



Technical cooperation outcome

Fostering BRICS leadership on climate ambition amid trade and climate tensions



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Abbreviations

BCA	Border carbon adjustment
CBDR-RC	Common but Differentiated Responsibilities and Respective Capabilities
CGCCSD	Contact Group on Climate Change and Sustainable Development
CGE	Computable general equilibrium
CIF	Climate investment funds
CO₂	Carbon dioxide
COP	Conference of the Parties
C-TIF	Climate Transition Impact Framework
EITE	Emissions-intensive and trade-exposed
ETS	Emissions trading scheme
FDI	Foreign direct investment
GCE	General computable equilibrium
GDP	Gross domestic product
GEEREF	Global Energy Efficiency and Renewable Energy Fund
GEF	Global Environment Facility
GHG	Greenhouse gas
GST	First Global Stocktake
GSTP	Global System of Trade Preferences
GTAP	Global Trade Analysis Project
GTM	Global Trade Model (World Trade Organization)
IEA	International Energy Agency
IKI	International Climate Initiative (Germany)
IPCC	Intergovernmental Panel on Climate Change
IRENA	International Renewable Energy Agency
ICF	International Climate Fund (UK)
JETP	Just Energy Transition Partnership
KCI	Katowice Committee of Experts on the Impacts of the Implementation of Response Measures
LDC	Least developed country
MSME	Micro, Small, and Medium Enterprises
MtCO₂	Million tons of carbon dioxide
NBSAP	National Biodiversity Strategy and Action Plan
NDC	Nationally Determined Contribution
NTM	Non-tariff measure
OECD	Organisation for Economic Co-operation and Development
SDGs	Sustainable Development Goals
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
WITS	World Integrated Trade Solution
WMO	World Meteorological Organization
WTO	World Trade Organization
UNESCO	United Nations Educational, Scientific and Cultural Organization
USMCA	United States–Mexico–Canada Agreement
W3C	World Wide Web Consortium
WEF	World Economic Forum
WTO	World Trade Organization



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Introduction

This report was prepared by UNCTAD in the context of technical assistance to the 2025 Brazilian Chairship of BRICS to support the work and deliberations of the Contact Group on Climate Change and Sustainable Development (CGCCSD), with a particular focus on Priority 4: “Synergizing Trade and Climate Goals in BRICS Cooperation.” The report does not represent the views of the member States of the BRICS.

The BRICS includes 11 countries - Brazil, China, Egypt, Ethiopia, India, Indonesia, Iran (Islamic Republic of), the Russian Federation, Saudi Arabia, South Africa, and the United Arab Emirates. BRICS countries accounted for nearly half of the world’s population and 28 per cent of global gross domestic product (GDP) in 2023.¹

The report examines indicators and methodologies to assess the development implications of trade-related climate measures on BRICS countries. Based on this analysis, a set of policy options is suggested to increase countries’ resilience, maximize positive spillovers (including new trade diversification opportunities), and minimize adverse effects, while promoting policy coherence between trade and climate objectives at national, BRICS, and multilateral levels.

infrastructure, and technology acquisition and deployment

- Couple green growth and decarbonization objectives with policies to increase productive capacity, strategically promoting industrial, agricultural, and forestry sectors that could attract investment
2. Tools to maximize positive spillovers while minimizing adverse effects
 - Use ex ante impact assessment models and indicators to help capture the potential impact of trade-related climate measures
 - Support affordable access to technology and research cooperation through South-South cooperation
 3. Measures to support BRICS international cooperation
 - Strengthen the capacity of civil servants and institutions in sustainable industrial policymaking and delivery
 - Develop and include green and just transition principles and policy coherence considerations

Key recommendations:

1. Targeted measures to enhance the resilience of affected sectors (national and international level)
 - Increase the share of renewable energy in the electricity grid and as an energy source for sectors targeted by trade-related climate measures
 - Explore international climate financing initiatives to unlock funding for low-emission and resilient

¹ Data from [UNCTADStat Data Centre](https://unctadstat.unctad.org/). Accessed 16 June 2025.





1. Trade-climate nexus

Trade is vital for achieving the Paris Agreement and the SDGs, but trade-related climate measures reshape competitiveness, create spillovers, and raise concerns for developing countries. By understanding these measures, BRICS countries can monitor risks, strengthen cooperation, and align actions with climate and development goals.

Leveraging trade as a tool to meet climate goals

The first Global Stocktake (GST) under the Paris Agreement (UNFCCC, 2023a), concluded at the United Nations Climate Conference (COP28) in December 2023 in Dubai, United Arab Emirates, recognized that current national climate efforts remain insufficient to limit global warming to 1.5°C by 2030, despite some progress. It emphasized the urgent need for more ambitious Nationally Determined Contributions (NDCs) and a fair transition from fossil fuels. Reinforcing this urgency, the World Meteorological Organization reported that 2024 was the hottest year on record (WMO, 2025).

As countries complete their third round of NDCs (NDCs 3.0) for the United Nations Climate Change Conference (COP30) in Belém, Brazil, the outcome of the first GST encourages Parties to the Paris Agreement to adopt economy-wide emissions reduction targets, covering all greenhouse gases, sectors and categories and aligned with limiting global warming to 1.5°C, as informed by the latest science, in the light of different national circumstances (UNFCCC, 2023a:7).

This new round of NDCs offers opportunities in sustainable agriculture, tourism, forestry, and renewable energy, if designed to consider the whole of the economy and

involve relevant ministries and experts.

Their implementation will also require better and coherent use of trade, investment, and financial means of implementation, in addition to South-South and triangular cooperation. As of June 2025, only 25 countries have submitted new NDCs, including Brazil and the United Arab Emirates (UNDP, 2025).² However, the European Union and China indicated that they would submit ambitious NDCs ahead of COP30 (Srouji, 2025). China's indication that its NDC will be economy-wide and cover all greenhouse gases (GHGs) sent a welcome signal (United Nations, 2025).

The cost of inaction on climate change far outweighs the cost of action (Alberti, 2024). For instance, recent estimates indicate that climate damages could reduce regional GDP growth by up to 12.5 per cent in Africa and 6 per cent in Asia within five years, compared to scenarios without climate change risks, rising to 15 per cent globally by 2050 (Thomasson, 2025). Populations worldwide are already facing numerous challenges produced by climate change, including disruptions to the food system, water scarcity, heat stress, and the spread of infectious diseases. If these issues remain unaddressed, the risks of mass mortality, large-scale displacement, severe economic downturns, and conflict will increase significantly.³ Economies and

² See [Nationally Determined Contributions Registry | UNFCCC](#).

³ <https://actuaries.org.uk/planetary-solvency>.

Renewable and low-carbon economies, can offer economic and development opportunities

maritime routes are already affected by a decrease in labour productivity due to increasing heat exposure, while in the United States of America alone, average insurance premiums have spiked by 33 per cent from 2020 to 2023, primarily due to growing climate risks (Keys and Mulder, 2024).

International trade is crucial for achieving the targets of the Paris Agreement and the Sustainable Development Goals (SDGs). It helps to access the goods, services, technologies, and knowledge needed for mitigation and adaptation, and it contributes to building climate-resilient and resource-efficient value chains (UNCTAD, 2025a).

Moreover, the steep reduction in the price of renewables has made them economically convenient in comparison to fossil fuels. Renewable and low-carbon economies can offer economic and development opportunities, particularly for developing countries in sectors such as renewable energy, agriculture, and bioeconomy. Several BRICS countries have strong potential to produce renewable energy, including hydro, solar, and wind. BRICS countries also possess strong biodiversity resources that can contribute to development if exploited and traded sustainably. These development opportunities can be leveraged with supportive policies and regulations, as well as well-orchestrated trade, investment, and financing strategies, that facilitate climate, biodiversity, and pollution ambitions while minimizing trade barriers.

Increased use of trade-related climate measures — motivation and impacts

Trade-related climate measures, including carbon pricing, technical regulations, voluntary and mandatory product standards, labelling and procurement measures, and green subsidies, are increasingly favoured by governments aiming to support their climate change ambitions. For instance, between 2009 and 2022, countries notified the World Trade Organization (WTO) more

than 5,500 climate-related trade measures, with around 40 per cent coming from developing countries. Annual notifications rose from an average of 263 in 2009–2010 to 550 by 2021–2022, reflecting growing recognition of trade policy as a tool for climate action. However, these measures also inherently create trade impacts and compliance costs (WTO et al., 2024).

