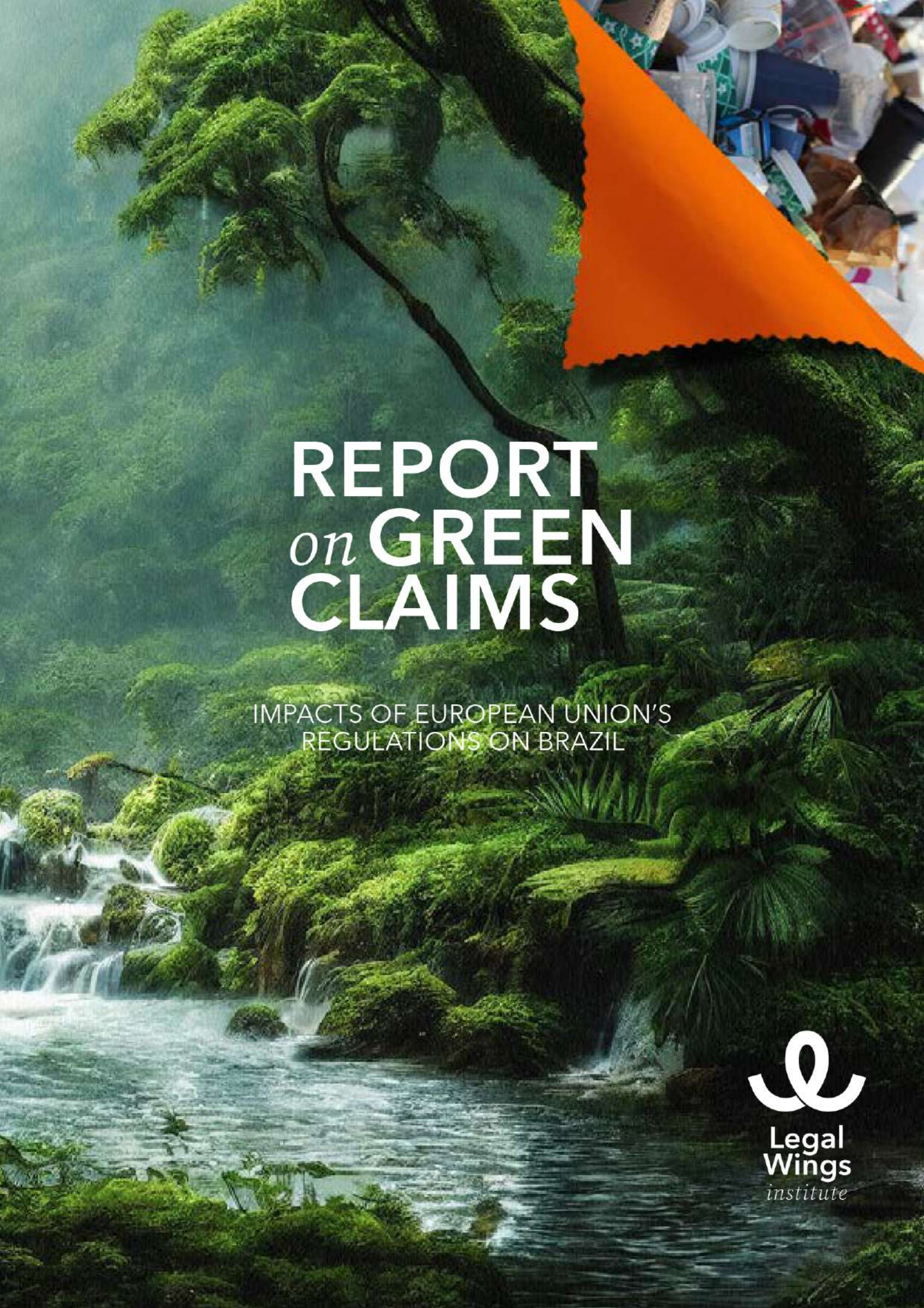

REPORT *on* GREEN CLAIMS

IMPACTS OF EUROPEAN UNION'S REGULATIONS ON BRAZIL

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REPORT ON GREEN CLAIMS

Impacts of European Union's Regulations on Brazil

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EXECUTIVE SUMMARY

The Green Claims Directive (GCD) is transforming Europe's sustainability regulations by requiring companies to back up their environmental claims through rigorous supply chain verification. While the goal is to promote accountability and combat greenwashing, the complex web of regulations—including the Carbon Border Adjustment Mechanism (CBAM), Renewable Energy Directive (RED), and the Deforestation Regulation—is already creating unintended consequences. Emerging economies, especially small and medium- sized enterprises (SMEs) in countries like Brazil, are bearing the brunt of these changes.

This report takes a deep dive into how the GCD and related EU regulations interact with global trade, environmental governance, and the scientific evidence driving climate policies. We explore the impact of regulatory asymmetry, legal uncertainties, and the economic costs that Brazilian exporters face.

Key Findings

1. **Acontextual Approach to Sustainability:** The GCD ignores Brazil's unique environmental and cultural contexts. Vital ecosystems like the Cerrado and Caatinga biomes are excluded from EU standards, leaving critical areas of biodiversity and carbon sequestration out of the sustainability equation. Without flexibility, the GCD risks sidelining crucial conservation efforts and undermining real environmental progress.

2. **Compliance Burdens and Financial Constraints**: The GCD's complex certification and due diligence requirements come with steep costs, disproportionately affecting SMEs in developing economies. Misaligned with local realities, these requirements force businesses to shoulder excessive expenses just to access European markets. Developing countries, especially their smaller players, struggle with limited access to financial support, making it exceedingly hard to meet the high standards imposed by the GCD. Without financial assistance and technical support mechanisms, these countries are at a significant disadvantage.

3. **Sector-Specific Regulatory Impacts:** Brazil's cattle, meat, coffee, cocoa, and soy industries face particularly steep challenges under these regulations. The focus on deforestation and supply chain certification demands costly operational changes, particularly in regions with complex supply chains. These regulations misaligned with local conditions could choke off market access and stunt sustainable growth in these key sectors.

4. **Greenwashing and Market Integrity**: While the GCD is intended to combat greenwashing—the practice of falsely claiming environmental benefits—its rigid enforcement risks driving smaller businesses out of the market. This could result in creating exclusive markets where only well-resourced companies can thrive, exacerbating inequality and creating market distortions that favor larger players and developed economies.

5. **Overlooking Brazil's Clean Energy Leadership**: The EU's sustainability metrics fail to adequately account for Brazil's energy matrix—where over 80% of the energy comes from renewables. Instead of recognizing Brazil's lower carbon footprint as a competitive edge, the GCD burdens exporters with redundant carbon assessments, undermining global clean energy progress.

6. **Stifling Innovation and Growth**: The GCD forces SMEs in developing nations to divert precious resources from innovation and growth toward meeting compliance. This slows economic development and reduces their global competitiveness. In labor-intensive sectors like agriculture, compliance costs could result in job losses and widen economic disparities.

7. **Regulatory Asymmetry and Economic Exclusion**: The GCD exacerbates the gap between developed and developing nations by imposing disproportionate burdens on countries with fewer resources. Brazil and other developing countries face high costs to meet European standards, locking out these smaller economies and suppliers from EU markets.

8. **Trade Barriers and Legal Conflicts**: The GCD could create non-tariff barriers, potentially violating World Trade Organization (WTO) agreements. With environmental and trade rules increasingly overlapping, well-meaning regulations like the GCD, CBAM, and deforestation laws may unintentionally lead to disputes and alienate exporters from developing nations.

Recommendations

A more context-sensitive approach is critical to ensure the GCD supports genuine sustainability without excluding developing countries or stifling SMEs, as current regulation fails to incorporate the differentiated needs and capacities of countries. The report advocates for:

1. **Harmonized Global Framework and Clearer Sustainability Definitions**: To ensure equitable sustainability standards and fair market access, a global framework must accommodate the needs of developing countries. Establish clear, collaborative definitions of sustainability that reflect the realities of these nations, drawing on frameworks like the Paris Agreement. By adhering to the principle of "common but differentiated responsibilities," this approach ensures legitimacy and shared accountability across all stakeholders.

2. **Acknowledge Local Biomes:** EU regulations must recognize unique ecosystems like Brazil's Cerrado and Caatinga to avoid issues in "unprotected" areas due to the lack of an adequate impact analysis on local environments that create blind spots in global conservation efforts.

3. **Integrate Energy Matrix Considerations:** EU sustainability metrics should account for Brazil's clean energy matrix, acknowledging its renewable leadership instead of imposing unnecessary compliance burdens onto individual suppliers.

4. **Flexible Transition Periods:** Extend transition periods for developing economies to adapt without sacrificing growth. Small farmers and traditional communities need further additional time to meet the EU's stringent requirements.

5. **Leniency for Vulnerable Producers:** Provide leniency measures for small-scale farmers and traditional communities to protect vulnerable groups from being unfairly disadvantaged by strict regulatory standards.

6. **Financial Assistance and Best Practices:** Offer financial support and knowledge- sharing platforms to help SMEs in developing nations meet sustainability standards and adopt best practices without being crippled by costs.

7. **Technological Cooperation**: Encourage strong cooperation among governments, the private sector, and non-governmental organizations to develop technological solutions that enable compliance with GCD requirements.

8. **Adequate Price Premiums:** Introduce price premiums to at least partially offset compliance costs and help smaller economies stay competitive in global markets.

9. **Legal Reviews to Avoid Trade Barriers**: Conduct legal reviews of the GCD and related regulations to ensure they align with WTO rules and avoid unintended trade barriers to prevent trade disputes.

Though the Green Claims Directive is well-intentioned, it overlooks critical challenges in countries like Brazil. The directive's failure to recognize Brazil's renewable energy matrix and local ecosystems, combined with its inflexible approach, threatens to alienate developing economies. Without a more inclusive framework, the GCD risks stalling genuine progress and creating barriers to fair competition.

The EU's recent proposal to delay[1] the application of the Deforestation Regulation reflects these challenges. By acknowledging that global partners like Brazil are unprepared for the rapid implementation of such measures, the EU is signaling the need for more time and consideration. Extending the deadlines to 2025 for large companies and 2026 for SMEs offers a brief extension, but the fundamental issues of regulatory asymmetry and economic exclusion remain. A more context-sensitive approach is urgently needed to ensure the GCD supports sustainability without excluding developing nations.

[1] Commission strengthens support for EU Deforestation Regulation implementation and proposes extra 12 months of phasing-in time, responding to calls by global partners https://ec.europa.eu/commission/presscorner/ detail/en/ip_24_5009

METHODOLOGY

This report uses a multi-faceted approach to critically examine the economic and environmental impacts of European regulations on sustainable products, specifically focusing on their effects on Brazilian exports. The methodology integrates both qualitative and quantitative methods, including data collection, comparative analysis, legal interpretation, and case studies, to provide a comprehensive understanding of the implications of green claims regulations for Brazilian producers and exporters.

1. Data Collection and Analysis

Identification of Relevant Regulations: Identification of relevant regulations that impact Brazilian exports, such as the Green Claims Directive (GCD), Carbon Border Adjustment Mechanism (CBAM), Renewable Energy Directive (RED), Indirect Land Use Change (ILUC) regulations, and the Deforestation Regulation.

Identification of Affected Exports: Identification of relevant Brazilian exports to the European Union affected by these regulations, including oil and derivatives, minerals (iron, copper, aluminum), and agricultural products (soybeans, meat, cocoa, coffee), to substantiate a detailed analysis.

Comparison of Regulatory Standards: Comparative analysis of the compliance requirements of European regulations and the capacity of Brazilian producers to meet these standards, including the examination of regulatory asymmetry where European standards often exceed Brazilian regulations, creating potential trade barriers and compliance challenges.

2. Comparative Legal and Economic Analysis

Analysis of Legal Barriers and Challenges: Examination of the legal barriers posed by European regulations on Brazilian exports, including the review of specific compliance requirements within the EU Green Claims Directive, CBAM, and other sustainability standards, and an exploration of how these requirements interact with international trade law principles under the World Trade Organization (WTO) framework.

Assessment of Economic Impacts: Analysis of the economic impacts of complying with European regulations for Brazilian businesses, using both primary and secondary data, evaluating the direct and indirect costs of obtaining certifications, adjusting production processes, and meeting traceability and sustainability requirements with a focus on how

these regulations may create economic disadvantages for smaller stakeholders and developing countries, effectively acting as non-tariff barriers to trade.

3. Case Study Approach

Sector-Specific Case Studies in Brazil: Inclusion of detailed case studies of key Brazilian sectors, such as agriculture (soy, beef, coffee, cocoa) and mineral exports, to provide a nuanced understanding of the impacts. These case studies investigate the specific challenges these sectors face when adapting to European sustainability requirements.

Implications for Broader Trade Agreements: Exploration of how European sustainability demands impact broader trade agreements, such as the Mercosur-EU agreement and how specific regulatory delays and demands could affect the entry of Brazilian products into the EU market.

4. Policy Analysis and Recommendations

Evaluation of Current and Proposed Regulations: Critical evaluation of existing and proposed European regulations on green claims, with an emphasis on identifying potential areas for reform, considering the impact of these regulations on fostering genuine sustainability versus creating trade barriers and suggesting alternative approaches that could promote both environmental and economic inclusivity from a "common but differentiated responsibilities" perspective.

Proposals for a Harmonized Global Framework: Advocacy for a harmonized global approach to regulating green claims, considering the differentiated responsibilities and capacities of developing countries, which involves calling for international cooperation to develop clearer definitions, standardized methodologies, and minimum action benchmarks to help avoid market distortions and prevent greenwashing.

5. Limitations of the Study

Limitations of the Study: Limitations related to data availability for some sectors and challenges of capturing all nuances of evolving regulatory landscapes may limit results. The analysis focuses mainly on Brazilian exports to the EU and may not be fully generalizable to other countries or regions.

INTRODUCTION

Green regulations are grounded in complex risk assessments and value judgments that must account for unique regional and local variations in climate impacts. These differences complicate the establishment of universally applicable thresholds, yet because environmental issues are global in nature, their effects transcend borders. This makes assigning responsibility and ensuring fairness in climate action a challenging endeavor. As such, science plays a crucial role in shaping effective climate policies by providing a foundation for evidence-based decisions. For example, the Intergovernmental Panel on Climate Change (IPCC) has underpinned international agreements like the Paris Agreement by clearly articulating the risks associated with climate change and ensuring these insights are integrated into global negotiations.[2] Without this evidence-based approach, policies risk lacking legitimacy and effectiveness, hindering the development of a needed for global consensus.[3]

As global awareness of environmental issues grows and the demand for sustainable products increases, green claims have become central in branding strategies[4] for businesses and other stakeholders. These claims, when credible and evidence-based, can foster brand loyalty and drive growth in eco-conscious markets.[5] However, unsubstantiated claims, often called "greenwashing," mislead consumers and undermine the credibility of genuine sustainability efforts, distorting the market for sustainable goods and potentially causing environmental harm.[6] To prevent greenwashing and promote credible green claims, regulatory frameworks must be anchored in scientific evidence. For instance, sustainable development bonds require financed projects to be based on

[2] KLEIN, D. (Ed.). *The Paris Agreement on Climate Change: Analysis and Commentary*. Oxford: Oxford University Press, 2017, p. 45-48.

[3] WIRTH, D. A. Scientific experts in WTO dispute settlement. In: DELIMATSIS, J. (Ed.). *Encyclopedia of environmental law: Volume XI*. Edward Elgar Publishing, 2021.

[4] BERGKAMP, L. The European Commission's Green Claims Guidelines. *European Energy and Environmental Law Review*, 2002.

[5] D'SOUZA, C. et al. Green products and corporate strategy: An empirical investigation. *Society and Business Review*, v. 1, n. 2, p. 144-157, 2006.

[6] CARREÑO, I. To Address "Greenwashing" and Misleading Environmental Claims, the European Commission Publishes a Proposal on "Green Claims" and Their Substantiation. *European Journal of Risk Regulation*, v. 14,
p. 607-609, 2023.

scientifically validated methods, ensuring alignment with the Sustainable Development Goals (SDGs) and fostering trust in[7], market sustainability efforts[8].

However, there is a critical need to balance these stringent standards to avoid inadvertently penalizing smaller stakeholders, especially those in developing countries. Excessively rigid regulations could create significant barriers for nations at different stages of development. Key European regulations, such as the Green Claims Directive (GCD), Carbon Border Adjustment Mechanism (CBAM), Renewable Energy Directive (RED), and the Deforestation Regulation, set stringent compliance standards that may pose significant trade barriers for Brazilian producers. The principle of "common but differentiated responsibilities," as outlined in the Paris Agreement, calls for policies that account for the varied capacities and development levels of different countries[9]. This principle is vital to ensuring fairness in global climate governance and preventing the exclusion of less developed economies from sustainable development pathways.[10]

The lack of a universally accepted and coherent definition of sustainability or a clear benchmark of minimum actions further complicates the landscape. Well-intentioned stakeholders may be perceived as greenwashers due to the absence of legal certainty on these issues. Thus, regulatory frameworks must strike a delicate[11] balance between ensuring the credibility and effectiveness of green claims and recognizing the complexities faced by different countries and stakeholders. Without a nuanced approach, these claims and regulations risk being ineffective, legally vulnerable, and causing significant reputational damage.

To navigate these complexities, this report critically explores the relationship between green claims, scientific evidence, and global trade regulations. It examines how green claim regulatory measures align with international trade law, particularly under the World Trade Organization (WTO) framework, focusing on principles of non-discrimination and the concept of "like products" as defined in the General Agreement on Tariffs and Trade (GATT). The report discusses potential conflicts that arise when green regulations, such as

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[7] WORLD BANK. *World Bank Sustainable Development Bond Framework*. Last updated March 2021.

[8] WORLD BANK GROUP. Brazil Country Climate and Development Report. Washington, DC: World Bank Group, 2023, p. 23-27

[9] HANUSCH, Marek (Ed.). A Balancing Act for Brazil's Amazonian States: An Economic Memorandum. Washington, DC: World Bank Group, 2023, p. 221.

[10] VIÑUALES, Jorge E. The Environment Breaks into Investment Disputes. In: BUNGENBERG, M.; GRIEBEL, J.; HOBE, S.; REINISCH, A. (eds.). International Investment Law.

[11] THE SUSTAINABLE FASHION FORUM. *H&M is being sued for misleading sustainability marketing. What does this mean for the future of greenwashing?* The Sustainable Fashion Forum.

the Carbon Border Adjustment Mechanism (CBAM), interact with international trade rules, raising concerns about fairness and potential discrimination. By advocating[12] for a harmonized global approach that incorporates differentiated responsibilities, this report aims to foster fairness and inclusivity in both international trade and environmental governance. The conclusion underscores the importance of balancing environmental protection with economic inclusivity, ensuring a sustainable global economy that does not marginalize developing countries.

What Are Green Claims?

A green claim,[13] also known as an environmental claim, refers to any statement or representation that asserts the environmental benefits or reduced ecological impact of a product, service, or practice. These claims can take various forms, including textual statements, brand names, certifications, and visual representations. Starting in the 1980s, companies began to incorporate environmental marketing strategies into their business models, but consumers were generally distrustful of these claims, highlighting a need for more transparent and credible green marketing.[14] In its draft version, the Green Claims Directive even noted "[c]laiming to be 'green' and sustainable **has become a competitiveness factor**, with green products registering greater growth than standard products" (emphasis added).[15]

These claims are designed to convey that a product or service is environmentally friendly, sustainable, or less harmful to the environment compared to alternatives. Research[16]

[12] GUDKOV, I.; MIZULIN, N. Carbon Barriers to Trade: WTO Law Issues. OGEL (Oil, Gas & Energy Law Intelligence), (Provisional issue), February 2020.

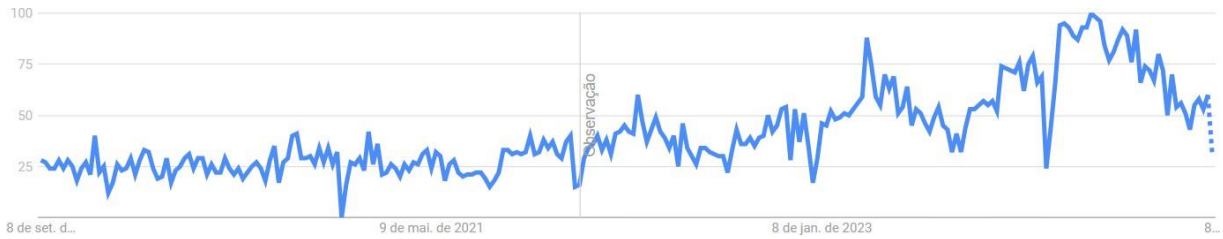
[13] MARCATAJO, G. Green claims, green washing and consumer protection in the European Union. *Journal of Financial Crime*, 2021

[14] D'SOUZA, C. et al. Green products and corporate strategy: An empirical investigation. *Society and Business Review*, v. 1, n. 2, p. 144-157, 2006.

[15] EUROPEAN PARLIAMENT, Proposal for a Directive of the European Parliament and of the Council on substantiation and communication of explicit environmental claims (Green Claims Directive), COM/2023/166 final.

[16] D'SOUZA, C. et al. Green products and corporate strategy: An empirical investigation. *Society and Business Review*, v. 1, n. 2, p. 144-157, 2006; RAHBAR, E.; WAHID, N. A. Investigation of green marketing tools' effect on consumers' purchase behavior. *Business Strategy Series*, v. 12, n. 2, p. 73-83, 2011; SUKI, N. M. Green product purchase intention: Impact of green brands, attitude, and knowledge. *British Food Journal*, v. 118,
n. 12, p. 2893-2910, 2016.

suggests that these claims are most effective when they align with consumer values and are perceived as credible.[17] The interest in green claims has risen in the past few years.



(Source: Google Trends, "Green Claims")

Empirical evidence shows that the specificity of green claims significantly enhances perceived credibility across various products, regardless of their perceived environmental relevance. For instance,[18] textual statements like "100% recyclable," "made from sustainable materials," or "carbon neutral" that are fact-based and verifiable are more likely to influence consumer behavior positively,[19] and "specificity increases the perceived credibility of green claims across a range of products, regardless of their perceived environmental relevance."[20] This supports the argument that specificity and transparency are key factors in determining the effectiveness of green claims.

The effectiveness of green claims also appears to be impacted by the stakeholder's country of origin, with better results seen when the country has a positive green image.[21]

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[17] SCHMUCK, Desirée; MATTHES, Jörg; NADERER, Brigitte. *Misleading consumers with green advertising? An affect-reason-involvement account of greenwashing effects in environmental advertising*. Journal of Advertising, v. 47, n. 2, p. 127-145, 2018.

[18] SCHMUCK, Desirée; MATTHES, Jörg; NADERER, Brigitte. *Misleading consumers with green advertising? An affect-reason-involvement account of greenwashing effects in environmental advertising*. Journal of Advertising, v. 47, n. 2, p. 127-145, 2018.

[19] RAHBAR, E.; WAHID, N. A. Investigation of green marketing tools' effect on consumers' purchase behavior. *Business Strategy Series*, v. 12, n. 2, p. 73-83, 2011; SCHMUCK, Desirée; MATTHES, Jörg; NADERER, Brigitte. *Misleading consumers with green advertising? An affect-reason-involvement account of greenwashing effects in environmental advertising*. Journal of Advertising, v. 47, n. 2, p. 127-145, 2018.

[20] GANZ, B.; GRIMES, A. How Claim Specificity Can Improve Claim Credibility in Green Advertising. *Journal of Advertising Research*, v. 58, p. 476-486, 2018.

[21] IHEMEZIE, E. et al. Impact of 'Green' Product Label Standards on Consumer Behaviour: A Systematic Review Analysis. *International Journal of Academic Research in Business and Social Sciences*, 2018; CHAN, R.

The source country green image can also play a role in environmental advertising effectiveness.[22] According to Chan's study, consumers are more likely to trust green claims from companies based in countries with strong environmental reputations, demonstrating how the perceived credibility of green claims is influenced by the broader environmental policies and practices of the stakeholder's home country.

Symbols and labels, such as the recycling symbol, "Organic," or "Fair Trade" certifications, are another common form of green claim. These visual cues serve as shortcuts to convey environmental benefits, enhancing consumer confidence[23] but also risking rejection if perceived as misleading.[24] Systematic review shows how specific labels and certifications affect consumer purchasing behavior. They argue that while such labels can significantly boost consumer confidence, they can also lead to skepticism and rejection if not adequately verified or perceived as ambiguous.[25]

Moreover, brand names and product descriptions that incorporate terms like "Eco-Friendly," "Green," "Sustainable," or "Eco" can strengthen brand loyalty[26] but are also conditional on credibility.[27] Another visual green claim are the pictorial and graphic representations, such as images of natural landscapes, plants, or animals on packaging, with similar positive effects and drawbacks.[28] Thus, green marketing has been shown to

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The effectiveness of environmental advertising: the role of claim type and the source country green image. *International Journal of Advertising*, v. 19, p. 349-375, 2000.

[22] CHAN, Ricky Y.K. *The effectiveness of environmental advertising: the role of claim type and the source country green image*. International Journal of Advertising: The Review of Marketing Communications, v. 19,
n. 3, p. 349-375, 2000.

[23] SUKI, N. M. Green product purchase intention: Impact of green brands, attitude, and knowledge. *British Food Journal*, v. 118, n. 12, p. 2893-2910, 2016.

[24] D'SOUZA, C. et al. Green products and corporate strategy: An empirical investigation. *Society and Business Review*, v. 1, n. 2, p. 144-157, 2006.

[25] IHEMEZIE, Eberechukwu Johnpaul; UKWUABA, Ikenna Charles; NNAJI, Amaka Precious. *Impact of 'Green' Product Label Standards on Consumer Behaviour: A Systematic Review Analysis*. International Journal of Academic Research in Business and Social Sciences, v. 8, n. 9, p. 666-684, 2018.

[26] GROENING, C. et al. Corporate social responsibility as a buffer against negative events: A reputation perspective. *Journal of Business Research*, v. 87, p. 48-56, 2018.

[27] D'SOUZA, C. et al. Green products and corporate strategy: An empirical investigation. *Society and Business Review*, v. 1, n. 2, p. 144-157, 2006.

[28] SUKI, N. M. Green product purchase intention: Impact of green brands, attitude, and knowledge. *British Food Journal*, v. 118, n. 12, p. 2893-2910, 2016.

have the potential to significantly impact consumer behavior,[29] but it is worth noting it may be ineffective in specific markets.[30]

The Problem Of Greenwashing

Greenwashing[31] is the practice where stakeholders – companies, organizations, or governments – make misleading or unsubstantiated claims about the environmental benefits of their products, services, or operations.[32] These deceptive practices can range from vague or exaggerated statements—e.g. selectively disclosing positive information about environmental or social performance while withholding negative ones leading to overly positive representations[33]—to the misuse of environmental labels and certifications that lack credible verification. Authorities from different parts of the world have reported concerns over green claims and the possibility that they may be misleading.[34] As consumer demand for sustainable products and services grows, the pressure to appear "green" or "sustainable" has intensified. However, this heightened competition has also incentivized some stakeholders to exaggerate or outright fabricate their environmental credentials to capture the growing market of eco-conscious consumers.[35]

The legal risks associated with greenwashing are substantial. Various jurisdictions have developed stringent regulations to prevent deceptive environmental claims. For instance, the European Union's Green Claims Directive[36] mandates that companies provide verifiable scientific evidence to support any environmental claims they make; failure to comply can result in fines proportional to the economic benefits gained through misleading information, often reaching millions of euros.[37] Prior to GCD's approval, in

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[29] SHABBIR, M. et al. Green Marketing Approaches and Their Impact on Consumer Behavior towards the Environment—A Study from the UAE. *Sustainability*, 2020.
[30] MACHOVÁ, R. et al. The Impact of Green Marketing on Consumer Behavior in the Market of Palm Oil Products. *Sustainability*, 2022.
[31] NEMES, N. et al. An Integrated Framework to Assess Greenwashing. *Sustainability*, 2022.
[32] PRASAD, M. et al. Environmental claims in Indian print advertising: an empirical study and policy recommendation. *Social Responsibility Journal*, v. 13, p. 473-490, 2017.
[33] LYON, T. P.; MAXWELL, J. W. Greenwash: Corporate environmental disclosure under threat of audit. *Journal of Economics & Management Strategy*, v. 20, n. 1, p. 3-41, 2011.
[34] Greenwashing and Greenhushing: The Latest Litigation and Regulatory News in the Energy Sector
[35] NETTO, S. et al. Concepts and forms of greenwashing: a systematic review. Environmental Sciences Europe, v. 32, p. 1-12, 2020.
[36] DIRECTIVE (EU) 2024/825 of the European Parliament and of the Council of 28 February 2024. *Official Journal of the European Union*, 2024; EUROPEAN COMMISSION. *Unfair Commercial Practices Directive*.
[37] EUROPEAN COMMISSION. *EU Taxonomy for sustainable activities*.

2021, the Dutch Authority for Consumers and Markets investigated H&M and Decathlon for making unsubstantiated sustainability claims. As a result, the companies settled with the Authority to no longer use certain claims and to donate 400,000 euros and 500,000 euros, respectively, to sustainable causes, instead of paying fines.[38] In 2023, DWS, a Deutsche Bank subsidiary, settled in $25 million, of which $19 million was specifically for ESG misstatements.[39]

In the U.S.,[40] both the Federal Trade Commission (FTC)[41] and the Securities and Exchange Commission (SEC) have issued guidelines on environmental information, both for marketing and invertor-disclosure. Under these regulations, misleading claims can lead to significant penalties, corrective advertising requirements, and regulatory scrutiny. Recent cases underscore the financial risks companies face when exaggerating their environmental credentials. In 2021, Toyota made a $180 million settlement for delays and inaccuracies in its carbon emissions defect reporting.[42] In 2022, Goldman Sachs settled with SEC on $4 million for failing to adhere to its own ESG stated policies and misleading clients about ESG investment practices[43] and in the same year BNY Mellon settled with SEC in $1.5 million for exaggerating ESG claims and not implementing adequate ESG policies,[44] Kohl's settled with the FTC for $2.5 million for falsely marketing rayon products as bamboo and making misleading claims like "sustainable" and "environmentally friendly" and Walmart settled for $3 million for promoting rayon textiles as bamboo and

[38] NETHERLANDS AUTHORITY FOR CONSUMERS AND MARKETS (ACM). *Decathlon and H&M promise to adjust or no longer use sustainability claims*. 2021.

[39] SEC. Deutsche Bank Subsidiary DWS to Pay $25 Million for Anti-Money Laundering Violations and Misstatements Regarding ESG Investments. *SEC.gov*, 2023.

[40] FEDERAL TRADE COMMISSION. *Environmental marketing*; SEC. The enhancement and standardization of climate-related disclosures for investors. Federal Register Version, 17 CFR 210, 229, 230, 232, 239, and 249.
(Release Nos. 33-11275; 34-99678; File No. S7-10-22), 2024.

[41] "At the federal level in the U.S., greenwashing is regulated by the Federal Trade Commission (FTC). The agency issued a 'Green Guides' document in 1992, which has since been revised three times, to provide best practices around environmental marketing claims, primarily around substantiation and qualification of claims to help marketers avoid making environmental claims that are considered unfair or deceptive under Section 5 of the FTC Act. Despite the availability of this resource, in the last five years, only 8 cases have been brought by the FTC pursuant to the Green Guides". See Greenwashing and greenhushing: The Latest Litigation and Regulatory News in The Energy Sector

[42] U.S. DEPARTMENT OF JUSTICE. *Toyota Motor Company to pay $180 million in settlement for decade-long noncompliance with the Clean Air Act*. 2021.

[43] REUTERS. SEC Fines Goldman Sachs for ESG Misstatements. *Reuters*, 2022.

[44] U.S. SECURITIES AND EXCHANGE COMMISSION. *SEC charges BNY Mellon Investment Adviser for misleading ESG claims [Press release]*. 2022.

describing them as "eco-friendly & sustainable."[45] Settlements generally included injunctive provisions to also change their marketing practices.

The Brazilian Council for Self-Regulation in Advertising[46] has also established guidelines to address misleading and deceptive environmental claims, as demonstrated by over fifty cases analyzing these allegations since 2011 when Annex U was added to establish rules on green claims in Brazil.[47] In 2023, two cases resulted in recommendations to change advertising campaigns—one involving the lack of substantiation for claims about the absence of animal testing, and the other dealing with exaggerated environmental benefits, the difficulty of accessing supporting information, and the improper use of the UN logo to substantiate an environmental claim.[48]

Under any of these regulations, misleading claims can lead to significant penalties, corrective advertising requirements, and regulatory scrutiny.[49] Since 2015, Volkswagen was hit with over €35 billion in fines, settlements and buybacks worldwide[50] for misrepresenting their environmental impact using a software that falsified nitrogen oxide (NOx) emissions from its diesel vehicles. Fines for greenwashing can be significant and serve as a primary tool for regulatory authorities to deter companies from making misleading environmental claims.

Reputational risks arising from greenwashing are equally significant,[51] can compound with the legal actions, and often have long-lasting effects. When stakeholders are exposed for engaging in greenwashing, they face not only legal repercussions but also a significant loss of trust and loyalty. Eco-conscious consumers, for example, are more likely to switch to competitors if they perceive greenwashing, leading to a potential decline in sales. Similarly, brands accused of greenwashing may struggle to recover their reputation in

[45] FEDERAL TRADE COMMISSION. $5.5 million total FTC settlements with Kohl's and Walmart challenge "bamboo" and eco claims, shed light on Penalty Offense enforcement, 2022.

[46] CONSELHO NACIONAL DE AUTORREGULAMENTAÇÃO PUBLICITÁRIA (CONAR). *Código Brasileiro de Autorregulamentação Publicitária: Anexo U*.

[47] CONSELHO NACIONAL DE AUTORREGULAMENTAÇÃO PUBLICITÁRIA (CONAR). *Código Brasileiro de Autorregulamentação Publicitária: Anexo U*.

[48] Conselho Nacional de Autorregulamentação Publicitária (2023). Decisões de casos: 1980–2024.

[49] EUROPEAN COMMISSION. *EU Taxonomy for sustainable activities*.

[50] REUTERS. Volkswagen's Dieselgate costs. *Reuters*, 2020; VOLKSWAGEN AG. 2020 Annual Report. 2021; VOLKSWAGEN AG. 2021 Annual Report. 2022; VOLKSWAGEN AG. 2022 Annual Report. 2023; VOLKSWAGEN AG. 2023 Annual Report. 2024.

[51] SCHMUCK, D. et al. Misleading Consumers with Green Advertising? An Affect–Reason–Involvement Account of Greenwashing Effects in Environmental Advertising. *Journal of Advertising*, v. 47, p. 127-145, 2018.

both consumer and financial markets, as brand damage extends beyond immediate sales[52] and companies implicated in greenwashing may experience a decline in stock prices as investors withdraw their support due to perceived ethical lapses[53] and associated risks of legal sanctions.

Moreover, greenwashing can backfire by eroding the overall effectiveness of genuine sustainability initiatives. When consumers become aware of widespread greenwashing, they may develop a generalized skepticism toward all green claims, even those that are legitimate.[54] This "chilling effect" can discourage companies from investing in authentic sustainability efforts, further undermining progress toward environmental goals.[55]

Greenwashing is not merely a case of exaggerated marketing; it involves strategic behavior in environmental disclosure. Corporations may selectively disclose positive aspects while minimizing or hiding less favorable ones to avoid penalties while still appearing environmentally responsible. In economic models of corporate disclosure, greenwashing can be viewed as a strategic game where firms carefully decide which verifiable environmental information to disclose or withhold. The impact of external pressure, such as that from activist groups, can vary depending on the firm's environmental performance. Increased scrutiny is likely to discourage greenwashing for fear of reputational and financial repercussions of exposure.[56] However, there is also a risk that overly strict regulations could lead to "greenhushing," where companies underreport or refrain from making environmental claims altogether to avoid potential backlash or accusations of hypocrisy.[57]

Key Stakeholders In Green Regulations

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[52] IHEMEZIE, Eberechukwu Johnpaul; UKWUABA, Ikenna Charles; NNAJI, Amaka Precious. *Impact of 'Green' Product Label Standards on Consumer Behaviour: A Systematic Review Analysis*. International Journal of Academic Research in Business and Social Sciences, v. 8, n. 9, p. 666-684, 2018.

[53] GROENING, C. et al. Corporate social responsibility as a buffer against negative events: A reputation perspective. *Journal of Business Research*, v. 87, p. 48-56, 2018.

[54] LYON, T. P.; MAXWELL, J. W. Greenwash: Corporate environmental disclosure under threat of audit. *Journal of Economics & Management Strategy*, v. 20, n. 1, p. 3-41, 2011.

[55] VIÑUALES, Jorge E. The Environment Breaks into Investment Disputes. In: BUNGENBERG, M.; GRIEBEL, J.; HOBE, S.; REINISCH, A. (eds.). International Investment Law.

[56] LYON, T. P.; MAXWELL, J. W. Greenwash: Corporate environmental disclosure under threat of audit. *Journal of Economics & Management Strategy*, v. 20, n. 1, p. 3-41, 2011.

[57] IHEMEZIE, Eberechukwu Johnpaul; UKWUABA, Ikenna Charles; NNAJI, Amaka Precious. *Impact of 'Green' Product Label Standards on Consumer Behaviour: A Systematic Review Analysis*. International Journal of Academic Research in Business and Social Sciences, v. 8, n. 9, p. 666-684, 2018.

The effectiveness of green regulations depends not only on the policies themselves but also on the interactions and roles of various stakeholders—governments, non-governmental organizations (NGOs), business associations, certification bodies, and local communities—involved in their adoption and implementation of these norms. Understanding these dynamics is crucial, especially in the context of Brazilian exports facing stringent European sustainability standards.

Governments are central in setting and enforcing sustainability regulations, and their actions often require balancing domestic economic interests with international environmental commitments. In Brazil, this includes negotiating terms that protect local industries from excessively burdensome European standards while aligning with global sustainability goals. NGOs often advocate for stricter environmental standards and greater accountability, but while they push for stringent criteria the resulting regulations may overlook operational realities faced by producers in developing countries. Business associations, on the other hand, stress the importance of clarity, fairness, and gradual adaptation periods to prevent sudden disruptions in trade.

Certification bodies—relevant in establishing credibility and consumer trust in green claims—can also complicate international trade in the absence of mutual recognition between countries, which can lead to duplicative certification processes and increase in costs and compliance burdens.

Local communities, especially those involved in agricultural and resource-based production, often bear heavier loads from these regulations as they face significant challenges in meeting international standards due to limited resources, lack of access to advanced technology, and fragmented supply chains.

Environmental Governance and Stakeholders in Brazil

Analysis Of Environmental Powers In The 1988 Brazilian Constitution: Brazil, as a Federative Republic, is organized within a political-administrative structure composed of the Union, States, the Federal District and Municipalities, which operate autonomously, as established in Article 18, caput, of the Brazil Federal Constitution of 1988 (FC/88). While the FC/88 addresses environmental issues comprehensively and in a contemporary manner, there are no specific regulations on this subject. As a result, the distribution of environmental competences follows the same principles applied to the general allocation of powers in the Constitution. The system of environmental competence is complex due to the distribution of multiple attributions across the various levels of government within the Federation.

Category Of Environmental Powers: In the environmental sphere, the competences defined by the FC/88 can be divided according to two different criteria: nature and extent.[58]

According to the criterion of **nature**, environmental competences can be classified into executive, administrative and legislative: a) Executive competence: grants a given sphere of power the right to formulate and implement guidelines, strategies and policies aimed at the environment; b) Administrative competence: involves enforcement and monitoring, meaning the exercise of police power by federal entities with the aim of protecting and preserving the environment; c) Legislative competence: refers to the capacity attributed to an entity of the Federation to create laws on issues related to the environment.[59]

Based on the criterion of **extent**, environmental competences can be classified into five categories: exclusive, private, common, concurrent, and supplementary: a) Exclusive competence: grants specific prerogatives to a particular level of government, excluding other federal entities from exercising these powers; b) Private competence: assigned to a specific level of government, with the possibility of delegation to other entities; c) Common competence: is exercised equally by all the entities that make up the Federation;
d) Concurrent competence: allows more than one federative entity to legislate on a given subject, with the Union having priority in setting general rules; e) Supplementary competence: allows for the issue of rules that complement existing general rules or fill gaps in the event of their absence or omission.[60]

It is important to note that the classification by nature does not exclude the classification by extent, as both are interconnected in defining the scope of action and the sphere of power responsible. In addition, it is essential to highlight the definitions of enumerated and remaining environmental competences. Enumerated competences are those expressly defined by the 1988 Federal Constitution for a given sphere of government, while remaining competences refer to those which, although not explicitly attributed to one entity of the Federation, are granted to another as residual powers.[61]

Distribution Of Environmental Competences Among Federal Entities

[58] LEITE, J. R. M**.** Manual de direito ambiental. 10th ed. São Paulo: Saraiva, 2015.
[59] LEITE, J. R. M, *op cit.*
[60] LEITE, J. R. M, *op cit.*
[61] LEITE, J. R. M, *op cit.*

Union

Exclusive Competence of the Executive Branch: Article 21 of the 1988 Federal Constitution gives the Union exclusive competence to carry out specific activities related to the Executive Branch, including environmental issues. According to this article, it is the exclusive responsibility of the Union to develop and implement national and regional plans for territorial planning and economic and social development; to plan and promote defense against public calamities such as droughts and floods; to establish a national water resource management system and define criteria for the use of water; to set guidelines for urban development, including housing, sanitation, and transportation; and to explore and control nuclear services, while exercising the state monopoly over the research, extraction, enrichment, reprocessing, industrialization, and commercialization of nuclear minerals and their derivatives under the conditions defined by the Constitution.

Private competence of the Legislative Branch: Article 22 of the 1988 Federal Constitution gives the Union private competence to legislate on issues such as water, energy, minerals, and nuclear activities. However, this competence is not absolute[62], as the states may be authorized by complementary law to legislate on specific aspects of these matters, according to the delegation rule. Despite the Union's legislative power, states, the Federal District, and municipalities also have a responsibility to monitor and protect the environment, even under federal legislation.

States

Exclusive Competence of the Executive Branch: The 1988 Federal Constitution does not specify the executive powers of the states, but by defining the powers of the Union and the municipalities, it leaves the residual powers to the states[63]. Thus, any matter not falling under federal or municipal competence is attributed to the states, under the terms of Article 25, paragraph 1. The Federal District, in turn, accumulates the functions of both a State and a Municipality.

Exclusive competence of the Legislative Branch: The Federal Constitution, in reserving to the states the powers that are not prohibited, assigns them both executive and legislative functions, according to article 25, § 1. This means that all matters not attributed to the

[62] LEITE, J. R. M, *op cit.*
[63] LEITE, J. R. M, *op cit.*

Union, or the Municipalities fall under the responsibility of the States, including topics such as environmental issues, as long as the constitutional principles are respected.

Municipalities

Exclusive Competence of the Executive Branch: The environmental powers of municipalities are limited[64]. According to article 30, item VIII, of the Federal Constitution, they must promote territorial planning, including the planning and control of the use and occupation of urban land. In addition, municipalities are responsible for protecting the local historical and cultural heritage, according to article 30, item IX, respecting the legislation and supervision of the Union and the States.

Exclusive competence of the Legislative Branch: Article 30, I, of the Federal Constitution of 1988 gives municipalities the power to legislate on matters of local interest.

Supplementary competence of the Legislative Branch: The 1988 Federal Constitution (CF/88) grants municipalities not only exclusive legislative powers, but also the ability to supplement federal and state rules, under the terms of Article 30, II. This means that while municipalities cannot legislate concurrently on environmental issues, they do have the authority to fill gaps and adapt federal and state regulations to local realities. The supplementary competence of municipalities is divided into two forms: supplementary and complementary. Supplementary competence allows municipalities to fill in gaps in federal or state laws, while complementary competence is limited to detailing these rules. In both cases, municipal regulations cannot be less restrictive or protective than federal or state regulations on environmental issues.[65]

Union, States and Federal District

Concurrent Competence of the Legislative Branch: Article 24 of the Federal Constitution establishes that the Union, the States, and the Federal District have concurrent competence to legislate on issues such as forests, fauna, environmental protection, historical and cultural heritage, and liability for damage to the environment and cultural property. Concurrent competence allows different federal entities to legislate on the same matters, but with a hierarchy of action defined by the CF/88.

While the Union must establish general rules with fundamental and comprehensive principles, without encroaching on the competence of the states and the Federal District,

[64] LEITE, J. R. M, *op cit.*

[65] LEITE, J. R. M, *op cit*.

the latter can create supplementary rules to adapt the general rules to local realities. If the Union fails to act, the states can legislate fully within their peculiarities. However, if a subsequent federal law comes into force, it suspends the effectiveness of the conflicting state rule, without repealing it, until the federal law is repealed.[66]

Conflicts between federal and state legislation can arise in three main cases: I) when both legislative spheres conflict, with the most restrictive rule prevailing; II) when the constitutional limits imposed on the exercise of concurrent competence are not observed, resulting in the law being unconstitutional; and III) when there is no clarity between general and special rules, with the rule that best protects a fundamental right, such as the environment, prevailing.[67]

Common Administrative Jurisdiction: Article 23 of the Brazilian Federal Constitution defines the common administrative competence of the federal entities (Union, States, Federal District and Municipalities) to act cooperatively in various areas, including environmental protection, preservation of cultural and natural assets, and supervision of water and mineral resources.

The sole paragraph of Article 23, amended by Constitutional Amendment n. 53/2006, requires that the rules of cooperation be established by complementary law. Complementary Law no. 140/2011 defines these rules and establishes guidelines for cooperation between federal entities, aiming to protect the environment, avoid overlapping actions, and ensure and conserve the environment, sustainable development, and uniformity of environmental policy, while respecting local peculiarities. To achieve the objectives of institutional cooperation, the legislator created instruments such as public consortia, agreements, specific commissions, and economic funds, as well as allowing the delegation of attributions and the execution of administrative actions between federative entities, in accordance with the legislation.

The aforementioned Complementary Law also introduced new procedures for environmental licensing and discussed the competence to license and supervise, emphasizing that although licensing may be the competence of a single level of government, all federal entities have the role of supervising in order to guarantee environmental protection.

[66] LEITE, J. R. M, *op cit.*
[67] LEITE, J. R. M, *op cit.*

In addition, the Constitution already provided for joint action by the federal entities in environmental matters, guaranteeing the effectiveness of the right to an ecologically balanced environment and the protection of Brazil's cultural heritage.

