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Sumário

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From rules of origin to sustainability: evolution of product transparency in international trade*

Das regras de origem à sustentabilidade: a evolução da transparência dos produtos no comércio internacional

DAO Gia Phuc**

Abstract

This study examines the evolution of transparency and due diligence obligations in international trade law under the WTO framework, focusing on how these requirements have broadened beyond traditional rules of origin and product safety standards to encompass sustainability concerns, including environmental protection and human rights in supply chains. It also evaluates the implications of these developments for exporters in the Global South. Through a doctrinal analysis of WTO agreements, case law, and recent regulatory initiatives, the study finds that new due diligence measures, exemplified by the EU Corporate Sustainability Due Diligence Directive (as revised under the EU's Omnibus I simplification initiative), the EU Deforestation Regulation, the EU Carbon Border Adjustment Mechanism, and the U.S. Uyghur Forced Labor Prevention Act, represent the next generation of trade-linked measures with cross-border effects aimed at aligning global commerce with sustainable development goals. The analysis is complemented by consideration of the WTO Agreement on Fisheries Subsidies (in force since 2025) as a rare example of a WTO instrument with explicitly embedded sustainability objectives. However, these measures also impose significant compliance burdens on developing-country exporters, especially smaller producers. The study concludes that while sustainability-driven transparency is a positive trend, its fair and effective implementation requires capacity-building support for producers in developing economies, inclusive international standard-setting, and multilateral cooperation to ensure consistency with WTO principles. Finally, by providing a comprehensive legal analysis of modern supply chain due diligence regimes and their trade-law compatibility, this research offers novel insights into reconciling global trade governance with ethical and environmental imperatives. It highlights pathways to integrate sustainability without disadvantaging developing economies.

Keywords: WTO law; due diligence; non-product-related PPMs; sustainable supply chains; Global South.

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Resumo

Este estudo examina a evolução das obrigações de transparência e de diligência devida no direito do comércio internacional no âmbito da OMC, com foco em como esses requisitos se expandiram para além das tradicionais regras de origem e dos padrões de segurança dos produtos, passando a abranger preocupações relacionadas à sustentabilidade, incluindo a proteção ambiental e os direitos humanos nas cadeias de abastecimento. O trabalho também avalia as implicações desses desenvolvimentos para os exportadores do Sul Global. Por meio de uma análise doutrinária dos acordos da OMC, da jurisprudência e de iniciativas regulatórias recentes, o estudo conclui que as novas medidas de diligência devida — exemplificadas pela Diretiva da União Europeia sobre Diligência Devida em Sustentabilidade Corporativa (na versão revista no âmbito da iniciativa de simplificação Omnibus I), pelo Regulamento da UE sobre Desmatamento, pelo Mecanismo de Ajuste de Carbono na Fronteira da UE e pela Lei dos Estados Unidos para a Prevenção do Trabalho Forçado Uigur — representam a próxima geração de medidas comerciais com efeitos transfronteiriços, destinadas a alinhar o comércio global aos objetivos do desenvolvimento sustentável. A análise é complementada pela consideração do Acordo da OMC sobre Subsídios à Pesca (em vigor desde 2025), como um raro exemplo de instrumento da OMC que incorpora explicitamente objetivos de sustentabilidade. Contudo, essas medidas também impõem encargos significativos de conformidade aos exportadores de países em desenvolvimento, especialmente aos pequenos produtores. O estudo conclui que, embora a transparência orientada pela sustentabilidade represente uma tendência positiva, sua implementação justa e eficaz exige apoio em capacitação para os produtores das economias em desenvolvimento, processos inclusivos de definição de padrões internacionais e cooperação multilateral, a fim de assegurar a compatibilidade com os princípios da OMC. Por fim, ao oferecer uma análise jurídica abrangente dos regimes modernos de diligência devida nas cadeias de abastecimento e de sua compatibilidade com o direito do comércio internacional, esta pesquisa apresenta contribuições originais para a conciliação entre a governança do comércio global e os imperativos éticos e ambientais, apontando caminhos para integrar a sustentabilidade sem prejudicar as economias em desenvolvimento.

Palavras-chave: direito da OMC; diligência devida; PPMs não relacionados ao produto; cadeias de abastecimento sustentáveis; Sul Global.

1 Introduction

Over the last three decades, "transparency" in international trade has evolved from a primarily administrative concept, publishing and applying customs rules, proving origin for tariff purposes, and complying with product safety and labeling standards, into a far more demanding set of obligations that reaches deep into global supply chains. Major importing jurisdictions increasingly require firms not only to disclose where goods come from, but also to demonstrate how they were produced, including whether production involved forced labor, deforestation, excessive carbon emissions, or other sustainability-related harms. These developments are reshaping market access conditions and redistributing compliance costs across value chains, with particularly acute implications for exporters and small producers in the Global South. This article uses "product transparency" as an operational concept to describe legal and regulatory requirements that condition trade on the availability, reliability, and verifiability of information about a product's origin, characteristics, and, crucially, its supply-chain processes. It treats "due diligence" as the set of mandatory corporate procedures (risk mapping, traceability, verification, remediation, and reporting) through which firms must identify and address adverse impacts in their operations and business relationships. Many contemporary transparency requirements are best understood as non-product-related process and production method (npr-PPM) measures: they differentiate physically identical goods based on production conditions that do not alter the final product. "Sustainability" is used in a tripartite sense encompassing environmental integrity (including climate mitigation), social and human-rights protection, and (where relevant) governance-related integrity in value chains. Finally, many sustainability-linked trade and corporate rules are described as "extraterritorial"; in strict jurisdictional terms, they are typically anchored in territorial hooks (importation and EU-market participation) but generate profound cross-border effects by conditioning market access on upstream conduct abroad.

The core legal problem is how these new, sustainability-driven transparency and due diligence regimes can be reconciled with WTO disciplines that were built around non-discrimination, market access commitments, and a product-focused notion of "likeness." Specifically, when measures such as forced-labor import bans, deforestation-free requirements, and carbon-based border adjustments shift the regulatory focus from product attributes to production processes, under what conditions can they be structured to comply with GATT and the TBT Agreement? Moreover, how should WTO-consistent design account for capacity asymmetries so that these measures do not operate as de facto exclusionary barriers for developing-country exporters? The article advances two claims. First, WTO law does not categorically prohibit process-based transparency measures; instead, their legality turns on regulatory architecture, origin neutrality, even-handed administration, proportionality, due process, and credible justification where exceptions apply. Second, achieving fairness and effectiveness requires complementing such measures with capacity-building, inclusive standard-setting, and multilateral cooperation, so that compliance obligations do not simply shift risk and costs to the weakest actors in supply chains.

Methodologically, the article undertakes a doctrinal analysis of WTO agreements and leading jurisprudence on PPM-related measures, and then situates contemporary due diligence regimes within that legal framework. It proceeds by tracing early transparency obligations (Section 2), clarifying the WTO treatment of npr-PPMs (Section 3), mapping the rise of mandatory due diligence and trade-linked measures with cross-border effects (Section 4), assessing WTO compatibility (Section 5), and evaluating distributional impacts and strategic responses for developing countries (Section 6).

2 Early trade transparency requirements

Historically, transparency in trade law focused on compelling businesses to disclose essential information about their products for regulatory and tariff purposes. One of the earliest legal obligations was the requirement to declare the country of origin of goods, a practice that has been entrenched since the GATT era. Rules of origin determine a product's national source, which is crucial for administering tariffs, trade preferences under free trade agreements, and trade remedies.[1] By mandating certificates of origin, governments force firms to be transparent about their supply chains. The WTO's Agreement on Rules of Origin reinforces this by requiring that origin criteria be applied objectively and published promptly, consistent with GATT's transparency principles.[2] These rules aim to prevent traders from evading duties (e.g., anti-dumping measures) through simple transshipment or "origin hopping" via third countries.[3] In practice, importers must exercise due diligence to verify that products genuinely qualify as originating in the claimed country, which essentially foreshadows modern supply chain traceability and compliance programs.

Following origin disclosure, the next evolution of transparency requirements came in the form of product standards and labeling obligations designed to protect consumers and public health. The establishment of the WTO Technical Barriers to Trade (TBT) Agreement and Sanitary and Phytosanitary (SPS) Agreement in 1995 cemented countries' rights to regulate goods for legitimate objectives (such as human, animal, or plant life and health, or prevention of deceptive practices) so long as measures are science-based, non-discriminatory, and not more trade-restrictive than necessary.[4] These agreements also introduced procedural transparency duties: governments must, for instance, publish draft regulations in advance, notify the WTO of proposed standards, and allow time for comments by other members. Technical regulations often require that products meet specific labeling or certification requirements, thereby making key product information visible to regulators and consumers. For example, food import rules may mandate labels disclosing ingredients or nutritional information, and electrical appliances may require safe-

1 INAMA, Stefano. *Rules of origin in international trade*. Cambridge: Cambridge University Press, 2022.

2 MAVROIDIS, Petros C. *The regulation of international trade*: GATT. Cambridge: MIT Press, 2016. v. 1.

3 LIU, Xuepeng; SHI, Huimin. Anti-dumping duty circumvention through trade rerouting: evidence from chinese exporters. *The World Economy*, v. 42, n. 5, p. 1427–1466, 2019.

4 KIM, Minjung. The 'standard' in the GATT/WTO TBT agreements: origin, evolution and application. *Journal of World Trade*, v. 52, n. 5, 2018. Available in: https://kluwerlawonline.com/api/Product/CitationPDFURL?file=Journals\TRAD\TRAD2018033.pdf. Access at: Jan. 2, 2026.

ty certification marks, all of which increase transparency into product characteristics and compliance.

A prominent example of a transparency measure in this context is the U.S. Country-of-Origin Labeling (COOL) law for meat products, which requires retail meat packages to indicate the livestock's origin.[5] While the objective was to inform consumers about where their food comes from (a transparency goal), the implementation of COOL sparked a WTO dispute. Canada and Mexico challenged the measure, arguing it imposed onerous tracking and segregation burdens on foreign livestock compared to domestic livestock. In the U.S.--COOL case, the WTO Appellate Body acknowledged that countries may adopt origin labeling in principle but found that the specific U.S. COOL rules violated TBT obligations: the labels were confusing and did not provide information commensurate with the costly requirements imposed on producers.[6] In other words, the measure's design failed to genuinely achieve its transparency purpose while discriminating against imported cattle and hogs. As a result, WTO panels and the Appellate Body held the COOL measure inconsistent with trade rules (notably TBT Article 2.1 on non-discrimination). The case ultimately led the U.S. to repeal the mandatory COOL requirements for beef and pork to comply with the WTO rulings.[7] This outcome illustrates that transparency measures must be carefully crafted under WTO law since regulators have leeway to mandate product information (such as origin, ingredients, quality standards, etc.). However, such measures cannot arbitrarily or unjustifiably discriminate against imports and should genuinely contribute to their stated informational objectives. In sum, WTO law permits requirements for product transparency so long as they meet the fairness and necessity criteria in practice.