Also, in 2023, UNCTAD identified 2366 climate change-related non-tariff measures (NTMs) to support domestic and international climate change mitigation efforts in its Trade Analysis Information System (TRAINS) database (UNCTAD, 2023a). NTMs cover various policy tools imposed primarily for safety, health, and broader environmental protection purposes, including climate action. While these measures account for only 2.6 per cent of the total measures, they are concentrated in the world's largest traded and most carbon dioxide (CO₂) intensive sectors, such as the automotive sector. Consequently, 26.4 per cent of world trade is regulated by climate-related NTMs, representing trade worth US\$ 6.5 trillion in 2022 (UNCTAD, 2023a).

a) Carbon pricing, carbon leakage, and border carbon adjustment (BCA)

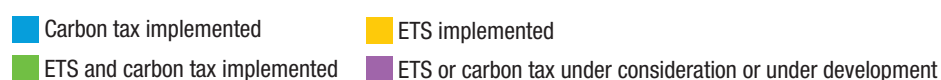
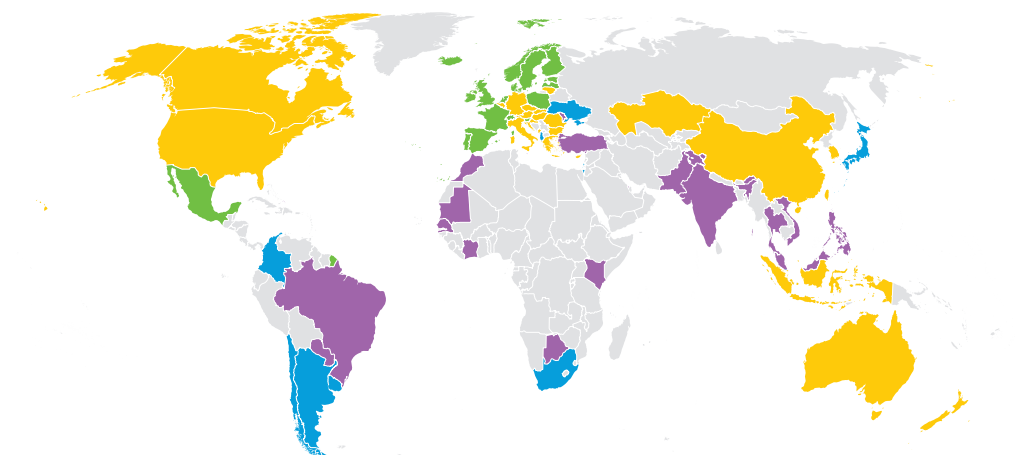
Carbon pricing is one of the tools in the policy mix implemented by countries to advance their climate ambition. As of June 2025, 80 carbon pricing initiatives, comprising 37 emissions trading schemes (ETS) and 43 carbon taxes, had been implemented (see Figure 1). These initiatives cover approximately 28 per cent of global GHG emissions, and economies accounting for nearly two-thirds of global GDP have implemented either a carbon tax or an ETS (World Bank, 2025). Five BRICS countries — Brazil, China, India, Indonesia, and South Africa — have implemented, are developing, or are considering implementing carbon pricing (see Table 1).

Alongside these carbon measures, several economies are implementing or planning



**Figure 1**

28 per cent of global GHG emissions are covered by a carbon price or ETS



Source: World Bank (2025).

Note: The map shows jurisdictions that have implemented, are developing, or are considering implementing carbon taxes or ETS.

to implement border carbon adjustments (BCAs) with the stated objective of levelling the playing field and protecting the competitiveness of their industries with those that have less ambitious carbon pricing policies and avoiding carbon leakage risks.

Carbon leakage may occur when carbon pricing policies increase production costs, leading to local firms losing competitiveness. Affected companies may move their production to other jurisdictions with less stringent climate policies or

**Table 1**

Indonesia and China have implemented ETS, while South Africa implemented a carbon tax in 2019

Jurisdiction	Instrument name	Type	Status	Start date	Scope
Brazil	Brazil ETS	ETS	Under development	TBC	National
India	India ETS	ETS	Under development	TBC	National
Indonesia	Indonesia ETS	ETS	Implemented	2023	National
Indonesia	Indonesia Carbon tax	Carbon tax	Under consideration	TBC	National
South Africa	South Africa carbon tax	Carbon tax	Implemented	2019	National
China	China national ETS	ETS	Implemented	2021	National

Source: World Bank (2025).



increase imports from those jurisdictions, thus increasing emissions in these other countries/sectors (Shukla et al., 2022).

Numerous quantitative studies have evaluated the effectiveness of BCAs in reducing carbon leakage. A meta-analysis by Branger and Quirion (2014) reviewed 25 studies examining the impact of BCAs on both carbon leakage and competitiveness. The findings indicated that without BCAs, carbon leakage rates ranged from 5 to 25 per cent, with an average of 14 per cent. However, when BCAs were implemented, leakage rates dropped significantly, varying from -5 to 15 per cent, with an average of 6 per cent. Notably, carbon leakage is not uniform across the economy. Emissions-intensive and trade-exposed (EITE) sectors—such as cement, steel, and aluminium—tend to experience much higher rates of carbon leakage (Mehling et al., 2019). As a result, these sectors are often prioritised in carbon border adjustment measures. However, the evidence of carbon leakage is mixed for several reasons. They are based on modelling exercises, and in practice, highly intensive energy sectors have usually been granted free allowances for carbon dioxide emissions and output-based subsidies to keep the competitiveness of these industries (WTO et al., 2024). The meta-analysis also indicated that BCAs can offset some competitiveness losses that might be experienced by industries in regions with carbon pricing.

Spillovers

Trade-related climate policies implemented by advanced economies to support climate and sustainability objectives create positive and negative spillovers on international trade partners. On the positive side, these policies can help reduce global GHG emissions, promote the dissemination of green technologies, offer new business and trade opportunities, and incentivize other jurisdictions to price GHG externalities.

However, BCAs can also create negative

spillovers. These measures can impose significant costs on trade partners, including substantial monitoring, reporting, and verification costs, which could harm their global trade position, heighten trade tensions, and trigger retaliatory actions (WTO et al., 2024).

Measures aimed at protecting the competitiveness of countries and increasing their climate ambition disproportionately impact many developing countries due to their higher carbon intensity, lack of fiscal space to facilitate adoption of low-emission technologies, green their grid, and comply with the proliferation of monitoring, reporting, and verification requirements, amplified by the generally lower institutional capacity.

Many developing countries, despite historically contributing very little to climate change, may now also face greater climate and trade-related burdens. Also, the impact of these measures can reduce the capacity of these countries, which are more dependent on export revenues, to address climate change.

Several countries argue that trade-related climate measures could have development implications for developing countries. Some countries also consider that BCAs measures are against the common but differentiated responsibilities and respective capabilities (CBDR-RC) principle of the UNFCCC, given the limited historical responsibility of developing countries in global warming, shifting the costs that developed countries face in meeting their NDCs onto developing countries, and that these measures are also against the non-discrimination principle of the WTO rules (WTO, 2024).

At COP29 in 2024, Parties agreed on a new work plan for the Forum on the impact of the implementation of response measures—which examines mitigation policies and actions taken by Parties under the UNFCCC, the Kyoto Protocol, and the Paris Agreement to combat climate change, and its Katowice Committee of Experts on the Impact of the Implementation of



Response Measures (KCI).⁴ For the first time, the work plan includes an item on the cross-border impacts of measures taken to combat climate change,⁵ effectively providing a formal space to discuss trade-related climate measures and their implications within the UNFCCC process.

The WTO does not restrict the adoption of environmental policies. It allows trade measures that support the effective implementation of domestic environmental actions, as long as they do not create unnecessary trade barriers. Policies should be designed to minimize GHG impacts and maximize the reduction of spillover effects on other countries, especially developing countries. Policies should also recognize the different marginal production costs and thus the incentives needed for industry to internalize the costs of GHG emissions. Careful design of BCAs is crucial to ensure they are proportionate to climate policy impacts, maintaining environmental

effectiveness without unfairly disadvantaging certain countries (WTO et al., 2024).