Classification of Environmental Competences		
Executive Competence		
Exclusive		
Of The Union (FC/88, article 21, IX, XVIII, XIX, XX and XXIII)	Of The States (FC/88, article 25, §§1, 2 and 3)	Of The Municipalities (FC/88, article 30, VIII and IX)
Administrative Competence		
Common		
Of the Union, the States, the Federal District and the Municipalities (FC/88, article 23, III, IV, VI, VII and XI)		
Legislative Competence		
Private		
Of the Union (FC/88, article 22, IV, XII and XXVI)		
Exclusive		
Of The States (FC/88, article 25, §§ 1 and 3)	Of the Municipalities (FC/88, article 30, I)	
Concurrent		
Between the Union, the States, and the Federal District (FC/88, article 24, VI, VII and VIII)		
Supplementary		
Of the Municipalities (FC/88, article 30, II)		

(Source: LEITE, J. R. M**.** Manual de direito ambiental. 10th ed. São Paulo: Saraiva, 2015.)

Environmental Bodies

The National Environmental System (SISNAMA)[68] is made up of bodies and institutions at federal, state, and municipal level, linked to the Executive Branch and responsible for protecting and improving environmental quality. Created by Law No. 6.938/1981, which established the National Environmental Policy, SISNAMA organizes the entities of the Union, States, Federal District, Municipalities, and public foundations in this mission. Complementary Law No 140/2011 details the powers of each federal sphere in environmental matters, and also provides for Tripartite Environmental Commissions, as a form of cooperation between the different federal entities.

SISNAMA consists of various[69]: the superior body (Government Council), the consultative and deliberative body (CONAMA), the central body (Ministry of the Environment), the

[68] ANTUNES, P. de B. Direito ambiental. 23rd ed. Barueri, SP: Atlas, 2023

[69] ANTUNES, P. de B, *op cit.*

executive bodies (IBAMA and the Chico Mendes Institute), as well as sectional, and local bodies, each with specific functions in environmental management.

Superior Body: The Government Council, SISNAMA's highest body[70], directly advises the President of the Republic in the formulating of environmental policies and guidelines. Composed of all the Ministers of State and the Head of the President's Personal Cabinet, the Council is chaired by the President himself or, at his discretion, by the Vice-President.

Consultative And Deliberative Body: The National Environmental Council (CONAMA) serves as SISNAMA's consultative and deliberative body for SISNAMA, advising the Government Council, studying and proposing governmental policy guidelines for the environment and the management of natural resources. In addition to its consultative functions, CONAMA has the authority, within its scope of its competence, is responsible for establishing norms and standards that are compatible with an ecologically balanced environment and essential to a healthy quality of life (article 6 II, Law No. 6.938/1981) .Its resolutions regulate aspects such as environmental licensing, public hearings and Environmental Impact Studies (EIA/RIMA)[71].

Central Body: SISNAMA's central body is the Ministry of the Environment and Climate Change, which is responsible, as a federal institution, for planning, coordinating, supervising and controlling national policy and government guidelines for the environment[72].

Executive Bodies: SISNAMA is supported by two federal executive bodies: the Brazilian Institute of the Environment and Renewable Natural Resources (IBAMA) and the Chico Mendes Institute for Biodiversity Conservation (ICMBio). Both operate at the federal level and are tasked with implementing and enforcing governmental environmental policies and guidelines, within their respective competencies. IBAMA carries out administrative actions on behalf of the Union, supervising and regulating activities and enterprises within the federal context, as defined in Article 7 of Complementary Law No. 140/2011, while ICMBio is dedicated to protecting the conservation units established by the Union, and conducting programs related to the research, protection, preservation, and conservation

[70] LEITE, J. R. M, *op cit.*
[71] LEITE, J. R. M, *op cit.*
[72] BRAZIL. National Environmental System (SISNAMA). Available at: https://www.gov.br/mma/pt- br/composicao/secex/dsisnama/conheca_o_sisnama. Accessed on: August 27, 2024.

of biodiversity. Both play a necessary role in the enforcement of environmental policies and in exercising environmental regulatory authority[73].

Sectional And Local Bodies: Sectional bodies[74] include state entities that implement environmental programs and monitor activities that may cause environmental degradation. Local bodies[75] are municipal entities in tasked with controlling and overseeing these activities within their jurisdictions[76]. Each level of government has specific functions aimed at ensuring environmental management and protection within its area of competence.

THE SISNAMA		
Superior Body	Consultative and Deliberative Body	Central Body
Government Council	CONAMA	Ministry of the Environment and Climate Change
Executive Bodies	Sectional Bodies	Local Bodies
Ibama and ICMBio	States	Municipalities

(Source: BRAZIL. National Environmental System (SISNAMA). Available at: https://www.gov.br/mma/pt- br/composicao/secex/dsisnama/conheca_o_sisnama. Accessed on: August 27, 2024.)

CHAPTER 1 – RELEVANT ENVIRONMENTAL AND SUSTAINABILITY STANDARDS

This section examines the regulatory frameworks governing environmental and sustainability standards in both Brazil and the European Union (EU), emphasizing the differences in their approaches and the potential implications of these distinct rules. While both regions aim to promote sustainability and prevent misleading environmental claims, their regulatory strategies reflect their unique legal, economic, and social contexts.

Both the EU and Brazil have specific regulations for managing green claims in advertising, aiming to ensure transparency and prevent "greenwashing." The **EU Green Claims Directive (Directive (EU) 2024/825)** requires that all environmental claims related to products and services must be transparent, verifiable, and supported by comprehensive evidence across the product's entire lifecycle. This directive prohibits vague terms like "eco-friendly" or "sustainable" unless they are thoroughly substantiated, and it imposes

[73] LEITE, J. R. M, *op cit.*
[74] BRASIL, *op cit.*
[75] BRASIL, *op cit.*
[76] BRASIL, *op cit.*

strict limitations on carbon offsetting claims to avoid misleading consumers. In contrast, Brazil's approach is less prescriptive and is governed by the **Conselho Nacional de Autorregulamentação Publicitária (CONAR)** through the **Código Brasileiro de Autorregulamentação Publicitária (CBAP),** particularly **Annex U.** This self-regulatory framework emphasizes truthfulness, verifiability, and transparency in environmental claims but relies on industry self-regulation, ethical standards, and consumer complaints rather than mandatory third-party verification. Consumer protection law also plays a part in ensuring green claims are fair and transparent.

Beyond green claims regulation, both regions also pursue broader sustainability goals that influence trade and environmental policy. The **EU Carbon Border Adjustment Mechanism (CBAM)** and Brazil's sustainability initiatives reflect differing approaches to aligning trade with climate objectives. The CBAM ensures that imports into the EU are subject to the same carbon pricing as goods produced within the EU, aiming to prevent "carbon leakage" and promote global decarbonization, but "**empirical evidence of carbon leakage** from 1995 to 2018 **[indicates that carbon leakage] has played a marginal role for global emissions**"[77] (emphasis added) This mechanism requires detailed reporting and certification of carbon emissions embedded in imported goods, presenting significant compliance challenges for non-EU countries. Conversely, Brazil relies on regulations such as the **Amazonian meat industry Terms of Adjustment of Conduct (TAC Carne Legal)** and the **Forest Code (Federal Law 12,651/2012)** to manage environmental impacts and sustainability within its borders. These regulations focus on legal compliance, sustainable land use, and conservation, addressing environmental concerns without the direct trade-linked measures seen in the EU's approach.

Regarding renewable energy and deforestation, both regions emphasize minimizing environmental impact but differ significantly in their methods. The **EU Renewable Energy Directive (RED)** sets binding targets for the use of renewable energy across various sectors and introduces stringent criteria for biofuels to minimize risks like indirect land- use change (ILUC). This directive is part of the EU's broader effort to reduce greenhouse gas emissions and promote sustainable energy sources. Similarly, the **EU Deforestation Regulation (Regulation (EU) 2023/1115, EUDR)** aims to ensure that only deforestation- free products are traded within the EU, establishing strict due diligence, traceability, and certification requirements. While Brazil's **Forest Code** also sets criteria for deforestation and land use, emphasizing the preservation of native vegetation, the Brazilian approach

[77] NORDSTRÖM, Hakan. Does the risk of carbon leakage justify the CBAM?, Working Paper, EUI, 2023.

provides more flexibility and focuses on sustainable management practices rather than outright prohibitions.

Green Claims Regulation – EU Green Claims Directive and CONAR's Annex U

In Brazil, the regulation of advertising, particularly regarding environmental or "green" claims, is governed primarily by the **Conselho Nacional de Autorregulamentação Publicitária (CONAR)** through the **Código Brasileiro de Autorregulamentação Publicitária (CBAP)**.[78] This self-regulatory framework ensures that advertising in Brazil adheres to ethical standards, focusing on transparency, truthfulness, and respect for consumer rights. The CBAP aligns with broader Brazilian legislation, including the *Código de Defesa do Consumidor* (Consumer Defense Code)[79] and *Lei nº 4.680/65*, which regulates the advertising profession.[80]

CONAR was established in 1980 to uphold ethical standards within the Brazilian advertising industry with the primary aim to prevent the imposition of restrictive advertising laws, such as mandatory pre-approval by the government, which could have jeopardized the industry's creativity and innovation. Funded by contributions from key stakeholders—including advertisers, agencies, and media outlets—CONAR's objectives include monitoring commercial communication, enforcing the norms of CBAP and adjudicating ethical disputes related to advertising content. CONAR's framework is grounded in principles that emphasize honesty, responsibility, and social awareness in advertising.[81] The CBAP mandates that all advertisements must comply with Brazilian law, be truthful, and be prepared with a sense of social responsibility,[82] avoiding content that

[78] CONAR regulation on environment enforces that advertisements shall contribute to social and human values, encouraging the advertise industry to create in its consumers sustainable practices. By the same token, CBAP section 10, article 36 states that no advertisement should be oblivious to environmental protection and proper social welfare conditions.

[79] Brazil's Consumer Defense Code article 110 provides environmental protection to consumers, which reinforces their fragile condition, thus the discussed regulations.

[80] Article 1 defines advertisers as "those who, on a regular and permanent basis, perform technical functions related to the specialty in Adverting Agencies, media outlets, or any companies where advertising is produced. Moreover, article 3 provides that "The Advertising Agency is a legal entity specializing in the art and technique of advertising, which, through experts, studies, conceives, executes, and distributes advertisements to media outlets, on behalf of and at the expanse of advertiser clients, with the goal of promoting the sale of products and services, spreading ideas, or informing the public about the organizations or institutions that serve the same public.

[81] Art. 1 CONAR; Art. 23 CONAR

[82] Art. 2 CONAR

could violate these norms, also encompassing general principles that apply broadly to all forms of advertising, including environmental or “green” claims.

Advertisements must not exploit the consumer's lack of experience or knowledge and must present products truthfully, supported by factual evidence.[83] Truthfulness in advertising requires that consumers are not misled by false or exaggerated claims. This responsibility includes accurately depicting the product's nature, whether it is natural or artificial, its origin—whether domestically produced or imported—its composition, and its intended use. Advertisers must avoid any form of deception, whether through explicit statements or implied meanings, as well as through omissions, exaggerations, or ambiguities.[84]

In response to the growing issue of "greenwashing"—where companies falsely present products as environmentally friendly—CONAR introduced guidelines within CBAP, particularly through Annex U[85] and updates to Article 36, implemented in 2011. Since its adoption, all environmental claims in Brazilian advertising must comply with the principles outlined in Annex U. The CBAP clearly delineates the responsibilities of advertisers, agencies, and media outlets[86] to uphold these standards and ensure that advertisements do not erode public trust in advertising or the broader economy. CONAR has the authority to penalize companies that fail to substantiate their claims, with penalties ranging from warnings to recommendations for altering, correcting or suspending advertisements.[87] In severe cases, CONAR may recommend that media outlets suspend the dissemination of a particular advertisement or issue a preliminary injunction to swiftly remove misleading advertisements from circulation.

Annex U defines "*Publicidade da Responsabilidade Socioambiental e da Sustentabilidade*" as advertising that communicates the responsible and sustainable practices of companies, their brands, products, and services.[88] These updates require that all environmental claims in advertising be grounded in concrete, verifiable actions[89] and avoid vague, overly broad

[83] Art. 23, CONAR
[84] Art. 27 §1–2º CONAR
[85] Anexo U – Apelos de Sustentabilidade
[86] Art. 3 CONAR
[87] Article 50, CONAR
[88] Annex U, Regra Geral 1, CONAR
[89] Annex U, 2 Veracidade, CONAR

or misleading language[90] that could mislead consumers.[91] Furthermore, all information provided in such claims must be true, verifiable, and substantiated, with advertisers encouraged to offer additional details through accessible resources.[92] The environmental benefits and information promoted must also be precise, directly related to the product or service's lifecycle, and supported by factual evidence,[93] steering clear of any generic or ambiguous language. Clarity and accuracy are essential, requiring that all information be expressed in clear, understandable language to prevent consumer misunderstanding or false conclusions.[94]

Claims that merely reflect compliance with legal requirements are not deemed sufficient, and the communicated benefits must be significant when considering the overall environmental footprint of the product or service.[95] The regulations stipulate that all claims regarding environmental benefits must be true, verifiable, and supported by evidence that can be checked by third parties.[96] Recognizing that no product can entirely eliminate environmental impact, the guidelines prohibit advertisements from making absolute claims of superiority or sustainability that cannot be fully substantiated.[97] If a claim involves future actions, it must be clearly disclosed that the action has not yet been realized at the time of the advertisement,[98] and scientific information should only be used when relevant, defensible, and clearly presented[99] to ensure that the advertised benefits are substantial and genuinely impactful.

In addition to CONAR, which focuses on ethics and fair competition among advertisers, Brazil also has a well-established framework for consumer protection, centered around the Consumer Protection Code (Código de Defesa do Consumidor – CDC, Law No. 8.078/1990). The CDC considers misleading practices to be abusive conduct against consumers. Misleading practices involve providing information or engaging in actions that deceive consumers, causing them to make decisions they would not have made if they were fully informed. This can include false or incomplete information or information that creates a misleading perception of a product or service. Article 30 of the CDC states,

[90] Annex U, 3 Exatidão e Clareza, CONAR
[91] Annex U, 1 Concretude, CONAR
[92] Annex U, 2 Veracidade, CONAR
[93] Annex U, 8 Marketing Relacionado a Causa, CONAR
[94] Annex U, 3 Exatidão e Clareza, CONAR
[95] Annex U, 5 Pertinência, CONAR
[96] Annex U, 4 Comprovação e Fontes, CONAR
[97] Annex U, 7 Absoluto, CONAR
[98] Annex U, 1 Concretude, CONAR
[99] Art. 27 §8º, CONAR.

"All information or advertising sufficient for the consumer to make a conscious choice is considered essential." This is reinforced by Article 31, which mandates that information must be clear and truthful to avoid misleading consumers. The rules against misleading practices help combat greenwashing by ensuring that environmental claims are truthful and verifiable.

The Judiciary and the Public Prosecutor's Office (Ministério Público) play crucial roles in protecting consumer rights through public civil actions to address widespread misleading practices, including in cases of suspected greenwashing. Furthermore, the Public Prosecutor's Office can launch campaigns and initiatives to educate consumers about fraudulent practices. Thus, beyond the enforcement actions of CONAR, misleading advertising also constitutes a violation of consumer rights and can be contested in the courts.

The **EU Green Claims Directive**—Directive (EU) 2024/825 of the European Parliament and of the Council[100]—which concerns the regulation of environmental claims within the European Union, introduces comprehensive measures aimed at ensuring that any **claims related to the environmental impact or sustainability of products and services are transparent, verifiable, and accurate**.[101] This Directive reflects the EU's commitment to preventing misleading information and promoting genuinely sustainable practices across its internal market.

A pivotal aspect of the Directive is its requirement that **all environmental claims be substantiated by clear, accessible, and credible evidence**.[102] Businesses must ensure that any claim they make concerning the environmental performance of their product or service is not only true but also capable of being verified by third parties (Article 4).[103] This provision aims to prevent vague or exaggerated claims, often referred to as "greenwashing," where companies falsely present products as environmentally friendly

[100] Directive (EU) 2024/825 of the European Parliament and of the council of 28 February 2024 amending Directives 2005/29/EC and 2011/83/EU as regards empowering consumers for the green transitions through better protection against unfair practices through better information.
[101] Article 1 (1)(r) and Article 1 (2)(b), Directive 2024/825
[102] Articles (1) and (25), Directive 2024/825
[103] "*Such claims should also be verified by a third party expert, who should be independent from the trader, free from any conflicts of interest, with experience and competence in environmental issues and who should be able to monitor the progress of the trader regularly with regard to the commitments and targets, including the milestones for achieving them. Traders should ensure that the regular findings of the third party expert are available to consumers*".

without sufficient evidence (Article 6).[104] **However, this also ties the Green Claims Directive to virtually all other sustainability criteria determined by the European Union, as obligations extent through the value chain of products and require traceability of these materials**.

The Directive specifically prohibits generic environmental claims such as "eco-friendly," "green," "sustainable," or similar terms unless these claims are backed by detailed proof of the product's environmental benefits across its entire lifecycle.[105] For instance, if a company claims that its product is "sustainable," it must demonstrate sustainability throughout the product's production, usage, and disposal stages, rather than focusing on a single aspect, such as the use of recycled materials in packaging (Article 7).[106]

The Directive goes **further by prohibiting the use of generic** claims that are not clearly and specifically related to verifiable environmental benefits,[107] to avoid misleading

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[104] "*Comparing products based on their environmental or social characteristics or circularity aspects, such as durability, reparability or recyclability, is an increasingly common marketing technique that could mislead consumers, who are not always able to assess the reliability of that information. In order to ensure that such comparisons do not mislead consumers, Article 7 of Directive 2005/29/EC should be amended to require traders to provide consumers with information about the method of comparison, the products which are the object of comparison and the suppliers of those products, and the measures to keep information up to date. This should ensure that consumers make better-informed transactional decisions when relying on such comparisons. It should be ensured that such comparisons are objective by, in particular, comparing products which serve the same function, using a common method and common assumptions, and comparing material and verifiable features of the products being compared*"

[105] Article 9, Directive 2024/825 states "*Annex I to Directive 2005/29/EC should also be amended to prohibit the making of a generic environmental claim without recognised excellent environmental performance which is relevant to the claim. Examples of generic environmental claims include 'environmentally friendly', 'eco- friendly', 'green', 'nature's friend', 'ecological', 'environmentally correct', 'climate friendly', 'gentle on the environment', 'carbon friendly', ' energy efficient', 'biodegradable', 'biobased' or similar statements that suggest or create the impression of excellent environmental performance. Such generic environmental claims should be prohibited when recognised excellent environmental performance cannot be demonstrated.*

[106] "*Before displaying a sustainability label, the trader should ensure that, according to the publicly available terms of the certification scheme, it meets minimum conditions of transparency and credibility, including the existence of objective monitoring of compliance with the requirements of the scheme. Such monitoring should be carried out by a third party whose competence and independence from both the scheme owner and the trader are ensured based on international, Union or national standards and procedures, for example by demonstrating compliance with relevant international standards, such as ISO 17065 'Conformity assessment – Requirements for bodies certifying products, processes and services' or through the mechanisms provided for in Regulation (EC) No 765/2008 of the European Parliament and of the Council*"

[107] Article 9, Directive 2024/825

consumers with broad, unsubstantiated claims that do not accurately reflect the environmental performance of the product (Article 8).[108]

Moreover, the Directive **places strict limitations on claims related to carbon offsetting**.[109] It explicitly bans claims that suggest a product has a neutral, reduced, or positive impact on the environment based solely on carbon offsetting, unless these claims are fully substantiated with transparent and rigorous evidence (Article 10).[110] The Directive proposes that carbon offsetting schemes, while potentially beneficial, do not necessarily equate to a reduction in a product's actual carbon footprint.[111] Therefore, claims that rely on such schemes are carefully controlled by the Directive.

However, even the World Bank—who constantly funds environmental initiatives—has made green claims substantiated on carbon offsetting "[f]or direct and indirect carbon emissions […] the **World Bank purchases and retires carbon offsets** […] totaling 67,000 metric tons of carbon dioxide equivalent [in 2023], **covering 100 percent of carbon emissions** from our buildings, corporate air travel, and headquarters food procurement"[112] (emphasis added). According to World Bank's Report *State and Trends of Carbon Pricing 2024*, around 40% of carbon pricing instruments around the world allow carbon credits offsetting, even if conditional to particular requirements.

[108] "*In cases where the displaying of a sustainability label involves a commercial communication that suggests or creates the impression that a product has a positive or zero impact on the environment, or is less damaging to the environment than competing products, that sustainability label should also be considered as constituting an environmental claim*"

[109] Article 12, Directive 2024/825

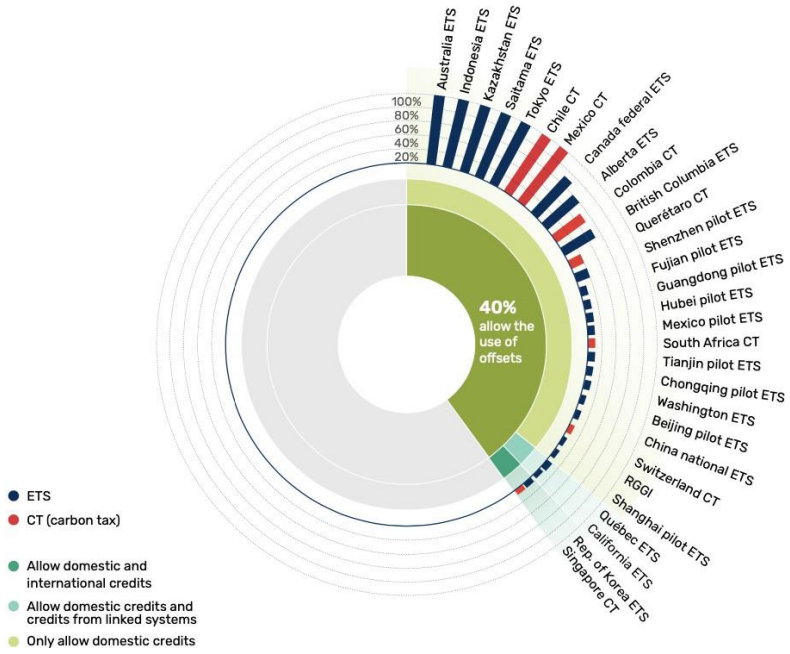
[110] "*Recognised excellent environmental performance can be demonstrated by compliance with Regulation (EC) No 66/2010 or with officially recognised EN ISO 14024 ecolabelling schemes in the Member States, or by corresponding to top environmental performance for a specific environmental characteristic in accordance with other applicable Union laws, such as class A in accordance with Regulation (EU) 2017/1369 of the European Parliament and of the Council*"

[111] Ibid.

[112] THE WORLD BANK. 2023 Sustainability Review. Washington, D.C.: International Bank for Reconstruction and Development / The World Bank, 2024, p. 36–37.

FIGURE 12

Carbon credit use in ETSs and carbon taxes



Source: WORLD BANK. *State and Trends of Carbon Pricing 2024*. Washington, D.C.: World Bank, 2024.

The Directive introduces the concept of **sustainability labels,**[113] **which are voluntary marks** that highlight the environmental or social attributes of a product. These labels must be supported by robust certification schemes that are transparent, non- discriminatory, and based on objective criteria (Article 12).[114] The certification process must involve consultation with relevant stakeholders, including experts and consumer organizations, to ensure that the standards used to award these labels are credible and trustworthy (Article 14).[115]

[113] Article 7, Directive 2024/825: "*Sustainability labels can relate to many characteristics of a product, process or business, and it is essential to ensure their transparency and credibility. Therefore, the displaying of sustainability labels which are not based on a certification scheme, or which have not been established by public authorities should be prohibited by including such practices in the list in Annex I to Directive 2005/29/EC*".

[114] "*Such claims should only be allowed when they are based on the actual lifecycle impact of the product in question, and not based on the offsetting of greenhouse gas emissions outside the product's value chain, as the former and the latter are not equivalent*".

[115] Article 1 (1)(r)(ii), Directive 2024/825.

This requirement aims to **prevent the misuse of sustainability labels**,[116] which can sometimes be applied based on inadequate or biased criteria, leading to consumer confusion. The Directive mandates that any sustainability label must provide clear information about the criteria and processes used to certify the product, ensuring that consumers can trust the label as a genuine indicator of environmental or social performance (Article 13).[117] The Directive also expands the list of prohibited commercial practices[118] related to environmental claims. Among these prohibited practices are:

- Claims that suggest an entire product or business is environmentally beneficial when such claims only apply to a specific, non-representative aspect (Article 15).
- Presenting features that are legally required (such as compliance with minimum environmental standards) as unique selling points that differentiate the product from competitors (Article 16).
- Making comparative environmental claims that are not based on equivalent criteria, thereby misleading consumers about the relative benefits of a product compared to others (Article 17).

Some argue that these prohibitions are designed to close loopholes that stakeholders might otherwise exploit to exaggerate the environmental benefits of their products.

The Directive also emphasizes the importance of **transparency in communication**[119] regarding environmental claims. Businesses are required to provide consumers with all necessary information in a clear and accessible manner (Article 18)[120]. This includes disclosing the basis for any environmental claims, such as the methodologies used for

[116] LYON, T. P.; MAXWELL, J. W. Greenwash: Corporate environmental disclosure under threat of audit. *Journal of Economics & Management Strategy*, v. 20, n. 1, p. 3-41, 2011.

[117] Article 13, Directive 2024/825.

[118] Article 11, 12, 15, 17, Directive 2024/825.

[119] "*Commercial communications for goods that contain a feature introduced to limit their durability is a commercial practice that is detrimental to consumers and the environment as they encourage the sale of such goods which leads to higher costs for consumers and unnecessary use of resources, waste production and greenhouse gas emissions. Such commercial communications should therefore be prohibited when information on the feature and its effects on the durability of the good are available to the trader*".

[120] Article 18, Directive 2024/825.

measuring the product's environmental impact, the specific lifecycle stages covered by the claim, and any limitations or assumptions inherent in the claim (Article 19).[121]

Furthermore, the Directive encourages the **use of standardized formats and terminology**[122] for presenting environmental information, to facilitate consumer understanding and comparison between products (Article 20). This standardization is crucial in ensuring that consumers are not misled by complex or technical language that obscures the true nature of the product's environmental impact.

To ensure compliance with these stringent requirements, the Directive grants national authorities the **power to enforce the rules and impose penalties**[123] on stakeholders that fail to meet the standards set out in the Directive (Article 21). Penalties can range from fines to the prohibition of misleading advertisements, depending on the severity of the infringement.[124] The Directive also allows for the possibility of collective redress, enabling consumers to seek compensation if they have been misled by false environmental claims (Article 22).[125]

Comparative Table: The regulatory frameworks established by the EU Directive 2024/825 (Green Claims Directive) and the Brazilian *Conselho Nacional de Autorregulamentação Publicitária (*CONAR) share the common objective of ensuring that environmental claims in advertising are truthful, verifiable, and not misleading.[126] However, significant differences exist in their approaches to enforcement, scope, and the balance between consumer protection and economic realities, reflecting the distinct regulatory objectives and market conditions in the European Union and Brazil.

[121] "*The use of features limiting the durability of the goods should be distinguished from manufacturing practices using materials or processes of general low quality resulting in limited durability of the goods. Lack of conformity of a good resulting from the use of low quality materials or processes should continue to be governed by the rules on the conformity of goods set out in Directive (EU) 2019/771*".

[122] Article 20, Directive 2024/825.

[123] "The prohibition of those practices in relation to durability and reparability in Directive 2005/29/EC would provide the consumer protection authorities of Member States with an additional enforcement tool for better protection of consumers' interests in cases where traders fail to comply with requirements on the durability and reparability of goods under product-specific Union law".

[124] Article 21, Directive 2024/825.

[125] Article 22, Directive 2024/825.

[126] Article 36, CONAR.

Aspect	EU Directive 2024/825	CONAR (Brazil's Self-Regulatory Framework - CBAP)
Enforcement Mechanisms	Mandatory third-party verification of environmental claims (Article 21).	Relies on industry self-regulation and consumer complaints.
	Imposes penalties for non-compliance, such as fines and prohibition of misleading advertisements (Articles 21-22).	Sanctions include warnings and recommendations for altering or suspending advertisements (Article 50, CBAP).
	Binding legislation with legal force, ensuring high accountability and consistency across the European market.	Less stringent enforcement, depending on voluntary industry cooperation and compliance.
	Requires that all environmental claims be supported by recognized certification schemes and undergo independent verification (Article 21).	No mandatory legal force for third-party verification; enforcement varies by industry cooperation.
Scope and Specificity of Regulations	Broad and detailed, explicitly prohibiting generic claims like "eco-friendly" or "green" without recognized substantiation (Article 8).	Emphasizes principles rather than detailed prohibitions; encourages truthful claims based on concrete, verifiable actions (Anexo U, Articles 1-6).
	Restricts carbon offsetting claims unless fully substantiated to prevent misleading practices (Article 10).	Does not mandate third-party verification or explicitly prohibit vague claims; allows more flexibility in interpretation and application.
Consumer Protection and Transparency	Mandates that businesses provide clear, accessible information on the basis for any environmental claims, including methodologies and limitations (Articles 18-20).	Requires that all environmental claims be clear, precise, and not misleading; all descriptions, claims, and comparisons must be verifiable (Article 27, CBAP).
	Enforced through strict legal requirements to ensure consumer protection and transparency (Articles 18-20).	Relies on ethical behavior through self-regulation; may result in varying levels of compliance across different advertisers.
	Takes a more prescriptive and detailed approach to consumer protection and transparency.	More flexible, allowing different interpretations and practices among advertisers.

Directive 2018/2001: Renewable Energy Directive (RED)

The revised Renewable Energy Directive ("RED")[127] establishes a common framework for the promotion of energy from renewable sources[128] in the electricity, heating and cooling, industry and transport sectors in the EU. Increasing the use of energy from renewable sources is a means to reach the goal of reducing net greenhouse gas ("GHG") emissions by at least 55% by 2030 and become a climate-neutral continent by 2050.[129] However, in addition to climate goals, the RED also aims to promote EU's independence of third countries for energy, as explicitly stated in Recitals:

> "(4) The general context created by Russia's invasion of Ukraine and the effects of the COVID-19 pandemic has led to a surge in energy prices across the Union, thus highlighting the need to accelerate energy efficiency and increase the use of renewable energy in the Union. **In order to achieve the long-term objective of an energy system that is independent of third countries, the Union should focus on accelerating the green transition and ensuring an emission- reducing energy policy that reduces dependence on imported fossil fuels** and that promotes fair and affordable prices for Union citizens and undertakings in all sectors of the economy."[130]

To achieve its objectives, RED grants incentives for renewable energy by imposing obligations on Member States. To ensure that Member States provide national incentives for consumers and relevant economic actors to adopt or supply renewable energy, two mechanisms are put in place: (i) targets of renewable energy to be achieved by Member States *(see "Incentives and impact" below)*, and (ii) a system for Member States to verify compliance of economic agents *(see "Products affected and compliance")*.

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[127] European Union. Consolidated text: Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources (recast) (Text with EEA relevance) (henceforth, "RED"). In force. 20 November 2023. Available at: https://eur- lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:02018L2001-20231120. Last accessed 23 July 2024. [128] The following definition is adopted under RED Art. 2(1): "'energy from renewable sources' or 'renewable energy' means energy from renewable non-fossil sources, namely wind, solar (solar thermal and solar photovoltaic) and geothermal energy, osmotic energy, ambient energy, tide, wave and other ocean energy, hydropower, biomass, landfill gas, sewage treatment plant gas, and biogas".

[129] COELHO et al. Bioenergy Policies Worldwide. Elsevier, 2022. Available at: https://www rules/renewable-energy-targets_en#:~:text=The%20revised%20Renewable%20Energy%20Directive,to%20a%20minimum%20of%2042.5%25.&text=The%20energy%20sector%20is%20responsible,the%20EU's%20greenhouse%20gas%20e missions. Last accessed 14 September 2024.

[130] European Union. Directive (EU) 2023/2413 of the European Parliament and of the Council of 18 October 2023 amending Directive (EU) 2018/2001, Regulation (EU) 2018/1999 and Directive 98/70/EC as regards the promotion of energy from renewable sources, and repealing Council Directive (EU) 2015/652 (henceforth, "RED III"). Recital (4).

Incentives And Impact

Regarding the targets to be achieved by Member States, there is first an overall Union target for a share of energy from renewable sources in the Union's gross final energy consumption of at least 42.5%, but ideally 45%, for 2030,[131] with different and binding contributions defined for each Member State.[132] Such overall target is specified by targets that vary according to different economic sectors:

- **Buildings sector:** target of at least 49 % share of renewable energy in 2030 for the whole Union.[133]
- **Industry sector**: increase of at least 1,6 percentage points as an annual average calculated for the periods 2021 to 2025 and 2026 to 2030.[134] Additional target for RFNBOs of at least 42 % of the hydrogen used in industry by 2030, and 60% by 2035.
- **Heating and cooling sector**: increase of at least 0,8 percentage points as an annual average for the period 2021 to 2025 and by at least 1,1 for 2026 to 2030.[135] Each Member State shall contribute with a different share.[136]
- **Transport sector**: **(i)** at least 29 % share of renewable energy by 2030, **or** at least 14,5% GHG intensity reduction by 2030; **and (ii)** that the combined share of advanced biofuels and biogas[137] and of RFNBOs in the energy supplied to the transport sector shall be at least 1% in 2025 and 5,5% in 2030.[138] Additional target for Member States with maritime ports: at least 1,2% of RFNBOs in the total amount of energy supplied to the maritime transport sector as of 2030.[139]

As may be noted, only the transport sector was given flexibility to fulfill targets either through increases in renewable energy or reductions in GHG emissions. Targets measured in GHG grant Member States more malleability since emissions reduction can also be

[131] RED (cit), Article 3(1).
[132] See RED (cit), Annex I for national contributions.
[133] RED (cit), Article 15a(1).
[134] RED (cit), Article 22a(1), first subparagraph.
[135] RED (cit), Article 23(1).
[136] See RED (cit), Annex Ia ("national heating and cooling shares of energy from renewable sources in gross final consumption of energy for 2020-2030").
[137] Advanced biofuels and biogas are those produced from the feedstock listed in Part A of Annex IX, which generally correspond to residues that require advanced technologies to be transformed into fuels.
[138] RED (cit), Article 25(1).
[139] RED (cit), Article 25(1), third subparagraph.

achieved with other methods, such as Carbon Capture and Storage ("CCS") or natural solutions for carbon sequestration.

CCS is expected to play an important role in the EU's climate neutrality goal, especially to industries more difficult to decarbonize,[140] thus a Directive has been published on the theme (Directive 2009/31/EC, knows as "CCS Directive").[141] Per the Directive and the EU Industrial Carbon Management strategy,[142] CCS refers to technological processes of capturing CO2 emissions from industrial sources (e.g. power plants, factories), transporting and storing them in European geological formations – a costly process. Less costly solutions for carbon sequestration – such as reforestation – are part of the Land Use, Land Use Change, and Forestry (LULUCF) Regulation (Regulation (EU) 2018/841).[143]

CCS is only addressed on RED as part of the criteria for electricity from biomass fuels to be counted towards Member States' targets.[144] However, CCS as an autonomous means for GHG reduction – i.e., regardless of the energy source, either capturing and storing CO2 from fossil fuels emissions or from biofuels' production processes[145] – is only able to account for RED targets in the transport sector,[146] in Member States who opt for the GHG measurement instead of the share of renewable energy target. Natural carbon removal

[140] FRESHFIELDS BRUCKHAUS DERINGER. **Carbon Capture – The Current State of Play in the European Union**. October 2023. Available at: https://www

[141] EUROPEAN UNION. Directive 2009/31/EC of the European Parliament and of the Council of 23 April 2009 on the geological storage of carbon dioxide and amending Council Directive 85/337/EEC, European Parliament and Council Directives 2000/60/EC, 2001/80/EC, 2004/35/EC, 2006/12/EC, 2008/1/EC and Regulation (EC) No 1013/2006 (Text with EEA relevance). Available at: https://eur-lex.europa.eu/legal- content/EN/ALL/?uri=CELEX:32009L0031. Last accessed 14 September 2024.

[142] EUROPEAN COMMISSION. The role of Industrial Carbon Management in climate policies. Available at: https://climate.ec.europa.eu/eu-action/industrial-carbon-management/legislative-framework_en#:~:text=The%20CCS%20Directive%20%2C%20adopted%20in,entire%20lifetime%20of%20s torage%20sites. Last accessed September 14, 2024.

[143] Regulation (EU) 2018/841 of the European Parliament and of the Council of 30 May 2018 on the inclusion of greenhouse gas emissions and removals from land use, land use change and forestry in the 2030 climate and energy framework, and amending Regulation (EU) No 525/2013 and Decision No 529/2013/EU (Text with EEA relevance). Available at: https://eur-lex.europa.eu/eli/reg/2018/841/oj. Last accessed 14 September 2024.

[144] RED, Articles 3(3c(b)) and 29(11).

[145] CCS is taken into account in the methodology for calculating biofuels and bioliquids' GHG savings. RED Annex V, C (Methodology).

[146] As also noted by FRESHFIELDS BRUCKHAUS DERINGER, op. cit.

solutions are even less considered, as RED only addresses them to ensure that Member States' strategy regarding forest biomass is consistent with Regulation (EU) 2018/841.[147]

Although CCS solutions are important for addressing climate change, natural carbon removal solutions are more cost-effective and should preferably be employed by policymakers. Natural carbon removal solutions and CCS serve the common goal of reducing GHG levels, but they achieve it through different mechanisms. Natural solutions, which include methods such as reforestation, wetland restoration, and soil carbon sequestration, are generally considered more sustainable and cost-effective than engineered solutions like CCS. CCS infrastructure is expensive to build and maintain, while reforestation and regenerative agriculture practices can be implemented at a fraction of the cost, providing a natural and accessible approach to carbon capture.

Natural solutions benefit ecosystems beyond carbon storage. Recent evidence shows[148] that integrating trees into agricultural landscapes can provide climate mitigation while improving soil fertility, biodiversity habitat, water quality, water flow, and human health, without reducing agriculture yields. Reforestation and wetland restoration support biodiversity by providing habitats for various species and helping maintain balanced ecosystems. Healthy soils improve water retention and resilience to erosion, making landscapes more robust in the face of climate impacts. Thus, considering the 2.6 billion hectares of agricultural landscapes identified in the study, adding just a few trees to each hectare would not reduce overall agriculture yield and could represent a removal of up to
3.3 billion tons of CO2 per year – more than the global annual emissions from cars.[149]

Natural solutions are also more scalable and accessible globally. Communities worldwide can contribute to carbon sequestration by adopting regenerative agricultural practices or supporting local reforestation projects, whereas CCS infrastructure requires technical expertise, industrial facilities, and considerable funding, making it less accessible, especially in developing countries. Furthermore, nature-based solutions are also essential to reduce the impact of communities of climate change-related disasters, possessing a series of additional benefits, such as those related to public health.

[147] RED, Article 29 (7a) and (7b).

[148] SPRENKLE-HYPPOLITE, Starry et al. Maximizing tree carbon in croplands and grazing lands while sustaining yields. Carbon Balance and Management, v. 19, n. 1, p. 23, 2024.

[149] SPRENKLE-HYPPOLITE, Starry et al. Maximizing tree carbon in croplands and grazing lands while sustaining yields. Carbon Balance and Management, v. 19, n. 1, p. 23, 2024.

	Climate mitigation benefit	Climate adaptation benefit	Additional health benefits
Forest protection and restoration*	Avoided greenhouse gas emissions; increased carbon storage and sequestration	Reduced erosion; reduced impacts of landslides and flooding; improved water quality and provision; improved air quality	Provision of compounds for novel pharmaceutical development; reduced risk of zoonotic spillovers; improved mental health
Mangrove protection and restoration	Avoided greenhouse gas emissions; increased carbon storage and sequestration	Reduced erosion; reduced impacts of flooding and storm surges; reduced food insecurity	Provision of compounds for novel pharmaceutical development; improved mental health
Implementation of conservation agriculture practices (eg, agroforestry, soil conservation, and crop rotation)	Reduced greenhouse gas emissions; increased carbon storage and sequestration	Reduced erosion; improved water provision; reduced food insecurity	Reduced exposure to herbicides and pesticides; reduced exposure to contaminated water
Creation and maintenance of urban green spaces	Increased carbon storage and sequestration	Reduced impacts of heatwaves; improved air quality	Improved physical fitness; enhanced social interactions; reduced noise pollution; improved mental health

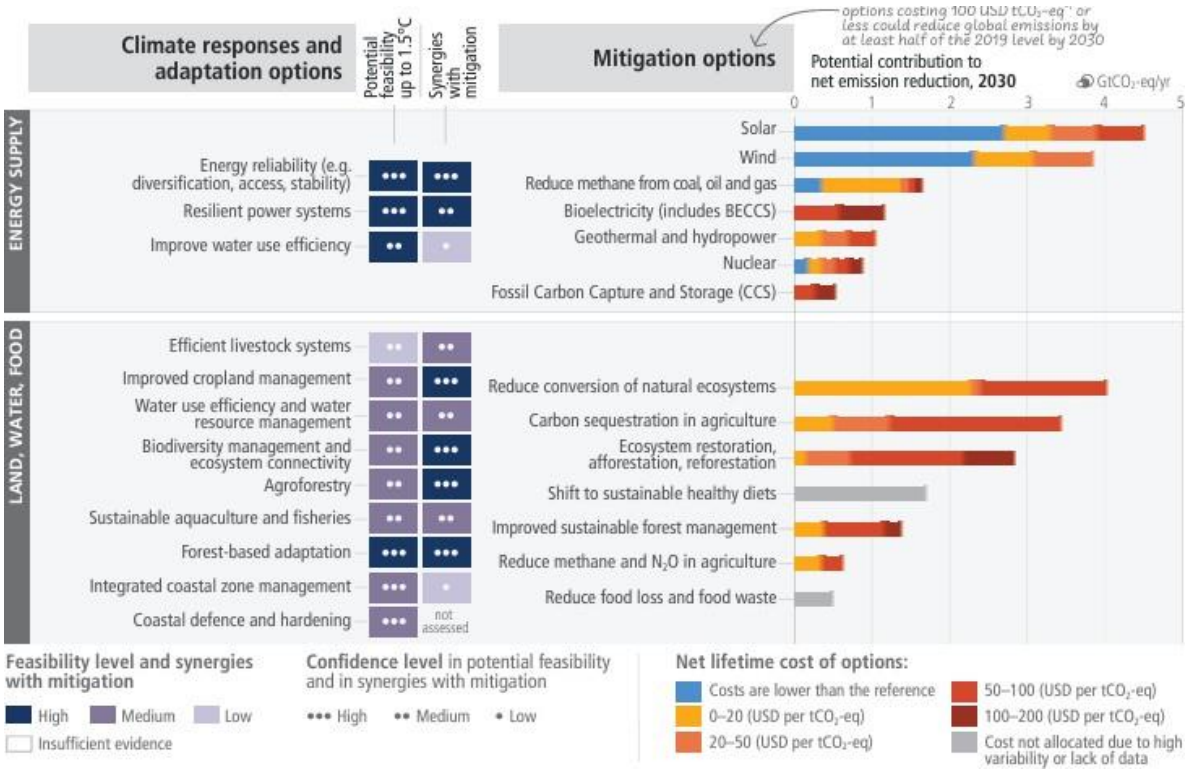
*Ecosystem (eg, forest, grassland, and mangrove) protection refers to actions that aim to prevent unwanted changes to ecosystems and their constituent parts. Ecosystem restoration refers to actions that aim to recover ecosystems that have been degraded or destroyed.

Source: Vora et al, 2024[150]

The 2023 Climate Change Report from the Intergovernmental Panel on Climate Change[151] finds that natural climate solutions are the largest climate mitigation sector, larger even than the energy sector. It shows the feasibility of climate responses and adaptation, and potential of mitigation options in the near term. As can be observed in the figure below, in terms of mitigation, natural climate mitigation solutions have a GHG reduction potential as significant as energy sector solutions, although costs are relatively higher when compared to solar and wind energy solutions. However, CCS solutions prove to be disproportionately less efficient and more expensive than natural solutions, such as carbon sequestration in agriculture, ecosystem restoration, afforestation, and reforestation, for example.

[150] VORA, Neil M. et al. Nature-based solutions are essential for climate and health action. The Lancet, v. 404, n. 10456, p. 913-915, 2024.

[151] LEE, Hoesung et al. IPCC, 2023: Climate Change 2023: Synthesis Report, Summary for Policymakers. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland. 2023.



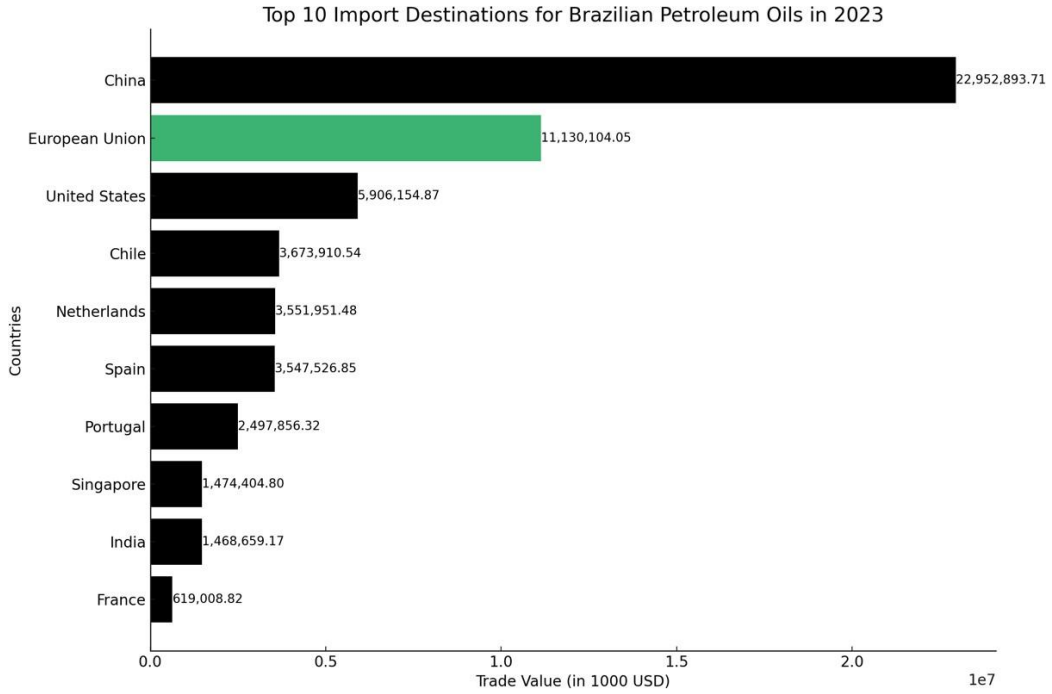
Source: IPCC, Climate Change 2023 Synthesis Report

Nonetheless, CCS and natural carbon removal solutions were not granted a prominent role under RED. In addition, there are remaining hurdles and uncertainties regarding CCS feasibility in the EU (such as regarding the level and conditions of EU and Member State subsidies, and remaining CCS bans in certain Member States).[152] In this context, Member States have incentives to aim at reducing GHG emissions through increasing shares of renewable energy, rather than investing in CO2 capture methods.

