

SDG 13: Climate Action

“The fact is, we cannot get to net-zero without trade because it is indispensable for spreading low-carbon technology to everywhere it is needed.

WTO Director-General Ngozi Okonjo-Iweala, Launch of ‘Trade Day’ at COP28, December 2023 (WTO, 2023d)

Trade can be part of the solution to environmental challenges

The relationship between trade and environmental sustainability is complex and multi-faceted. While trade may add to environmental challenges as it increases transportation and production, trade also leads to positive environmental outcomes by allocating resources more efficiently and helping to develop, deploy and diffuse environmental technologies.

Trade can increase transportation and production-related pollution

International trade enhances global production efficiency, leading to increased global consumption and elevated living standards worldwide. However, this expanded production and consumption of traded goods contributes to greenhouse gas (GHG) emissions and other environmental challenges. The movement of goods and people across borders implied by international trade also generates GHG emissions. On average, two-thirds of trade-related emissions stem from production activities, with transportation accounting for the remaining third (Cristea et al., 2013). Moreover, in the absence of adequate government regulations, international trade can contribute to adverse environmental effects by promoting activities such as deforestation, habitat degradation and unsustainable resource extraction.

Trade facilitates the production and consumption of goods and services in different geographical regions, enabling economies to capitalize on their comparative advantages. However, while some economies can concentrate on cleaner production, others may experience worsening environmental conditions as a result of increased industrial activity and resource extraction.

Trade can also promote environmental protection by diffusing green technologies

While trade has contributed to increased emissions in recent decades, advancements in technology partially counteract this effect. Developing economies experience rising emissions due to trade openness, but the technology diffusion afforded by trade openness can mitigate some of the negative impact.

International trade brings direct benefits to the environment by spreading environmental technologies across borders, improving energy efficiency and increasing possibilities for renewable energy generation. The value of environmental goods imports has risen over the years, contributing to enhanced energy efficiency. Multinational companies transfer environmental technology through foreign direct investment, further promoting sustainable practices.

Economic liberalization also enlarges the market share of efficient firms, reducing pollution per unit of production. Exporters exhibit lower pollution intensity than non-exporters, and a reduction in trade costs allows more efficient firms to expand, decreasing industry-wide emission intensity.

Trade stimulates innovation and investment in environmental technologies by expanding markets and revenues. Exporting firms increase expenditure on pollution abatement and production process improvements. Access to larger markets through trade reduces production costs in environmental goods, fostering economies of scale.

Finally, trade can indirectly improve environmental standards by boosting incomes and living standards. Increased per capita income from trade raises demand for a cleaner environment, prompting stricter environmental regulations. The Environmental Kuznets Curve theory suggests that, as societies become wealthier, they invest more in environmental

quality. Higher-income economies enforce stricter regulations due to increased awareness, technical capacity and community empowerment.

Trade-related policy tools are increasingly used to address environmental challenges

