



Policy Insights

Trade: a catalyst for achieving the Paris Agreement

KEY TAKEAWAYS

- ▶ **Trade policy is a strategic driver of climate action.** By lowering costs and expanding access to clean technologies, it can accelerate the global transition to low-carbon economies while also boosting exports.
 - ▶ **Trade in solar and wind technologies and their components** is growing faster than other industrial goods.
 - ▶ In 2021, **exports of environmentally preferable goods such as biodiversity-based products reached \$3.7 trillion.**
 - ▶ In 2023, **non-plastic substitutes exports hit \$485 billion.**
 - ▶ In 2024, **exports of other environmental goods reached \$2 trillion.**
 - ▶ **Increasing and diversifying exports in low-carbon industries** can generate the revenues needed to fund the climate transition and meet Nationally Determined Contributions (NDCs) under the Paris Agreement.
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What does trade have to do with NDCs?

To effectively meet the goals of the Paris Agreement,¹ Parties are required to prepare and submit updated nationally determined contributions (NDCs) every five years, aiming for the highest possible ambition². These NDCs must adopt an economy-wide approach that integrates climate policy with broader national economic and development strategies. NDCs are not just climate pledges; they represent each country's commitment to reduce emissions, adapt to climate impacts, and advance sustainable development. UNCTAD's Guide for Policymakers on Trade Policies to Advance National Climate Plans³ recommends designing mitigation policies that also deliver adaptation benefits and align with the Sustainable Development Goals (SDGs). This integrated approach can diversify economies, enhance resilience, and raise the level of ambition in emissions reductions⁴. In addition, developing new sustainable value chains can strengthen domestic resource mobilization, providing critical financing for climate action.

Effective implementation of NDCs is also critical. Trade policy can be a strategic enabler for countries to meet their climate goals while fostering economic growth. Measures such as tariff reduction or elimination for low-carbon goods, liberalization of trade in environmental services or harmonization and interoperability of sustainability standards can help attain climate goals. In this way, trade can accelerate the energy transition, expand markets for low-carbon emission products, and support the phase-out of carbon-intensive practices.

While much attention has been paid to the role of trade in climate change, particularly through embodied carbon in production and in transportation of goods, trade can also reduce the costs of achieving the climate and other SDGs by facilitating access to the goods, services, technologies, and expertise necessary for climate mitigation and adaptation through imports and cooperation.

To increase the understanding of whether and how national trade-related measures are integrated into national climate plans, and how trade policy can support climate goals, UNCTAD mapped the use of trade-related measures in previous NDCs (until September 2023)⁵ of 60 developing countries.⁶ The mapping identified that trade-related measures are increasingly being used to promote renewable energy, improve energy efficiency, and develop sustainable value chains. However, direct trade policies, such as tariffs and technical regulations, were less prevalent.

¹ The Paris Agreement is a legally binding international treaty on climate change. It was adopted by 196 Parties at the UN Climate Change Conference (COP21) in Paris, France, on 12 December 2015. It entered into force on 4 November 2016. Its overarching goal is to hold “the increase in the global average temperature to well below 2°C above pre-industrial levels” and pursue efforts “to limit the temperature increase to 1.5°C above pre-industrial levels.”

² UNFCCC (2016). The Paris Agreement. UNFCCC. Available at https://unfccc.int/sites/default/files/resource/parisagreement_publication.pdf?download

³ UNCTAD (2025). Trade Policies to Advance Climate Plans: Guide for Policy-Makers. <https://unctad.org/publication/trade-policies-advance-national-climate-plans>

⁴ UNFCCC (2024). Message to parties and observer states - From vision to reality: NDCs 3.0 – Bending the curve. United Nations Framework Convention on Climate Change. March. Available at <https://unfccc.int/documents/637412>

⁵ NDCs available online at the NDC Registry of the United Nations Framework Convention on Climate Change as of 30 September 2023.

⁶ UNCTAD (2023). Mapping Trade-related Measures in the Nationally Determined Contributions.



