

# Technology transfer

## A new agenda for LDC negotiators

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### Aligning climate and trade policy: a new agenda for LDC negotiators

#### Key messages

The United Nations Framework Convention on Climate Change (UNFCCC) and World Trade Organisation (WTO) agreements contain a range of commitments by developed countries to help Least Developed Countries (LDCs) access technology to support their development and address the impacts of climate change. Many of these commitments remain unmet. The COP26 and MC12 meetings urgently need to address this.

There is potential for greater synergies between UNFCCC and WTO technology transfer mechanisms for LDCs, especially around the transfer and integration of green technologies. There has been some discussion of climate change and technology transfer in the WTO TRIPS Council, the Committee on Trade and Environment and member-led discussions on trade and environment sustainability (TESSD), but this has not been systematised.

Technology transfer mechanisms should provide tangible technologies to enable LDCs to address severe climate events such as flooding, sea level rise, crop failures, deforestation and desertification and droughts.

Effective coordination of technology transfer requires institutional and regulatory capacity in LDCs. Supporting institutional capacity needs to be considered alongside support for actual transfers. This is particularly important for graduating LDCs, who would have to implement stronger intellectual property protection.



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## **About this publication**

This policy brief is one in a series entitled ‘Aligning climate and trade policy: a new agenda for LDC negotiators’. The publication series was complemented by three closed roundtables and two public events with LDC negotiators in advance of the 26th UN Climate Change Conference of Parties (COP26) and the 12th WTO Ministerial Conference (MC12).

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# Climate, trade and technology

The importance of transfer and local adaptation of technologies for sustainable development is widely acknowledged, as is the need for public incentives to support technology transfer for the poorest countries (Foray, 2009). Technology transfer is recognised as important for LDCs in both the United Nations Framework Convention on Climate Change (UNFCCC) and World Trade Organisation (WTO). Article 4.9 of the UNFCCC recognises the special situation of Least Developed Countries (LDCs) and calls on Parties to take full account of LDCs' needs in their actions with regard to funding and transfer of technology. Similarly, the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) recognises the importance of promoting and encouraging technology transfer to LDCs to enable them to create a sound and viable technology base. In addition, the United Nations (UN) established a Technology Bank for LDCs in 2016 (UN, 2016).

Despite these commitments, limited progress has been made over the past 10 years in effectively delivering technology transfer to LDCs. Furthermore, there has been little mention of trade aspects of technology transfer in climate negotiations or of climate technologies in trade deliberations and negotiations on technology transfer.

The UNFCCC Conference of the Parties (COP26) in Glasgow and the WTO Ministerial Conference (MC12) in Geneva have helped focus attention on the potential links and synergies between the trade and climate regimes. In the area of technology transfer, these include the effectiveness of the mechanisms established to promote technology transfer, assessing progress on commitments to provide support and financing, and the need for renewed political will in the face of the climate and Covid-19 emergencies.

This briefing looks at some of the issues and the potential to maximise synergies between the trade and climate negotiation communities.

## **The state of play in climate negotiations**

The UNFCCC recognises the needs of the most vulnerable countries for technology transfer to support climate adaptation, resilience and mitigation. Technology transfer is a fundamentally important part of the Convention for LDCs, who will struggle to adapt without it. The Convention stresses that developed countries should promote, facilitate and finance the transfer of environmentally sound technologies to developing countries. UNFCCC Article 4.9 states that Parties take account of the specific needs and special situation of LDCs in funding technology transfers. However, the delivery of developed countries' commitments on climate finance, including funding for technology transfer, and the flow of funds to LDCs is a major outstanding issue in the negotiations.

In 2010, the UNFCCC established a Technology Mechanism consisting of the Technology Executive Committee (TEC) and the Climate Technology Centre and Network (CTCN). The Mechanism is designed to help developing countries address their mitigation and adaptation technology needs and create tools to develop and deliver technologies to help developing countries deal with climate change. These include UNFCCC Technology Needs Assessments (TNAs), and Technology Action Plans (TAPs) derived from them.

However, progress has been slow and has not been helped by the pandemic as climate and trade working group discussions have moved online and reports have been delayed. The Joint Annual Reports of the TEC and CTCN from 2020 and 2021 were due to be considered at COP26, as were the links between the technology and financial mechanisms of the Convention. The independent review of the CTCN was also due to be discussed, along with the make-up of its advisory board.

Discussion of the TEC and CTCN reports will cover how they have delivered their respective mandates; achievements and challenges; the status of implementation of previous recommendations and decisions taken at previous COPs. The link with finance is particularly important for LDCs – especially the need for increased funding to support technology development and transfer, and capacity-building to develop proposals to access funding.