Beyond these mandatory regimes, the late 20th century saw the rise of voluntary standards and certifications, a trend that further expanded transparency expectations in global trade.[8] Private sustainability standards (such as ISO quality and environmental standards, organic and fair-trade certifications, and eco-labels) emerged mainly in response to consumer and civil society pressure for ethically sourced products.[9] Although adherence was optional, these schemes created soft transparency norms by encouraging companies to know and disclose various aspects of their supply chains (for example, a fair-trade label signals that a product's ingredients were sourced under particular labor and pricing conditions). According to UN definitions, these Voluntary Sustainability Standards (VSS) are private standards requiring products to meet specific social or environmental criteria, often verified by certifications and labels.[10] Initially, governments treated such matters as part of corporate social responsibility or left them to market forces. However, over time, the influence of voluntary programs began to penetrate legal frameworks. States increasingly incorporate concepts from private standards into public regulations, especially in areas like organic food, timber sourcing, and carbon emissions, by recognizing or even mandating specific certifications.[11] This blurring of the line between voluntary and mandatory is evident in modern trade legislation on sustainability due diligence, which draws inspiration from what were once purely voluntary codes. In short, the proliferation of private eco-labels and ethical certifications in the 1990s set the stage for today's wave of mandatory due diligence laws addressing environmental and social conditions in production.[12] What started as voluntary transparency initia-

[5] JURENAS, Remy; GREENE, Joel L. *Country-of-origin labeling for foods and the WTO trade dispute on meat labeling*. 2013. Available in: https://www.agri-pulse.com/ext/resources/pdfs/c/o/o/1/3/COOL-report-update-CRS-9-2013.pdf. Access at: Jan. 2, 2026.

[6] CARLSON, Geoffrey. United States: certain country of origin labelling (Cool) Requirements (US–Cool, Article 22.6 – United States), DS384/DS386. *World Trade Review*, v. 15, n. 3, p. 526–528, 2016.

[7] JURENAS, Remy; GREENE, Joel L. *Country-of-origin labeling for foods and the WTO trade dispute on meat labeling*. 2013. Available in: https://www.agri-pulse.com/ext/resources/pdfs/c/o/o/1/3/COOL-report-update-CRS-9-2013.pdf. Access at: Jan. 2, 2026.

[8] KIM, Minjung. The 'standard' in the GATT/WTO TBT agreements: origin, evolution and application. *Journal of World Trade*, v. 52, n. 5, 2018. Available in: https://kluwerlawonline.com/api/Product/CitationPDFURL?file=Journals\TRAD\TRAD2018033.pdf. Access at: Jan. 2, 2026.

[9] BENNETT, Elizabeth A. The efficacy of voluntary standards, sustainability certifications, and ethical labels. *In*: MARX, Axel *et al.* (ed.). *Manual de pesquisa sobre governança global, empresas e direitos humanos*. Cheltenham: Edward Elgar Pub, 2022. Available in: https://www.elgaronline.com/edcollchap/edcoll/9781788979825/9781788979825.00016.xml. Access at: Jan. 2, 2026.

[10] UNCTAD. *Voluntary sustainability standards*. Available in: https://unctad.org/topic/trade-analysis/voluntary-sustainability-standards. Access at: Jan. 2, 2026.

[11] SOLAR, Jimena; IVANOVA, Yovita; OBERLACK, Christoph. Human rights and environmental due diligence regulations for deforestation-free value chains? exploring the implementation of the EU regulation on deforestation-free products in the cocoa and coffee sectors of Peru. *Global Policy*, v. 16, n. 4, Sept. 2025. Available in: https://onlinelibrary.wiley.com/doi/abs/10.1111/1758-5899.70009. Access at: Sept. 21, 2025.

[12] BENNETT, Elizabeth A. The efficacy of voluntary stand-

tives has evolved into binding requirements, reflecting a broader shift in trade governance towards aligning commerce with the Sustainable Development Goals.

3 Process-based trade measures and WTO discipline

3.1 Definition and legal status of non-product-related PPMs

In international trade law, process and production methods (PPMs) refer to how products are made. A crucial distinction is drawn between product-related and non-product-related PPMs (npr-PPMs). Product--related PPM requirements affect a product's characteristics or quality (for example, limits on pesticide residues in food), whereas npr-PPMs concern production methods that leave no trace in the final product.[13] In other words, two goods may be physically identical and "like" in all observable aspects, but an npr-PPM measure would treat them differently based solely on how they were produced, for instance, whether wood was harvested sustainably or whether a garment was made with forced labor. This concept is controversial because it extends trade regulations into the realm of ethical or environmental processes rather than focusing on product traits.

WTO law does not explicitly define or forbid npr--PPM measures, but their legal status has been debated since the GATT era. Traditionally, GATT/WTO rules focus on discrimination between products (e.g., under GATT Articles I and III, like products must be treated equally regardless of origin). Early interpretations held that if two products are identical in composition and use, they should not be treated differently because of an unrelated production method.[14] Many countries feared that allowing trade distinctions based on how products are made could become a cover for protectionism. Thus, a conventional view emerged that npr-PPM-based trade measures were prima facie inconsistent with WTO obligations.[15] However, this was more a policy presumption than a rule codified in WTO agreements. As global awareness grew about issues like environmental protection and human rights, the strict stance on npr-PPMs began to soften, giving way to a more nuanced legal analysis rather than a blanket prohibition.

3.2 Early WTO jurisprudence and the tuna-dolphin cases

The first major tests of npr-PPM measures in trade came before the WTO was established, during the GATT era. The famous "Tuna-Dolphin" disputes in the early 1990s highlighted the clash between environmental concerns and trade rules. In the United States - Restrictions on Imports of Tuna (GATT Panel 1991), the U.S. banned imports of tuna from countries whose fishing practices killed dolphins at a high rate, effectively requiring foreign producers to adopt U.S. dolphin-safe methods.[16] A GATT dispute panel found this import embargo violated GATT rules. Critically, the panel reasoned that one country should not impose its own process standards on another country through trade measures, since GATT's obligations applied to products (tuna fish) and not the manner of their production (fishing techniques).[17] A second panel in U.S. - Tuna (1994) reached similar conclusions.[18] Although these Tuna-Dolphin panel reports were not adopted (and thus never became binding GATT law), they created a lasting impression: namely, that trade measures based on non-product-related PPM differences were per

ards, sustainability certifications, and ethical labels. *In*: MARX, Axel *et al.* (ed.). *Manual de pesquisa sobre governança global, empresas e direitos humanos*. Cheltenham: Edward Elgar Pub, 2022. Available in: https://www.elgaronline.com/edcollchap/edcoll/9781788979825/9781788979825.00016.xml. Access at: Jan. 2, 2026.

13 CHARNOVITZ, Steve. The law of environmental PPMs in the WTO: debunking the myth of Illegality. *Yale J. Int'l L.*, v. 27, p. 59, 2002.

14 COGLIANESE, Cary; SAPIR, André. Risk and regulatory calibration: WTO compliance review of the US dolphin–safe tuna labeling regime. *World Trade Review*, Cambridge, Mar. 2017. Available in: /core/journals/world-trade-review/article/risk-and-regulatory-calibration-wto-compliance-review-of-the-us-dolphinsafe-tuna-labeling-regime/9CC6BBDE41C96D9C17EEEAD6E7F6E293. Access at: Apr. 13, 2017.

15 SIFONIOS, David. *Environmental process and production methods (PPMs) in WTO law*. Berlim: Springer, 2018.

16 WORLD TRADE ORFANIZATION. United States: restrictions on imports of Tuna. *American Journal of International Law*, Cambridge, Feb. 2017.

17 CROWLEY, Meredith A.; HOWSE, Robert. Tuna–Dolphin II: a legal and economic analysis of the Appellate Body Report. *World Trade Review*, v. 13, n. 2, p. 321–355, 2014.

18 WORLD TRADE ORFANIZATION. United States: restrictions on imports of Tuna. *American Journal of International Law*, Cambridge, Feb. 2017.

se impermissible under international trade rules. This early jurisprudence signaled a deep skepticism toward unilateral environmental trade bans, especially when they had an extraterritorial reach.

It is important to note, however, that the GATT text itself did not explicitly ban PPM-based distinctions. The panel decisions were interpretations reflecting the trade context of the time. Many commentators criticized the rigidness of the Tuna-Dolphin outcomes, arguing that an absolute bar on PPM measures was untenable as environmental and ethical issues gained prominence.[19] Nonetheless, throughout the early 1990s, the prevailing view was that a country could not condition market access on foreign producers adopting specific processes unless an explicit exception applied. This set the stage for the WTO era, where the question became: can any npr-PPM measures be justified under the more flexible exception provisions of WTO agreements?

3.3 Evolving approach in appellate body case law

With the establishment of the WTO in 1995 and its stronger dispute settlement system, the question of npr-PPMs returned in new disputes, and the tone of the rulings began to change. The landmark case United States - Import Prohibition of Certain Shrimp and Shrimp Products (U.S. - Shrimp) in 1998 marked a turning point in the acceptance of process-based trade measures. The United States had banned imports of shrimp caught without Turtle Excluder Devices (TEDs) to prevent the incidental killing of endangered sea turtles (an npr-PPM measure aimed at conservation). The WTO Appellate Body acknowledged that protecting global environmental resources (like sea turtles) is a legitimate objective under GATT Article XX.[20] In contrast to the earlier tuna cases, the Appellate Body found that the U.S. measure could fall under the Article XX(g) exception for conservation of exhaustible natural resources.

Notably, the Appellate Body stated that conditioning access to a market on the adoption of specific policies (here, fishing methods) is not inherently a WTO violation, provided the conditions are applied fairly. The U.S. - Shrimp measure initially failed to satisfy the Article XX chapeau (the introductory clause of Article XX) because the way it was applied was deemed arbitrary and unjustifiably discriminatory, for example, the U.S. had not engaged in serious negotiations with some affected countries.[21] It had given some nations more extended transition periods than others. The Appellate Body faulted this lack of flexibility and international cooperation, not the underlying environmental goal. After the ruling, the United States revised its policy to provide greater flexibility and to pursue agreements with exporting countries. In a compliance proceeding a few years later, a WTO panel confirmed that the adjusted shrimp import policy, now applied in a more even-handed, inclusive manner,[22] met the requirements of Article XX, allowing the sea turtle conservation measure to remain in place. The U.S. - Shrimp case demonstrated that npr-PPM measures can be compatible with WTO rules when carefully designed and justified. The decision overturned the notion that there was a flat prohibition on PPM-based trade measures. Instead, it focused on how such measures are implemented. Key lessons were that countries should seek multilateral solutions where possible, avoid arbitrary discrimination, and give exporting countries some latitude or assistance to meet the importing country's standards.