As a consequence for the Brazilian trade balance, oil exports should face gradual decreases as Member States implement measures to fulfill RED's targets. This loss is unlikely to be compensated by increases in the export of biomass or fuels from biomass that Brazil produces (such as sugarcane and ethanol), since the percentage of these exports in Brazil's trade balance with the EU is minimal, and because Member States tend to adopt renewable energy based on national or European sources, given RED's objective

[152] FRESHFIELDS BRUCKHAUS DERINGER. op. cit. P. 6.

of assuring independence from third countries and the strength of the European biomass and biofuels producers' influence.[153]

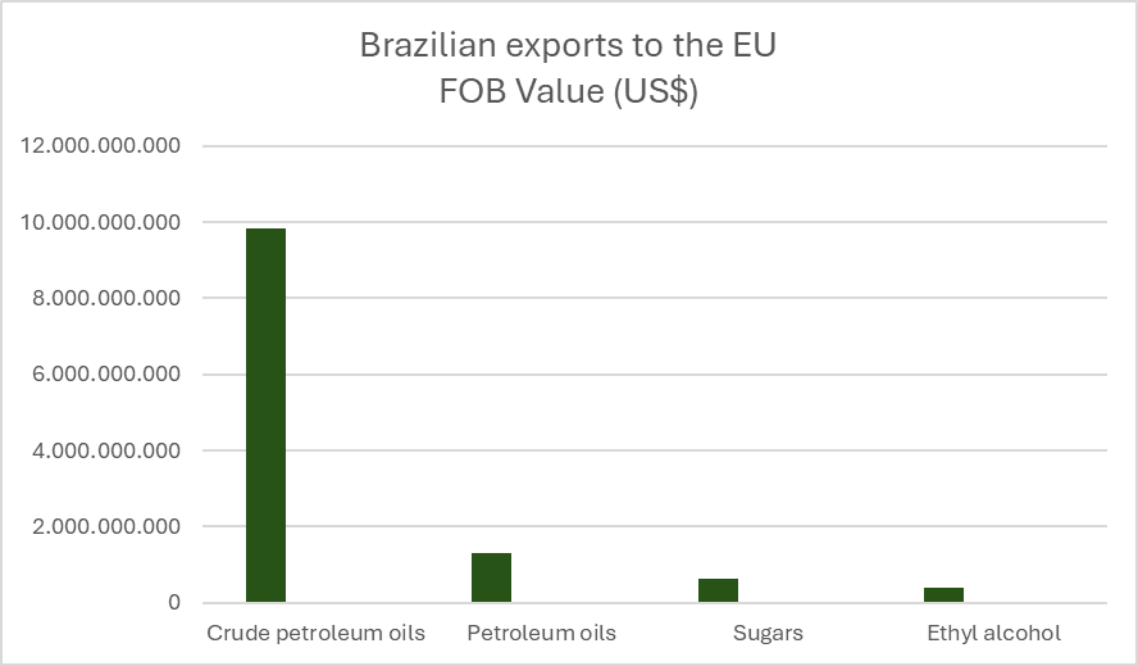


Source of Data: WORLD INTEGRATED TRADE SOLUTION. *Petroleum oils and oils obtained from bituminous imports from Brazil in 2023*.[154]

[153] BUKKENS, Sandra G. F. et al. **Why does the European Union produce biofuels?** Examining consistency and plausibility in prevailing narratives with quantitative storytelling. Energy Research & Social Science Volume 71, January 2021. Available at: https://www.sciencedirect.com/science/article/pii/S2214629620303856. Last accessed 14 September 2024. OXFAM. **Food for fuel:** European Parliament bows to biofuel lobby. January 2018. Available at: https://www.oxfam.org/en/press-releases/food-fuel-european-parliament-bows-biofuel-lobby.

Last accessed 14 September 2024.

[154] WORLD INTEGRATED TRADE SOLUTION. Petroleum oils and oils obtained from bituminous imports from Brazil in 2023. Available at: https://wits.worldbank.org/trade/comtrade/en/country/ALL/year/2023/tradeflow/Imports/partner/BRA/product/270900. Last accessed 16 September 2024.



Source of Data: COMEXSTAT, 2023.

In this global context, Brazil is also advancing its energy transition through various legislative initiatives aimed at encouraging the shift towards a low-carbon economy (*See Annex II for a table of relevant Bills*). For instance, Bill No. 5,751/2023 creates Brazil's legal framework for low-carbon hydrogen, outlining the National Policy's principles, objectives, governance, and instruments. Other initiatives include Bill No. 2,148/2015, which provides tax incentives for green products, and Bill No. 528/2020, focused on low-carbon mobility and sustainable aviation fuels. Bill No. 327/2021 establishes the Energy Transition Acceleration Program (PATEN), leveraging tax credits for sustainable infrastructure and renewable energy research. Additionally, Bill No. 2,308/2023 creates a legal framework for low-emission hydrogen production, while Bill No. 576/2021 addresses offshore energy potential, and Bill No. 182/2024 aims to establish a national emissions trading system.

Despite these initiatives and the fact that the Brazilian energy matrix is notably clean,[155] petroleum cannot cease to play an important role in the country's exports, as Brazil is expected to rise further in world oil production rankings. The sector accounts for

[155] See table with the Brazilian energy matrix on the topic "Carbon Border Adjustment Mechanism".

approximately 10% of the Brazilian GDP and the country depends on this source of income to maintain its economy and national development.[156]

Products Affected And Compliance

Indirectly, all sources of energy are impacted insofar as the ones not benefiting from RED's rules are disincentivized for nor aiding Member States in the fulfilment of RED's targets. Therefore, nuclear energy and fossil fuels, for example, are indirectly impacted. But products related to renewable energy that must be adopted by Member States are directly affected, and include:

- Biomass, wastes and any feedstock for renewable fuels (e.g. palm oil, corn, sugarcane);
- Fuels made from biomass (e.g. ethanol, biogas);[157]
- Renewable fuels of non-biological origin ("RFNBOs", e.g. green hydrogen and e- methanol);
- Recycled carbon fuels;

[156] FINANCIAL TIMES. **Brazil wants to be a climate champion and an oil giant. Can it be both?** 16 September 2024. Available at: https://www.ft.com/content/8d25d4d5-0258-4676-81ab-30bb711f4fd2. Last accessed 16 September 2024.

[157] Fuels made from biomass are classified as biofuels, bioliquids, biomass fuels and biogas. Each of these terms are defined differently under RED and encompassed as "fuels made from biomass" or "fuels from biomass". They cannot all be referred to as "biomass fuels" since "biomass fuels" are defined as "gaseous and solid fuels produced from biomass" (RED, Art. 2(27)), therefore including biogas, but excluding liquid fuels produced from biomass, such as ethanol. Liquid fuels produced from biomass can be either "biofuels" (when applied for transport, as per RED, Art. 2(33) or "bioliquid", when applied in other areas (as per RED, Art. 2(32)).

- Equipment and technology related to other sources of renewable energy: solar energy equipment;[158] wind energy equipment;[159] geothermal energy systems;[160] ocean energy equipment;[161] hydropower systems;[162] osmotic energy systems;[163] heat pumps[164] and waste heat and cold equipment.[165]

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[158]As defined in RED, Art. 2(9b), solar energy equipment refers to devices that capture solar radiation and convert it into heat or electricity. This includes both solar photovoltaic panels, which convert sunlight into electricity, and solar thermal systems, which convert sunlight into heat.

[159] According to the United Nations, wind energy captures the kinetic energy of moving air using large wind turbines, either onshore or offshore. Although wind energy has been utilized for centuries, recent advancements have led to taller turbines and larger rotor diameters, enhancing electricity production. Despite variations in wind speeds by location, the global technical potential for wind energy far exceeds current electricity production, with significant opportunities for deployment in many regions, including remote and offshore areas.

[160] Geothermal energy systems use heat from beneath the Earth's surface for various purposes, including electricity generation, heating and cooling, and direct use applications. According to the U.S. Department of Energy, these systems can extract heat from underground reservoirs to generate electricity, regulate building temperatures, or provide hot water for industrial processes. Geothermal energy is defined in Article 2(3) of the Renewable Energy Directive (RED) as energy stored in the form of heat beneath the Earth's surface.

[161] Ocean energy systems harness the kinetic and thermal energy of seawater, such as waves and currents, to generate electricity or heat. According to the United Nations, these technologies are still in the early stages of development, with various prototypes for wave and tidal current devices being tested. The theoretical potential of ocean energy significantly exceeds current human energy demands. As specified in Article 2(1) of the RED, ocean energy is classified as energy from renewable sources, including tidal and wave energy.

[162] As defined by United Nations, Hydropower generates electricity by harnessing the energy of water moving from higher to lower elevations. This can be achieved through reservoir-based systems, which use stored water, or run-of-river systems, which utilize the natural flow of rivers. Currently, hydropower is the largest source of renewable energy in the electricity sector. As defined in Article 2(1) of the Renewable Energy Directive (RED), hydropower is included as a renewable energy source.

[163] According to RED Article 2(44b), "osmotic energy" refers to the energy generated from the difference in salt concentration between two fluids, such as fresh water and salt water.

[164] According to the U.S. Department of Energy, heat pumps operate similarly to refrigerators by using electricity to transfer heat from a cooler space to a warmer one, thus making the cool space cooler and the warm space warmer. During the heating season, heat pumps extract heat from the cool outdoors and move it into your home, while in the cooling season, they transfer heat from inside your house to the outdoors. Heat pumps derive their energy from ambient thermal sources, which are naturally occurring thermal energies present in the ambient air, water, or ground. This is defined in RED article 2(2) as "ambient energy," which includes the natural thermal energy in the environment.

[165] In accordance with RED Article 2(9), "waste heat and cold" refers to unavoidable heat or cold produced as a by-product in industrial or power generation processes, or within the tertiary sector, which would

In order to be counted towards Member States targets, renewable energy sources must comply with criteria established under RED and related acts (such as Delegated and Implementing Acts the Commission is authorized and/or required to adopt). Criteria vary according to products' classification under RED.

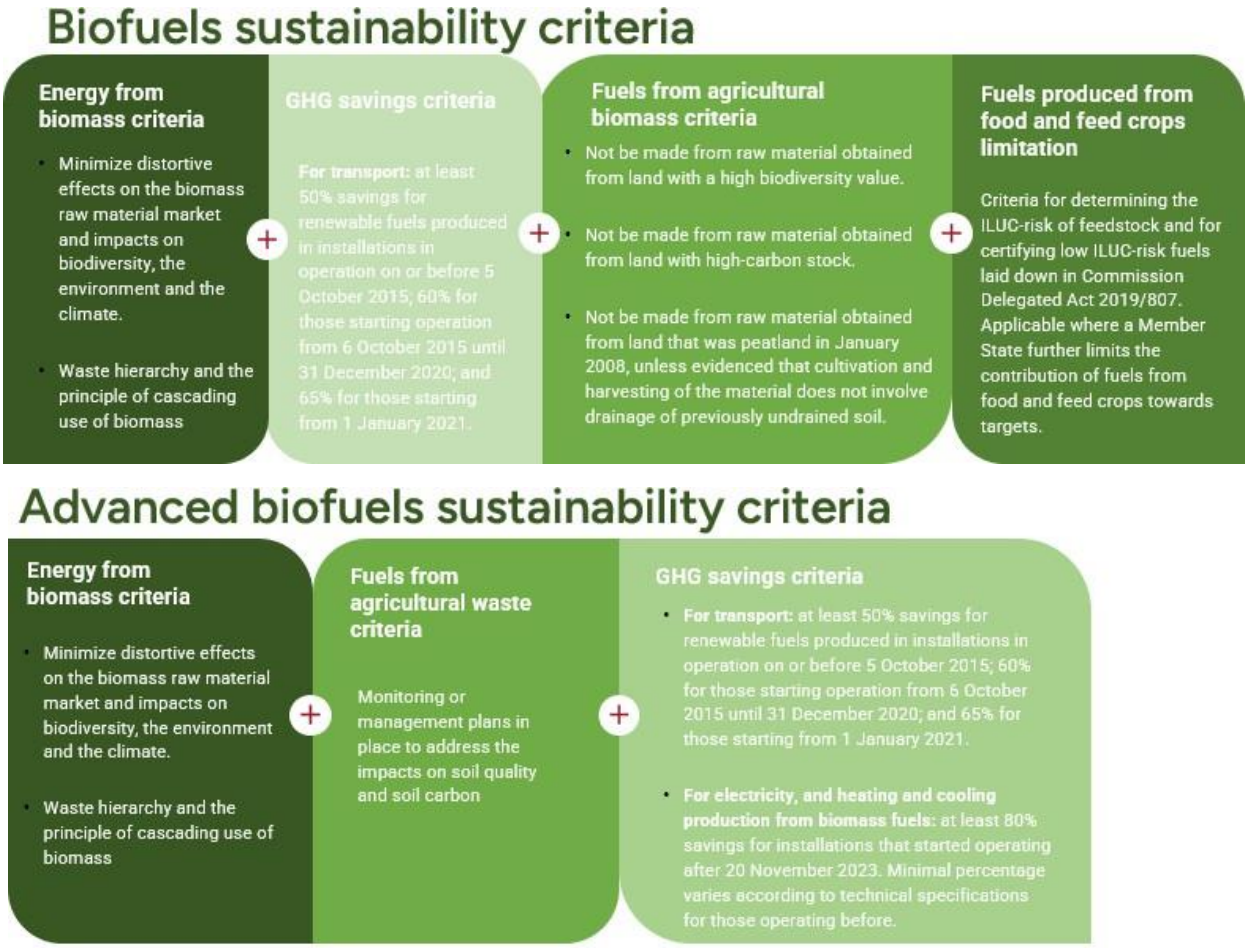
Fuels from biological origin face stringent criteria to ensure no undue impact on the environment is caused, such as indirect land-use change (ILUC) related to biofuels, bioliquids, and biomass fuels. ILUC arises when land previously used for food or feed production is converted for biofuel production, potentially leading to the expansion of agricultural areas into lands with high carbon stock, such as forests and wetlands, which in turn causes additional GHG emissions. This issue is addressed in Commission Delegated Regulation (EU) 2019/807[166] (implemented under RED II, the Directive preceding RED III), which establishes criteria for identifying feedstocks at high risk of ILUC, where there is a significant expansion into land with high carbon stock. It also provides guidelines for certifying low ILUC-risk biofuels, bioliquids, and biomass fuels. To be classified as low ILUC-risk (and thereby be exempted from RED's restrictions to high ILUC-risk fuels[167]), fuels must be produced through verifiable methods that enhance productivity beyond normal conditions, without expanding into sensitive land areas.

In addition to ILUC certifications, there are other criteria established by RED for fuels from biomass. For instance, biofuels (e.g. ethanol) and advanced biofuels (i.e. biofuels from wastes and residues, which demand a more technological production process, such as second-generation ethanol) each must comply with the following criteria:

otherwise be dissipated unused into the air or water. This occurs in situations where there is no access to a district heating or cooling system, or where cogeneration is either used or considered infeasible.

[166] EUROPEAN UNION**.** Commission Delegated Regulation (EU) 2019/807 of 13 March 2019 supplementing Regulation (EU) 2018/841 of the European Parliament and of the Council as regards the rules for the determination of the greenhouse gas emission reductions in the land use, land use change and forestry sector. Official Journal of the European Union, L 133, p. 1-16, 6 May 2019. Available at: https://eur- lex.europa.eu/eli/reg_del/2019/807/oj. Accessed on: 14 Sep. 2024.

[167] ILUC-risk fuels have a cap of contribution to Member States targets. See RED, Article 26.



Biofuels and Advanced biofuels sustainability criteria under RED III. Source: Legal Grounds Institute.

Non-biological fuels (RFNBOs and recycled carbon fuels) are only subject to the GHG savings criterion under RED, which requires that emissions savings from the use of those fuels are at least 70%,[168] as well as complementing criteria by Commission Delegated Regulation (EU) 2023/1184,[169] which details rules for determining when electricity used to produce RFNBOs for transport is considered fully renewable. This regulation aims to

[168] RED, Article 29a.

[169] EUROPEAN UNION. Commission Delegated Regulation (EU) 2023/1184 of 10 February 2023 supplementing Directive (EU) 2018/2001 of the European Parliament and of the Council by establishing a minimum threshold for greenhouse gas emissions savings of recycled carbon fuels and specifying a methodology for assessing greenhouse gas emissions savings from renewable liquid and gaseous transport fuels of non-biological origin and from recycled carbon fuels. Official Journal of the European Union, L 165, p. 1-14, 22 June 2023. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32023R1184. Accessed on: 14 Sep. 2024.

ensure that these fuels, often derived from renewable hydrogen produced through electrolysis, meet RED standards. It also reaffirms the aim of reducing dependence on fossil fuels in light of geopolitical events like Russia's invasion of Ukraine. The rules apply to both EU and third countries' production.

All these criteria affect not only feedstock and renewable fuels producers in the EU, but also in third countries, as the criteria are applicable regardless of the origin of the feedstock or fuel. Producers and other economic operators in third countries are subject to the general obligation of providing reliable information on compliance and evidence,[170] including verification of compliance with sustainability and GHG emissions saving criteria carried out by independent and transparent audits.[171] RED also empowers the European Commission to monitor the origin of renewable fuels consumed in the EU and the impact of their production not only in the EU, but also in the main third countries of supply.[172]

Compliance with RED's criteria involves numerous certifications and procedures which vary across Member States.[173] Therefore, a heavier burden should rely upon economic agents from third countries, who naturally face more difficulties in navigating Member States' regulatory environment and would have to invest more in legal and regulatory costs to ensure compliance with European systems.

In fact, RED's impact on third countries, specifically the ILUC criteria, has been challenged in the World Trade Organization (WTO) as a discriminatory measure creating undue obstacles to international trade. The case initiated by Malaysia (DS600)[174] targeted the EU's treatment of palm oil and oil palm crop-based biofuels under RED II. Malaysia

[170] RED, Article 30.

[171] RED, Article 30(1).

[172] RED, Article 33.

[173] For instance, Member States are in charge of regulating and issuing Guarantees of Origin, which are essential to demonstrate the renewable source of energy (RED, Article 19). They may also establish different certifications and regulations in the context of support schemes, which are defined nationally (RED, Article 4). Regarding compliance with GHG and sustainability criteria, voluntary or national schemes of certification must be adopted. For voluntary schemes, see: https://energy.ec.europa.eu/topics/renewable- energy/bioenergy/voluntary-schemes_en. Last accessed 15 September 2024.

[174] Available at: https://docs.e. Last accessed 15 September 2024.

challenged the EU's classification of these biofuels as high ILUC risk and other aspects of the Delegated Regulation 2019/807.

The WTO panel's report did not find the overall RED II framework incompatible with WTO rules, but highlighted inconsistencies of the Delegated Regulation with international trade rules. Among its findings, the WTO panel pointed to the following concerns:[175]

- The high ILUC-risk limitations were inconsistent with international trade rules because it accorded less favourable treatment to palm oil-based biofuel from Malaysia than that accorded to like products of EU origin;
- The high ILUC-risk limitations had been administered in a manner that constituted arbitrary or unjustifiable discrimination between countries where the same conditions prevail, because the EU failed to conduct a timely review of the data used to determine which biofuels were high ILUC risk, and because there were deficiencies in the design and implementation of the low ILUC-risk criteria and certification procedure;
- The low ILUC-risk certification procedure, as set out in Article 6 of the Delegated Regulation, was inconsistent international trade rules since deficiencies in the implementation of the low ILUC-risk procedure had created unnecessary obstacles to international trade.

The Dispute Settlement Body adopted the panel's report, and the EU has expressed intentions to make the required adjustments under EU law.[176]

Malaysia's challenge in the WTO proceeding underscores the complex interplay between EU environmental policies – specifically RED and its related norms – and global trade rules, particularly the impact of such policies on developing economies.

Regulation 2023/1115: Deforestation Regulation

[175] WORLD TRADE ORGANIZATION. **DS600**: European Union and certain Member states — Certain Measures Concerning Palm Oil and Oil Palm Crop-Based Biofuels. Available at: https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds600_e.htm#bkmk600r. Last accessed 15 September 2024.

[176] Case status available at: https://www

The European Union Deforestation Regulation (Regulation (EU) 2023/1115 – "EUDR") provides rules on the making available on the EU market and the export from the EU of certain commodities and products associated with deforestation and forest degradation.[177] Among the regulated commodities, the agricultural Brazilian exports analyzed in this Report are included (cattle, soy, coffee and cocoa).[178] The EUDR applies to relevant commodities themselves as well as to relevant products derived from those commodities, as comprehensively listed in Annex I, which includes, for illustration, from cocoa beans whole or broken, raw or roasted, to chocolate, and from live cattle to leather and frozen meat.[179]

The EUDR aims to reduce the EU's contribution to global deforestation by ensuring that only deforestation-free products are traded in the EU. It comprises both EU imports and exports, but EU imports are on focus for the purposes of this Report.

The EUDR is based on documentation and traceability requirements to ensure products' compliance. Conditions for products to be placed or made available on the EU market or exported are, cumulatively: (a) being deforestation-free (i.e. produced on land that has not been subject to deforestation after 31 December, 2020)[180]; (b) being produced in accordance with the relevant legislation of the country of production; and (c) being covered by a due diligence statement.[181]

Due diligence is at the center of the regulation, since compliance is verified through due diligence obligations of operators who place relevant products on the market, which are:
(i) providing a due diligence statement with comprehensive information on the products' origin, along with evidence; (ii) risk assessment measures; and (iii) risk mitigation measures for any non-negligible risk that the products could be non-compliant, with a recommendation of measures, such as independent auditing, in Article 11(1).[182] Operators are responsible for compliance of relevant products they place on the market[183] and shall

[177] EUROPEAN UNION. Regulation (EU) 2023/1115 of the European Parliament and of the Council of 31 May 2023 on the making available on the Union market and the export from the Union of certain commodities and products associated with deforestation and forest degradation and repealing Regulation (EU) No 995/2010 (Text with EEA relevance). (Henceforth, "EUDR") Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32023R1115&qid=1687867231461. Last accessed 16 September 2024.
[178] EUDR, Article 1.
[179] EUDR, Annex I.
[180] EUDR, Article 2(13)(a).
[181] EUDR, Article 3.
[182] EUDR, Articles 4(1) and 8.
[183] EUDR, Article 4(3).

not place products on the market not only if due diligence has demonstrated non-compliance, but also there is a non-negligible risk of non-compliance, or if the operator was unable to perform and submit due diligence to authorities.[184] The tables below present the mandatory criteria for due diligence information and risk assessment, with emphasis on information that should impact Brazilian commodities producers.

Due diligence information requirements (EUDR, Article 9(1))
• Product description, including the list of relevant commodities or relevant products contained therein or used to make those products; • Quantity of the relevant products; • **Country of production and parts thereof**; • **Geolocation of all plots of land** where the relevant commodities were produced (including geolocation of all different plots of land where a relevant product has been made with relevant commodities produced on different plots of land), considering that **any deforestation or forest degradation on the given plots of land shall automatically disqualify all relevant commodities/products thereof from being commercialized;** • **Date or time range of production**; • **For cattle and its derived products, the geolocation shall refer to all the establishments where the cattle were kept**; • Contact data of any business or person who supplied the relevant products, and to whom the product has been supplied; • **Adequately conclusive and verifiable information that the relevant products are deforestation-free**; • Adequately conclusive and verifiable information that the relevant commodities have been produced in accordance with the relevant legislation of the country of production, including any arrangement conferring the right to use the respective area for the production of the relevant commodity.
Risk assessment criteria (EUDR, Article 10(2))
• The assignment of risk to the relevant country of production or parts thereof (as per Article 29). As of the date of this Report (September 2024), this assessment by the European Commission is pending, which generates uncertainties to stakeholders[185]; • **Presence of forests in the country of production or parts thereof;** • **Presence of indigenous peoples in the country of production or parts thereof;** • **Consultation and cooperation in good faith with indigenous peoples in the country of production or parts thereof;** • Existence of duly reasoned claims by indigenous peoples based on objective and verifiable information regarding the use or ownership of the area used for the purpose of producing the relevant commodity; • Prevalence of deforestation or forest degradation in the country of production or parts thereof;

[184] EUDR, Article 4(4).

[185] AGRICULTURAL POLICY DIALOGUE BRAZIL-GERMANY (APD). **Brazilian Stakeholder assessment of the European Deforestation Regulation.** Brasilia - São Paulo, September 2023.

- The source, reliability, validity, and links to other available documentation of the information referred to in Article 9(1);
- **Concerns in relation to the country of production and origin or parts thereof, such as level of corruption;**
- Prevalence of document and data falsification, lack of law enforcement, violations of international human rights;
- Armed conflict or presence of sanctions imposed by the UN Security Council or the Council of the EU;
- **The complexity of the relevant supply chain and the stage of processing of the relevant products, in particular difficulties in connecting relevant products to the plot of land where the relevant commodities were produced;**
- Risk of circumvention of the EUDR or of **mixing with relevant products of unknown origin** or produced in areas where deforestation or forest degradation has occurred or is occurring;
- Conclusions of the meetings of the Commission expert groups supporting the implementation of this Regulation, as published in the Commission's expert group register;
- Any substantiated concerns submitted under EUDR Article 31, and information on the history of non-compliance of operators or traders along the relevant supply chain with the EUDR;
- Any information that would point to a risk that the relevant products are non-compliant;
- Complementary information on compliance with the EUDR, which may include information supplied by certification or other third-party verified schemes, provided that the information meets the requirements set out in EUDR Article 9.

In light of the criteria exposed above and the stringency of the regulation when it comes to the zero-deforestation requirement and the necessity of evidence to support compliance claims, we proceed presenting (i) the major inconsistencies of the EUDR with Brazilian forest legislation; followed by an analysis of the EUDR's impact on the relevant Brazilian exports, addressing first (ii) cattle and meat; then (iii) coffee, cacao and soya.

Main challenges for Brazilian Forest Legislation

Brazil has a broad and diverse environmental legislation aimed at environmental conservation and the limitation of potentially polluting economic activities. The conservation of forests on both private and public properties is primarily regulated by the

Forest Code (Federal Law 12,651/2012)[186], which sets general rules for the protection of vegetation.[187]

The Forest Code establishes three legal regimes for forest exploitation, forest raw material supply, and control of the origin of forest products, depending on the natural and geographical characteristics of the property: a) Permanent Preservation Area (APP), b) Legal Reserve Area (RL), and c) Remaining Area. Based on this division, two forms of human intervention were regulated: suppression and exploitation. The first involves the cutting of grouped trees and their understory, which in some cases may include clear- cutting, which completely removes the tree, preventing its regeneration. Exploitation, on the other hand, refers to the sustainable management of the forest, allowing its natural regeneration. Since the main products analyzed here depend on the suppression of vegetation for planting or farming, the focus will be on the first form of human intervention.[188]

Permanent Preservation Areas are areas, covered or not by native vegetation, that have the environmental function of preserving water resources, landscapes, geological stability, biodiversity, the genetic flow of fauna and flora, protecting the soil, and ensuring the well- being of human populations. Their definition is closely related to physical-natural characteristics considered environmentally sensitive. They include marginal strips of any perennial or intermittent natural watercourse, areas around natural lakes and ponds, areas surrounding artificial water reservoirs resulting from damming or impoundment of natural watercourses, areas around perennial springs and water eyes, slopes, sandbanks, mangroves, the edges of plateaus or tablelands, hilltops, mountains, and ridges, and wetlands. Permanent Preservation Areas have strict preservation rules, requiring the owner, possessor, or occupant to maintain the vegetation in the protected area. The

[186] **BRAZIL.** Law No. 12,651, of May 25, 2012. Provides for the protection of native vegetation. Available at: https://www.planalto.gov.br/ccivil_03/_ato2011-2014/2012/lei/l12651.htm?itid=lk_inline_enhanced- template. Accessed on: September 10, 2024.

[187] Law No. 9,985 of July 18, 2000, establishes the National System of Nature Conservation Units (SNUC) in Brazil. It sets the guidelines for the creation, management, and classification of protected areas in the country to ensure the conservation of natural resources and biodiversity. Law No. 11,428 of December 22, 2006, provides for the utilization and protection of native vegetation in the Atlantic Forest Biome and other provisions. This law establishes regulations aimed at preserving the native flora of the Atlantic Forest, promoting sustainable use, and setting guidelines for restoration and conservation efforts in one of Brazil's most biodiverse and endangered ecosystems.

[188] LEHFELD, Lucas de Souza; CARVALHO, Nathan Castelo Branco de; BALBIM, Leonardo Isper Nassif. Código florestal comentado e anotado (artigo por artigo). 3. ed. rev., atual. e ampl. Rio de Janeiro: Forense; São Paulo: MÉTODO, 2015.

intervention or suppression of vegetation in a Permanent Preservation Area is only allowed in cases of public utility, social interest, or low environmental impact, subject to authorization from the environmental authority.[189]

In contrast, the Legal Reserve regime applies indiscriminately to all rural properties. The Legal Reserve is defined as an area within a rural property or possession, excluding permanent preservation areas, necessary for the sustainable use of natural resources, the conservation and rehabilitation of ecological processes, biodiversity conservation, and the shelter and protection of native fauna and flora. Properties must maintain a minimum percentage of native vegetation cover, which varies according to the type of vegetation and the geographical location of the property. These limits correspond to 80% for properties in forest areas in the Legal Amazon, 20% for properties in general field areas in the Legal Amazon, 35% for properties in cerrado areas in the Legal Amazon, and 20% for properties in forest or other native vegetation areas in the rest of the country. These limits can be altered in specific situations. Permanent Preservation Areas can be included in the calculation of the Legal Reserve, provided that it does not imply the conversion of new areas for alternative land use, the area to be included is preserved or undergoing recovery, and the property is registered in the Register of Rural Establishments (ERC). Vegetation suppression is not allowed except with sustainable management previously approved by the competent authority. Therefore, to economically exploit these areas, it is necessary to follow an approved management plan, and in the case of illegal deforestation, the activity must be suspended and the area restored within two years.

The Remaining Area is defined as any area on the property covered by vegetation that is not classified as a Permanent Preservation Area or included in the Legal Reserve Area. In remaining areas, the legislation allows the suppression of native vegetation for alternative land use, which includes replacing the vegetation with activities such as agriculture, industry, energy, mining, transportation, or urban settlements. To do this, it is necessary to obtain the ERC and authorization from the competent authority.

The ERC is a national public registry designed to collect environmental information about rural properties, aimed at facilitating the monitoring and control of deforestation. The ERC contains the identification of the owner or rural possessor, proof of ownership or possession, identification of the property with geographic coordinates, and its areas of vegetation or use. As such, the ERC is an important tool that can be combined to ensure the traceability and environmental compliance of products, although its current state of

[189] **LUÍS PAULO SIRVINSKAS. Manual de Direito Ambiental. 20. ed. São Paulo: SaraivaJur, 2022.**

implementation may pose an initial challenge for this purpose. Its objective is to integrate environmental information of properties and rural holdings concerning Permanent Preservation Areas (PPA), restricted-use areas, Legal Reserves, remnants of forests, other native vegetation, and consolidated areas, creating a database for control, monitoring, environmental and economic planning, and combating deforestation.[190]

According to ERC system data, by October 2023, over 7.2 million properties had adhered to ERC, covering an area exceeding 671 million hectares. It is important to note that of the 851 million hectares in Brazil, only a portion is eligible for ERC registration, as areas such as conservation units, indigenous lands, and non-dedicated public forests cannot be registered. More than 49%[191] of registered properties have opted for ERC, highlighting two main issues[192]: a) the low effectiveness of previous legislation, as more than half of the properties still need to regularize areas; and b) the potential for recovery of Legal Reserves (LR) and Permanent Preservation Areas (PPA) to result in significant improvements in environmental recovery.

In 2022[193], the Caatinga and Amazon biomes were noted as those needing the most encouragement for ERC registration. The Caatinga has the highest proportion of registrable areas, with 96.09% of its area available for ERC, yet only 42.19% of these areas are registered. This suggests that many rural producers have not yet adhered to ERC in this biome. In contrast, the Amazon has the lowest proportion of registrable areas, with only 44.57% of its area available, and RRE registration is also low, at just 40.92% of the registrable area. Conversely, the biomes with the highest ERC adherence are the Pampa, Pantanal, and Cerrado, with registrations of 85.30%, 84.94%, and 79.57%, respectively. Although ERC's creation has facilitated monitoring and compliance enforcement, there are criticisms regarding the reliance on self-reported data from property owners. It is important to emphasize that in Brazil, most properties are owned by smallholders who often lack the technical knowledge required to implement the actions outlined in ERC commitment terms.

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[190] BRASIL. Ministry of Agriculture, Livestock, and Supply. Rural Environmental Registry System. Available at: https://www.car.gov.br/#/sobre. Accessed on: September 12, 2024.

[191] RERS - Rural Environmental Registry System*, op cit.*

[192] PIRES-LUIZ, Carlos Henrique; STEINKE, Valdir Adilson*, op cit.*

[193] LUIS, Carlos Henrique Pires. **Rural Environmental Registry: what do the data from this environmental regularization policy reveal? Doctoral Thesis (PhD in Geography)** – University of Brasília, Institute of Human Sciences, Department of Geography, Graduate Program in Geography, Brasília, DF, July 2022.

In this sense, data analysis stage if ERC is a bottleneck in the environmental legislation monitoring and compliance enforcement. The challenges for the data analysis are (i) a high number of registrations; (ii) the low quality of registrations; (iii) insufficient cartographic databases to support analyses; (iv) trouble communicating with landowners to request corrections and additional information; and (v) absence of an in-house team dedicated to analysis, or a reduced technical team for this function.[194] Furthermore, the ERC analysis requires the landowner to propose a recovery plan to the rural area when there are identified environmental liabilities regarding deforestation after July 22, 2008[195], which reduces the incentives for the regularization of the area.

Therefore, these are limiting factors for the use of the CRA as a mechanism for demonstrating environmental compliance. Moreover, as will be explored further below, there is a lack of integration of this system with traceability mechanisms for agricultural products, which have their own supply chains and logistical characteristics, making the integration between the systems to meet the requirements imposed by the EUDR even more complex to execute in the short term.

Additionally, the authority to grant permits for vegetation suppression generally lies with the States, but in specific cases, it can be requested from federal or municipal bodies. To obtain authorization for vegetation suppression, the owner must present a forest replacement or compensation plan, prioritizing the use of native species from the same biome and demonstrating the effective and sustainable use of the already converted native vegetation areas. Suppression is prohibited if there are abandoned areas on the property. Finally, the planned use for the area to be cleared must be indicated, and it is the responsibility of the competent authority to assess the balance between the intended suppression and its purpose.[196]

In this regard, the EUDR imposes a restriction that fails to consider the specificities of Brazilian environmental legislation. Brazil stands as one of the few major food-producing

[194] CLIMATE POLICY INITIATIVE. *Brazilian environmental policies and the new EUDR*. 2023. Available at: https://www.climatepolicyinitiative.org/wp-content/uploads/2023/10/Brazilian-Environmental-Policies- and-the-New-EUDR.pdf. Access date: 16 set. 2024.

[195] Law no. 12.651/2012, Article 68.

[196] **LEHFELD, Lucas de Souza; CARVALHO, Nathan Castelo Branco de; BALBIM, Leonardo Isper Nassif. , op cit.**

nations in the world that mandates a Legal Reserve under its legislation, making it the agricultural exporting country with the most stringent environmental laws.[197]

This issue, therefore, highlights the core conflict between Brazilian legislation and the EUDR's provisions. For instance, while the Brazilian Forest Code establishes the concept of the Legal Forest Reserve, allowing for specific percentages of deforestation depending on the location of the property—such as the case of productive rural properties in the Amazon, where up to 20% of the total area may be deforested—the EUDR prohibits the entry of any goods produced in areas deforested after December 31, 2020, without distinguishing between legal and illegal deforestation. As a result, even if the vegetation was legally cleared according to Brazilian regulations, any commodities and their derivatives produced in those areas after December 31, 2020, will be barred from entering the European market. This type of issue may pose significant challenges, especially for small and medium-sized producers, who may struggle to adapt and expand their production due to limited productivity resources.

Moreover, despite the lack of uniformity in state regulations[198], forest compensation can lead to long-term measures that may enhance the original conditions of the cleared vegetation. However, restrictions on achieving net positive forest compensation due to EUDR zero deforestation/ forest degradation could impede these improvements.

Legal instrument	Challenges
Register of Rural Establishments	• The information in the registry is self-declared, which may lead to inaccuracies in the data and information. • Not all properties are registered, which leads to control and monitoring issues. • There is no integration that ensures the traceability of agricultural products throughout the supply chain.
Vegetation suppression authorization	• The EUDR uses December 31, 2020, as a reference date, retroactively applying its provisions from this date and impacting areas that were legally deforested according to Brazilian legislation. • Restrict net positive forest compensation. • It may hinder the expansion of small producers who lack the resources to increase their productivity.

[197] MENDES, Pedro Puttini; DE OLIVEIRA, Francisco Henrique. Reserva legal e uso econômico sustentável na legislação internacional comparada. **Cuadernos de Educación y Desarrollo**, v. 16, n. 7, p. e4980-e4980, 2024.

[198] CLIMATE POLICY INITIATIVE. Relatório de reposição florestal: uma análise das políticas estaduais de reposição florestal obrigatória no Brasil. Availabe at: https://www.climatepolicyinitiative.org/wp-content/uploads/2021/08/Relatorio-Reposicao-Florestal.pdf. Acess date: 17 set. 2024.

Table: Summary of challenges of Brazillian Forest Code regarding EUDR

After the brief presentation of the inconsistencies and challenges of environmental legislation considering the EUDR requirements, the analysis of the impacts on the mentioned products will follow.

Impact On Brazilian Cattle And Meat Exports

Brazilian cattle production observes intense regulation imposed by the Ministry of Agriculture and Livestock (MAPA, acronym in Portuguese), designed especially to ensure sanitary controls. Among an extensive list of matters regulated by MAPA,[199] a handful of regulations establish obligations which, albeit do not have the same objective as the EUDR, may encompass part of the obligations imposed by the EUDR on operators and traders regarding cattle products exported to the EU. Examples include:

- Regulation on animal feed requiring that private agents' control systems provide systematized and auditable records of the production process.[200] It provides for recorded and auditable information, but in relation to products' safety, not deforestation.
- Regulation regarding National Sanitary Certification, mandating the adoption of Animal Transit Permits (GTA, in Portuguese)[201] and the registering of establishments under the National Inspection Service for the circulation of animal products.[202] The GTA is the official document for animal transportation in Brazil and contains essential information for traceability (origin, destination, purpose, species, vaccinations, among others).[203]
- Regulation establishing the official system for individual identification of cattle and buffaloes (SISBOV), created with the aim of ensuring traceability in the cattle and meat production chain.[204] Adoption of the system is voluntary, except when defined as compulsory in a normative act or required by official sanitary controls or programs.[205] One of the exceptions is exports, which are all obliged to adopt

[199] List available at: https://www.gov.br/agricultura/pt-br/centrais-de-conteudo/legislacao-1. Last accessed 13 August 2024.
[200] Decree Nº 12.126/2024, Article 4 (I).
[201] The Animal Transit Permit (GTA) is the official document for animal transportation in Brazil and contains essential information on traceability (origin, destination, purpose, species, vaccinations, among others).
[202] MINISTRY OF AGRICULTURE AND LIVESTOCK, Normative Instruction Nº 10/2014.
[203] MINISTRY OF AGRICULTURE AND LIVESTOCK, Normative Instruction Nº 9/2021.
[204] Law Nº 12.097/2009 and Decree Nº 7.623/2011.
[205] MINISTRY OF AGRICULTURE AND LIVESTOCK, Normative Instruction Nº 51/2018.

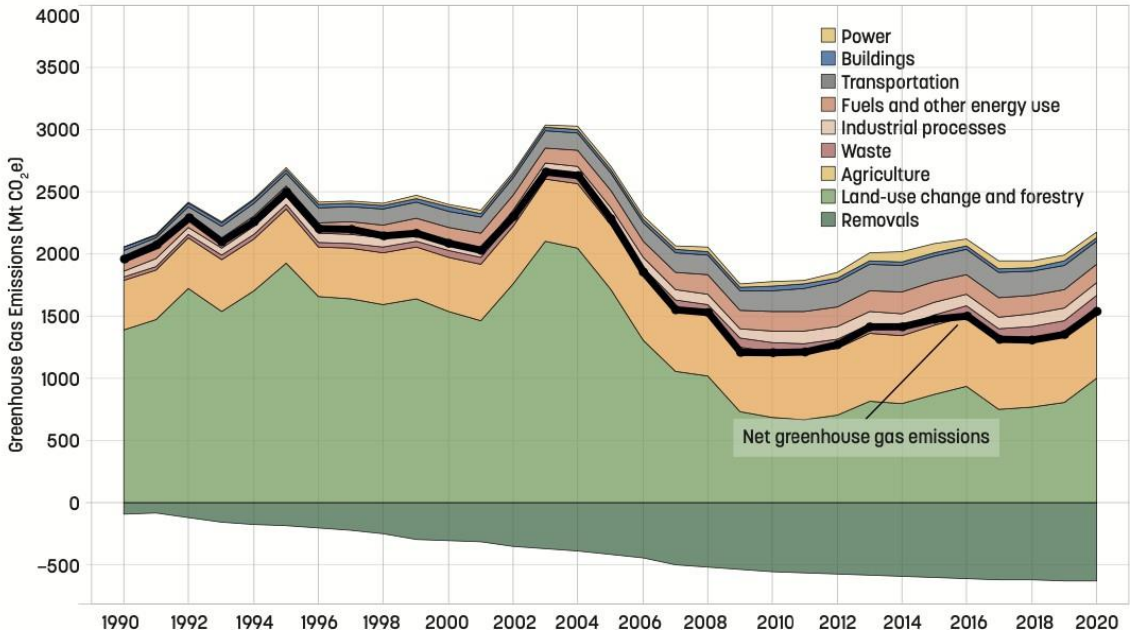
SISBOV.[206] Therefore, all cattle and meat exported to the EU is subject to identification under SISBOV, which may facilitate traceability of some information required.

- Traceability in the cattle and meat production chain is ensured through the following information: marks identifying individual animals and their owner establishment; the GTA; tax invoice; official records of inspection services; and records carried out by private agents of industrial transformation and distribution.[207] Therefore, Brazilian traceability regulation requires information on origin and establishments where cattle has passed, enabling compliance with Article 9 (c) and (e) EUDR, for instance.
- In order to participate in SISBOV, Brazilian legislation requires properties to be registered in the national Register of Rural Establishments (ERC),[208] which includes geolocation and information on the use of land,[209] thereby providing some information useful for compliance with Art. 9 (d) EUDR.
- SISBOV also requires participants to keep records of tax documents relating to circulation and sales of animals and products of animal origin for 5 years, in order to allow tracking to be carried out by competent authorities.[210] This coincides with the period of information retention imposed by EUDR on operators and traders.[211]

Despite such extensive regulation and the existing requirements that may be useful for EUDR compliance, cattle and meat production is still appointed as the Brazilian sector with most difficulties in adapting to the EUDR.[212] The agricultural sector in general faces difficulties with sustainability goals in general, since agriculture, land use change and forestry are the largest emittere of GHG in the Brazilian economy, according to the World Bank Group:

[206] MINISTRY OF AGRICULTURE AND LIVESTOCK, Normative Instruction Nº 01/2005.
[207] Law Nº 12.097/2009, Article 4.
[208] MINISTRY OF AGRICULTURE AND LIVESTOCK, Normative Instruction Nº 51/2018.
[209] Law n 12.651/2012, Article 29.
[210] Law Nº 12.097/2009, Article 3.
[211] EUDR, Articles 4(3) and 5(4).
[212] See COUTO et al. **The European Union and United Kingdom's deforestation-free supply chains regulations:** Implications for Brazil. Ecological Economics, Volume 217, 2024, 108053, ISSN 0921-8009, https://doi.org/10.1016/j.ecolecon.2023.108053. Available at: https://www

FIGURE 2. Sectoral breakdown of GHG emissions in Brazil



Source: WORLD BANK GROUP. *Brazil Country Climate and Development Report*. Washington, D.C.: World Bank Group, 2023.

Regarding EUDR compliance difficulties specifically, one of the explanations is that the beef sector faces logistical challenges in adapting to the EUDR due to the smallholder dominance in the value chain[213] and the fact that cows move through many different ranches throughout their lifetime, which entails compliance difficulties before the animals reach slaughterhouses and a burden in traceability and documentation that smallholders are unable to support.[214]

In the Amazon region, another factor is land tenure insecurity, which impacts farmers of all sizes across the Amazon region, primarily due to doubts regarding the reliability of land registries. Approximately 21 percent of the Amazon is documented as privately owned or "appropriated"[215], but a portion of the rights recorded likely stem from either

[213] COUTO et al. **The European Union and United Kingdom's deforestation-free supply chains regulations:** Implications for Brazil. Ecological Economics, Volume 217, 2024, 108053, ISSN 0921-8009, https://doi.org/10.1016/j.ecolecon.2023.108053. Available at: https://www

[214] AGRICULTURAL POLICY DIALOGUE BRAZIL-GERMANY (APD). Op. Cit.