The independent review of the CTCN looked at its role in delivering improved climate technologies and its consistency with other UN initiatives, such as UNEP environment technology needs assessment and concrete outcomes as identified in TNAs, as well as addressing gaps identified through the CTCN.

The CTCN Advisory Board does not have a specific and consistent slot for LDCs, which the group has argued should change. Ensuring the representation of technology coordinators, as well as negotiators, on the board (to support information-sharing and any presentation of concerns) will also be discussed. This means a full agenda for LDC technology negotiators at COP26.

## **The state of play in trade negotiations**

A number of WTO agreements refer to technology transfer from developed to developing countries.

The links between trade and climate have also been discussed in the Committee on Trade and Environment (CTE) and the Trade and Environmental Sustainability Structured Discussions (TESSD), launched at the end of 2020. A work programme and Ministerial Statement is being considered for MC12.

The TRIPS contains specific provisions for technology transfer to LDCs. It provides for the protection and enforcement of intellectual property rights when technologies are shared

between countries. The specific challenges faced by LDCs are recognised in Article 66.2, which creates a legal obligation for developed countries to encourage technology transfer to LDCs through incentivising national enterprises and institutions to transfer technology. However, there is limited evidence of this happening in practice, and the reporting system put in place for Article 66.2 implementation has not been sufficiently rigorous to promote actual transfers (Moon, 2009).

The Working Group on Transfer of Technology (WGTTT) was established at the Doha WTO ministerial conference in 2001 to look at the relationship between trade and the transfer of technology. However, progress has been slow, with WGTTT meetings held only twice a year and few concrete outcomes. Part of the challenge has been differing views among WTO members regarding the agenda of the Working Group (WGTTT, 2020). Some countries would like to see technology transfer taking place on mutually agreed terms between IP holders and recipients, requiring open trade and investment regimes.

LDCs have stressed the importance of technology generation and the potential of the WGTTT to support this. They point to the Group's sharing of country experience, helping to identify how trade can facilitate technology transfer, and were keen to see greater links with the TRIPS Council discussions, to enable the cross-fertilisation of ideas. Some country case studies on the relationship between trade and technology transfer were presented at the WGTTT by El Salvador, St Lucia and South Africa in 2020, covering initiatives to promote technology transfer and academic analysis of trade-related technology transfer, but there has been no further formal sharing of experience in the Working Group. Some researchers have suggested that, to address this lack of progress, LDCs could revert to the legal provisions of TRIPS, for example by bringing a case under the WTO dispute mechanism (Fox, 2019), as commercial incentives for technology investments in most LDCs are still weak. The Enhanced Integrated Framework (EIF) engages through Diagnostic Trade Integration Study (DTIS) analysis and includes technology transfer and support of adoption and adaptation in many of its projects.

The links between trade and climate have also been discussed in the CTE and the plurilateral TESSD initiative, established in 2020. The TESSD, which brings together 57 WTO Members (and is growing), has also discussed the trade and climate change interface, but with only a limited focus on technology transfer.

Over the last year the technology transfer debate has also been impacted by Covid-19 and access to vaccines and other health technologies. Developing countries and LDCs are calling for a WTO waiver to allow them access to these technologies. The issue is likely to gain more prominence as MC12 approaches.

# An LDC perspective

## What are the risks for LDCs?

The slow progress on delivering on technology transfer commitments for LDCs in both trade and climate negotiations means that they have reduced capability to respond to climate change and maintain and expand market access in an era of increasing environmental regulation, such as the imminent introduction by some countries of carbon border adjustment measures (Markkanen et al., 2021).

While environmentally friendly technologies have been transferred through foreign investment and trade, much of this has not reached LDCs due to their lack of integration into the global economy, and their weak absorptive capacity. Market-based channels may not deliver at the speed or scale that LDCs need to address climate and developmental challenges. More effective incentive mechanisms to identify the technologies required by LDCs, and the support of local businesses to adopt and adapt these to local circumstances, is needed. Liberalising Environmental Goods and Services (EGS) is not sufficient. For example, costs for green energy technologies (wind, solar and hydro) are now economically viable for most LDCs, but increasing local manufacturing capacity, not just importing, is a priority. There is also a need to support the development of institutional regulatory capacity for local approval of new technologies.

Increased capacity-building and awareness of sources of finance for technology development and transfer is needed. For example, this could be done through writing funding proposals, securing accreditation to access finance from the Green Climate Fund (GCF), Enhanced Integrated Framework (EIF) and the Global Environment Fund (GEF), as well as more general awareness raising of the sources of public and private finance that could assist technology development and transfer (Craft et al., 2017).