Subsequent WTO disputes reinforced this more permissive approach in principle while continuing to scrutinize the details of each measure. In EC - Seal Products (2014), the European Union banned imports of seal fur and other seal products based on public moral concerns, specifically, objections to the inhumane killing of seals.[23] This was effectively a process-based import ban grounded in animal welfare (an ethical concern unrelated to the product's physical characteristics). The WTO Appellate Body accepted that animal welfare can be a matter of public morals under GATT Article XX(a), one of the general exceptions.[24] In that case, the EU measure was found to serve a legitimate moral objective. Portions of the ban were ultimately

[19] SIFONIOS, David. *Environmental process and production methods (PPMs) in WTO law*. Berlim: Springer, 2018.

[20] KISHORE, Pallavi. Revisiting the WTO shrimps case in the light of current climate protectionism: a developing country perspective. *Geo. Wash. J. Energy & Envtl. L.*, v. 3, p. 78, 2012.

[21] WORLD TRADE ORFANIZATION. *United States*: Import prohibition of certain shrimp and shrimp products. 2001.

[22] BREE, Axel. Article XX GATT-Quo Vadis-the environmental exception after the shrimp/turtle appellate body report. *Dick. J. Int'l L.,* v. 17, p. 99, 1998.

[23] EUROPEAN COMMUNITIES. *Measures prohibiting the importation and marketing of seal products*. 2014.

[24] EUROPEAN COMMUNITIES. *Measures prohibiting the importation and marketing of seal products*. 2014.

upheld under Article XX, although the Appellate Body did examine whether the EU had applied the ban even-handedly.[25] EC - Seal Products confirmed that public moral values, even when implemented via PPM-based distinctions, are not off-limits in WTO law, so long as the trade restriction is necessary and not applied in a discriminatory way.

Other disputes and policies have also navigated PPM issues. For example, various eco-labeling schemes and sustainability import requirements have been analyzed under the WTO's Technical Barriers to Trade (TBT) Agreement.[26] While not all such measures pass WTO scrutiny, the trend in case law makes clear that WTO panels and the Appellate Body do not treat PPM-based measures as automatically illegal. Instead, they ask whether a legitimate objective justifies the measure and whether it is implemented without unjustifiable discrimination. In moving from past jurisprudence to future sustainability disputes, one constraint is institutional since the WTO Appellate Body has been unable to hear new appeals since December 2019, so controversial measures may ultimately be appealed "into the void" unless parties agree to alternative appeal arrangements (such as Article 25 arbitration under the MPIA).

3.4 Analytical framework under GATT articles III and XX, and the TBT agreement

When evaluating a PPM-based trade measure under WTO law, one must navigate several layers of legal analysis. The key provisions typically include the non-discrimination rules of the GATT (notably Articles I and III), the general exceptions of GATT Article XX, and the disciplines of the TBT Agreement on technical regulations. A logical framework for analysis can be outlined as follows:

Threshold Question: GATT or TBT?

First, determine whether the measure is an internal regulation subject to GATT rules or a technical regulation covered by the TBT Agreement (or both). Many npr-PPM measures (such as sustainability certification requirements or import bans based on processes) can be considered "technical regulations" because they impose conditions on product access to markets. If a measure sets out product characteristics or related processes and production methods that are mandatory for compliance (for example, a rule that imported wood must be certified as sustainably harvested), it is likely covered by the TBT Agreement. If it is a pure import ban or quota with no element of product standard, it might be addressed directly under GATT provisions.

GATT National Treatment and MFN

If the measure is considered under the GATT, the core obligations to consider are Article III (National Treatment) and Article I (Most-Favored-Nation), as well as the prohibition on import bans in Article XI. Under Article III:4, WTO members must not treat imported products less favorably than "like" domestic products.[27] In npr-PPM scenarios, a challenging issue is that products made in different ways (with or without a specific process) are often still considered "like products" if they are physically identical and serve the same end uses. This means that a regulation banning or penalizing a product based on its production method could be deemed to accord less favorable treatment to imports (for example, if foreign products are more affected by the requirement than domestic products). Similarly, if a PPM measure applies only to imports (e.g., an import ban on products that do not meet a process standard) and not to the domestic like product, it clearly violates Article III. Article I:1 would be breached if the measure favors some exporting countries over others, for instance, if exceptions or phased-in compliance are granted only to certain trade partners. Moreover, an outright import prohibition or quota based on a PPM would conflict with Article XI:1, which bans quantitative import restrictions. In practice, most PPM-based measures will be found to violate one of these core provisions, because they differentiate among like products or restrict imports.[28]

Justification under Article XX (General Exceptions)

[25] One issue was an exemption for indigenous communities' seal hunts, which raised questions of arbitrary discrimination between products based on origin. See DU, Ming. *What Is a technical regulation in the TBT agreement?* some reflections on EC-Seal products. 2015.

[26] For instance, the U.S. – Tuna II (Mexico) case regarding "dolphin-safe" tuna labels. See CROWLEY, Meredith A.; HOWSE, Robert. Tuna–Dolphin II: a legal and economic analysis of the Appellate Body Report. *World Trade Review*, v. 13, n. 2, p. 321–355, 2014.

[27] MAVROIDIS, Petros C. *The regulation of international trade*: GATT. Cambridge: MIT Press, 2016. v. 1.

[28] CHARNOVITZ, Steve. The law of environmental PPMs in the WTO: debunking the myth of Illegality. *Yale J. Int'l L.,* v. 27, p. 59, 2002.

Finding a GATT violation is not the end of the story; the measure can still be saved if it satisfies Article XX. This article enumerates legitimate policy goals, such as protecting public morals (XX(a)), human, animal, or plant life or health (XX(b)), and conserving exhaustible natural resources (XX(g)), that can justify a GATT-inconsistent measure. An npr-PPM measure typically invokes one of these exceptions. For example, a ban on goods made with forced labor might invoke "public morals" or "human life and health"; a ban on logging products from illegal deforestation would invoke conservation of natural resources. Under Article XX analysis, two tests are applied:

First, Scope of the Exception. Does the measure genuinely fall within one of the Article XX (a)-(j) categories? This often involves showing that the policy is related to a specified goal. Some sub-paragraphs require a necessity test (e.g., XX(a) and XX(b) ask if the measure is "necessary" to protect morals or health), while XX(g) requires the measure to be "related to" conservation and made effective in conjunction with domestic restrictions. In npr-PPM cases, panels and the Appellate Body assess the connection between the chosen trade measure and the policy goal, including whether there were less trade-restrictive and reasonably available alternatives.

Second, Chapeau (no abuse of exceptions). Even if a measure fits an exception category, it must also satisfy the Article XX chapeau,[29] which prohibits applying the measure in a manner that constitutes "arbitrary or unjustifiable discrimination" or a "disguised restriction on international trade." This is where the design and implementation of an npr-PPM measure face the toughest scrutiny. The authorities will examine whether the measure is applied evenly to different trading partners where the same conditions prevail. Any pattern of discrimination, for instance, if some countries are given exemptions or easier terms without a valid justification, can fail the chapeau test. Likewise, a country must show good faith that the measure should not be a stealth protectionist policy masquerading as a moral or environmental measure. In assessing PPM measures under the chapeau, WTO case law has considered factors such as whether the imposing country made serious attempts to negotiate a multilateral solution or provided flexibility to other countries.[30] As seen in U.S. - Shrimp, a lack of effort to accommodate other nations or sudden coercive implementation can render an otherwise legitimate measure unjustifiable. Conversely, engaging in international cooperation and tailoring the measure to different conditions can demonstrate that any discrimination is not "arbitrary or unjustifiable".

Assessment under the TBT Agreement

If the npr-PPM measure qualifies as a technical regulation (which is often the case for rules on product labeling or certification of production methods), it must also comply with the WTO TBT Agreement. The TBT Agreement's key principles parallel GATT, but with a focus on technical requirements. Article 2.1 of TBT requires that technical regulations accord no less favorable treatment to imported products than to like domestic products and accord no less favorable treatment to imports from any one country than to imports from another. This means a PPM-based standard must not be a guise for discrimination. Even if on its face it applies to all products regardless of origin, regulators must ensure it is not applied in a way that disproportionately burdens foreign producers without justification.[31] For example, in the U.S. - Tuna II dispute, a labeling requirement related to dolphin-safe fishing was found to violate TBT 2.1 because its conditions were stricter for some countries' tuna fisheries than others, leading to de facto discrimination.[32]

Additionally, Article 2.2 of the TBT requires that technical regulations be no more trade-restrictive than necessary to achieve a legitimate objective. An importing country using a PPM measure (say, a sustainability certification) must show that its goal (environmental protection, consumer information, etc.) is legitimate and that no reasonably available alternative measure that is less disruptive to trade can achieve the same objective. If a less trade-restrictive approach (for instance, an international standard or a voluntary scheme) could accomplish the policy goal, a stringent unilateral

[29] BREE, Axel. Article XX GATT-Quo Vadis-the environmental exception after the shrimp/turtle appellate body report. *Dick. J. Int'l L.*, v. 17, p. 99, 1998.

[30] BENOIT, Charles. Picking tariff winners: non-product related PPMS and DSB interpretations of unconditionally within article I:1 note. *Georgetown Journal of International Law*, v. 42, p. 583–604, 2010.

[31] DU, Ming. *What is a technical regulation in the TBT agreement?*: some reflections on EC-seal products. 2015.

[32] CROWLEY, Meredith A.; HOWSE, Robert. Tuna–Dolphin II: a legal and economic analysis of the Appellate Body Report. *World Trade Review*, v. 13, n. 2, p. 321–355, 2014.

requirement might fail the necessity test. Furthermore, the TBT Agreement encourages the use of relevant international standards (Article 2.4). If an international standard for sustainable production exists (e.g., a widely recognized certification), WTO members are expected to base their measures on it unless it would be ineffective or inappropriate.[33] Aligning PPM measures with international standards or agreements not only supports TBT compliance but also the Article XX chapeau test under GATT, as it evidences a cooperative and non-arbitrary approach.

In sum, the legality of an npr-PPM measure under WTO law is determined by a careful, case-by-case application of these rules. The measure must be crafted to minimize discrimination and trade restrictiveness while effectively pursuing a legitimate policy goal. WTO panels and the Appellate Body (when it was operational) have made clear that they will not second-guess the importance of objectives such as environmental protection or human rights but will examine whether a trade measure is a proportionate and fair way to achieve those objectives.

3.5 The WTO agreement on fisheries subsidies and sustainability objectives

Beyond dispute settlement and Article XX-type justifications, the WTO's negotiated rulebook itself has begun to incorporate sustainability objectives more explicitly. The Agreement on Fisheries Subsidies, adopted at the WTO's Twelfth Ministerial Conference (MC12) and entering into force on 15 September 2025, disciplines subsidies that contribute to illegal, unreported and unregulated (IUU) fishing and to fishing on overfished stocks, while also providing for special and differential treatment elements. Although often described as the "first phase" of fisheries subsidies disciplines, it is widely regarded as the first new multilateral WTO agreement that places environmental sustainability at its core. Its entry into force is significant for the present inquiry since it underscores that sustainability is not merely an external policy value imported into trade law through exceptions or interpretive techniques, but can be embedded directly in WTO primary rules, potentially offering a multilateral reference point when assessing the legitimacy and design of unilateral sustainability-linked market access measures.

