

2

Overview of climate change-related non-tariff measures

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Non-tariff measures are defined as “policy measures other than ordinary customs tariffs that can potentially have an economic effect on international trade in goods, changing quantities traded, or prices or both” (UNCTAD, 2010). Table 2 provides an overview of the chapters of the International Classification of NTMs (UNCTAD, 2019).⁷

Table 2.

Overview of the international classification of non-tariff measures

A	Sanitary and phytosanitary measures
B	Technical barriers to trade
C	Pre-shipment inspection and other formalities
D	Contingent trade-protective measures
E	Non-automatic import licensing, quotas, prohibitions, quantity-control measures and other restrictions not including sanitary and phytosanitary measures or measures relating to technical barriers to trade
F	Price-control measures, including additional taxes and charges
G	Finance measures
H	Measures affecting competition
I	Trade-related investment measures
J	Distribution restrictions
K	Restrictions on post-sales services
L	Subsidies and other forms of support
M	Government procurement restrictions
N	Intellectual property
O	Rules of origin
P	Export-related measures

Source: UNCTAD, 2019.

An exploratory mapping of climate change-related NTMs was conducted by UNCTAD in collaboration with United Nations ESCAP to inform the preparation of this report. The mapping led to the identification through the UNCTAD TRAINS NTMs database of over a thousand NTMs introduced by about 100 developed and developing countries. Detailed statistics on the use of climate change-related NTMs are published in a separate forthcoming report. The following observations are drawn from an analysis of these measures.

First, a significant number of climate change-related NTMs have been adopted by countries with the following regulatory objectives:

- Reduce the emission of GHG from traded goods (including through the adoption of regulations on cars, fossil fuel and biofuel).
- Impose energy efficiency requirement on appliances.
- Prevent deforestation and promote sustainable forest management.
- Ensure the quality and reliability of renewable energy production equipment.
- Restrict the use of plastics.

Table 3 provides illustrations of NTMs adopted by countries to meet these objectives.

Table 3.

Examples of climate change-related non-tariff measures

<p>Reducing the emission of greenhouse gases from traded goods</p> <p>Import and export ban of equipment or products containing Chlorofluorocarbons; Bromochlorofluorocarbons; Halons (South Africa)</p> <p>Mandatory quality standard and quality inspection of imported biofuel (Viet Nam)</p> <p>Mandatory CO₂ emission standard for locomotives and locomotive engines (United States of America)</p>
<p>Impose energy efficiency requirement on appliances</p> <p>Ecodesign requirements (including minimum energy efficiency and maximum power consumption in standby and switched-off modes) for domestically produced and imported air conditioners and comfort fans (China)</p> <p>Ecodesign requirements related to mandatory energy efficiency index limits for household refrigerating appliances (European Union)</p>
<p>Prevent deforestation and promote sustainable forest management</p> <p>Reexport prohibition on timber forest products from natural forests or forest plantations that do not comply with sustainable management standards and traceability rules (Togo)</p>
<p>Ensure the quality and reliability of renewable energy production equipment</p> <p>Mandatory standard laying down requirements and markings for the design qualification and type approval of terrestrial, thin-film photovoltaic modules suitable for long term operation in general open-air climates (Uganda)</p>
<p>Restrict the use of plastics</p> <p>Ban on the import, manufacture and use of a list of non-degradable plastic products (Pakistan)</p>

Second, TBTs account for a large majority of all identified climate change related NTMs. This finding is consistent with conclusions by the IPCC and with a number of studies pointing out the importance of technical regulations for climate action.⁸ Among TBT measures, performance requirements (emission limits, energy efficiency requirements), labelling requirements, and conformity assessments (tests and certification requirements) appear as the most common.

Third, in addition to TBTs, countries have adopted various other types of climate change-related NTMs such as: Pre-shipment inspections; Non-automatic import licensing; Quotas and prohibitions; Price control measures; Finance measures; Measures affecting competition; Trade related investment measures; and Export-related measures. Among these measures, import and export licensing and prohibitions (often for environment protection purposes) appear to be the most prevalent.