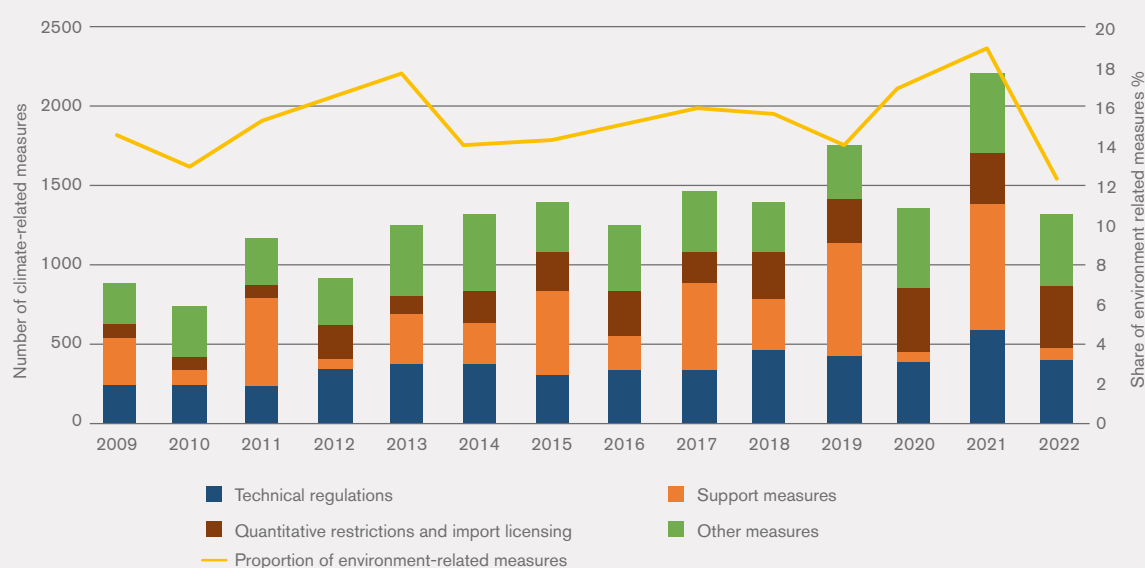
The portfolio of trade-related economic policy tools intended to slow climate change and address other environmental concerns includes environmental taxes/pricing, subsidies, regulations and standards, labelling requirements, and in some instances, quantitative trade restriction. Overall, in recent years, there has been a proliferation of environmental policies with potential trade implications, as a growing number of WTO members, including developing economies and LDCs, come to rely on trade-related policies to achieve environmental objectives. This is reflected in the increasing number and rising share of such measures notified to the WTO and recorded in the WTO Environmental Database (See Figure 7). The most common types of trade-related environmental measures are technical regulations and government support measures. Other types of measures include quantitative restrictions and import licensing.

Policy fragmentation could hinder the green transition

Coordinated environmental policies are vital to mitigate potential negative trade impacts and promote more effective environmental measures. Overly fragmented environmental policies, such as proliferating carbon pricing and subsidy schemes, can result in less effective and more costly measures. Uncoordinated policies can also negatively impact trading partners through spillover effects, raising concerns in WTO committees and bodies. International effects can arise from differing approaches to carbon mitigation and incompatible standards, and cause uncertainty, decrease efficiency, and increase trade costs. In contrast, harmonization of international standards and mutual recognition of certification schemes in regional trade agreements, for example, can enhance trade flows and facilitate market entry for third-country firms.

Environmental policies that negatively impact trading partners can create trade tensions and even give rise to retaliatory measures, leading to trade conflicts and jeopardizing the effectiveness of climate action and collective efforts under multilateral environmental agreements.

Figure 7: Increase in trade-related environmental policies under various WTO Agreements



Source: WTO based on WTO Environmental Database (<https://edb.wto.org/>).

Geopolitical tensions threaten environmental sustainability

Economic decoupling driven by geopolitical tensions poses significant challenges for environmental sustainability, alongside fragmented environmental policies. Decoupling entails forsaking many of the benefits of international trade and risks hindering innovation, slowing the diffusion of environmental technologies and raising technology costs.

Trade tensions can reshape the distribution of GHG emissions across supply chains. Simulation studies find that, in a scenario in which China and the United States stopped trading, the ensuing relocation of production to the rest of the world would increase net global GHG emissions by 0.3 per cent to 1.8 per cent (Yuan et al., 2023). Reduced trade can also limit technology spillovers and thereby impede responses to environmental challenges. Knowledge diffusion enhances productivity and can potentially reduce the costs of climate mitigation, suggesting that decoupling could substantially increase mitigation costs.

In addition, economic fragmentation could reduce economies of scale, making environmental goods and services costlier. For instance, localizing solar photovoltaic production requirements could significantly raise prices, thereby reducing their deployment and leading to job losses in the industry. Global value chains (GVCs) play a vital role in amplifying cross-border knowledge diffusion. When economic interdependence decreases, green technology flows diminish.

Re-globalization, which is characterized by heightened global integration and cooperation, offers avenues for environmental protection. For example, the greater emphasis on digital and services trade resulting from more global integration can diminish the environmental impact of international trade, while coordinated environmental policies are pivotal to harnessing trade for addressing global environmental issues effectively.

Services and digital trade offer a greener future

The evolution of global trade toward an increase in services and digital trade could help to reduce the carbon footprint of international trade. Traditionally non-tradeable services, including information, communications, financial activities and entertainment, can now be digitally delivered. Projections suggest that by 2040, the share of services trade in global

trade could surpass 30 per cent, with a significant increase in digitally delivered services. This shift indicates a potential reduction in carbon intensity in trade due to changes in technology and trade policies (WTO, 2019a).