In this context, there is a need to enhance the understanding of the economic, social, and environmental co-benefits and trade-offs associated with trade-related climate measures. This would enable countries, including BRICS countries, to proactively monitor their exposure to these measures and develop policies and frameworks for international cooperation that allow them to mitigate the potential negative impacts on their economies and societies while supporting global climate and development goals. BRICS countries can offer a safe and evidence-based space for dialogue to address these issues by examining them at the country or sector level or as a group.

.....
4 Established in 2018, the KCI is a constituted body to support the work of the forum on the impact of the implementation [response measures](#).

5 See paragraph 5 on adoption of Katowice Committee of Experts on the Impact of the Implementation of Response Measures (KCI) work plan. Decision available at https://unfccc.int/sites/default/files/resource/cp2024_L13_cmp2024_L05_cma2024_L19_adv_0.pdf.





2. Indicators and modelling to assess the impact of trade-related climate measures

Indicators and modelling help BRICS countries assess the economic, social, environmental, and distributional impacts of trade-related climate measures. Robust data and tools are essential for evidence-based policymaking, monitoring vulnerabilities, and identifying opportunities for low-carbon competitiveness.

An enhanced understanding of the complex and often uneven positive and negative spillover effects of trade-related climate measures, as well as the exposure of sectors and countries, can guide policymakers in aligning trade strategies with climate objectives while minimizing unintended consequences.

Monitoring indicators

Several key factors influence how trade partners are exposed to and impacted by such climate measures. These include the structure of trade patterns (who exports what, and to where), the sectors and products targeted, and the carbon intensity of production, shaped by technologies, production processes, and the emissions profile of national energy grids. Firms with greener technologies or access to low-emission energy sources would become more competitive under trade-related climate policies. Additionally, the nature of trade partners' carbon policies, including the presence of carbon pricing, BCAs, and provisions for exemptions or mutual recognition, plays a significant role in determining the impact on other economies.

Compliance and reporting requirements further shape exposure, raising important questions about the administrative and technical capacities of countries, particularly

those still developing national mitigation frameworks. Capacity building is also crucial for participating in and benefiting from mitigation efforts. For instance, in Least Developed Countries (LDCs) such as Ethiopia, UNCTAD (2024b) emphasizes that capacity-building is essential for enabling effective participation and benefiting from carbon markets, particularly under Articles 6.2 and 6.4 of the Paris Agreement.

Trade-related climate measures can impact the three dimensions of sustainable development —economic, social, and environmental —and have distributional effects. The following indicators and assessment models are presented to monitor exposure and impact in BRICS countries.

a) Economic effects on productive sectors and supply chains

A direct method of measuring BRICS economic exposure to specific trade-related climate measures is by observing the trade exposure of these sectors or value chains. Trade exposure could be measured using indicators such as total exports, the share of affected exports relative to total exports to the markets implementing the measures, the share of affected exports in relation to total country exports, the share of GDP, or other



**Table 2**

Exports selected energy-intensive sectors, BRICS countries 2023 (or latest year available), \$ billion

Country	Iron and steel	Aluminium	Cement	Electricity	Fertilizers	Total exposed exports	% of total exports
Brazil	14.6	1.5	0.1	0.6	0.3	17.1	5
China	69	34.9	0.5	1.7	9.1	115.2	3.4
Egypt	2.3	0.7	0.8	0.1	2.3	6.2	14.8
Ethiopia	0.0004	0.0005	0.0001	0	0	0.001	0.03
India	11.8	7.3	0.1	1.5	0.1	20.8	4.8
Indonesia	26.7	0.8	0.4	0	1.4	29.4	11.3
Iran, Islamic Rep.	6.5	1.2	0.4	0	3.3	11.3	14
Russian Federation	16.4	8.7	0	0.5	11.4	37.1	8.7
Saudi Arabia	1.3	2.1	0.4	0	6	9.7	3.5
South Africa	6.5	2.3	0.1	0.6	0.4	9.9	8.9
United Arab Emirates	3.5	7.9	0.6	0	0	12	2.1
Total BRICS countries	158.7	67.4	3.3	4.9	34.4	269	4.5

Note: Data 2022 for Iran (Islamic Republic of). Mirror data for the Russian Federation.

Source: UNCTAD based on UN Comtrade through the World Integrated Trade Solution (WITS).

relevant metrics. Together, these indicators provide information that can quickly assess the potential economic implications at the sector, country, and BRICS levels.

Export-level indicators are available at both national and international levels, categorized by six-digit Harmonized System (HS) codes. Studies indicate that BCAs can have negative distributional impacts on countries subject to these measures (Branger and Quirion, 2014) and may worsen regional inequality (Böhringer et al., 2012). Fossil fuel exporters are particularly affected, facing lower fuel prices as global consumption declines. Meanwhile, countries importing EITE goods from regions implementing such adjustments face increased import costs (UNCTAD, 2021). Table 2 shows the exports of BRICS countries in selected EITE sectors. Data shows that as a group, BRICS countries exported \$269 billion in aluminium, iron and steel, electricity, and fertilizers in 2023. At the country

level, China, the Russian Federation, and Indonesia are the BRICS countries with the highest exports in the selected sectors; therefore, these countries would be the most exposed in absolute terms. However, when considering exposure in terms of total exports, the most exposed BRICS countries would be Egypt, Iran (Islamic Republic of), and Indonesia, with rates of over 10 per cent of their total exports each. As a group, BRICS exports in the selected sectors account for 4.5 per cent of their total exports. After the implementation of selected trade-related climate measures, the changes in exports would represent the direct impact of these measures on the affected economies. However, other factors, such as changes in international prices, may also affect exports and should be considered.

BCA ad valorem equivalent

As part of a recent study on the impact of BCAs in developing countries, UNCTAD



(2021) estimated an indirect indicator of exposure, which measures the ad valorem equivalent of a BCA, i.e., it is expressed as a percentage of the value of imports of the jurisdiction implementing the BCA. The indicator uses the embedded carbon emissions of imports in the Global Trade Analysis Project (GTAP) database as a basis for simulating the carbon tax applied to imports in a country or countries where BCAs are implemented. It is estimated in two steps: first, country-specific carbon emissions per unit of output by industry are used to estimate carbon emissions associated with bilateral trade flows. This can be done using direct emissions from production and indirect emissions from electricity consumption.^{6,7} This decomposes carbon emissions from domestic output into its sales disposition, i.e., exports or domestic sales. For every commodity, the total CO₂ emissions associated with fossil fuel combustion and energy use embodied in exports are calculated. In the second step, the corresponding BCA for each trading partner is calculated based on the embedded carbon emissions in traded products and adjusted by trade costs as the BCA is applied to import values. The carbon price per ton of emitted CO₂ of the BCA-imposing economy is multiplied by the embodied carbon emissions for each sector in every exporting economy, which finally provides the ad-valorem equivalent of the BCA tax.

The estimates of the BCA ad valorem equivalent would vary significantly by country and product (differences between and within sectors), indicating the differences in the carbon emissions embedded in production in different countries. These ad valorem equivalents will fall or rise

proportionately with the carbon price in the BCA of the implementing country. For instance, a carbon price increase from \$40 to \$80 per ton of CO₂ emissions embedded in the production of the affected goods will uniformly double the BCAs.

b) Social implications, particularly for employment and development

Several indicators can inform the exposure of BRICS countries' sectors to trade-related climate measures, particularly regarding their social implications, including the achievement of a just transition, employment, and inclusive development. These include the share of jobs in the affected sectors and value chains, as well as the share of jobs held by micro, small, and medium-sized enterprises (MSMEs). Indicators of labour participation by gender, indigenous groups, and vulnerable groups can also inform the exposure of women and selected groups. The decentralized values of these indicators can help policymakers identify particularly vulnerable regions, especially where sectors impacted by trade-related climate measures are a significant source of employment. This information is crucial for targeting support policies. National or regional labour data by economic sector is generally available. However, disaggregated data for indigenous people or specific vulnerable groups may be more limited.

Recent estimates by UNCTAD (2021) on the employment effects of a BCA (using the GTAP model) showed that the impact on employment follows the change in economic activities modelled to be induced by the trade-related climate measures.