In this report, particular consideration will be given to TBTs and their use in the context of climate action.

2.1. Focus on climate change related technical barriers to trade

Technical barriers to trade comprise technical requirements on product characteristics or production methods, as well as related conformity assessment procedures.⁹ The Multi-Agency Support Team on NTMs defines technical regulations as “a document that sets out product characteristics or related processes and production methods, including the applicable administrative provisions, with which compliance is mandatory. It may also include or deal exclusively with terminology, symbols,

packaging, marking or labelling requirements as they apply to a product, process or production method.” Conformity assessment procedure for its part is defined as “any procedure used, directly or indirectly, to determine whether relevant requirements in technical regulations or standards have been fulfilled; it may include, *inter alia*, procedures for sampling, testing and inspection; evaluation, verification and assurance of conformity; registration, accreditation and approval, as well as their combinations.” (UNCTAD, 2019)

Over the last few decades, there has been a steady increase in the adoption and use of technical regulations, labelling schemes and conformity assessment procedures to implement environmental (and climate change mitigation) objectives (Holzer and Lim, 2020). This trend is clearly reflected in the data provided by the WTO’s Environmental Database which shows a steady increase in both environment related notifications and climate change-related notifications between 2009 and 2021 along with a predominance of TBT related notification among all notifications received over the period.¹⁰

Climate change related TBTs aim to decrease GHGs emissions directly or indirectly arising from the production, use and disposal of both domestically produced and imported goods (WTO/UNEP, 2009). They have the potential of shaping both production and consumption patterns in a wide variety of sectors and, at the same time, to alter competition and trade patterns, thus triggering the application of international trade rules (see Section 3).

This part of the report will address technical regulations, labelling schemes and conformity assessment procedures. It provides several concrete examples of technical regulations as well as a preliminary taxonomy which is relevant from an international trade law perspective. It will then discuss in greater detail mandatory labelling schemes, which are often based on said technical regulations and are among the most popular tools used to influence consumers’ and producers’ behaviour. Lastly, it will analyse various conformity assessment procedures, which are used to ensure that technical regulations are complied with.

2.1.1. Technical regulations

Technical regulations have been used in a wide variety of activities including those related to energy efficiency; forestry/deforestation; transportation and vehicles; renewable energy and biofuels; plastics; and sustainable production schemes.

Technical regulations to promote energy efficiency and reduce emissions levels have been adopted by most developed countries and increasingly by developing countries as well. They are mandatory because market access is conditional on a product’s compliance with them. Their mandatory nature sets technical regulations apart from standards, which are instead voluntary. This distinction has significant implications under international trade law.

Climate change-related technical regulations can be classified according to different parameters:

- **First, they can be imposed on either products and/or process and production methods (PPMs).**

Product-related technical regulations can address the energy efficiency and carbon footprint related to the actual use of a given product, like those that regulate CO₂ emissions levels for cars. Examples include United States of America regulations on air pollution controls (such as those contained in Title 40, Chapter I, Subchapter U of the Code of Federal Regulations – CFR) or the United States of America Medium- and Heavy-Duty Vehicle Fuel Efficiency Program (CFR, Title 49, Part. 535).

Conversely, *PPM-related technical regulations* can address the energy efficiency and GHG emissions related to the production process of a product, sometimes encompassing its entire lifecycle. An example is the 2009 European Union Fuel Quality Directive, which required fuel suppliers to reduce the life cycle greenhouse gas intensity of supplied fuels by at least 6 per cent by 2020 compared to 2010 levels (Holzer and Lim, 2020). As Section 3 will show, whether the TBT Agreement regulates PPM-related technical regulations (with an exception for labelling schemes) is still debated (see subsection 3.2.3).