[215] National Property Certification System (SNCI) and the Land Management System (SiGeF) of the National Institute for Colonization and Agrarian Reform (INCRA)

errors or fraudulent entries from when land cadasters and registries were less rigorously maintained than they are today.[216]

However, an important explanation is that, as one may note from the regulation exposed above, one crucial EUDR requirement is not fully covered in Brazilian regulation: information on deforestation on land used for cattle creation, as required for due diligence.[217] Mandatory traceability in Brazil is not required nor able to provide such information, since SISBOV is currently limited to sanitary control and faces difficulties in obtaining full life-cycle information, as many animals only enter the system near arrival at slaughterhouses.[218]

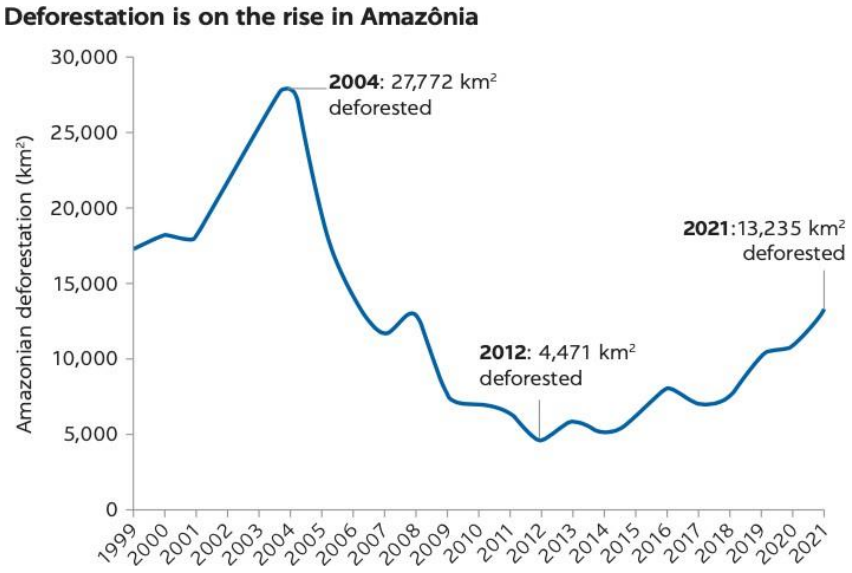
That is not to say that there are no controls on deforestation caused by cattle creation in Brazil. In the Amazon biome, for instance, there are strong initiatives tackling deforestation in the cattle and beef supply chain, such as the Terms of Adjustment of Conduct (TACs). The Amazonian meat industry TAC ("*TAC Carne Legal*") is an initiative created by the Federal Public Prosecutor's Office (MPF) in 2009 to control the meat production chain in the Amazon, aiming to ensure compliance with socio-environmental and land legislation in livestock farming. The TAC established joint liability of companies for environmental illicit acts in their supply chain and aims to curb the purchase of cattle from areas of illegal deforestation, public lands or properties involved with modern slavery. As a result, meatpackers who adhere to the agreement have received incentives to keep their operations legal, while uncompliant companies have faced sanctions (such as millionaire fines).[219]

[216] HANUSCH, Marek (ed.). A Balancing Act for Brazil's Amazonian States: An Economic Memorandum. Washington, D.C.: World Bank Group, 2023, p. 70.

[217] EUDR, Article 9 (1) (g) ("adequately conclusive and verifiable information that the relevant products are deforestation-free").

[218] COALIZÃO BRASIL. **A Rastreabilidade da Cadeia da Carne Bovina no Brasil:** Desafios e Oportunidades. 2020. Available at: https://www.coalizaobr.com.br/boletins/pdf/A-rastreabilidade-da-cadeia-da-carne- bovina-no-Brasil-desafios-e-oportunidades_relatorio-final-e-recomendacoes.pdf. Last accessed 15 August 2024.

[219] BEEF ON TRACK. **TAC da Carne 15 anos:** mudanças fortalecem a legalidade na Amazônia. 26 August 2024. Available at: https://www.boinalinha.org/tac-da-carne-15-anos-novas-medidas-fortalecem-a- legalidade-na-amazonia/. Last accessed 05 September 2024.



HANUSCH, Marek (Ed.). A Balancing Act For Brazil's Amazonian States: An Economic Memorandum. Washington, D.C.: World Bank Group, 2023.

Despite being an advanced initiative and having achieved substantial results,[220] the TAC does not suffice for EUDR compliance. First, because the TAC monitors legality of cattle raising, while the EUDR disregards legality of deforestation in third countries.[221] Although between 75 and 99% of deforestation in Brazil is attributed to illegal deforestation,[222] this entails that even TAC compliant cattle would need a different assessment to ensure not only absence of illegal deforestation, but also of deforestation considered legal in Brazil such as authorizations for vegetation suppression. Consequently, TAC compliance cannot be used as EUDR compliance.

Secondly, the TAC is not sufficient because of its limitations, associated with monitoring and traceability of indirect suppliers (due to unavailability of public and systematized information) and with applying geomonitoring systems (due to costs for small businesses), according to the 2022 Monitoring Protocol for Retail Beef Suppliers.[223] Recently (July 2024), a new version of the Monitoring Protocol has been edited to

[220] The percentage of non-compliant transactions fell from 10.4% in the first cycle of TAC audits to 4.8% in the fifth cycle, with five companies achieving 100% compliance, according to: BEEF ON TRACK. **TAC da Carne 15 anos:** mudanças fortalecem a legalidade na Amazônia. Op. cit.

[221] EUDR, Article 3(a). AGRICULTURAL POLICY DIALOGUE BRAZIL-GERMANY (APD), 2023. Op. cit.

[222] AGRICULTURAL POLICY DIALOGUE BRAZIL-GERMANY (APD), 2023. Op. cit.

[223] BEEF ON TRACK. **Monitoring Protocol for Retail Beef Suppliers**. 2022. Available at: https://www.beefontrack.org/wp-content/uploads/2022/10/Protocolo-de-Monitoramento-de-Varejo-INGLES-w5101723_ALT7-1.pdf. Last accessed 05 September 2024.

strengthen compliance,[224] and main changes include (i) the adjustment to the PRODES[225] polygon parameter used to identify deforestation areas, increasing its ability to detect more recent deforestation in smaller areas, (ii) introduction of new socio-environmental criteria, such as the inclusion of special protection to quilombola territories (similar to the one applied to indigenous lands), and (iii) the monitoring of so-called "auxiliary farms", to avoid "cattle laundering". Auxiliary farms are any farms belonging to a same owner. From now on, if one of the owner's farms trades cattle with meatpackers subject to TAC obligations, not only this one farm is going to be monitored, but also any auxiliary farms located within an established radius. This measure aims to curb "cattle laundering", where animals from farms with illegal deforestation or other irregularities would be 'laundered' through compliant farms.[226]

Notwithstanding, the monitoring and traceability of indirect suppliers remains a limitation of the new Monitoring Protocol due to unavailability of public information.[227] Therefore, even if only TAC-compliant cattle and meat were to be exported to the EU, meatpackers and other actors would still face difficulties in documenting compliance throughout the supply chain.

However, most of the meat exported to the EU is not subject to the TAC – which entails even bigger gaps in monitoring and traceability. That is because the TAC initiative is only applicable to the Amazon region, while EU food safety regulation only allows for meat from certain parts of Brazil to be exported, and most of the Amazonian region is excluded – the only exception being Mato Grosso.[228]

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[224] BEEF ON TRACK. **Protocolo de Monitoramento de Fornecedores de Gado na Amazônia** – Versão 2.0. Available at: https://www.boinalinha.org/wp-content/uploads/2024/08/Protocolo-Monitoramento-Gado- 2ponto0-w5_FINAL.pdf. Last accessed 05 September 2024.

[225] PRODES is one of the National Institute of Spacial Research (INPE)'s satellite systems to monitor deforestation in the Amazon, presenting a level of accuracy close to 95%, according to: INPE. **PRODES** – Amazônia. Available at: http://www.o%20a%20partir%20de,da%20efetividade%20de%20suas%20implementa%C3%A7%C3%B5es.

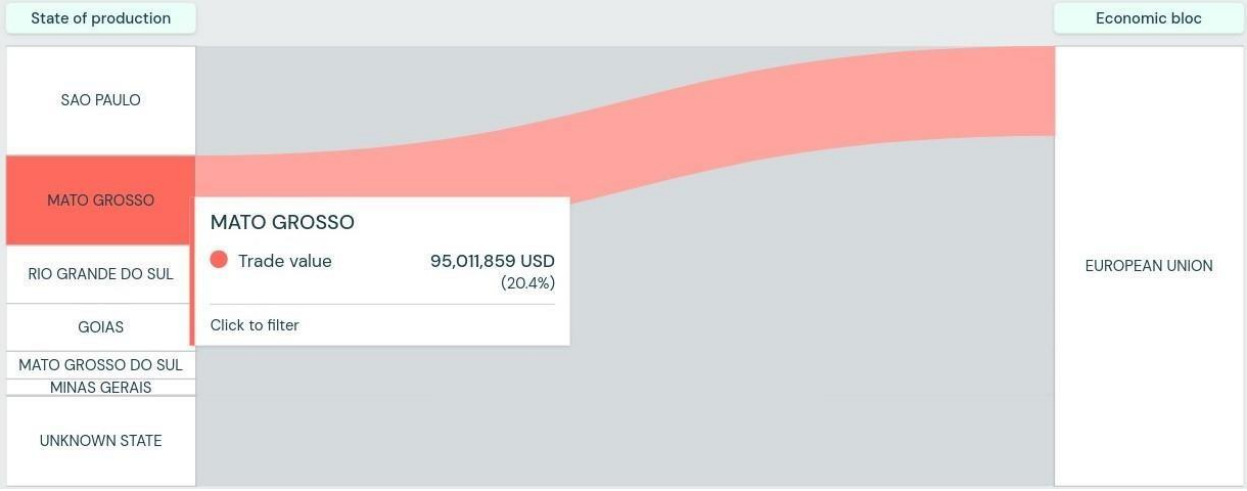
Last accessed 05 September 2024.

[226] BEEF ON TRACK. **TAC da Carne 15 anos:** mudanças fortalecem a legalidade na Amazônia. (op. cit)

[227] BEEF ON TRACK. **Protocolo de Monitoramento de Fornecedores de Gado na Amazônia** – Versão 2.0 (op. cit). p. 53.

[228] MAPA. **Áreas autorizadas à exportação**. 10 March 2023. Available at: https://www

According to Trase data from 2020, Mato Grosso's cattle correspond to 14% of the volume of Brazilian meat exports to the EU, and 20.4% of the revenue (US$ 95,011,859). Therefore, 86% of the volume of Brazilian meat exports to the EU – an equivalent of US$ 396,615,919 yearly revenue – lacks an initiative such as the TAC, and would therefore be even less likely to be able to bear the EUDR due diligence burden.



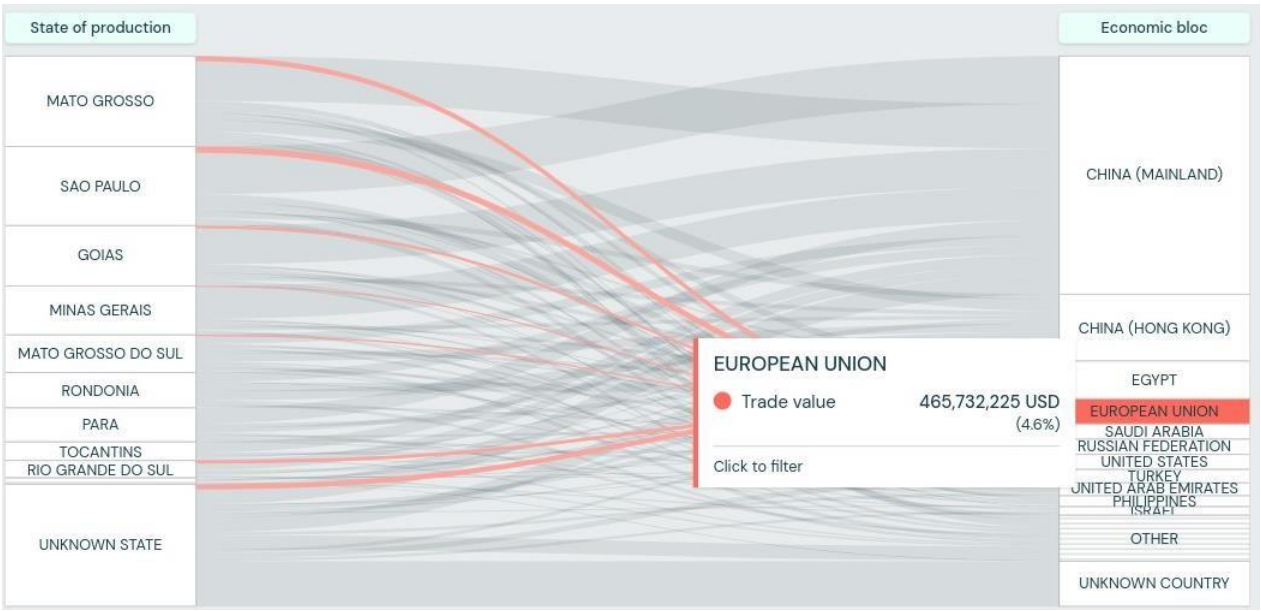
Brazil Beef Flows (2020) - Trade value (USD) - State of Production and European Union. Source: trase.earth

Therefore, the EUDR could only have a very limited impact in Amazonian deforestation, since there is only one state in the biome allowed to export meat to the EU. In fact, the EUDR is likely to have a very limited effect on deforestation caused by cattle creation in Brazil broadly. Both affirmations are supported by at least two factors.

The first reason is that, in the case of Brazilian cattle, incentives are not strong to adapt to the EU market when the main destination of meat is internal market, and main external partners are China and the US, with other partnerships growing, such as Middle-Eastearn countries.[229] Producers also tend to prefer redirecting EU exports to other markets due to the impositive manner in which the regulation is perceived.[230]

[229] COUTO et al., 2024. Op cit. Data including deforestation exposure can be found at: https://trase.earth/. Last accessed 13 September 2024.

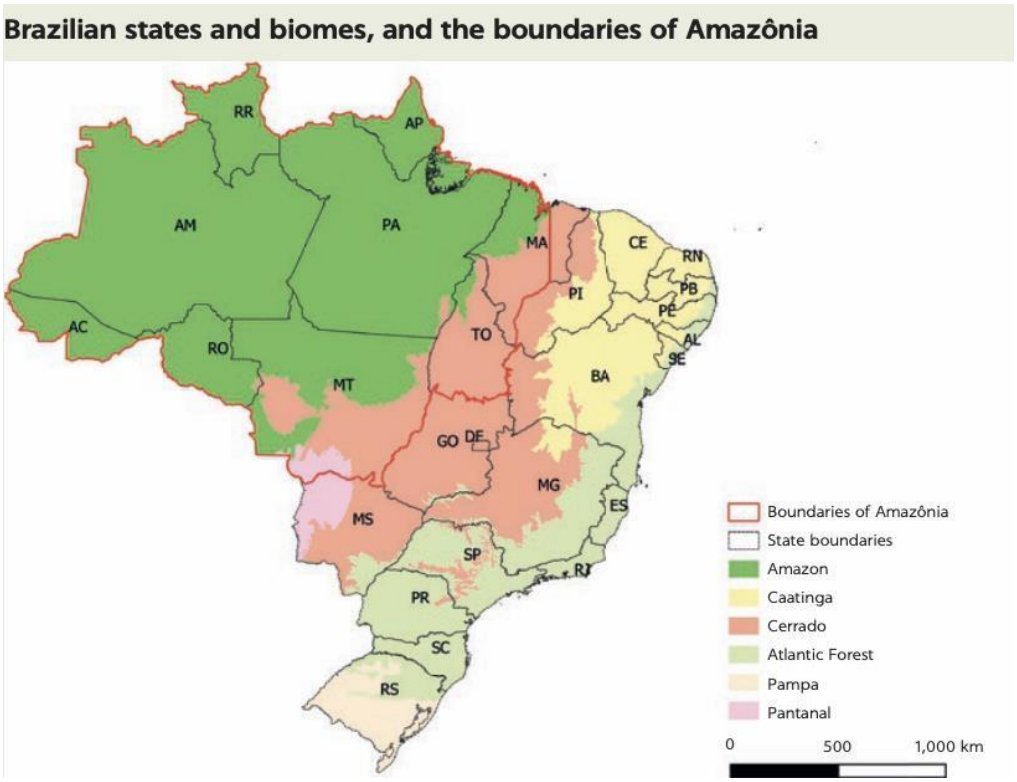
[230] "Apart from complaints from Brazilian public actors and business, the lack of inclusion of perspectives from producer countries, such as Brazil, is also mentioned by different Brazilian NGO representatives. This is reflected in an observation of the law as a European "imposition". Another interviewee from an environmental NGO stated his concern that such unilateralism and lack of a strong dialogue with producer countries eventually could weaken its effect." AGRICULTURAL POLICY DIALOGUE BRAZIL-GERMANY (APD), 2023. Op. cit.



Brazil Beef Flows (2020) - Trade value (USD) - State of Production and Economic blocs. Source: trase.earth

The second reason is that the EUDR excludes important Brazilian biomes from its scope. Cerrado, Pantanal, Caatinga and Pampa are mostly composed of low or undergrowth vegetation, therefore most areas of these biomes do not fall under the definition of 'forest' requiring trees higher than 5 meters (EUDR, Art, 2(4)). Only the Amazon and Atlantic Forest are accurately comprised in the EUDR 'forest' definition, which demonstrates a lack of tailoring of the norm with regards to environments of the third countries affected.[231]

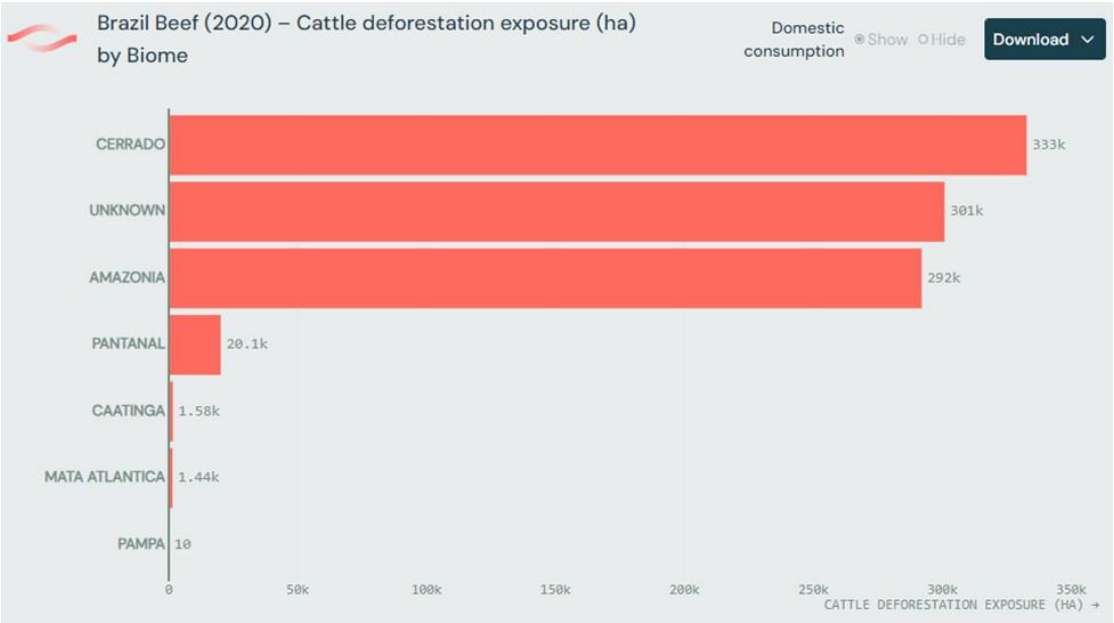
[231] "In the case of Brazil, the Amazon is the only biome with a larger protected forest area (91%) under the regulation, followed by the Atlantic Forest (87%). Of the other biomes, only small percentages of the Cerrado (26%), Caatinga (11%), Pantanal (24%), and Pampas (26%) are covered by the regulation." WWF. **No Ecosystem Left Behind**. Available at: https://www **Global Wetland Under Threat** – The urgent need for the EU Deforestation Regulation to protect 'other wooded land' and 'other natural ecosystems'. September 2023. Available at: https://ejfoundation.org/resources/downloads/Pantanal-report-European-Commission- 2023.pdf. Last accessed 13 September 2024; AGRICULTURAL POLICY DIALOGUE BRAZIL-GERMANY (APD), 2023. Op. cit.



Source: HANUSCH, Marek (ed.). *A Balancing Act for Brazil's Amazonian States: An Economic Memorandum*.
Washington, D.C.: World Bank Group, 2023.

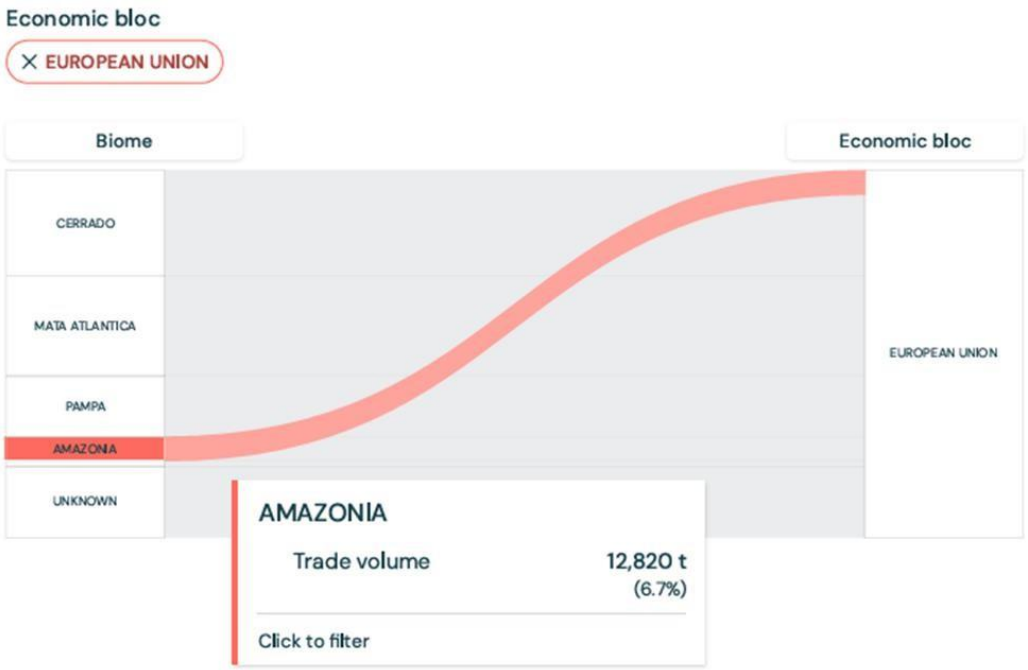
The exclusion of Cerrado has been particularly criticized by Brazilian environmental activists[232] and can be seen as a major shortcoming of the regulation, since Cerrado is the biome most exposed to cattle-drive deforestation, according to Trase data:

[232] AGRICULTURAL POLICY DIALOGUE BRAZIL-GERMANY (APD), 2023. Op. Cit. P. 18.



Cattle Deforestation Exposure (ha) by Biome. Source: trase.earth.

The EUDR's shortcoming is further evidenced by the fact that cattle raised in the Amazon only accounts for 6.7% of exports to the EU, according to Trase data:



Brazil Beef Flows (2020) – Trade volume (t) – European Union. Source: trase.earth.

Meanwhile, Cerrado – which is excluded from the EUDR and is the most exposed to cattle deforestation – accounts for 28.9% of Brazilian cattle exports to the EU. Mata Atlântica is comprised in the EUDR and accounts for 27.1% of exports, but has minimal exposure to cattle driven deforestation (see *Cattle Deforestation Exposure* table above). Therefore, only approximately 6.7% of Brazilian beef exports to the EU (i.e. the Amazonian part) is exposed to deforestation and would have to adapt to the EUDR, but producers may choose to export to other countries instead of adapting.

Consequently, the EUDR may not incentivize reduction of deforestation in high-risk regions. Critiques by Brazilian stakeholders argue that by excluding non-compliant producers, the EUDR fails to create incentives not to deforest.[233]

Impact On Brazilian Coffee, Cocoa And Soya Exports

Brazilian crop production also observes intense regulation imposed by MAPA, based on Law no. 9.972/2000 which establishes the classification of plant products, by-products, and waste of economic value, and provides other provisions and its regulatory Decree[234]. The Decree provides for the Plant-Based Products Inspection System (SISBI-POV), which is part of the Unified Agricultural Health Care System (SUASA). It standardizes and harmonizes the inspection procedures for plant-based products to ensure the safety and quality of these products.[235]

MAPA regulation also offers instruments for traceability of products but limited to certain instances. For example, fresh plant products intended for human consumption must maintain traceability throughout the entire production chain.[236] Furthermore, MAPA may also require certification for import depending on the destination[237]. There are also mechanisms for controlling of plant transit in the case of regulated pests in the States to verify the origin of the batch of plants or plant products from a pest-free area.[238]

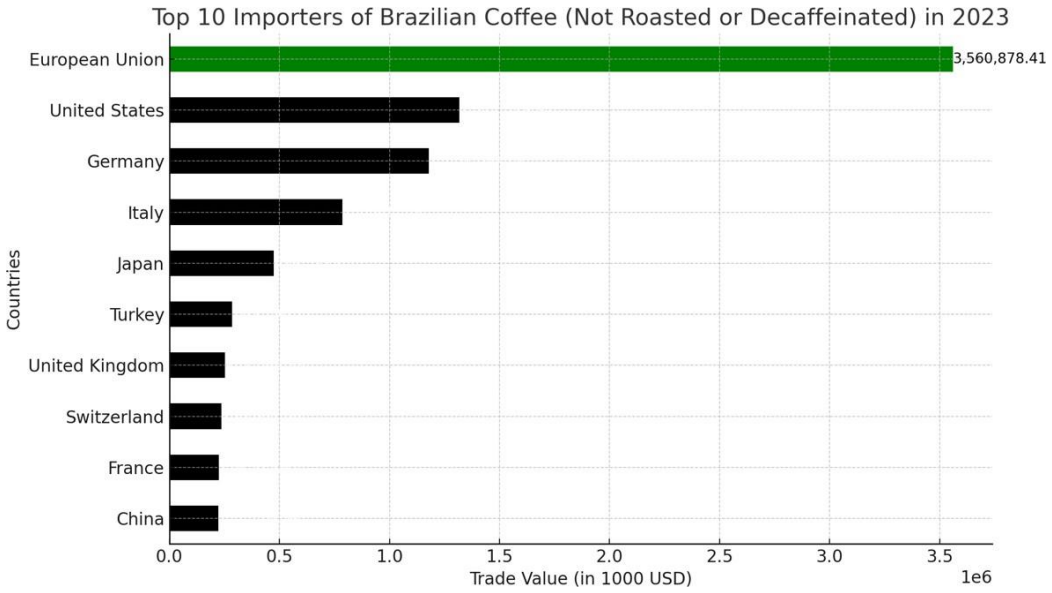
Even though phytosanitary and environmental regulation of plants offers opportunities and synergies for compliance with the EUDR, each sector has specific characteristics that differentiate its capacity for compliance. Furthermore, no statement was identified

[233] AGRICULTURAL POLICY DIALOGUE BRAZIL-GERMANY (APD), 2023. Op. cit. pp. 18-21.
[234] Decree nº 6.268/2007.
[235] Decree nº 6.268/2007, article 130.
[236] Joint normative instruction no. 2/2018.
[237] Normative instruction no. 19/2019.
[238] Normative instruction no. 33/2016.

indicating that such regulatory resources would be adapted to assist producers in meeting the EUDR requirements. Below are the main implications, opportunities, and challenges for the coffee, soy, and cocoa production sectors in Brazil according to some relevant adaptation factors.

Coffee

Brazil is the largest coffee producer in the world, exporting over 60% of its total production. In 2022, the European Union accounted for more than half of Brazil's coffee exports, including both coffee beans and soluble coffee, valued at $4.3 billion. In terms of volume, coffee was the most significant agricultural product exported to the economic bloc. [239]



Source of Data: WORLD INTEGRATED TRADE SOLUTION. *Coffee, not roasted or decaffeinated imports from Brazil in 2023*.[240]

Evidence suggests that coffee production may more easily adapt to the requirements imposed by the EUDR[241], although uncertainties remain concerning small producers.

[239] COLUSSI, Joana et al. How the EU Deforestation Rule Will Affect Agriculture in Brazil. **farmdoc daily**, v. 14, n. 123, 2024.

[240] The data also shows Europe Union' Member-States, but this is intended only for representation purposes and does not mean double-counting.

[241] DE OLIVEIRA, Susan EM Cesar et al. The European Union and United Kingdom's deforestation-free supply chains regulations: Implications for Brazil. **Ecological Economics**, v. 217, p. 108053, 2024.

Coffee cultivation primarily occurs in areas of old pastures that have not been recently deforested or in native vegetation[242]. In this regard, the ratio between the area of deforestation related to coffee and its total cultivated area between 2005 and 2018 is only 0.1%[243]. This indicates that most of the production would already comply with the non- deforestation requirement. These factors are reinforced in the case of exports to the European Union, as they mostly come from the Atlantic Forest biome, which suffers less from deforestation, and the Cerrado, which was initially not covered by the EUDR. Nevertheless, the sector must prove that the product is not linked to deforestation.

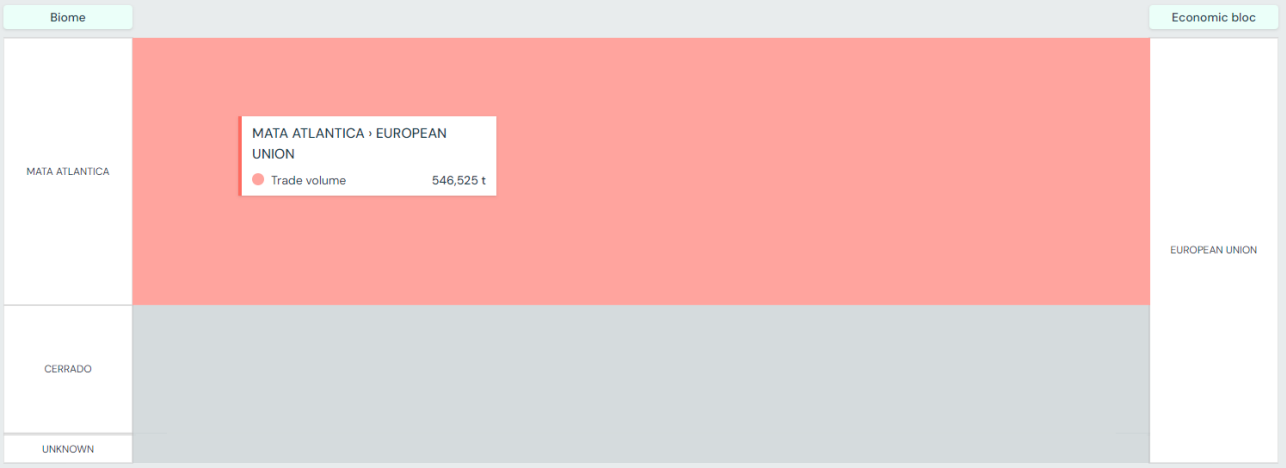


Table: Brazil Coffee Flows (2017) – Trade volume (t) – European Union. Source: trase.earth.

Historically, the coffee sector has adopted VSS[244] (Voluntary Sustainability Standards) to guarantee enhanced quality and sustainability in production regions. Environmental certification can serve as a metric to demonstrate compliance with the EUDR requirements, due to the sector's acquired expertise in sustainability mechanisms and

[242] COLUSSI, Joana et al. Op. cit.
[243] DE OLIVEIRA, Susan EM Cesar et al. Op. Cit.
[244] "Voluntary Sustainability Standards (VSS) are private standards that require products to meet specific economic, social and environmental sustainability metrics. The requirements can refer to product quality or attributes, but also to production and processing methods, as well as transportation." In: https://unctad.org/topic/trade-analysis/voluntary-sustainability-standards#:~:text=Voluntary%20Sustainability%20Standards%20(VSS)%20are,methods%2C%20as%20well%20as%20transportation.

deforestation-free production practices. [245] Brazil has a strong tradition in adopting VSS, covering 33% of the total area harvested for coffee in the country. [246]

The most common VSS in the coffee value chain address the three dimensions of sustainability—economic, social, and environmental—although they approach these aspects in different ways, using various indicators and measures. [247] The table below summarizes the main VSS in the coffee sector and their scopes and objectives, namely Fairtrade (FT), Organic, Rainforest Alliance/UTZ, and the 4C Common Code/Global Coffee Platform (4C/GCP).

VSS	Scope and objectives
FairTrade (FT)	It comprises economic, social, and environmental sustainability for producers, with focus on social aspects, and the strength of labor rights and working conditions. It sets minimum prices and social premia for producers and producers' organizations.
4C Common Code/ Global Coffee Platform (4C/GCP)	It comprises 27 principles across economic, social, and environmental dimensions, aiming to exclude worst practices and increasing sustainability in coffee production and processing.
Organic	Organic farming practices intended to avoid harmful practices to the environment and to prohibit the adoption of agrochemicals and promoting environmental practices, such as deforestation restriction and soil erosion control.
Rainforest Alliance (RA)/UTZ	Standards for responsible production and delivery, aiming to ensure sustainable practices and the integration of biodiversity conservation, community development, labor issues, and agricultural practices.

Table: VSS Coffee (Source: MODA, Laleska Rossi et al.)

While the adoption of VSS may facilitate compliance with the EUDR requirements, it remains uncertain whether and how VSS will be applicable for compliance purposes. VSS may have limitations in terms of prohibiting deforestation and forest degradation, as well as ensuring compliance. [248] Furthermore, other challenges arise when coffee producers are at the center of the discussion. The adoption of certification at the farm level is not always economically viable, as it can increase production costs. Frequent changes, such as the implementation of new agricultural practices, do not necessarily lead to a systemic

[245] DE OLIVEIRA, Susan EM Cesar et al. Op. Cit.

[246] Ibidem.

[247] MODA, Laleska Rossi et al. Brazilian coffee sustainability, production, and certification. In: **Sustainable agricultural value chain**. IntechOpen, 2022.

[248] COSIMO, Luiz Henrique Elias et al. Voluntary sustainability standards to cope with the new European Union regulation on deforestation-free products: A gap analysis. **Forest Policy and Economics**, v. 164, p. 103235, 2024.

shift toward sustainability, and certification does not guarantee higher prices, improved living conditions, or poverty reduction for producers.[249- 250]

In Brazil's coffee production chain, smallholders account for 34.1% of the total area under production. [251] As the EUDR mandates that products in Brazil be produced, stored, processed, and transported through a dedicated logistics chain ensuring monitoring, traceability, and certification, this could lead to higher production costs, placing a disproportionate burden on small-scale producers.**[252]** In this context, small producers will suffer the most significant impacts, potentially being excluded from international value chains not due to deforestation itself but due to the difficulty of meeting the strict standards imposed.**[253]** Other consequences include economic losses resulting from the implementation of systems to comply with EUDR requirements, increased land disputes between small and large landholders, the marginalization of small landowners, and a reduction in their economic independence. [254]

As a result, the Brazilian government, together with authorities from other developing countries, issued a document requesting dialogue between the EU and developing countries, aiming for regulations that consider technological differences, limited access to financing, and the lack of training and technical assistance faced by producers in each state. Furthermore, they advocated for clear guidelines that establish differentiated

[249] ELLIOTT, Kimberly Ann. What are we getting from voluntary sustainability standards for coffee. **Center for global development, policy paper**, v. 129, 2018.

[250] GLASBERGEN, Pieter. Smallholders do not eat certificates. **Ecological Economics**, v. 147, p. 243-252, 2018.

[251] IBGE, 2019. Censo Agropecuário: resultados definitivos 2017. Brasil, Rio de Janeiro. https://biblioteca.ibge.gov.br/index.php/biblioteca-catalogo?view=detalhes &id=73096.

[252] **CLIMATE POLICY INITIATIVE.** Brazilian environmental policies and the new European Union regulation for deforestation-free products: opportunities and challenges. 2023. Available at: https://www.climatepolicyinitiative.org/publication/brazilian-environmental-policies-and-the-new-european-union-regulation-for-deforestation-free-products-opportunities-and-challenges/#_ftnref56. Access date: 17 set. 2024.

[253] DE MOURA, Aline Beltrame; LERIN, Carla; SANTOS, Betina Machado. Impactos extraterritoriais do Regulamento (UE) 2023/1115: a proibição da comercialização de matérias primas e produtos associados ao desmatamento e à degradação florestal. **Revista de Ciências do Estado**, v. 8, n. 2, p. 1-30, 2023.

[254] ZHUNUSOVA, Eliza et al. Potential impacts of the proposed EU regulation on deforestation-free supply chains on smallholders, indigenous peoples, and local communities in producer countries outside the EU. **Forest policy and economics**, v. 143, p. 102817, 2022.

regimes for small producers, noting that small and medium-sized European enterprises will be treated with flexibility. [255]

Nevertheless, it is worth highlighting the initiative of the Council of Coffee Exporters of Brazil, which is developing a platform using remote sensing data and producer locations, ensuring traceability that currently covers about 94% of producers exporting to the EU. Thus, the traceability requirement for coffee exports to Europe seems to be met, mitigating the impact in this regard. [256]

Soy

The implementation of the European Union Deforestation Regulation (EUDR) represents a significant challenge for Brazil's soybean sector, which, in 2023, exported nearly 70% of its production, according to data from Secex (2024). The European Union is the second- largest market for Brazilian soybeans, accounting for 14% of soybean and derivative exports in 2022, amounting to a value of USD 8.8 billion.[257] The sector's adaptation to the new European regulatory requirements raises concerns about both feasibility and effectiveness.

In Brazil, approximately 8% of the total soybean production area belongs to small producers[258], which could facilitate compliance with the regulatory standards required by the EUDR for soy production. However, unlike the coffee sector, only 5% of the harvested soybean area is covered by Voluntary Sustainability Standards (VSS) [259], highlighting the limited reach of these initiatives within the sector. Although several certification systems, such as the Round Table on Responsible Soy (RTRS) [260], are available, the majority of

[255] BRASIL. Nota à imprensa n.º 377 de 08 de agosto de 2023. Carta de países em desenvolvimento a autoridades europeias sobre a entrada em vigor da chamada "lei antidesmatamento" da União Europeia. Available at: https://www.gov.br/mre/pt-br/canais_atendimento/imprensa/notas-a-imprensa/carta-de- paises-em-desenvolvimento-a-autoridades-europeias-sobre-a-entrada-em-vigor-da-chamada-201clei- antidesmatamento201d-da-uniao-europeia. Acess date: 10 set. 2024

[256] MATOS, Marcos. Plataforma de rastreabilidade "cafés do Brasil". **AgroANALYSIS**, v. 43, n. 10, p. 38-38, 2023.

[257] SECEX, Brazilian Secretariat of Foreign Trade. Exports Report. http://comexstat.mdic.gov.br/en/geral

[258] MORAES, A. S. et al. Características principais dos estabelecimentos agropecuários produtores de soja do Brasil segundo estratos de área colhida. 2024.

[259] DE OLIVEIRA, Susan EM Cesar et al. Op. Cit.

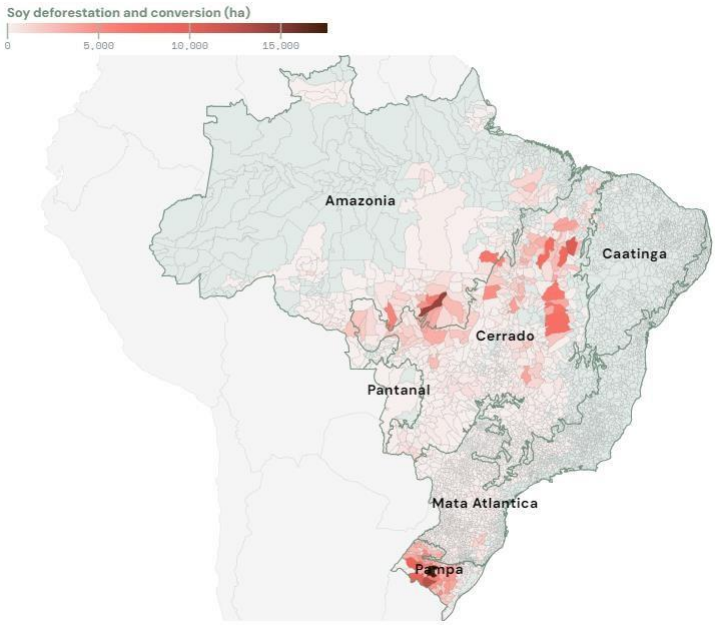
[260] Round Table on Responsible Soy Association (RTRS): https://responsiblesoy.org/?lang=pt-br

producers choose not to participate, citing that the price premiums offered do not offset the high costs associated with certification.[261]

Traceability and transparency throughout Brazil's soybean supply chain remain challenging. Even when certification systems are adopted, traceability initiatives are often deemed insufficient, typically failing to cover indirect suppliers. [262] This suggests that, despite the sector's economic characteristics that may facilitate adaptation, substantial efforts will still be required to meet the regulatory demands.[263]

Although soybeans account for approximately 13% of the deforested land for plantations in Brazil[264], most deforestation occurs in the Pampa and Cerrado biomes[265], which are not initially covered by the EUDR requirements. Thus, the initial design of the EUDR may face limitations and may not yield the intended impact of halting deforestation.

[261] https://www.cebri.org/media/documentos/arquivos/Relatorio_CEBRI-Insper_22mar605a09c1c3da0.pdf
[262] SOENDERGAARD, Neil et al. Decoupling soy and beef from illegal Amazon deforestation: Brazilian private sector initiatives. **CEBRI, Insper, agro global**, 2021.
[263] Nonetheless, it is worth mentioning that big gain traders in Brazil presented public commitments to ensure traceability and complete monitoring of their supply chains, as well as commitment to zero deforestation supply chains. For more information on that, check: CEBRI; INSPER. Inteligência artificial e a revolução digital: impactos para o Brasil. Relatório. Rio de Janeiro: CEBRI, 2022. Available at: https://www.cebri.org/media/documentos/arquivos/Relatorio_CEBRI-Insper_22mar605a09c1c3da0.pdf. Acess date: 16 set. 2024.
[264] Pendrill, F., Persson, U.M., Kastner, T., 2020. Deforestation risk embodied in production and consumption of agricultural and forestry commodities 2005–2017. Chalmers University of Technology, Senckenberg Society for Nature Research, SEI, and Ceres Inc. https://doi.org/10.5281/zenodo.4250532. [265] TRASE. Connecting exports of Brazilian soy to deforestation. Trase Insights, 2021. Available at: https://trase.earth/insights/connecting-exports-of-brazilian-soy-to-deforestation. Access date: 16 set. 2024.



1Map of soy deforestation and conversion in Brazil per municipality in 2013-2020 (Source: Trase Supply Chains).

This distinction arises due to the Soy Moratorium[266-267], created in 2006 as a voluntary agreement to prevent major soy traders from purchasing soybeans grown in deforested areas of the Amazon after July 2006, but which has not been extended to other biomes.

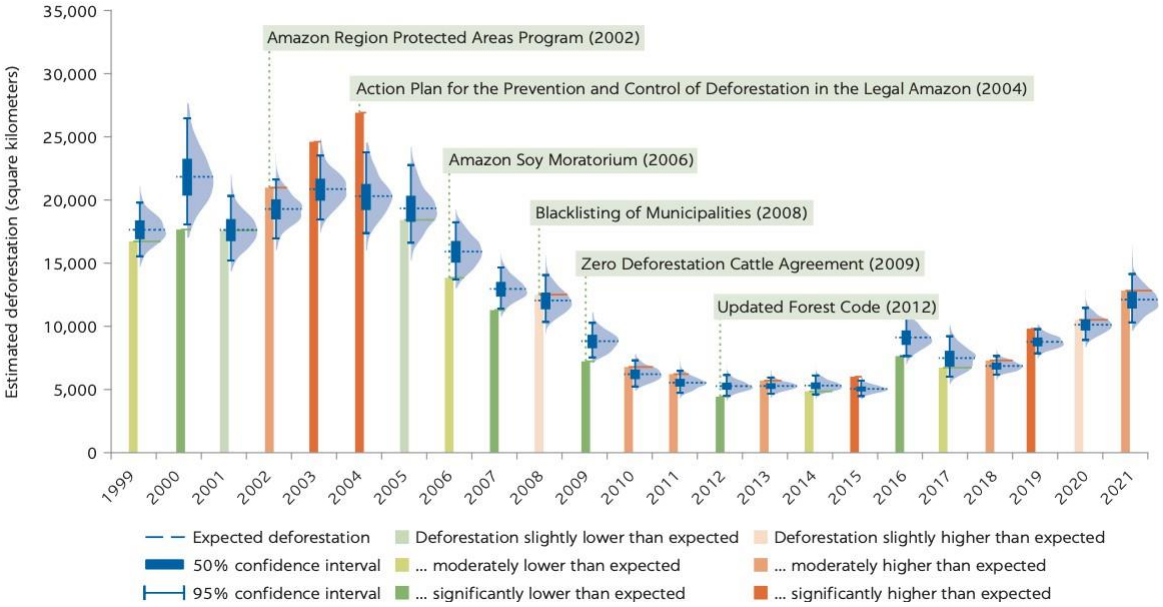
[268] The figure below shows the impact of different measures to curb deforestation in Amazon biome, including the Soy Moratorium.

[266] KASTENS, Jude H. et al. Soy moratorium impacts on soybean and deforestation dynamics in Mato Grosso, Brazil. **PloS one**, v. 12, n. 4, p. e0176168, 2017.

[267] Data from Embrapa shows an negative correlation between deforestation and soybean area in the Amazon Forest. See: https://www.infoteca.cnptia.embrapa.br/infoteca/bitstream/doc/1111175/1/DOC414OL.pdf

[268] CARVALHO, William D. et al. Deforestation control in the Brazilian Amazon: A conservation struggle being lost as agreements and regulations are subverted and bypassed. **Perspectives in Ecology and Conservation**, v. 17, n. 3, p. 122-130, 2019.

Estimating "forest at risk" in Amazônia using macroeconomic indicators and accounting for policy action to curb deforestation



Source: HANUSCH, Marek (ed.). *A Balancing Act for Brazil's Amazonian States: An Economic Memorandum*.
Washington, D.C.: World Bank Group, 2023.

If the logistical costs of implementing the regulatory requirements become excessively high, producers may engage in deforestation leakage, shifting activities to regions not covered by the regulation. Currently, there are difficulties in ensuring the physical segregation of different types of soybeans, particularly between EUDR-compliant and non-compliant soybeans, due to infrastructure that is not equipped for such segregation, a problem exacerbated by limited storage capacity. [269]

The most likely market response will be the regionalized segregation of products, rather than the adoption of more conservationist production practices. While necessary to comply with the regulation, this approach risks disrupting supply chains between soybean-producing regions that are more prone to deforestation and the European market. As a result, this widespread segregation may not lead to significant sustainability improvements in these regions and could potentially weaken incentives for conservation. Indeed, the EUDR could provide a short-term incentive for deforestation in regions not yet covered by the regulation, even if they are later included. [270]

[269] AGRICULTURAL POLICY DIALOGUE BRAZIL-GERMANY (APD), 2023. Op. cit.
[270] Ibidem.