Integrating trade policy measures more systematically into NDCs can enhance both ambition and implementation. Strategic use of trade tools can help align economic development with climate goals, unlock new markets, and drive the transition to a low-carbon, sustainable future.⁷

The integration of trade policies into NDCs and national climate plans can help:

- Increase the level of ambition and implementation to achieve climate change goals in synergy with national SDGs priorities.
- Enhance adaptation strategies and ensure the resilience of export sectors.
- Accelerate the transition to a low-carbon economy by identifying relevant opportunities to attract investment, and improve national policy coherence by providing entry points to link climate change, trade and investment strategies to participate in global markets aligned with other national and development priorities.
- Maintain or increase competitiveness and market access - mitigating the impact of raising environmental standards and regulations, market trends and consumer preference.
- Strengthen sustainable export diversification and promote the integration of the most vulnerable people in low-carbon and climate-resilient value chains.

⁷ UNCTAD (2023). Idem



Urgency to decarbonize economies and trade

The urgency to act is clear. Climate change, biodiversity loss, pollution, along with desertification and other forms of environmental degradation, are among the greatest challenges of our time. They put increasing pressure on economic activities and hinder the achievement of sustainable development and economic growth.⁸

Global warming has already exceeded the 1.5°C threshold, leading to increasingly severe environmental and societal consequences. Developing countries, especially those that are particularly vulnerable to the effects of climate change, such as small island developing States (SIDS) and least developed countries (LDCs), are heavily impacted by these changes. Reducing emissions is therefore critical, not only for climate stability but also for economic security, *equity*, and community well-being.⁹

There remains a narrow window to meet the Paris Agreement's targets—if emissions are cut sharply and quickly, but recent NDCs fall short.¹⁰

Between 1 January 2024 and 30 September 2025, 64 Parties have submitted updated NDCs under the Paris Agreement, ahead of the United Nations Climate Conference (COP30) taking place in Belém, Brazil, in November 2025.¹¹ These countries represent only around 30 per cent of global emissions.¹² Even with additional submissions expected from major economies, including China, the European Union and India,¹³ the efforts in this new round of NDCs will not be enough to reach the Paris Agreement's targets.

Only eleven of the 35 largest emitters—six developed and five developing countries—have submitted updated, more ambitious NDCs.¹⁴ In 2023, the 35 largest emitters accounted for 91 per cent of carbon dioxide (CO₂) and 73 per cent of global exports,¹⁵ underscoring the need to decarbonize economies and trade flows.

⁸ UNCTAD (2025). Geneva Consensus, paragraph 43.

⁹ WMO (2025). WMO Greenhouse Gas Bulletin - No. 21. Available at <https://wmo.int/news/media-centre/carbon-dioxide-levels-increase-record-amount-new-highs-2024>, the word equity in italic was added by the authors

¹⁰ WMO (2025). WMO Greenhouse Gas Bulletin - No. 21. Available at <https://wmo.int/news/media-centre/carbon-dioxide-levels-increase-record-amount-new-highs-2024>

¹¹ FCCC/PA/CMA/2025/8. Nationally determined contributions under the Paris Agreement. Synthesis report by the secretariat. Available at https://unfccc.int/sites/default/files/resource/cma2025_08.pdf

¹² <https://www.wri.org/insights/assessing-2025-ndcs>

¹³ <https://www.wri.org/insights/assessing-2025-ndcs> and <https://www.thehindu.com/sci-tech/energy-and-environment/india-to-submit-updated-carbon-curbing-targets-around-november/article70085220.ece>

¹⁴ Submitted by Paris Agreement Parties and available on the NDC Registry as of 23 October 2025. Developed countries: Australia, Canada, Japan, Russian Federation, United Kingdom, and United States of America. Developing countries: Brazil, Malaysia, Pakistan and United Arab Emirates.

