TRADE AND CLIMATE SERIES #1

The Global South's response to a changing trade regime in the era of climate change

CARBON BORDER ADJUSTMENT MECHANISM (CBAM)

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CARBON BORDER ADJUSTMENT MECHANISM (CBAM)

CONTENTS

1

INTRODUCTION

The European Union has introduced a carbon border adjustment mechanism (CBAM) taxing imports like iron, steel, cement, and aluminium based on the GHG emission intensities of their production.

The EU aims to protect its firms operating under the Emissions Trading System (ETS) by imposing similar costs on imports from countries without a carbon pricing mechanism.

CBAM will hurt the trade competitiveness of developing countries and place the burden of decarbonisation on them, ignoring developed nations' disproportionate contribution to the problem, and past failures to provide green financing and technology.

Developing countries raised concerns at COP 28 in 2023 about the negative economic impacts of unilateral trade measures like CBAM on their economies and poverty eradication efforts.

INTRODUCTION

The world is in a race to build a low-carbon economy. Countries have, in recent years, proposed or introduced policies and laws to speed up the transition away from fossil fuels, promote manufacturing of clean energy technologies at scale, and decarbonise their domestic industry. On the face of it, this race appears to be a part of the global effort to cut greenhouse gas (GHG) emissions. But it has sparked fears of economic rivalry and trade protectionism, as governments — on the pretext of climate action — try to reshore green industries and dominate the global supply chain of goods and technologies essential to avert a climate catastrophe.

On December 13, 2022, the European Union (EU) agreed on a preliminary deal for an EU Carbon Border Adjustment Mechanism (CBAM) or tax on imported goods such as iron and steel, cement, aluminium, fertilisers, electricity, and hydrogen, applicable from October 1, 2023. This tax is based on the GHG emissions generated during the production of these imported goods.

From the EU's perspective, it is "levelling the playing field" for its own firms — many of which operate under the EU's Emissions Trading System (ETS) and pay a domestic carbon price — cushioning them from competitors who can manufacture more cheaply in countries with lenient environmental laws. It believes that the tax would incentivise its trading partners to decarbonise their manufacturing industry. It also considers the CBAM as a countermeasure to the issue of carbon leakage, which UNCTAD (UN Trade and Development) defines as "a shift of polluting industries to jurisdictions with less stringent emission regulations that might occur with an increase in domestic carbon prices".[1]

The consequences for developing countries may be more serious, however, especially in the short to medium term, with potentially harmful impacts to the trade competitiveness of their export-oriented industries.

From the perspective of equity and common but differentiated responsibilities (CBDR), a CBAM is perceived to place the burden of decarbonisation on the developing world, disregarding the prior failure of wealthy countries to make good on their promises to ensure that green technologies are more accessible to developing countries, whether through extending knowledge or providing financing. According to UNCTAD, "it imposes on developing countries the environmental standards that developed countries are choosing" [2], and is also seen as a unilateral trade measure.

At negotiations at the UN Conference of Parties (COP) 28 in Dubai in 2023, developing country Parties and blocs such as the African Group, China, Iran, Brazil, Egypt, and BASIC raised concerns about such unilateral trade measures negatively impacting their economies, and hindering their ability to eradicate poverty and fulfil their commitments to the Paris Agreement. This implies a gradual convergence of the trade and climate agenda, as climate-related policy tools start showing the potential to impact global trade balances and competitiveness, and the subsequent financial health of countries with export-driven economies.

This paper examines the current scope of the EU's CBAM with a view to understanding its implications for developing countries, and the role of such policy tools in the green transition in an unequal and climate-risked world.

2

GREENHOUSE GAS EMISSIONS AND TRADE

In the past two decades, the OECD countries' consumption emissions have exceeded their production emissions, which means that they have imported emissions on a net basis.

On average, the EU imported about 19 per cent of its emissions annually from abroad between 1990 and 2021,

While outsourcing a significant share of its emissions, the EU continued to occupy carbon space — its 2019 emissions per capita was 6.5 GtCO2, thrice as high as India, and 43 times higher than Ethiopia.

A country's production (or territorial) emissions tell us about the emissions produced within its domestic territory. Consumption emissions, on the other hand, indicate emissions from the production of all imported goods and exclude emissions from goods exported to other countries. In other words, consumption-based emissions "reflect the consumption and lifestyle choices of a country's citizens".[3]

In the past two decades, OECD countries' consumption emissions have exceeded their production emissions, which means that they have imported emissions on a net basis. For some countries, this is larger — on an average, the EU imported about 19 per cent of its emissions annually from abroad between 1990 and 2021, hitting a peak of 26 per cent in 2008. The US, on an average, imported about 5 per cent of its emission during the same period.

Table 1 shows the net emissions transfer — production emissions minus consumption emissions — as a percentage of production emissions to estimate how much of a countries' emissions have been imported or exported. Countries like India and China produce goods that then get exported and used abroad: on an average, India exported 6 per cent of its emissions and China 12 per cent, annually between 1990 and 2021.

The rates of emission transfer have varied, depending on multiple economic factors both domestic and international, particularly for China — which saw its highest share of emissions exported abroad till the mid-2000s, followed by a decline after the financial crisis of 2007-08 (*see Graph 1*).

Table 1: Emissions transfer as percentage of production emissions (1990-2021)

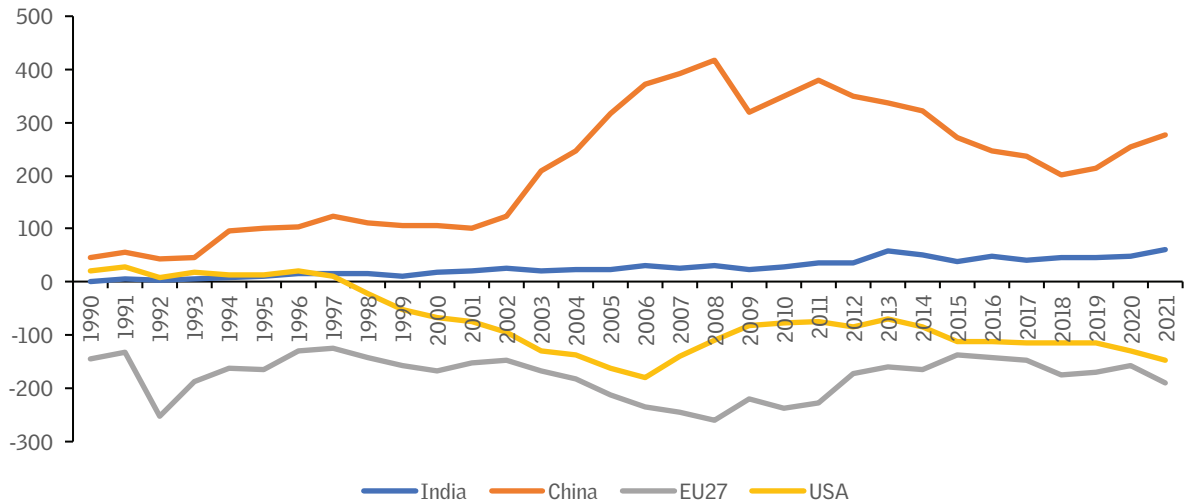
EU-27 has been a net importer of emissions

Region	Average
India	6%
China	12%
Non-OECD	9%
EU-27	-19%
USA	-5%
OECD	-11%

Source: CSE, Global Carbon Project

Graph 1: Emission transfers (production minus consumption emissions), 1990-2021

Rate of transfers have varied, depending on economic factors



Source: CSE, Global Carbon Project

For the EU, which is the focus of this paper, household final consumption expenditure of goods rose from around €2,497.8 billion in 2004 to €3,997 billion in 2022 (at current prices).[4] During the same period, the import of goods into EU (excluding intra-EU trade) increased from €915 billion to €3,006 billion, representing more than a threefold rise (*see Graph 2*).[5] In 2004, the value of imported goods accounted for 36.6 per cent of the household final consumption expenditure of goods in the EU. By 2021 and 2022, this figure had risen to 56.6 per cent and 75.3 per cent, respectively.

A large proportion of the increase in imports is in the high-emitting sectors (*see Graph 3*).

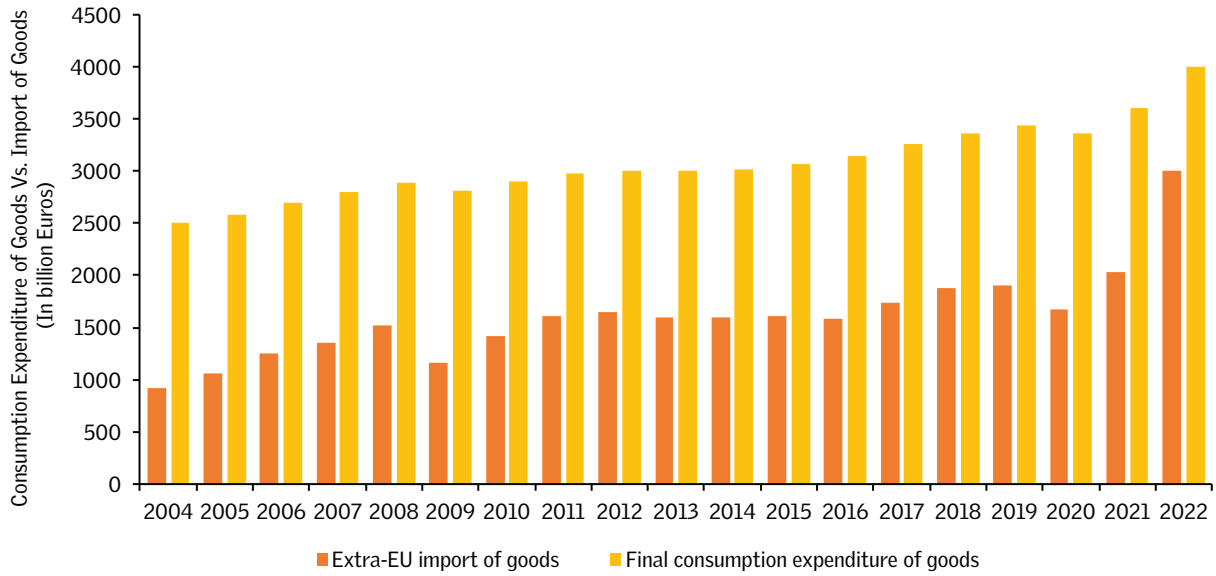
Between 2009 and 2022, import penetration — percentage of domestic demand met by imports — of steel in the EU increased from 16.3 per cent to 23 per cent.

In 1995, the net imports of aluminium in EU countries accounted for 36.9 per cent of the total aluminium used in the bloc; by 2021, this figure had risen to 54 per cent.[6]

While outsourcing a significant share of its emissions, the EU continued to occupy carbon space — its 2019 emissions per capita was 6.5 $GtCO_2$, thrice as high as India, and 43 times higher than Ethiopia.

Graph 2: EU's consumption expenditure of goods vs import of goods (in billion Euros)

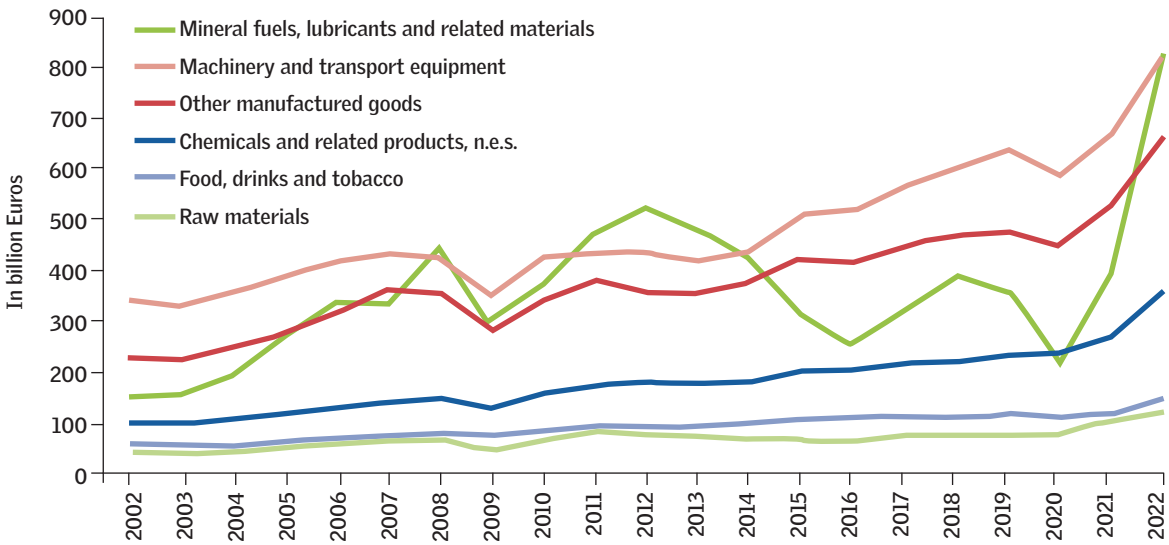
Value of imports as a percentage of household final consumption expenditure rose more than threefold in two decades



Note: Extra-EU refers to the EU's trade with other countries, while intra-EU is trade within the bloc
Source: Eurostat, OECD

Graph 3: Increase in extra-EU imports of high-emitting sectors (2002-2022)

High-emitting sectors account for a large proportion of the rise in imports



Note: excluding not classified
Source: Eurostat

3

THE CARBON BORDER ADJUSTMENT MECHANISM (CBAM)

The CBAM imposes a tax on imports based on emissions generated during production. Importers will be required to purchase CBAM certificates and surrender them annually.

