

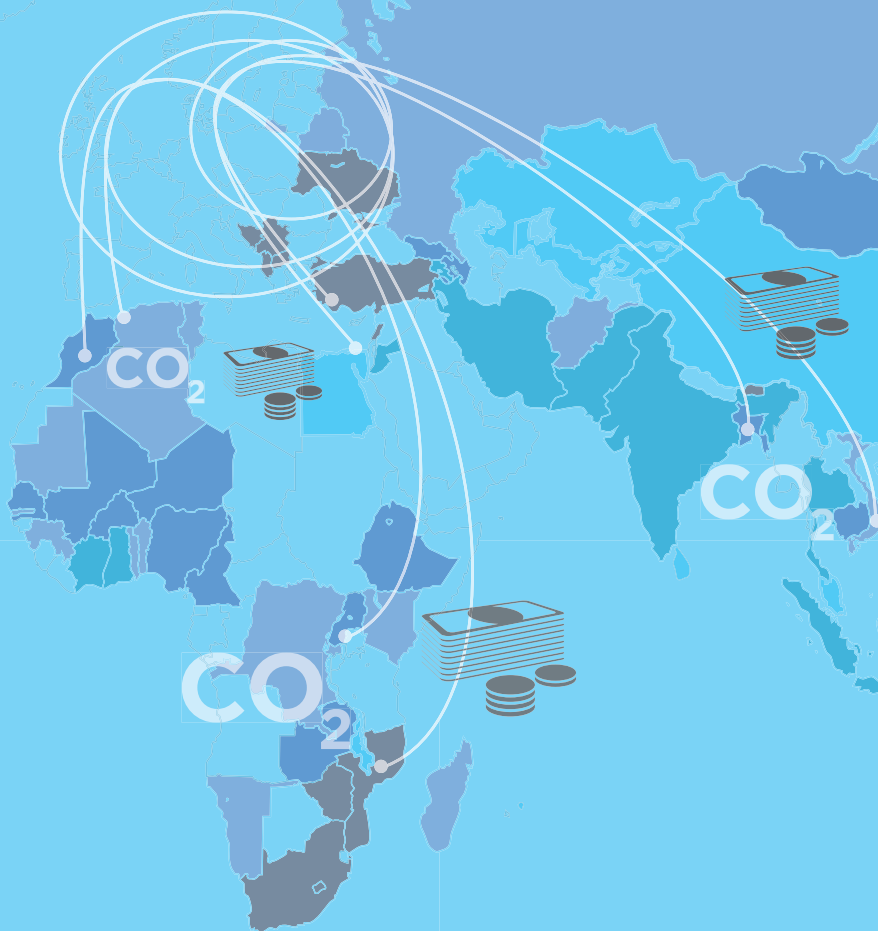
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# IASS POLICY BRIEF 6/2020

Institute for Advanced Sustainability Studies (IASS)

Potsdam, November 2020

## The Global Impacts of an EU Carbon Border Adjustment Mechanism



*This policy brief was written by the IASS researchers Silvia Weko, Laima Eicke, Adela Marian and Maria Apergi. Special thanks to Andreas Goldthau, Joschka Jahn, Rainer Quitzow, Grace Mbungu, and Anselm Eicke for their valuable support and feedback.*

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An EU Border Carbon Adjustment Mechanism (CBAM) may bring severe economic consequences to countries without the resources to adapt to a low-carbon paradigm. The EU should therefore consider possible policy risks and involve third-country stakeholders in CBAM policy design; use CBAM revenues to fund decarbonisation in at-risk countries; and build emissions reporting requirements around existing international obligations.

# Designing a CBAM that works for developing countries

With the European Green Deal, “Europe will move forward – alone or with partners that want to join,” says EU Commission President von der Leyen. Her key example for the EU becoming a “global advocate for fairness” is the proposed Carbon Border Adjustment Mechanism (CBAM). This CBAM would counteract carbon leakage – that is, the relocation of business activities to countries with less ambitious climate policies. This could be done, for instance, by imposing levies on goods entering the EU based on their carbon content. The EU’s goal is to push producers outside Europe to reduce their carbon emissions with a policy that is compatible with World Trade Organization (WTO) rules.