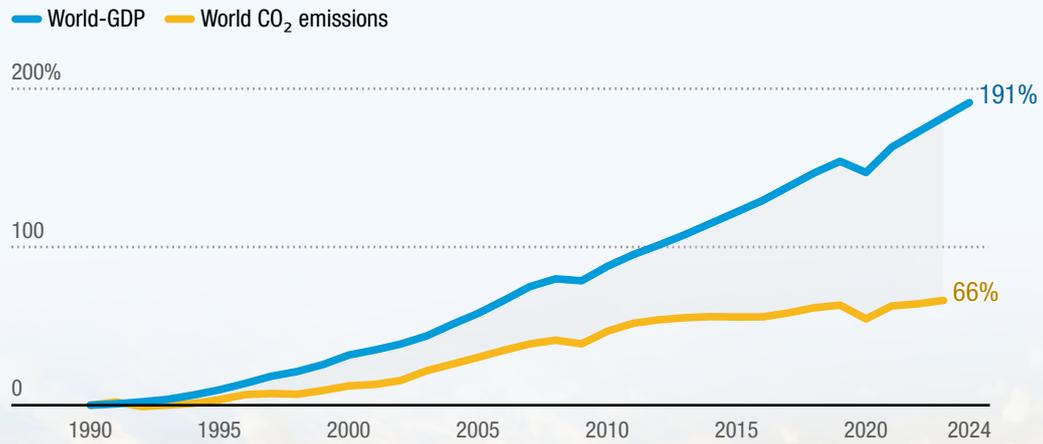
¹⁵ UNCTADstat and World Carbon Atlas.





Figure 1
Global growth still tied to rising CO₂ emissions.

Change in CO₂ emissions (percentage) and Gross Domestic Product (GDP) since 1990



Source: UNCTAD data based on World Bank, 2025 and Global Carbon Budget, 2024

Note: GDP is measured in constant 2021 international dollars (PPP). World CO₂ emissions is estimated based on annual consumption-based CO₂ emissions.



Trade as a catalyst for climate adaptation and mitigation

Enabling access to low-carbon technologies

- Trade facilitates access to renewable energy technologies, helping countries transition to low-carbon economies.
- Global trade in solar and wind technologies and components has surged, outpacing overall industrial goods trade, with solar leading since 2020.

Supporting climate adaptation through cooling solutions

- Trade can play a key role in mitigating heatwave impacts by increasing access to heat management goods like thermostats and insulating glass units.
- Between 2018 and 2023:
 - Trade in thermostats grew by 32%, reaching \$4.5 billion annually.¹⁶
 - Trade in insulating glass units rose by 43%, reaching \$2.6 billion annually.¹⁷
- The sustainable cooling market represents a \$600 billion opportunity, with projected benefits exceeding \$8 trillion for developing countries by 2050.¹⁸
- Expanding trade in sustainable construction materials and energy-efficient cooling systems can support delivering affordable, climate-resilient cooling solutions.

Advancing renewable energy access

- Reliable, affordable energy remains a major barrier to development and climate resilience, especially in Africa, where over 677 million people lack access to electricity.¹⁹
- Trade has helped reduce the cost of renewable energy, making it more accessible:
 - From 2010 to 2024, the global weighted average levelized cost of electricity (LCOE)²⁰ for new utility-scale solar photovoltaic projects fell by 41%, reaching \$0.043/kWh.
 - Onshore wind maintained a cost advantage with an average LCOE of \$0.034/kWh in 2024—53% lower than fossil fuel-based generation.²¹

¹⁶ HS 903210 – Included in the OECD list of environmental goods.

¹⁷ HS 700800 – Included in the OECD list of environmental goods.

¹⁸ IFC and UNEP (2024). Cooler Finance. Available at <https://www.ifc.org/en/insights-reports/2024/mobilizing-investment-for-the-developing-world-s-sustainable-cooling-needs>

¹⁹ World Development Indicators.