By 2028, CBAM is expected to generate approximately €1.5 billion per year, with 75 per cent of the revenue allocated to the EU budget and 25 per cent to national budgets.

Importers must register with authorities and purchase CBAM certificates, with the price tied to the weekly average auction price of EU ETS allowances. They will declare the emissions of imported products at the end of the year and surrender equivalent certificates.

Several studies have assessed CBAM's impact on global trade. Countries with high export dependence on the EU and carbon-intensive production are expected to be significantly affected.

Currently being implemented, the Carbon Border Adjustment Mechanism (CBAM) is a border carbon adjustment (*see Box*) measure proposed by the European Union. It was introduced as part of the EU's 'Fit for 55' package, which aims to reduce GHG emissions of the bloc by at least 55 per cent by 2030. Adopted in May 2023, CBAM aims to ensure that European companies, which are required to pay for their CO_2 emissions, compete on equal terms with non-EU companies importing products to the EU.

EU's justification for a CBAM

The European carbon pricing system, implemented through the EU ETS (*see Box*), does not currently impose a uniform carbon cost across all sectors. While the power sector largely pays for allowances known as EU Allowances or EUAs (recently priced between €80 and €100[7]), the industrial and aviation sectors predominantly receive free EUAs. The primary justification for free allowances is the potential for carbon leakage — if industries are required to pay a carbon price, they may shift production to jurisdictions outside the EU that do not have a carbon price.

The EU's CBAM imposes a tax on imports based on two factors:

- emissions associated with the production of a given imported good, such as an iron bar
- carbon price borne by EU companies

WHAT IS A BORDER CARBON ADJUSTMENT (BCA)?

A border carbon adjustment (BCA) is a tax on imported goods based on the emissions generated during their production; it aims to establish a fair playing field by pricing the carbon emissions of imported products when a comparable pricing mechanism is already in place in the domestic market. The goal is to prevent any disadvantage for domestic producers in comparison to their imported counterparts.

BCA can be considered as a form of a trade remedy, similar to anti-dumping or countervailing duties. It can be implemented to counteract potential distortions in trade caused by differences in environmental regulations and carbon pricing between trading partners.

BCAs are a carbon pricing tool. Carbon pricing mechanisms are designed to reduce greenhouse gas (GHG) emissions by assigning a monetary value to units of greenhouse gases and penalising emissions accordingly. This is typically done either through carbon markets or carbon taxes. While emissions trading systems (ETS) are an example of carbon pricing through carbon markets, such as the EU ETS, BCAs are an example of carbon taxes, such as the European Union's Carbon Border Adjustment Mechanism (CBAM).

THE EU'S ETS

The European Union's (EU) emission trading system is a regulated carbon market introduced by the EU in 2005. Under this, the EU government sets an annual cap on the total GHG emissions that a sector can emit. Sectors covered include electricity and heat generation, aviation, and heavy industries. The cap, set annually, is decreased by a certain percentage each year. The cap set for 2024 is 1.38 billion tonne of CO_2e for all installations.[8]

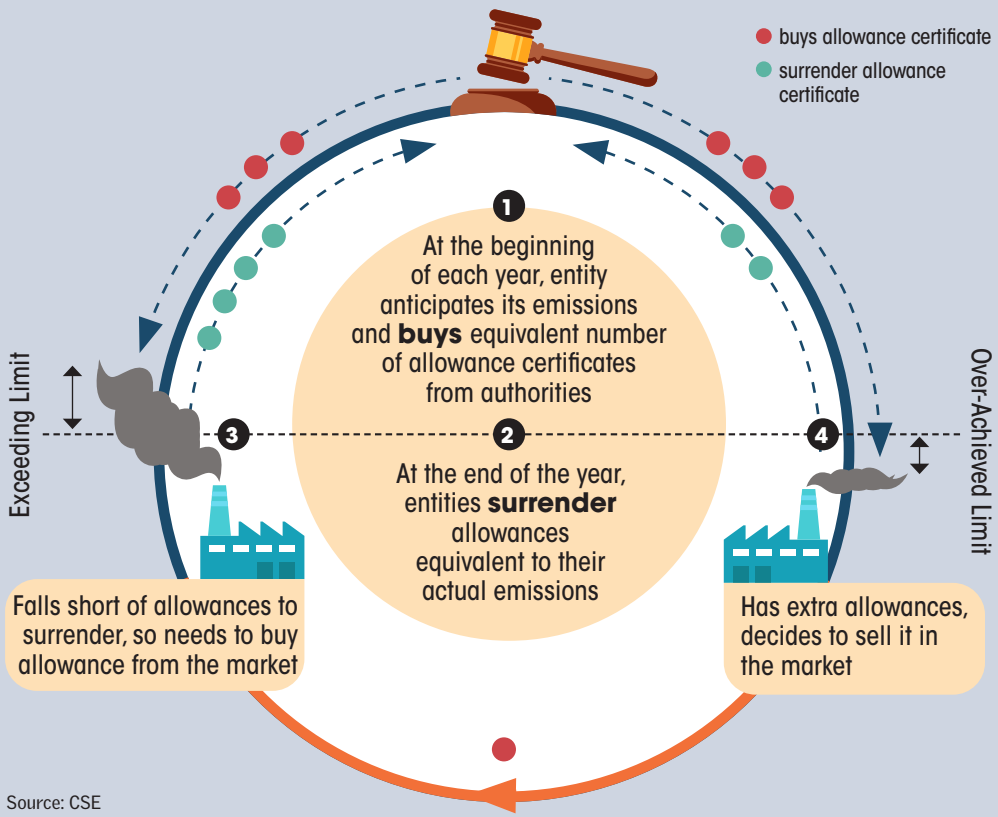
This cap means that the EU will issue an equivalent number of permits known as EU Allowances (EUAs) to industries covered by the regulation. These EUAs are either auctioned through the European Energy Exchange or, in certain sectors, distributed for free.

At the end of each year, industries are obliged to surrender EUAs equivalent to the amount of their own emissions back to the European Commission. For instance, if an entity emitted one million tonne of CO_2, it would have to surrender one million EUAs to the commission.

EUAs are also tradable between entities in the secondary market. For example, if an entity has 0.8 million allowances but has emitted 1.2 million tonne of CO_2, it needs to surrender 1.2 million EUAs and must buy an additional 0.4 million allowances. These allowances can be obtained from other industries with surplus EUAs.

Figure: EU's Emissions Trading System (ETS)

ETS allows governments to put a cap on total annual GHG emissions from a sector



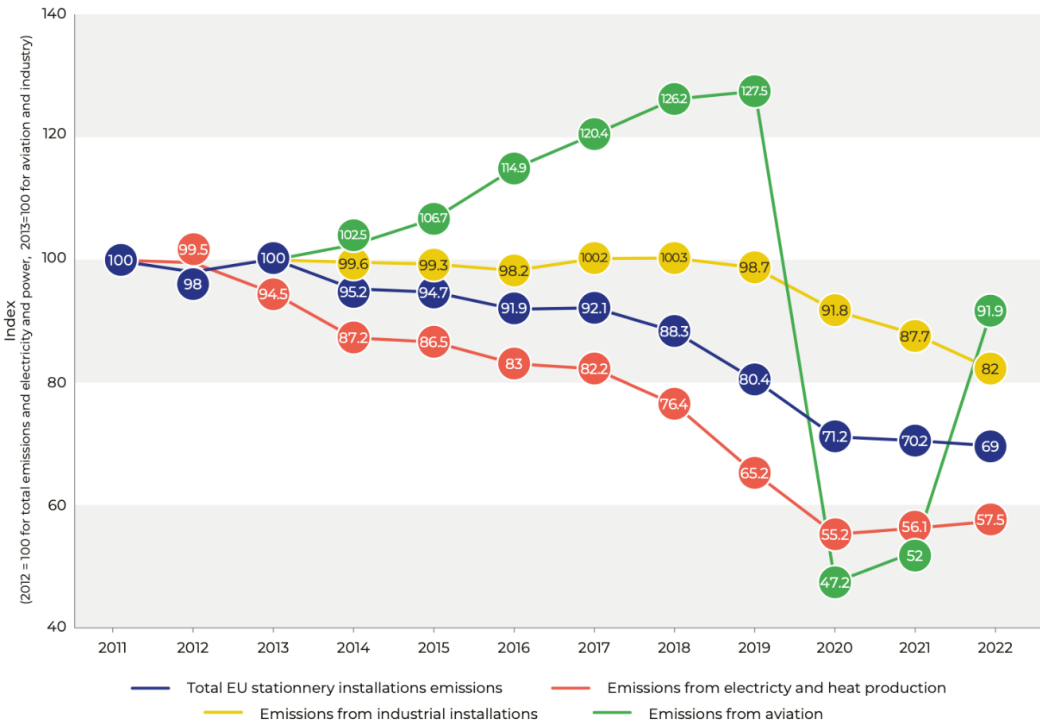
Source: CSE

Importers would be required to purchase 'CBAM certificates' and surrender them annually based on the emissions of goods imported. The mechanism initially covers select goods such as iron and steel, cement, fertilizers, aluminium, electricity and hydrogen.

One way to view the problems in this kind of a set-up is to look at the emission reduction over the years from the system (*see Graph 4*). Even though emissions in the power sector in EU have decreased over the years, there has been no significant impact on industries or the aviation sector. Emissions decreased in the industrial sector by a meagre 1.3 per cent between 2013 and 2019; in aviation, emissions actually increased. There is no incentive to decarbonise, as large amounts of free units — as much as 95 per cent of the total allowances — are available, virtually eliminating carbon pricing for them.[9]

Graph 4: Emissions: The rise and the dip

Emissions in the industrial sector (recipient of free allowances) did not decrease as much as in the power sector (which pays for allowances)



Source: LIFE ETX (2024)

DID THE EU ETS REDUCE EMISSIONS?

Studies estimate that the ETS has played a varying role in reducing emissions in the EU. A study by OECD (Organization for Economic Cooperation and Development) and the London School of Economics found that the ETS led to a 10 per cent reduction in carbon emissions between 2005 and 2012, in four countries studied.[10] Another study by the University of Oslo in Norway finds that ETS reduced the EU's total emissions by 3.8 per cent, but admits that some of the emissions may have been relocated to other countries through carbon leakage, an aspect the study did not quantify.[11] Others have stated that it is unclear to what extent the ETS has reduced emissions.