Integrated trade and environmental governance

Addressing global environmental challenges like climate change and biodiversity loss requires collective, coordinated global action. Coordinated government support for clean technology research and development (R&D) can accelerate the green transition. Global policy alignment, combining environment-oriented R&D subsidies, harmonized regulations and carbon pricing instruments, is crucial both to innovate clean technologies and to facilitate their diffusion globally. Without coordination, dirty production inputs or waste and end-of-life products may shift to less regulated regions, undermining environmental progress.

Policy coordination extends beyond environmental policies to trade policies. Multilateral negotiations to eliminate tariff escalations, particularly in carbon-intensive industries, could help rectify this environmental bias in trade policies.

Trade policies also play a crucial role in addressing plastics pollution. Trade measures to combat plastics pollution involve tracking plastics trade flows, promoting safe recycling and reuse practices, and encouraging trade in sustainable alternatives to plastics. Aside from the environmental benefits, sustainable plastics management offers substantial economic gains, including job creation and cost savings. To address this issue, a group of WTO members launched an initiative in 2020 to explore ways in which the WTO could contribute to efforts to reduce plastics pollution and promote more environmentally sustainable trade in plastics. The initiative aims to improve transparency, strengthen regulatory cooperation and enhance technical assistance for vulnerable economies.

Trade policy tools for climate action

By employing these trade policy tools, economies can work towards mitigating climate change and adapting to its consequences. Coordinated action and international cooperation are essential to ensure that trade contributes positively to addressing this global challenge.

In 2023, the WTO released “Trade Policy Tools for Climate Action,” (WTO, 2023c) which explores ten trade policy areas that governments can leverage for climate change mitigation and adaptation. These include trade facilitation under the WTO's Trade Facilitation Agreement, which streamlines customs procedures to reduce trade costs, particularly benefiting poorer economies. The report also highlights the significant impact of government procurement, which comprises about 13% of global GDP and is linked to roughly 15% of greenhouse gas emissions, suggesting that green procurement policies could substantially lower emissions while yielding economic gains. Regulatory alignment and certification through international standards can minimize energy consumption and emissions by preventing regulatory fragmentation, especially in energy efficiency upgrades.

Trade in services like those crucial for climate strategies could be enhanced by easing restrictions, which would bolster government efforts towards climate resilience. Adjusting import tariffs could promote greener products by making them more affordable, supporting the transition to a green economy. Subsidy reforms could free up resources to support further climate actions, and enhancing trade finance could spread climate-related technologies more widely.

The report argues for more open and efficient global markets for food and agricultural products to aid climate action, enhance food security, and stabilize prices for food and fertilizers. Adherence to the WTO's Sanitary and Phytosanitary (SPS) measures ensures that climate-related SPS regulations are science-based and internationally standardized. Furthermore, better coordination of non-discriminatory internal taxes, including carbon pricing, could decrease policy fragmentation and compliance costs. Collectively, these trade policy tools are vital for economies to effectively address climate change challenges through coordinated international cooperation.

Government procurement and climate action

Government procurement²⁷ is of considerable economic importance, accounting for 5 to 20 per cent of national GDP, on average, and about 13 per cent of world GDP (i.e. approximatively US\$ 13 trillion per year) (World Bank, 2021). It can play a role in contributing to the achievement of SDG 13.

The effectiveness of government procurement as a tool to combat climate change and its impacts results from the sheer volume of demand for goods and services that it represents in practice. The buying power of governments can be deployed at all levels

of government to help economies transition to greener, low-carbon and circular economies. Appropriate climate-sensitive government procurement policies notably provide governments with a powerful lever to:

- shape and steer markets by influencing incumbent suppliers, if governments choose to purchase climate change-friendly or low-carbon goods and services. Thanks to the high volume of public sector demand, this can encourage the private sector to shift its entire production towards such goods and services, thus changing the marketplace for all buyers.
- create markets for new market entrants, such as suppliers of new green goods and services.
- stimulate green innovation, as governments can use procurement to prompt the private sector to identify innovative solutions to climate change problems.