If the CBAM is to become a globally successful tool for reducing emissions, its implications for countries in the Global South must be taken into consideration. Under a CBAM, countries with high shares of carbon-intensive exports to the EU would be exposed to additional costs, which might lead to declining export shares and deteriorating terms of trade. Their vulnerability to such changes determines these countries’ ability to adapt to this risk. Some countries will need technological or financial support to decarbonise their economy. An additional challenge is the administrative capacity for sector-specific carbon accounting in order to prove a low carbon content of exports. If carbon content cannot be tracked, even relatively low-carbon producers could see economic consequences from an EU CBAM.

It is important for the EU to understand the impacts a CBAM could have on developing countries in particular, as a policy that shifts the burden to them violates the spirit of international climate cooperation. This policy brief argues that the EU Commission under the German Presidency needs to carefully craft the CBAM to avoid an uneven transition. The two key things policymakers should consider here are the possibility of using CBAM revenues to mitigate these risks and the complexity of emissions monitoring.

## ■ Recommendation 1: Consider at-risk countries in CBAM policy design

A CBAM may give rise to severe, unintended economic risks due to additional costs for exporters and deteriorating terms of trade. Many countries in the Global South, and on the African continent in particular, are exposed to relatively high risks. In order to avoid new global dividing lines between countries with a low- and high-carbon export structure, the EU should carefully assess risk levels and involve stakeholders in its CBAM policy design.

## ■ Recommendation 2: Use CBAM revenue to mitigate risks for vulnerable developing countries

Decarbonisation requires high infrastructure investments, and many of the countries facing relatively high risks from a CBAM are also those most in need of financial and technical support to meet their Nationally Determined Contributions (NDCs) to the Paris Agreement. If a CBAM is to encourage climate action, the EU will need to provide adequate resources to support high-risk countries.

## ■ Recommendation 3: Build emissions reporting around existing international obligations

A CBAM requires the reporting and verification of carbon emissions, a task that is already challenging for many countries. Additional administrative burdens can be minimised by building on existing international emissions reporting obligations. Taking the varying institutional capabilities of different countries into account and supporting capacity building in this area could also increase policy acceptance and compliance.

# Context and current situation

A zero-carbon economy by 2050, the ambition set out in the European Green Deal, will mean massive structural changes for all sectors, including those that were previously given free allowances under the EU Emissions Trading System (ETS). Higher EU ambition may increase the costs of production in Europe for energy-intensive goods, resulting in ‘carbon leakage’, the movement of production to less ambitious regions. In order to address this issue, the EU is discussing the introduction of a ‘Carbon Border Adjustment Mechanism’ or CBAM.

## Cornerstones of CBAM policy

With the Commission due to present its plan in 2021, the design of the policy is currently up for debate. Neither the sectoral scope nor the evaluation of carbon content has been announced yet. Based on the Inception Impact Assessment (March 2020), we can nevertheless expect that a CBAM will at least apply to imports from energy-intensive, trade-exposed (EITE) sectors. Indeed, observers have recommended focusing on EITE sectors, where the most carbon leakage occurs (Mehling et al. 2019). In addition, producers will need to certify carbon content to some extent. This might involve proving that a product’s carbon content is lower than an EU benchmark value or defining the product’s carbon content (European Commission 2020, p. 2).

An EU CBAM presents significant challenges, including WTO compatibility and the risk that powerful trading partners might resort to retaliatory trade measures with negative consequences for the EU economy. However, a key blind spot in the policy debate is the impacts this mechanism could have on vulnerable developing countries. Here, ‘developing countries’ refers to low-income and lower-middle income countries rather than major emerging economies. While such countries (e.g. China, India, or Brazil) will also be impacted by an EU CBAM, they have greater economic clout to negotiate with the EU and more resources to adapt. Looking beyond emerging economies at developing countries is important to avoid unintended negative side effects such as adverse economic impacts and potential ripple effects on global climate cooperation.

Two factors determine whether countries are at risk from an EU CBAM: exposure and vulnerability. Exposure describes how important trade with the EU is for the national economy. Vulnerability constitutes an inability to adapt to an EU CBAM by changing export structures, decarbonising, or certifying the carbon content of products.