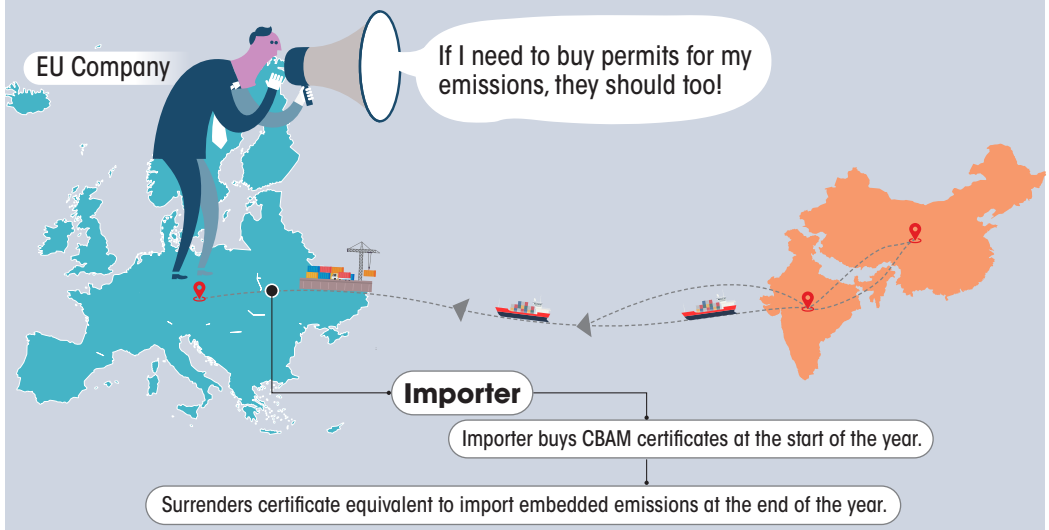
Power sector emissions have declined 27 per cent in the EU between 2005 and 2016, but this is driven by multiple factors beyond the ETS, including renewable energy deployment, a decrease in total power generation, and switching from coal to gas, according to a report by the European Roundtable on Climate Change and Sustainable Transition (ERCST).[12] The ETS did catalyse the transition towards renewables, but was not the main driver.

In terms of policies, a 2024 report by LIFE ETX Project (funded by the European Union's LIFE Programme) states that "other key drivers of the decarbonisation of the EU power sector include the Energy Efficiency Directive, which has helped tame the demand for energy, the Industrial Emission Directive, which has helped limit non-CO2 air pollutants, and national plans for phasing out coal and lignite in the power mix".[13]

To transition away from free allowances for industries within the EU ETS and incentivise these industries to accelerate their decarbonisation efforts, it is argued that a border tax is necessary. This tax would essentially apply a carbon price to products imported into the EU. Such a measure aims to ensure that EU industries are not disadvantaged by having to pay a carbon price while importers do not, thereby discouraging carbon leakage.

It is a strategic measure to safeguard the competitiveness of EU industries within the EU.[14] The gradual phase-in of CBAM will, therefore, be accompanied by a gradual phase-out of free allocations over nine years between 2026 and 2034.

Figure: Domestic industry in EU hopes that CBAM will level the playing field



Policymakers worry that implementing an effective carbon price on industrial emissions would lead to carbon leakage; companies might relocate production to regions with lower environmental standards to evade carbon pricing or lose market share to producers from outside the EU due to competitive disadvantages.

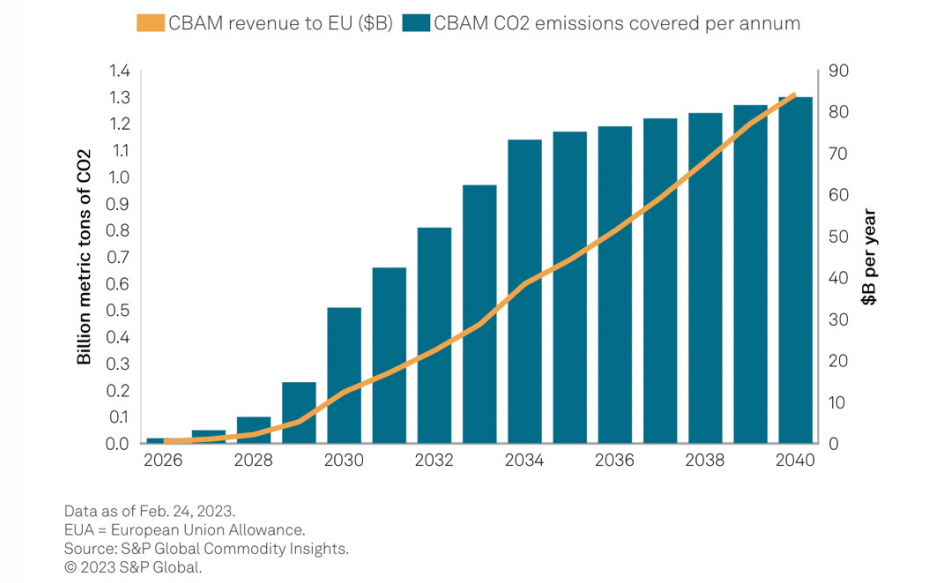
Revenues from the CBAM

As of 2028, the EU CBAM is expected to generate about €1.5 billion per year.[15] Seventy-five per cent of this revenue would go to the EU budget, and 25 per cent would go to the EU countries' national budgets (*see Graph 5*).

Despite earlier discussions on exempting the least developed countries (LDCs) from the mechanism, no such provisions has been envisaged in the regulation. Furthermore, no provision for the sharing of CBAM revenues with LDCs has been agreed upon, despite initial discussions and demands for the same. Suggestions to direct CBAM revenues towards the Loss and Damage Fund, or towards decarbonisation in developing countries, have also not made it into formal EU policy.

Graph 5: CBAM-covered emissions and projected revenues

CBAM is expected to generate over 1 billion Euro by 2028



Source: S&P Global

Figure: Timeline of CBAM roll-out

Source: CSE

Table 2: CBAM timelines and requirements

Timeline	Activity
October 2023	Quarterly report from importers on goods imported, production methods and emissions
Until July 2024	For emission factor, default values (tonne CO2e/tonne goods) for different products, published by EU could be used. This is not country specific. Using default emission factor implies that in the absence of a measured emission factor, industrial facilities can use default emission factors to report emissions. Total emissions = weight of the imported good x emission factor (default value) Source: European Commission
Until December 2024	Another option to calculate emissions can be any of the following three options: • A carbon pricing scheme in the exporter country • A compulsory emission monitoring scheme where the installation is located • Emission monitoring by the producer which is verified by a third party accredited verifier
Beyond December 2024	Calculations of emissions could be based on the following two options: Option 1: Measure emissions from source streams using activity data from measurement systems and calculation factors from laboratory analyses or standard values. For instance, in steel manufacturing, measuring emissions from source streams using activity data involves: • Collecting data on the materials used, such as iron ore and coal, and the processes involved in steelmaking. • Installing measurement systems at various points in the manufacturing process to track factors like energy consumption, raw material usage, and emissions. • Using laboratory analyses or established standard values to calculate the emissions produced based on the activity data collected. This includes factors like the carbon content of fuels burnt during production and the efficiency of the steelmaking process. • Applying the collected data and calculation factors to determine the amount of GHG emissions associated with the production of steel in the installation. Option 2: Measuring emissions from emission sources through continuous monitoring of greenhouse gas concentration in flue gas and flue gas flow. (See annexure for snapshot of methodologies)
From 2026	Actual purchase of certificates to cover emissions from imports.

Aggregated goods category	CN code	Description	Default values (tonne CO_2e/tonne goods)		
			Direct emissions	Indirect emissions	Total emissions
Calcined clay	2507 00 80	Other kaolinic clays[7] *(nb: applicable for calcined clay only)*	0,23	0,08	0,32
Cement clinker	2523 10 00	Cement clinkers[8]	0,83	0,04	0,87

How will the CBAM be measured and reported?

According to the EU, methodology for implementing the CBAM would be as follows[16]:

- Importers will register with authorities and buy CBAM certificates. The price will depend on the weekly average auction price of EU ETS allowances (€/tCO_2).
- At the end of the year, the importer will declare the emissions of products imported and surrender an equivalent number of certificates to the authorities.
- If a carbon price has already been paid in the exporting territory, an equivalent amount will be deducted from what the EU importer is liable for.

Impacts of CBAM on trade

Several recent studies have assessed the impacts of CBAM on trade between the EU and the rest of the world.

The World Bank has developed a CBAM Exposure Index for countries. It measures the absolute cost impact on countries from buying certificates, the number of which depends on their exports to the EU and the respective carbon intensities of the products exported.

This index scores countries based on the excess cost of CBAM certificates paid by an exporter over the cost paid by an average EU producer for the same output, reflecting the effect on competitiveness in the EU market (relative carbon price borne). This is adjusted by the respective country's proportion of exports to the EU market (reflecting the exposure of the exporter country). This adjustment means that a higher reliance on the EU market for a country means it is more exposed to the EU.

Mathematically

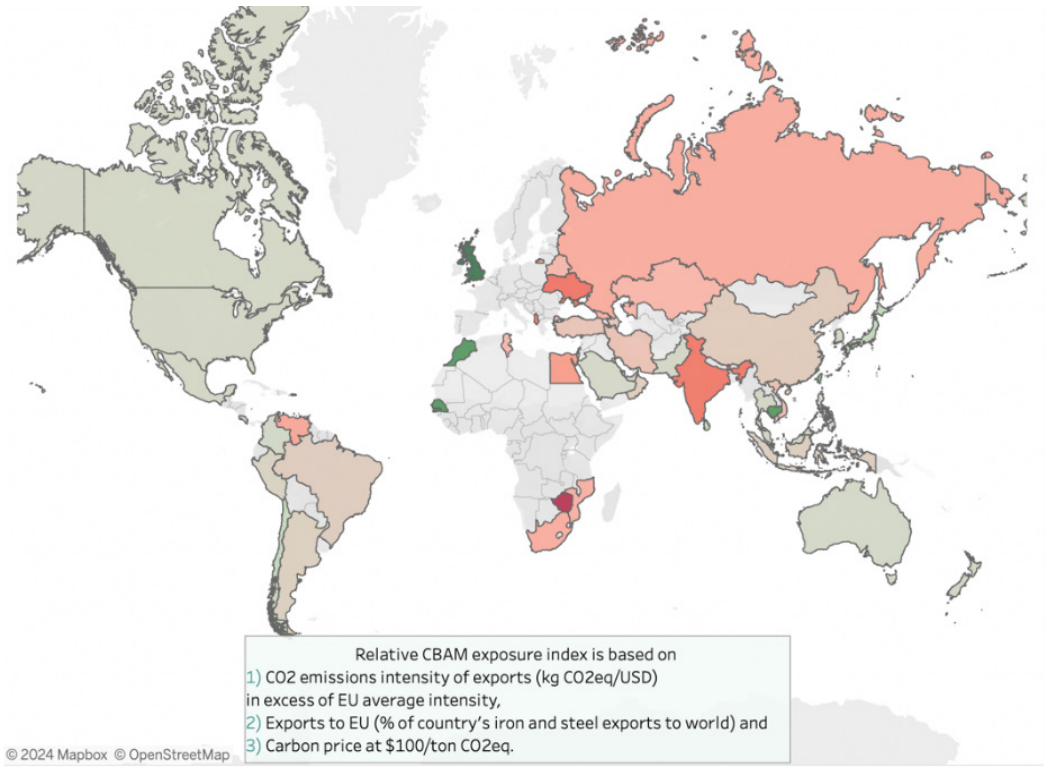
Relative CBAM exposure = (emission intensity of exported product - emission intensity of EU product) x exports to EU (% of country's total export to the world) x carbon price at $100/tonne CO_2e

Map 1 considers the iron and steel sector to show the relative CBAM exposure of countries. Red indicates a decrease in relative competitiveness for countries, whereas green indicates a gain in relative competitiveness for countries compared to the EU.

For all the CBAM sectors taken together, the index developed is 'aggregate relative exposure'. Thus, countries that have high export dependence on the EU and have the most carbon-intensive production chains, are hit the hardest by CBAM.