In this context, there is evidence that the unilateral imposition of regulatory requirements by the EUDR could provoke a "greenlash" from large agribusinesses and export commodity producers, who may resist the zero-deforestation agenda. The perception of the EUDR as an imposition without corresponding compensation could be expected to foster reluctance to comply with the regulation. Consequently, there is a risk that soy associated with deforestation could be diverted to markets with more lenient environmental regulations. [271]

The implementation of the EUDR, without a coordinated approach with Brazilian producers and without due consideration of Brazil's specific circumstances, may produce outcomes contrary to those intended, weakening conservation incentives and driving production to less demanding markets.

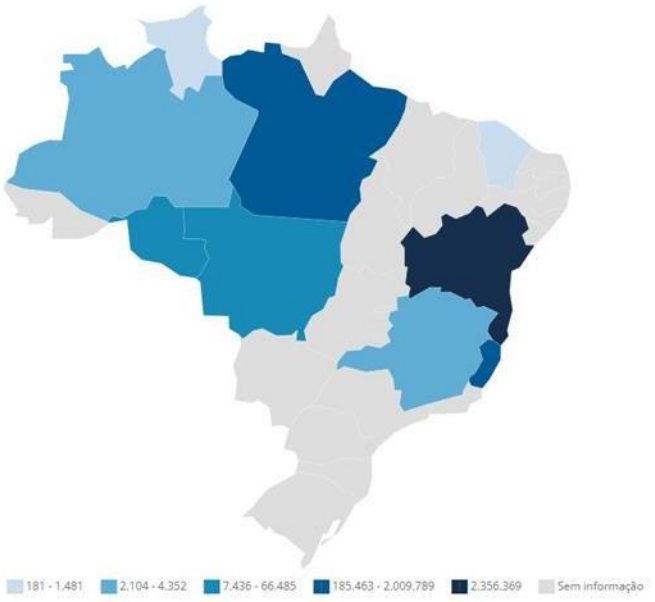
Cocoa

Similar considerations to those already discussed can be raised regarding the economic impacts on the cocoa supply chain due to export barriers imposed by the EUDR. Although cocoa is the least representative agricultural product in international trade with the European Union, accounting for only 5% of exports, equivalent to $17.2 million in 2022[272], evidence suggests that it could face the largest relative impact due to the characteristics of its supply chain.

Due to its climate adaptation characteristics, almost all of Brazil's cocoa is produced in forest regions[273], particularly in the Amazon[274] and Atlantic Forest[275] biomes. Therefore, virtually all Brazilian cocoa production would be subject to immediate compliance with

[271] DE ANDRADE ARAGÃO, Rafaela Barbosa et al. 'Greenlash'and reactionary stakeholders in environmental governance: An analysis of soy farmers against zero deforestation in Brazil. **Forest Policy and Economics**, v. 166, p. 103267, 2024.
[272] Regulamento da União Europeia condiciona importação de determinadas commodities agrícolas e seus derivados a due diligence de desmatamento: https://static.portaldaindustria.com.br/media/filer_public/78/99/78990af4-d034-4897-8013-252abe5b3ec2/apc_regulamento_ue_desmatamento_ano_2_n_10.pdf
[273] IBGE. Produção de Cacau: https://www.ibge.gov.br/explica/producao-agropecuaria/cacau/br
[274] IGAWA, Tassio Koiti; DOS ANJOS, Luciano Jorge Serejo; DE TOLEDO, Peter Mann. MUDANÇAS CLIMÁTICAS E A PRODUÇÃO DE CACAU NO BIOMA AMAZÔNICO BRASILEIRO. **Revista Agroecossistemas**, v. 13, n. 2, p. 120-134, 2021.
[275] FONSECA, Marisa Gesteira et al. MAPBIOMAS CACAU: AVANÇOS E DESAFIOS NO MAPEAMENTO DO CULTIVO SOMBREADO DE CACAU NO SUL DA BAHIA. 2023.

the environmental and traceability requirements imposed by the EUDR in relation to deforestation in forested areas.



2Brazil's Cocoa Production by State. Source: IBGE

First, it is important to note that small producers represent 50.89% of the cultivated cocoa areas in Brazil. [276] As previously mentioned, small producers are more likely to face difficulties in demonstrating environmental compliance and product traceability without external technical and financial support. Despite cocoa (along with coffee) being one of the main agricultural products with widespread adoption of Voluntary Sustainability Standards (VSS), covering 21.7% of the global production area[277], only 2.26% of Brazil's production area is certified[278]. This is largely due to the low perception of economic

[276] IBGE, 2019. Censo Agropecuário: resultados definitivos 2017. Brasil, Rio de Janeiro. https://biblioteca.ibge.gov.br/index.php/biblioteca-catalogo?view=detalhes &id=73096

[277] INTERNATIONAL TRADE CENTRE. The state of sustainable markets 2023: statistics and emerging trends. Geneva: ITC, 2023. Available at: https://www.sinab.it/sites/default/files/The%20state%20of%20sustainable%20markets%202023%20-%20Statistic%20and%20emerging%20trends.pdf. Access date: 16 set. 2024.

[278] DE OLIVEIRA, Susan EM Cesar et al. The European Union and United Kingdom's deforestation-free supply chains regulations: Implications for Brazil. **Ecological Economics**, v. 217, p. 108053, 2024.

benefits among Brazilian cocoa producers. [279] Thus, there may be challenges in meeting the requirements for environmental compliance and product traceability.

Moreover, stricter sustainability requirements for the product would not necessarily drive sustainability in the Brazilian cocoa sector. Cocoa production in Brazil does not have significant deforestation impacts, accounting for only 0.23% of the total related to agricultural production.[280] In fact, the expansion of cocoa production in Brazil is linked to the restoration of degraded areas in the Amazon through agroforestry systems. [281]

Thus, the unilateral requirements of the EUDR may result in undesirable effects and fail to achieve their intended goals. The creation of trade barriers derived from regulatory requirements could hinder the expansion of cocoa production and limit its use for the restoration of degraded pastures in the Amazon by small producers, in addition to clearly harming the competitiveness between small and large producers.

In this context, the Brazilian government has been making efforts to expand the adoption of sustainability and traceability standards in Brazilian cocoa production. Recently, Federal Law No. 14,877/2024[282] introduced "Green Seals" for cocoa products that comply with socio-environmental legislation and adopt sustainable production practices. However, the law has yet to be regulated, and its adoption by small producers remains uncertain.

Furthermore, the Ministry of Agriculture, Livestock, and Supply (MAPA) established the "Inova Cacau"[283] program, which outlines strategies to promote the sustainable development of cocoa-producing regions in Brazil. The plan aims to increase traceability by at least 70% and introduce tools for controlling and monitoring illegal deforestation in cocoa production areas. However, this plan focuses on medium- and long-term actions

[279] VIOTTO, Marina Henriques; SUTIL, Bruno; ZANETTE, Maria Carolina. Legitimacy as a barrier: an analysis of Brazilian premium cocoa and chocolate legitimation process. **Revista de Administração de Empresas**,
v. 58, n. 3, p. 267-278, 2018.
[280] Pendrill, F., Persson, U.M., Kastner, T., 2020. Deforestation risk embodied in production and consumption of agricultural and forestry commodities 2005–2017. Chalmers University of Technology, Senckenberg Society for Nature Research, SEI, and Ceres Inc. https://doi.org/10.5281/zenodo.4250532. [281] Commodity production as restoration driver in the Brazilian Amazon? Pasture re-agro-forestation with cocoa (Theobroma cacao) in southern Para
[282] Law No. 14,877, of June 4, 2024. Creates the Green Seals Cacau Cabruca and Cacau Amazônia.
[283] BRASIL. Ministério da Agricultura, Pecuária e Abastecimento. **Inova Cacau 2030**. Brasília: MAPA, 2024. Disponível em: https://www.gov.br/agricultura/pt-br/assuntos/ceplac/publicacoes/inova-cacau- 2030/inova-cacau-2030.pdf. Acesso em: 16 set. 2024.

(until 2030), which does not prevent the immediate and indirect impacts of the EUDR on Brazilian cocoa exports to Europe.

Carbon Border Adjustment Mechanism (CBAM)

The **Carbon Border Adjustment Mechanism (CBAM)** is a policy initiative by the EU designed to ensure that imported goods are subject to the same carbon pricing as those produced within the EU. CBAM specifically targets "carbon leakage," a phenomenon where companies relocate carbon-intensive production to countries with less stringent climate policies or where EU products are replaced by more carbon-intensive imports from outside the EU. To counteract this, CBAM aligns the carbon costs of imports with those of goods produced under the EU's Emissions Trading System (ETS), thereby maintaining a level playing field and encouraging cleaner industrial practices globally.[284] Notably, however, empirical research suggests carbon leakage has but a marginal role in global emissions.[285]

CBAM is set to be implemented in a phased manner, beginning with a transitional phase from 2023 to 2025, followed by a definitive regime starting in 2026. During the transitional phase, importers of certain goods—such as cement, iron and steel, aluminum, fertilizers, electricity, and hydrogen[286]—are required to report the GHG emissions embedded in their imports but are not yet required to purchase CBAM certificates. This period is intended as a pilot phase, allowing importers, producers, and authorities to adapt to the new requirements and refine the methodology.[287] From 2026 onwards, importers will need to declare the emissions embedded in their imports and surrender a corresponding number of CBAM certificates annually, which will be calculated based on the weekly average

[284] Carbon Border Adjustment Mechanism: Carbon Border Adjustment Mechanism - European Commission (europa.eu) – "*The EU's Carbon Border Adjustment Mechanism (CBAM) is the EU's tool to put a **fair price on the carbon emitted** during the production of carbon intensive goods that are entering the EU, and to encourage cleaner industrial production in non-EU countries. By confirming that a price has been paid for the embedded carbon emissions generated in the production of certain goods imported into the EU, the CBAM will ensure the carbon price of imports is equivalent to the carbon price of domestic production, and that the EU's climate objectives are not undermined. The CBAM is designed to be compatible with WTO-rules*".

[285] NORDSTRÖM, Hakan. Does the risk of carbon leakage justify the CBAM?, Working Paper, EUI, 2023.

[286] "*The CBAM will **initially apply to imports of certain goods and selected precursors** whose production is carbon intensive and at most significant risk of carbon leakage: **cement, iron and steel, aluminium, fertilisers, electricity and hydrogen***."

[287] Figure 69: Emissions-Default Values, Opinion 4, Application User Manual CBAM Declarant Portal version 1.2.2. Access: 47322ae4-27c9-49f1-bdb7-2a1fef73d647_en (europa.eu)

auction price of EU ETS allowances.[288] This is intended to offer a predictable transition and minimize economic disruption.[289]

CBAM was crafted intending to be compatible with WTO rules; a fair, transparent tool for achieving climate objectives while simultaneously encouraging other countries to adopt similar carbon pricing mechanisms.[290] During the transitional period, flexibility in reporting methodologies is allowed: importers can choose between the EU's specific method, equivalent methods, or default reference values (the latter only until mid-2024). However, from 2025, the method will be standardized to calculate embedded emissions.[291] The **scope and methodology of CBAM** are subject to ongoing review, with **potential expansion to include additional goods produced** in sectors covered by the EU ETS, such as certain downstream products. This review process is set to be completed before the definitive system takes full effect in 2026. The CBAM's phased introduction is strategically aligned with the phase-out of free allowances under the EU ETS to support the decarbonization of EU industries.[292]

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[288] "*The CBAM complements the EU Emission Trading System (EU ETS), which was recently strengthened as part of the EU's "Fit for 55" legislative package. Under the EU ETS, operators of installations producing emission-intensive goods surrender emission allowances for each tonne of CO2e emissions. Since an (increasing) amount of these allowances are purchased in auctions or on the secondary market, these producers face a 'carbon price'13 on their GHG emissions. However, producers in many non-EU countries do not have such an obligation, and this competitive advantage puts European products at risk of carbon leakage*

i.e. a relocation of production to outside of the EU". Carbon Border Adjustment Mechanism, Introduction to the CBAM, Guidance Document on CBAM Implementation for Importers of Goods Into the EU.

[289] EUROPEAN COMMISSION. Guidance Document on CBAM Implementation for Importers of Goods into the EU. Brussels: Directorate-General Taxation and Customs Union, Indirect Taxation and Tax Administration, CBAM, Energy and Green Taxation, 30 May 2024.

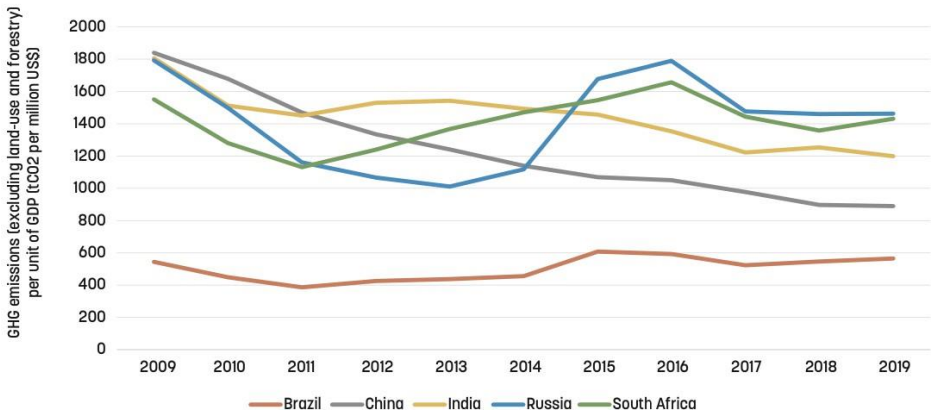
[290] EUROPEAN COMMISSION. *Carbon Border Adjustment Mechanism (CBAM).*

[291] "*Importers have to report on a quarterly basis the embedded emissions in goods imported during the previous quarter of the calendar year, declaring direct and indirect emissions as well as any carbon price effectively paid abroad. This reporting-only process will apply until the end of 2025, with the last CBAM report, for the fourth quarter of 2025 (1st October - 31st December) to be submitted by 31st January 2026. The reports can start in CBAM Declarant portal once the reporting period has ended (e.g., for Q4 2023, the reporting can start on 1st January 2024*". General Information, System Overview, Emissions-Default Values, Opinion 4, Application User Manual CBAM Declarant Portal version 1.2.2.

[292] "*The Carbon Border Adjustment Mechanism (CBAM) is an environmental policy instrument designed to apply the same carbon costs to imported products as would be incurred by installations operating in the European Union (EU). In doing so, the CBAM reduces the risk of the EU's climate objectives being undermined by production relocating to countries with less ambitious decarbonisation policies (so-called 'carbon leakage'"*

The EU Directive 2024/825[293] and the CBAM[294] are key regulatory measures of the European Green Deal. However, these stringent environmental regulations pose significant challenges for developing countries, particularly concerning market access for small and medium-sized enterprises (SMEs). In the case of Brazil, those regulations cause challenges despite Brazil being a significantly low carbon intensity economy, particularly when compared to other countries in the BRICS, for example.

FIGURE 4. Carbon intensity of Brazilian economy (excluding land-use and forestry emissions)



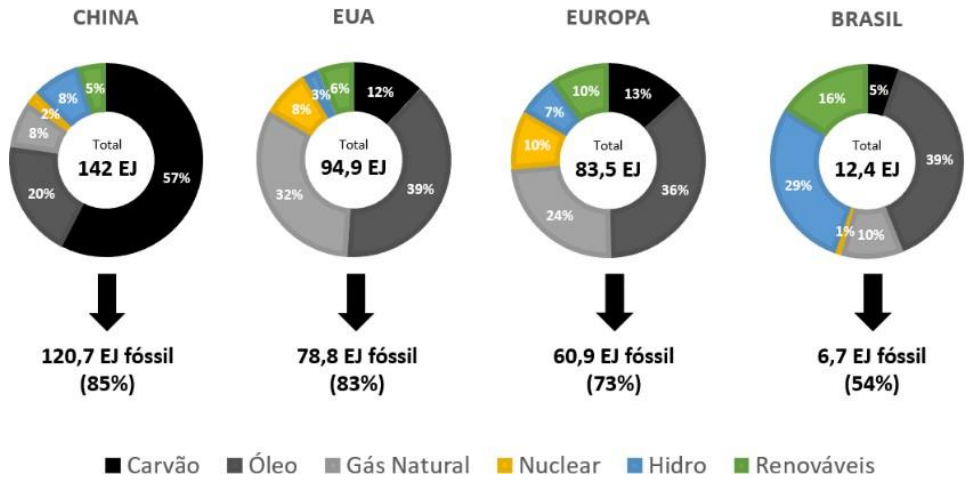
Source: WORLD BANK GROUP. *Brazil Country Climate and Development Report*. Washington, D.C.: World Bank Group, 2023.

And despite Brazil having a power matrix overwhelmingly structured over clean and renewable energy, these aspects that are usually not considered under EU regulation, and do not serve to offset other sustainability metrics where Brazil may have a lesser advantage or demonstrability of compliance.

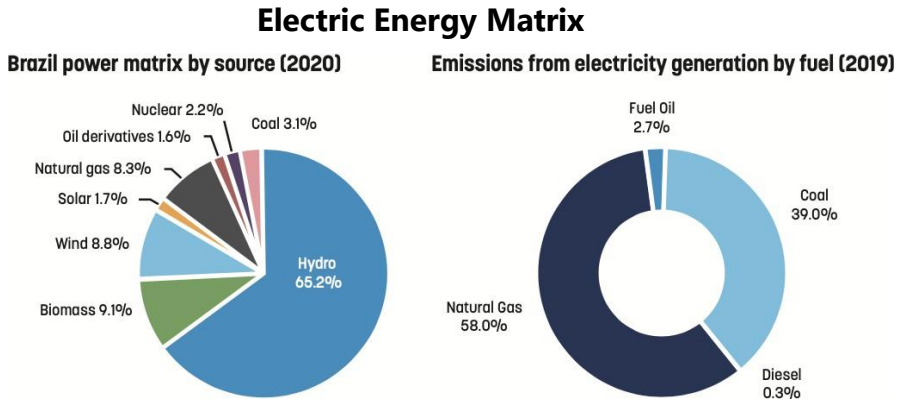
General Energy Matrix

[293] Directive (EU) 2024/825 of the European Parliament and of the council of 28 February 2024 amending Directives 2005/29/EC and 2011/83/EU as regards empowering consumers for the green transitions through better protection against unfair practices through better information.

[294] Carbon Border Adjustment Mechanism: Carbon Border Adjustment Mechanism - European Commission (europa.eu) – "*The EU's Carbon Border Adjustment Mechanism (CBAM) is the EU's tool to put a* ***fair price on the carbon emitted*** *during the production of carbon intensive goods that are entering the EU, and to encourage cleaner industrial production in non-EU countries. By confirming that a price has been paid for the embedded carbon emissions generated in the production of certain goods imported into the EU, the CBAM will ensure the carbon price of imports is equivalent to the carbon price of domestic production, and that the EU's climate objectives are not undermined. The CBAM is designed to be compatible with WTO-rules*".



Source: EPE https://www.epe.gov.br/pt/abcdenergia/matriz-energetica-e-eletrica



Source: WORLD BANK GROUP. *Brazil Country Climate and Development Report*. Washington, D.C.: World Bank Group, 2023.

Currently, the calculation of embedded emissions in products under the EU's CBAM can be based on either default values (estimated), when direct measurement is not feasible, or on actual values using a methodology defined by the European Union. However, in the Brazilian context, with its renewable-heavy energy matrix, these values overlook the lower greenhouse gas (GHG) emissions that are inherent to the Brazilian economy due to the significant presence of renewable sources.

Although it is technically possible to present actual emission values, this approach inherently favors larger economic players who have the financial and structural resources to implement rigorous emission verification methods. This leaves small and medium-sized producers, who may not have such resources, at a disadvantage. Additionally, it remains

uncertain how the European Commission will exercise its delegated competence[295] to consider Brazil's cleaner energy matrix in the emissions calculations moving forward. Addressing these discrepancies is essential to avoid unintended trade barriers and ensure fair recognition of Brazil's unique contributions to reducing global emissions.

Trade Conflicts and Legal Compatibility with WTO

The Carbon Border Adjustment Mechanism (CBAM) represents a bold step toward climate objectives by preventing carbon leakage with stringent environmental standards.[296] However, its compatibility with WTO law remains a contentious issue. Under the WTO framework, the principles of non-discrimination, particularly under the General Agreement on Tariffs and Trade (GATT), Articles I and III,[297] pose significant challenges to the CBAM's design and implementation. By relying on carbon content as a criterion for imposing trade costs, the CBAM raises complex legal questions about what constitutes "like products"[298] and whether these measures could be viewed as discriminatory or protectionist. [299]

This section critically examines the CBAM's alignment with WTO principles, exploring its legal complexities, the risk of being perceived as a disguised restriction on trade, and the challenges the EU faces in justifying the mechanism under GATT's environmental exceptions provided in Article XX. he non-discrimination principles outlined in GATT[300] are central to these legal challenges, particularly in defining "like products." GATT prohibits preferential treatment of local products over foreign ones, presenting a fundamental

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[295] Article 7(7) of Regulation (EU) 2023/956.

[296] *"At present, we are in a time when countries are eager to renegotiate or even discard older trade agreements. That reality creates real possibilities for reforming the boilerplate language in treaties that prioritizes investor protection over environmental protection and free trade at the expense of our changing climate. Below I discuss two possible textual changes, drawing from commitments governing subsidies, which could create space for LCRs"*, Policy Space for Jobs and Clean Energy: Trade, Investment Rules, and Local Content Requirements in Renewable Energy Policies.

[297] WORLD TRADE ORGANIZATION. *General Agreement on Tariffs and Trade (GATT),* 1947: Article I - General Most-Favoured-Nation Treatment; Article III - National Treatment on Internal Taxation and Regulation

[298] THRASHER, R. D. Policy Space for Jobs and Clean Energy: Trade, Investment Rules, and Local Content Requirements in Renewable Energy Policies. *Investment Claims [IC], Yearbook Articles*; VIÑUALES, J. E. *Foreign Investment and the Environment in International Law*. Cambridge: Cambridge University Press, 2012.

[299] WIRTH, D. A. Scientific experts in WTO dispute settlement. In: DELIMATSIS, J. (Ed.). *Encyclopedia of environmental law: Volume XI*. Edward Elgar Publishing, 2021. p. 85-89.

[300] WORLD TRADE ORGANIZATION. *General Agreement on Tariffs and Trade (GATT),* 1947: Article I - General Most-Favoured-Nation Treatment; Article III - National Treatment on Internal Taxation and Regulation.

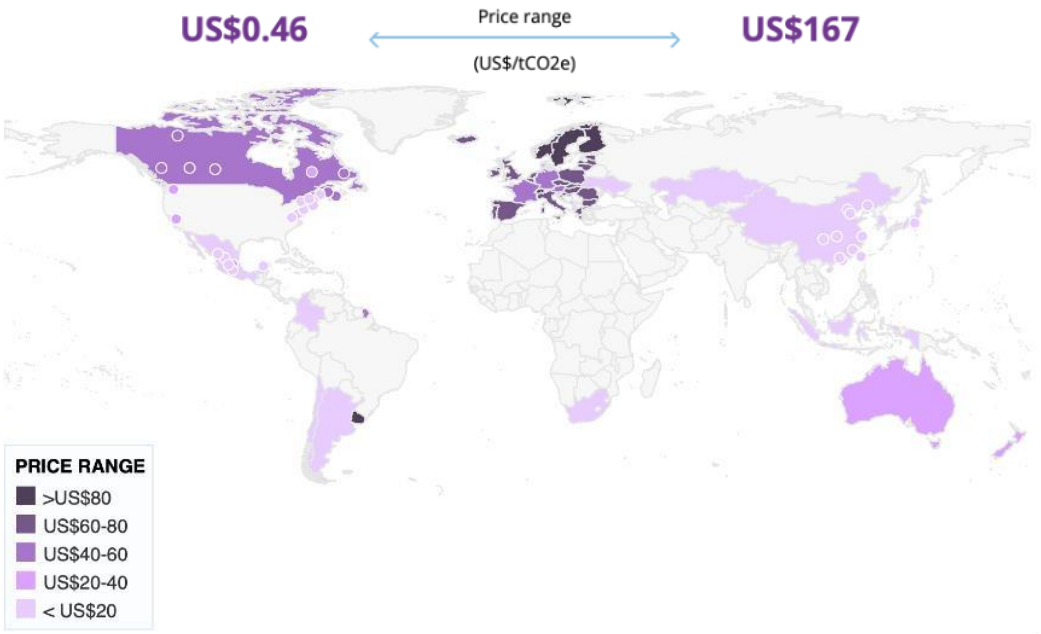
challenge: balancing compliance with stringent environmental standards while fostering domestic economic growth.[301] Article I mandates Most-Favored-Nation (MFN) treatment for like products from different countries, while Article III requires National Treatment, prohibiting discrimination between imported and domestically produced like products.

There are precedents where environmental standards have been contested under the WTO framework.[302] For example, in the US-Shrimp case of 2001, the WTO Appellate Body ruled that environmental measures must not result in arbitrary or unjustifiable discrimination.[303] The CBAM's approach of pricing carbon emissions in imported goods could be perceived as an expansion of the traditional understanding of "like products," typically based on physical characteristics, end-use, consumer preferences, and tariff classifications.[304] While these measures are intended to promote the use of "green" energy, they may create obstacles to international trade by treating otherwise identical goods differently,[305] solely based on carbon footprint.[306] Developing countries, with different carbon regulatory standards and technological capacities, may argue that their goods, despite being "like" in every other sense, are subjected to differential treatment under CBAM due to their carbon footprint. This creates a significant interpretative

[301] THRASHER, R. D. Policy Space for Jobs and Clean Energy: Trade, Investment Rules, and Local Content Requirements in Renewable Energy Policies. *Investment Claims [IC], Yearbook Articles*; VIÑUALES, J. E. *Foreign Investment and the Environment in International Law*. Cambridge: Cambridge University Press, 2012. [302] WTO. Argentina — Measures Affecting the Importation of Goods. WTO DS438; WTO. Brazil — Measures Affecting Imports of Retreaded Tyres. WTO DS332; WTO. European Communities — Measures Affecting Asbestos and Asbestos-Containing Products. WTO DS135; WTO. European Communities — Measures Prohibiting the Importation and Marketing of Seal Products. WTO DS400 e WTO DS401; WTO. European Union — Certain Measures Concerning Palm Oil and Oil Palm Crop-Based Biofuels. WTO DS593; WTO. European Union and Certain Member States — Certain Measures Concerning Palm Oil and Oil Palm Crop- Based Biofuels. WTO DS600; WTO. United States — Import Prohibition of Certain Shrimp and Shrimp Products. WTO DS58; OMC. United States — Measures Concerning the Importation, Marketing and Sale of Tuna and Tuna Products. WTO DS381.
[303] United States — Import Prohibition of Certain Shrimp and Shrimp Products. WTO DS58.
[304] WORLD BANK. *State and Trends of Carbon Pricing 2024*. Washington, DC: World Bank, p. 23, 2024; GUDKOV, I.; MIZULIN, N. Carbon Barriers to Trade: WTO Law Issues. *Oil, Gas & Energy Law Intelligence (OGEL)*, Feb. 2020. ISSN 1875-418X.
[305] WORLD BANK. *State and Trends of Carbon Pricing 2024*. Washington, DC: World Bank, p. 23, 2024; GUDKOV, I.; MIZULIN, N. Carbon Barriers to Trade: WTO Law Issues. *Oil, Gas & Energy Law Intelligence (OGEL)*, Feb. 2020. ISSN 1875-418X.
[306] Ibid.

challenge for WTO panels, which must decide whether carbon footprint is a legitimate basis for distinguishing between otherwise "like" products under WTO law.[307]

In a fragmented global carbon pricing landscape, diverse national approaches to carbon credits potentially clash with WTO principles. Unilateral measures like the CBAM could spark trade tensions, particularly when developing nations perceive them as disguised protectionism,[308] reason why unilateral measures are often less effective than coordinated global action.[309]



Source: World Bank[310]

In this context, countries affected by CBAM could seek redress through the WTO Dispute Settlement Mechanism, arguing that CBAM constitutes a disguised form of protectionism. The challenge for the EU is to prove that differentiating products based on carbon content is a necessary and proportionate response to climate concerns. To successfully invoke GATT Article XX, the EU must demonstrate that CBAM is the least trade-restrictive means available to achieve its legitimate environmental objectives, applied transparently, consistently, and equitably.[311] Conversely, to justify the CBAM under WTO rules, the EU

[307] GUDKOV, I.; MIZULIN, N. Carbon Barriers to Trade: WTO Law Issues. *Oil, Gas & Energy Law Intelligence (OGEL)*, Feb. 2020. ISSN 1875-418X.
[308] Ibid.
[309] Ibid.
[310] Ibid.
[311] Ibid.

could invoke Article XX of the GATT,[312] which allows for exceptions to the principles of non-discrimination if measures are necessary to protect human, animal, or plant life or health, or to conserve natural resources.

However, the application of Article XX comes with strict criteria and procedural requirements.[313] First, the measure must fall under one of the specific exceptions listed in Article XX. Second, it must also satisfy the 'chapeau' of Article XX, which requires that the measure is not applied in a manner that would constitute arbitrary or unjustifiable discrimination between countries where the same conditions prevail or as a disguised restriction on international trade.[314] This is a high bar, given the diverse economic and developmental contexts of different countries.[315] Even with an Article XX defense, the EU faces significant challenges in proving that CBAM complies with both the substantive and procedural requirements under GATT, further heightening the risk of legal challenges and potential disputes.

While high environmental standards are essential for sustainability, the economic impacts on businesses, particularly in developing countries, must also be carefully considered. Developing countries may argue that the CBAM does not adequately consider their specific circumstances and that it constitutes unjustifiable discrimination or a disguised restriction on trade. Since CBAM effectively imposes additional costs on imports based on their carbon footprint, it could be interpreted as a move to protect EU industries from foreign competition rather than a genuine effort to combat climate change. The challenge lies in finding a balance where environmental protection does not lead to economic exclusion, ensuring that all businesses, regardless of their location or size, can participate in global markets while contributing to environmental sustainability.

The EU also needs to ensure that the implementation of CBAM does not create unintended loopholes that could undermine its environmental objectives. If exemptions are granted based on political or economic considerations, other countries may argue that these exemptions constitute arbitrary discrimination under the chapeau of Article XX. This could weaken the EU's case for invoking Article XX and increase the likelihood of successful challenges to CBAM in the WTO. Should it be interpreted unfavorably, CBAM

[312] WORLD TRADE ORGANIZATION. *General Agreement on Tariffs and Trade (GATT),* 1947: Article XX - General Exceptions.
[313] GUDKOV, I.; MIZULIN, N. Carbon Barriers to Trade: WTO Law Issues. *Oil, Gas & Energy Law Intelligence (OGEL)*, Feb. 2020. ISSN 1875-418X.
[314] Ibid.
[315] Ibid.

could breach WTO principles, potentially leading to trade disputes and economic retaliation.

If materialized, adverse effects of CBAM on international trade and cooperation can have significant impact especially if it leads to disputes or retaliatory measures from affected trading partners. Should CBAM be perceived as discriminatory or protectionist, it could trigger a wave of disputes within the WTO framework, particularly from developing countries arguing that it constitutes an unfair trade barrier.[316] Such disputes could result in legal battles and retaliatory tariffs. The economic consequences could impact both the EU and its trading partners, potentially reducing market access, increasing trade tensions, and undermining international cooperation on trade and climate goals.

For instance, if Brazil were to impose countermeasures or pursue disputes through the WTO, this could spark a chain reaction among other affected countries, further complicating global trade networks and potentially leading to trade wars. This scenario highlights the need for a careful assessment of CBAM's implications to avoid unintended consequences that could undermine both economic stability and global environmental objectives. Such actions could also affect EU companies reliant on imports or exports with these regions.

Furthermore, perceptions of hidden protectionism could have implications for global trade relations and trust among trading partners. If CBAM is viewed as a veiled attempt to shield industries instead of a genuine effort to combat climate change[317], it could complicate negotiations on trade and climate and undermine the EU's credibility in promoting global sustainability. The perception of protectionism could hinder the EU's ability to forge new trade agreements or strengthen existing ones. In fact, it may be immaterial whether or not the measures are ruled protectionist, as long as they are perceived by peers as being so, they are likely to negatively impact the environmental agenda. Countries may become wary of entering into trade deals with the EU if they believe future environmental or regulatory measures could protect domestic industries at their expense. This skepticism could limit the EU's influence in global trade discussions

[316] DIRECTIVE (EU) 2024/825 of the European Parliament and of the Council of 28 February 2024. *Official Journal of the European Union*, 2024; EUROPEAN COMMISSION. *Unfair Commercial Practices Directive*

[317] WORLD BANK. *State and Trends of Carbon Pricing 2024.* Washington, DC: World Bank, p. 23, 2024; GUDKOV, I.; MIZULIN, N. Carbon Barriers to Trade: WTO Law Issues. *Oil, Gas & Energy Law Intelligence (OGEL)*, Feb. 2020. ISSN 1875-418X.

and reduce its ability to advocate for ambitious climate goals on the international stage, making it harder to achieve consensus on coordinated climate action at the international level.

Even conceding the need to adjust to stricter environmental rules, both private and public actors have recently modified and/or retracted their public commitments to "green" investments. Recent retractions of green pledges were seen form both public and private stakeholders, not only in Europe, but from around the world. In Brazil, the first sustainability bond available to the general public in 2021 defaulted in 2024.[318] Even bigger stakeholders and developed countries have rescinded part of their environmental pledges recently.

Company	ESG Pledges	ESG Retraction	Retraction Date	Source
Unilever	Slash use of virgin plastics by 50% by 2025	30% reduction by 2026	April 2024	Unilever: https://www.esgdive.com/news/unilever-scale-back-esg-pledges-focused-plastic-usage-diversity/713882/
Tractor Supply Co.	Net zero emissions in operations by 2040	Eliminated all jobs focused on diversity, equity, and inclusion and withdrawing its carbon-emissions goals	June 2014	Tractor Supply Co.: https://hbr.org/2024/08/companies-are-scaling-back-sustainability-pledges-heres-what-they-should-do-instead
Crocs	Net zero carbon emissions by 2030.	Net zero carbon emissions by 2040.		Crocs: https://hbr.org/2024/08/companies-are-scaling-back-sustainability-pledges-heres-what-they-should-do-instead
BP	Target to reduce emissions by 35% by 2030.	Promised a cut between 20% and 30%.	February 2023	BP: https://www.washingtonpost.com/business/2023/02/07/bp-climate-emissions-oil-profits/
Nike		Laid off about 20% of employees who worked primarily on its sustainability initiatives	2024	Nike: https://www.propublica.org/article/nike-layoffs-sustainability-climate-change
Volvo	Target to sell only electric cars by 2030	Volvo expects that 90% of its output to be made up of electric and plug-in-hybrids by 2030.	September 2024	Volvo: https://www.carbonbrief.org/daily-brief/volvo-cars-ditches-pledge-to-sell-only-electric-cars-by-2030/

The German government announced that the purchase bonus for electric cars, known as the "Umweltbonus," would be cut off with immediate effect as of December 17, 2023.[319] This subsidy had been available to promote the adoption of electric vehicles, but due to

[318] CAPITAL RESET. 2021: primeiro sustainability bond brasileiro disponível para o público (Casas Bahia) cai em default agora, em 2024.

[319] AMELANG, Sören. Abrupt end to German electric car subsidies fuels doubts about green mobility target. Clean Energy Wire, 18 dez. 2023.

budgetary constraints and the ruling from the Federal Constitutional Court, the government decided to stop accepting new applications for the bonus. Other countries have decided to defer similar funding as well.[320] Companies from across industries have also amended or revoked part of their prospected goals.[321] Investment in climate techs has also seen decline in the past year.[322]

Pledge	Companies	Average Target Year	Average Pledge Definition
1.5°C target	6	2044	2021
Absolute emissions target	8	2039	2020
Carbon negative	4	2038	2021
Carbon neutral(ity)	442	2045	2021
Climate neutral	97	2043	2021
Climate positive	7	2041	2021
Emissions intensity target	46	2030	2021
Emissions reduction target	391	2033	2021
GHG neutral(ity)	14	2045	2021
Net negative	2	2038	2021
Net zero	1211	2047	2021
No target	1703	2039	2022
Other	178	2034	2019
Reduction v. BAU	18	2031	2019
Science-based target	13	2035	2021
Zero carbon	15	2045	2020
Zero emissions	17	2045	2021

This scenario may suggest that, while desirable, green commitments should not be used as a differentiating factor for trade purposes due to their inherent volatility. Imposing stringent environmental measures without sufficient global coordination or financial support mechanisms can lead to adverse economic impacts, particularly on countries that are already struggling with sustainability transitions, and sustainable-sustainability (i.e. sustainability measures that can be endured through time) is essential to achieve actual change. While pace is also important, dramatic impositions that risk the continuity of sustainability measures are likely to cause more drawbacks than benefits as countries

[320] SEDLÁČEK, Štěpán; WETTENGEL, Julian. Wealthy nations' $100bn climate finance pledge delayed to 2023. Clean Energy Wire, 25 out. 2021.

[321] CLIMATE DEPOT. How it ends: 96% of Big Corporations are quietly abandoning their climate commitments – 'Climate pledges evaporated'. Climate Depot, 2024.

[322] RESET. *Aportes em climate techs encolhem 30% em 2023: Investimentos foram de US$ 32 bilhões em 2023; crise no mercado de venture capital afetou startups.* Reset, 2024.

might prioritize economic stability over environmental commitments if these measures are perceived as overly burdensome.[323]

Criticism To WTO's Decision System

In the context of WTO dispute settlements, it is crucial to understand that the organization strives to base its decisions on scientific evidence regarding the effectiveness of regulatory measures and whether those measures result in discriminatory impacts. This reliance on science is intended to ensure that trade measures related to health, safety, and environmental standards are grounded in objective, evidence-based assessments rather than being used as disguised protectionism. However, the WTO has faced significant criticism for its approach to integrating scientific evidence into its dispute resolution process. Critics argue that panels and the Appellate Body often rely too heavily on the majority opinions of scientific experts rather than thoroughly considering the full range of scientific perspectives, including minority or dissenting views.[324]

This tendency to lean on majority opinions can lead to an oversimplification of complex scientific issues, especially in cases involving uncertain or evolving knowledge, such as those related to biotechnology, toxic substances, or environmental impacts. By prioritizing majority views, the WTO risks ignoring the nuanced insights that arise from considering diverse scientific viewpoints, which are crucial for a comprehensive and balanced assessment. Such an approach undermines the objective and rigorous evaluation required for legitimate decision-making, potentially sidelining scientifically valid perspectives that challenge the dominant consensus but are nonetheless critical to the discussion.[325]

The procedural framework established by the WTO emphasizes the use of diverse expert input to ensure that **all *credible* scientific perspectives are included**, rather than defaulting to the most popular or straightforward view. This method, as outlined in the Uruguay Round texts[326], is designed to support a more balanced and credible evaluation of scientific evidence by providing a structured mechanism for the inclusion of different scientific opinions. Ideally, this approach enhances the legitimacy of the dispute settlement process by aligning with principles of scientific integrity and transparency,

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[323] GUDKOV, I.; MIZULIN, N. Carbon Barriers to Trade: WTO Law Issues. *Oil, Gas & Energy Law Intelligence (OGEL)*, Feb. 2020. ISSN 1875-418X.

[324] WIRTH, D. A. Scientific experts in WTO dispute settlement. In: DELIMATSIS, J. (Ed.). *Encyclopedia of environmental law: Volume XI*. Edward Elgar Publishing, 2021. p. 85-89.

[325] Ibid.

[326] TRADE NEGOTIATIONS COMMITTEE. Final Act Embodying the Results of the Uruguay Round of Multilateral Trade Negotiations. Marrakesh, 15 April 1994.

ensuring that decisions are not only legally robust but also scientifically comprehensive. The establishment of **expert review groups**—collective bodies tasked with providing consensus reports—**was intended to serve as a mechanism for distilling complex scientific knowledge for non-expert adjudicators**, thus preventing any single narrative from dominating the debate e causing decision-makers to default to the most popular view.

However, in practice, the WTO's Appellate Body has upheld a different approach as a valid alternative to the originally agreed-upon procedure. Instead of convening formal expert groups that provide a range of scientific insights, the Appellate Body has often relied on consultations with individual experts or small groups, synthesizing majority views rather than exploring the full spectrum of scientific perspectives.[327] While this approach is quicker and potentially more efficient, it risks blurring the line of "scientific legitimacy" that is often emphasized in environmental regulations, such as those concerning Green Claims or the CBAM. This shift in practice potentially compromises the goal of integrating comprehensive scientific evidence, as it diminishes the role of scientific diversity and critical debate, both essential in areas of policy-relevant science.[328]

Furthermore, Wirth (2021) points out that, unlike the WTO's intended approach, "non- technically expert courts and judges engaged in judicial review of governmental decision making predicated on policy-relevant science typically do not seek the advice of [diverse] technical experts," even when dealing with determinations with respect to "sometimes controversial questions of policy-relevant science."[329] This comparison underscores a key difference in how scientific evidence is treated across different legal systems. While domestic courts may defer to established regulatory bodies or scientific authorities without independently verifying the range of scientific views, the WTO's envisioned approach was to create a forum where scientific debates could be rigorously examined, and decisions would reflect a more comprehensive spectrum of scientific opinion.[330]

The consequence of the WTO's current practice, which often moves away from the formal, diverse expert group approach in favor of more streamlined methods, is a potential

[327] WIRTH, D. A. Scientific experts in WTO dispute settlement. In: DELIMATSIS, J. (Ed.). *Encyclopedia of environmental law: Volume XI*. Edward Elgar Publishing, 2021. p. 85-89.
[328] WIRTH, D. A. Scientific experts in WTO dispute settlement. In: DELIMATSIS, J. (Ed.). *Encyclopedia of environmental law: Volume XI*. Edward Elgar Publishing, 2021. p. 85-89.
[329] WIRTH, D. A. Scientific experts in WTO dispute settlement. In: DELIMATSIS, J. (Ed.). *Encyclopedia of environmental law: Volume XI*. Edward Elgar Publishing, 2021. p. 87.
[330] WIRTH, D. A. Scientific experts in WTO dispute settlement. In: DELIMATSIS, J. (Ed.). *Encyclopedia of environmental law: Volume XI*. Edward Elgar Publishing, 2021.

erosion of confidence in the dispute settlement system's scientific credibility. For stakeholders and member states, the perception that scientific complexities are being oversimplified or that minority scientific views are being overlooked can diminish the legitimacy of the outcomes.[331] This is particularly concerning in disputes involving sensitive environmental regulations, where the stakes are high, and the potential for trade distortions is significant. Therefore, it may be crucial for the WTO to reassess its procedural choices and more faithfully adhere to its original mandate of incorporating a diverse and balanced range of scientific expertise. Doing so would ensure that its dispute settlement process upholds the principles of free and fair trade while maintaining the highest standards of scientific integrity.

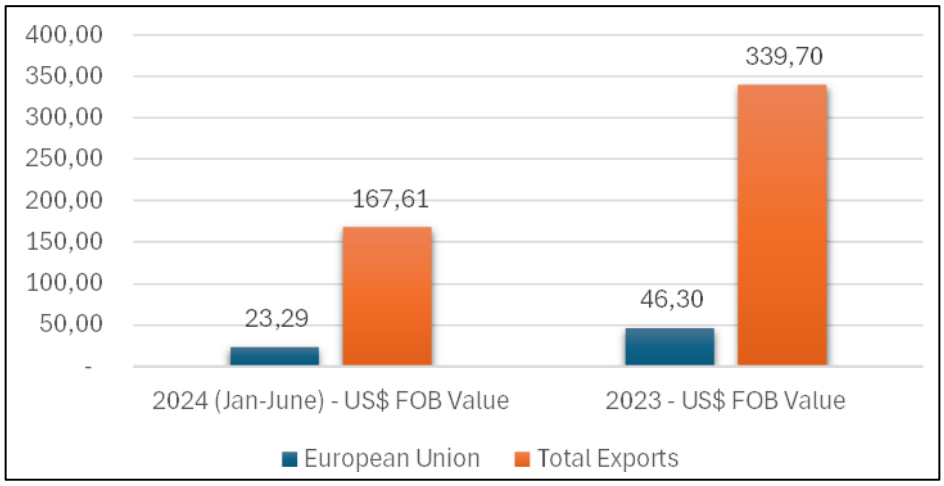
CHAPTER 2 – GLOBAL TRADE IMPACTS AND ECONOMIC BARRIERS OF REGULATIONS

Relevance of Brazilian Imports to the EU

To assess the direct impacts of European regulations on the Brazilian economy,[332] it is important to first identify the export value from Brazil to the European Union and which key products may be affected by such regulations. According to official data, Brazil's total exports to the European Union exceeded **USD 46 billion in 2023**, with a trend towards maintaining this value for 2024, given that exports in the first half of the year were slightly above USD 23 billion.

[331] WIRTH, D. A. Scientific experts in WTO dispute settlement. In: DELIMATSIS, J. (Ed.). *Encyclopedia of environmental law: Volume XI*. Edward Elgar Publishing, 2021.

[332] It is important to consider that economic assessments are conducted to evaluate the direct impacts of European legislation on Brazilian exports. However, considering the cascading effect of the regulations analyzed, as they require the compliance assessment of all inputs used in the production of products imported to the European Union, we understand that the effects are even more significant and may include other items exported by Brazil that, at first glance, are not directly impacted by the RED, EUDR, CBAM, and GCD.



Brazilian Exports to EU (US$ billions – FOB). Source: COMEXSTAT

This means that exports to the European Union represent approximately **13% of the country's total exports**. The main categories of products exported to the bloc are:

	Product	Applicable European Legislation
Green	petroleum and derivatives	RED
Orange	minerals: iron, copper, and aluminum	CBAM
Yellow	agricultural products: soy, meat, cocoa, and coffee	EUDR

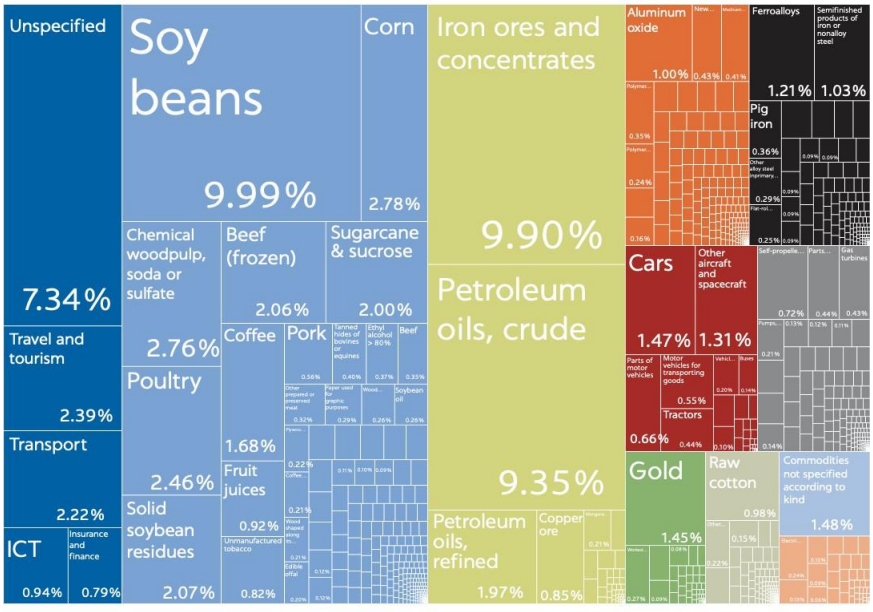
These categories, which are directly impacted by the regulations under analysis, together represent more than 70% of Brazil's exports to the European Union.