To assess the relative risk faced by different countries, we propose an indicator that combines exposure and vulnerability and gives equal weight to each. The annex (p. 12) provides more details on the method used to create the indicator, including data sources and summary statistics. In what follows, this relative risk indicator is measured in a country comparison based on a scenario where the CBAM is applied to imports from the three EITE sectors aluminium, steel and cement.

Total Relative Risk = Exposure + Vulnerability	
Exposure	
<i>Importance of trade with the EU for economy</i>	<i>Percentage of GDP from trade in EITE goods with the EU</i>
Vulnerability	
<i>Export diversity</i>	<i>EITE goods as a proportion of total exports</i>
<i>Current emissions</i>	<i>Carbon intensity of final energy consumption</i>
<i>Plans to decarbonise</i>	<i>Existence of an NDC with emissions reduction targets</i>
<i>Capacities for emissions monitoring, reporting, and verification (MRV)</i>	<i>National statistical capacities</i>

## Comparing relative risk

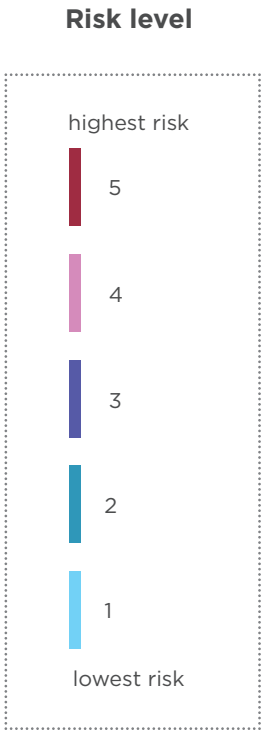
The indicator shows that the emerging economies of Brazil, China and India have a lower relative risk compared to other countries, particularly a number of countries in Africa. For example, China and Morocco owe similar shares of their GDP to EITE exports to the EU, but Morocco is ranked as relatively higher risk than China due to its lower statistical capacity and higher carbon intensity. Different levels of relative risk are illustrated by a more in-depth look at the exposure and vulnerability of Vietnam, Mozambique, Bosnia and Herzegovina, and Morocco. The country cases, displayed in boxes on the map, show that countries with similar levels of relative risk may have different vulnerabilities.

Mozambique and Bosnia and Herzegovina both carry relatively high risks in this scenario, even though they differ in terms of vulnerability. EITE exports represent a large share of both countries' overall exports. Mozambique's vulnerability to a CBAM stems from the challenges posed by measuring and verifying the carbon content of goods. Bosnia and Herzegovina has the necessary capacities to track carbon, but under a CBAM its exports would no longer be able to compete with EU goods due to the country's high emissions and current path towards carbon lock-in. Vietnam has a lower relative risk, since it is not a major exporter of EITE goods to the EU, but its carbon intensity and future emissions trajectory mean that it could still experience a drop in trade and GDP. Morocco is an example of a low-risk country, provided the CBAM is limited to EITE goods, which are not important for its GDP or trade more generally. However, the country's very high carbon intensity would become problematic if an EU CBAM extends to other sectors, as overall trade with the EU is very important for the Moroccan economy.



## Mapping EU CBAM Risk

The risk indicator shows a country’s risk level relative to others. Risk is conceptualised as a country’s exposure (how important trade is for the economy) and vulnerability (inability to adapt). In order to facilitate interpretation, the global map depicts countries’ relative position in quintiles of the risk indicator.



<b>Morocco: Medium to low relative risk</b> <i>Trade in EITE goods with the EU is not very important for the economy, nor are EITE goods a key export in general. However, any CBAM beyond EITE goods would put the country at very high risk because of its carbon intensity, lack of MRV capacities, and very high share of GDP from other exports to the EU (16%).</i>	
<b>Low Exposure</b>	<i>EITE exports to the EU are around 0.2% of GDP</i>
<b>Medium Low Vulnerability</b>	
<i>High export diversity</i>	<i>EITE sector accounts for around 1.7% of total exports</i>
<i>High current emissions</i>	<i>Carbon intensity is above the EU average (21 gCO<sub>2</sub>/MJ)</i>
<i>Some plans to decarbonise</i>	<i>NDC sees emissions rising in the future, but plans to improve energy efficiency and shares of renewable energy by 2030</i>
<i>Medium MRV capacity</i>	<i>MRV systems are being developed with international assistance (only relevant if the country decarbonises)</i>

### Bosnia and Herzegovina: High relative risk

Trade in EITE goods with the EU is very important for the economy; EITE goods account for almost half of all national exports. Diversification of exports is therefore not feasible in the short to medium term. The country has the MRV capacities to report sector-specific emissions, but given its high carbon intensity and lack of plans to decarbonise, the relative CBAM risk remains high.