Map 1: Relative CBAM exposure of iron and steel exports to the EU from various countries

Zimbabwe, India and Ukraine register high relative CBAM exposure in the iron and steel sector



Source: World Bank

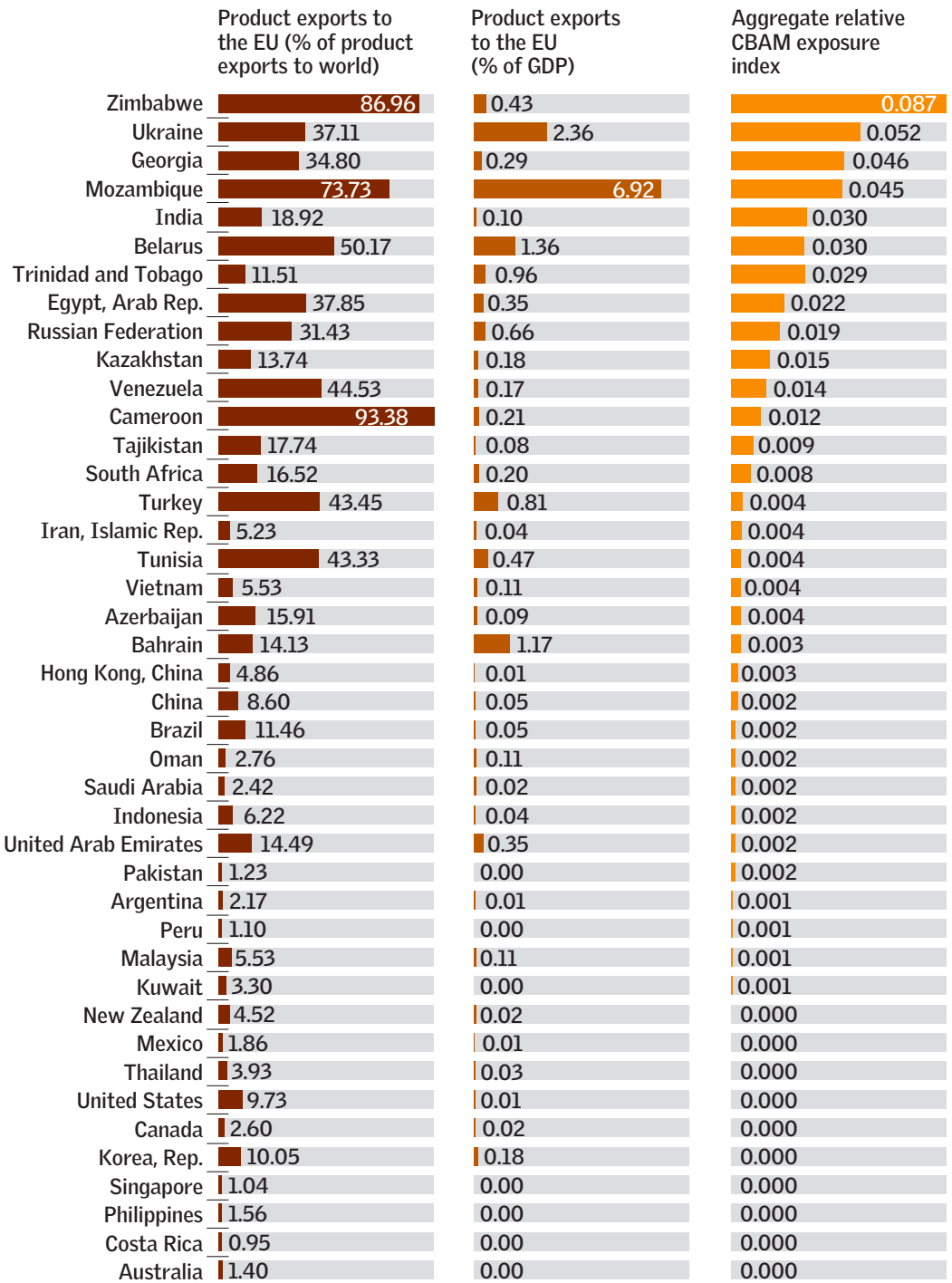
The African Climate Foundation and the London School of Economics have studied the impacts of CBAM on African countries.[17] The analysis utilises computer modelling to explore various scenarios and outcomes. Initially focusing on a specific set of goods, the report indicates a limited impact on African exports, as these goods represent only a small portion of the continent's total exports.

However, upon expanding the scope of the mechanism to include all goods, the report identifies damaging effects on African economies. Under partial coverage of products with a simultaneous phasing out of free allowances in ETS for the same, the analysis predicts a 0.33 per cent decline in Africa's GDP. It includes India in its analysis and finds a 0.12 per cent decline in India's GDP if the carbon price is assumed to be €40.

A 2024 study by the Asian Development Bank (ADB) finds that CBAM is anticipated to significantly disrupt global trade, resulting in a 1.1 per cent reduction in Asia's exports to the EU.[18]

Graph 6: Aggregate relative exposure of taxed product exports from various countries and relative GDP value of exports

Aggregate relative exposure for developing countries is significantly higher in general than for developed countries



Source: World Bank

Graph 7: Potential changes in CO_2 emissions (million metric tonne of CO_2) of different regions under different ETS and CBAM policy scenarios

The effect on global emissions is perceived to be marginal

	ETS Only (€100/MT CO_2)	ETS and CBAM (€100/MT CO_2)	ETS Only (€200/MT CO_2)	ETS and CBAM (€200/MT CO_2)
Developed Asia	5.66	5.33	10.69	10.21
Central and West Asia	4.15	2.1	8.18	3.67
East Asia ex-Japan	2.17	1.37	3.94	2.39
South Asia	0.53	0.37	0.98	0.64
Southeast Asia	5.36	2.38	9.88	4.16
Pacific	0.1	0.03	0.2	0.05
PRC	10.7	3.72	18.7	5.46
India	11.61	7.12	23.54	14.58
Republic of Korea	2.54	1.75	4.69	3.17
European Union	-435.77	-425.38	-777.19	-759.58
OECD Europe	-55.12	-55.18	-107.91	-108.04
Eastern Europe	37.34	13.6	79.44	28.68
North America	22.74	14.5	44.01	27.89
Latin America	4.41	1.63	8.55	3.03
Other West Asia and North Africa	18.18	4.61	33.59	6.43
Sub-Saharan Africa	7.29	3.92	14.23	7.47
World	-358.1	-418.15	-624.48	-749.78
World percentage change	-1.08	-1.26	-1.88	-2.25

Source: ADB

Will CBAM reduce global emissions?

The ADB suggests that implementing both the ETS and CBAM with a €100 per metric tonne carbon price would decrease global emissions by 1.26 per cent. However, implementing the ETS alone would lead to a decrease of about 1.08 per cent. Therefore, the CBAM, in addition to the ETS, appears to affect global emissions only marginally, projecting an additional decrease of approximately 0.2 per cent.[19]

Similar results have been found by the African Climate Foundation and the London School of Economics — under full coverage of products and a carbon price of €87, CBAM could lead to only a 0.04 per cent fall in global CO_2 emissions.[20]

In 2009, a study by the Brookings Institution and Syracuse University (both US-based) observed that any emission reduction would primarily stem from decreased international trade, which dampens global GDP and consequently, emissions.[21]

4

INDIA AND THE CBAM

India's CBAM-covered goods' exports to the EU comprised 9.91 per cent of its total goods exports to the EU in the year 2022-23.

CBAM would impose a tax burden of 25 per cent on average, over and above the value of CBAM-covered goods exported to the EU from India.

For 2022-23, this tax burden would be equivalent to 0.05 per cent of India's GDP.

A product-wise analysis of CBAM-covered sectors and their corresponding exports from India shows that the country's CBAM-covered goods' exports to the EU comprised 9.91 per cent of its total goods exports to the EU in the year 2022-23.

By value, this was about 0.2 per cent of India's GDP in 2022-23.

These exports comprise about one-fourth (25.7 per cent) of India's total goods exports to the world for the CBAM-covered sectors, which is not insignificant for the industries operating in these sectors. These are iron and steel, aluminium, fertilizers and cement. Currently, hydrogen and electricity are not exported from India to the EU.

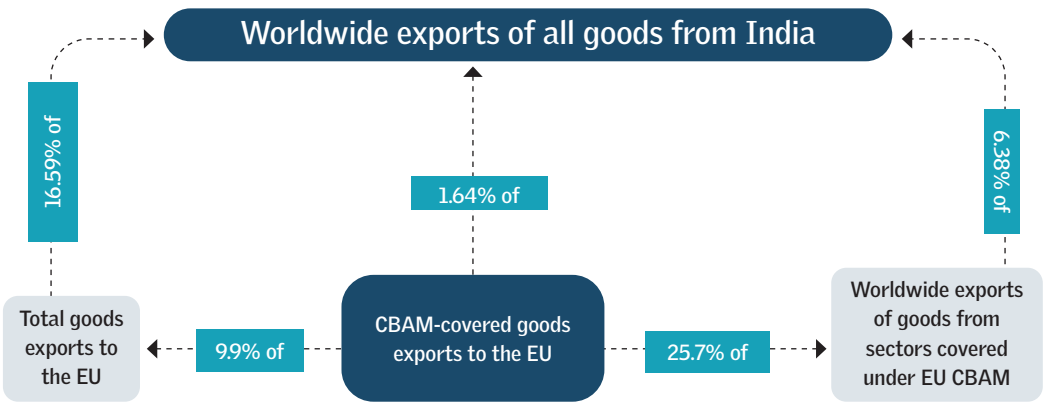
Of India's total goods exported to the world, CBAM-covered goods exports to the EU comprise only about 1.64 per cent.

Of India's total exports of all goods, exports from the sectors subject to the EU CBAM account for 6.38 per cent.

Comparing trade data of three years to capture fluctuations in trade volumes, our estimates suggest that at a rate of 100 Euro (or US $106) per tonne of carbon dioxide equivalent, **a CBAM would impose a tax burden of 25 per cent on average, over and above the value of CBAM-covered goods exported to the EU**. Taking 2022-23 as a sample year, the tax burden would be equivalent to 0.05 per cent of India's GDP.

Figure 2: Percentage share of India's exports (2022-23), expressed in $ value of exports (2022-23)

Of India's total exports to the EU, CBAM-covered exports accounted for a little over 9 per cent



Source: CSE, based on data from the Ministry of Commerce, Government of India and the European Commission

Table 3: Sectoral breakdown: India's exports in CBAM-covered sectors (2022-23)

Goods covered by CBAM accounted for 9.9 per cent of India's total goods exports to the EU

CBAM-covered sector	Total worldwide exports 2022-23 (M $)	Exports to EU 2022-23 (M $)	EU exports as share of worldwide exports 2022-23
1. Aluminium	8,682	2,234	26%
2. Cement	3	0	1%
3. Electricity	1,181	0	0%
4. Fertilizers	101	1	1%
5. Iron and steel	18,833	5,179	28%
6. Hydrogen	0	0	-
Total of CBAM-covered sectors (1 to 6)	28,800	7,414	26%

Source: CSE, based on data from the Ministry of Commerce, Government of India

Table 4: Emissions from CBAM-covered sectors and estimates of the resultant tax burden

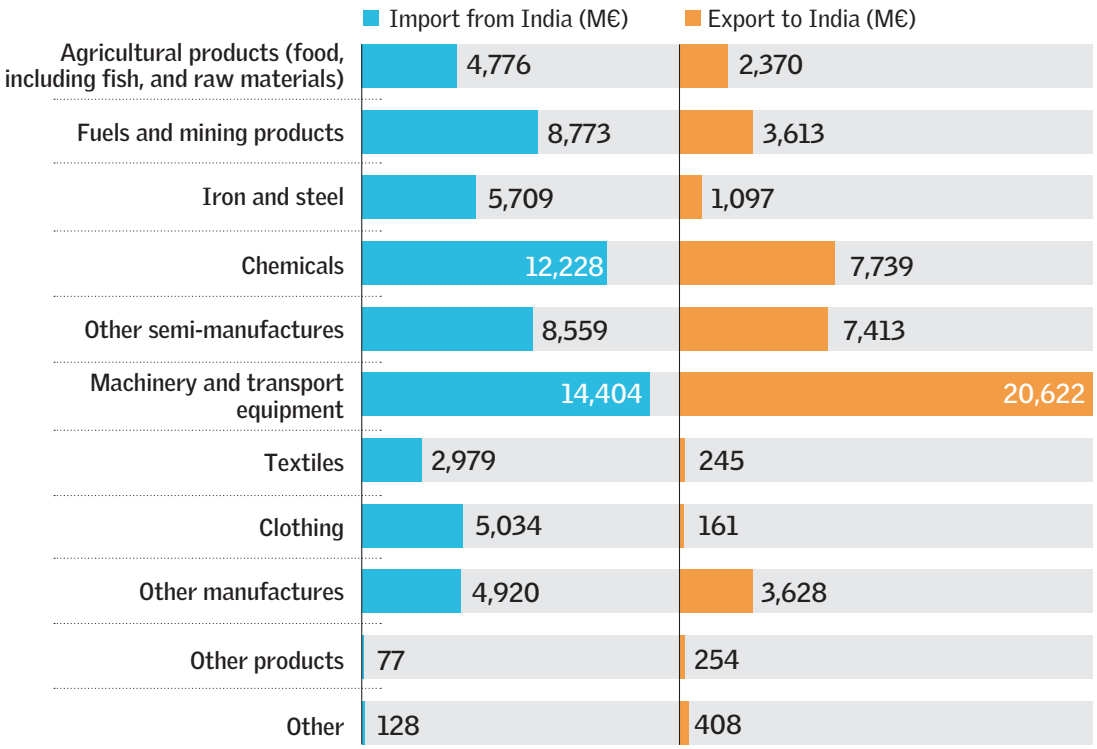
CBAM would impose an average tax burden of 25 per cent on the value of CBAM-covered goods exported to the EU from India