²⁰ LCOE, or levelized cost of electricity, is defined as the average total cost of building and operating an energy system over its lifetime, divided by the total energy output produced during that period. <https://www.sciencedirect.com/topics/engineering/levelized-cost-of-electricity>

²¹ IRENA (2025), Renewable power generation costs in 2024, International Renewable Energy Agency, Abu Dhabi. Available at <https://www.irena.org/Publications/2025/Jun/Renewable-Power-Generation-Costs-in-2024>.

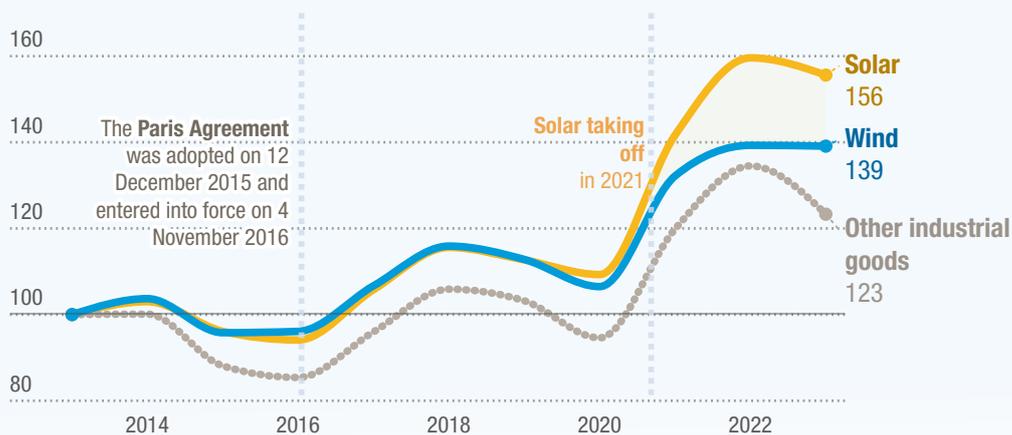




Figure 2

Growth in trade in goods in solar and wind energy goods outperforms industrial goods.

Index: for each category, global trade in 2013 = 100



Source: UNCTAD Secretariat.

Note: Classification of industrial goods according to the WTO Multilateral Trade Negotiations (MNT) categories. Many products used in solar and wind energy technologies can be used for several other purposes. Depicted trade flows correspond to total global trade flows of these goods, as their final use cannot be tracked with bilateral trade data.

But tariff and non-tariff measures remain a barrier

Average tariffs on key environmentally preferable goods—such as equipment used in renewable energy production—are often significantly higher than those on fossil fuels in both developed and developing importing countries.²²

Tariffs on solar and wind value chain products go from:

- 1.88 per cent in developed countries,
- 2.5 per cent in Asia and Oceania, and
- 7.1 per cent in Africa, rising to 7.6 per cent (when non-tariff measures²³ are included).

Tariffs on intermediate products can reach 8.1 per cent in Africa and 4.1 per cent in Asia and Oceania.²⁴ Regional integration — particularly through South-South cooperation — can help developing countries lower the cost and improve access to low-carbon technologies by reducing tariffs and enhancing regional trade flows.

²² A/77/207. International trade and development: note by the Secretary-General.

²³ Non-tariff measures are policy measures other than tariffs that can potentially have an economic effect on international trade in goods. Source: <https://unctad.org/topic/trade-analysis/non-tariff-measures>

²⁴ UNCTAD (2024). Powering Trade: Fine-tuning trade policy for solar and wind energy value chains. Available at Powering trade: Fine-tuning trade policy for solar and wind energy value chains | UN Trade and Development (UNCTAD).