Code SH4	Classification SH4	FOB Value (US$)	% of Total Exports
2709	Crude petroleum oils	9.836.260.950	21,2%
2304	Residues from soybean oil extraction	5.251.752.602	11,3%
0901	Coffee	3.368.379.574	7,3%
1201	Soybean	2.879.462.730	6,2%
2603	Copper ores	2.498.923.913	5,4%
2601	Iron ores	1.659.224.323	3,6%
4703	Chemical wood pulps	1.559.918.339	3,4%
2009	Fruit juices	1.336.414.568	2,9%
2710	Petroleum oils	1.314.835.276	2,8%
7202	Ferroalloys	1.097.490.312	2,4%
2401	Tobacco	1.029.319.113	2,2%
1005	Corn	735.859.635	1,6%
1701	Sugars	616.797.285	1,3%
8802	Other aerial vehicles	540.418.929	1,2%
8409	Parts intended for engines	453.175.360	1,0%
7207	Semi-manufactured iron or steel products	384.724.725	0,8%
2207	Ethyl alcohol	383.194.037	0,8%
0210	Meats	330.667.506	0,7%
7601	Aluminum	299.197.541	0,6%
0202	Frozen beef	260.374.267	0,6%
1602	Other meat preparations	235.728.467	0,5%
8708	Vehicle parts and accessories	233.875.892	0,5%
0804	Dates, figs, pineapples, avocados, guavas, mangos and mangosteen	233.525.131	0,5%
2909	Ethers	230.386.883	0,5%
8807	Parts of apparatus of heading 88.01, 88.02 or 88.06	208.015.666	0,4%
0807	Melons, watermelons and papayas (papayas), fresh	204.102.689	0,4%
4412	Plywood or plywood	199.119.685	0,4%
8408	Piston engines	180.142.038	0,4%
7201	Raw cast iron	179.606.969	0,4%
7208	Flat rolled products of iron or non-alloy steel	175.923.627	0,4%
0201	Beef, fresh or chilled	170.392.931	0,4%
4401	Firewood in any condition	167.145.511	0,4%
8501	Electric motors and generators	165.970.826	0,4%
2804	Hydrogen	164.490.207	0,4%
3301	Essential oils	162.574.515	0,4%
0207	Fresh, chilled or frozen poultry meat	156.376.476	0,3%
3901	Ethylene polymers	155.594.770	0,3%
2604	Nickel ores	154.095.100	0,3%

Brazil's Exports to the EU by HS4 Code (USD FOB). Source: COMEXSTAT

Brazil, as a developing country with diverse economic conditions,[333] is home to a significant number of SMEs[334] that could struggle with the financial and logistical burdens associated with meeting stringent EU environmental regulations imposed.

FIGURE ES.4
Brazil's commodity-heavy export basket

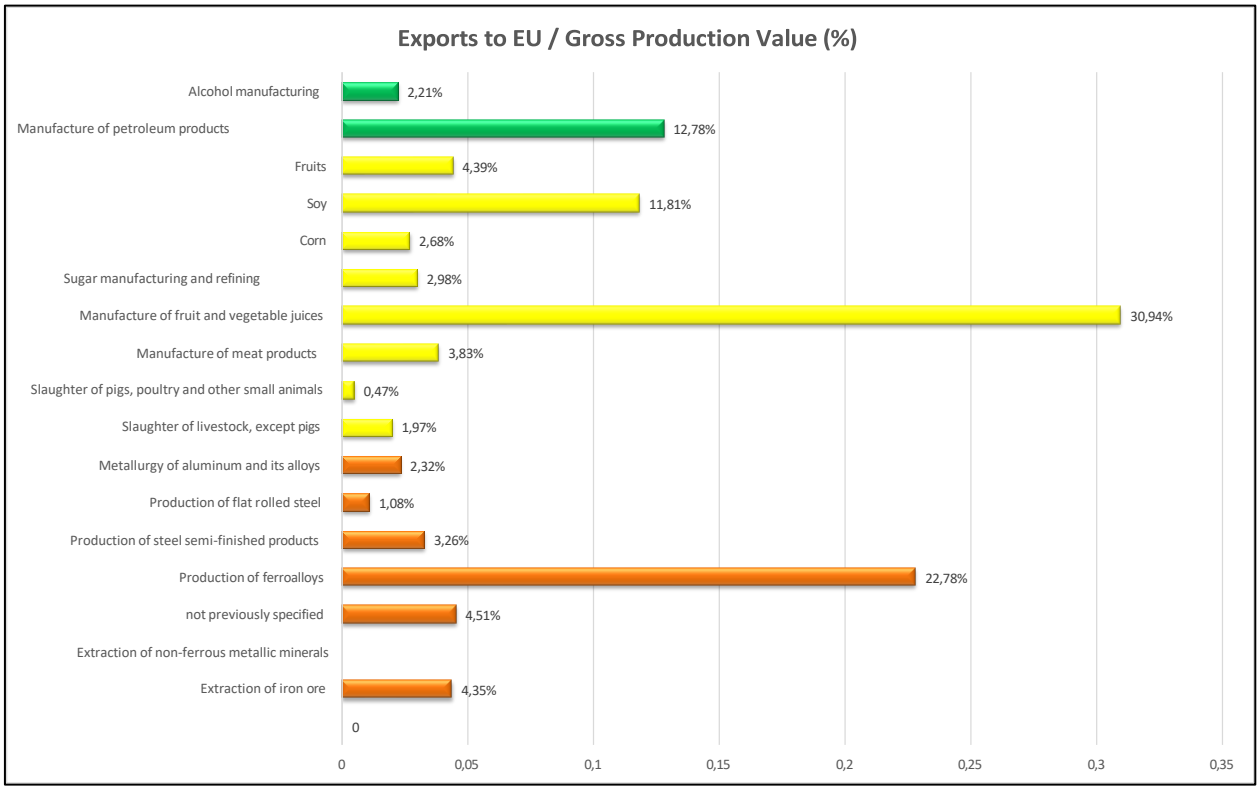


Source: Harvard University's Atlas of Economic Complexity research and data visualization tool (https://atlas.cid.harvard.edu/).
Note: The figure shows shares of Brazil's total merchandise exports in 2019. ICT = information and communication technology.

HANUSCH, Marek (ed.). *A Balancing Act for Brazil's Amazonian States: An Economic Memorandum.* Washington, D.C.: World Bank Group, 2023.

An assessment of the relevance of exports to the European Union, considering the gross production value, indicates that this market is particularly significant for the sale of fruit juices, which account for about one-third of Brazil's total exports, followed by ferroalloys (23%), petroleum derivatives (13%), and soybeans (12%).

[333] Brazil—Measures Affecting Imports of Retreaded Tyres—Appellate Body Report (Brazil —Tyres) (3 December 2007) WT/DS332/AB/R, para 151.
[334] B20 BRAZIL. Policy Recommendations to the G20: Driving Sustainable Economic Growth in the Global South. B20 Summit 2024 Policy Paper, Brazil, 2024.



Exports to the EU / Gross Production Value (%). Sources: IBGE e COMEXSTAT

Based on the analysis of European Union legislation and regulations containing requirements related to these products, as presented in the previous sections, the degree of difficulty for each of the listed segments to adapt is identified, along with the potential impacts these segments would face in terms of production **value and employment**. Additionally, **there is a need for significant investments that would greatly reduce their profitability**.

Compared to the gross production value of these segments, exports to the European Union generally account for approximately 10%. The table below presents the number of employees in each of the Brazilian production segments relevant to this Report. This data will be used in the next section to measure the share of these jobs that may be affected by EU regulations.

Sectors	Employees in 31.12	Gross Production Value	Gross Production Value	Exports to EU (US$)
		1 000 R$	1000 US$	1000 US$
Extraction of iron ore	67 212	191 311 919	38 132 733	1.659.224,00
Extraction of non-ferrous metallic minerals				
not previously specified	13 494	17 142 499	3 416 882	154.095,00
Production of ferroalloys	10 910	24 166 430	4 816 909	1.097.490,00
Production of steel semi-finished products	15 241	59 180 363	11 795 966	384.725,00
Production of flat rolled steel	29 531	81 837 928	16 312 124	175.924,00
Metallurgy of aluminum and its alloys	27 718	64 637 922	12 883 780	299.198,00
Slaughter of livestock, except pigs	155 526	193 816 896	38 632 030	761 434
Slaughter of pigs, poultry and other small animals	403 515	168 486 138	33 583 045	156 376
Manufacture of meat products	45 166	30 896 776	6 158 417	235 728
Manufacture of fruit and vegetable juices	46 860	21 668 732	4 319 062	1 336 415
Sugar manufacturing and refining	258 865	103 863 890	20 702 390	616 797
Corn		137 737 946	27 454 245	735 860
Soy		345 422 469	68 850 402	8 131 215
Fruits		50 000 000	9 966 115	437 638
Manufacture of petroleum products	38 101	437 619 524	87 227 332	11 151 096
Alcohol manufacturing	120 982	87 051 378	17 351 281	383 194

Production Value X Exports to the EU (USD 000). Sources: IBGE e COMEXSTAT

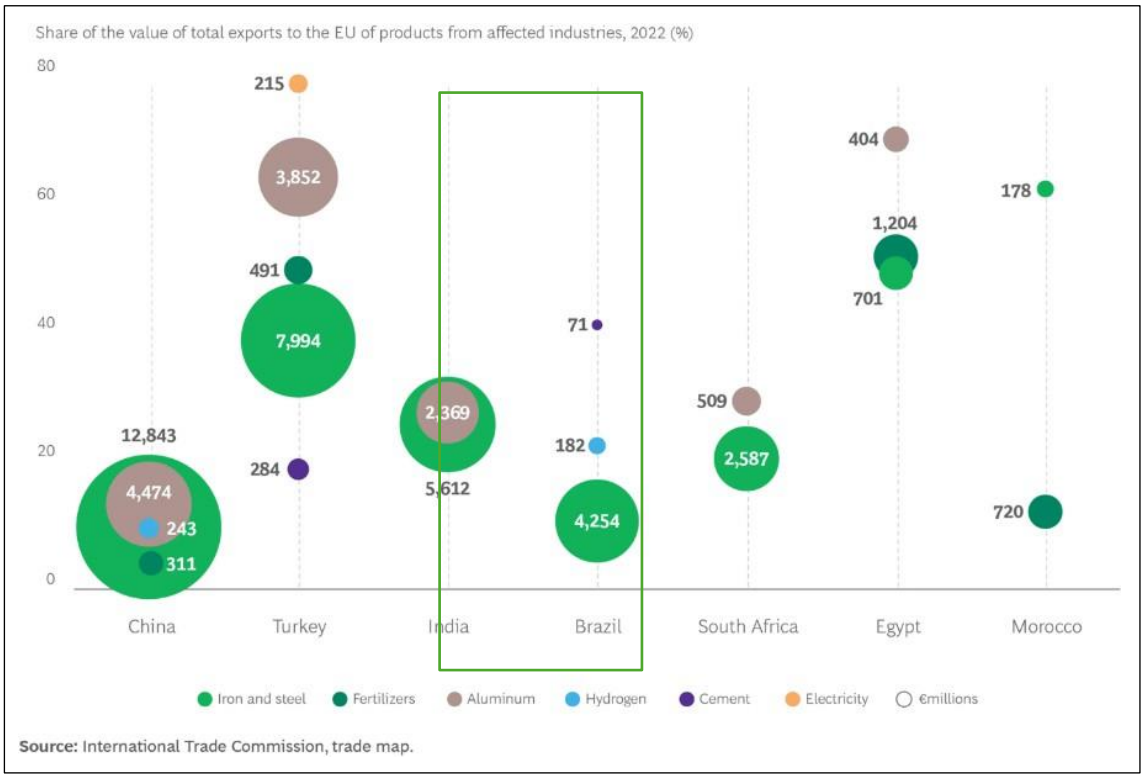
Economic Impacts of CBAM and EUDR: Econometric Analysis

A study conducted by the Boston Consulting Group (BCG) in 2023[335] analyzes the potential impacts of the Carbon Border Adjustment Mechanism (CBAM) on emerging markets that export products to the European Union. Among the countries analyzed, Brazil stands out as one of the largest exporters of iron, steel, aluminum, and minerals to the bloc. Among the products exported by Brazil subject to CBAM provisions, cement, hydrogen, and iron and steel are noteworthy, which together totaled 4.4 billion euros in 2022.

The chart below indicates that, in gross values, Brazilian exports of iron and steel to the European Union account for nearly 20% of the total amount exported by Brazil. On the other hand, although they are less significant in terms of total values, the EU is responsible

[335] Boston Consulting Group (BCG). "How Emerging Markets Can Prepare for the New ESG Regulations." Published in 2023. Available at: https://www.bcg.com/publications/2023/how-emerging-markets-can- prepare-for-the-new-esg-regulations. Accessed on August 29, 2024.

for more than 40% of Brazilian cement exports and more than 20% of Brazilian hydrogen exports.[336]



Exports of Iron, Steel, and Aluminum to the EU Exposed to CBAM (USD billions). Source: Boston Consulting Group (BCG). "How Emerging Markets Can Prepare for the New ESG Regulations." Published in 2023. Available at: https://www.bcg.com/publications/2023/how-emerging-markets-can-prepare-for-the- new-esg-regulations.

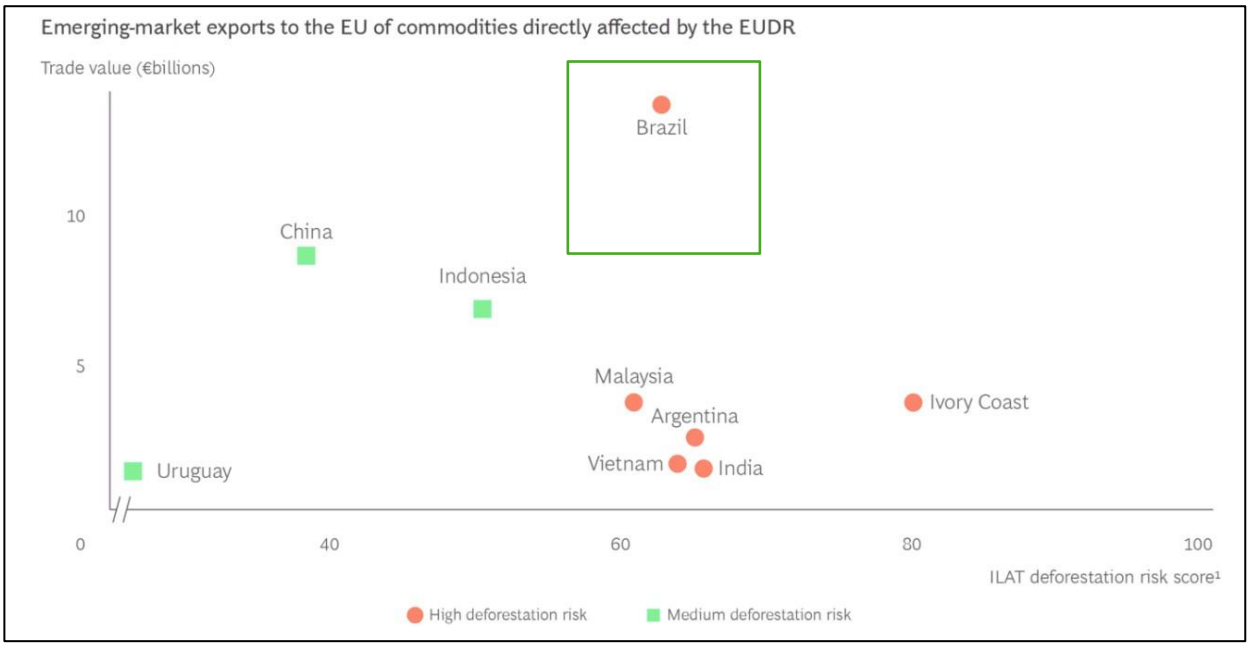
Perdana et al. (2023) [337] estimate that the impacts per ton of product exported from Brazil to the EU are around USD 3.3/ton. Considering the current price of products exported to the EU in this category, this would represent a price increase of approximately 1.1%, which is not very significant.

[336][336] The National Confederation of Industry (CNI) estimates that the CBAM regulation covers more than USD 3 billion of Brazilian exports to the EU in 2022, which represents 13% of the total exported from this group of products by Brazil in the same year. (CNI, Trade Policy Analysis. Year 2, no. 9, June 2023 (updated edition). Available at: https://www.portaldaindustria.com.br/publicacoes/2023/6/analise-de-politica- comercial-9-comercio-e-sustentabilidade/. Accessed on: 13.09.2024.

[337]Perdana, S., Vielle, M., & Oliveira, TD (2023). O mecanismo de ajuste de fronteira de carbono da UE: implicações nas indústrias brasileiras intensivas em energia. *Climate Policy* , *24* (2), 260–273.

However, CBAM may be extended, starting in 2026, to other products, particularly those derived from agriculture and livestock, which could have even more significant impacts on Brazilian exports to the EU.

The BCG study also presents the potential impact of the EU Deforestation Regulation (EUDR) on commodity exports from Africa, South America, and Southeast Asia. The chart below shows the high degree of impact of the regulation on Brazil, given that the value of its exports is the highest compared to other exporting countries.



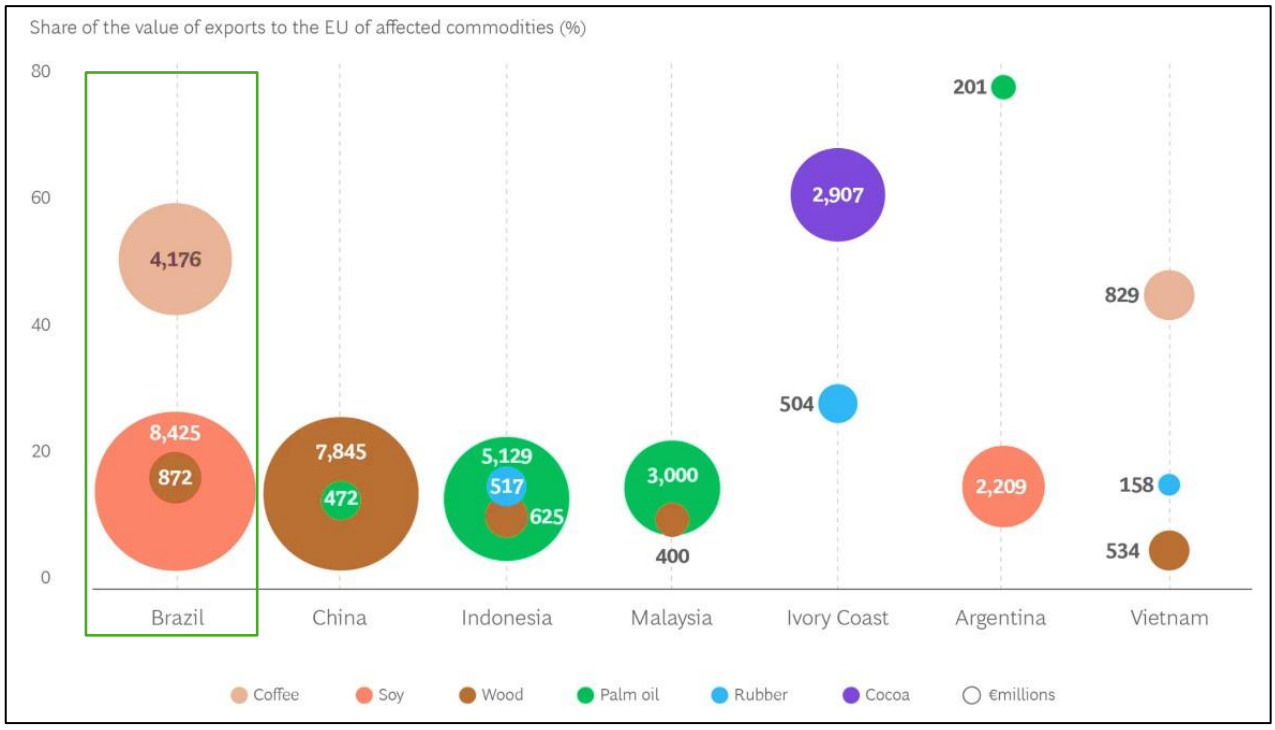
EU Regulation on Deforestation X Commodity Exports from South America, Africa, and Southeast Asia. Source: Boston Consulting Group (BCG). "How Emerging Markets Can Prepare for the New ESG Regulations." Published in 2023. Available at: https://www.bcg.com/publications/2023/how-emerging- markets-can-prepare-for-the-new-esg-regulations. Accessed on 29 August 2024.

As with CBAM, the EUDR will initially have a minimal economic impact within the EU itself. In its first phase, the deforestation regulation will directly apply to only about 2% of the bloc's imports. However, for certain products, the consequences will be significant. It is estimated that €14 billion worth of imported Brazilian coffee and soy will potentially be affected by the new rules.

In concrete terms, the EU accounts for more than 51% of Brazil's total coffee exports, equivalent to USD 4.3 billion. The second main destination for Brazilian coffee exports is the United States of America (USA), with a 20% share of Brazil's coffee exports, followed

by Japan (5%) and Colombia (around 4%).[338] Coffee cultivation occurs in old pasture areas that have not been recently deforested or are in native vegetation. However, the sector must prove that the product is not linked to deforestation.[339]

In the case of soy, the European Union is Brazil's second-largest trading partner in its production, and the main concern is that the regulation will prohibit soy cultivation in areas legally convertible under the Brazilian Forest Code.[340]



EU Regulation on Deforestation X Commodity Exports from South America, Africa, and Southeast Asia. Source: Boston Consulting Group (BCG). "How Emerging Markets Can Prepare for the New ESG Regulations." Published in 2023. Available at: https://www.bcg.com/publications/2023/how-emerging- markets-can-prepare-for-the-new-esg-regulations. Accessed on 29 August 2024.

[338] CNI, Análise de Política Comercial. Ano 2, n. 10, junho de 2023. Available at: https://static

[339] **Colussi, J., G. Schnitkey, N. Paulson, and C. Zulauf.** "How the EU Deforestation Rule Will Affect Agriculture in Brazil." *farmdoc daily* (14): 123, Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign, July 2, 2024.

[340] Ibid.

Having presented the figures, we move on to analyze the impacts of CBAM and EUDR on Brazilian exports. For this, it is important to keep in mind that two scenarios may occur: the first is that Brazil stops exporting all or part of what it currently exports to the EU; the second involves incurring higher costs to try to maintain exports to the EU at the same level.

The analyses presented below focus on the "Minerals, Iron, Copper, and Aluminum" and "Agricultural Products" (Soybeans, Meat, Cocoa, and Coffee) segments, which are the most directly affected by EU regulations. For these analyses, demand models for EU imports of Brazilian exports in these two segments are estimated to calculate the price elasticities of these demands, in order to understand the impact of price increases needed for Brazil to adapt to EU regulations on exports.

The models are estimated using the Ordinary Least Squares (OLS) method with correction by the Newey-West Matrix for autocorrelation and heteroscedasticity and consider the following sets of monthly data for the period from January 2019 to August 2024. The values considered are in natural logarithms, and the estimated coefficients represent elasticities:

Export Volume (Lvolsa) in tons, seasonally adjusted (Source: COMEX STAT);

FOB Price of Exports (Lpricedsa) in euros per ton, deflated and seasonally adjusted (Source: COMEX STAT);

Quarterly GDP (Lgpd2) of the European Union (27 countries) at constant prices and seasonally adjusted (Source: Federal Reserve Bank of Saint Louis).

Dependent Variable: LVOLSA
Method: Ordinary Least Squares
Date: 14/09/24 Time: 06:53
Sample (adjusted): 2019M03 2024M08
Included observations: 66 after adjustments
HAC standard errors & covariance (Bartlett kernel, Newey-West fixed bandwidth = 4.0000)

Variable	Coefficient	Standard Error	t-Statistic	Probability
C	-13.30318	10.55201	-1,260725	0,2121
LVOLSA(-1)	0,548669	0,104380	5.256438	0,0000
LPRICEDSA	-0,534555	0,207087	-2,581312	0,0122
LGDP2(-2)	1.514268	0,710951	2.129919	0,0372

R-squared	0,427951	Dependent Variable Mean	21.36436
Adjusted R-squared	0,400271	Dependent Variable SD	0,186378
SE of regression	0,144335	Akaike Information Criterion	-0,974671
Sum squared residual	1.291617	Schwarz criterion	-0,841964
Log likelihood	36.16413	Hannan-Quinn criterion	-0,922232
F-Statistic	15.46079	Durbin-Watson statistic	1.663669
Prob(F-Statistic)	0,000000	Wald F-Statistic	22.84819
Prob (Wald F-Statistic)	0,000000		

Agricultural Product Results. Source: COMEX STAT e FED Saint Louis

The results show that export prices negatively impact demand, with an elasticity of -0.53, with an upper limit of -0.92 considering a 95% confidence interval. This means that for every 1% increase in the prices of products exported by Brazil, there would be a reduction of 0.53% (up to 0.92%) in the quantities exported to the EU.

The income of the European Union, represented by GDP, positively impacts the exports of these products to Europe, while there is a persistence effect in imports represented by the relevance of the lagged import volume variable in the model.

For the "Minerals, Iron, Copper, and Aluminum" segment, the estimated results are as follows:

Dependent Variable: LVOLSA
Method: Ordinary Least Squares
Date: 14/09/24 Time: 07:06
Sample (adjusted): 2019M02 2024M08
Included observations: 67 after adjustments
HAC standard errors & covariance (Bartlett kernel, Newey-West fixed bandwidth = 4.0000)

Variable	**Coefficient**	**Standard Error**	**t-Statistic**	**Probability**
C	-13.56734	13.40380	-1.012202	0,3153
PRICE_L	-0,598338	0,098512	-6.073766	0,0000
LGDP2(-1)	2.273392	0,892512	2.547183	0,0133

R-squared	0,413517	Dependent Variable Mean	21.31391
Adjusted R-squared	0,395189	Dependent Variable SD	0,315144
SE of regression	0,245087	Akaike Information Criterion	0,069332
Sum squared residual	3.844316	Schwarz criterion	0,168050
Log likelihood	0,677363	Hannan-Quinn criterion	0,108395
F-Statistic	22.56250	Durbin-Watson statistic	1.379576

Prob(F-Statistic)	0,000000	Wald F-Statistic	19.11275
Prob (Wald F-Statistic)	0,000000		

Minerals, Iron, Copper, and Aluminum Results. Source: COMEX STAT e FED Saint Louis

The results also indicate a negative impact of prices on the demand for exports of these materials from Brazil. The price elasticity obtained is -0.6, with an upper limit of -0.79 considering a 95% confidence level. Income, measured by GDP, also shows the expected sign.

To calculate the effects of EU regulations on Brazilian exports, the following calculations were considered:

CBAM – considered a 1.1% increase in the prices of the "Minerals, Iron, Copper, and Aluminum" category and evaluated this impact on the export volume per year, based on 2023 data

Minerals, Iron, Copper, and Aluminum Results	
	Tons (2023)
Export Volume to the EU	20.672.884,08
Yearly Reduction in Tons (-0.60 elasticity)	- 136.441,03
Yearly Reduction in Tons (-0.79 elasticity)	- 179.647,36

This indicates the expected reduction in export volumes to the EU, measured in tons, based on two different price elasticity scenarios: one with an elasticity of -0.60 and another with an elasticity of -0.79. These reductions reflect the estimated impact of price increases (due to regulations like CBAM) on the demand for Brazilian exports in the EU market.

CBAM – considered a 1.1% increase in the prices of the "Agricultural Products" category due to the inclusion of this category in the CBAM, which could occur from 2026 onwards, and evaluated this impact on the export volume per year, based on 2023 data:

Agricultural Products	
	Tons (2023)

Export Volume to the EU	22.947.522,41
Yearly Reduction in Tons (-0.60 elasticity)	- 133.784,06
Yearly Reduction in Tons (-0.79 elasticity)	- 232.228,93

This table shows the export volume of agricultural products from Brazil to the EU in 2023 and the estimated yearly reductions in tons based on two price elasticity scenarios (-0.60 and -0.79) due to a potential 1.1% price increase under the CBAM.

EU Deforestation Regulation – impact due to the existence of rural properties for which there is currently no possibility of identifying that they have not been subject to illegal deforestation.

In the case of traceability in the beef supply chain, estimates indicate that only 10% of the 1,400 farms registered in the Sisbov system have tracking for the full production cycle.[341] Additionally, livestock farming accounts for 77% of the deforested area in the Amazon in Brazil and neighboring countries between 1985 and 2022, according to a MapBiomas survey from December 2023.[342] As already mentioned, there is great difficulty in ensuring that the land has not been subject to deforestation in recent years for most small properties. Therefore, for meat exports, the regulation is expected to strongly impact the volumes exported to Europe initially.

For soybeans, the situation is also complicated. About 16% of the area occupied by soybeans in the Amazon and the Cerrado (which is not included in the EU regulation) is on farms where there are strong indications of environmental irregularities, according to analyses by entities that study land occupation and use. Another 58% show some indication of non-compliance with the Brazilian Forest Code.[343]

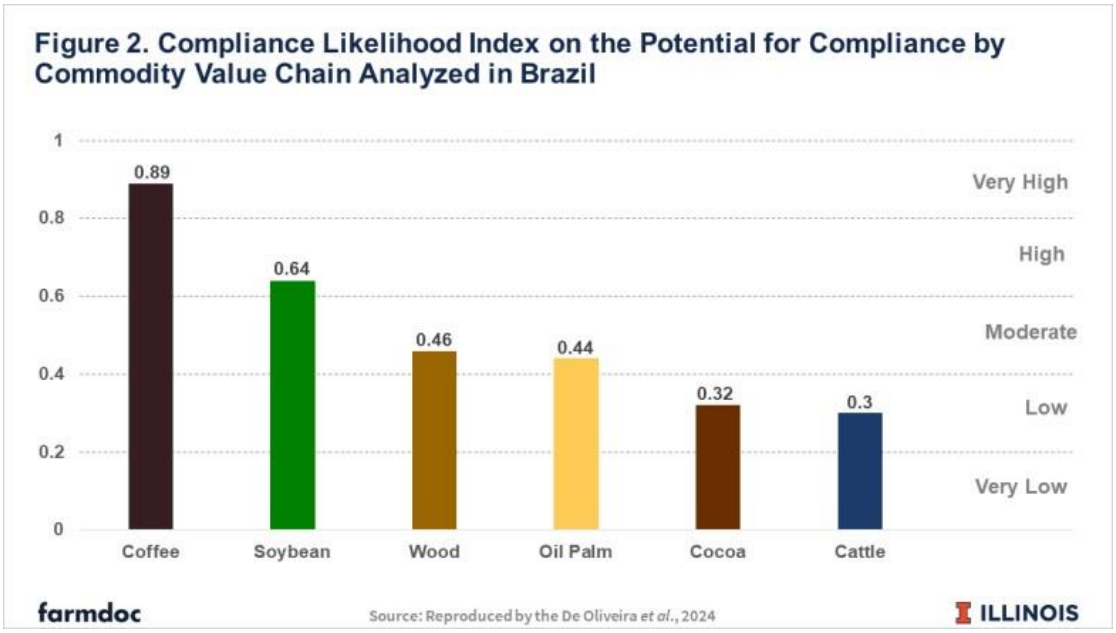
In the case of coffee, another important product exported by Brazil to the EU, 94% of production is located on small farms. However, coffee is considered the crop with the

[341] O Joio e O Trigo. "Demanda europeia por carne sem desmatamento pressiona Brasil a aprimorar monitoramento de animais." O Joio e O Trigo, July 2024. Available at: https://ojoioeotrigo.com.br/2024/07/demanda-europeia-por-carne-sem-desmatamento-pressiona-brasil- a-aprimorar-monitoramento-de-animais/. Accessed on 3 September 2024.

[342] MapBiomas. "Estatísticas de Uso e Cobertura da Terra no Brasil." MapBiomas Brasil. Available at: https://brasil.mapbiomas.org/estatisticas/. Accessed on 29 August 2024.

[343] BrasilAgro. "Milhões de hectares de soja em fazendas com indícios de problemas ambientais." BrasilAgro, Available at: https://www.brasilagro.com.br/conteudo/milhoes-de-ha-de-soja-em-fazendas-com-indicios- de-problemas-ambientais.html. Accessed on 29 August 2024.

highest potential for compliance with the regulation, based on a recent study using the construction of a "Compliance Probability Index,"[344] as shown in the graph below.



Source: FarmDoc Daily. "Compliance Probability Index and Agricultural Adaptability to EU Regulations." Published in 2024. Available at: https://farmdocdaily.illinois.edu/wp- content/uploads/2024/07/fdd070224.pdf. Accessed on 1 September 2024.

As can be inferred from the graph, the coffee sector has the highest level of incentives and the fewest obstacles for compliance, while the livestock sector may face greater challenges in quickly adjusting its production system toward a deforestation-free value chain and proving compliance.

For the calculations conducted here, a conservative estimate is made that there would be an impact of around 20% to 30% on Brazilian exports to the EU.

Agricultural Products	
	Tons (2023)
Export Volume to the EU	22.947.522,41
Annual Reduction – 20%	- 4.589.504,48

[344] De Oliveira, S.E.C., et al. (2024). "The European Union and United Kingdom's deforestation-free supply chains regulations: Implications for Brazil." Ecological Economics, 217, 108053. https://doi.org/10.1016/j.ecolecon.2023.108053.

Annual Reduction – 30%	- 6.884.256,72

EU Deforestation Regulation – There would also be a very significant impact on the costs and, possibly, on the prices of products exported to the EU that meet the regulatory requirements. This increase, according to the EU itself, could reach up to 4.3%, certainly varying from sector to sector. This effect on agricultural products would reduce exports by the following amounts:

Agricultural Products	
	Tons (2023)
Export Volume to the EU	22.947.522,41
Yearly Reduction in Tons (-0.60 elasticity)	- 592.046,08
Yearly Reduction in Tons (-0.79 elasticity)	- 779.527,34

The effects listed above can be summarized as having an impact of up to 1% (a reduction of 179 thousand tons to the EU) in the "Minerals, Iron, Copper, and Aluminum" segment, as there would only be a stronger CBAM effect in this segment. A conservative estimate would be to consider that the entire volume of this segment exported to Europe would be affected. However, since the price impact of this policy would be very limited on exports to the EU, it is difficult to imagine that such exports would be greatly affected.

For **Agricultural Products**, the impacts would be around 1% in exported volumes due to an expansion of CBAM (the same percentage impact as the above segment was considered, as no specific estimates are available), up to 30% reduction in exports due to agricultural properties that will not be able to demonstrate they are deforestation-free, and around 4% related to increased export costs to Europe due to adaptation to EU regulations.

Thus, the total impact on exports could be up to **35% in Agricultural Products**. In terms of employment, this segment could see **a loss of over 20,000 jobs**, considering the share of these exports in total production and assuming a proportional impact on jobs in this sector.

All calculations made in this section were based on the assumption that it would be possible to adapt only part of the production intended for export. However, it is known that this would hardly be possible. In fact, such EU regulatory requirements could end up affecting the entire volume of these products produced in the country. Therefore, the

impacts would be much greater and could be measured mainly by potential cost increases that would also affect the sales of products in Brazil. Considering cost increases of around 4.3% for all Brazilian production in the main segments exported to Europe and a unitary elasticity (quantities reducing in the same proportion as price increases), the impacts would be very high for the country, as shown in the following figure.

Sectors	Impacts in terms of Employess due to 4,3% production decrease
Extraction of iron ore	- 2 890
Extraction of non-ferrous metallic minerals	NA
not previously specified	- 580
Production of ferroalloys	- 469
Production of steel semi-finished products	- 655
Production of flat rolled steel	- 1 270
Metallurgy of aluminum and its alloys	- 1 192
Slaughter of livestock, except pigs	- 6 688
Slaughter of pigs, poultry and other small animals	- 17 351
Manufacture of meat products	- 1 942
Manufacture of fruit and vegetable juices	- 2 015
Sugar manufacturing and refining	- 11 131
Corn	NA
Soy	NA
Fruits	NA
Manufacture of petroleum products	- 1 638
Alcohol manufacturing	- 5 202
TOTAL	- 53 024

Impact on Employment (# of Employees). Source: IBGE

Impacts On The Agreement Between Mercosur And The European Union

The discussion of a free trade agreement between Mercosur and the European Union began more than twenty years ago and could be made unfeasible by the environmental policies adopted by the European Union recently, including the Carbon Border Adjustment Mechanism (CBAM) and Green Claims.

In fact, in 1995 the Mercosur-European Union Cooperation Agreement was signed, which came into force in 1999. In 2000, negotiations began for a free trade agreement between

the two economic blocs. Only in 2019 was the agreement signed. However, for its implementation it would still be necessary to undergo technical review and ratification by the parliaments of all countries involved.

One of the obstacles to implementing the agreement in recent years involved concerns among some European countries that the agreement would result in increased damage to the environment in Brazil and other Mercosur countries. In this context, European regulations, such as CBAM and Green Claims, could make it even more difficult, or even unfeasible, the implementation of the Agreement between Mercosur and the European Union, which would certainly generate significant damage to the economies of Mercosur countries, affecting more 90% of products traded between these two economic blocs.

The agreement provides for broad tariff reductions in trade between the bloc countries, covering all industrial products, mainly by Mercosur countries that have higher import tariffs. There would be a transition period of ten years, with an additional period of five years for the most sensitive Mercosur products. Trade liberalization would be much smaller for agricultural goods, on which the European Union applies a wide range of non- tariff barriers and whose reduction foreseen in the agreement is restricted. Although Mercosur's commercial concessions are greater than those of the European Union, the agreement may have positive effects due to aspects such as the lower cost of industrial inputs and the attraction of foreign investment, resulting from the regulatory convergence foreseen in the other themes of the agreement.

Study[345] carried out by the Directorate of International Studies of the Institute for Applied Economic Research (IPEA) in 2023 evaluates the impacts, by sector, of the agreement between Mercosur and the European Union considering the period from 2015 to 2040, using a general equilibrium model computable with simulations carried out using recursive dynamics. For the study, 46 sectors and four geographic regions were considered: Brazil, other Mercosur countries, the European Union and the rest of the world. The impacts, however, are only measured for the period from 2024 to 2040.

The current and future import tax rates, if the agreement is implemented, are as follows:

345 https://repositorio.ipea.gov.br/bitstream/11058/12718/1/NT_68_Dinte_Avaliacao_dos_impactos.pdf (Acesso em 10/08/2024)

Sectors	Tariffs applied by the European Union to Brazil		Tariffs applied by Brazil to the European Union		Tariffs applied by the European Union to the Other Countries in Mercosul		Tariffs applied by other Countries in Mercosul to the European Union	
	Current	2040	Current	2040	Current	2040	Current	2040
Rice	15,8	0,0	6,7	0,0	4,5	0,0	6,7	0,0
Wheat	4,4	2,3	5,0	5,0	57,1	54,9	5,0	5,0
Other cereals	4,8	4,8	4,7	0,0	3,5	0,0	4,7	0,0
Vegetables, fruits, almonds	6,1	0,3	8,5	0,3	6,1	0,3	8,4	0,2
Oilseeds	0,0	0,0	4,1	0,0	0,0	0,0	4,1	0,0
Sugar cane	11,7	0,0	5,3	0,0	2,1	0,0	5,3	0,0
Natural fibers	1,9	0,0	10,0	0,0	1,9	0,0	9,5	0,0
Other cultures	3,7	0,0	7,0	0,0	4,6	0,0	7,2	0,0
Cattle	1,0	0,0	1,4	0,0	1,0	0,0	1,4	0,0
Livestock	3,7	0,0	4,9	0,7	1,0	0,0	4,9	0,7
Milk	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Silk and wool	3,3	0,0	13,0	0,0	3,3	0,0	11,7	0,0
Plant extraction	0,0	0,0	3,9	0,0	0,0	0,0	3,9	0,0
Fishing	12,3	0,0	9,1	0,6	11,9	0,0	9,1	0,6
Coal	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Oil	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Gas	0,7	0,0	0,0	0,0	0,7	0,0	0,0	0,0
Minerals	0,1	0,0	3,5	0,2	0,1	0,0	3,3	0,2
Beef meat	31,0	31,0	9,7	0,0	22,9	7,2	9,7	0,0
Pork and poultry meat	21,6	21,6	11,1	0,0	4,7	0,1	11,1	0,0
Vegetable oils and fats	6,1	0,0	9,3	0,3	6,1	0,0	9,6	0,1
Dairy	56,1	36,3	18,5	12,0	4,7	1,7	17,3	11,2
Processed rice	35,0	35,0	10,6	0,0	33,5	5,9	10,6	0,0
Sugar	26,5	26,5	15,5	0,8	11,8	7,7	17,3	1,6
Other food products	17,0	0,2	11,9	1,5	13,4	0,2	11,7	1,4
Beverages and tobacco products	9,4	9,4	18,1	2,0	12,1	0,2	17,7	2,0
Textiles	7,0	0,0	23,5	0,0	7,0	0,0	18,7	0,0
Clothing items and accessories	11,1	0,0	33,5	1,6	11,1	0,0	24,6	1,6
Footwear and leather articles	6,4	0,0	18,0	11,0	6,4	0,0	16,4	10,1
Wooden products, exclusive furniture	3,0	0,0	8,7	3,1	3,0	0,0	8,6	3,1
Pulp and paper	0,4	0,0	11,3	4,7	0,4	0,0	10,7	4,7
Petroleum and coal derivatives	2,7	0,0	1,2	0,1	2,7	0,0	0,7	0,1
Chemicals	4,7	4,7	7,1	0,6	4,5	4,7	6,8	0,5
Pharmacists	1,5	0,0	6,3	0,2	1,5	0,0	6,2	0,2
Rubber and plastic	4,8	0,0	13,5	2,6	4,8	0,0	12,9	2,6
Mineral products	3,8	0,0	10,3	3,0	3,7	0,0	10,1	3,0
ferrous metals	0,4	0,0	11,1	0,6	0,4	0,0	10,5	0,5
Non-ferrous metals	3,2	0,0	8,2	1,4	3,2	0,0	8,0	1,4
metal products	2,6	0,0	16,3	1,2	2,6	0,0	14,5	0,9
Electronic products	3,0	0,0	11,3	1,6	2,7	0,0	11,5	1,3
Electrical equipment	2,7	0,0	14,5	1,5	2,8	0,0	7,7	1,3
Machines and equipment	1,9	0,0	11,6	0,8	1,9	0,0	4,9	0,4
Vehicles and parts	6,3	0,0	21,3	4,8	6,3	0,0	14,3	3,1
Other transport equipment	2,9	0,0	10,6	3,1	2,9	0,0	6,8	2,2
Other manufactures	2,2	0,0	15,8	6,4	2,2	0,0	15,0	6,1
Services	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0

Import Tariffs (%) between Brazil/Mercosur and European Union. Source: World Bank (https://wits.worldbank.org. Access in August 20th 2024

Based on these tariff changes and the trade flow currently in force between Mercosur and the European Union, an estimate was made of the impacts of the implementation of the Mercosur-European Union Agreement on GDP, investments, real wages, exports, imports, well-being and trade balance of goods and services. Such impacts are summarized in the following table.

	Brazil	European Union	Other Coutries in Mercosur
GDP (%)	0,46	0,06	0,20
GDP (US$ billions)	9,30	11,28	1,50
Investiment (%)	1,49	0,12	0,41
Real Wages (%)	0,41	0,10	0,16
Exports – *quantum* (%)	3,00	0,12	0,97
Imports – *quantum* (%)	3,00	0,16	0,92
Welfare – utility (%)	0,18	0,07	0,07
Trade Balance (US$ billions)	302,61	*-3.435,53*	169,22

Macroeconomic Effects of the Mercosul - European Union Agreement from 2024 to 2040. Source: IPEA (2023)

The Agreement could generate significant gains for the Brazilian economy and other Mercosur countries in terms of GDP, investments and even an improvement in the trade balance. The European Union would also have gains in terms of GDP, exceeding US$ 11 billion in the period. It is important to highlight that the non-implementation of the agreement would still generate relevant impacts by preventing the increase in real wages listed in the table above and the increase in the level of well-being, especially for Brazil.

From a sectoral point of view, the impacts can be measured both in terms of the value of production, driven by a greater flow of foreign trade, and the jobs that would be created. Below are presented the impacts on the value of production (in US$ million and in percentage terms) for each of the sectors considered.