High Exposure	EITE exports to the EU are around 5.2% of GDP
High Vulnerability	
Very low export diversity	EITE sector accounts for 44% of exports
High current emissions	Carbon intensity is above the EU average (23 gCO <sub>2</sub> /MJ)
Insufficient plans to decarbonise	Plans to hit peak emissions in 2030; large lignite reserves make rapid decarbonisation unlikely
High MRV capacity	High statistical capacity, UN reports include sector-specific emissions and the country receives MRV support

### Vietnam: Medium relative risk

Trade in EITE goods is important for the economy but is likely to fall sharply in the event of a CBAM given the country's emissions-intensive energy system, which is not on track to decarbonise soon. Even if certain goods have a lower carbon content and would not necessarily be subject to a CBAM, the capacities to track this are not yet in place.

Medium Exposure	EITE exports to the EU are around 0.6% of GDP
Medium Vulnerability	
High export diversity	EITE sector accounts for just over 5% of exports
High current emissions	Carbon intensity is above the EU average (16 gCO <sub>2</sub> /MJ)
Insufficient plans to decarbonise	No emissions reduction targets in NDC; plans to increase share of renewable energy to 6% by 2030
Medium MRV capacity	Above-average statistical capacity, no sector-specific reporting to the UN although preparing to do so

Bosnia and Herzegovina

Morocco

Vietnam

Mozambique

### Mozambique: High relative risk

Trade in EITE goods with the EU is very important for the economy, but Mozambique may not be able to lower risk by diversifying its exports. While carbon intensity is currently lower than in the EU, a lack of MRV capacities would make certifying a lower carbon content (and hence avoiding the CBAM) difficult in the short term.

High Exposure	EITE exports to the EU are around 8.5% of GDP
High Vulnerability	
Low export diversity	EITE sector accounts for 26% of exports
Low current emissions	Carbon intensity lower than that of the EU (7 gCO <sub>2</sub> /MJ) but may increase as demand grows, since 70% of the population lacks energy access
Insufficient plans to decarbonise	Emissions are projected to increase in NDC
Low MRV capacity	Low statistical capacity, has missed UN reporting deadlines and indicated need for capacity building



# Consider at-risk countries in CBAM policy design

If the EU aims to advance global climate action, it must ensure that its CBAM really does incentivise decarbonisation without inducing economic hardship in those countries where exports to Europe are important, but adaptive capacities are limited. When deciding on the policy design, the EU needs to take account of the risks facing especially vulnerable developing countries and involve stakeholders from at-risk countries in CBAM policy discussions.

To date, policy debates have mainly considered how a CBAM could be made WTO-compatible and whether there are risks of trade retaliation. Discussions with stakeholders from non-EU countries about CBAM risks have tended to concentrate on large industrialised countries (see, for example, Marcu et al. 2020). However, this focus on emerging economies fails to recognise that low-income and lower-middle income countries may be similarly exposed, and more vulnerable. The fact that many of these at-risk countries are on the African continent also raises questions about climate and energy justice that the EU cannot afford to overlook.

Moreover, rather than incentivising decarbonisation in these countries, a CBAM may actually limit their trade options. This is because many vulnerable developing countries have indicated in their NDCs that they do not have the financial and technical resources necessary to decarbonise (see Pauw et al. 2020). Given this lack of resources, the possibilities of reacting to a CBAM by decarbonising are too limited to avoid losing significant shares of their GDP. Future multi-lateral cooperation on both trade and climate issues could be adversely affected if a CBAM is perceived as a protectionist measure that violates the principle of common but differentiated responsibility.