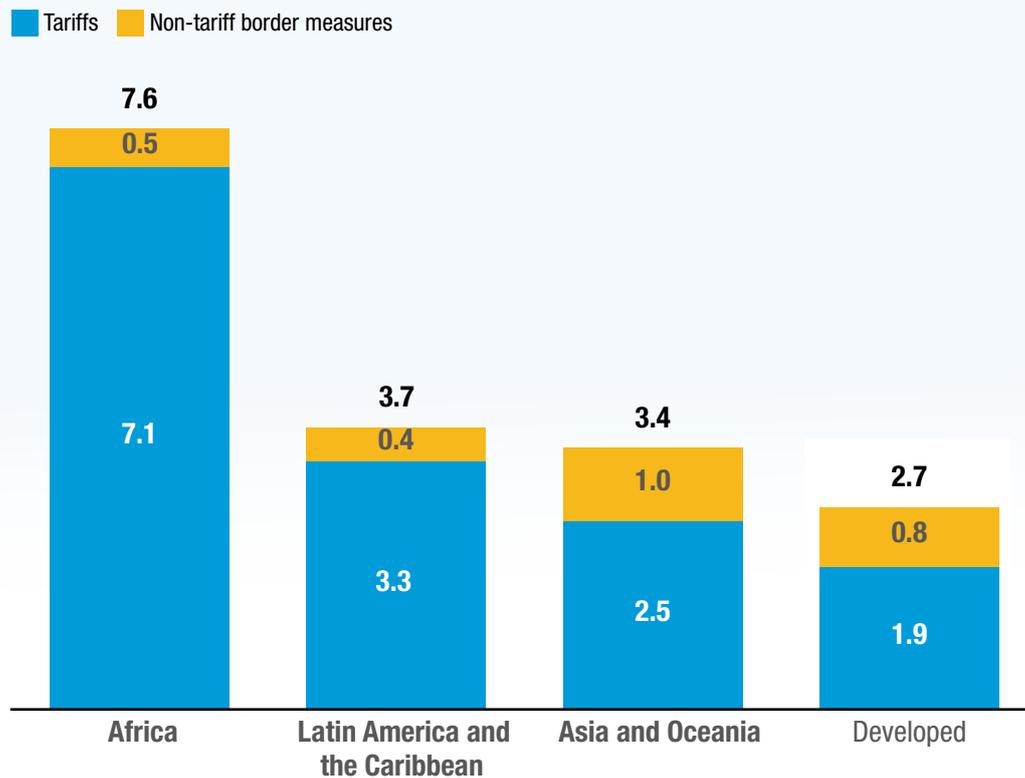




Figure 3

Trade costs of goods in wind and solar energy technologies remain substantial, especially in Africa.

Average tariffs and non-tariff border measures by region in %, 2020-2022.



Source: UNCTAD (2024).

Note: Trade costs as trade-weighted average of applied tariffs and ad-valorem equivalents of non-tariff border measures on goods entering solar and wind energy technology value chains by importing region. "Asia and Oceania" excludes China.

Similarly, lowering tariffs on plant-based plastic substitutes, currently averaging 14.4% compared to 7.2% for conventional plastics, would improve their competitiveness.

Non-tariff measures increasingly shape trade, influencing who trades what and how much. UNCTAD data show that climate-related regulations, though only a small share of total trade measures, are concentrated in major CO₂-intensive sectors like automotives, impacting trade flows of around US\$6.5 trillion — over a quarter of global trade in 2022.²⁵

²⁵ UNCTAD and UNESCAP (2023). Trade regulations for climate action?

New insights from the global non-tariff measures database Available at https://unctad.org/system/files/official-document/ditctab2023d5_en.pdf



Increasing and diversifying exports to increase revenues and resilience

Trade is a powerful driver of the low-carbon transition, unlocking dynamic new markets for environmentally preferable goods and technologies. By expanding these opportunities, trade can diversify exports, attract investment, spur innovation, and mobilize new revenue streams—advancing both climate ambition and inclusive economic growth.

