
www.nipfp.org.in