Item	Sector	2021-22	2022-23	2023-24
CBAM-covered goods traded by weight (in tonne)*	Aluminium	685,237	741,423	372,320
	Fertilizers	213	315	499
	Iron and steel	5,131,790	3,732,842	4,701,786
A. Total weight of CBAM-covered goods traded (In tonnes)		5,817,239	4,474,580	5,074,605
Value of CBAM-covered goods (In M $)	Aluminium	2,257	2,234	1,046
	Fertilizers	0	1	2
	Iron and steel	7,026	5,179	5,321
B. Total value of CBAM-covered goods exported (M $)		$ 9,283	$ 7,414	$ 6,368
C. Total value of CBAM-covered goods exported minus value of 13 iron and steel products with no data available in weight (M $)		$ 9,167	$ 7,297	$ 6,250
Emissions of CBAM-covered goods (in tonne of CO_2 equivalent)**	Aluminium	7,255,611	7,828,244	3,940,043
	Fertilizers	335	547	939
	Iron and steel	12,988,685	9,596,989	12,072,123
D. Total emission of CBAM-covered goods exports (tCO_2e)		20,244,631	17,425,781	16,013,105
E. CBAM cost at Euro 100 / tonne (in million Euros)		€ 2,024	€ 1,743	€ 1,601
F. CBAM cost (In million dollars; where 1 Euro = $1.06)		$ 2,146	$ 1,847	$ 1,697
Additonal tax burden: CBAM as % of total value of CBAM-covered goods exported (F as % of C)		23%	25%	27%

*Other sectors (Cement, hydrogen, electricity) have been removed due to their small or nonexistent export values.
**Default value of product-wise emissions intensity provided by the EU
Source: CSE, based on data from the Ministry of Commerce, Government of India and the European Commission

Graph 8: European Union's trade with India (2022)

Primary goods and industrial raw materials made up 46.6 per cent of the EU's imports from India; semi-manufactured goods and machinery constituted 60 per cent of its exports to India



Source: Director General of Trade, European Commission

Measures to counter a CBAM include having a domestic carbon price through a domestic carbon market. While a new domestic compliance carbon market is under development, in India — the Carbon Credit Trading Scheme (CCTS) spearheaded by the Bureau of Energy Efficiency — it is unclear when the market will be ready to offer an equivalent carbon price to that of the EU to counter the CBAM exposure.

Moreover, as discussed in later sections, a number of other initiatives aiding decarbonisation in India such as a non-fossil power target in its NDCs (Nationally Determined Contributions) may not be considered by the EU since the CBAM is hinged on carbon pricing as a matrix to determine the extent to which goods from the exporting country should be taxed.

As an interim outcome, the rollout of the CBAM is likely to spur efforts to develop robust carbon accounting methods and protocols for domestic industry to commence the emissions monitoring and reporting phase.

5

CHINA AND THE CBAM

In its current form, CBAM is expected to have little impact on China's trade with the EU, as CBAM-covered exports comprise under 2 per cent by value of the total exports from China to the EU.

China has implemented a national ETS since 2021. While the carbon price in the China ETS remains around US $10 per tonne, the carbon price in the EU is almost 7 to 11 times higher.

China's exposure to the CBAM would increase significantly once the scope of CBAM is expanded to include other sectors.

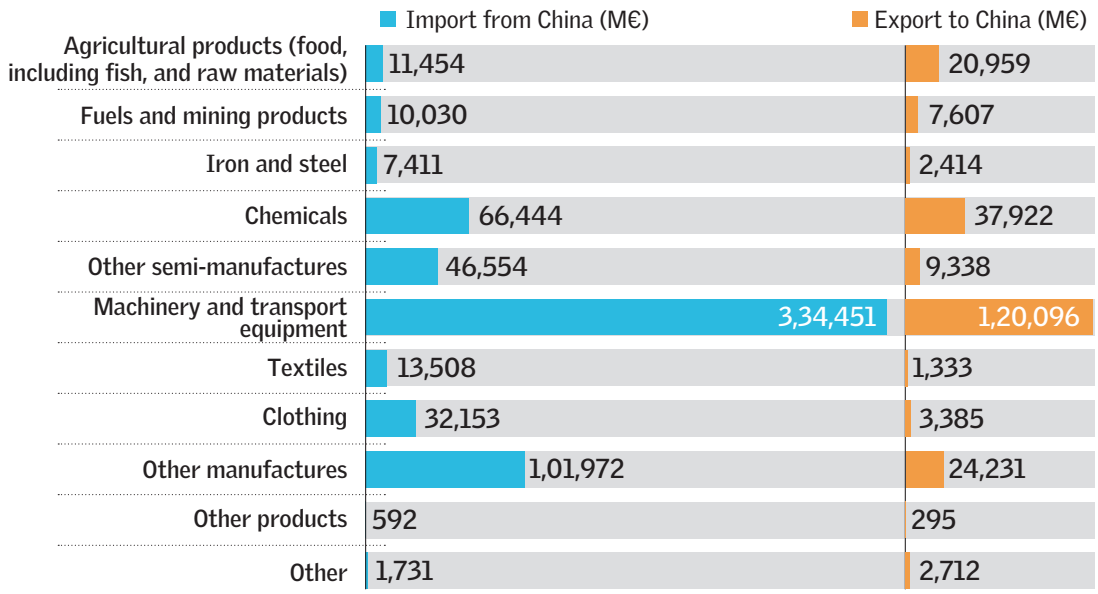
In its current form, CBAM is expected to have little impact on China's trade with the EU, as CBAM-covered exports comprise under 2 per cent by value of the total exports from China to the EU[22], compared to 9.9 per cent for India.

China has implemented a national ETS since 2021, which presently covers only the power sector, with plans for future expansion. While the carbon price in the China ETS remains around US $10 per tonne, the carbon price in the EU is almost 7 to 11 times higher, ranging between US $60 and US $110 per tonne of CO_2e over the last two and a half years (November 2021-May 2024). Additionally, China's ETS currently does not set a ceiling on emissions. With limited coverage, free allowances, low prices, and data integrity issues, China's ETS falls far behind the EU ETS. CBAM may help mature China's carbon measurement and accounting system by strengthening its own ETS.

But China has criticised the mechanism at several fora, including the World Trade Organization (WTO), as a unilateral measure and a trade barrier. For one, a unilateral measure means the EU has complete authority over the policy and can leverage it to its interests. Secondly, with the expansion of CBAM, when it comes to include more products, China's exposure to CBAM increases by a huge margin. Thirdly, similar measures from other countries including the US, UK, Canada and Japan may amplify the exposure of Chinese exports to border adjustment taxes.

Graph 9: European Union's Trade with China (2022)

Primary goods and industrial raw materials make up a small percentage of China's export to the EU



Source: Director General of Trade, European Commission

6

THE ANALYSIS

There is little historical precedence to show the extent to which carbon pricing measures lead to carbon leakage, and there is no widely agreed-upon understanding of how border carbon adjustments can effectively prevent carbon leakage.

With relatively greener production in rich countries, the competitive disadvantage posed by CBAM transfers the burden of decarbonisation onto developing nations.

An overemphasis on pushing for carbon pricing via CBAM overlooks the significance of non-pricing efforts made by countries to reduce carbon emissions.

The WTO rules were designed to remove trade barriers and establish a system of rules that promote open, fair, and undistorted competition. This seems counterintuitive to the concept of CBAM-like measures.

If climate considerations are to permeate trade agreements, and vice versa, upholding the principles of CBDR or special and differential treatment is crucial. Without this, developing countries may increasingly find their exports curbed on climate grounds.

No historical precedence for carbon leakage

The primary motivation behind implementing CBAM is to counter the effects of anticipated carbon leakage once free allowances for industry are phased out under the EU ETS. It could be argued that so far, the EU has prevented leakage through the distribution of free allowances and not covering a large section of the industrial sector in the pricing mechanism. According to Sanjay Reddy, chair of the Department of Economics at the US-based New School for Social Research, as per the standard economic theory of trade, imposing carbon taxes on domestic producers without an adjustment mechanism would certainly cause a shift of production to places where those taxes can be avoided.[23] An adjustment mechanism, therefore, causes the environmental benefits of the carbon tax to be felt more broadly and may spur foreign producers to undertake carbon abatement measures.

Yet, since the EU ETS is one of the first of its kind, there is little historical precedence to show the extent to which carbon pricing measures lead to carbon leakage, and there is no widely agreed-upon understanding of how border carbon adjustments can effectively prevent carbon leakage.

Carbon leakage occurs when companies shift production outside their regions due to increased production costs triggered by policies, or when domestic firms lose market competitiveness to foreign firms exempt from the same policy burden. The argument regarding carbon leakage due to carbon pricing policy is not straightforward or unequivocal. Establishing a direct causal link between a carbon price and leakage is complex, as it is influenced by various factors beyond policy intervention, like trade patterns and supply chain dynamics.

Carbon pricing may not directly influence decisions to shift production; there are costs associated with relocation, including fixed costs and the opportunity cost of leaving the home region, resulting in a loss of market share and brand presence. Therefore, companies may not base their decisions solely on price indications. Additionally, according to the Porter Hypothesis put forth by Harvard University economist Michael Porter in 1991, pricing instruments may stimulate innovation and productivity, potentially offsetting the costs of carbon payment.[24] On the other hand, carbon pricing may influence new investment decisions — investments shifting abroad — but this would remain harder to distinguish and establish.

Empirical studies searching for evidence of leakage from existing climate policies have had limited success.[25] More specifically for carbon pricing policies, research has mostly found little impact on carbon leakage, especially for the European Union.[26,27]

Numerous computer modelling analyses do predict leakage under a pricing regime, like the EU ETS. However, these studies exhibit significant differences in their estimations of carbon leakage rates, ranging from 2 per cent to as high as 54 per cent.[28,29] A leakage rate of say 50 per cent indicates that half of the emission reductions achieved in the EU might be offset by emissions elsewhere.

The effectiveness of border carbon adjustment to curb carbon leakage has also been the subject of some modelling exercises. A 2012 study on the impact of carbon-based import tariffs on emission-intensive sectors found that such policies could cut leakage by a third.[30] The same study noted the shift in the economic burden on other countries, particularly a deterioration in the terms-of-trade of the exporting country. Terms-of-trade is a ratio of the price index of a country's exports to the price index of the country's imports. It indicates how much a country is earning through its exports relative to its payment for imports.

Transferring the burden to the poor

Who pays for decarbonisation?

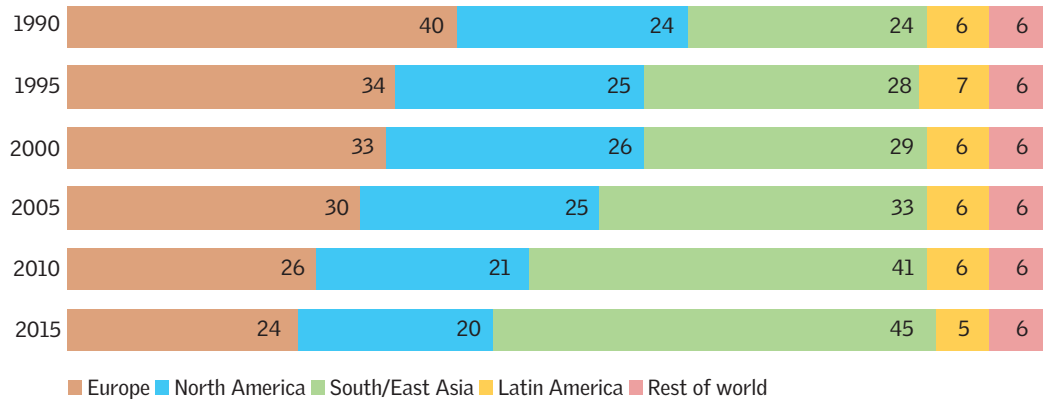
For the levying country, a CBAM may be seen as levelling the playing field for its firms paying the domestic carbon price. However, for exporting countries, it increases costs in the short and medium term, and this is harmful, particularly for developing countries which depend on export revenues.