Sectors	Brazil		European Union		Other Countries in Mercosur	
	(%)	US$ millions	(%)	US$ millions	(%)	US$ millions
Agroindustry	2,00	10.926,8	*-0,63*	*-11.486,2*	1,07	1.957,4
Pork and poultry meat	9,2	2.927,2	*-2,4*	*-3.712,4*	0,2	23,7
Other food products	2,3	2.170,7	*-0,3*	*-1.917,2*	1,2	381,5
Vegetable oils and fats	4,8	1.706,9	*-2,6*	*-1.258,2*	3,2	644,1
Livestock	5,0	1.180,5	*-1,4*	*-983,9*	0,4	60,5
Beverages and tobacco products	1,8	768,9	*-0,4*	*-926,4*	0,7	125,3
Vegetables, fruits, almonds	1,4	475,8	*0,0*	*-22,6*	0,1	7,3

Beef meat	1,0	461,3	-1,5	-1301,1	2,8	403,5
Other cultures	2,6	446,7	-0,7	-399,3	0,1	2,1
Cattle	1,0	292,2	-1,1	-416,5	2,0	224,7
Sugar	0,5	170,4	-0,7	-171,9	0,6	11,5
Other cereals	0,8	145,2	-0,4	-121,2	-0,5	-37,7
Sugar cane	0,4	73,3	-0,5	-29,1	0,6	5,2
Plant extraction	0,6	63,5	0,0	-22,2	0,3	5,1
Silk and wool	1,3	23,0	0,3	9,7	-0,5	-2,7
Wheat	0,8	18,4	-0,1	-19,1	0,4	10,6
Oilseeds	0,0	16,3	-0,9	-126,5	0,8	142,2
Dairy	0,0	10,3	0,0	3,5	-0,5	-56,1
Fishing	0,2	7,8	0,0	-15,8	0,2	2,3
Processed rice	0,0	3,8	-0,6	-15,1	0,3	10,4
Rice	0,0	-0,1	-0,3	-5,8	0,4	4,1
Milk	0,0	-0,5	-0,1	-37,5	-0,1	-5,8
Natural fibers	-1,3	-35,0	0,1	2,7	-0,5	-4,4
Mineral extraction	0,08	126,9	-0,02	-64,8	0,05	16,3
Oil	0,1	67,3	0,0	-22,7	0,0	9,0
Minerals	0,1	55,5	0,0	-18,0	0,1	4,2
Gas	0,1	3,9	0,0	-17,2	0,0	3,1
Coal	0,0	0,1	0,0	-6,9	0,0	0,0
Manufacturing industry	0,04	498,5	0,22	18.048,2	-0,32	-615,2
Footwear and leather articles	3,2	757,1	-0,5	-446,5	5,7	398,9
Petroleum and coal derivatives	0,3	394,7	0,0	187,2	0,1	31,3
Electronic products	0,3	275,4	0,2	1.325,1	0,3	9,6
Other transport equipment	1,1	258,9	0,2	648,4	0,5	13,2
Non-ferrous metals	0,9	217,7	0,0	93,2	1,3	113,6
Pulp and paper	0,3	196,6	0,0	-134,7	0,0	1,2
Wooden products, exclusive furniture	0,8	164,8	-0,1	-218,9	0,6	48,2
Mineral products	0,2	100,0	0,0	49,4	-0,1	-5,5
Rubber and plastic	0,1	99,1	0,1	501,0	-0,8	-87,3
Other manufactures	0,2	83,4	0,0	119,6	0,0	-1,2
Chemicals	0,0	1,8	0,3	2.516,3	-0,4	-82,1
Clothing items and accessories	-0,3	-94,4	0,1	177,6	1,2	106,2
Vehicles and parts	-0,1	-129,0	0,3	2.889,1	-3,7	-777,4
Pharmacists	-0,6	-163,9	0,1	521,8	-0,3	-13,4
ferrous metals	-0,2	-176,3	0,3	939,0	-1,0	-70,1
Textiles	-0,5	-196,2	0,4	622,0	-0,7	-44,2
metal products	-0,4	-270,6	0,3	1.953,8	-1,6	-137,4
Electrical equipment	-1,6	-346,3	0,5	2.233,6	-4,5	-80,8

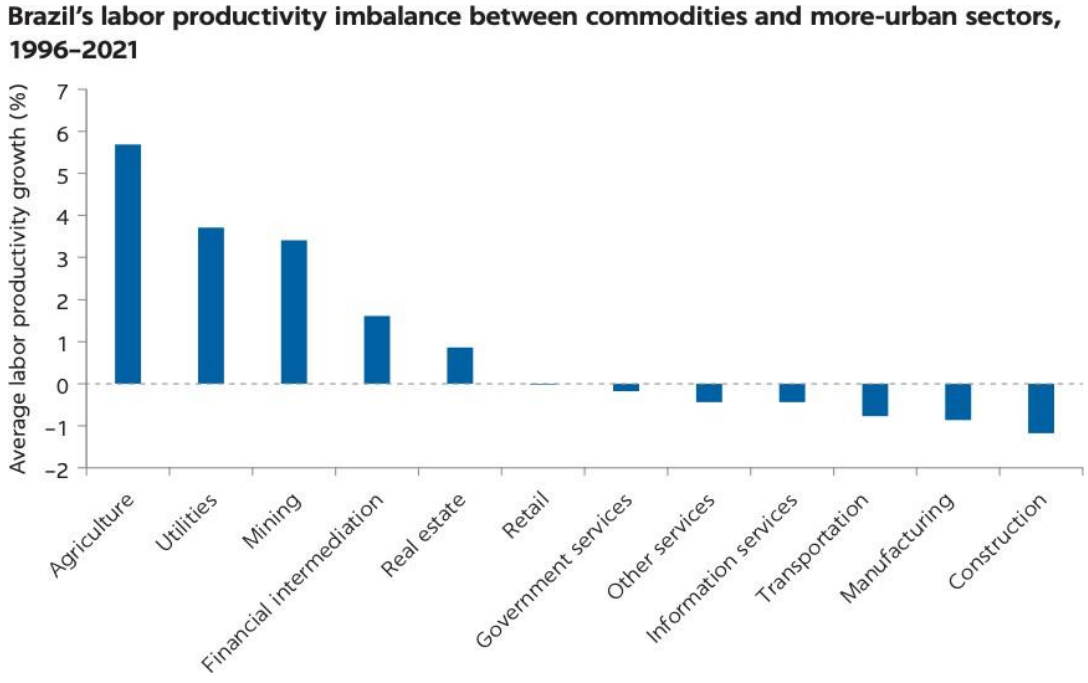
Machines and equipment	*-1,0*	*-674,2*	0,4	4.071,1	*-0,8*	*-37,8*
Services	0,41	9.933,7	0,02	3.927,1	0,22	1.389,7

Effects of the Mercosur - European Union Agreement by Economic Sector from 2024 to 2040 (Production Value). Source: IPEA (2023)

From Brazil's point of view, several segments of agribusiness no longer have significant gains with the implementation of the agreement, with emphasis on pork and poultry meat, vegetable oils, livestock, beverages and tobacco products, vegetables and fruits, and beef meat. For the industrial segment, the biggest impacts would be on the footwear and leather articles, petroleum and coal derivatives and non-ferrous metals (mostly aluminum) sectors. For the other Mercosur countries, the biggest impacts would also be in agroindustry sectors.

For the European Union, on the other hand, the gains are concentrated in the industrial sectors, which would face relevant increases in their sales to Brazil and other Mercosur countries.

Another important impact of the non-implementation of the agreement is related to jobs no longer being created in a series of sectors, as shown in the following table.



HANUSCH, Marek (ed.). *A Balancing Act for Brazil's Amazonian States: An Economic Memorandum*. Washington, D.C.: World Bank Group, 2023.

Sectors	Brazil	European Union	Other Countries in Mercosur
Pork and poultry meat	8,9	-2,4	0,0
Livestock	5,4	-1,6	0,8
Vegetable oils and fats	4,3	-2,6	3,0
Other cultures	2,9	-0,8	0,4
Other food products	1,9	-0,4	1,1
Beverages and tobacco products	1,4	-0,4	0,5
Vegetables, fruits, almonds	1,6	-0,1	0,5
Silk and wool	1,6	0,3	-0,2
Beef meat	0,6	-1,5	2,5
Cattle	1,2	-1,2	2,5
Other cereals	1,1	-0,5	-0,2
Wheat	1,0	-0,1	0,8
Plant extraction	0,7	-0,1	0,4
Sugar	0,1	-0,8	0,4
Sugar cane	0,6	-0,6	1,0
Fishing	0,4	-0,1	1,0
Oilseeds	0,2	-1,0	1,2
Dairy	-0,3	0,0	-0,6
Processed rice	-0,3	-0,6	0,0
Rice	0,2	-0,4	0,8
Milk	0,2	-0,1	0,2
Natural fibers	-1,1	0,1	-0,2
Coal	0,1	-0,1	0,1
Oil	0,1	-0,1	0,1
Gas	0,0	-0,1	0,0
Minerals	0,0	0,0	0,2
Footwear and leather articles	3,0	-0,5	5,5
Other transport equipment	0,8	0,2	0,3
Non-ferrous metals	0,3	0,0	1,0
Wooden products, exclusive furniture	0,4	-0,2	0,3
Pulp and paper	-0,2	-0,1	-0,2
Petroleum and coal derivatives	-0,4	0,0	-0,3
Electronic products	-0,1	0,2	0,1
Mineral products	-0,2	0,0	-0,3
Other manufactures	-0,2	0,0	-0,2
Rubber and plastic	-0,2	0,1	-0,9
Chemicals	-0,6	0,3	-0,7
Vehicles and parts	-0,4	0,3	-4,0
ferrous metals	-0,9	0,2	-1,3
Clothing items and accessories	-0,4	0,1	0,9
metal products	-0,9	0,3	-1,9
Textiles	-1,0	0,4	-0,9

Sectors	Brazil	European Union	Other Countries in Mercosur
Pharmacists	*-1,3*	0,1	*-0,6*
Machines and equipment	*-1,4*	0,4	*-1,0*
Electrical equipment	*-2,0*	0,5	*-4,7*
Services	*-0,1*	*0,0*	*-0,1*

Effects of the Mercosur - European Union Agreement by Economic Sector from 2024 to 2040 (Employment) Source: IPEA (2023)

Brazil fails to generate a very large number of jobs in the agro-industrial sectors and even in some industrial sectors. The same occurs with the other countries in Mercosur, to a lesser extent.

Therefore, it is possible to conclude that by preventing or making even more difficult the implementation of the agreement between Mercosur and the European Union, European regulations, such as CBAM and Green Claims, will cause Brazil to stop increasing its GDP by 0.46%, equivalent to an amount of US$9.3 billion at constant 2023 prices, it will no longer see an increase of 1.49% in its investments and the country's total exports and imports will grow by around 3.0%. Furthermore, there would no longer be gains in real wages and in the level of total utility (proxy for the well-being of the population).

Analyzing the behavior of the different sectors of the Brazilian economy, the simulations show that the Mercosur-European Union agreement would have effects on the value of production and the level of employment as follows: gains in almost all agribusiness sectors and losses concentrated in some industrial sectors.

Challenges For Developing Countries

Barriers To Market Access, Particularly For SMEs

Economic Implications: Potential Exclusion From EU Markets And Conflicts With Trade Agreements

The economic implications of the EU Directive and CBAM for developing countries like Brazil are profound. These regulations could inadvertently create significant barriers to market entry, particularly if businesses are unable to meet the stringent standards[346] set by the EU. This potential exclusion is especially concerning in industries where developing

[346] WORLD BANK. *State and Trends of Carbon Pricing 2024*. Washington, DC: World Bank, p. 28, 2024

countries are major contributors, as the **compliance costs might outweigh their economic capacity**.[347]

The introduction of **carbon-related trade measures** such as CBAM intensifies these challenges by imposing additional costs on imports based on their carbon footprint. Brazilian SMEs, which often operate with narrow profit margins,[348] may find the added costs associated with CBAM—such as purchasing CBAM certificates—detrimental to their competitiveness in the European market**. For many export-oriented sectors, these costs could lead to reduced market share, potential layoffs, and economic contraction, adversely affecting employment, income levels, and overall economic stability in Brazil**.[349]

Moreover, the **EU's environmental regulations may conflict with global trade and investment rules**. LCRs, which are often used by countries like Brazil to develop domestic renewable energy sectors, are increasingly restricted under international trade

[347] "*Third, as Peel argues, focusing on due process might have the practical effect of imposing a cost of compliance on States. Whilst wealthy States may have the resources available to ensure that the science underpinning regulatory decisions is subjected to an appropriately deliberative process, less developed States might struggle to meet the requisite standard. It could, however, be argued in response that the scrutiny of the scientific method called for in this framework is already implicit in certain standards of treatment, and so the burden is no higher than that which exists already*". The Rise of Environmental Disputes: A Due Process- Based Approach to Evaluating Scientific Evidence by J.P. Terceño, C.M.M. Herbert, and P. Ramirez, p. 29

[348] WTO. *Agreement on Trade-Related Investment Measures (TRIMs)*, 1994.

[349] "*While there is limited relevant case law, leading WTO law experts suggest that CBAM can be designed to align with WTO requirements.60 This can be achieved by ensuring that CBAM is non-discriminatory, applying the adjustment equally to all imports based on their carbon footprint, and maintaining neutrality by mirroring domestic price schemes and offering export rebates. In the case of the U.S., if CBAM achieves these goals, it can combat climate change, while remaining WTO compliant by reducing substantial costs for American businesses and preventing energy-intensive companies from relocating to less restrictive countries, thereby retaining jobs and reducing emissions. Additionally, transparency in calculating the carbon footprint of imported goods and exploring other less trade-restrictive options are crucial for WTO compliance to facilitate ease of administration, making it more likely for businesses to respond to the policy promptly and efficiently*". Balancing Trade and Climate Goals: The Role of a United States Carbon Border Adjustment Mechanism - Trade and Climate Goals by C. Olatunji and T. Olanrewaju; B20 BRAZIL. Policy Recommendations to the G20: Driving Sustainable Economic Growth in the Global South. B20 Summit 2024 Policy Paper, Brazil, 2024.

agreements such as GATT[350] and TRIMs.[351] **These agreements prohibit countries from favoring local products and services over foreign ones, limiting the ability of developing nations to use LCRs as part of their strategy to meet EU standards while also protecting their local industries**. This conflict underscores a critical issue for developing countries: balancing the need to comply with stringent international environmental standards with the equally pressing need to support domestic economic growth and development.[352]

For countries like Brazil, **which are striving to transition to a more sustainable economy**,[353] the restrictions imposed by GATT and TRIMs on the use of LCRs could undermine efforts to build resilient, self-sufficient renewable energy sectors that can compete on a global scale.[354] As a result, these countries may face a situation where they

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[350] "*Both the GATT (Article III) and the GATS (Article XVII) set out the commonly incorporated national treatment standard: goods and services from fellow WTO members must be treated 'no less favorably' than 'like' domestic goods and services.37 LCRs, in requiring, or even encouraging, foreign and domestic investors to do business with domestic companies rather than their foreign counterparts directly violate that rule. Any ambiguity about the legality of LCRs inherent in the national treatment standard is clarified in both the SCM and TRIMs agreements. International rules on subsidies list certain*". Policy Space for Jobs and Clean Energy: Trade, Investment Rules, and Local Content Requirements in Renewable Energy Policies by Rachel Denae Thrasher.

[351] Ibid.

[352] "*Although this limitation may seem indistinguishable from that of the WTO, the scope of these investment commitments uncovers a much more significant constraint on domestic policy-making. The first subtle difference between the approach under the WTO and what we call 'TRIMs+' approaches, is the definition of the word 'investment'. In particular in treaties involving the United States (or drafted with US interests in mind), the definition of 'investment' includes 'every asset that an investor owns or controls', with a long, non- exhaustive, list of examples. Critics of this approach have argued that this commitment exposes treaty parties to a much wider range of prohibited policies. In this context, LCRs are not only prohibited in the context of trade in goods or bound services sectors (as they are under the WTO agreements), but in any sector where a foreign investor is present*". Policy Space for Jobs and Clean Energy: Trade, Investment Rules, and Local Content Requirements in Renewable Energy Policies by Rachel Denae Thrasher.

[353] B20 BRAZIL. Policy Recommendations to the G20: Driving Sustainable Economic Growth in the Global South. B20 Summit 2024 Policy Paper, Brazil, 2024.

[354] "*Both the GATT (Article III) and the GATS (Article XVII) set out the commonly incorporated national treatment standard: goods and services from fellow WTO members must be treated 'no less favorably' than 'like' domestic goods and services.37 LCRs, in requiring, or even encouraging, foreign and domestic investors to do business with domestic companies rather than their foreign counterparts directly violate that rule. Any ambiguity about the legality of LCRs inherent in the national treatment standard is clarified in both the SCM and TRIMs agreements. International rules on subsidies list certain*". Policy Space for Jobs and Clean Energy: Trade, Investment Rules, and Local Content Requirements in Renewable Energy Policies by Rachel Denae Thrasher.

are forced to make difficult trade-offs between achieving international environmental compliance and fostering local economic development—a situation that could have long- term economic and social consequences.[355]

While high environmental standards are essential for sustainability, the economic impacts on businesses, particularly in developing countries, must also be carefully considered. The challenge lies in finding a balance where environmental protection does not lead to economic exclusion,[356] ensuring that all businesses, regardless of their location or size, have the opportunity to participate in global markets while also contributing to environmental sustainability. Regulatory frameworks, such as CONAR's Self-Regulatory mechanism for advertisement in Brazil, are designed to be more adaptable to the economic realities faced by businesses in developing countries.[357] CONAR's framework provides a more accessible pathway for compliance that does not immediately threaten market exclusion by being cognizant of the significant challenges that Brazilian businesses may encounter in meeting stringent environmental standards.

As global environmental regulations become more stringent, it will be increasingly important for regulatory frameworks to include provisions that help bridge the gap between developed and developing markets, ensuring that sustainability goals are achieved in an inclusive and equitable manner. The EU Directive and CBAM, while aiming to advance global sustainability, should consider adjustments to avoid disproportionately impacting developing countries by erecting barriers to market access, disrupting local industries, and potentially conflicting with established international trade norms. These outcomes suggest a need for thoughtful consideration and perhaps modifications to these regulations to promote environmental goals without unduly burdening developing economies.

Compliance Costs And Economic Barriers

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[355] "*Moreover, since prohibitions on these policies have been enforced disproportionately against renewable energy LCRs rather than the fossil fuel sector, it seems that we should not bar such policies ex ante. However, many of them are widely acknowledged to be illegal under international trade and investment rules.30 Indeed, as others have said, there very well may be a 'fundamental conflict between' the political and economic rationale for LCRs and the basic principles underlying the trade regime.31 The General Agreement on Tariffs and Trade (GATT) has institutionalized the principle of nondiscrimination, under which countries may not treat (through regulation or taxation) imported goods less favourably than their own*".

[356] CAPITAL RESET. 2021: primeiro sustainability bond brasileiro disponível para o público (Casas Bahia) cai em default agora, em 2024.

[357] Annex U, 5 Pertinência, CONAR

Economic Challenges For SMEs

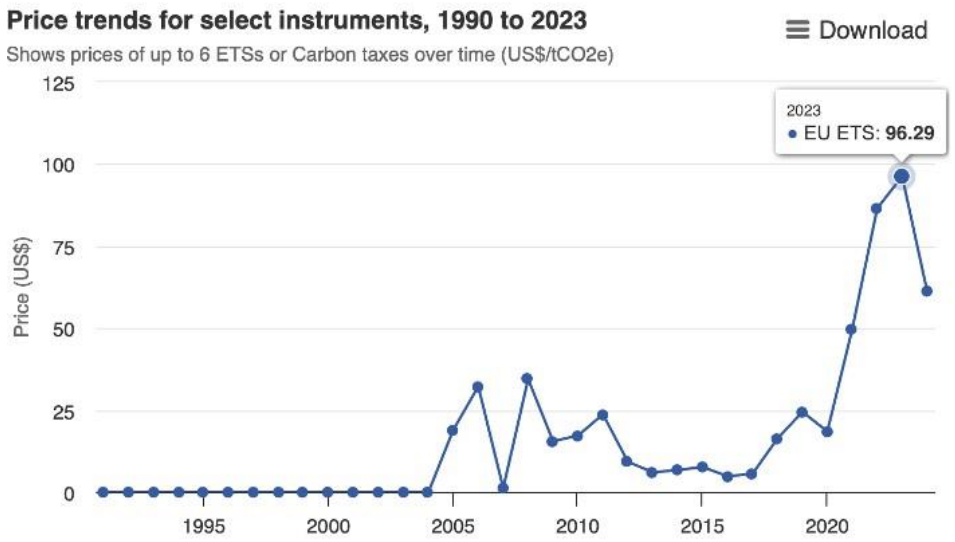
The introduction of carbon-related trade measures like CBAM and the Green Claims Directive poses significant challenges for developing countries by imposing additional costs on imports based on carbon footprint and sustainability claims. In fact, for countries like Brazil, **which are striving to transition to a more sustainable economy**,[358] the restrictions imposed could undermine efforts to build resilient, self-sufficient renewable energy sectors that can compete on a global scale. As a result, countries may face a situation where they are forced to make difficult trade-offs between achieving environmental compliance and fostering local economic development—a situation that could have long-term economic and social consequences.[359]

The compliance costs associated with the EU environmental rules present a substantial burden, particularly for small and medium-sized enterprises (SMEs) in developing countries.[360] These regulations demand comprehensive certification, verification, and disclosure of environmental impacts across the entire lifecycle of products, which requires significant financial and operational investment. For SMEs in countries like Brazil, this burden is particularly heavy due to limited financial resources, technical expertise, and access to capital.

Brazilian SMEs, which often operate with narrow profit margins,[361] may find the added costs associated with CBAM and GCD —such as purchasing EU ETS certificates required by CBAM and auditing their sustainability claims—to be detrimental to their competitiveness in the European market, prices in the EU ETS have fluctuated and have reached nearly €100 per ton of CO2 which can have significant impacts over exporters' margins, particularly in sectors that are energy-intensive. For many export-oriented sectors, these costs could lead to reduced market share, potential layoffs, and economic contraction, adversely affecting employment, income levels, and overall economic stability in Brazil.[362] This potential exclusion is especially concerning in industries where

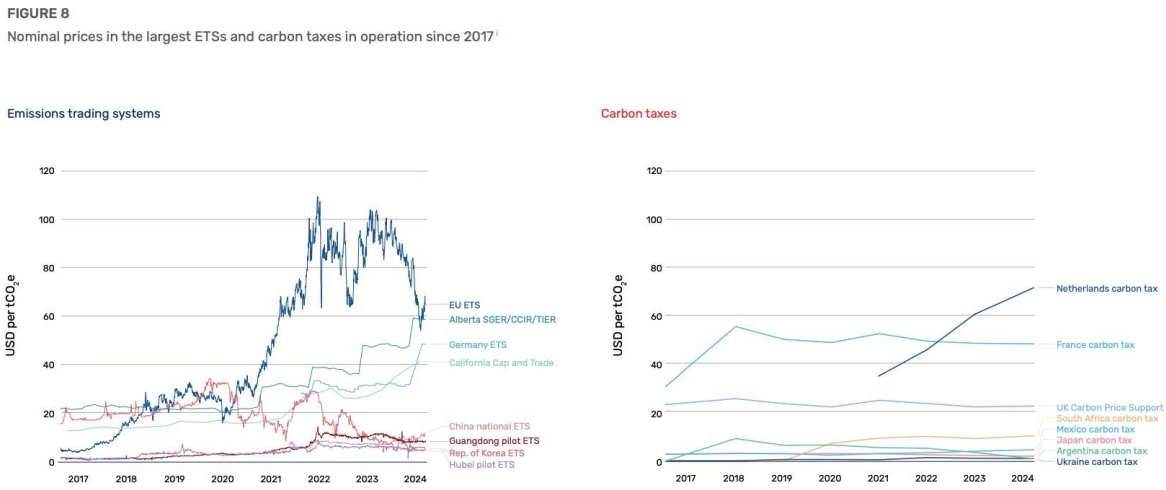
[358] B20 BRAZIL. Policy Recommendations to the G20: Driving Sustainable Economic Growth in the Global South. B20 Summit 2024 Policy Paper, Brazil, 2024.
[359] GUDKOV, I.; MIZULIN, N. Carbon Barriers to Trade: WTO Law Issues. *Oil, Gas & Energy Law Intelligence (OGEL)*, Feb. 2020. ISSN 1875-418X.
[360] B20 BRAZIL. Policy Recommendations to the G20: Driving Sustainable Economic Growth in the Global South. B20 Summit 2024 Policy Paper, Brazil, 2024.
[361] B20 BRAZIL. Policy Recommendations to the G20: Driving Sustainable Economic Growth in the Global South. B20 Summit 2024 Policy Paper, Brazil, 2024.
[362] Ibid.

developing countries are major contributors, as the compliance costs might outweigh their economic capacity.[363]



Source: World Bank[364]

The same trend is shown in World Bank's report on Carbon Pricing.

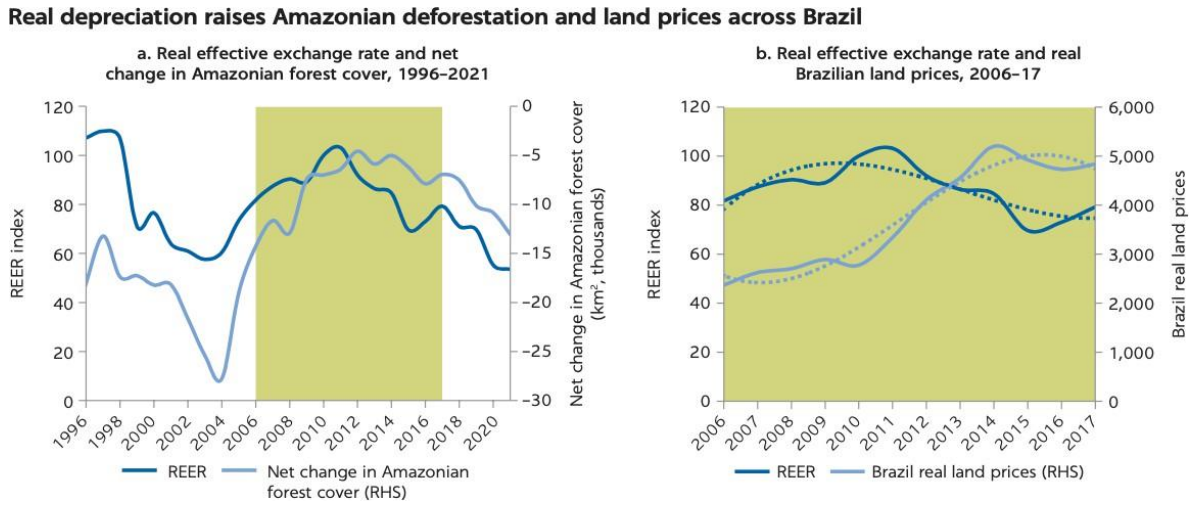


Source: WORLD BANK. *State and Trends of Carbon Pricing 2024*. Washington, D.C.: World Bank, 2024.

[363] Ibid.

[364] WORLD BANK. *Carbon Pricing Dashboard: Compliance Carbon Pricing Instruments.* World Bank Group.

Compounding these challenges, exchange rate fluctuations can further exacerbate the volatility[365] of carbon prices for exporters in developing countries. For example, if a local currency significantly devalues against the euro or dollar, the cost of purchasing EU ETS certificates could increase substantially in local currency terms, thereby intensifying financial pressures on businesses in developing markets. This additional layer of volatility complicates budgeting and financial planning for SMEs and exporters, increasing the risk of market exclusion. Data has also linked Brazil's externa competitiveness (and BRL depreciation rates) to increase in the Amazonian deforestation issue.



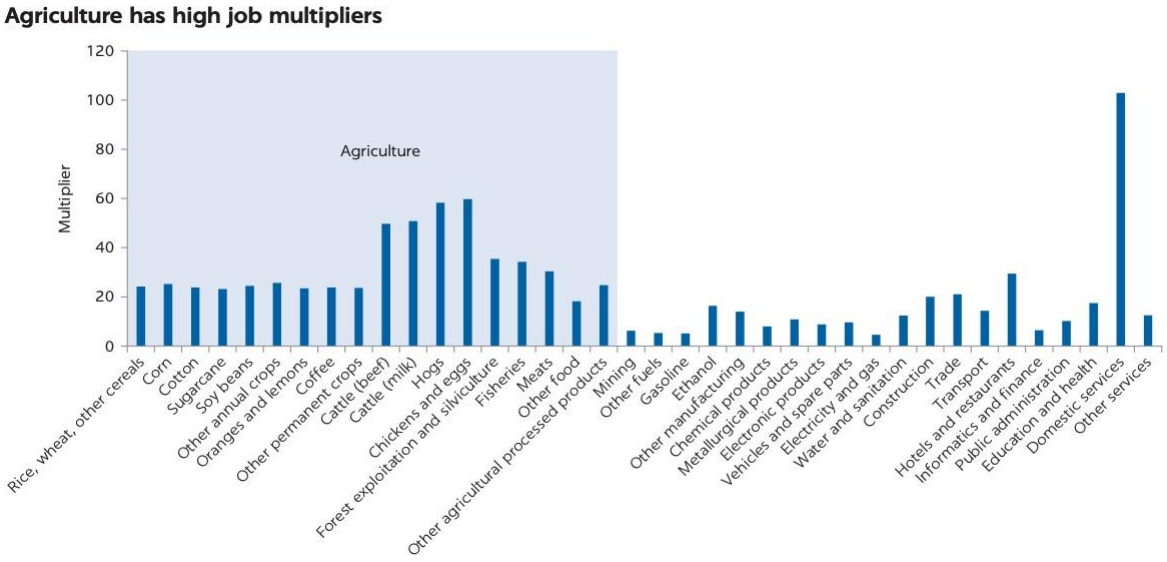
Source: HANUSCH, Marek (ed.). *A Balancing Act for Brazil's Amazonian States: An Economic Memorandum*.
Washington, D.C.: World Bank Group, 2023.

These effects are more likely to be seen by small and medium-sized enterprises (SMEs), which often operate on thin profit margins, face significant financial burdens associated with purchasing EU Emissions Trading System (ETS) certificates and conducting sustainability audits required under CBAM and GCD. The compliance costs associated with these regulations present substantial burdens for SMEs, which often lack the financial resources, technical expertise, and access to capital needed to comply with EU requirements, especially when coming from developing countries.[366]

Direct costs include obtaining certifications and adhering to environmental standards, while indirect costs encompass necessary technological upgrades and supply chain

[365] WORLD BANK. *World Development Indicators: Exchange Rates and Prices.* Washington, DC: World Bank, 2024.
[366] B20 BRAZIL. Policy Recommendations to the G20: Driving Sustainable Economic Growth in the Global South. B20 Summit 2024 Policy Paper, Brazil, 2024.

adjustments.[367] In sectors such as agriculture, textiles, and manufacturing—key areas for many developing countries—failure to comply with EU regulations could lead to reduced competitiveness or exclusion from the market altogether. This exclusion could have broader economic implications, [368] potentially resulting in job losses, reduced economic activity, and exacerbating economic disparities between developed and developing nations.[369] In fact, their country of origin may negatively impact consumer-perception over their sustainable measures,[370] which can further increase the costs of compliance because "to be green" can be a higher bar for those coming from countries with little or no "green" image.



Source: HANUSCH, Marek (ed.). A Balancing Act for Brazil's Amazonian States: An Economic Memorandum. Washington, D.C.: World Bank Group, 2023.

[367] Lise Johnson and Lisa Sachs, 'The Outsized Costs of Investor-State Dispute Settlement' (2016) 16(1) Academy of International Business: Insights 10, 11.

[368] Cf. IHEMEZIE, E. et al. Impact of 'Green' Product Label Standards on Consumer Behaviour: A Systematic Review Analysis. *International Journal of Academic Research in Business and Social Sciences*, 2018; CHAN, R. The effectiveness of environmental advertising: the role of claim type and the source country green image. *International Journal of Advertising*, v. 19, p. 349-375, 2000.

[369] WORLD BANK. *State and Trends of Carbon Pricing 2024*. Washington, DC: World Bank, p. 25, 2024

[370] Cf. IHEMEZIE, E. et al. Impact of 'Green' Product Label Standards on Consumer Behaviour: A Systematic Review Analysis. *International Journal of Academic Research in Business and Social Sciences*, 2018; CHAN, R. The effectiveness of environmental advertising: the role of claim type and the source country green image. *International Journal of Advertising*, v. 19, p. 349-375, 2000.

Businesses exporting to the EU need to comply with rigorous environmental standards, which often include certification, verification, and disclosure of environmental impacts across the entire lifecycle of products.[371] These requirements can be prohibitively costly and technically complex, especially for SMEs in developing countries that frequently lack the financial resources, technical expertise, or infrastructure to comply with such demanding standards.

The Directive's high standards could pose substantial barriers for companies in developing regions,[372] particularly SMEs. Compliance costs, including investment in sustainable energy solutions and upgrades to meet environmental standards, can be disproportionately high for these enterprises, which typically operate with thin margins and limited access to capital. This financial burden restricts their ability to compete in the European market, resulting in potential exclusion from one of the world's largest markets.[373]

Need For Support Mechanisms (Financial And Technical) To Aid Compliance

Given the financial and logistical challenges faced by SMEs, there is a clear need for targeted support mechanisms that can help businesses in developing countries navigate these regulations. Financial mechanisms[374] such as grants, low-interest loans, or subsidies would enable SMEs to invest in sustainable practices and infrastructure upgrades that align with international environmental standards. Technical support, including access to expert advisory services and training programs, would help these businesses better understand and implement complex regulations.

Furthermore, allocating a portion of revenues from mechanisms like the CBAM to support developing nations could provide essential relief, helping to offset the economic pressures created by these regulations. By offering both financial and technical assistance,

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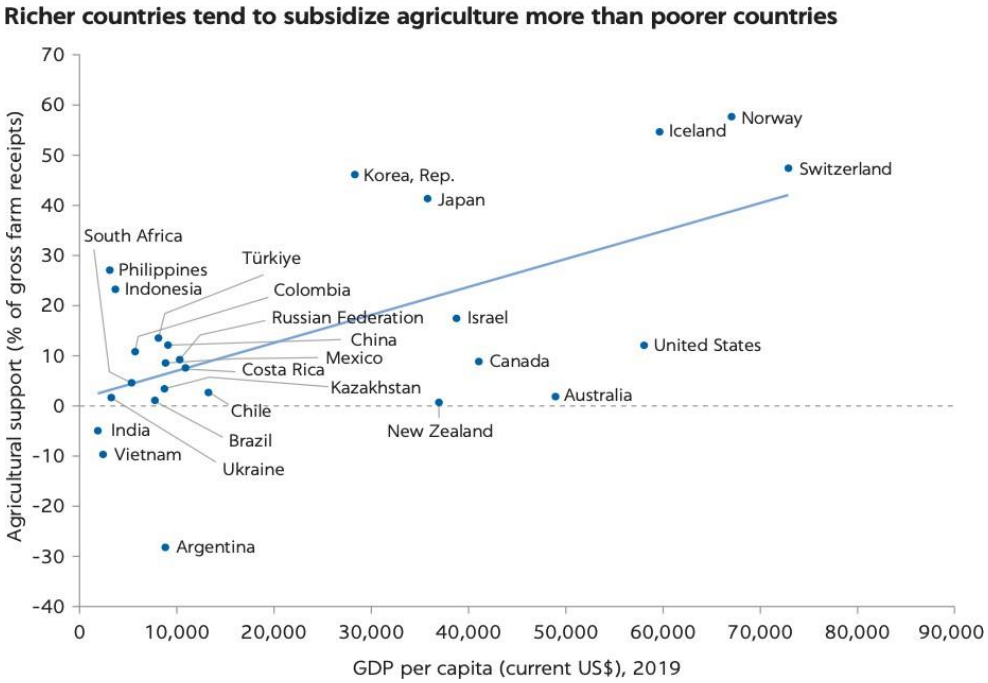
[371] Article 12, Directive 2024/825; Report States Information, Application User Manual CBAM Declarant Portal ver 1.2.2.

[372] Cf. IHEMEZIE, E. et al. Impact of 'Green' Product Label Standards on Consumer Behaviour: A Systematic Review Analysis. *International Journal of Academic Research in Business and Social Sciences*, 2018; CHAN, R. The effectiveness of environmental advertising: the role of claim type and the source country green image. *International Journal of Advertising*, v. 19, p. 349-375, 2000.

[373] B20 BRAZIL. Policy Recommendations to the G20: Driving Sustainable Economic Growth in the Global South. B20 Summit 2024 Policy Paper, Brazil, 2024.

[374] GLOBAL ENVIRONMENT FACILITY. *Donors Boost Global Environment Facility Contributions to $5.33 Billion.*GEF-8 Replenishment Summary. Washington, DC: GEF Secretariat, p. 28, 2023.

such support mechanisms would encourage a more inclusive approach to sustainability, reducing the risk that stringent environmental standards disproportionately affect developing countries. According to the World Bank, developed countries are subsidizing agriculture substantially more than other countries.



(Source: HANUSCH, Marek (ed.). *A Balancing Act for Brazil's Amazonian States: An Economic Memorandum*. Washington, D.C.: World Bank Group, 2023.)

While institutions have tried to assist financially developing countries, investment is far lower than what developed countries have imputed into their own markets. The World Bank has issued sustainable development bonds for matters like South Africa's Wild Live Conservation, but for a 5 year plan with 150 million dollars.[375] In comparison, the whole 2022 investment in "nature" was of 2.8 billion dollars worldwide.[376]

[375] THE WORLD BANK. 2023 Sustainability Review. Washington, D.C.: International Bank for Reconstruction and Development / The World Bank, 2024, p. 10.
[376] THE WORLD BANK. 2023 Sustainability Review. Washington, D.C.: International Bank for Reconstruction and Development / The World Bank, 2024, p. 25–26.

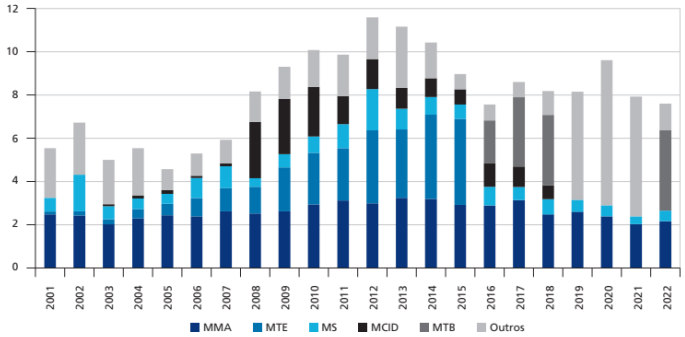
FIGURE 1
Snapshot of global sustainable investing assets, 2016– 2022 (USD billions)

REGION	2016	2018	2020	2022
Europe	12,040	14,075	12,017	14,054
Canada	1,086	1,699	2,423	2,358
Australia & New Zealand	516	734	906	1,220
Japan	474	2,180	2,874	4,289
Sub-total (USD Billions)	14,115	18,688	18,220	21,921
% change		*32%*	*-3%*	*20%*
United States	8,723	11,995	17,081	8,400
Total (USD Billions)	22,838	30,683	35,301	30,321
% change		*34%*	*15%*	n/a

Note: 2022 not applicable due to a change in methodology

Global sustainable investment at
$30.3 trillion

GRÁFICO 1
Gastos em meio ambiente do governo federal, por órgão orçamentário (2001-2022)
(Em R$ bilhões)



Fonte: Siga Brasil.

Source: https://repositorio.ipea.gov.br/bitstream/11058/13719/1/TD_2984_web.pdf

Technical support, including access to expert advisory services and training programs, would also help these businesses better understand and implement complex regulations like CBAM, RED and GCD. Furthermore, allocating a portion of revenues from mechanisms like the CBAM to support developing nations could provide essential relief, helping to offset the economic pressures created by these regulations. Stakeholders who fail to meet these rigorous standards risk significant legal repercussions and reputational damage— outcomes that can have long-lasting adverse effects on their market position and consumer trust. Consequently, while the directive is designed to promote sustainability, its failure to account for the varying capacities of stakeholders across different regions could lead to unintended consequences, such as marginalizing smaller players in the Global South.[377] By offering both financial and technical assistance, such support mechanisms would encourage a more inclusive approach to sustainability, reducing the risk that stringent environmental standards disproportionately affect developing countries and cause negative socio-economic impacts.[378]

[377] GLOBAL ENVIRONMENT FACILITY. *Donors Boost Global Environment Facility Contributions to $5.33 Billion.*GEF-8 Replenishment Summary. Washington, DC: GEF Secretariat, p. 28, 2023.
[378] WORLD BANK. *State and Trends of Carbon Pricing 2024.* Washington, DC: World Bank, p. 28, 2024

While such support is necessary to ensure compliance with environmental regulations, it is equally crucial to enable these stakeholders to invest in and adopt effective carbon reduction technologies that play a vital role in achieving global climate goals. In this scenario, while reducing carbon emissions is important, carbon capturing mechanisms, both engineered and nature-based, also play a key role in achieving climate goals. Engineered CCS technologies are highly efficient but face economic and policy challenges that need to be addressed for large-scale deployment and could benefit from well- structured support mechanisms.[379] Natural climate solutions offer substantial mitigation potential and additional environmental benefits, but they also require technological framing to be effective in policy and market contexts. Some engineered carbon capture and storage (CCS) technologies can offer a highly efficient method for reducing atmospheric CO2 levels, capable of capturing over 90% of CO2 emissions from power plants and industrial sources.[380] However, despite this high efficiency, CCS faces substantial economic and technical barriers.[381] High costs, coupled with significant energy demands for the capture, transport, and storage of CO2, pose major challenges to widespread deployment. Technological advancements have enhanced the efficiency of CO2 capture processes,[382] but cost is still an issue. The lack of harmonized CO2 market incentives,[383] and various political and commercial obstacles further hinder the expansion of CCS technologies.[384]

On the other hand, natural climate solutions (NCS) provide an alternative approach with significant mitigation potential and apply strategies such as conservation, restoration, and improved land management. Beyond carbon mitigation, NCS also offer substantial co- benefits, including enhanced soil productivity, water filtration, flood buffering, and biodiversity conservation, making them a key component of integrated climate and

[379] AGHAIE, M. et al. A systematic review on CO2 capture with ionic liquids: Current status and future prospects. *Renewable and Sustainable Energy Reviews*, 2018.

[380] WILBERFORCE, T. et al. Outlook of carbon capture technology and challenges. *The Science of the Total Environment*, v. 657, p. 56-72, 2019; CHALMERS, H. Fundamentals point to carbon capture. Nature Climate Change, v. 9, p. 348, 2019.; BUI, M. et al. Carbon capture and storage (CCS): the way forward. *Energy and Environmental Science*, v. 11, p. 1062-1176, 2018.

[381] AGHAIE, M. et al. A systematic review on CO2 capture with ionic liquids: Current status and future prospects. *Renewable and Sustainable Energy Reviews*, 2018

[382] ALVIZO, O. et al. Directed evolution of an ultrastable carbonic anhydrase for highly efficient carbon capture from flue gas. *Proceedings of the National Academy of Sciences*, v. 111, p. 16436-16441, 2014.

[383] REINHARD, C., et al. Aligning incentives for carbon dioxide removal. *Environmental Research Letters*, v. 18, 2023.

[384] BUI, M. et al. Carbon capture and storage (CCS): the way forward. *Energy and Environmental Science*, v. 11, p. 1062-1176, 2018.

environmental strategies, heart of the argument for differentiation of products under WTO. Public perception generally favors natural solutions over engineered ones, viewing them as more harmonious with environmental and social goals. However, for NCS to be effectively incorporated into climate policy frameworks, they also require standardized, engineered approaches to ensure their scalability and impact.[385]

CHAPTER 3 – NEED FOR A HARMONIZED GLOBAL FRAMEKWORK

The complexities and potential conflicts arising from unilateral measures like CBAM and GCD underscore the need for a harmonized global framework to manage carbon border adjustments, green claims and other climate-related trade measures, ensuring that carbon-related trade measures are applied consistently and equitably across all countries. This approach would prevent trade disputes and retaliatory actions by establishing standardized rules and guidelines for carbon border adjustments, including clear criteria for implementation and exemptions for developing countries that lack the capacity to meet stringent environmental standards.[386]

A multilateral framework should align with the principles of the Paris Agreement, which emphasizes "common but differentiated responsibilities"[387] in addressing climate change. Incorporating these principles into a global framework for carbon border adjustments, green claims and other environment-related measures would promote fairness in trade relations while supporting global sustainability objectives. It would help prevent fragmentation in international trade relations and ensure that global efforts to combat climate change are not undermined by competing national interests or protectionist policies.[388]

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[385] GRISCOM, B. et al. Natural climate solutions. *Proceedings of the National Academy of Sciences of the United States of America*, v. 114, p. 11645-11650, 2017.

[386] VIÑUALES, J. E. *Foreign Investment and the Environment in International Law*. Cambridge: Cambridge University Press, 2012LYON, T. P.; MAXWELL, J. W. Greenwash: Corporate environmental disclosure under threat of audit. *Journal of Economics & Management Strategy*, v. 20, n. 1, p. 3-41, 2011; WORLD BANK. *State and Trends of Carbon Pricing 2024*. Washington, DC: World Bank, p. 30, 2024.

[387] CLIMATENEXUS. Common but Differentiated Responsibilities and Respective Capabilities (CBDR-RC). Climate Nexus, n.d.

[388] WORLD BANK. *State and Trends of Carbon Pricing 2024*. Washington, DC: World Bank, p. 23, 2024; GUDKOV, I.; MIZULIN, N. Carbon Barriers to Trade: WTO Law Issues. *Oil, Gas & Energy Law Intelligence (OGEL)*, Feb. 2020. ISSN 1875-418X.

Policy Considerations For A Balanced Approach

The implementation of climate policies like the Carbon Border Adjustment Mechanism (CBAM)[389] raises important questions about balancing environmental sustainability with economic inclusion, particularly for developing countries. While ambitious environmental regulations are essential for combating climate change, they must also consider the economic realities faced by countries with diverse developmental contexts.[390] **A one-size- fits-all approach may inadvertently disadvantage those with less capacity to meet stringent standards, risking economic exclusion and undermining global efforts toward sustainability**. This section explores policy considerations that emphasize the need for regulatory frameworks incorporating flexibility and support mechanisms tailored to the needs of developing nations. Additionally, it advocates for global coordination and multilateral agreements to establish a fair, inclusive, and effective international framework for carbon border adjustments. Proposals include developing a global financing system and revising international treaties to better balance environmental objectives with economic growth, ensuring that climate action supports sustainable development across all regions.