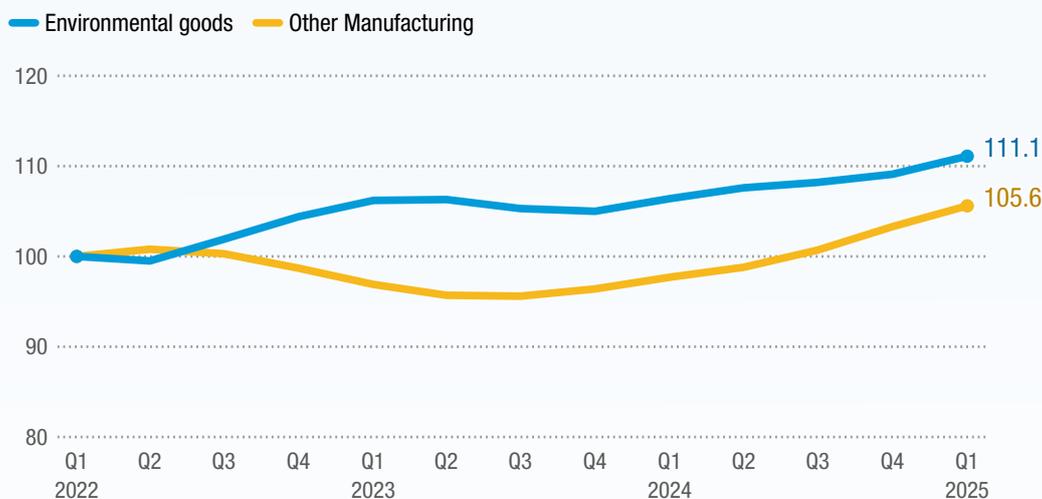
Global demand for environmental goods is rising.²⁶ In 2024, exports of Environmental Goods (as defined in OECD Combined List) reached \$2 trillion, accounting for 14 per cent of global manufacturing exports (Figure 4).

Developing countries have a comparative advantage in some of these new opportunities, especially in the production and export of environmentally preferable products:²⁷



Figure 4

Trade of environmental goods is still rising in 2024, but more slowly than in previous years.



Source: UNCTAD calculations based on national statistics of China, the United States of America and the European Union.

Note: Environmental goods are defined as in the Combined List of Environmental Goods (OECD). Statistics are locally weighted smoothed averages.

²⁶ There is no single definition and classification of environmental goods.

²⁷ These goods are products that, by their nature or method of production, are less environmentally harmful than alternative products serving the same purpose. This environmental preference can stem from:

- The materials used (e.g., natural fibres instead of synthetics),
- The production process (e.g., organic farming, sustainable forestry),
- The use phase (e.g., energy-efficient appliances or PV panels),
- Or the end-of-life disposal (biodegradable, compostable or recyclable).

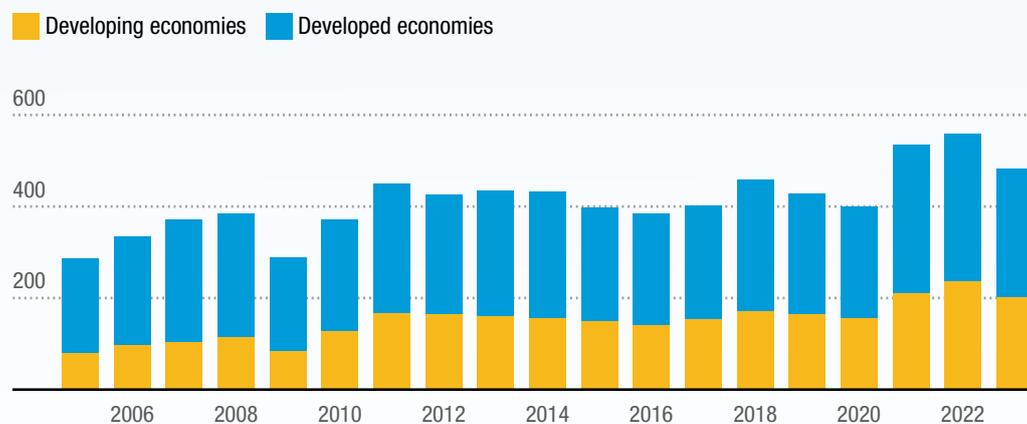


In 2023, global exports of non-plastic substitutes totalled \$485 billion, with developing countries contributing 42 per cent and averaging a robust 5.3 per cent annual export growth (Figure 5).