6 The GHG Protocol defines direct emissions as emissions from sources owned or controlled by the reporting entity; indirect emissions are those that are a consequence of the activities of the reporting entity but occur at sources owned or controlled by another entity. The GHG Protocol further divides direct and indirect emissions into three broad scopes: Scope 1 includes all direct emissions from owned or controlled sources; Scope 2 covers indirect emissions from purchased electricity, heat, or steam; and Scope 3 considers all other indirect emissions across the value chain, such as purchased materials, transport, outsourced activities and waste disposal. See <https://ghgprotocol.org/calculation-tools-faq>.

7 In many cases, explicit emissions pricing and accounting systems only consider direct (Scope 1) emissions, while indirect emissions from electricity use (Scope 2) and emissions from inputs sourced from other entities (Scope 3), are often excluded due to reporting administrative challenges. (WTO et al., 2024).



Unemployment would increase in those countries whose exports are dominated by products affected by the measures. On the other hand, unemployment would decrease in countries that produce energy-intensive products with relatively less CO₂ emissions.

Data can also be used to explore opportunities for creating green and decent jobs. Recent case studies on just transition and diversification strategies have identified job opportunities produced by climate mitigation policies. For instance, in Sweden, a pilot plant for the green industrial transition from coal to green hydrogen in the production processes of iron ore could create more than 1,500 jobs, with an additional 2,000 jobs projected from renewable-based iron ore production (KCI, 2023). Within BRICS countries, case studies show initiatives in India aimed at increasing the country's efforts in enhancing the implementation of solar technologies while providing social and economic opportunities to local communities (KCI, 2023).

c) Environmental outcomes and climate mitigation potential

Exposure to trade-related climate measures in BRICS and other countries can be assessed in terms of environmental outcomes and emissions mitigation potential using several key indicators. These include:

- The level of GHG emissions embedded in the affected or exposed sectors, considering the full range of emission scopes (direct or indirect; scope 1, 2, or 3);
- The proportion of emissions-intensive and trade-exposed sectors, or other affected sectors, that rely on renewable and low-carbon energy sources; and
- The overall share of low-carbon energy sources in the national electricity grid.

Environmental exposure can also include additional variables related to sustainability. For instance, consumption-oriented climate policies, such as deforestation-

free regulations, aim to reduce emissions and promote environmentally responsible sourcing by requiring importers to conduct due diligence and verify that products do not contribute to deforestation. While these measures enhance transparency, traceability, and accountability in supply chains, they also impose significant compliance, monitoring, and reporting burdens, particularly on small producers in developing countries (WTO et al., 2024).

The availability and quality of CO₂ emissions data at the required level (by sector, industrial facilities, etc.) can be a significant challenge for some countries, particularly developing countries with limited technical capabilities to collect and analyze the required information. Additionally, providing data that complies with the requirements to be recognized by jurisdictions implementing trade-related climate measures may create additional costs for developing countries, particularly for MSMEs. This underscores the need for international cooperation to facilitate the interoperability of carbon accounting methods (how much carbon is embodied in products/sectors/territorial) across jurisdictions.

When assessing environmental exposure to trade-related climate measures, it is important to recognize that this exposure is influenced not only by domestic factors but also by external conditions. These include the environmental performance of countries implementing such measures, as well as that of competing economies. As a result, a country's exposure is shaped by both its actions and the broader international context.

To get a general sense of BRICS countries' exposure to trade-related climate measures in terms of environmental performance and climate mitigation potential, Table 3 shows the total territorial emissions of CO₂ (in million tons) for BRICS countries and per million inhabitants. The table shows the increase in emissions between 1960 and 2023. Unsurprisingly, the data shows that the level of emissions is higher for fossil fuel producers and large economies.



**Table 3**

Territorial emissions in MtCO₂, total and per million inhabitants, 1960 and 2023

Countries	Territorial emissions in MtCO ₂			
	Total emissions		per million inhabitants	
	1960	2023	1960	2023
Brazil	47	486	0.6	2.3
China	799	11903	1.2	8.4
Egypt	16	269	0.6	2.3
Ethiopia	0	15	0	0.1
India	111	3062	0.3	2.1
Indonesia	21	733	0.2	2.6
Iran (Islamic Republic of)	37	818	1.7	9
Russian Federation	885	1816	7.4	12.6
Saudi Arabia	3	736	1.1	22.1
South Africa	98	402	6	6.4
United Arab Emirates	0	229	0.1	21.9

Note: Data refers to territorial CO₂ emissions from fossil fuels. MtCO₂: million ton of CO₂.

Source: UNCTAD based on data from Global Carbon Project and World Development Indicators.

Measures such as BCAs can affect countries' comparative advantages and relative competitiveness. Exports from countries with greener production processes, translating into lower embedded CO₂ emissions, and those closer to destination markets would have higher carbon comparative advantages. Exposure to trade-related climate measures based on embedded levels of CO₂ emissions in the production of goods can be reduced by decarbonizing production processes. This can be facilitated by access to greener technologies, renewable energy sources, and increased sustainable use and efficiency of resources, among other measures. Figure 2 shows the electricity installed capacity by energy source in 2024 in the BRICS countries and as a group. As a group, BRICS countries have reached 50 per cent of renewable energy as part of their electricity installed capacity. BRICS countries with higher renewable capacity as a percentage of their total installed electrical

capacity are Ethiopia, Brazil, and China. Increasing the share of low-carbon and renewable energies in the electricity grid and connecting emissions-intensive production processes to these grids can help increase the comparative advantages of BRICS exports in terms of CO₂ emissions in these sectors. Prioritizing the decarbonization of these sectors within national strategies can help generate revenues to fund the broader energy transition across the economy.

d) Distributional impacts

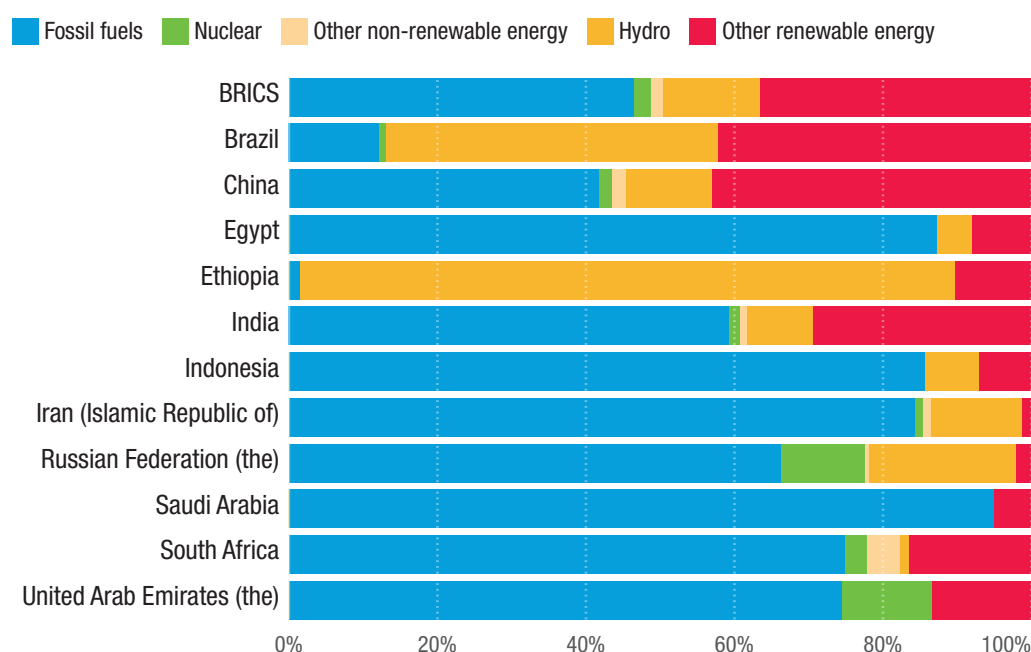
The distributional impacts of trade-related climate measures can be categorized into national and international as follows:

- National: Impact on vulnerable groups
- Internationally: Which countries are most affected?