4 The rise of mandatory due diligence and trade-linked measures with cross-border effects

In recent years, a new wave of trade-related regulations has emerged, compelling businesses to police their supply chains for human rights and environmental abuses. These measures mark a shift from voluntary corporate social responsibility to mandatory legal obligations with global reach.[34] Major economies such as the United States and the European Union are increasingly leveraging their market power to enforce supply chain due diligence, transparency requirements, and process and production method (PPM) standards beyond their borders.[35] Measures such as the EUDR and CBAM are sometimes labelled "extraterritorial." In strict jurisdictional terms, however, they are usually anchored in territorial hooks, importation into the EU (EUDR, CBAM) or participation in the EU market (CSDDD), and they regulate actors within the regulating jurisdiction. Their practical salience lies in the cross-border effects they generate: to maintain market access, firms must trace and alter upstream processes occurring in third countries. Accordingly, this article foregrounds "cross-border effects" when describing the regulatory projection generated by international trade, while using "extraterritorial effects" only in the broader, effects-based sense (and without hyphenation) where helpful.

[33] KIM, Minjung. The 'standard' in the GATT/WTO TBT agreements: origin, evolution and application. *Journal of World Trade*, v. 52, n. 5, 2018. Available in: https://kluwerlawonline.com/api/Product/CitationPDFURL?file=Journals\TRAD\TRAD2018033.pdf. Access at: Jan. 2, 2026.

[34] LEAL-ARCAS, Rafael; ALSAUD, Madhawi. New trends in international economic and environmental law and governance. *J. Animal & Env't L.*, v. 15, p. 1, 2023.

[35] DENNY, Danielle Mendes Thame. Human rights and market access section II: dossie especial: business and human rights. *Brazilian Journal of International Law*, v. 15, n. 2, p. 203–221, 2018.

4.1 Mandatory human rights due diligence measures

4.1.1 Uyghur Forced Labor Prevention Act (UFLPA)

A prominent example from the United States is the UFLPA, enacted in 2021 in response to allegations of forced labor in China's Xinjiang Uyghur Autonomous Region (XUAR).[36] The UFLPA's legal objective is to prevent goods made with forced labor, particularly by persecuted Uyghur minorities, from entering U.S. commerce. Its core provision establishes a rebuttable presumption that any goods mined, produced, or manufactured in Xinjiang (or involving entities linked to Xinjiang's labor transfer programs) are tainted by forced labor, and thus barred from import into the U.S..[37] This presumption is expansive that it applies not only to final products from Xinjiang, but also to goods made in other regions or countries if they contain inputs from Xinjiang or from listed entities known for forced labor. An importer may rebut the presumption only by demonstrating, with clear evidence, that the supply chain is free of forced labor and that it has complied with rigorous due diligence requirements.[38] The UFLPA is therefore mandatory and effectively extraterritorial in effect: while it operates at the U.S. border, it forces foreign producers worldwide to eliminate Xinjiang inputs or risk losing access to the U.S. market. The trade impact has been significant since in its first year of enforcement, U.S. Customs detained thousands of shipments (over 5,500 by late 2023) valued at nearly $2 billion under the UFLPA.[39] Industries from apparel to solar panels have had to restructure sourcing, and companies must map and document their entire supply chains to satisfy U.S. authorities that no forced labor is present. The Act exemplifies how human rights concerns (forced labor as a modern form of slavery) are now directly translated into trade bans, raising tensions with offender countries (China has decried the measure) but advancing a public morals objective in trade.[40]

4.1.2 Conflict minerals regulations

Another early foray into mandatory human-rights due diligence is the regulation of "conflict minerals," aimed at severing the link between global supply chains and armed violence. Both the U.S. and EU have instituted measures targeting the trade in four high-risk minerals, tin, tantalum, tungsten, and gold (known as 3TG), which have fueled conflict and human rights abuses in parts of Africa. The U.S. addressed this through Section 1502 of the 2010 Dodd-Frank Act, which requires companies listed on U.S. stock exchanges to investigate and annually report whether their 3TG minerals originate in the conflict-ridden Democratic Republic of Congo or adjoining countries.[41] The EU Conflict Minerals Regulation (Regulation (EU) 2017/821), which came into full effect in January 2021, goes further by imposing an outright due diligence obligation. Its objective is to "help stem the trade" in 3TG that finances armed groups or involves forced labor.[42] The regulation requires EU importers of these minerals to follow the OECD's responsible sourcing standards and to import only from responsible, conflict-free sources.[43] It applies to raw minerals and metals above certain volume thresholds, covering importers across the EU. Like the UFLPA, this law is mandatory and generates extraterritorial (cross-border) compliance effects as European companies (and, by extension, their overseas suppliers and smelters) must audit and manage their supply chains

[36] CRANE, Andrew *et al.* Governance gaps in eradicating forced labor: from global to domestic supply chains. *Regulation & Governance*, v. 13, n. 1, p. 86–106, 2019.

[37] HUSISIAN, Gregory; TURLAIS, John E. *What every multinational company needs to know about… the Uyghur Forced Labor Prevention Act (part I).* Available in: https://www.foley.com/insights/publications/2024/01/multinational-company-uyghur-forced-labor-prevention-act-i/. Access at: Jan. 2, 2026.

[38] HUSISIAN, Gregory; TURLAIS, John E. *What every multinational company needs to know about… the Uyghur Forced Labor Prevention Act (part I).* Available in: https://www.foley.com/insights/publications/2024/01/multinational-company-uyghur-forced-labor-prevention-act-i/. Access at: Jan. 2, 2026.

[39] HUSISIAN, Gregory; TURLAIS, John E. *What every multinational company needs to know about… the Uyghur Forced Labor Prevention Act (part I).* Available in: https://www.foley.com/insights/publications/2024/01/multinational-company-uyghur-forced-labor-prevention-act-i/. Access at: Jan. 2, 2026.

[40] CRANE, Andrew *et al.* Governance gaps in eradicating forced labor: from global to domestic supply chains. *Regulation & Governance*, v. 13, n. 1, p. 86–106, 2019.

[41] IRELAND, Emma. Are US corporations being Dodd-Frank: disclosure law as an instrument of social reform. *Penn Undergraduate LJ*, v. 4, p. 5, 2016.

[42] MACCHI, Chiara. A glass half full: critical assessment of EU Regulation 2017/821 on conflict minerals. *Journal of Human Rights Practice*, v. 13, n. 2, p. 270–290, 2022.

[43] YOUNG, Steven B. Responsible sourcing of metals: certification approaches for conflict minerals and conflict-free metals. *The International Journal of Life Cycle Assessment*, v. 23, n. 7, p. 1429–1447, 2018.

in conflict-affected areas worldwide to remain in compliance.[44] The trade consequences include increased diligence costs and supply chain tracing efforts across industries (electronics, automotive, jewelry), as well as some sourcing rerouting toward certified "conflict--free" smelters. By leveraging the EU's market power, the regulation seeks to pressure mining operations in unstable regions to reform and level the playing field for ethical sourcing.[45] The effectiveness of this approach depends on broad adoption, EU lawmakers acknowledged that global impact requires other major markets to implement similar rules. Indeed, the EU regulation was partly inspired by U.S. Dodd-Frank requirements, and the EU model now serves as a template for due diligence legislation elsewhere.

4.1.3 EU Corporate Sustainability Due Diligence Directive (CSDDD)

The EU has moved toward a comprehensive due diligence framework with the 2024 Corporate Sustainability Due Diligence Directive.[46] This directive represents a new apex of mandatory human rights and environmental due diligence, expanding beyond single-issue laws. The CSDDD's legal objective is broad, it aims to ensure large companies operating in the EU proactively identify and address adverse human rights and environmental impacts throughout their operations and value chains. In July 2024, the directive formally entered into force, requiring all EU Member States to enact national laws compelling in-scope companies, including certain non-EU companies with substantial EU turnover, to conduct due diligence on their global supply chains. However, the EU's subsequent "Omnibus I" simplification package has revised the CSDDD by (i) limiting its application to companies with more than 5,000 employees and €1.5 billion net turnover (including non-EU companies meeting the same EU-turnover threshold) and (ii) postponing national transposition to 26 July 2028 and the application of due diligence obligations to 26 July 2029.[47] The main content of the CSDDD obliges companies to integrate a due diligence process aimed at preventing or mitigating human rights abuses (e.g., child labor, unsafe working conditions) and environmental harm (e.g., pollution, ecosystem degradation) in their own activities, in their subsidiaries, and in their business relationships across the supply chain. In its original form, the directive also envisaged climate transition plans aligned with the Paris Agreement; however, the Omnibus I simplification package removed this mandatory transition-plan requirement.[48] The scope is ambitious in regulatory ambition, but, after Omnibus I, significantly narrowed in personal scope: the due diligence obligation is now targeted at only the largest EU and non-EU companies (>5,000 employees and €1.5 billion net turnover).[49] This means, for example, that a significant U.S. or Asian multinational with extensive sales in Europe could be directly subject to European due diligence duties, illustrating the cross-border effects of EU market regulation. Non-compliant companies may face sanctions and turnover-based penalties under Member State laws once the directive is implemented; under the Omnibus I compromise, fines may reach up to 3% of net worldwide turnover, while the EU-level harmonisation of civil liability is reduced, leaving enforcement and liability design largely to national law.

The CSDDD thus exemplifies the trend of making corporate accountability for human rights and sustainability a matter of binding law rather than voluntary codes, even as the EU recalibrates the instrument's scope and timing in the name of competitiveness.[50] U.S. lawmakers and businesses have voiced concern that the CSDDD imposes onerous extraterritorial mandates on American businesses and could negatively affect U.S. firms' operations.[51] Tensions of this kind highlight how

[44] MACCHI, Chiara. A glass half full: critical assessment of EU Regulation 2017/821 on conflict minerals. *Journal of Human Rights Practice*, v. 13, n. 2, p. 270–290, 2022.

[45] EU is one of the world's largest importers of 3TG. MACCHI, Chiara. A glass half full: critical assessment of EU Regulation 2017/821 on conflict minerals. *Journal of Human Rights Practice*, v. 13, n. 2, p. 270–290, 2022.

[46] VENTURA, Livia. Corporate sustainability due diligence and the new boundaries of the firms in the European Union. *European Business Law Review*, v. 34, n. 2, 2023.

[47] BAUMÜLLER, Josef. Corporate sustainability due diligence directive. *Der Wirtschaftstreuhänder*: WT Fachjournal für Wirtschaftsprüfer und Steuerberater, v. 76, n. 4, p. 284–288, 2024.

[48] VENTURA, Livia. Corporate sustainability due diligence and the new boundaries of the firms in the European Union. *European Business Law Review*, v. 34, n. 2, 2023.