Coordination among public and private stakeholders is another area where improvement is needed. Some LDCs cite low awareness among key players (policy-makers, regulators, the private sector, financial institutions and non-governmental organisations) in various sectors, such as energy. Weak coordination between public institutions is another risk. For example, weak coordination between national designated entities (NDEs) and authorities can complicate the process of accessing technology and funding for development and transfer.

## What are the opportunities for LDCs?

Integrating the trade and climate agendas around technology has the potential to support greener, more inclusive growth. Article 10.4 of the Paris Agreement states that technology should

provide a framework for LDCs to build resilience. While UNFCCC and WTO capacity-building initiatives around technology transfer to LDCs can be improved, there is potential to integrate trade and climate priorities and leverage greater investment in technology sectors in LDCs.

There are a number of ways this could happen:

- LDCs building on existing TNAs prepared under the UNFCCC process and the DTIS from the EIF to identify the technologies they want developed country partners to provide technology transfer incentives and investment, including under the TRIPS agreement.
- Linking NDC commitments to trade policy development and building the capacity to use UNFCCC guidelines for GHG accounting would help align trade- and climate-related technology transfers.
- Cross-referencing the EIF's DTIS and UNFCCC TNAs could help identify technology transfer needs that could contribute to green, climate-smart growth.
- Including both DTIS and TNAs priorities in proposals for international climate and trade capacity-building finance, including GCF, GEF, EIF, Aid for Trade and Adaptation funds, would help maximise the potential utility of grant funding for green and inclusive growth.

The Covid-19 pandemic, alongside the climate and biodiversity crises, presents another opportunity to link climate and trade agendas. Many governments are making commitments to 'build back better' and increase spending on green technologies to support post-Covid economic recovery. Many LDCs do not have the fiscal space for these types of investment, so framing technical assistance proposals as supporting green and inclusive economic recovery can increase the potential sources of funding available.

Opportunities also exist for LDCs to better access and utilise technologies to support climate change mitigation, adaptation and resilience, inclusive green growth and the circular economy. Increasing resources and innovative funding for technologies is perhaps most important. Donors could prioritise resources to support needs assessment, through for example the NDEs and DTIS, and then deliver the technologies identified. On the climate side, this could help improve the services of the CTCN. Simplifying application procedures to avoid overly bureaucratic and checklist-type forms that do not allow for more accurate descriptions of funding requirements is another way LDCs' access to funding could be improved. Capacity-building for public and private organisations to develop proposals for these funds could also be improved.

Fostering exchange and learning between national institutions and processes in and between LDCs could facilitate more technology development and transfer. For example, bringing together NDEs and NDAs with NIUs and DTIS to build a common understanding of technology and finance needs. There could also be greater consideration of how best to share the experiences of accessing technology through the UNFCCC and WTO processes between LDCs. Similarly, sharing success stories from other developing countries such as India on technology transfer priorities, would be a valuable exercise to assist LDCs.

UNEP TNA projects, focusing on adaptation and mitigation, are another mechanism that LDCs could use more, with funding from the Global Environment Facility and implemented in close collaboration with the UNFCCC Technology Mechanism. The UN Technology Bank TNA methodology is similar to UNEP's, but has a broader focus on LDCs' development priorities and identifies constraints to achieve development goals and meet technology needs.

The Technology Bank was established as a result of the lack of traction on technology transfer and designed to be a dedicated agency for LDCs. As noted under TRIPS, flexibilities are there for LDCs, but the capacity to utilise the provisions is limited in many LDCs.

## Case studies

There are a range of international agreements to promote the development and transfer of environmentally sound technologies to combat the climate crisis and promote sustainable economic growth at the country level. However, for transfers to be successful they require the knowledge to install and maintain new technologies. Technologies also need to be adapted to local conditions and integrated with indigenous technologies.

### Case study: Supporting Bangladesh's energy transition<sup>1</sup>

There is significant potential for countries to transition to greener energy systems when technologies are transferred into a country's major economic sectors. In the case of Bangladesh, the ready-made garment (RMG) sector is key. The country is the fifth largest exporter to the EU and among the top 10 suppliers to the US.

While some factories are beginning to use renewable energy and more energy-efficient technologies, there is a lack of financial support, innovation and technologies.

Bangladesh has the potential to develop a range of renewable energy sources (see Figure 1).