Looking at national impact, few studies provide a quantitative assessment of

Measures such as BCAs can affect countries' comparative advantages and relative competitiveness



**Figure 2****Electricity installed capacity by source of energy, 2024**

Source: UNCTAD based on IRENA (2025).

the economic and social impacts of climate response measures on vulnerable populations, including women, low-income communities, and Indigenous Peoples. A modelling analysis of India joining an international climate regime indicates that the welfare impacts in this country would vary across household income groups, depending on changes in international price transfer payments or mechanisms, and how carbon tax revenues are allocated (Weitzel et al., 2015; KCI, 2024).

In the case of carbon pricing instruments, they can have diverse socio-economic effects shaped by household income, regional dynamics, and policy design. They tend to be more progressive in developing countries, where lower-income groups have limited access to fossil fuels. However, in contexts where these groups rely heavily on fossil fuels and face high poverty and inequality, the risk of adverse impacts increases, especially in the absence of mitigating measures (World Bank, 2020). Targeted policy design and strategic use of revenues are essential to address these distributional risks effectively.

Considering the international distributional impact, concerns have been raised that trade-related climate measures, such as BCAs mechanisms, may negatively affect global trade by lowering demand for imported goods and worsening the terms of trade for exporters, particularly those from developing countries that export energy-intensive products. When implemented by more advanced countries with ambitious climate goals, BCAs risk disproportionately impacting developing regions, potentially conflicting with the principle of CBDR-RC (UNCTAD, 2021; Böhringer et al., 2022; WTO, 2022; WTO et al., 2024).

Additional indicators can also support the monitoring of BRICS countries' exposure to trade-related climate measures. However, their estimation and monitoring may be more resource-intensive and require additional research and capacity-building efforts. For instance, indicators aimed at measuring low-carbon diversification and trade opportunities, as well as indicators associated with payment for environmental services.



**Table 4**

Several indicators can be used to examine the exposure of BRICS countries to trade-related climate measures—summary of suggested indicators, variations, and availability

Suggested indicator	Variations	Availability
Economic effects on productive sectors and supply chains		
Exports in affected sectors	• Value of exports in the affected sectors. • % exports in the affected sector/total exports. • % exports in the affected sectors/total exports. • % exports in the affected sectors/total exports to the market implementing the measures. • % exports in the affected sectors/GDP.	• Generally available to estimate using trade data from sources such as UNCOMTRADE and WITS, among others.
BCA equivalent	• Direct and indirect emissions. • Scope 1, 2, 3.	• Requires access to the GTAP dataset; and • Defining carbon prices by the country imposing the BCA.
Social implications, particularly for employment and development		
Share of jobs in the affected sectors/value chains; Share of jobs held by micro, small, and medium enterprises (MSMEs)	• Disaggregation by gender, indigenous groups, and vulnerable groups can provide information on the specific exposure of these groups. • Regional impact.	• Labor occupation by sector is generally available. • Disaggregated data on jobs in selected value chains and vulnerable groups may require specific efforts to gather.
Environmental outcomes and climate mitigation potential		
CO ₂ emissions	• Embedded per ton of product: ◦ Direct/indirect. ◦ Scope 1, 2, and 3. • Embedded in affected sectors: ◦ Direct/indirect. ◦ Scope 1, 2, and 3.	• Data availability may be limited in some BRICS countries. • May be subject to verification requirements if not accepted by countries putting in place trade-related climate measures.
Production (or exports) using renewable/low-energy sources	• % of production/exports using renewable/low energy sources.	
Carbon leakage	• Estimated based on the domestic carbon pricing of the implementing jurisdiction.	• Requires econometric modelling.
Low-carbon energy sources in the national electricity grid	• Electricity installed capacity by source of energy (in total and in %).	
Distributional impacts		
National level: % of jobs/income displaced in selected sectors/regions	• Data for vulnerable groups. • Case studies can offer insight into the needs of affected groups, which can be helpful for policy design.	• Ex ante modelling needed/ex post assessment based on data.
International level: Changes in selected variables between countries	• Variation in jobs, income, and/or exports. • Case studies can offer insight into the needs of affected groups, which can be helpful for policy design.	• Ex ante modelling assessment needed/ex post assessment based on data.

Source: UNCTAD.



Table 4 presents a summary of the suggested indicators, potential variations, and data availability to assess the economic, social, and environmental and climate change exposure of BRICS countries to trade-related climate measures implemented by other countries.

Modelling the impact of trade-related climate measures

In addition to indicators, impact assessment models can provide valuable information for policymaking. In 2021, the KCI compiled a database of tools for assessing the impacts of the implementation of mitigation policies and strategies. The non-exhaustive database comprises 44 tools and methods for measuring the impacts of economic, environmental, social, and SDG indicators at global, national, subnational, and household levels. These are categorized into quantitative and qualitative approaches, including methods that can be used to assess the impact of trade-related climate measures.⁸ Table 5 lists the type of approaches identified by the KCI; computable general equilibrium models (GCE) are the most widely represented, with 25 examples (57 per cent).

⁸ See <https://unfccc.int/documents/274695>.

Computable general equilibrium models

These models capture intersectoral relationships as specified in national input-output tables, showing the inputs used in production in economic sectors for each country and linking countries through bilateral trade in goods and services.

CGE models are whole economy models based on economic theory, populated with real economic data that depict the economy in a given year (base year). They are designed to show the economy-wide impact of various policies, such as changes in taxes, tariffs, productivity, and other exogenous shocks, on economic variables. CGE models can be applied to global, regional, or national analysis (KCI, 2024).

In the case of BCAs, the key output and statistical measures used to assess the effects of these trade-related climate measures are:

- Emission reduction
- Carbon leakage rate (%)
- Effects in terms of trade (changes in export/import prices)
- Income effects
- Employment effects



Table 5
KCI identified approaches for assessing the impact of the implementation of response measures

Quantitative tools	Quantitative tools/mixed methods
Computable general equilibrium models <i>Whole economy models based on economic data</i>	E.g., Surveys and mixed methods
Integrated assessment models <i>Models that integrate geophysical and economic systems</i>	
Macro econometric models <i>Behavioral equations estimated from national accounts data</i>	

Source: KCI (2024: 10).



- GDP, inflation, and other economic variables

CGE models capture both direct and indirect effects of policy changes, including ripple effects across sectors through input-output linkages.

Examples of this model include the Global Trade Analysis Project (GTAP) and the WTO Global Trade Model (GTM). The GTAP Energy-Environment version, GTAP-E, with its CO₂ emissions module, incorporates carbon emissions from the combustion of fossil fuels and industrial processes (Corong et al., 2020). The model links data on fossil fuel-related CO₂ emissions to economic activity in each sector and country. The WTO GTM is a computable general equilibrium model based on GTAP that is focused on the real side of the global economy (such as production, consumption and investment), modelling global trade relations.⁹

⁹ See Aguiar et al.(2019) for a technical description of the WTO GTM.

Key limitations of the CGE approach include high data demands, reliance on single-year empirical data, and sensitivity to parameter assumptions like elasticities. The underlying economic theory has also been critiqued for unrealistic assumptions typical for these economic models, such as fully rational agents and perfect information, which may result in misleading policy outcomes, particularly in the context of climate change mitigation (KCI, 2022; Stern, 2016).

These models must also be adapted or recalculated for each type of trade-related climate measure modelling exercise. For instance, sectors in the GTAP database may not be as specific as needed. For example, aluminium is included in a broader product group that also includes other metals such as copper and zinc. Coal, oil, and gas are kept as separate sectors, while other sectors are aggregated into broader product groups.





3. Policy considerations

BRICS countries can strengthen resilience by expanding renewable energy sources, mobilising climate finance, and promoting low-carbon sectors. International collaboration on technology, carbon metrics, and just transition principles can reinforce both climate and development objectives.

Understanding the exposure and potential impact of trade-related climate measures can help BRICS countries, as a group or at the national and sectoral levels, identify and put in place the best policy options and tools at national and international levels to minimize the impact of these measures, leverage opportunities for common approaches and strategies, and take advantage of potential trade opportunities.

Based on the information presented earlier, this note puts forward the following policy options for BRICS countries aimed at three goals:

- Enhancing the resilience of affected sectors (national and international levels).
- Maximizing positive spillovers while minimizing the adverse effects of trade-related climate measures.
- Supporting international cooperation between BRICS countries.