[49] BAUMÜLLER, Josef. Corporate sustainability due diligence directive. *Der Wirtschaftstreuhänder*: WT Fachjournal für Wirtschaftsprüfer und Steuerberater, v. 76, n. 4, p. 284–288, 2024.

[50] AL-EMADI, Talal Abdulla *et al*. The EU corporate sustainability due diligence directive: implications and the Qatari case study. *The Journal of World Energy Law & Business*, v. 18, n. 4, p. jwaf022, 2025.

[51] CLIFFORD CHANCE. *The EU's corporate sustainability due diligence directive*: impact on US companies. 2004. Available in: https://www.cliffordchance.com/content/cliffordchance/insights/resources/blogs/business-and-human-rights-insights/2024/10/the-

mandatory due diligence regimes, while aiming to "level the playing field" ethically, may spark regulatory conflicts.[52] Nonetheless, the CSDDD is poised to become a benchmark, prompting other jurisdictions to consider similar comprehensive due diligence legislation and solidifying the concept that respect for human rights and the environment is a prerequisite for market access.

4.2 Environmental transparency and PPM measures

In parallel with human rights due diligence, governments are adopting environmental transparency and PPM measures that tie market entry to the sustainability of production processes. These initiatives focus on issues such as deforestation, climate change, and other environmental impacts, and require proof that imported goods were produced in an environmentally responsible manner. Such measures enforce modern PPM standards, regulating how a product is made (e.g., with low carbon emissions or without forest destruction), rather than focusing solely on the product's physical characteristics. This represents a notable development in trade governance, since historically, product regulations have rarely been scrutinized for foreign production methods.

4.2.1 EU Deforestation Regulation (EUDR)

In 2023, the European Union adopted a landmark regulation to curb global deforestation driven by commodity demand. The EUDR aims to ensure that key products sold in or exported from the EU are "deforestation-free," i.e., not produced on land that was deforested or degraded after a cutoff date of December 31, 2020.[53] The legal objective is to disconnect European consumption from forest loss and incentivize sustainable land-use practices abroad, thereby protecting biodiversity and reducing greenhouse gas emissions from deforestation. Under the EUDR, companies placing covered commodities on the EU market (or exporting them from the EU) must conduct due diligence to verify that the goods meet three conditions: (1) they are deforestation-free (post-2020 land clearings are disqualifying); (2) they were produced in compliance with all laws of the country of origin (e.g. land rights, forestry regulations); and (3) they are accompanied by a corporate due diligence statement attesting to compliance. The scope of products is significant as it includes cattle (beef and leather), cocoa, coffee, oil palm (palm oil), rubber, soy, and wood, as well as derived products like chocolate, furniture, and beef products.[54] These commodities are among the leading drivers of tropical deforestation linked to international trade, and the EU itself is a major consumer of them.[55]

By mandating geolocation information of the farmland where the goods were produced, and strict supply chain tracing, the EUDR imposes a heavy compliance burden. It is a mandatory scheme, non-compliant products cannot be placed on the EU market, and it generates pronounced cross-border compliance effects: farmers in Brazil, oil-palm growers in Indonesia, and cocoa cooperatives in West Africa must effectively adhere to EU-defined sustainability criteria if they wish to access the EU's lucrative market. The trade consequences could be far-reaching. Producer countries have raised concerns at the WTO that the EUDR might act as a barrier to trade under the guise of environmental goals.[56] The EU Parliament initially set an aggressive timeline for compliance, but implementation has been further delayed to 30 December 2026 for operators and traders that are not micro and small enterprises, and to 30 June 2027 for micro and small enterprises. The same legislative package introduced targeted simplifications (including removing certain printed products from scope and streamlining aspects of due diligence), and it requires the European Commission to review the regime

eu-corporate-sustainability-due-diligence-directive-impact-on-us-companies.html. Access at: Jan. 2, 2026.

52 TÜRKE, Mariana Aparecida Vilmondes. Business and human rights in Brazil: exploring human rights due diligence and operational-level grievance mechanisms in the case of Kinross Paracatu gold mine. *Revista de Direito Internacional*, v. 15, n. 2, p. 221–241, 2018.

53 KÖTHKE, Margret; LIPPE, Melvin; ELSASSER, Peter. Comparing the former EUTR and upcoming EUDR: some implications for private sector and authorities. *Forest Policy and Economics*, v. 157, p. 103079, 2023.

54 KÖTHKE, Margret; LIPPE, Melvin; ELSASSER, Peter. Comparing the former EUTR and upcoming EUDR: some implications for private sector and authorities. *Forest Policy and Economics*, v. 157, p. 103079, 2023.

55 LI, Bo *et al. What is the EU Deforestation Regulation? 7 Key Questions, Answered*. 2025. Available in: https://www.wri.org/insights/explain-eu-deforestation-regulation. Access at: Jan. 2, 2026.

56 Some, like Indonesia and Brazil, worry about sovereignty over land-use decisions and the feasibility of smallholders complying (given the administrative costs of mapping and monitoring plots). See RUMBLE, Olivia; GILDER, Andrew. *WTO Review of EU Trade Policies highlights significant unease about CBAM*.

by 30 April 2026,[57] partly to give businesses and trading partners more time to adjust.

Nevertheless, the direction is clear: companies trading in these commodities are now compelled to institute robust traceability and auditing systems. In the long run, the EUDR may spur other markets to adopt similar "zero-deforestation" import standards, amplifying its impact. On the other hand, if misaligned trade policies (such as free trade agreements that boost imports of risky commodities) undercut the regulation's goals, it could face challenges in effectively halting deforestation.[58]

4.2.2 EU carbon border adjustment mechanism (CBAM)

Perhaps the most debated environmental PPM measure is the EU's Carbon Border Adjustment Mechanism, introduced as part of the European Green Deal's effort to combat climate change. CBAM's core objective is to prevent "carbon leakage," the shift of carbon-intensive production to countries with laxer emission constraints, and to ensure importers pay a carbon price equivalent to that faced by EU manufacturers.[59] In effect, it extends the EU's domestic carbon pricing (the Emissions Trading System - ETS) to imports, leveling the playing field on carbon costs. Legally, CBAM was adopted in 2023 (Regulation (EU) 2023/956) and operated a transitional reporting phase from October 2023 through 2025. As part of the EU's Omnibus-driven simplification, Regulation (EU) 2025/2083 introduced a de minimis exemption (50 tonnes per year) and streamlined elements of authorisation and reporting for smaller importers. CBAM requires importers of certain carbon-intensive goods to report the embedded greenhouse gas emissions of those products and, in the definitive phase, to purchase and surrender "CBAM certificates" priced at the EU ETS rate.[60] The scope initially covers a set of high-emission industries: iron and steel, cement, aluminum, fertilizers, electricity, and hydrogen, representing a substantial share of European industrial CO_2 emissions. The transitional reporting phase ran through 2025; for imports from 2026, CBAM enters its definitive phase, with annual declarations and certificate surrender beginning with the first compliance cycle for 2026 imports, and the effective carbon-cost signal expected to strengthen as free ETS allowances are phased out. The CBAM is mandatory, non-compliant imports (without emissions data or unpaid certificates) will be denied entry or penalized, and it has pronounced cross-border effects. It pressures foreign producers to reduce their carbon footprint or else bear an added cost when selling into the EU. Countries with their own carbon pricing can avoid the charge (credits are given for any carbon taxes already paid at origin), effectively nudging other governments to implement climate policies to stay competitive. The trade implications of CBAM are complex and already being felt. Exporters from developing countries fear that CBAM will erode their competitiveness in EU markets, as many rely on emissions-intensive sectors and lack resources to decarbonize quickly.[61] CBAM has already attracted WTO litigation: in May 2025 Russia requested consultations challenging the EU's CBAM and linked elements of the EU emissions trading architecture. Any dispute settlement trajectory will unfold against the backdrop of the Appellate Body's paralysis, which can make final, appeal-level resolution uncertain unless parties agree to alternative appeal mechanisms. The EU counters that the measure is non-protectionist and essential for climate action, likely seeking shelter under WTO exceptions for environmental protection.

Beyond geopolitics, CBAM imposes significant compliance work. Companies must implement systems to calculate and verify the carbon content of their products across complex supply chains, a novel requirement for many. Logistics providers and customs

[57] LI, Bo *et al. What is the EU Deforestation Regulation? 7 Key Questions, Answered*. 2025. Available in: https://www.wri.org/insights/explain-eu-deforestation-regulation. Access at: Jan. 2, 2026.

[58] ECOVADIS. Trade vs. trees: is the EU's deforestation regulation being undercut by its own trade policy? *In*: ECOVADIS. *Blog EcoVadis*, Sept. 2025. Available in: https://ecovadis.com/blog/trade-vs-trees-is-the-eus-deforestation-regulation-being-undercut-by-its-own-trade-policy/. Access at: Jan. 2, 2026.

[59] GRUBB, Michael *et al*. Carbon leakage, consumption, and trade. *Annual Review of Environment and Resources*, v. 47, n. 1, p. 753–795, 2022.

[60] RUMBLE, Olivia; GILDER, Andrew. *WTO review of EU trade policies highlights significant unease about CBAM*. Available in: https://africanclimatewire.org/2023/06/wto-review-of-eu-trade-policies-highlights-significant-unease-about-cbam/. Access at: Jan. 2, 2026.

[61] Indeed, WTO members have expressed unease: China's ambassador warned that CBAM would unfairly penalise developing countries, and Russia argued it could disrupt global trade flows and competition. RUMBLE, Olivia; GILDER, Andrew. *WTO review of EU trade policies highlights significant unease about CBAM*. Available in: https://africanclimatewire.org/2023/06/wto-review-of-eu-trade-policies-highlights-significant-unease-about-cbam/. Access at: Jan. 2, 2026.

brokers are also drawn in as they may act as declarants for foreign firms as CBAM phases in, its design and administration will be closely watched. If successful, it could pave the way for similar carbon border measures elsewhere, potentially leading to a patchwork of carbon tariffs globally.[62] Such a trend might encourage international convergence on carbon pricing, but it also risks fragmenting trade if regimes differ.

4.3 The expanding scope of regulatory models with cross-border effects

Together, the above measures illustrate a remarkable expansion of trade-linked regulatory models with cross-border effects in international trade. A defining feature of these new measures is that they are mandatory, companies do not have the option to opt out without foregoing market access, and they project the regulating country's standards beyond its borders. By tying compliance to entry into large markets (such as the EU or the U.S.), these laws effectively extend regulatory influence outward (through market-access conditionality), influencing business conduct in foreign jurisdictions. This raises fundamental questions about sovereignty and the reach of domestic law; for instance, the EU's due diligence and environmental rules, by design, affect producers in Asia, Africa, or the Americas who may have never set foot in Europe but who supply European companies or export to European customers. Notably, these initiatives shift the burden of monitoring and enforcement from governments to companies. Importing firms and multinational enterprises are now tasked with carrying out the policing functions: they must trace their supply chains for banned labor or illegal timber, audit their suppliers' practices, collect emissions data, and so forth.[63] In essence, compliance costs and responsibilities are being decentralized to the private sector. This approach harnesses corporate resources and incentives to achieve public policy goals (such as human rights and sustainability), but it also imposes heavy logistical and financial burdens on businesses, especially those with complex global supply chains. Smaller exporters in developing countries may find it particularly challenging to meet the detailed documentation and traceability demands, potentially impacting their access to markets. Thus, while these measures aim to level the playing field by internalizing social and environmental costs, they can also reshape supply chain structures. sometimes favoring larger, more sophisticated firms that can absorb compliance costs.