Biodiversity-based product²⁸ exports totalled \$3.7 trillion in 2021,²⁹ with sustainable ocean and blue biodiversity products, such as seaweed, offering promising opportunities for inclusive growth and climate adaptation.



Figure 5
Global exports in non-plastic substitutes show an upward trend with some cyclical declines, 2005–2023



Source: UNCTAD (2025).³⁰

Co-benefits and trade opportunities identified in the new NDCs of developing countries

Recently submitted NDCs from developing countries reveal that they link emission reduction strategies with efforts to boost climate competitiveness while also tapping into low-carbon market opportunities. Their new NDCs go beyond setting targets to incorporating trade and investment measures that align climate action with development goals—driving innovation, economic diversification, and global competitiveness.

²⁸ UNCTAD considers biodiversity-based products as those with a biological origin, including plant and animal species found on land, water and air, and that meet at least one of three criteria:

- intrinsically and integrally based on biodiversity & non- or low-processed stage, such as whole pineapples or ground coffee;
- principally use biodiversity-based ingredients or products as inputs in their production processes, such as cotton shirts, wooden furniture or chocolate bars; and
- they are derived mainly from biodiversity-based products (e.g., glycerol from natural oils and fats).

²⁹ Available at <https://unctad.org/news/trade-day-debut-un-biodiversity-conference>

³⁰ UNCTAD (2025). Global Trade Update (August 2025). Available at https://unctad.org/system/files/official-document/ditcinf2025d6_en.pdf





Table 1

Climate efforts can help to increase climate competitiveness.

Examples from selected new NDCs from developing countries.

Country	Measures	Expected effects and trade link
Brazil 	Replace fossil fuels with electricity, biofuels, and hydrogen in transport sector by 2035.	Reduction of emissions associated with the transport of goods, which could enhance climate competitiveness in international markets.
Kingdom of Cambodia 	Transitioning to Certified and Sustainable Wood Energy and Feedstock to avoid deforestation of remaining natural forests by promoting and mandating a phased transition towards the use of 100 per cent certified sustainable fuelwood for energy generation and as a feedstock in key Cambodian industrial sectors (e.g., Garment, Footwear, and Travel Goods (GFT)).	National technical regulations help address international market compliance requirements for export-oriented industries. to increase climate and sustainability competitiveness
Nepal 	By 2035, install waste-to-heat electricity recovery systems in 16 limestone-based cement industries to generate 75 MVA of electricity.	Waste-heat power cuts electricity costs and increases competitiveness, especially in energy-intensive and trade-exposed (EITE) sectors such as cement.
Singapore 	Phase down consumption of hydrofluorocarbons (HFCs) through the regulation of HFC imports, curb HFC emissions from the refrigeration and air-conditioning (RAC) sector, ban appliances using refrigerants, and mandate the recovery and proper treatment of recovered spent refrigerants to prevent their emission.	Affordable access to relevant technology contributes to mitigation efforts.

Source: UNCTAD based on NDCs 3.0 from developing countries available at NDC Registry as of 30 August 2025.



The role of international cooperation in trade and climate action

Developing countries are leading climate action. Nearly 90 per cent of recently submitted NDCs come from developing countries, underscoring their commitment to climate action while balancing sustainable economic growth and national development priorities.

Around 80 per cent of these NDCs include conditional targets that depend on international support, primarily through climate finance, access to technology and capacity-building.

Enhanced cooperation in trade can play a supportive role in helping countries meet these conditional targets by:

- Reducing the cost and improving access to affordable low-carbon technologies through open markets, tariff reductions, and regional trade cooperation.
- Facilitating the flow of climate-friendly goods and services, which will help countries implement their NDCs more effectively.