- **Second, technical regulations can be based either on product *characteristics*, or on *performance*.**

Technical regulations based on design or product characteristics specify the exact characteristics a product must have, or the exact procedures to follow, technologies to install, or materials to use during the production of the product. Technical regulations of this kind have often been used in the regulation of biofuels. Several economies, such as Brazil, India, the European Union, and the United States of America, have developed technical regulations on the quality and specifications of biofuels (WTO/UNEP, 2009).

Conversely, *performance-based technical regulations* specify the environmental outcomes (or standards of performance) that a production process or a product need to deliver, regardless of how those outcomes are achieved. Performance-based regulations are generally used in the regulation of transport, appliances, and buildings (in particular with regards to energy efficiency). Examples include European Union legislation on carbon standards for new cars according to which car manufacturers' new fleet was required to not emit more than 95 grams of CO₂ per kilometre on average by 2020 (Holzer and Lim, 2020). Another example, once again regarding vehicles, is the United States of America Corporate Average Fuel Economy (CAFE) standards, which are set in miles per gallon (mpg) and correspond to the size of a vehicle. In the context of energy efficiency, examples include: a European Union directive setting a maximum allowable value of electricity consumption for domestic refrigeration appliances; a European Union regulation prescribing ecodesign requirements for minimum energy performance; maximum sound levels and product information for air conditioners and comfort fans sold in the European Union; a South African compulsory specification for incandescent lamps; and a United States of America energy efficiency program for certain commercial and industrial equipment. The performance of a product or process can be set in several ways, such as maximum CO₂ emissions levels, minimum energy performance, minimum fuel economy or maximum energy consumption levels (WTO/UNEP, 2009).

The TBT Agreement prefers performance-based regulations over those based on design or descriptive characteristics and urges WTO Members to “specify technical regulations based on product requirements in terms of performance” (see TBT Article 2.8). In addition to the considerations related to their impact on international trade, performance-based regulations generally provide countries with more flexibility and companies with lower costs, given that they can choose how to achieve a certain environmental outcome. Moreover, by focusing on performance, technical regulations will likely spur technological innovation, since companies are not required to follow the same production process (Mavoridis, 2016). It has been pointed out, on the other hand, that there are certain situations where a technical regulation based on design or descriptive characteristics may be advisable: for instance, when there are only a few options to achieve a certain environmental outcome (*i.e.*, reducing emissions) or there are concerns as to the feasibility and efficiency of other options (WTO/UNEP, 2009).

Climate change related technical regulations, particularly those targeting energy efficiency, have been developed by a growing number of developing countries, as evidenced by their NDCs as well as by the list of TBT notifications.¹¹ This is a positive development for climate change objectives. If these domestic regulations are well-aligned with trading partners' requirements, they entail no negative effect on trade costs or competitiveness (Knebel and Peters, 2019). However, as Section 4 of this report will show, a series of steps needs to be taken to ensure that developing countries are able to fully participate in climate change related standards setting and are not negatively affected by regulations adopted in developed countries.

The use of international standards is an important element to avoid unnecessary trade frictions. A number of climate change-related international standards can be used as a basis for the adoption of technical regulation (see box 1).

Box 1. Climate change related international standards

International standards are often used as a basis for technical regulations adopted at the national level, and WTO law urges Member States to base their technical regulations on international standards (see Section 3, subsection 3.2.6). In a recent analysis, the WTO highlighted the importance of international standards *agreed by consensus* in facilitating the transition to low carbon economies and in avoiding obstacles to trade (WTO, 2022b).

For the purposes of the TBT Agreement, international standards are those prepared by the 'international standardization community'. The TBT Agreement makes reference only to the International Organization for Standardization (ISO) but the relevant case law has indicated other international standard setting bodies are able to develop 'international standards.' The TBT Agreement provides the necessary criteria for accepted International Standard setting bodies.