## **Listening to at-risk stakeholders**

Involving stakeholders from vulnerable developing countries in CBAM design ensures that the concerns of these actors are heard. A step in the CBAM consultation process where comments are invited from these stakeholders could help to head off conflicts that might arise in other arenas like the WTO or UNFCCC (United Nations Framework Convention on Climate Change). The upcoming COP is an opportunity for the EU to signal its intent and gather general feedback. A targeted event with at-risk countries would also be necessary to discuss specific vulnerabilities and needs and how these could be addressed without watering down the ambition to prevent carbon leakage.

A positive knock-on effect of these discussions is that they can strengthen the domestic positions of actors arguing against carbon lock-in at home. While the EU is likely to see a backlash from actors with fossil interests in the context of such consultations, this is an inevitable consequence of implementing a CBAM and should not be given the same weight as concerns about structural change.



# Use CBAM revenue to mitigate risks for developing countries

Given the already significant finance gap, we suggest that some of the revenues generated by an EU CBAM are reinvested to support decarbonisation processes in developing countries. Since decarbonisation measures are particularly rare in emissions-intensive sectors, these sectors should be specifically targeted. This effort can be linked to the current EU climate finance architecture, which includes a range of sources (public and private, bilateral and multilateral) for transferring money to developing countries.

It has been suggested that revenues raised by the CBAM should flow into the EU budget, especially given the need to finance the Covid-19 recovery (see Marcu et al. 2020). However, this would violate the principle of common but differentiated responsibility, which puts the onus on industrialised nations to transfer climate finance to developing countries.

## The benefits of financial transfers

Transferring at least part of the CBAM funds to developing countries will have a number of significant benefits: increasing resilience, CBAM acceptance, and the EU's overall contributions to climate finance. Financial transfers will enhance the resilience of developing countries and reduce climate policy risks from a CBAM. So far, countries have not been able to raise sustainable additional finance at the required levels to effectively address climate change mitigation (Schalatek 2019; CPI 2019). It is particularly hard for mitigation finance to reach low-income and lower-middle income countries due to regulatory and institutional barriers that increase investment risks (e.g. political risks, currency risks, regulatory and policy risks) and raise the cost of capital (Brown and Jacobs

2011). Public climate finance can help reduce these risks by providing direct investments, risk mitigation instruments, and support for policy design.

In addition, financial transfers can help to increase CBAM acceptance. Redirecting CBAM revenues back to more vulnerable and exposed countries can bolster international support for an EU CBAM, in the same way that climate finance in general can help secure global agreement on the need to fight climate change.

Finally, using CBAM revenues for climate finance will boost the EU's contributions to international mitigation efforts. Directing funds collected through a CBAM to climate finance has the advantage of increasing financial flows and at the same time making them more predictable. It can also help expedite the process of disbursements, which is often long and bureaucratic.

CBAM revenues can either be transferred directly to an existing fund such as the Green Climate Fund, or a new fund can be created for that purpose. As for the selection criteria that determine which countries will receive funds, general climate finance rules can apply, but additional criteria that reflect exposure and vulnerability to CBAM should be added. Transparency, accountability and country ownership will need to be simultaneously strengthened in order to increase the impact of these financial transfers.

# Build emissions reporting around existing international obligations

Discussions about how carbon content should be measured and reported are ongoing, but regardless of the shape these obligations take, an EU CBAM will require emissions reporting on a large scale, which might prove challenging for many countries. In order to minimise the administrative load associated with tracking carbon content, emissions reporting requirements for the EU CBAM need to build initially on existing international emissions reporting obligations, for instance within the UNFCCC.

The country case studies reveal a broad spectrum of capacities to monitor, report, and verify (MRV) carbon emissions and, in particular, sectoral emissions. For example, while Bosnia has provided detailed information on sector-specific EITE emissions in the relevant biannual UNFCCC update reports, Mozambique has failed to submit any information on its emissions (UNFCCC 2020). Only a few countries specifically target emission reductions in the EITE sector. One of these is Morocco, which identified cement production and phosphate processing as target areas for achieving emissions mitigation. Even in countries with relatively high statistical capacity, such as Morocco and Vietnam, MRV systems for sector-specific emissions are not yet in place. Without such MRV capacities, countries with a high share of EITE exports to Europe – such as Mozambique – may be particularly vulnerable even though their energy system as a whole is lower-carbon than that of the EU.