When viewed in the context of recent trade and industrial history where carbon-intensive production has proliferated in the Global South, much of which still depends on coal as a fuel, there is a clear violation of the principle of common but differentiated responsibilities (CBDR) enshrined in the Paris Agreement and the UNFCCC.

According to UNCTAD: "*in today's interconnected global economy, the organization of global production through global value chains (GVCs) has caused many carbon emitting production activities to be shifted to developing countries, while associated low-carbon pre-production and post-production activities have been retained by the lead firms and mainly based in the developed countries. The comparative energy efficiency in the North therefore cannot be de-linked from the energy inefficiency in the South. This implies that measures such as Cross Border Adjustment Mechanisms (CBAM), which impose carbon tariffs on imports from developing countries into developed countries, cannot be evaluated independently of these structural conditions.*"[31]

Graph 10: Percentage share of global manufacturing by value-added

South and East Asia's share nearly doubled in two and half decades



Source: BCG analysis of UNIDO data

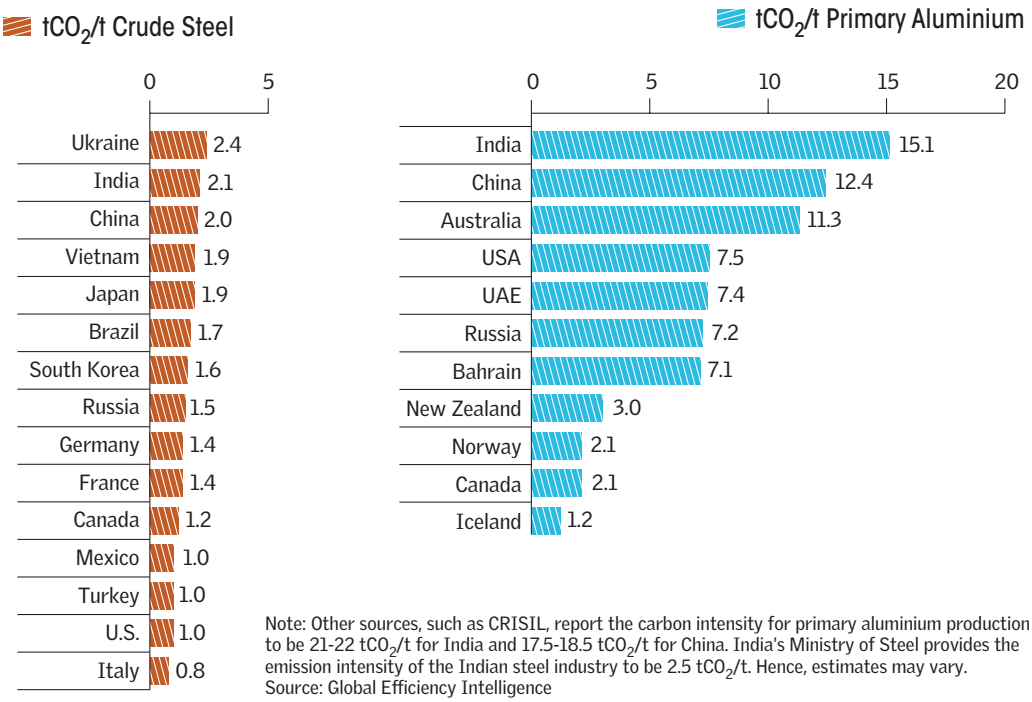
With relatively greener production in rich countries, the competitive disadvantage posed by CBAM transfers the burden of decarbonisation on to developing nations. Consider the example of the production of iron and steel and aluminum (*see Graph 11*). Emissions intensity per tonne of production is generally high in developing countries compared to advanced economies — implementation of CBAM could put developing countries at a competitive disadvantage.

Recognising the principle of differentiated responsibility, the Paris Agreement designates developed country Parties to lead efforts in reducing emissions. Furthermore, it emphasises the need for the developed world to extend financial and technological support to the developing world, aiding them in their mitigation efforts. This core tenet implies that countries are not held to uniform standards of punitive measures or carbon pricing mechanisms, contrary to the idea of the same level of carbon pricing regimes in partner countries that the European Union hopes to encourage through CBAM.

Moreover, decarbonisation in exporting countries' manufacturing sectors requires economy-wide mitigation pathways coupled with adequate and sustained internationally mobilised financing to enable those efforts. A carbon border tax imposed on select sectors — currently equivalent to only 1.64 per cent of India's total exports — amounts to an additional tax burden and trade barrier, and no more. It is unlikely to *incentivise* decarbonisation in jurisdictions outside the EU, especially when developing countries are expected to fund this entirely through their domestic budgets and without explicit stated support from the EU.

Graph 11: Emissions intensity of crude steel production (i) and primary aluminium production (ii)

Emission intensity of both crude steel and primary aluminium is high for India and China, among major producers



Note: Other sources, such as CRISIL, report the carbon intensity for primary aluminium production to be 21-22 tCO_2/t for India and 17.5-18.5 tCO_2/t for China. India's Ministry of Steel provides the emission intensity of the Indian steel industry to be 2.5 tCO_2/t. Hence, estimates may vary.
Source: Global Efficiency Intelligence

Administrative burden

The CBAM may also be seen as a non-tariff barrier if its implementation imposes excessive administrative burdens, discriminates among exporting companies, or disproportionately affects certain industries or countries.

These concerns could arise if CBAM's requirements for measuring and verifying carbon content are overly complex, or if it applies different standards to goods from different countries. At the moment, measuring emissions requires skilled capacity, resources, sophisticated frameworks and benchmarks, putting a significant burden on developing economies.

India's micro, small, and medium enterprises (MSME) sector made up 43.59 per cent of exports from India in the Financial Year 2023 — having declined over the years from 49.77 per cent in 2020 and 45.03 per cent in 2022.[32] With declining export share and additional measurement and reporting requirements, smaller enterprises would suffer setbacks and struggle to keep pace without sufficient assistance and handholding.

The EU has gained considerable expertise in monitoring, reporting, and verification (MRV) practices through its experience with the ETS, which has spanned over a decade and a half. This stands in stark contrast to non-ETS countries, where similar capacities are lacking. Consequently, this presents another challenge for developing nations to align with CBAM.

Limitations of carbon pricing

Equivalence of methodology

According to the European Commission, if a company pays a carbon price in the country where the goods originated, they can claim a reduction in the number of CBAM certificates they need to surrender. However, they can only do this if they have "effectively" paid the carbon price, and any rebate or compensation options provided in that country, which would have lowered the carbon price, will be considered. The CBAM regulations leave it to the Commission to adopt an implementing act to detail out how the price would be considered.

The regulation does define a carbon price, though. It says: "'Carbon price' means 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 greenhouse gas emissions trading system, calculated on greenhouse gases covered by such a measure, and released during the production of goods".

Different countries or regions may have varying methodologies for verifying carbon emissions. Ensuring equivalency across these diverse systems poses a challenge. Essentially, the concern is about how to standardise or reconcile the different methods in different countries. In some countries, different sub-national regions may have their own carbon pricing regimes, adding another layer of complexity.

Overlooking non-carbon pricing policies

Moreover, an overemphasis on pushing for carbon pricing overlooks the significance of non-pricing efforts made by countries to reduce emissions. In CBAM, there is a lack of acknowledgement for these non-pricing initiatives in partner nations, which not only undermines their effectiveness but also disincentivises the adoption of alternative decarbonisation measures beyond carbon pricing. Take, for example, targets for non-fossil power capacity that India has instituted under its NDC, or subsidies to promote electric vehicle adoption for decarbonising the transport sector.

Lack of fairness in carbon pricing

The arguments above bring us to the fundamental question of fairness — carbon prices have been known to be regressive in situations where there is high income inequality and relatively higher carbon intensity in targeted sectors. This can be mitigated to some extent through recycling revenues back to affected entities or communities.[33] In the case of CBAM, developing countries have much lower GDP per capita than the EU and more carbon-intensive manufacturing sectors. Imposing an equal carbon price across all economies can, therefore, be viewed as unfair due to the distributional impacts and the likelihood that the costs of decarbonisation may vary across countries. Given that there is no provision for recycling CBAM revenues back to the exporting countries, the imposition of the tax serves to perpetuate existing inequalities further.

Even with a functional domestic carbon pricing mechanism, the price in developing countries is unlikely to match that of the EU market, since most firms in developing countries cannot compete if subjected to excessively high carbon prices. This also occurs if and when the EU recognises a third country's pricing regime as "effective", as per its rules. Therefore, even with a domestic carbon pricing scheme in place, a country may still bear a substantial tax burden.

Another question to ask is if developing countries must pay a carbon price of approximately €100/tCO_2e for their exports to the EU, what is the justification for companies in developed countries purchasing offsets from developing countries at carbon prices as low as €1/tCO_2e?

CHEAP OFFSETS FOR EU, HIGH CARBON PRICES FOR EXPORTERS

Participating entities in the EU ETS were able to use international carbon credits from the Clean Development Mechanism (CDM) and Joint Implementation (JI) to meet up to 50 per cent of their emission reduction obligations. Between 2008 and 2020, therefore, the limit was set at 1.6 gigatonne of CO_2eq to be compensated for by international carbon credits; 1.058 billion carbon credits were used up during the second phase itself, between 2008 and 2012. The price of CDM credits during the same period hovered around €10 to €15, falling further after that period before eventually collapsing around 2013. The use of offsets was not allowed from the beginning of phase IV.

In sectors not covered under the ETS, voluntary offsetting of emissions is permitted. It was only in 2023 that an EU directive banned claims of carbon neutrality based solely on the purchase of offsets. Thus, for a long time, the system benefitted from cheap carbon offsets bought from other parts of the world, mostly developing countries. Even today, outside the ETS, European companies continue to claim climate benefits with the purchase of voluntary carbon credits for as cheap as €1 from the developing world.

It is important to challenge the imposition of a high carbon price on exports from developing countries while simultaneously allowing developed countries to offset their emissions at much lower prices through purchasing carbon credits from (often) the same developing countries. It highlights a potential inconsistency in the global approach to carbon pricing and emission reduction efforts.

International trade order and CBAM

Trade rules

The inclusion of CBAM within the EU regulatory framework has sparked debates regarding its conformity with the existing rule-based international trade order. The World Trade Organization (WTO) rules, for instance, were framed to remove trade barriers: "a system of rules to allow open, fair and undistorted competition"[34]. Even though the EU asserts its commitment to implementing a CBAM that aligns with WTO principles, disputes are expected.

Examining the legality of CBAM within the WTO regime necessitates an analysis of several pertinent agreements, notably the Technical Barriers to Trade (TBT) Agreement and the General Agreement on Tariffs and Trade (GATT). A legal assessment of CBAM conducted for the European Parliament's Committee on International Trade outlines the following aspects.[35]

Under the TBT Agreement, which aims to harmonise technical regulations worldwide, CBAM must ensure that its implementation does not create undue hindrances to international trade by technical regulations, standards and conformity assessment procedures.

Within the framework of the GATT, CBAM may be examined under several key principles. Tariff bindings dictate that the EU must establish a maximum import duty rate per product. This prevents a tariff from exceeding the maximum import duty or tariff fixed for a product. However, the same GATT rules also permit adjustments tax on imports akin to internal taxes, provided they correspond to domestic taxes. GATT also prohibits quantitative import restrictions; thus, if CBAM were construed as a border restriction limiting imports rather than an import tariff or internal tax, it could potentially violate this provision.

National Treatment mandates that there should be no discrimination against imported goods compared to domestic products of like nature. If the border tax is construed as an indirect tax on both domestic products and imported products, and not as a tariff on imported products, it must ensure that it does not afford 'protection to domestic production'.

The Most Favored Nation (MFN) principle requires equal treatment for all WTO members, necessitating non-discrimination between similar products imported from different countries. The production process is immaterial here. For example, aluminum product from China cannot be treated differently from aluminium imports from the US. Thus, CBAM could likely be violative of the MFN principle.

If CBAM is found to violate any of these principles, it can still be considered for exceptions under GATT rules on health and environment, where such measures could be considered exceptions if they are "necessary to protect human, animal, or plant life or health".