Examples of international standards that are relevant for national climate change related technical regulations include standards to **measure energy efficiency**, such as those developed by the ISO to calculate the thermal properties of construction materials, or those developed by the International Electrotechnical Commission (IEC) to measure the efficiency of power conditioners.

International standards can also provide guidance on how to **quantify and report carbon emissions**. Examples include standards ISO 14067:2018 for the quantification of the carbon footprint of products, or ISO 14064-1:2018 for GHG emissions and removal at the organizational level.

Sectoral standards such as those developed by ISO on solar energy, hydrogen and wind technologies, and solid and liquid biofuels (WTO/UNEP, 2009) are another category of international standards of relevance for the adoption of technical regulations.

The importance of climate change related international standards and the legal implications linked to their formulation, adoption and implementation in both developed and developing countries will be further developed in the third and fourth sections of the present report.

2.1.2. Labelling schemes

Mandatory labelling schemes play an important role in promoting energy efficiency, reducing emissions levels and mitigating climate change. Mandatory labels are generally based on technical regulations (or used in conjunction with them) and are employed "to inform consumers about international standards constituted in products, to communicate carbon footprint data and to gauge energy efficiency performance and the level of emission reduction." (Kristy and Monkelbaan, 2015)

By providing consumers with information regarding the environmental impact of a product, or its production process, labels can allow them to make rational purchasing decisions. At the same time, they can influence producers and stimulate them to produce more environmentally friendly products or employ more environmentally friendly production processes in order to reach a wider consumer base.

A more detailed analysis of their effectiveness from an environmental and climate change perspective can be found in Section 4.

They can be either directed at products, like in the case of most labels for domestic appliances and cars, or at PPMs. These labelling schemes can address the product's entire lifecycle, from production to use and disposal (WTO/UNEP, 2009).

Energy-efficiency labels can also be separated into comparative labels and endorsement labels with regards to the way that information is presented. Comparative labels, which are generally mandatory, inform consumers about the energy efficiency of a product by providing a scale that allows them to compare said product with similar products (for example, by providing a rating of 1 to 5 stars). Endorsement labels, which instead are generally voluntary, essentially provide the product with a seal of approval by an independent body assuring the consumers that the product meets certain environmental criteria or meets certain targets (WTO/UNEP, 2009).

2.1.3. Conformity assessment procedures

Conformity assessment procedures are used to verify that the mandatory requirements related to a technical regulation have been met. Their function is to provide consumers with the guarantee that the products or processes in question have a certain expected integrity. The main conformity assessment procedures are testing, inspection and certification.

Testing constitutes the most common procedure to ensure the compliance of traded goods with climate change related technical regulations. It is also the conformity assessment procedure which requires the most developed quality infrastructure. Climate change-related testing procedures can involve the provision of extensive data and typically require the elaboration of detailed assessment and sampling guidelines (e.g., to confirm the energy efficiency level of a model of electric motor). Some regulations introducing testing requirements allow for the use of alternative testing methods upon approval by the administrative authority. Testing requires the availability of accredited laboratories or other relevant testing entities.

Inspection consists in the examination of a product or of the process used for its production, without laboratory testing, to determine whether the relevant technical regulations have been fulfilled. The highly technical nature of climate change related technical regulations makes inspection a seldom used conformity assessment technique.

Certification “involves written assurance (the certificate) issued by an independent external body, stating that a product, building or company conforms to specific energy-efficiency or emission standards” (WTO/UNEP, 2009). It is generally based on previous testing and inspection.

Conformity may be self-declared or based on third-party assessments. An example for self-declaration is the European CE mark. By applying the CE mark on a product, the manufacturer confirms that the product meets European Union safety, health or environmental regulations and addresses the conformity assessment requirements of the relevant European Union Directives. An example for third-party conformity assessments are the processes conducted by the International Electrotechnical Commission (IEC), which manages the operation of four conformity assessment systems including the IEC System for Certification to Standards Relating to Equipment for Use in Renewable Energy Applications (IECRE).