Many countries have recognised the challenge posed by sector-specific emissions reporting and have highlighted the need for mitigation finance, technology transfer, and capacity building in order to achieve, measure and report their NDC targets. International initiatives such as the NDC Partnership and the Transparency Partnership are already supporting many countries with the task of fulfilling their MRV requirements. As part of the financial assistance to reduce countries' vulnerability, CBAM revenue could be utilised to fund support schemes for the development or reinforcement of institutional capacities related to the MRV of sector-specific emissions. This would strengthen ongoing efforts and alleviate the burden on vulnerable countries.

Currently, developing countries have different reporting requirements under the UNFCCC than developed countries with regard to update periods and detail level. In order to increase policy acceptance and compliance with the emissions reporting obligations for the CBAM, the EU should also consider differentiating between countries with varying institutional capacities. If the EU does indeed use CBAM revenue to support MRV capacities in vulnerable countries, the requirements for reporting could be increased over time as these capacities are developed. In the longer term, exemptions from stricter reporting standards granted to vulnerable countries would need to be periodically re-assessed.

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# Conclusion and Outlook

The Carbon Border Adjustment Mechanism foreseen in the European Green Deal aims not only to position the EU as a frontrunner in the global energy transition, but also to create a level playing field for industrial competition. Ideally, it will lead to a self-reinforcing cycle to raise climate ambition worldwide. Taking into account the potential economic risks arising from a CBAM for countries in the Global South may help to avoid retaliatory measures and new global dividing lines between low- and high-carbon producers. In order to combat climate change, broad alliances for ambition will be needed in the long term.

This Policy Brief highlights the different levels of exposure and vulnerability that apply to different countries if energy-intensive, trade-exposed goods become subject to an EU CBAM. It reveals that policy risk levels are distributed unevenly across the globe, and that many high-risk countries may require financial and technical support in order to decarbonise and

cope with a CBAM. Therefore, the EU would be well advised to use the revenues generated by CBAM to support those countries in their decarbonisation processes. Furthermore, administrative burdens could be reduced by building on existing emissions reporting obligations and strengthening reporting capacities. Incorporating these elements into the CBAM design may increase policy acceptance and compliance.

The concrete policy design of the EU CBAM is still under discussion, with the EU Commission due to present its plan in 2021. Debates on its implications should focus not only on EU countries and influential trading partners like the USA or Russia, but also on developing countries that face important economic risks from such an instrument. This innovative, yet unilateral policy needs to reflect the unequal distribution of risks in order to maintain and reinforce alliances to combat climate change. ■

# Annex

## The Risk Indicator

Formula	N	Mean	Standard deviation	Values range
$\text{Sectoral\_Exports\_GDP} + 0.25 \times (\text{RelativeExports\_Sectoral} + \text{LowStatisticalCapacity} + \text{CarbonIntensity\_FinalEnergyConsumption} + \text{LackingEmissionReductionTargets})$	95	-0.034	1.075	-1.3 6.665

The standardised values of all relevant variables were used in the formula.

## Description of the relevant variables

Variable name	Variable definition	Source
Sectoral_Exports_GDP	Exports of cement, steel and aluminium to the EU as a proportion of a country's GDP	United Nations 2020
RelativeExports_Sectoral	Exports of cement, steel and aluminium as a proportion of a country's total exports	
LowStatisticalCapacity	100 – statistical system and the quality of data (score measured in per cent)	World Bank 2020
CarbonIntensity_FinalEnergyConsumption	Carbon Intensity of Total Final Energy Consumption of a country's Carbon Emissions (gCO2/yr) divided by its Total Final Energy Consumption (MJ).	Carbon Emissions (World Bank 2020), Total Final Energy Consumption 2017 (U.S. EIA 2020)
LackingEmissionReductionTargets	Binary variable coded as 0 or 1 based on the existence of emission reductions targets in a country's Nationally Determined Contributions. 1 indicates no emission reductions targets. 0 indicates emission reduction targets have been set.	Pauw et al 2020

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