Regarding exemptions for developing countries, WTO law allows for special and differential treatment (SDT) to accommodate differing economic capacities. CBAM exemptions for these countries must navigate legal intricacies, including consideration of the Enabling Clause, which permits developed nations to offer preferential trade benefits to developing countries without contravening the MFN principle.

India, China, South Africa and several other countries have questioned the compatibility of CBAM with WTO rules and are continuing to raise concerns with the trade body.

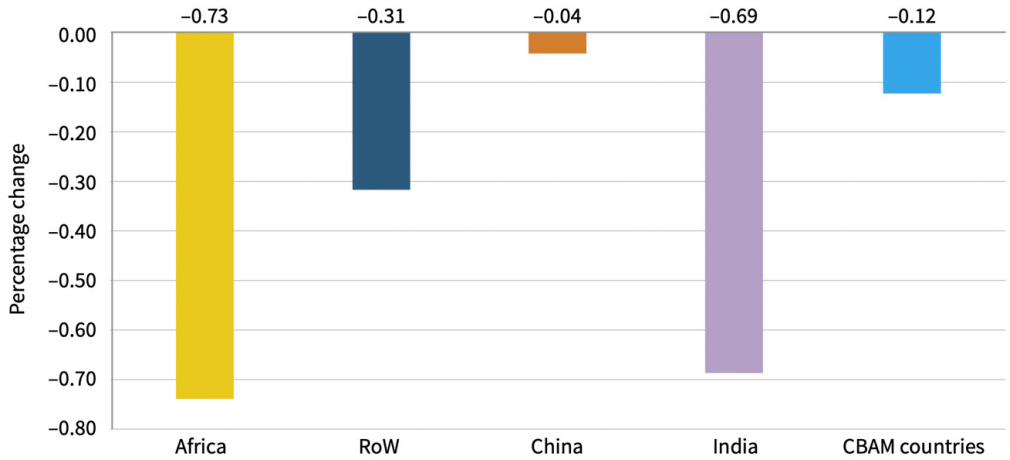
Expansion of CBAM and a retaliatory trade war

Currently, CBAM has been rolled out and institutionalised only by the EU; it is limited to a few sectors — therefore, its impact is limited in the near term. However, an implementation of CBAM by other countries and its expansion to economy-wide trade will exponentially increase its adverse impacts on exporting countries, and potentially lead to a trade war. Both outcomes are not in the best interests of multilateralism and international cooperation, which are the needs of the hour.

Following the EU's lead, the UK has unveiled its own Carbon Border Adjustment Mechanism (CBAM), scheduled to take effect in 2027. Meanwhile, the US is contemplating a suite of new regulations, including the PROVE IT Act, Foreign Pollution Act, Clean Competition Action, and the Market Choice Act. These regulations aim to scrutinise the carbon intensity of production, impose fees on emission-intensive imported goods, levy carbon intensity charges on both domestic and imported products and impose taxes on fossil fuel combustion and imports, respectively. Other countries have also been mulling border taxes and retaliatory measures to counter the EU's CBAM.

Graph 12: Computable general equilibrium modelling (CGE) analysis of GDP decline under joint CBAM implementation and assumed carbon price of €40

It predicts a decline in African and Indian economies by 0.73 per cent and 0.69 per cent, respectively



Source: African Climate Foundation and LSE

The African Climate Foundation models a scenario of joint implementation of CBAM by a set of countries, namely the EU, US, UK, Canada, and Japan, with a carbon price assumption of €40. It predicts a decline in the African and Indian economies by 0.73 per cent and 0.69 per cent, respectively, with a corresponding fall in CO_2e emissions of 0.39 per cent and 0.34 per cent, respectively.

Trade and climate linkage

An overarching consideration that includes but is not limited to CBAM as a policy tool, is the convergence of the trade and climate agenda, and whether trade is a domain through which countries must enforce greater climate ambition.

Historically, developed countries have sought to merge trade and environmental considerations, arguing that "the multilateral trading system and the environmental regime are mutually supportive".[36] Critics have argued that this approach seeks legal grounds to impose trade restrictions on developing countries on the grounds of environmental concerns. Thus, even if the restrictions do not significantly address environmental problems — or carbon emissions in the case of CBAM — developing countries would find it difficult to legally challenge them, and their exports will also suffer.

Developing countries distrust the developed countries' endeavor to link environment and trade, their fear being that trade/environment linkages are sought for purely

protectionist reasons.[37] To that extent, UN Convention on Climate Change has specified that "*measures taken to combat climate change, including unilateral ones, should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade*".

In 1998, Anil Agarwal of CSE had argued against the use of trade sanctions on environmental grounds, stating that "*only economically powerful nations can impose effective trade sanctions against less economically powerful nations. This tool for bringing environmentally errant nations to task cannot be used by less economically powerful nations against the global economic powers, howsoever bad their environmental track record might be. There can be no doubt that there is today a need for a system of global environmental governance, but this system must be built on rules, regulations, tools and modalities that are fair, just and equally accessible to all*".[38]

Yet in an increasingly climate-risked world, the lines are getting blurred, especially considering that carbon emissions produced locally have a *global* warming impact and do not restrain themselves within territorial borders.

While the EU is implementing CBAM, the US is constituting a new Climate and Trade Task Force to address "carbon leakage, carbon dumping, and embodied carbon in general".[39] The US signals intent to work with trade partners to develop standard methods to measure emissions, lower costs of clean technologies, and help developing countries secure capital needed to decarbonise industry.

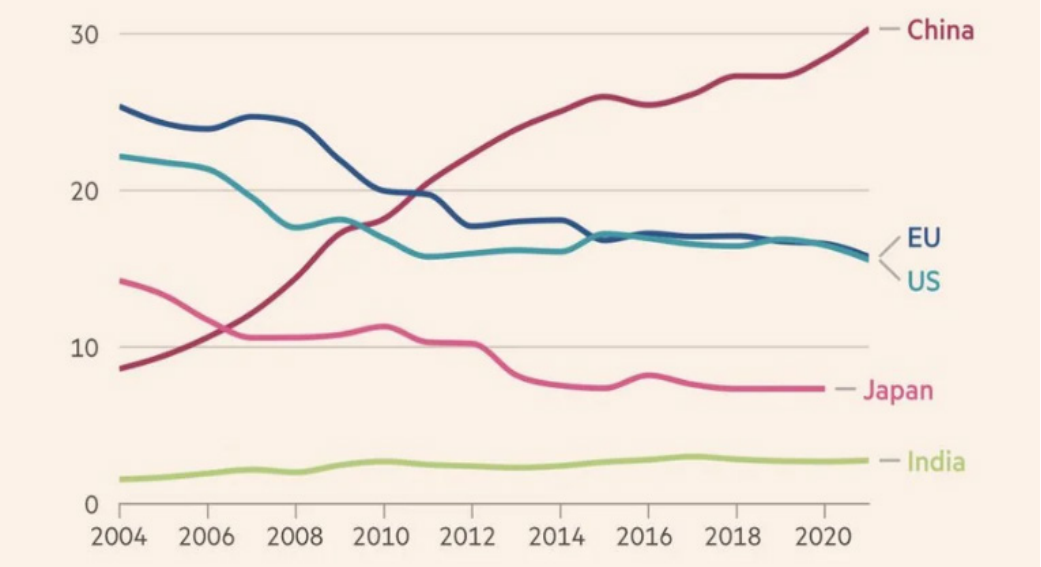
Carbon is not the only consideration here, and thus the US's statement does not come without caveats: the provisions will be extended to "like-minded" countries, a continuation of the strategy of "friendshoring" to counter China's dominance of manufacturing as well as the new green supply chains (*see Graph 13 and 14*).

In this war for economic supremacy between the G2 — the US and China — and the EU's role as a frontrunner in climate policy and a marketplace for goods, developing countries must determine their role.

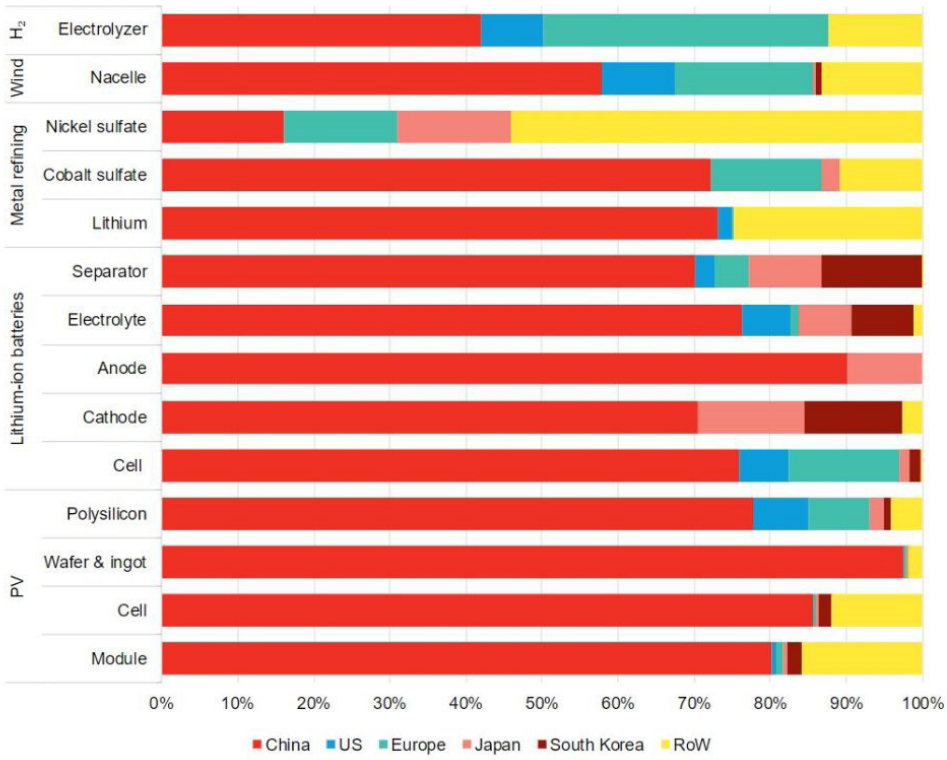
If climate considerations are to permeate trade agreements, and vice versa, upholding the principles of common but differentiated responsibilities (CBDR) and special and differential treatment (SDT) is crucial. Without this, developing countries may increasingly find their exports curbed on climate grounds, and simultaneously become buyers of green technologies produced in the Global North.

Graphs 13 and 14: Share of global manufacturing value added (%) and Clean energy manufacturing capacity by location

China dominates global manufacturing and supply of green goods



Source: Financial Times, World Bank



Source: BloombergNEF

Additionally, the CBAM aims to prevent carbon leakage by imposing tariffs on imports from countries with less stringent carbon pricing. However, this can negatively affect developing countries by imposing economic burdens and intensifying technological disparities, thus falling under the UNFCCC's mandate to consider the economic and social consequences of climate response measures on all Parties, especially the developing countries, under what is called the 'impact of the implementation of response measures' in the UNFCCC process.

The UNFCCC defines the impact of the implementation of response measures as "the effects arising from the implementation of mitigation policies, programmes, and actions, 'in-jurisdiction' and 'out-of-jurisdiction' or cross-border impacts, taken by Parties under the Convention, the Kyoto Protocol, and the Paris Agreement to combat climate change."

Article 4.8 of the UNFCCC further states, "In the implementation of the commitments in this Article, the Parties shall give full consideration to what actions are necessary under the Convention, including actions related to funding, insurance, and the transfer of technology, to meet the specific needs and concerns of developing country Parties arising from the adverse effects of climate change and/or the impact of the implementation of response measures."

In fact, at Doha in 2012, some developing countries had advocated for including the following in the outcome document: "Decides that developed country Parties shall not resort to any form of unilateral measures against goods and services from developing country Parties on any grounds related to climate change, including protection and stabilization of the climate, emissions leakage, and/or the cost of environmental compliance." But this was opposed by developed countries and did not become apart of the outcome.

7

THE WAY FORWARD

CBAM is expected to generate about €1.5 billion in revenues per year. The EU should set aside this revenue to aid the decarbonisation of manufacturing in developing countries.

Developing countries may consider a domestically collected carbon tax at the point of exports rather than having to pay the tax to EU.

Industries in emerging economies could diversify production processes and direct exports to suit the demands of different markets.