Targeted measures to enhance the resilience of affected sectors (national and international level)

a) Increase the share of renewable energy in the electricity grid and as an energy source for sectors targeted by trade-related climate measures

As discussed earlier, increasing the share of renewable energy in the grid not only

advances the transformation to a low-carbon economy but also helps reduce the carbon-embedded emissions of exports targeted by trade-related climate measures. These efforts must be complemented by initiatives to connect export-related production facilities to the grid and renewable energy sources, enabling the realization of these potential benefits. The availability of renewable energy sources can act as a pull factor for FDI, which is especially relevant in the context of limited fiscal space for public investment (UNCTAD, 2023b).

When looking at the measures in the NDCs, as of late 2023, approximately 90 per cent of contributions included mitigation measures targeted at renewable energy generation, with energy efficiency improvements in buildings noted by 73 per cent of countries (UNFCCC, 2023b). However, not all countries show the same level of detailed investment planning. Of 147 NDCs submitted by developing countries, 48 provide information on investment requirements, and only 40 discuss prospective sources of investment (UNCTAD, 2023b). Comprehensive planning for energy transition investments is essential. When considering emission reduction targets and associated transition pathways for the energy mix, it is necessary to identify the necessary assets and infrastructure, assess energy demand potentials and their geographic distribution, including export-oriented production processes. Planning is critical to enhancing investor confidence, clarifying investment opportunities, and



enabling the development and promotion of bankable projects (UNCTAD, 2024a).

b) Explore international climate financing initiatives to unlock funding for low-emission and resilient infrastructure, and technology acquisition and deployment

UNCTAD estimates that energy investment needs amount to \$2.2 trillion, encompassing investments in energy generation, energy efficiency, and low-carbon transition technologies and sources. Renewable energy investments in developing countries alone are estimated to be around \$1.7 trillion annually. However, these economies only attracted \$544 billion in 2022 (UNCTAD, 2023b). Several initiatives have been proposed in recent years to advance decarbonization, such as country platforms (e.g., Just Energy Transition Partnerships (JETPs), South Africa, Indonesia, Viet Nam, Senegal) (Karg et al., 2025) Indonesia (2022). These are designed to support national planning and help crowd in financing through blended finance supported by diplomatic and institutional efforts. Other initiatives involving BRICS countries include, among others: the International Energy Agency (IEA) Global Commission on People-Centred Just Transition Commission: Designing for Fairness;¹⁰ Green Grids Initiative;¹¹ Mission 300 (for Africa);¹² the Oil & Gas Decarbonization Charter (United Arab Emirates);¹³ the Net-zero Producers Forum (Canada, Norway, Qatar, Saudi Arabia and the United States).¹⁴

Beyond oil and gas funds for Kenya, Colombia, Brazil, and other major producers, additional climate finance mechanisms are also being proposed to support climate action and energy transition.

¹⁰ See <https://www.iea.org/programmes/designing-for-fairness>.

¹¹ See <https://greengridsinitiative.net/>.

¹² See <https://www.worldbank.org/en/programs/energizing-africa/overview>.

¹³ See <https://www.ogdc.org/>.

¹⁴ See <https://www.energy.gov/articles/joint-statement-establishing-net-zero-producers-forum-between-energy-ministries-canada>.

¹⁵ See also UNCTAD (2025b) for a range of ideas for a BRICS agenda to enhance climate finance, grounded in the principles of climate ambition, solidarity, and respect for national sovereignty.

In addition to the Green Climate Fund (GCF) and the Global Environmental Facility (GEF), the World Bank's Climate Investment Funds (CIF), the Adaptation Fund, the Global Energy Efficiency and Renewable Energy Fund (GEEREF); and bilateral funds such as Germany's International Climate Initiative (IKI), the United Kingdom's International Climate Fund (ICF), and the European Union Just Transition Fund have also been created to support member states in their economic energy transition. The list is long and growing.¹⁵ Equally important are emerging Southern-led institutions, including the New Development Bank (NDB), the Asian Infrastructure Investment Bank (AIIB), and the Islamic Development Bank (IsDB), all of which have a strong BRICS presence and can play a significant role in advancing South-South cooperation, particularly on finance and technology sharing. Additionally, over 80 public development banks (PDBs) at national and subnational levels within BRICS countries collectively manage assets exceeding \$5.8 trillion. These organisations are critical actors in advancing development and climate action—especially in supporting highly localized adaptation efforts (UNCTAD, 2025b). BRICS countries may want to assess the value added from these mechanisms in terms of financing and technology, as well as their geographical coverage, and assess existing gaps in terms of geography or technology to propose a comprehensive mechanism that is inclusive and fit for purpose.

c) Couple green growth and decarbonization objectives with policies to increase productive capacity, strategically promoting industrial, agricultural, and forestry sectors that could attract investment

Low-carbon diversification efforts, could help BRICS countries increase their resilience to trade-related climate measures



Box 1**UNCTAD's Green export strategies can help harness trade to promote low-carbon growth and South-South cooperation**

The production and trade of environmentally preferable goods and services have become key enablers of export growth, climate resilience, market access, and job creation. Over the past two decades, the market for such goods and services — i.e., whose production and use have a positive environmental impact in comparison with their traditional counterparts or generate positive environmental externalities — has recorded steady growth. BRICS countries are central to numerous low-carbon value chains. From the critical minerals required for the energy transition, renewable energy generation equipment, electric vehicles, sustainable agrifood products, and environmentally preferable textiles, BRICS economies account for a significant share of the production, trade, and consumption of fast-growing climate-strategic goods.

As part of its work on sustainable trade, UNCTAD supports developing countries in leveraging their comparative advantages to use exports as a driver for low-carbon production, climate resilience, and social inclusion. UNCTAD's national green value chain support projects have been implemented in over 30 developing countries over the past decade. The project involves the identification and prioritization of high-potential sustainable export value chains, and the development, through extensive research and multi-stakeholder consultations, of comprehensive national green value chain strategies (see Figure 3).

Figure 3
Key steps of the sustainable export strategy development process



Source: UNCTAD.

Low-carbon diversification efforts could help BRICS countries increase their resilience to trade-related climate measures. Shifting BRICS' export composition towards more knowledge-intensive, technologically complex, and environmentally sustainable products is also generally associated with a lower ecological impact (Udeagha and Ngepah, 2023). export diversification, and fiscal decentralization are all viable approaches for resolving environmental concerns and achieving environmental sustainability goals. These tactics could help countries and levels of government pursue what they consider to be sustainable development. This research assesses the combined impact of export diversification, green technical innovation, and fiscal

decentralization in order to accomplish the environmental sustainability goals of the BRICS countries from 1970 to 2020. The long-run dynamic equilibrium between the chosen variables is explored using the augmented mean group (AMG). To ensure this is the case, environmental regulations must accompany these efforts on economic transformation and diversification.

UNCTAD has a decade-long tradition of supporting developing countries in identifying green products and sectors with trade potential. Box 1 describes UNCTAD's technical cooperation tool to support developing countries in leveraging their comparative advantages in using exports as a driver for low-carbon production, climate resilience, and social inclusion.

Additionally, to support the design and implementation of NDCs and national action plans, and ensure coherence between climate, trade, and development policies, UNCTAD has recently developed a Guide for policymakers to mainstream trade and trade policy into NDCs.¹⁶

BRICS countries could also explore developing a bottom-up, pro-development, and environmentally preferable goods list, based on a review of their Nationally Determined Contributions (NDCs), National Biodiversity Strategies and Action Plans (NBSAPs), national bioeconomy plans (when available), and national green exports strategies. This list would reflect the goods needed to advance the implementation of these plans.

Taken together, these types of measures should help to build resilience in the affected sectors and increase the “green or low carbon” comparative advantages of BRICS countries.

Tools to maximize positive spillovers while minimizing adverse effects

Several tools and approaches could be assessed to maximize positive spillovers while minimizing the adverse effects of trade-related climate measures in BRICS economies:

a) Ex-ante modelling

As discussed earlier, impact assessment models and indicators can help to capture the potential impact of trade-related climate measures. These tools can also help estimate the synergies and trade-offs between different transition paths, particularly in the context of limited fiscal space. To ensure a smooth and inclusive national transition to low-carbon economies, BRICS countries could explore the use of ex-ante assessment models to evaluate the potential socioeconomic impacts of alternative national decarbonization strategies. These models would simulate and compare strategies in terms of their impact on GHG emissions, employment, economic growth, and overall development.