The scope of issues addressed by such sustainability-linked, trade-based measures with cross-border effects is steadily broadening. What began with niche areas (conflict minerals, specific forced-labor hotspots) has evolved into sweeping frameworks covering climate change, general human rights due diligence, and deforestation across entire sectors. This trend is likely to continue.[64] Each new measure reinforces the precedent that trade can be used to promote non-trade values. Internationally, this raises the question of how to reconcile these unilateral or regional measures with multilateral trade rules. Many of these measures will be tested against World Trade Organization obligations, and their legality may hinge on general exceptions for the protection of morals or the environment.

5 Legal assessment of supply chain regulations under WTO rules

5.1 Legal characterization of due diligence measures under WTO Law

Modern supply-chain due diligence and transparency measures, such as the U.S. Uyghur Forced Labor Prevention Act (UFLPA), the EU Deforestation Regulation (EUDR), the EU Corporate Sustainability Due

[62] Already the UK, Canada, and others have explored the concept. OGER, Antoine. What's missing in CBAM and the EU's net zero strategy. *White paper*. Available in: https://www.hinrichfoundation.com/research/wp/sustainable/gaps-in-cbam-and-the-eu-net-zero-strategy. Access at: Jan. 2, 2026.

[63] VENTURA, Livia. Corporate sustainability due diligence and the new boundaries of the firms in the European Union. *European Business Law Review*, v. 34, n. 2, 2023.

[64] Other jurisdictions are considering similar laws: for example, national due diligence laws in countries like Germany and France already impose human rights duties on companies' global supply chains, and new proposals (such as a possible UK due diligence law or Canada's recent forced labor import ban initiatives) are on the horizon. The extra-territorial regulatory model is also expanding through new EU initiatives, from proposed bans on products made with forced labor (analogous to the UFLPA) to sector-specific regulations such as the EU Battery Regulation, which mandates responsible sourcing of battery raw materials. AL-EMADI, Talal Abdulla et al. The EU corporate sustainability due diligence directive: implications and the Qatari case study. *The Journal of World Energy Law & Business*, v. 18, n. 4, p. jwaf022, 2025.

Diligence Directive (CSDDD), and the EU Carbon Border Adjustment Mechanism (CBAM), represent a new class of trade-related regulations. Legally characterizing these measures under World Trade Organization (WTO) rules is the necessary first step in assessing their compatibility.[65]

From a WTO law perspective, these measures can be characterized as either border measures (import restrictions) or internal regulations, depending on their design. An outright ban on importing products produced under certain conditions (e.g., under forced labor or illegal logging) constitutes a quantitative restriction on trade. This would normally violate GATT 1994 Article XI, which prohibits import bans or quotas.[66] On the other hand, some measures are structured as internal regulations applied to both domestic and imported products (for instance, a law that prohibits the sale of any product, whether domestic or imported, produced using prohibited methods). Such an internal measure would fall under GATT Article III disciplines (National Treatment for internal regulations). In practice, the distinction can be blurred, many due diligence laws require importers to demonstrate compliance (via certificates, due diligence statements, etc.) as a condition for their goods to enter or be sold in the market. Whether one calls this a border measure or an internal measure, it is clearly trade-affecting and subject to WTO scrutiny.

Another way to characterize these measures is to ask whether they qualify as "technical regulations" under the WTO's Technical Barriers to Trade (TBT) Agreement. The TBT Agreement defines a technical regulation as a document that lays down product characteristics or related processes and production methods, the compliance with which is mandatory. Many due diligence measures involve mandatory procedures or standards that products must meet (e.g., traceability documentation, sustainability certifications). For instance, the EUDR requires covered commodities like coffee, palm oil, or timber to be accompanied by information proving they are deforestation-free; this could be viewed as a de facto technical requirement for those products.[67] Similarly, CBAM obliges importers to purchase carbon emission certificates corresponding to the product's embedded emissions, effectively imposing a technical and financial requirement tied to the product's production method. If these rules are deemed "technical regulations," the disciplines of the TBT Agreement (on non-discrimination, necessity, and use of international standards) would apply in addition to GATT rules. If a measure is not a technical regulation (for example, UFLPA's import ban might be seen as a customs measure outside TBT's scope), then it is assessed solely under GATT and possibly other WTO agréments.

5.2 Non-discrimination principles: GATT Articles I and III

At the heart of WTO law are the non-discrimination obligations, chiefly the Most-Favored-Nation (MFN) treatment in GATT Article I and National Treatment in GATT Article III. Due diligence regulations must respect these principles or risk legal challenge. A supply--chain measure that targets specific countries or regions on its face will prima facie violate MFN. For example, the UFLPA (as enacted by the United States) is explicitly focused on goods linked to the Xinjiang region of China. Even though the goal, eliminating forced labor, is universally relevant, singling out one region's products means other WTO members' products are treated more favorably, breaching MFN. A less overt scenario is the EU's deforestation regulation, which is origin--neutral in its basic requirement (all covered products must be deforestation-free) but includes a system of country risk benchmarking. Suppose the EU classifies countries as "high risk": exports from those countries face stricter due diligence scrutiny or additional compliance steps than those from "low risk" countries.[68] This kind of differentiation by origin, even if grounded in environmental data, amounts to unequal treatment under Article I. The WTO allows classifying countries by risk per se, but such an approach must be justified

[65] ANDRADE, Mariana Clara de. Path to judicial activism? the use of "relevant rules of International Law" by the WTO Appellate Body section II: artigos sobre outros temas. *Brazilian Journal of International Law*, v. 15, n. 3, p. 307–323, 2018.

[66] CONDON, Madison; IGNACIUK, Ada. Border carbon adjustment and international trade: a literature review. *OECD Trade and Environment Working Papers*, Paris, Oct. 2013. Available in: http://search.proquest.com/docview/1459385799/abstract/7F92941000534C6BPQ/1. Access at: Feb. 8, 2017.

[67] KÖTHKE, Margret; LIPPE, Melvin; ELSASSER, Peter. Comparing the former EUTR and upcoming EUDR: some implications for private sector and authorities. *Forest Policy and Economics*, v. 157, p. 103079, 2023.

[68] MARÍN DURÁN, Gracia; SCOTT, Joanne. Regulating trade in forest-risk commodities: two cheers for the European Union. *Journal of Environmental Law*, v. 34, n. 2, p. 245–267, 2022.

to avoid being disguised discrimination.[69] In designing due diligence rules, policymakers have sought to avoid explicit origin-based discrimination; uniform, global standards are preferable. Indeed, one can argue that a measure is applied to all imports equally (and thus MFN-consistent) if it holds every exporting country to the same benchmark (e.g., zero tolerance for forced labor or illegal deforestation). However, even a uniform standard can have disparate impacts: producers in some countries will be more heavily affected due to prevailing local issues. WTO law distinguishes between de jure discrimination (in the letter of the law) and de facto discrimination (in effect). Many sustainability measures, though origin-neutral on paper, may be found discriminatory in effect if they disproportionately exclude or burden imports from certain members without adequate justification.[70]

GATT Article III, on National Treatment, requires that imported products be treated no less favorably than "like" domestic products with respect to internal taxes and regulations. In the context of due diligence measures, a crucial question is whether the regulation also applies to domestic producers. If a country bans imports of goods made with child or forced labor but has no such restrictions on domestic goods (hypothetically produced under similar unethical conditions), that would be a blatant Article III violation. WTO members typically ensure consistency by pairing import restrictions with parallel domestic measures: for instance, forced labor is generally illegal in domestic production as well, and the EU's deforestation law applies equally to timber, beef, soy, and other commodities produced within the EU.[71] Formal equivalence, however, is not the end of the inquiry. WTO tribunals first consider whether imported and domestic products are "like products."[72] Here, the thorny issue is that WTO jurisprudence has traditionally defined likeness based on physical characteristics, end uses, and consumer preferences, rather than the way a good is produced. A ton of aluminum produced with renewable energy is physically identical to a ton of aluminum produced with coal-fired electricity; a cotton shirt sewn in a factory with fair labor practices is identical in appearance and function to one sewn by forced labor. WTO law has generally treated such products as "like products." This means a regulation that treats them differently is discriminating between like products.[73] Thus, process--based distinctions inherently risk violating Article III, unless the difference in process translates into a product distinction recognized by consumers (there is scope to argue that consumer perception of a product's ethical origin could affect its likeness, but this remains an unsettled and controversial area).

5.3 Exceptions under GATT article XX

WTO law does not operate in an absolutist fashion, GATT Article XX provides a set of general exceptions that allow members to maintain measures which would otherwise violate GATT obligations, provided certain conditions are met. In the context of supply-chain due diligence measures, several Article XX grounds are potentially relevant. Article XX(a) allows measures "necessary to protect public morals." A nation could invoke public morals to justify bans or restrictions on goods made with egregious human rights abuses, such as forced labor or child labor. Indeed, the EC - Seal Products (2014) precedent shows that WTO adjudicators accepted animal welfare concerns as falling within public morals. Protecting human dignity and preventing complicity in forced labor could certainly be construed as a moral imperative for many societies.[74] The UFLPA, for instance, would likely be defended under Article XX(a) as a measure necessary to protect public morals (reflecting the moral abhorrence of forced labor).

Article XX(b) covers measures "necessary to protect human, animal or plant life or health." This exception could be invoked for regulations intended to protect health or safety. For example, if a measure addresses a health risk in products (though our examples are more

[69] BOHANES, Jan. Risk regulation in WTO law: a procedure-based approach to the precautionary principle. *Colum. J. Transnat'l L.*, v. 40, p. 323, 2001.

[70] MAVROIDIS, Petros C. *The regulation of international trade*: GATT. Cambridge: MIT Press, 2016. v. 1.

[71] KÖTHKE, Margret; LIPPE, Melvin; ELSASSER, Peter. Comparing the former EUTR and upcoming EUDR: some implications for private sector and authorities. *Forest Policy and Economics*, v. 157, p. 103079, 2023.

[72] WORLD TRADE ORFANIZATION. *Japan*: taxes on alcoholic beverages. 1998.

[73] For example, a carbon-intensive steel billet vs. a low-carbon billet facing different border fees under a CBAM, or a "conflict-free" mineral vs. a conflict-tainted mineral where only the latter is banned. DROEGE, Susanne; FISCHER, Carolyn. Pricing carbon at the border: key questions for the EU. *ifo DICE Report*, v. 18, n. 01, p. 30–34, 2020.