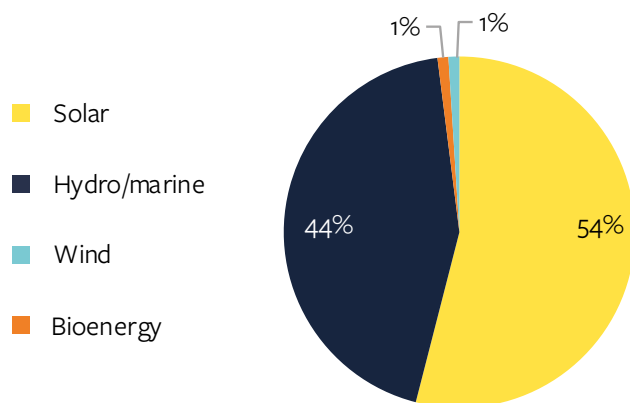
Solar has the most potential, but in 2018 provided only 16% of the country's energy (IRENA, 2020). Research by the Infrastructure Development Company indicates that members of the Bangladesh Textile Mills Association have some 42 million square feet of rooftops where photovoltaics with a capacity of 400 MW could be installed.

The government has put in place a number of policies to promote solar power, including the Scaling Up Renewable Energy Programme and Energy Efficiency and Conservation Master Plan up to 2030. However, projects have been mainly small in scale, including off-grid roof-top solar (with a generation capacity of 14.36 MW) and on-grid solar (with a generation capacity of 26.45 MW).

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1 The source for the Bangladesh case study is George (2021).



**Figure 1** Renewable capacity in 2019, Bangladesh

Source: George (2021)

The focus by donors on financing solar technology for households and communities has meant that there have been few incentives to develop solar energy in the RMG sector. To facilitate progress, more detailed analysis on the potential of solar energy is required, along with foreign investment in technologies and their installation and maintenance.

### Case study 2 Improving environmental outcomes from production in Chad<sup>2</sup>

The ‘Strengthening the commercial capacity of hides and skins sector’ project in Chad, supported by the EIF, has contributed to the construction and equipping of an artisanal tannery at Dourbali, which also included the construction of a waste collection reservoir. A Good Practice Guide on the production and conservation of hides and skins and other topics, including conservation standards and administrative, financial and material management techniques, has been very valuable in increasing the quality and quantity of hides and skins. In all:

- 30 supervisors were trained in slaughterhouse management.
- 113 Butchers were trained in skinning technique.
- 65 hide and skin handlers were trained in treatment, classification and conservation standards for hides and skins (18 trained in 2021).
- 20 artisanal tanners were trained in the management of tanneries.
- 45 tanners have been trained in odourless organic tanning practices.

<sup>2</sup> The sources for the Chad case study are EIF (2020) and internal EIF sources.

Thanks to the support of the EIF, as of June 2021 at least 60% of hides and skins produced met international standards, doubling the figure of 30% prior to the projects implementation. There has also been a positive environmental impact in terms of waste management and reduced air pollution through the construction of the waste collection reservoir.

## Priorities for negotiators

Significant progress is needed at COP26 on process issues on the technology transfer architecture, as well as tangible improvements in climate-smart technology delivery to achieve a good outcome for LDCs. Priority outcomes include:

- agreement to increase the capacity of the Technology Mechanism to provide access to frontier technologies for tackling climate change, such as artificial intelligence (AI), the Internet of Things (IoT), 5G, clean energy technology, digital twins, robotics, Space 2.0 technologies, digitalisation and Big Data
- agreed guidelines to integrate TNA outcomes in NAPs and NDCs, and capacity-building assistance to develop proposals to enable LDCs to access resources for technology transfer
- links with the finance track of negotiations to provide adequate and accessible funds. The balance in favour of funding of technologies for mitigation should be addressed to increase support for adaptation technology.

LDCs have listed Aid for Trade as one of their priority issues for MC12, though at the time of writing the agenda is yet to be finalised. Preparatory work for MC12 has covered the need for outcomes to take into account the external environment, including the Covid-19 pandemic, the changed trading landscape and the challenges facing the WTO. There has also been discussion of the WTO's role in addressing climate change.

Discussions on the implementation of TRIPS Article 66.2 and deliberations under the WGTT, the CTE and the TESSD initiative could provide additional avenues to address concerns related to trade and the transfer of climate change mitigation and adaptation technologies. This would require LDCs to formally put these issues on the agenda for discussion.

This could set a context for technology transfer issues for LDCs to be discussed post-MC12. This includes consideration of how to use Aid for Trade to facilitate the development and transfer of appropriate green technologies to LDCs; this could include support for linking the domestic institutions in LDCs coordinating the responses to climate change, with trade policy makers.

Finally, it is worth noting the developmental progress LDCs have been making, and that several are/will be graduating to developing country status in the next few years. However, while their GDP levels have increased this does not necessarily mean they have fully developed institutional

capacity to access and regulate the technologies required for green growth. It will therefore be important that they continue to have access to grant financing for technology transfer and support, and realistic timeframes for implementing TRIPS commitments.

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