Given the structural diversity within BRICS economies, ranging from industrial economies like China and India to resource-rich nations such as Brazil, the Russian

Box 2

The Climate Transition Impact Framework

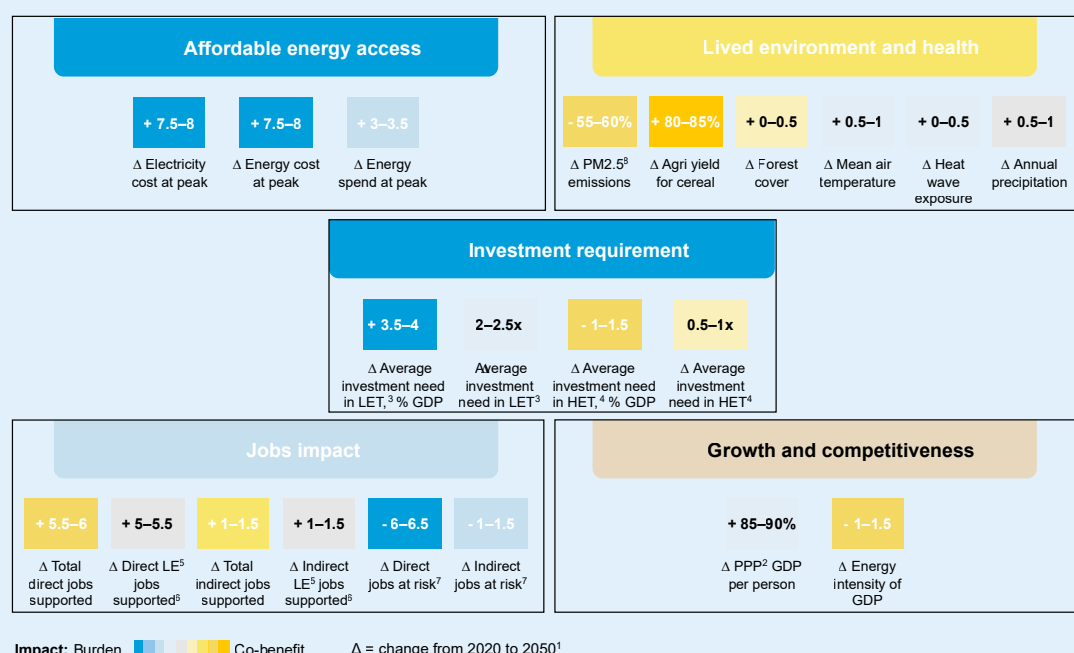
The Climate Transition Impact Framework (C-TIF), introduced at the 2023 Conference of the Parties of the United Nations Framework Convention on Climate Change (COP28), proposes a structured, forward-looking approach that enables decision makers to compare the potential socioeconomic impacts of different climate action pathways. The C-TIF was developed in collaboration and consultation with over 70 organizations, ranging from intergovernmental organizations; multilateral development banks; and academic institutions to philanthropic organizations and the private sector. It contains over 60 metrics across five dimensions: Affordable Energy Access; Lived Environment and Health; Investment Requirement; Jobs Impact; and Growth and Competitiveness. Taken together, C-TIF metrics provide a comprehensive analysis of the potential socioeconomic impacts associated with chosen climate pathways and could be used to support decision makers in robust transition planning.

The 2025 report illustrates the C-TIF using outputs produced using two scenarios from the Network for Greening the Financial System (NGFS). The report sets out country-level socioeconomic impacts of two scenarios—Net Zero 2050 and Current Policies—across its five dimensions for a range of countries across the UNSD world regions.

¹⁶ See UNCTAD (2025). Trade and investment policies to advance national climate plans. Trade policy guide for policymakers. Forthcoming.

Box 2 (contd)

The below illustrative results for an upper-middle-income country in Latin America find an investment burden in low-emission technologies, but also sizeable job opportunities in associated sectors. These results demonstrate how socioeconomic co-benefits and burdens can be seen across the C-TIF dimensions under the NGFS Net Zero 2050 scenario. The average annual investment needed in low-emissions technologies increases by 4 per cent as a share of GDP, relative to 2020, meaning this country needs additional investment to finance the pathway to net-zero under this NGFS scenario. However, if financing is secured, job opportunities emerge in the manufacture and operation of low-emission technologies and systems, associated with these investments. Further co-benefits could include improved air quality and biodiversity, supported through increased forest cover.



Note: These outputs are illustrative and not a prediction or projection. They are based on scenarios, assumptions and data from NGFS and other sources and are intended to illustrate how the C-TIF framework might be applied. Decision-makers should understand the limitations and uncertainties inherent in the underlying modelling. For instance, the scenarios do not cover the full range of costs to achieve Net Zero in 2050 or the feasibility of potential actions required across the dimensions.

1. Except for the energy cost subdimension and the mean air temperature metric
2. Purchasing Power Parity
3. Low Emissions Technology
4. High Emissions Technology
5. Low emissions
6. from total jobs supported
7. The “-” polar sign for jobs at risks indicates an increase
8. Particulate Matter

Source: Contribution by Climate Transition Impact Framework (C-TIF): Planning for a sustainable and inclusive future. McKinsey Sustainability (2025). Available at: <https://www.mckinsey.com/capabilities/sustainability/our-insights/climate-transition-impact-framework-ctif-planning-for-a-sustainable-and-inclusive-future#/>.

Federation, South Africa, and the United Arab Emirates, this could be particularly relevant at the country level. Box 2 describes the Climate Transition Impact Framework, an example of a set of modelling tools to analyze the potential socioeconomic impacts of selected climate pathways. This type of tool can be used to support decision-makers in robust transition planning.

This type of assessment is essential for designing evidence-based and socially inclusive policies that align climate objectives with economic resilience. By identifying winners and losers in advance, governments can implement measures, such as retraining programs, social safety nets, or targeted investment incentives, to ensure no community or sector is left behind.

b) Affordable access to technology and research cooperation

Few developing countries have become producers and exporters of complete renewable energy systems, such as solar panels and wind turbines. However, many developing countries have production and exporting capacity of low-carbon technologies that are part of global renewable energy system value chains (e.g., Singapore, Mexico, Malaysia, Thailand, Viet Nam, India, Türkiye, South Africa, and Brazil) (IEA, 2022). These countries face constraints in developing their own domestic renewable energy production systems, including a lack of affordable access to technology, expertise, and high capital costs, as well as competing demands for public finance. The small size of many of these countries' markets further limits the justification for investment in these renewable energy systems.

BRICS members, such as China (renewables) and Brazil (agriculture), have expertise and large existing productive capacities that could accelerate low-carbon energy and agriculture-smart

transitions through South-South or triangular cooperation. South-South cooperation on the clean energy transition has also been scaling up in recent years, particularly by China through its Belt and Road Initiative (Wang, 2025). BRICS countries could assess their successes and gaps to inform a win-win mechanism to facilitate access to technologies to developing countries at affordable costs and within fiscal constraints.

The Global System of Trade Preferences (GSTP) could also serve to advance technology transfer and research in low-carbon technology, agriculture, and fisheries, for example. The GSTP is a unique partnership framework for South-South trade cooperation that emerged from discussions among the Group of 77 and China within UNCTAD in 1988.¹⁷

Despite its potential value, the GSTP has been underutilized due to the lack of ratification of the latest São Paulo Round results, which were concluded in 2010. The GSTP allows members to negotiate sectoral agreements and arrangements relating to (1) direct trade measures, including medium and long-term, (2) relating to non-tariff measures, and (3) Tariffs and para-tariffs. The GSTP framework may be used to facilitate public-private partnerships for production, trade, government procurement of low-carbon technology and products, capacity building (e.g., research, training), and after-sales services, among other initiatives. It could also help explore options for South-South transfer of technology mechanisms such as patent pools, joint research and training centres, and regional centres of excellence in support of low-carbon technology development and deployment.