The growing need for climate change adaptation measures means that governments must increasingly procure goods and services that can help to strengthen their economies' capacity to adapt to climate change (e.g., cooling systems, storm protection, the construction of dams and seawalls) and to respond to emergencies caused by climate change.

While government procurement can be a highly effective tool to pursue climate change mitigation and adaptation, the carbon footprint of government procurement activities is not negligible. One report (WEF and BCG, 2022) has suggested that government procurement may be directly or indirectly responsible for around 15 per cent of global GHG emissions, created in the production of the goods and provision of services that governments procure. However, while transitioning to climate-sensitive government procurement may initially result in a slight increase in governments' procurement costs, over time procurement costs can be expected to decrease with the scaling up of new technologies and other factors.

Climate-sensitive government procurement policies can also lead to financial savings for governments if they take into account the full life-cycle costs of purchased goods. Moreover, such government procurement policies can be expected to produce significant economic benefits, such as new green jobs, enhanced efficiency in energy and other resource use, and accelerated innovation (World Bank, 2021).

Governments can provide clarity and encouragement to their procuring entities by explicitly permitting the use of climate-sensitive technical specifications and evaluation criteria in tenders, or even by making the use of such evaluation criteria not just optional but mandatory.

In addition, governments can open their procurement markets, at least in part, to allow international suppliers to compete for certain high-value public contracts on a non-discriminatory basis, which can help to overcome a potentially costly and climate-inefficient home bias. A well-established, binding and reciprocity-based international instrument in this regard is the plurilateral WTO Agreement on Government Procurement (GPA 2012).²⁸ Market-opening can be expected to increase the number of bidders and thus enhance competition and value for money when purchasing climate-friendly goods and services. Moreover, market-opening can allow access to climate-friendly technologies that may not otherwise be available in the domestic market.

The green transition offers development opportunities

More sustainable trade presents development opportunities for economies historically marginalized in globalization. International environmental treaties acknowledge that different economies have varying responsibilities and capacities and emphasize the need to balance environmental protection with sustained economic growth, especially for impoverished populations.

Re-globalization opens doors for developing economies to engage in renewable energy trade,

BOX 1: Aid for Trade and the transition to clean energy

Clean energy is increasingly dominating global electricity production. This is demonstrated by International Energy Agency (IEA, 2021) estimates which show that by 2050, nearly 90 per cent of electricity will be generated through clean energy sources. For developing economies, supporting this transition could help fulfil climate objectives, advance industrial development, improve energy affordability and promote energy security.

International trade can help developing economies to boost growth prospects by opening opportunities for participation in value chains associated with clean energy production. Many developing economies, including LDCs, enjoy competitive advantages that could enhance their export potential and accelerate their growth. For instance, developing economies with substantial clean energy endowments could participate directly in cross-border renewable energy trade, and many developing economies could expand their participation in value chains associated with the production of clean energy technologies. This trade is expected to increase over the coming decades, given the rapid rise in clean energy demand.

Leveraging such opportunities will require a sustained flow of financing to support the capacity of developing economies to adapt to an energy transition. Yet, despite representing two-thirds of the global population, developing economies, including LDCs, receive less than one-fifth of global clean energy investments (IEA, 2021a).

Aid for Trade can play a catalytic role in helping to close this investment gap. This view is reflected in the responses to the 2022 Aid for Trade Monitoring and Evaluation exercise, as more than 60 per cent of donors and developing-economy partners indicated that Aid for Trade could help with the upgrade of existing energy and power generation infrastructures that were acting as impediments to a climate transition. This prioritization is reflected in financing flows, as an increasing share of Aid for Trade has been allocated towards clean energy infrastructure over recent years.

Much more could be done. Aid for Trade could be harnessed to address not only clean energy generation but also to achieve trade growth and export diversification in developing economies and LDCs. Financing can help to expand developing domestic infrastructure to facilitate clean energy trade, implement policy reforms, and assist micro, small, and medium-sized enterprises (MSMEs) integrate into international clean energy value chains.