Countries that have not contributed historically to the climate crisis may also consider imposing a 'historical polluter fee' on trade partners to fund their decarbonization.

To demand the recycling of CBAM revenues or sector-specific climate finance, it is essential that developing countries also have sectoral mitigation plans in place.

The EU's CBAM is one among several policy tools that have been initiated in this decade, that appear to further the cause of climate protection but carry with them telltale signs of trade protectionism and economic nationalism. Many of these policies have been driven by developed nations in response to the perceived threats of de-industrialisation, and carbon leakage due to relatively stricter domestic climate policies in their jurisdictions as compared with some developing countries.

As a result, many of the principles of the regime of free and open trade that have been held as gospel for the past three decades by the same developed nations, are being tested or outrightly rejected by these policies.

The free trade regime in itself, "has not led to decreasing poverty or inequality; in fact, it has led to market concentration, vast inequalities, instabilities in the global economy, and challenges in 'just in time' supply chains as we have seen during the pandemic"[40]. Facilitating a shift towards a more globally just trade regime is crucial, but that may be a decades-long process. In the interim, the impacts of the above policies must be minimised so that the developmental process in the Global South is not hindered.

In parallel, a cooperative, justice-oriented approach to decarbonisation needs to be envisioned alongside these short- and long-term discussions on trade. This is to ensure that countries of the Global South can meet their developmental goals through low-carbon, climate-resilient pathways.

Recommendations for EU's CBAM

Set up a decarbonisation fund for developing countries

The EU's own estimates suggest that the CBAM is expected to generate about €1.5 billion in revenues per year.[41] The EU should set aside this revenue to aid decarbonisation of manufacturing in developing countries as a necessary step. Shifting to low-carbon processes demands substantial financial resources and technological advancements, resources that many developing countries currently lack. Pinning hopes solely on internal carbon pricing mechanisms within developing nations to drive their decarbonisation overlooks their limited structural capacity for such transitions, and also places the burden of financing the transition squarely on them.

The EU is responsible for 22 per cent of historical CO_2 emissions[42]; expecting developing countries to achieve decarbonisation without robust support is both

unrealistic and unjust. For this, the EU can set up a fund similar to its Modernisation Fund that is financed with the ETS revenue and is spent on clean energy in 13 lower-income EU Member States.

Channelise additional climate finance

Additionally, the EU must be pressed to commit to increased flows of climate finance towards developing countries. This is not just a matter of fairness, but a pragmatic recognition of the challenges these nations face in achieving decarbonisation. The EU as a bloc is already collectively one of the largest contributors to climate finance, but the imposition of unilateral tax pressures like CBAM require additional, targeted, sector-specific financing towards the carbon-intensive manufacturing sectors in exporting developing countries.

Exempt least developed countries from tax burden

The EU must commit to exempting the most vulnerable countries from bearing any CBAM liability for such a period of time as it takes to decarbonize their manufacturing sectors, boost green industrialization, and improve quality of life for their citizens. This should apply to least developed countries (LDCs) and small island developing states (SIDS) exporting to the EU.

Recommendations for developing countries

Developing countries must be proactive and must adapt to a changing trade regime in the era of climate change. The following measures can be considered.

Collecting a carbon tax domestically to avoid being taxed in Europe

The country, say India, may consider a domestically collected carbon tax at the point of exports. Rather than subjecting industries to the tax imposed by the EU, it could institute a domestic carbon tax specifically targeting exports of CBAM products destined for the EU market or any country imposing a carbon border tax.

This would meet the CBAM's criterion of a domestic carbon pricing mechanism being present in the exporting country. Under this framework, revenues generated from the domestic carbon tax could be channeled into a government-managed decarbonisation fund. This fund could serve the purpose of retaining tax revenues within India and supporting the decarbonisation efforts of Indian industries.

One key feature of this approach is the provision of rebates to industries based on their export activities from the decarbonisation fund. Industries can apply to access full or viability gap funding from the fund for specific decarbonisation projects.

Implementing a domestically collected carbon tax allows India to assert greater control over its mitigation pathways and to achieve decarbonisation where it is best possible, rather than relying on external regulatory measures imposed by trading partners. This way, the country can address carbon emissions within its borders.

Differentiated production processes and trade partners

From a production and trade perspective, industries in emerging economies could diversify production processes and direct exports to suit the demands of different markets, as a short to medium term measure. Allocating green production processes to goods destined for regions imposing a CBAM could be an interim step while the country's manufacturing sector gradually decarbonises.

This would mean reserving less carbon-intensive production for markets that prioritise environmental considerations over price. Industries can thus achieve multiple objectives: engineering industrial outputs to minimise the costs of CBAM-like measures and buying time to decarbonise overall at a fairer pace.

Consider the example of a steel manufacturing company which produces steel using the two main processes: the Direct Reduced Iron (DRI) process, known for its lower carbon emissions, and the more traditional Blast Furnace (BF) process, which generates higher carbon emissions. For exports destined for the EU market, where stringent carbon regulations are in place, the industry could allocate its DRI process for steel production. On the other hand, for markets where price considerations outweigh environmental concerns, the industry could continue to utilise its Blast Furnace process in the short to medium term.

This strategy recognises the fact that not all markets prioritise environmental considerations equally and allows industries to maintain their market share in regions where cost is the primary driver of purchasing decisions.

In practice, these dual supply chains may be a challenge to implement at scale, but they can be considered where feasible.

Developing countries must have sectoral mitigation plans

To demand recycling of CBAM revenues or sector-specific climate finance, it is essential that developing countries also have sectoral mitigation plans in place. These plans should outline specific measures and targets for emissions reductions within key emitting sectors of their economies. This is essential to align their

domestic strategies with their unique needs and avoid the impact of top-down prescriptions from the international community which may fund solutions not appropriate for them. By aligning climate finance with these sectoral mitigation plans, the EU could be assured that its support is targeted and impactful, maximising the effectiveness of its financing for decarbonisation efforts.

Collecting a historical polluter tax

Countries that have not contributed historically to the climate crisis may also consider imposing a 'historical polluter fee' on trade partners to fund their own decarbonisation. This could be imposed on a trade partner if they are responsible for a certain share of cumulative historical CO_2 emissions since the pre-industrial period. A carbon border tax being imposed by the trade partner may also be a consideration.

Other considerations could be as follows: the tax could be imposed on select products as determined by the country, to generate funds to decarbonise the sector. The level of the tax could be ascertained based on the historical emissions of the trade partner. One way to do this is to impose the same percentage tax on the value of imports as is the share of historical emissions — in the case of the EU, this would be 22 per cent levied on the value of imports.

WHY SHOULD THE CBAM BE MET WITH A HISTORICAL POLLUTER TAX?

As established in the last chapter, historical trends have shown that carbon-intensive production has shifted from developed to developing countries. This historical relocation of industries has led to disparities in emissions intensity between countries. Differences in emissions intensity of production today also have links to the question of historical emissions — the Global North utilised fossil fuels like coal in the early stages of the Industrial Revolution, which enabled it to amass wealth and grow its economies. The former colonies of the Global South are hoping to do the same today — particularly through the growth of their manufacturing sector — and with the use of affordable energy, which in many cases is coal. Consequently, the emissions intensity of current production processes is intricately linked to past emissions trajectories.

The imposition of a CBAM inherently neglects this historical trend and penalises the Global South. It is, therefore, not a retaliation, but a course correction that the South should be allowed to impose a cost on the North for years of cheap polluting energy use, offshoring, and the use of cheap offsets. By implementing a tax that accounts for historical emissions, nations can address the imbalance in responsibility, and inherent unfairness in CBAM.

7

ANNEXURE

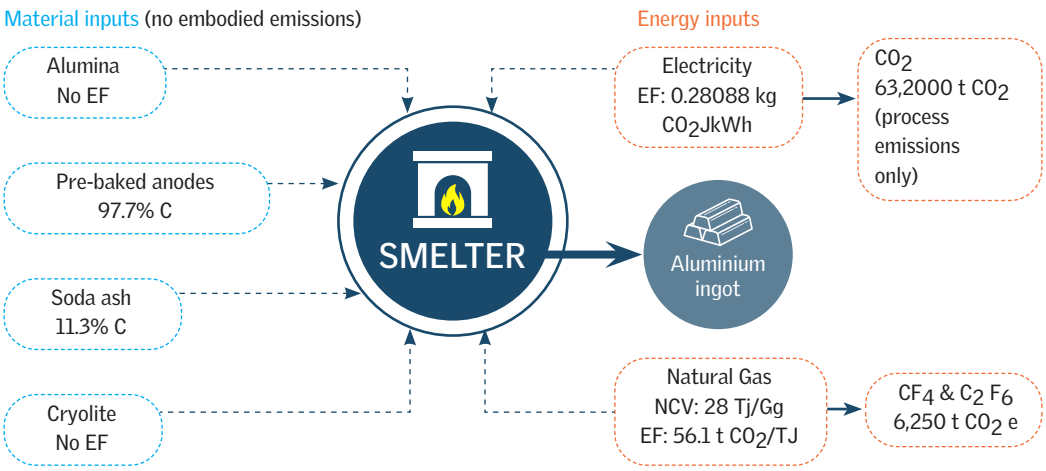
Snapshot of emission calculations for CBAM post-2024

Example of emission calculation for the making of a steel slab

Consumption	Activity data (tonne)	Emissions factor	Emissions (tCO_2)	Assumptions
Steel scrap (market)	15,00,000		0	There are no embodied emissions for scrap
FeMn (31% Mn)	3,00,000	1.5	4,50,000	Get the emissions factor from supplier
FeNi (28% Ni)	3,00,000	3.4	10,20,000	Get the emissions factor from supplier
Graphite electrodes	5,000	3	15,000	Direct emissions from carbon in the product
Lime	1,00,000	0.5	50,000	Lime EF from database
Crude steel (purchased)	80,000	1.8	1,44,000	Get the emissions factor from supplier
Total direct emissions of Installation	22,85,000		16,79,000	
Total electricity consumption (MWh)	20,00,000	0.833	16,66,000	Choice of standard values or local grid emission factors
FeMn (31% Mn)	3,00,000	2	6,00,000	Direct emissions from carbon in the product
FeNi (28% Ni)	3,00,000	3	9,00,000	Get the emissions factor from supplier
Total indirect emissions of Installation			26,00,000 31,66,000	
Total crude steel slab produced	2,234,000		16,79,000 + 31,66,000	EF = .75 | 1.42

Source: Carbon Chain

Example of calculation for making aluminium ingot



Source: Carbon Chain

Consumption Emissions

Input	Activity Data	Unit	Net Calorific Value	Unit	Emission Factor	Unit	t CO_2e	tCO_2/t aluminium
Alumina	98800	t			0			
Pre-baked Anodes	17250	t			0			
Soda Ash	300	t			0			
Cryolite	430	t			0			
Natural Gas	580	t	48	TJ/Gg	56.1	tCO_2/TJ	1561.82	0.03

Process Emissions

Input	Activity Data	Unit	Net Calorific Value	Unit	Emission Factor	Unit	CO_2e	tCO_2/t aluminium
CO_2 from anodes and soda ash use							63,200	1.22
PFCs from anode effects							6250	0.12

Indirect Emissions

Input	Activity Data	Unit	Net Calorific Value	Unit	Emission Factor	Unit	CO_2e	tCO_2/t aluminium
Electricity	70000	MWh			0.28088	$kgCO_2$/kWh	19661.6	0.38

Fuel related emissions from EU default values

Electricity — Public data set from producer country

For process CO_2 emissions — using a mass balance approach

For PFCs — methodology described by EU

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The European Union's introduction of the Carbon Border Adjustment Mechanism (CBAM) marks a bold new experiment in global trade and climate policy. By taxing imports like iron, steel, cement, and aluminium based on their greenhouse gas (GHG) emission intensities, the EU aims to level the playing field for its firms operating under the Emissions Trading System (ETS).

However, the impact of CBAM is likely to be disproportionately felt by developing countries, potentially hindering their economic growth in key sectors and access to global markets. At the 28th Conference of Parties in 2023, developing countries had raised concerns about the negative impacts of unilateral trade measures like CBAM on their economies. Does the CBAM truly spur global decarbonisation, or does it perpetuate existing inequalities and trade tensions?

This new report by CSE — the first in a research series titled 'Trade and Climate: The Global South's response to a changing trade regime in the era of climate change' — explores answers to this question.

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