[74] DU, Ming. What is a technical regulation in the TBT agreement? some reflections on EC-Seal products. 2015.

about ethics and environment than direct health risks), one might argue that severe environmental harm abroad can threaten human life (climate change, for instance, endangers human life and health globally). A creative argument is to justify climate measures, such as carbon restrictions, under XX(b) because unchecked climate change poses grave risks to human and planetary health.[75] However, climate and environmental protection more naturally align with Article XX(g), which permits measures "relating to the conservation of exhaustible natural resources" if paired with domestic restrictions. Forests, biodiversity, clean air, and a stable climate have been recognized in past WTO cases as "exhaustible natural resources" within the meaning of XX(g). The EUDR's objective of halting deforestation could come under XX(g) as a conservation measure. The same provision could justify aspects of the EU's CBAM, since it aims to conserve the global atmospheric resource by curbing carbon emissions leakage. Article XX(g) has two key tests: the measure must be "relating to" conservation (a substantial connection between the measure and the goal, less strict than "necessary"), and it must be made effective in conjunction with equivalent domestic restrictions. The latter condition means the regulating country should also constrain its own domestic activities related to the resource. The EU would point out that its domestic producers are subject to emissions caps (hence CBAM equalizes the treatment), and that it has laws against domestic deforestation, etc., thereby satisfying the even-handedness requirement of XX(g).

Applying these principles to due diligence measures, regulators need to ensure that, if they invoke Article XX, their measure is "necessary" or "relating to" the chosen policy goal and that no reasonable alternative is available that is less trade-restrictive. Under XX(a) and XX(b), "necessary" involves a weighing and balancing test.[76] A WTO panel would consider the importance of the objective (e.g., combating forced labor is a very weighty objective), the effectiveness of the measure in achieving that objective, and the measure's impact on trade. If an alternative measure can achieve the same level of protection with less trade disruption, for instance, a cooperative international agreement or a less blanket form of restriction, the challenged measure might be found not necessary.

Whether a measure is justified under XX(a), (b), or (g), the most demanding aspect of Article XX is the chapeau (the introductory clause of Article XX). The chapeau requires that the measure not be applied in a manner that constitutes "arbitrary or unjustifiable discrimination" between countries where the same conditions prevail, nor a "disguised restriction on international trade." This is essentially a test of good faith and even-handed application. A measure that formally falls under a listed exception can still be deemed WTO-inconsistent if, in its application, it unfairly discriminates between trading partners or serves as a veiled form of protectionism. WTO case law has developed important guidance here. In U.S. - Shrimp/Turtle (1998), the Appellate Body acknowledged the legitimacy of the U.S. law to protect sea turtles (an exhaustible natural resource), but initially found that the way the U.S. applied its ban was unjustifiably discriminatory.[77] The U.S. had not adequately engaged other countries or considered their different conditions, it imposed a rigid requirement (use of turtle-excluder devices in shrimp fishing) without serious efforts at negotiation or technical assistance, and it allowed no flexibility in recognizing other countries' equivalent conservation programs. The Appellate Body said that WTO members cannot simply require other countries to adopt the same regulatory standards wholesale, ignoring differences in circumstances, because that would constitute arbitrary discrimination. The lesson from that case (and the subsequent compliance proceeding where the U.S. adjusted its implementation) is that a unilateral measure addressing a global concern should be implemented with a degree of flexibility and international cooperation. Providing affected trading partners with opportunities for dialogue, phase-in periods, or assistance, and avoiding creating exceptions that favor some countries over others without a valid reason, are important factors in withstanding chapeau scrutiny.

Crucially, under the chapeau, even a well-intentioned measure must not result in unfair discrimination. Consider the public morals case of EC - Seal Products: the EU's ban on seal fur had exceptions for indigenous communities and for small-scale hunts, which the WTO

[75] KISHORE, Pallavi. Revisiting the WTO shrimps case in the light of current climate protectionism: a developing country perspective. *Geo. Wash. J. Energy & Envtl. L.*, v. 3, p. 78, 2012.

[76] BREE, Axel. Article XX GATT-Quo Vadis-the environmental exception after the shrimp/turtle appellate body report. *Dick. J. Int'l L.,* v. 17, p. 99, 1998.

[77] KISHORE, Pallavi. Revisiting the WTO shrimps case in the light of current climate protectionism: a developing country perspective. *Geo. Wash. J. Energy & Envtl. L.*, v. 3, p. 78, 2012

found led to arbitrary discrimination because the way those exceptions were designed favored certain countries' exports (e.g., Canada versus Greenland) without adequate justification. By analogy, a forced labor import bans that targets only one region (while similar labor abuses elsewhere are overlooked) could be seen as unjustifiably discriminatory. Similarly, if the EU's deforestation law fails to account for developing countries' efforts or penalizes small producers without providing support, it might be criticized as arbitrary. "Disguised restriction on trade" is another chapeau concept, meaning a protectionist measure that hides behind a moral/environmental pretext. To avoid this accusation, regulators must ensure consistency and transparency in their application of the rules. For instance, if CBAM were designed mainly to shield EU industry and had little to do with genuinely pricing carbon (say, if the import fees exceeded the costs borne by domestic producers), it would look like a trade restriction in disguise. In contrast, if it truly mirrors the domestic carbon price and is adjusted as such, it stands a better chance of being seen as bona fide environmental policy.

5.4 Technical regulations and the TBT agreement

Many supply-chain transparency measures can be viewed through the lens of the Agreement on Technical Barriers to Trade (TBT), which deals with product regulations and standards. The TBT Agreement is relevant because it contains its own set of obligations that complement GATT rules. If a due diligence measure is considered a technical regulation, two key provisions come into play: TBT Article 2.1, which is a non-discrimination rule similar to GATT Article III (it requires that imported products be accorded treatment no less favorable than like products of national origin and like products from other countries), and TBT Article 2.2, which requires that technical regulations not create unnecessary obstacles to trade, in other words, they should be no more trade-restrictive than necessary to fulfill a legitimate objective.

It is worth noting that, unlike GATT, the TBT Agreement does not have an explicit general exceptions clause. This means that if a measure is found to violate TBT (for instance, failing the Article 2.2 necessity test), a member cannot directly invoke GATT Article XX to excuse that breach. In WTO practice, a measure challenged as a technical regulation is usually assessed under TBT first; if it complies with TBT, it is likely to comply with GATT, and if it fails TBT, there may be no saving it under GATT exceptions.[78] Therefore, WTO-consistent design requires meeting the TBT's built-in balance: pursue the legitimate objective in a way that minimally impedes trade. Transparency provisions of the TBT Agreement (such as notification of new regulations to the WTO, allowing foreign stakeholders to comment, etc.) also apply and have been used by countries like Indonesia, Malaysia, and Brazil to raise concerns about EU measures like the EUDR. These discussions aim to ensure that due diligence rules are not formulated in a manner that is unnecessarily trade-disruptive.

5.5 Interaction with bilateral and regional trade agreements

WTO rules serve as the baseline for global trade, but many countries also address supply-chain issues through bilateral and regional trade agreements (FTAs). These agreements can both influence and be influenced by unilateral due diligence measures. In recent years, it has become common for FTAs to include chapters or provisions on labor and environmental standards, often referred to as "Trade and Sustainable Development" (TSD) chapters.[79] These typically commit the parties to uphold certain labor rights (such as the elimination of forced and child labor, freedom of association, etc.) and environmental agreements, and not to weaken their standards for the sake of trade. That said, there are instances in which trade agreements directly address the measures at issue. A notable example is the U.S.--Mexico-Canada Agreement (USMCA) (2020), which, for the first time among FTAs, explicitly commits each party to prohibit the importation of goods produced by forced or compulsory labor.[80] This commitment essentially multilaterizes the UFLPA principle across North America. In fact, following the USMCA, Canada and Mexico have been updating their laws to implement import bans on goods produced with forced labor,

[78] MAVROIDIS, Petros C. *The regulation of international trade*: GATT. Cambridge: MIT Press, 2016. v. 1.

[79] BARAI, Munim Kumar; LE, Thi Ai Lam; NGUYEN, Nga Hong. Vietnam: achievements and challenges for emerging as a FTA hub. *Transnational Corporations Review*, v. 9, n. 2, p. 51–65, 2017.

[80] EVANS, David. The United States-Mexico-Canada agreement: how NAFTA 2.0 represents a New Era in North American trade. *DePaul L. Rev.,* v. 71, p. 831, 2021.

harmonizing with the U.S. approach. This shows that a regional trade agreement can serve as a platform for mutually recognizing and enforcing due diligence goals, thereby reducing the likelihood of trade friction among the parties over those measures. When all parties in an FTA agree to a certain standard (such as banning goods produced with illegal deforestation or high emissions), it alleviates concerns of discrimination because they share the same rulebook.[81]

Another aspect of FTA interaction is exceptions clauses in FTAs. Most FTAs incorporate language akin to GATT Article XX to ensure that parties can enact policies for health, environment, or morals without breaching the FTA. Thus, even if a measure raised an issue under an FTA's obligations, the general exceptions (usually copied from GATT XX and GATS XIV) would likely apply. For instance, if an EU FTA partner objected to the EUDR under the FTA, the EU could invoke the FTA's environmental exception (if included) just as it would Article XX in the WTO context. However, FTAs sometimes go further by encouraging cooperation on the very issues that due diligence laws address. The EU's agreements often establish committees or dialogues on forestry, sustainable agriculture, or labor rights, where the parties discuss how to achieve the goals together rather than via unilateral import bans. There is also an emerging idea of using trade agreements to form "clubs" of countries with high standards, e.g., a climate club where members agree on carbon pricing and therefore might trade among themselves with fewer adjustments.[82] If such cooperative regimes flourish, unilateral measures like CBAM might include exemptions for countries with equivalent climate policies. While that raises its own MFN questions, it illustrates how bilateral/regional arrangements could mitigate tensions: by negotiating mutual recognition of standards, data-sharing in supply chain traceability, or providing aid through FTA mechanisms to help implement new rules.

6 Impacts on developing countries

For developing countries in the Global South, the rise of mandatory due diligence and transparency requirements in international trade is a double-edged sword. On the one hand, these nations recognize the importance of tackling issues such as deforestation, forced labor, and climate change to ensure sustainable development. On the other hand, they are apprehensive about the practical challenges and potential trade barriers that such due diligence measures may create for their exporters.