A recent WTO report outlines the possible role of Aid for Trade during a clean energy transition (WTO 2024xx), focusing on the support provided by development finance partners and the trade and market opportunities for developing economies and LDCs arising in different segments of the clean energy value chain, and on how Aid for Trade can be leveraged to tap unutilized potential for renewable energy generation.

particularly those rich in resources necessary for that trade. Accessing renewable energy technologies through trade and technology transfer is important to enable developing economies to leverage their renewable energy potential.

Decarbonization and technology uptake could reshape energy exports, particularly in traditional fossil fuel exporters and middle-income economies. Developing economies can also capitalize on the green transition by developing trade in raw materials critical for clean energy production, such as lithium and cobalt, stimulating economic growth and fostering environmental sustainability (see Box 1).

The role of the WTO in supporting environmental sustainability

International cooperation, including trade policy, is vital for addressing global environmental challenges. Regional trade agreements (RTAs) increasingly integrate environmental provisions. The WTO, recognizing sustainable development as a core objective, ensures predictability and prevents protectionism in environment-related trade policies.

The WTO Agreement on Fisheries Subsidies, which focuses on environmental protection, prohibits harmful subsidies contributing to overfishing and the depletion of fish stocks. The WTO Committee on Trade and Environment facilitates discussions on trade measures for environmental objectives, fostering transparency, cooperation and resolving trade concerns.

Proposed reforms of the WTO aim to strengthen the role of trade in environmental protection, to promote the liberalization of trade in green technologies and investment in environmental industries, and to encourage the development of a skilled workforce. International trade cooperation can enhance supply chain transparency and accountability, promoting sustainable production and trade practices. Discussions on climate policies within the WTO framework seek to reconcile environmental actions with trade rules, ensuring predictability and avoiding disputes.

New sustainability-focused initiatives, such as the Trade and Environmental Sustainability Structured Discussions (TESSD), the Dialogue on Plastic Pollution and Environmentally Sustainable Plastics Trade (DPP) and the Fossil Fuel Subsidy Reform (FFSR) initiative, demonstrate WTO members' commitment to addressing global environmental challenges through concrete trade-related actions.

The importance of trade for the climate transition is increasingly foregrounded. The 2023 United Nations Framework Convention on Climate Change (UNFCCC) Conference of the Parties (COP28) was the first COP with a dedicated Trade Day, organized by the WTO and the United Arab Emirates in cooperation with UN Trade and Development (UNCTAD), the International Chamber of Commerce (ICC), the World Economic Forum (WEF) and the Abu Dhabi Department of Economic Development. The WTO Secretariat hosted the first Trade House Pavilion at COP28 with the ICC, International Trade Centre (ITC) and UNCTAD, at which 47 different sessions and more than 200 speakers featured. Several publications and initiatives were launched at COP28 by the WTO Secretariat, including the 10 "Trade Policy Tools for Climate Action" mentioned above, a set of "Steel Standards Principles" bringing together diverse stakeholders to increase harmonization of steel decarbonization standards, and a joint report by the WTO and International Renewable Energy Agency (IRENA) titled International Trade and Green Hydrogen: Supporting the Global Transition to a Low-Carbon Economy.

In many economies, governments have implemented policies with the objective of improving the business environment or tilting the structure of economic activity toward sectors, technologies or tasks that are expected to offer better prospects for economic growth or societal welfare. However, innovation policies have shifted away from simply aiming to build capacity in the manufacturing sector, as digitalization has become one of the primary drivers of innovation and productivity. Increasing concerns about environmental degradation and climate change have given rise to government interventions to direct the economy towards a green growth path. The policy tools to address sustainability issues can include command-and-control measures (i.e., regulatory measures or prohibition of certain products and practices), market-based instruments (e.g., carbon pricing, government support and government procurement), information instruments to provide environment- and energy-related information to allow for informed choices, and voluntary agreements.

Open and transparent trade policies are also contributing to the development and the spread of environmentally friendly and low-carbon technologies. The shift to low-carbon farming – especially climate-smart agriculture techniques that focus on intercropping, crop rotation, agroforestry and improved water management – could bring further benefits to developing-economy farmers in terms of improved productivity, greater resilience, less deforestation, and reduced reliance on fertilizers and fuels (WTO, 2022). The diffusion of low-carbon technologies could provide poorer economies with the tools they need both to limit carbon emissions and to accelerate their development.