Brazil, India, Egypt, Indonesia, and Iran (Islamic Republic of), as members of the GSTP, could propose a new round of negotiations to facilitate trade among GSTP members in climate-related technology and services, including in

¹⁷ More information on the GSTP is available on <https://unctad.org/topic/trade-agreements/global-system-of-trade-preferences>.



hard-to-abate sectors, such as cement and steel. Others could join later.

It would be important to ensure that technology and research-focused initiatives aim to increase value added in developing countries by helping them gain or maintain a share of the value chain.

In addition, cooperation in research to better understand trade-related climate measures and their impacts on BRICS countries, both individually and as a group, can support these economies in identifying joint strategies to mitigate adverse effects and capitalize on emerging economic opportunities.

c) International cooperation on interoperability of carbon metrics and transparency

Strengthening international coordination is essential to harness positive cross-border spillovers and mitigate potential negative externalities from trade-related climate measures such as BCAs. Common frameworks for carbon pricing metrics and interoperability enhance transparency, reduce compliance costs, and support the design of policies that minimize trade frictions and carbon leakage (WTO et al., 2024).

The co-design of methodologies and frameworks for carbon accounting strengthens the credibility and comparability of national efforts, facilitating informed decisions, mutual trust, and interoperability. International cooperation also allows for broader access to finance and green technologies, particularly for developing countries. Strengthened cooperation and alignment in this area could help ensure that climate ambition is not undermined by policy fragmentation or inefficiencies. Initiatives in industries such as steel and fertilizer indicate the potential of standards in measuring GHG emissions to reduce trade costs, increase interoperability, and contribute to the decarbonization of these sectors.¹⁸ Furthermore, increased

¹⁸ See WTO et al.(2024).

transparency could also help lead to future harmonization and convergence, reducing compliance costs (WTO et al., 2024). In this respect, BRICS countries might want to cooperate in strengthening their monitoring, reporting, and verification systems and explore coordination with countries at the origin of BCAs.

Measures to support BRICS international cooperation

a) Strengthen the capacity of civil servants and institutions in sustainable industrial policymaking and implementation

Foreign direct investment (FDI) in SDG sectors is declining (UNCTAD, 2024b, 2025c). Public financing (particularly in infrastructure), well-developed projects, derisking strategies, and well-designed financial instruments are necessary to attract investment. However, designing and sequencing low-carbon transition pathways as well as assessing their co-benefits and trade-offs require strong institutional capacities, including skilled civil servants. This is especially relevant when assessing the impact on vulnerable groups such as MSMEs, small farmers, and fisherfolk. Designing financing strategies to implement these policies is also complex and should consider the unique endowment and development levels of countries. Therefore, strengthening the capacity of civil servants in sustainable industrial policymaking and ensuring that institutional infrastructures are capable of designing and delivering industrial strategies, is also critical to enable the effective design and implementation of strategies that drive economic transformation, while aligning with the socio-economic and environmental goals of countries (OECD et al., 2024) in an inclusive manner and adapted to



each national context – requires an active co-operation of all countries, developed and developing. It also entails ensuring that no one is left behind, and offering support to those in need, including LDCs.

Peer-to-peer learning and train-the-trainer programs could quickly scale capacity. This could be facilitated by regional and national public training centres (in partnership with southern universities, which universities in the north could support) that can help accelerate knowledge by collecting and sharing knowledge of good policy practices, and where they work or not, and for whom. To ensure no one is left behind, vulnerable groups and key stakeholders must be consulted and involved in the decision-making process. Programs to capacitate decision-makers in these inclusion and participatory processes would be key to ensuring policy coherence and inclusion. BRICS countries could consider hosting a regional training centre in partnership with their universities and other universities in the region.

b) Develop and include green and just transition principles and policy coherence considerations

The transition to a low-carbon economy would have winners and losers, even without some countries implementing trade-related climate measures. Jobs in fossil fuels and carbon-intensive sectors are expected to decrease, while job creation opportunities are expected to be higher in renewable energy, sustainable agriculture, construction, and green manufacturing. Geographic and sectoral mismatches regarding jobs and skills would require proactive planning, upskilling, and social protection. Women and low-income workers are particularly vulnerable and require targeted support (OECD et al., 2024) in an inclusive manner and adapted to each

national context – requires an active co-operation of all countries, developed and developing. It also entails ensuring that no one is left behind, and offering support to those in need, including LDCs. A mix of policies is typically required, including cash transfers, progressive tax reforms, and reskilling initiatives. In support of the G20's work in 2024, a group of entities, including the United Nations, suggested that these economies integrate green and just transition principles into their national and international frameworks.¹⁹ This could also be explored by BRICS countries, alongside international cooperation in financing, technology transfer, and capacity building, which can help support policy coherence. In this regard, BRICS countries could also consider leveraging the Baku Initiative for Climate Finance and Investment for Trade (BICFIT) Dialogue. The initiative, led by Azerbaijan as COP 29 President and co-facilitated by UNCTAD and the UN Development Program (UNDP), in collaboration with other organizations, was launched at the United Nations Climate Conference COP29 in Baku, Azerbaijan. It aims to advance national ambitions and actions through the synergistic utilization of climate finance, investment, and trade in accordance with the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement. It seeks to foster socio-economic co-benefits of climate policies, ensuring equitable and environmentally sustainable transitions for vulnerable populations, including MSMEs and countries with special needs.

Green and just transitions must be managed through inclusive planning, stakeholder engagement, and investments in green skills and infrastructure. UNCTAD's Guide for policymakers to leverage trade in NDCs and national climate plans can help to align climate, trade, and development policies.²⁰ For instance, there is potential

¹⁹ See OECD et al (2024) in an inclusive manner and adapted to each national context – requires an active co-operation of all countries, developed and developing. It also entails ensuring that no one is left behind, and offering support to those in need, including LDCs. The role of G20 in promoting green and just transitions.

²⁰ See UNCTAD (2025). Trade and investment policies to advance national climate plans. Trade policy guide for policymakers. Forthcoming.



for a larger inclusion of trade governments' officials in the design of NDCs. Only 25 per cent of analyzed NDCs from developing countries (15 out of 60) indicated the involvement of trade officials in the design of the contributions (UNCTAD, 2025a).

A strong financing plan, inclusive of bilateral climate finance, development banks, resource mobilisation and where suitable, innovative instruments, are needed to support innovation, reskilling, and compensation for affected communities. Efforts in this direction would help countries align their climate goals with equity and support developing countries through financing, technology transfer, and capacity-building (OECD et al., 2024)

in an inclusive manner and adapted to each national context – requires an active co-operation of all countries, developed and developing. It also entails ensuring that no one is left behind, and offering support to those in need, including LDCs.





4. Conclusion: From reaction to action

Trade-related climate measures reshape competitiveness and create compliance costs. Still, BRICS countries can respond by increasing their resilience to these measures, seizing opportunities in green sectors, and advancing cooperation to support a just transition.

Trade-related climate measures, such as border carbon adjustments (BCAs), are reshaping international competitiveness by favouring countries with lower carbon intensity, typically developed economies. While these measures can support climate objectives, they also introduce compliance costs that disproportionately burden developing countries, particularly micro, small, and medium-sized enterprises (MSMEs) in these economies. These impacts risk exacerbating existing inequalities and trade tensions unless mitigated through international cooperation.

To ensure trade-related climate measures contribute positively to global climate goals, they must be designed to maximize beneficial spillovers and limit adverse cross-border effects, especially for developing trade partners. This includes minimizing compliance costs, avoiding arbitrary standards, and providing transitional support. A balanced approach can help ensure that climate action does not come at the expense of trade and sustainable development outcomes.

International coordination and cooperation among BRICS countries are critical to this effort. Aligning carbon measurement methodologies and product-specific emission metrics, as well as facilitating interoperability, can reduce reporting burdens and prevent market access issues. Cooperation also facilitates the diffusion of green technologies, access to climate finance, and higher ambition in climate targets.

BRICS countries have several policy options to increase their resilience to trade-related climate measures, including by taking advantage of economic opportunities in green sectors, ensuring policy coherence, and minimizing adverse effects. Finally, BRICS countries can help rebuild trust by strengthening South-South cooperation to support less developed economies in achieving a just transition.

To ensure trade-related climate measures contribute positively to global climate goals, they must be designed to maximize beneficial spillovers and limit adverse cross-border effects, especially for developing trade partners



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