Compliance Burdens and Capacity Asymmetries

A primary concern is the compliance burden that stringent due diligence standards place on exporters in developing countries, especially smaller producers. Meeting the complex requirements of Western markets often demands new systems for supply chain traceability, detailed record-keeping, and costly certification or auditing processes.[83] Large multinational suppliers may manage these obligations, but many smallholder farmers and small exporters in the Global South struggle to keep up.[84] These tasks demand technical expertise and infrastructure (such as digital databases, satellite monitoring, or third-party audits) that many developing-country producers lack. This capacity asymmetry means the burden of compliance falls hardest on those least equipped to handle it. Without significant capacity-building support, more negligible suppliers' risk being unable to meet the new standards and, as a result, losing access to lucrative EU and U.S. markets. In effect, well-intentioned regulations could squeeze out disadvantaged producers, cutting them off from global value chains if they cannot afford new documentation syste-

[81] LEAL-ARCAS, Rafael *et al*. The World Trade Organization and carbon market clubs. *Georgetown Journal of International Law*, v. 52, 2021.

[82] NORDHAUS, William. Climate clubs: overcoming free-riding in international climate policy. *American Economic Review*, v. 105, n. 4, p. 1339–70, 2015.

[83] ALMEIDA, Thiago Ferreira. Environmental protection or domestic protectionism? the EU deforestation-free regulation and its shift from exporter to importer of foreign capital. *In*: WESSEL, Ramses A. *et al* (org.). *EU external relations law and sustainability*: the eu, third states and international organizations. The Hague: T.M.C. Asser Press, 2024. p. 167–201. DOI: https://doi.org/10.1007/978-94-6265-655-0_8. Available in: https://link.springer.com/chapter/10.1007/978-94-6265-655-0_8. Access at: Sept. 21, 2025.

[84] For example, under the EUDR, a coffee cooperative or cocoa farmer may now need to provide precise geolocation coordinates and land-use documents to prove their crop was not grown on recently deforested land. Likewise, under the UFLPA, importers must effectively prove a negative, that their products have no inputs made with forced labor, which requires rigorous mapping and vetting of far-flung supply chains.

ms or hire compliance staff.[85] Addressing this imbalance through financial aid, technology transfer, or training will be crucial to prevent sustainability standards from unintentionally becoming trade barriers for poorer nations. Recent EU "Omnibus" simplifications and delays, such as the narrowing and postponement of the CSDDD, the CBAM de minimis exemption for small importers, and the delayed application of the EUDR, may soften immediate timelines for some firms, but they do not remove the core structural challenge since exporters must still build traceability, data, and verification capacity to remain competitive in high-standard markets.

Cross-Border Effects and Sovereignty Concerns

A related legal and political issue is the cross-border effects (often described as "extraterritorial") of these due diligence measures and the concerns they raise about national sovereignty. Many of the new regulations effectively project the importing country's social and environmental standards onto production processes overseas. From the perspective of developing countries, this can be seen as an infringement on their regulatory sovereignty, their right to set and enforce their own laws within their territory.[86] This situation raises the specter of "green unilateralism" or even "green protectionism."[87] Under the banner of laudable objectives (human rights, environmental protection), these measures could, intentionally or unintentionally, serve as non-tariff barriers to exports. Genuinely addressing issues like illegal deforestation or forced labor should be done through international agreements or cooperative efforts, not by one-sided import bans.[88] Proponents of the new laws counter that global challenges (such as climate change or modern slavery) necessitate global responsibility, and if multilateral solutions are slow to emerge, individual jurisdictions are justified in taking action to uphold fundamental values.

Conditions for Fair Implementation

From the perspective of developing countries, ensuring that due diligence regulations truly promote sustainable development (rather than becoming new forms of protectionism) requires fair and inclusive implementation. Support is crucial since developed countries and the international community should assist poorer nations in building the capacity to meet the new standards. This might include financial aid, technical assistance, and technology transfer, for example, funding the development of traceability systems for small farmers, or training programs to help local firms obtain necessary certifications. Such capacity-building can level the playing field, so that compliance is not solely a burden but an achievable goal for producers across different development levels. Underpinning these ideas is the principle of "common but differentiated responsibilities", borrowed from international environmental law.[89] This principle suggests that while all countries share a common goal in tackling global problems, the responsibilities and efforts should be differentiated by each country's capabilities and historical contributions to the problem. Applied to trade due diligence, it means that developed nations should not simply demand equal compliance from a small farmer in Africa as from a large company in Europe without assisting.

[85] Developing country officials and business groups have voiced concerns that compliance costs, whether for retrofitting factories to lower carbon emissions under CBAM or for hiring experts to navigate human rights due diligence checklists, might crowd out small players. RUMBLE, Olivia; GILDER, Andrew. *WTO review of EU trade policies highlights significant unease about CBAM*. Available in: https://africanclimatewire.org/2023/06/wto-review-of-eu-trade-policies-highlights-significant-unease-about-cbam/. Access at: Jan. 2, 2026.

[86] For example, if the EU prohibits imports of timber or beef produced through any forest clearing, this could penalize producers for permissible actions (and even legally licensed) under the producer country's own laws. Similarly, the CBAM will apply a carbon price on certain imported goods, essentially requiring foreign manufacturers to account for emissions in line with EU climate policy, even if their home country has no such carbon pricing.

[87] ALMEIDA, Thiago Ferreira. Environmental protection or domestic protectionism? the EU deforestation-free regulation and its shift from exporter to importer of foreign capital. *In*: WESSEL, Ramses A. *et al* (org.). *EU external relations law and sustainability*: the eu, third states and international organizations. The Hague: T.M.C. Asser Press, 2024. p. 167–201. DOI: https://doi.org/10.1007/978-94-6265-655-0_8. Available in: https://link.springer.com/chapter/10.1007/978-94-6265-655-0_8. Access at: Sept. 21, 2025.

[88] MISHCHENKO, I. The changing role of non-preferential origin of goods in world trade: the case of the EU. *Evropský politický a právní diskurz*, v. 11, n. 2, p. 40–50, 2024.

[89] BESLEY, Timothy; CORD, Louise. Overview ectives. *Washington*: World Bank Publications, 2007. Available in: http://books.google.com/books?hl=en&lr=&id=Dms-vwlZYXkC&oi=fnd&pg=PR5&dq=%22volume+is+a+product+of+the+staff+of+the%22+%22legal+status+of+any+territory+or+the+endorsement+or%22+%22Center+Inc.,+222+Rosewood+Drive,+Danvers,+MA%22+&ots=Xm3rKUQZsH&sig=dOst6tDZ4BjmJ0MMt8ob9_1PsYQ. Access at: Feb. 9, 2017.

Strategic Responses and Opportunities for Developing Countries

Developing countries are not merely passive subjects of these new trade rules; they are also formulating strategic responses to mitigate risks and seize opportunities. At the domestic level, many governments in the Global South are using external pressure as momentum for internal reforms.[90] For instance, a country facing an EU ban on unsustainably sourced wood might strengthen its own forest governance and enforcement of logging regulations, both to maintain access to the EU market and to achieve better environmental outcomes at home. Likewise, concerns about labor-related import restrictions have prompted some nations to update labor laws or invest in eradicating forced labor and child labor domestically. These reforms can improve the country's international image, align with the United Nations Sustainable Development Goals, and help exporters meet foreign requirements. In the long run, such upgrades in regulatory standards can make developing economies more resilient and their exports more competitive, especially as global demand shifts toward ethically-made and low-carbon products.

Another approach is regional coordination among developing countries. Neighbors and trade partners in the Global South can share information and pool resources to handle new compliance demands.[91] By speaking with a unified voice, regional groups can negotiate more effectively with the EU or the U.S., possibly securing better terms, such as more extended transition periods or mutual recognition agreements.[92] Engagement at the World Trade Organization (WTO) is another pillar of the strategic response. The WTO provides a multilateral forum where countries can discuss and, if necessary, dispute the trade implications of these new measures. In some cases, legal challenges may be pursued; for instance, Indonesia has brought a WTO dispute against EU restrictions linked to sustainability criteria for palm oil biofuels, arguing that they constitute unjustified discrimination.[93] Such cases will test how WTO rules balance trade liberalization with environmental and social objectives.

7 Conclusion

The expansion of transparency obligations from origin documentation and product standards to sustainability-based due diligence marks a structural shift in how trade governance operates. Contemporary regimes increasingly require proof not only that a product is safe and properly classified, but also that it is "clean" in process terms, free of forced labor, disconnected from deforestation, and (in some sectors) priced for its embedded carbon. This shift elevates npr-PPMs from a long-contested doctrinal issue to a routine feature of market access, with compliance burdens that travel upstream to suppliers worldwide. From a WTO law perspective, the analysis supports three conclusions. First, sustainability-driven transparency measures often create prima facie tensions with core disciplines, particularly when like products are treated differently based on production conditions, when documentation requirements produce de facto origin-based disadvantages, or when border restrictions function as quantitative limits in practice. Second, WTO rules nonetheless leave meaningful regulatory space: measures aimed at public morals, conservation, or protection of life and health can be defensible when they are carefully designed, demonstrate a genuine contribution to the stated objective, and are administered in an even-handed manner that avoids arbitrary or unjustifiable discrimination. Third, because many due diligence regimes operate through mandatory information, traceability, and certification requirements, the TBT Agreement's non-discrimination and "not more trade-restrictive than necessary" disciplines become central, placing a premium on calibrated design, risk-based proportionality, procedural fairness, and consideration of less trade-restrictive alternatives. The broader institutional context is also shifting when the entry into force of the WTO Agreement on Fisheries Subsidies in 2025 shows that sustainability can be

[90] NGUYEN, Nguyen Trinh Thanh. The reform of vietnamese economic institutions under the impact of free trade agreements a case study of the EU and Vietnam free trade agreement. *Közgazdaság*: Review of Economic Theory and Policy, v. 13, n. 3, p. 191–203, 2018.

[91] For example, members of ASEAN or the African Union might collaborate to develop standard guidelines for due diligence that meet international benchmarks and suit local circumstances.

[92] LONG, Tom. Small States, great power? gaining influence through intrinsic, derivative, and collective power. *International Studies Review*, v. 19, n. 2, p. 185–205, 2017.

[93] KINSENG, Rilus A. *et al.* Unraveling disputes between Indonesia and the European Union on indonesian palm oil: from environmental issues to national dignity. *Sustainability*: Science, Practice and Policy, v. 19, n. 1, p. 2152626, 2023.

written into WTO primary rules, potentially providing a multilateral reference point for calibrating unilateral sustainability-linked measures. At the same time, the continuing Appellate Body impasse limits the system's capacity to deliver appeal-level coherence in high-stakes disputes, increasing legal uncertainty around contested measures such as CBAM.

Equally important are the distributional implications. For many developing-country exporters, especially SMEs and smallholders, the costs of traceability, verification, and reporting can function as a practical barrier to entry, encouraging supplier consolidation and potential trade diversion into lower-standard markets. The article, therefore, argues that legitimacy and effectiveness depend not only on formal WTO-consistency, but also on equity-oriented implementation: phased timelines, technical assistance, interoperable data systems, recognition of equivalent compliance pathways, and genuinely inclusive standard-setting. In this sense, the pathway to reconciling trade with ethical and environmental imperatives is not unilateral escalation alone, but a cooperative framework in which sustainability objectives are pursued without structurally disadvantaging developing economies.

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