Support is also needed to develop robust systems for:

- Monitoring, reporting, and verifying (MRV) of embodied carbon in goods traded.
- Complying with voluntary and mandatory sustainability standards, which can otherwise increase trade costs.
- Promoting interoperability of regulations and sustainability standards that can reduce compliance costs, and open markets for developing countries.

Table 2 provides some examples of countries that included specific technology needs in their recently submitted NDCs ahead of COP30.



Table 2:
Examples of technology needs identified in new NDCs.

Country	Category	Technology needs can be addressed through trade
Marshall Islands 	Renewable energy and energy efficiency	Decentralized photovoltaic technologies Ocean thermal energy conversion
United Arab Emirates 	Cooling system	State-of-the-art technology in environmentally friendly cooling technologies and to reduce refrigerant use. Adoption of reverse osmosis technologies at the Fujairah power plant, and multi-effect distillation processes that utilize waste heat from turbines to evaporate seawater, alongside the implementation of semi-permeable membranes for filtering.
Brazil 	Renewable energy and energy efficiency Agriculture Waste Management	Technologies related to floating photovoltaic solar energy; Flex-fuel hybrid vehicles; Electric vehicles (battery, fuel, ethanol); For the use of agricultural and agro-industrial waste; Photovoltaic solar stoves with induction; Innovative materials for cement; Precision agriculture; Animal and forestry genetic improvement, mixed plantations for restoration, and satellite monitoring.

Source: UNCTAD based on NDCs 3.0 from developing countries available at [NDC Registry](#) as of 30 August 2025.



Trade and related policies for an inclusive and sustainable transition

- Trade agreements and partnerships, such as the Global System of Trade Preferences (GSTP), can facilitate South-South and triangular cooperation, helping remove or reduce cost of tariffs and non-tariff barriers on import of key environmental goods and technologies—especially those not produced locally.
- Aligning trade, industrial, and climate policies can unlock new opportunities in low-carbon sectors, enhance competitiveness, and promote sustainable value chains in areas like renewable energy, sustainable agriculture, and circular economy models. For instance, with the support of the UK-UNCTAD Sustainable Manufacturing and Environmental Pollution (SMEP) Program³¹, innovators transform agricultural waste, such as banana and pineapple leaves, otherwise burnt or sent to landfill, into alternative natural fibre or biofuel.
- Trade and investment can strengthen local value addition and enable developing countries to participate more effectively in emerging green markets, which in turn can provide sources of revenues to finance mitigation and adaptation plans. The Gambia, given the necessary support, aims to decarbonize the processed fish value chain through increased use of renewable energy (solar panels, solar dryers, biofuels from fish waste) as well as the production of fertilizers through fish waste processing. This measure would help the country reduce its reliance on imported chemical fertilizers and reduce a major source of carbon emissions for the country.

UNCTAD's [Guide for Policymakers to Advance National Climate Plans](#) provides a framework for integrating trade policy into national climate strategies, ensuring that trade contributes to inclusive, resilient development. It has been selected by the COP30 Presidency to accelerate efforts to advance Key Objective 24 on Climate and Trade³² and is part of the NDC partnership toolbox³³.

As mandated by the Geneva Consensus, UNCTAD will continue supporting developing countries in identifying and implementing climate-aligned trade policies that contribute to the 2030 Agenda for Sustainable Development.

³¹ SMEP is a USD 32 million programme funded by UK-FCDO supporting low-pollution manufacturing and value chain innovation in Africa and South Asia. Through SMEP's targeted procurement calls, a total of 27 projects were selected for funding across Sub-Saharan Africa and South Asia to pilot solutions within five intervention areas: Plastics Waste, Organic Waste and Water, Textiles, Tanneries and Used Lead Acid Batteries.

³² Available at <https://cop30.br/en/action-agenda>

³³ [Trade and investment policies to advance national climate plans: Guide for policymakers | NDC Partnership](#)



Through this publication,
UNCTAD provides valuable insights
into current and emerging trade policy
issues and their impact
on economic development in a fast
changing global trade context.

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