Limitations Of One-Size-Fits-All Standards And Enforcement

Authorities have echoed the notion that if "companies are using misleading eco claims" they should not "hesitate to take enforcement action – through the courts if necessary."[391] While this may help deter greenwashing, for those with high environmental performance this type of pressure may lead to overly cautious disclosure practices not to fall prey to accusations of hypocrisy or selective reporting, giving rise to a phenomenon called "greenhushing", as "[g]reater activist pressure deters greenwash, but induces some firms to disclose less about their environmental performance."[392] This creates a complex relationship between actual environmental performance and disclosed behavior, as those very high or very low performance may disclose less than those with moderate performance levels.[393] Such dynamics suggest that there are different equilibria in

[389] EUROPEAN COMMISSION. *Carbon Border Adjustment Mechanism (CBAM).*
[390] WORLD BANK. *World Development Indicators: Exchange Rates and Prices.* Washington, DC: World Bank, 2024.
[391] COMPETITION AND MARKETS AUTHORITY. ASOS, Boohoo and Asda investigated over fashion 'green' claims. 29 jul. 2022. Press release.
[392] LYON, T. P.; MAXWELL, J. W. Greenwash: Corporate environmental disclosure under threat of audit. *Journal of Economics & Management Strategy*, v. 20, n. 1, p. 3-41, 2011.
[393] Ibid.

disclosure strategies depending on how stakeholders weigh the benefits of a positive environmental reputation against the risks of being penalized for greenwashing. Thus, to enhance the integrity of environmental reporting, policies and activism should be carefully targeted. Rather than broadly penalizing selective disclosure, efforts should focus on firms most likely to engage in deceptive practices, thereby encouraging more accurate and comprehensive disclosures.[394]

The European Commission's recent guidelines on sustainable finance and taxonomy[395] recommends rigorous standards and third-party validations to avoid the pitfalls of greenwashing and ensure long-term market trust. Focused on carbon-intensive markets, the European Union has also passed the Carbon Border Adjustment Mechanism (CBAM) with the explicit objective of avoiding "carbon leakage", when production leaves a jurisdiction due to regulatory enforcement.[396] However, these regulations may have mixed impacts on developing countries. Strict criteria may deter greenwashing, but could create investment barriers, as meeting EU standards can be costly and challenging for countries with limited resources. The high compliance costs could exclude smaller firms from EU markets, potentially widening economic disparities. Moreover, the taxonomy may favor developed nations with existing green infrastructure. To address similar complexities, the Paris Agreement is founded on the principle of "differentiated responsibilities," acknowledging that countries have varying capacities and development levels, which affect their ability to undertake climate mitigation and adaptation efforts. This agreement represents a new era in international climate governance, striking a balance between ambition, flexibility, and inclusivity. Its success relies on ongoing scientific input, strong political commitment, and a robust framework for monitoring and enhancing national commitments. [397] Thus, to be be applied globally, however, the taxonomy must include flexibility, support, and capacity-building for developing nations to transition sustainably.

While it is essential to ensure that measures aimed at promoting sustainability lead to verifiable environmental benefits, there is a growing concern about the extent of scientific proof required and the potential adverse impacts on developing countries. The interplay between green claims, regulatory frameworks, and scientific evidence must strike a

[394] Ibid.
[395] EUROPEAN COMMISSION. *EU Taxonomy for sustainable activities.*
[396] EUROPEAN COMMISSION. *Carbon Border Adjustment Mechanism (CBAM).*
[397] KLEIN, D. (Ed.). *The Paris Agreement on Climate Change: Analysis and Commentary*. Oxford: Oxford University Press, 2017.

balance to avoid creating non-tariff barriers or other challenges for emerging markets and developing nations.

Balancing Sustainability With Economic Inclusion

The challenge of aligning environmental sustainability with economic inclusion[398] is a significant policy consideration in the context of global trade and environmental regulations.[399] As developing countries strive to comply with increasingly stringent international environmental standards, there is a pressing need for regulatory frameworks that balance environmental goals with economic realities.

The introduction of stringent environmental regulations, such as the EU Directive and the Carbon Border Adjustment Mechanism (CBAM), poses considerable challenges for developing countries,[400] particularly in terms of market access and economic stability, especially for small and medium-sized enterprises (SMEs) that often lack the financial resources, technical expertise, or infrastructure necessary to comply with such rigorous requirements (Recital 7).[401]

Developing countries, such as Brazil, which are significant players in sectors like agriculture, particularly cattle, meat, coffee, cocoa, and soya, textiles, and manufacturing, face challenges.

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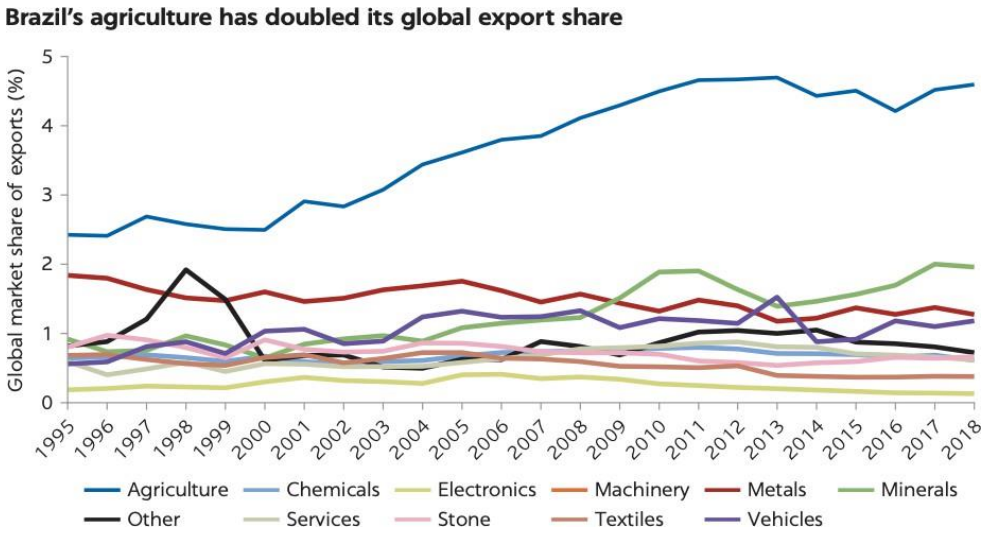
[398] OMC. Argentina — Measures Affecting the Importation of Goods. WTO DS438; OMC. Brazil — Measures Affecting Imports of Retreaded Tyres. WTO DS332; OMC. European Communities — Measures Affecting Asbestos and Asbestos-Containing Products. WTO DS135; OMC. European Communities — Measures Prohibiting the Importation and Marketing of Seal Products. WTO DS400 e WTO DS401; OMC. European Union — Certain Measures Concerning Palm Oil and Oil Palm Crop-Based Biofuels. WTO DS593; OMC. European Union and Certain Member States — Certain Measures Concerning Palm Oil and Oil Palm Crop- Based Biofuels. WTO DS600; OMC. United States — Import Prohibition of Certain Shrimp and Shrimp Products. WTO DS58; OMC. United States — Measures Concerning the Importation, Marketing and Sale of Tuna and Tuna Products. WTO DS381.

[399] KLEIN, D. (Ed.). *The Paris Agreement on Climate Change: Analysis and Commentary*. Oxford: Oxford University Press, 2017.

[400] B20 BRAZIL. Policy Recommendations to the G20: Driving Sustainable Economic Growth in the Global South. B20 Summit 2024 Policy Paper, Brazil, 2024.

[401] B20 BRAZIL. Policy Recommendations to the G20: Driving Sustainable Economic Growth in the Global South. B20 Summit 2024 Policy Paper, Brazil, 2024.



Source: HANUSCH, Marek (ed.). A Balancing Act for Brazil's Amazonian States: An Economic Memorandum. Washington, D.C.: World Bank Group, 2023.

For SMEs operating within these industries, the cost of compliance with the EU's certification and verification standards can be disproportionately high, potentially limiting their access to the European market. For example, Brazilian SMEs, which often operate on thin margins, may find the added costs associated with CBAM insurmountable, leading to potential market exclusion and economic contraction. This exclusion could significantly affect employment, income levels, and overall economic stability.[402]

Furthermore, the EU's environmental regulations may conflict with global trade and investment rules. Local Content Requirements (LCRs), often used by countries like Brazil to develop domestic renewable energy sectors, are increasingly at odds with international trade agreements such as the General Agreement on Tariffs and Trade (GATT) and the Agreement on Trade-Related Investment Measures (TRIMs). These agreements prohibit countries from favoring local products and services over foreign ones, limiting the ability of developing nations to use LCRs to meet EU standards while protecting their local industries.[403]

[402] B20 BRAZIL. Policy Recommendations to the G20: Driving Sustainable Economic Growth in the Global South. B20 Summit 2024 Policy Paper, Brazil, 2024.

[403] Policy Space for Jobs and Clean Energy: Trade, Investment Rules, and Local Content Requirements in Renewable Energy Policies, by Rachel Denae Thrasher.

This conflict underscores a critical issue for developing countries: **balancing the need to comply with stringent international environmental standards with the equally pressing need to support domestic economic growth and development**. Restrictions on the use of LCRs under GATT and TRIMs could undermine efforts by developing countries to build resilient, self-sufficient renewable energy sectors that can compete globally.[404] Consequently, these countries may face difficult trade-offs between achieving international environmental compliance and fostering local economic development—a situation that could have long-term economic and social consequences.[405]

Given these challenges, there is a compelling need to integrate flexibility into regulatory frameworks to balance high environmental standards with the economic realities faced by businesses in developing countries. Flexible mechanisms would help ensure that environmental protection does not lead to economic exclusion, allowing all businesses, regardless of their location or size, to participate in global markets while contributing to environmental sustainability.

The Brazilian model under the National Council for Advertising Self-Regulation (CONAR)[406] offers an alternative approach that balances high environmental standards with economic realities by providing more accessible pathways for compliance. Unlike rigid regulatory models, CONAR's framework is designed to be more adaptable to the economic realities faced by businesses in developing countries, allowing for gradual compliance without immediate threats of market exclusion.

Suggestions for integrating flexibility include phased implementation of new environmental regulations, providing adequate time for adaptation. For example, a phased approach similar to the CBAM's transitional phase could be adopted, where developing countries receive a longer period to adjust to new standards, supported by technical assistance and capacity-building initiatives. Additionally, incorporating differentiated responsibilities,[407] as outlined in the Paris Agreement, could recognize the varying capacities of countries to implement stringent environmental

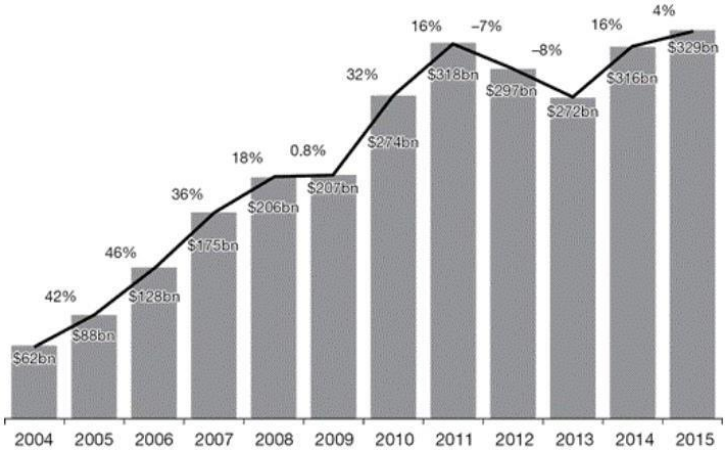
[404] Policy Space for Jobs and Clean Energy: Trade, Investment Rules, and Local Content Requirements in Renewable Energy Policies, by Rachel Denae Thrasher.

[405] Policy Space for Jobs and Clean Energy: Trade, Investment Rules, and Local Content Requirements in Renewable Energy Policies, by Rachel Denae Thrasher.

[406] CONSELHO NACIONAL DE AUTORREGULAMENTAÇÃO PUBLICITÁRIA (CONAR). *Código Brasileiro de Autorregulamentação Publicitária: Anexo U.*

[407] ALEIN, D. (Ed.). *The Paris Agreement on Climate Change: Analysis and Commentary*. Oxford: Oxford University Press, 2017

regulations.Furthermore, to address disparities in compliance capabilities, it is crucial to explore mechanisms that provide financial and technical support to developing countries. For instance, a portion of the revenue generated from CBAM could be allocated to assist developing nations in their transition to sustainable energy, easing the economic pressures these regulations impose.[408] Support could also come in the form of technology transfer agreements and capacity-building programs tailored to the specific needs of these nations.



Source: FISCHLIN, Andreas; IVANOVA, Maria. Introduction: Scientific and Political Drivers for the Paris Agreement. In: KLEIN, Daniel *et al.* (eds.). *The Paris Agreement on Climate Change: Analysis and Commentary*. Oxford: Oxford University Press, 2017.

The EU's recent proposal to delay[409] the application of the Deforestation Regulation reflects these challenges. By acknowledging that global partners like Brazil are unprepared for the rapid implementation of such measures, the EU is signaling the need for more time and consideration. Extending the deadlines to 2025 for large companies and 2026 for SMEs offers a brief extension, but the fundamental issues of regulatory asymmetry and economic exclusion remain. A more context-sensitive approach is urgently needed to ensure the GCD supports sustainability without excluding developing nations

Advocacy For Global Coordination And Multilateral Agreements

[408] B20 BRAZIL. Policy Recommendations to the G20: Energy Transition and Climate. B20 Summit 2024 Policy Paper, Brazil, 2024.

[409] Commission strengthens support for EU Deforestation Regulation implementation and proposes extra 12 months of phasing-in time, responding to calls by global partners https://ec.europa.eu/commission/presscorner/ detail/en/ip_24_5009

As the global community confronts the twin challenges of climate change and economic development, there is a growing recognition of the need for coordinated international efforts to ensure that environmental regulations, such as the CBAM, are applied fairly and effectively.

The unilateral implementation of trade measures like the CBAM without a globally coordinated framework increases the likelihood of trade disputes and retaliatory measures. As noted,[410] carbon border taxes or related trade measures, if perceived as targeting specific countries or industries unfairly, could lead affected nations to resort to the WTO Dispute Settlement Mechanism to challenge these measures.[411]

To prevent such disputes and foster greater cooperation among countries, there is a pressing need for a global agreement on carbon barriers to trade within the WTO framework. Such an agreement would provide a standardized approach to applying carbon border taxes, ensuring they align with international trade rules while genuinely advancing global environmental objectives. It would also help prevent the fragmentation[412] of international trade relations and ensure that efforts to combat climate change are not undermined by competing national interests.

Integrating the principle of "common but differentiated responsibilities"[413] from the Paris Agreement into a multilateral framework for carbon border adjustments would ensure that measures like the CBAM are not applied uniformly but are tailored to reflect the economic and environmental realities of different countries. This approach would help balance environmental integrity with fairness in international trade, preventing undue

[410] Oil Gas & Energy Law Intelligence: Carbon Barriers to Trade: WTO Law Issues by I. Gudkov and N. Mizulin.

[411] "Fourth, even if a carbon trade barrier falls within subparagraph (g) of Article XX, it has to satisfy the chapeau of that article, namely that it should not apply in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade. In this context, a possible origin-specific differentiation of carbon border taxes, depending on the degree of compatibility of exporting country's climate change policies with the EU climate changes ambitions or EU's methods to achieve those objectives, may be a "conspicuous flaw" that the Appellate Body criticized in US – Shrimp". Oil Gas & Energy Law Intelligence: Carbon Barriers to Trade: WTO Law Issues by I. Gudkov and N. Mizulin, p. 9.

[412] WORLD BANK. *State and Trends of Carbon Pricing 2024*. Washington, DC: World Bank, p. 23, 2024; GUDKOV, I.; MIZULIN, N. Carbon Barriers to Trade: WTO Law Issues. *Oil, Gas & Energy Law Intelligence (OGEL)*, Feb. 2020. ISSN 1875-418X.

[413] KLEIN, D. (Ed.). *The Paris Agreement on Climate Change: Analysis and Commentary*. Oxford: Oxford University Press, 2017.

burdens on developing countries with less capacity to implement stringent environmental standards.[414]

The successful implementation of a balanced global approach to carbon barriers requires robust financial mechanisms and updated international treaties that accommodate the unique needs of developing countries.

The B20 Brazil 2024 Policy Paper[415] advocates for establishing a global liquid financing system grounded in sustainability and economic feasibility to accelerate efforts to reduce carbon emissions. Such a system could provide the necessary financial support to developing countries, enabling them to invest in sustainable energy solutions and infrastructure without facing prohibitive costs. This form of international collaboration would help bridge the gap between developed and developing countries in meeting climate goals.[416]

International treaties and trade agreements should evolve to include more flexible mechanisms that allow for the use of Local Content Requirements (LCRs) in the renewable energy sector.[417] This flexibility would enable developing countries to simultaneously achieve their environmental and economic objectives. Under current trade rules like the GATT and TRIMs, the use of LCRs is heavily restricted, creating a significant barrier for developing nations seeking to balance compliance with international trade rules and domestic economic growth.[418]

By fostering multilateral agreements that consider the diverse economic realities and capacities of all nations, the global community can create a more inclusive and fair approach to achieving sustainability goals. These agreements could include specific

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[414] Carbon Barriers to Trade: WTO Law Issues by I. Gudkov and N. Mizulin, pp. 9-10.

[415] B20 BRAZIL. Policy Recommendations to the G20: Driving Sustainable Economic Growth in the Global South. B20 Summit 2024 Policy Paper, Brazil, 2024.

[416] B20 BRAZIL. Policy Recommendations to the G20: Driving Sustainable Economic Growth in the Global South. B20 Summit 2024 Policy Paper, Brazil, 2024.

[417] THRASHER, R. D. Policy Space for Jobs and Clean Energy: Trade, Investment Rules, and Local Content Requirements in Renewable Energy Policies*, Yearbook Articles*.

[418] Timothy Meyer, 'How Local Discrimination Can Promote Global Public Goods' (2015) 95 Boston University Law Review 1937. An analogous case might be the China—Rare Earths case, in which China argued that its export restrictions on rare earths were driven by environmental concerns, but the WTO Panel and Appellate Body found that other concerns (developmental and economic) dominated. China—Measures Related to the Exportation of Rare Earths, Tungsten and Molybdenum—Appellate Body Report (China— Rare Earths) (7 August 2014) WT/DS431/AB/R, paras 5.149–5.153.

provisions for technical assistance, capacity building, and financial support tailored to the needs of developing countries.[419]

The EU Directive and the CBAM present both opportunities and challenges for developing countries. While these regulations promote global environmental sustainability, they risk creating significant barriers to market access for businesses in these regions. The legal and economic implications are complex, requiring careful consideration of both international trade rules and the realities faced by businesses in developing countries. Global coordination and cooperation are essential to ensure that the transition to a sustainable global economy is both inclusive and equitable.

Summary of Risks Identified in This Report and Possible Mitigating Measures

Uncertainty, insufficient or low-quality information, combined with insufficient time for necessary adaptations, are factors that complicate risk management for investors,[420] creating scenarios with lower appetite for investment.[421] For investments to remain at optimal levels, risks and benefits must be distributed equitably. However, it is common for the benefits and risks resulting from a decision to fall on different groups, leading to disproportionate distribution.

From the perspective of private investments, the regulations that comprise the European Green Deal raise some concerns as they increase the level of uncertainty for investments in countries like Brazil. While studies indicate that the private sector in commodity- producing countries, aiming to respond to consumer demands and local environmental protection legislation, have adopted measures towards sustainable production standards (such as commitments by large retailers, brands, traders, suppliers, and investors to eliminate deforestation from their supply chains)[422], the fact is that the new European

[419] B20 BRAZIL. Policy Recommendations to the G20: Driving Sustainable Economic Growth in the Global South. B20 Summit 2024 Policy Paper, Brazil, 2024.

[420] Blennow, K., Persson, J., Wallin, A., Vareman, N., & Persson, E. (2014). "Understanding risk in forest ecosystem services: implications for effective risk management, communication and planning." Forestry, 87(2), 219-228. https://doi.org/10.1093/forestry/cpt032.

[421] See in this respect: MENDES, Maria Cristina Varalla, and RODRIGUEZ, Caio Farah. "Notas sobre a alocação de riscos e garantias contratuais." In: Fundamentos e Princípios dos Contratos Empresariais. Coordenador: Wanderley Fernandes. São Paulo: Saraiva-FGV, 2007; ARIDA, P., BACHA, E., and LARA-RESENDE, A. "Credit, interest, and jurisdictional uncertainty: conjectures on the case of Brazil." In: GIAVAZZI, F., GOLDFAJN, I., HERRERA, S. (eds.). Inflation Targeting, Debt and the Brazilian Experience. MIT Press, 1999 to 2003..

[422] WWF, 2021, 2022; Forest Trends, 2022; CDP and Accountability Framework Initiative, 2022.

legislation introduces unprecedented and stricter requirements compared to company initiatives and the applicable Brazilian sectoral legislation.

A primary issue concerns the level of **due diligence** that will be required from national producers to certify the compliance of Brazilian production with CBAM and EUDR. Indeed, the data collection, risk assessment, and mitigation procedures will generate additional burdens at all stages of the production chain, especially in the production of verifiable records. The additional costs to supply chains will affect all links in the chain, even those that have no relation to deforestation and that meet environmental and land use requirements. It is worth noting that, while European legislation requires due diligence from European operators, the burden of proof of commodity production in compliance with European legislation may fall on Brazilian producers and exporters.

This issue is particularly sensitive under the EUDR, given that the European Commission has yet to disclose the risk level of producer countries, which will only be done in December 2024, just before the compliance requirements come into effect. There is uncertainty about what risk level will be assigned to Brazil and whether this standard will be uniform for the entire country or classified by regions or biomes. Furthermore, the risk assessment of non-EU producing countries takes into account vague concepts, such as the requirement that countries take "effective enforcement measures to combat deforestation and forest degradation," "penalize activities that lead to deforestation and forest degradation," and "apply sanctions severe enough to deprive the benefits derived from deforestation or forest degradation," which makes compliance programs even more complex.

Even for sectors with higher compliance levels, such as coffee, which has incentives for compliance (due to the high volume exported to the EU) and pre-existing conditions that remove compliance obstacles (high level of international certification of products), there is a challenge related to the implementation of enhanced traceability and information disclosure mechanisms that may be necessary to adequately demonstrate compliance, due to the high participation of small producers in production. This issue is especially sensitive considering the short timeframe for proving compliance required by the EUDR.

To minimize risks, European operators may favor products from countries that do not face the same challenges, abruptly changing the flow of international trade. In this sense, this system could encourage European importers to favor supplies from low-risk countries over those from high-risk countries. The EU itself recognizes, in the EUDR risk assessment,

that the regulation could negatively impact Brazil and favor the United States and, to a lesser extent, Italy and France in soy imports[423].

Brazil has a sophisticated framework of public policies for the conservation of its forests and other forms of native vegetation, control of deforestation, and sustainable agricultural production. It can be said that there is alignment between the objectives of European regulation and Brazilian environmental policies. However, there are regulatory asymmetries that could harm Brazilian producers in sectors such as beef and cocoa. A relevant example is beef production. Mandatory traceability in Brazil is neither required nor capable of providing such information, as SISBOV currently limits itself to sanitary control and faces difficulties in obtaining complete life cycle information, since many animals only enter the system near arrival at slaughterhouses.[424]

In these sectors, where there is a significant disparity between domestic trade requirements and new European requirements, an investor's decision might be to segregate supply chains, separating deforestation-free exports to Europe from non-compliant exports directed to other markets and domestic consumption. In cases where segregation is not feasible, producers and operators may choose to divert their sales to less demanding markets instead of adhering to additional processes to certify compliance.

In all the scenarios presented above—diversion of European imports to lower-risk markets, segregation of production chains, or diversion of Brazilian exports to less demanding markets in environmental aspects—there is a risk of frustrating the objectives of the EUDR, for example, those of "leading by example," "influencing the global market," and "strengthening cooperation with major consumer countries, inter alia, by encouraging trade in deforestation-free products and the adoption of similar measures," as stated in its introductory text.

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[423] "In the case of soy, the commodity is particularly important for the economies of Argentina, Brazil and Paraguay . Deforestation linked to the relevant commodities of the scope has been documented in those countries, and Argentina and Brazil are relevant as origins of soy used in the EU. A shift in preference to low-risk origins could favour imports from the USA, the largest global producer, and already major supplier to the EU. To a lesser degree, it may incentivize an increase in domestic production. France and Italy are the largest producers in the EU and domestic EU production is already increasing not least due to growing demand for GM-free soy and higher price" **European Commission.** *Impact Assessment - Minimising the Risk of Deforestation and Forest Degradation Associated with Products Placed on the EU Market*. 2021.

[424]**COALIZÃO BRASIL.** *A Rastreabilidade da Cadeia da Carne Bovina no Brasil: Desafios e Oportunidades*. 2020. Available at: https://www.coalizaobr.com.br/boletins/pdf/A-rastreabilidade-da-cadeia-da-carne- bovina-no-Brasil-desafios-e-oportunidades_relatorio-final-e-recomendacoes.pdf. Accessed on August 15, 2024.

The EUDR may also fail in its objective due to the scope of the protected area. In Brazil, public environmental policies aim at the protection and combating of deforestation of all forms of native vegetation, while the EUDR only addresses the conversion of forests into agricultural or pasture areas. In this sense, the impact of the EUDR on reducing deforestation in Brazil may be limited, as deforestation in the Cerrado or Pantanal, at least in non-forest areas, will not be covered by the European regulation, making the issue of soybean exports particularly sensitive, considering that its production is not mainly located in the Amazon.

Regarding **CBAM**, while the creation of the tax has the merit of seeking to suppress the commercialization of products that promote GHG emissions while encouraging the production and marketing of "green" products, it could also serve as a way to hinder the entry of imported products into the European market, including Brazilian products, due to the increased cost of imported goods. Excluding the effect on the European consumer, which is important but not the focus of this Report, the surcharge on Brazilian products will translate into a rise in the cost of our exports, which tends to negatively affect the competitiveness of Brazilian products and, consequently, negatively impact the volume of Brazilian exports.

It is worth noting that CBAM does not consider the decarbonization potential of exporting countries, considering, for example, their energy matrix. Thus, it does not take into account that Brazil has a clean electricity matrix, predominantly hydro, wind, and solar power—energy that is one of the main inputs for producing the products regulated by CBAM. If this factor were considered in the tax calculations, the likely conclusion would be that Brazilian products, compared to those produced in most other countries and even European ones, already have a low carbon footprint. Brazilian business associations have already expressed concerns about excluding indirect emissions from the total emissions calculation for many products covered by CBAM, including sectors where indirect emissions represent the largest share of total emissions, as mentioned in the report by the National Confederation of Industry (CNI).[425]

The identified difficulties seem to echo criticisms of the EU regarding the lack of use of multilateral spaces to coordinate with commodity-producing countries on the best ways to reconcile food production with environmental protection.[426] The absence of dialogue

[425] **CNI.** "Regulamento da União Europeia condiciona importação de determinadas commodities agrícolas e seus derivados a due diligence de desmatamento." *Análise de Política Comercial* 2, no. 10 (2023): 1-7.

[426] WTO. Joint Letter - European Union Proposal for a Regulation on Deforestation-free Products. 2022; CNI. "Regulamento da União Europeia condiciona importação de determinadas commodities agrícolas e seus

with the bloc's trading partners raises difficulties in implementing the rules by producers from different jurisdictions, with quite different rules on issues such as land use and labor rights, in addition to concerns about compatibility between the regulation and the multilateral rules of the World Trade Organization (WTO), which will certainly make the implementation of these regulations highly contentious in international forums.[427]

In this regard, political changes in Europe could still create uncertainties for companies investing based on environmental regulations, creating the possibility that sustainability investments will be "lost" in a few years due to changes in European standards. This element is especially relevant considering the European political environment and the new composition of the European Parliament, which has seen an increase in the participation of right-wing and far-right parties that are hostile to sustainability agendas.

Returning to investor impacts, even in the field of certifications, uncertainties remain about the acceptance of Brazilian national/state certifications in Europe, which could create additional barriers for companies seeking access to the European market. There is also a lack of clear guidelines on producer certification. The EU has not yet specified what type of certification will demonstrate compliance with national laws, creating uncertainty for producers. Similar challenges can be seen regarding other definitions and criteria, such as the concept of small producers (SMEs).

A second aspect related to compliance with land use standards may still require significant changes in how producers use their resources. This may include (i) changes in agricultural practices to meet sustainable land use requirements and (ii) loss of productive land due to the reduction of productive areas, impacting supply capacity and product costs. These new dynamics may require time for crops that are lagging in compliance aspects and for small producers and traditional populations[428], potentially causing immediate problems for Brazilian commodity importers, especially in the short term.

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derivados a due diligence de desmatamento." Análise de Política Comercial 2, no. 10 (2023): 1-7; Lopes, Cristina L., Joana Chiavari, and Maria Eduarda Segovia. Políticas Ambientais Brasileiras e o Novo Regulamento da União Europeia para Produtos Livres de Desmatamento: Oportunidades e Desafios. Rio de Janeiro: Climate Policy Initiative, 2023.

[427] Oliveira, José Carlos. "Diante de impactos comerciais, Brasil pode recorrer à OMC contra lei europeia sobre desmatamento." Portal da Câmara dos Deputados, 2023. Accessed on August 28, 2023. Available at: bit.ly/45XID92; Ministério das Relações Exteriores. Nota à imprensa nº 377: Carta de países em desenvolvimento a autoridades europeias sobre a entrada em vigor da chamada "lei antidesmatamento" da União Europeia. 2023. Accessed on September 10, 2023. Available at: bit.ly/48kmxPh.

[428] In this regard, see: "Public policies that recognize the complexity of challenges faced by small farms are essential to achieving the SDG goals of ending hunger and reducing inequalities (Lowder et al., 2014) (...).

A third aspect relates to the fact that the new rules of the EUDR, GCD, and CBAM impose additional due diligence and costs on producers in countries that need to reconcile increasing agricultural production with environmental protection, but do not offer a premium for the sustainability of their commodities. Thus, some critics indicate that Europe ends up transferring the financial burden of its environmental compliance to commodity-producing countries, which have less capital available for environmental preservation investments. The prevalence of small producers, especially in coffee and cocoa cultivation, who are likely to show a relative lack of technical capacity and financial resources, may make Brazil's compliance with EU regulations challenging and may require incentives for these independent small producers to provide precise geolocation of their production areas and proof of the legality of their lands.[429]

It is also interesting to note that the European Green Deal will have repercussions on oil and derivative imports. Although the RED and complementary standards do not stipulate additional obligations for oil exports, the new targets set may bring additional difficulties to importing these products. It is unlikely that this loss will be compensated by increases in the export of biomass or biomass fuels produced by Brazil (such as sugarcane and ethanol), since the percentage of these exports in Brazil's trade balance with the EU is minimal, and because Member States tend to adopt renewable energy based on national or European sources, given the RED's objective of ensuring independence from third countries and the strong influence of European biomass and biofuel producers.[430]

A fourth relevant factor for investors concerns **unfair practices and greenwashing** to simulate compliance with new European standards. The concept of greenwashing, where companies make misleading environmental claims without adequate proof, can create

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Unless global approaches to transforming the food system for environmental and climate change outcomes put livelihoods at the center of such approaches, the risk of achieving these goals 'on the backs of the rural poor' remains high (Davis et al., 2022)." (Zhunusova, Eliza et al. "Potential impacts of the proposed EU regulation on deforestation-free supply chains on smallholders, indigenous peoples, and local communities in producer countries outside the EU." Forest Policy and Economics 143, no. 102817 (2022). bit.ly/45PtkyN). [429] Solidariedad, CPOPC, and MVO. Briefing Paper: Implications of the EU Deforestation Regulation (EUDR) for Oil Palm Smallholders. 2023. Available at: https://www.solidaridadnetwork.org/wp- content/uploads/2023/04/Briefing-paper-EUDR-and-palm-oil-smallholders.pdf.

[430] BUKKENS, Sandra G.F. et al. "Por que a União Europeia produz biocombustíveis? Examinando consistência e plausibilidade em narrativas predominantes com narrativa quantitativa." Energy Research & Social Science, Volume 71, January 2021. Available at: h releases/food-fuel-european-parliament-bows-biofuel-lobby. Accessed on September 14, 2024.

unfair competition. Companies that do not fully comply with sustainability standards may benefit from an unfair competitive advantage, disadvantaging those who invest in genuine compliance.

From a scientific perspective, while it is essential to ensure that measures aimed at promoting sustainability lead to verifiable environmental benefits, there is a growing concern about the extent of the scientific proof required and the potential adverse impacts on developing countries. The interaction between green claims, regulatory frameworks, and scientific evidence must strike a balance to avoid creating non-tariff barriers or other challenges for emerging markets and developing nations

Finally, there are data protection issues arising from the **Information System (SI)** of the EUDR. This system raises concerns about how it will be used to collect and process due diligence data submitted to it. Moreover, there is a lack of specifications regarding the system's compliance with data protection laws. Lastly, the SI is not yet operational, interrupting preparatory efforts by stakeholders. Brazil has well-developed technological mechanisms, indicating potential leadership in a global discussion on the adoption of standards. In this regard, it could play a leading role in discussions with the EU and concerning technology and knowledge transfer to third countries.[431]

Mitigating Measures

To minimize adverse impacts and facilitate adaptation to the new legislation, several mitigating measures can be adopted:

Transition Rules

Despite the opportunities, the CBAM and EUDR also present challenges, as the rules will be enforced within a very tight timeframe for Brazilian producers to organize and meet the due diligence requirements, which will be carried out by European importers. The technological tools that could be used in this process are at different stages of development and implementation in Brazilian states/biomes. Moreover, specifically for agricultural products, the additional costs related to the due diligence process will disproportionately impact small farmers and traditional communities compared to medium and large producers.

[431] Almeida, Paula Wojcikiewicz, et al. "An in-depth analysis of the regulatory and normative challenges to the Brazilian legal order in light of the new EUDR requirements."

Establishing longer transition periods could provide additional time for producers to adjust their operations and implement the necessary changes. These transition rules could include phased implementation to allow for the gradual adoption of standards, starting with less stringent requirements and gradually increasing them, and extending deadlines for certifications with objective criteria.

In this regard, the Brazilian government has formally requested the European Commission to postpone the entry into force of the EUDR,[432] considering the difficulties for producers to comply with the defined rules by December 31, 2024.

Leniency in Certain Cases

Granting leniency or exemptions in specific cases can help reduce the economic impact on producers. The CBAM and EUDR do not specify any measures to support small producers in meeting the established requirements. Nor do they require operators to invest efforts in including small producers and providing support to meet due diligence requirements. Although the disadvantages for small producers are mentioned in both the EUDR impact assessment report and the introductory text of the regulation, the only proposed measure appears to be the planned deadline, which is already quite tight.[433]

In light of this, the literature suggests several possible approaches: (i) The EUDR regulation could identify and exempt small producers from indicators that are not viable or applicable to small-scale operations; (ii) Temporary exemptions for small producers or for those who have proven difficulties in meeting the requirements, due to bureaucracies related to land ownership documentation or supply chain traceability. As previously discussed, studies indicate that the EUDR may be particularly costly for small and medium- sized producers, as well as for Indigenous Peoples and Local Communities (IPLCs), including quilombola communities. Without adequate safeguards, the regulation could have unintended consequences on vulnerable groups in producer countries, especially

[432] **Reuters.** "Brazil asks EU to hold off on implementing deforestation law." September 11, 2024. Available at: https://www.reuters.com/world/americas/brazil-asks-eu-hold-off-implementing-deforestation-law- 2024-09-11//

[433] Consider what is stated in the EUDR impact assessment report, Part 1, p. 62: "While the long-term impacts on third countries are expected to be positive, the initial short-term impacts caused by EU operators shortening/simplifying supply chains, reducing their number of suppliers, and/or shifting to lower-risk supply chains may particularly impact small producers... Again, the suggested cut-off date of 2020 would significantly mitigate potentially negative social impacts by limiting the number of small producers who would be caught working on lands whose products cannot be sold to the EU — and ensuring that almost all current commodity production from exporting countries can still make the cut."

the exclusion of small producers and IPLCs from high-value commodity supply chains.[434] Still on this topic, mechanisms could be created by the European Commission to encourage the purchase of products from areas undergoing regularization; (iii) Greater flexibility in certifications, to offer alternatives or simplified methods of certification for certain products or practices, allowing for the progressive adherence of producers to the rules as a measure to support the transition to deforestation-free supply chains in an inclusive manner.

Studies also suggest that CBAM tax exemptions could be defined for Least Developed Countries (LDCs), which would be possible in light of the "Common But Differentiated Responsibilities" principle of the UNFCCC and the WTO's Enabling Clause, foreign trade rules that allow special and differentiated treatment for developing countries. Alternatively, there could be a reimbursement of CBAM revenues through fixed-amount transfers to exporting countries as part of international cooperation funding transfers.[435]

State Financial Support

Financial incentives can be offered to support the transition to sustainable practices, such as subsidies or credit lines for investments in sustainable technologies and processes. This is especially relevant in a scenario where private investment is losing traction, and consumers alone are unable to bear the costs of more sustainable products (a debate previously presented in this Report).

The European Commission is expected to establish dialogues with producer countries— particularly those considered high-risk—with the aim of developing partnerships and cooperation to halt deforestation. These partnerships and cooperations should promote:
(i) the development of integrated land use planning processes, relevant legislation in producer countries, (ii) multi-stakeholder processes, (iii) fiscal or commercial incentives and other instruments to improve forest and biodiversity conservation, (iv) sustainable management and restoration of forests, (v) combating the conversion of forests and vulnerable ecosystems for other land uses, (vi) optimizing gains for landscape, tenure security, agricultural productivity and competitiveness, and transparency of value chains,
(vii) strengthening the rights of forest-dependent communities, including small farmers,

[434] Zhunusova, Eliza, et al. "Potential impacts of the proposed EU regulation on deforestation-free supply chains on smallholders, indigenous peoples, and local communities in producer countries outside the EU." Forest Policy and Economics 143, no. 102817 (2022). Available at: bit.ly/45PtkyN.
[435] Perdana, Marc, and Vielle, Marc. "Making the EU Carbon Border Adjustment Mechanism acceptable and climate friendly for least developed countries." Energy Policy, Volume 170, 2022, 113245. ISSN 0301-4215. Available at: https://doi.org/10.1016/j.enpol.2022.113245.

local communities, and Indigenous peoples, and (viii) ensuring public access to forest management documents and other relevant information.

The partnerships are currently under development and are based on existing and structured dialogues through EU delegations and embassies, as well as through workshops and platforms involving multiple stakeholders, and ongoing cooperation programs, such as the Cocoa Dialogues, AI-Invest Verde, Global Team Europe Initiatives, Euroclima, Forest Partnerships, and the KAMI Project.[436]

The Forest Partnerships program is specifically mentioned in the European Commission's Q&A related to the EUDR, and it aims to financially support third countries to ensure the protection, restoration, and sustainable management of forests, with a total budget of one billion euros. This program seeks to encourage greater transparency in supply chains, taking into account the rights of forest-dependent communities and Indigenous peoples, as well as the needs of small farmers. Additionally, the Commission will engage in bilateral and multilateral discussions on policies and actions to halt deforestation and forest degradation. There are already several memorandums of understanding developed with small producer countries, but there are no initiatives specifically targeting Brazil.[437]

It is noteworthy that a similar measure implemented in 2015, the Green Climate Fund (GCF), received a special role in supporting the Paris Agreement. It aims to provide financing, balanced between mitigation and adaptation, in the form of grants, loans, equity, or guarantees for activities aligned with the priorities of countries, in line with the principle of country ownership.

Adequate Price Premiums

[436] European Commission. International Cooperation. Presentation on ongoing and planned programmes and projects in Latin America and the Caribbean. Brussel, 2023 at https://ec.europa.eu/transparency/expert-groups-register/core/api/front/document/91430/download.
EUROPEAN FOREST INSTITUTE (EFI). Reinforcing EU-Indonesia and EU-Malaysia partnerships by supporting national processes and international dialogue on sustainable palm oil. *EFI Strategy 2025*. Available at: https://www.efi.int/publications/; EUROPEAN COMMISSION. Team Europe Initiatives. Available at: https://international-partnerships.ec.europa.eu/policies/team-europe-initiatives_en; European Commission. COP27: EU launches Forest Partnerships with five partner countries [Press Release]. Available at: https://ec.europa.eu/commission/presscorner/detail/en/ip_22_6653.I

[437] European Commission. Forest Partnerships Factsheets, 2022. Available at: https://international-partnerships.ec.europa.eu/publications-library/forest-partnerships-factsheets_en

The European legislator seems to assume that an increase in product prices can serve as a "price premium" to comply with deforestation-free requirements. This may be why none of the regulations imposing new burdens on exporters include mechanisms for credits and bonuses for production in deforestation-free areas, for example. However, this reasoning is weak, as an increase in product prices does not necessarily mean that the prices obtained by small producers will increase by the same amount. In this context, there is a study on the case of coffee producers in Nicaragua, which found that neither the effort by producers to comply with Fairtrade nor organic certification had a significant impact on farmers' income.[438]

Thus, creating appropriate premiums and bonuses that actually cover the costs of compliance with this regulation is necessary to ensure that the burden is not unevenly distributed between consumers and producers.

Cooperation and Partnerships

Promoting cooperation among governments, the private sector, and non-governmental organizations can help in adapting to the new regulations. Measures could include partnerships for: (i) the development of technological and methodological solutions that facilitate compliance, (ii) knowledge-sharing initiatives, and (iii) the promotion of knowledge-sharing initiatives and best practices among producers and sustainability experts.

According to a recently published document by the B20 Task Force on Energy Transition and Climate, the transformation to a low-carbon future, while promoting environmental preservation and restoration, is only possible when companies and governments work together. The document emphasizes the importance of addressing the problem from a global perspective, highlighting the need for global/multilateral solutions to tackle these issues and finance long-term solutions.

The network of dialogues established between the European Union and third countries on the implementation of the EUDR and CBAM is still limited. In this sense, Brazil's expertise and experience in mechanisms could be an opportunity to develop partnerships with the European Union to implement the EUDR in less developed countries. To this end, dialogues between both sides must be initiated.

[438] Jena, P.R., Stellmacher, T., Grote, U., 2017. Can coffee certification schemes increase incomes of smallholder farmers? Evidence from Jinotega, Nicaragua. Environ. Dev. Sustain. 19 (1), 45–66. https://doi.org/10.1007/s10668-015-9732-0.

CONCLUSION

Green regulations grounded in credible, evidence-based frameworks are indispensable for advancing sustainability without compromising economic inclusivity. As green claims become pivotal for branding and market differentiation strategies, their credibility and transparency are critical. However, unsubstantiated green claims, commonly referred to as "greenwashing," not only mislead consumers but also undermine genuine efforts to promote sustainability, distorting sustainable markets and potentially causing environmental harm. Regulatory frameworks like the European Union's Green Claims Directive (GCD), the U.S. Federal Trade Commission's guidelines, and Brazil's CONAR standards aim to curb these practices by demanding verifiable evidence. However, **these regulations must be carefully calibrated to avoid disproportionately burdening smaller firms and emerging economies**, which may lack the resources to comply.

Frameworks such as the Intergovernmental Panel on Climate Change (IPCC) guide international agreements like the Paris Agreement, ensuring policy legitimacy derived from "common but differentiated responsibilities." However, stringent regulations such as the European Union's CBAM, RED, and GCD, while designed to prevent carbon leakage and promote sustainability, often result in regulatory asymmetry and economic barriers for developing countries like Brazil. The lack of harmonization between these regulations and the capacities of Brazilian exporters poses significant challenges, including high compliance costs, misalignment in certification standards, and potential market access restrictions.

High environmental standards are vital for achieving meaningful sustainability, but these must be pursued with sensitivity to the diverse contexts of different regions and economies and in light of science-based policies to ensure the legitimacy and effectiveness global efforts. Stringent standards can often impose undue burdens on developing countries and smaller economies. For instance, the compliance costs associated with the EU's certification and verification standards, along with additional costs imposed by CBAM, are particularly challenging for small and medium-sized enterprises (SMEs) in developing countries. These companies often lack the financial, technical, and infrastructural resources to meet such rigorous requirements without significant economic consequences, such as loss of market access, competitiveness, and potential economic contraction. A nuanced approach is therefore essential—one that balances environmental protection with economic inclusion, enabling all countries to effectively contribute to global climate goals without sacrificing economic growth and development.

Balancing environmental regulations with economic inclusivity is crucial for a coordinated global approach that is fair. The report critiques the roles of uniform global governance, questioning whether current structures adequately facilitate equitable and inclusive climate policies. The lack of mutual recognition agreements for sustainability certifications, as well as the absence of a phased implementation approach, could hinder the ability of developing countries to meet high environmental standards. Strengthening collaboration between stakeholders, including governments, business associations, and NGOs, is essential for ensuring that green claims are both credible and accessible to all market participants.

The European Union's ambitious environmental policies are designed to promote sustainable standards worldwide. However, they risk creating substantial economic barriers for developing countries, such as Brazil. While mechanisms like the CBAM aim to prevent carbon leakage and maintain fair competition among industries adhering to high environmental standards, they also raise complex issues related to fairness, equity, and non-discrimination under international trade laws, particularly the World Trade Organization (WTO) framework. Developing countries, often constrained by limited financial and technological resources, may view such regulations as disguised protectionism rather than genuine climate action, leading to disputes and economic repercussions.

There are significant concerns regarding the compatibility of unilateral measures like the CBAM with WTO rules, particularly under the General Agreement on Tariffs and Trade (GATT) Articles I and III. The principle of non-discrimination and the challenge of defining "like products" in terms of their carbon footprint raise complex legal issues that could lead to trade disputes and retaliation. Recent case studies, such as the WTO ruling on Malaysia's challenge against the EU’s Indirect Land Use Change (ILUC) criteria, underscore the need for multilateral coordination to prevent conflicts between environmental policies and international trade rules. To avoid these pitfalls, there is a compelling case for a globally coordinated approach that includes differentiated responsibilities, financial support mechanisms, capacity-building programs, and technology transfer agreements tailored to the needs of developing countries.

To navigate these complexities, establishing a harmonized global framework is crucial to set standardized rules for carbon border adjustments, green claims, and other environmental measures, while also accommodating the varied capacities and development levels of countries. Aligning such a framework with the principles of "common but differentiated responsibilities" outlined in the Paris Agreement would foster

a more equitable global trading system. This approach would support both the environmental objectives of sustainability and the economic imperatives of growth and development, ensuring that no country or stakeholder is marginalized in the global transition towards a greener future.

The path forward requires a coordinated global effort to harmonize trade and environmental policies, ensuring they are fair, equitable, and effective. This harmonization is crucial to prevent the fragmentation of international trade relations and maintain global cooperation in addressing climate change. Inclusive global coordination should involve a comprehensive approach, integrating scientific evidence, equitable regulatory practices, and robust international cooperation. The international community must work together to develop a structured approach to carbon border adjustments and other trade-related environmental measures that support sustainable development goals.

To achieve a balanced approach to global trade and environmental regulation, international agreements must evolve to support both environmental and economic objectives, especially for developing nations. This requires a careful consideration of both environmental integrity and trade equity. A globally coordinated effort should be complemented by a global financing system premised on sustainability and economic feasibility, such as the one proposed by the B20 Brazil 2024 Policy Paper. Such a system would provide essential support for developing countries to invest in sustainable energy solutions and infrastructure, bridging the gap between developed and developing markets. This inclusive approach would enable all countries to contribute effectively to global climate goals without compromising economic growth and development.

Inclusive global coordination should incorporate differentiated responsibilities, financial support mechanisms, capacity-building programs, and technology transfer agreements tailored to the specific needs of developing countries. By promoting a collaborative environment, the international community can design environmental regulations that induce sustainability while ensuring that no country or stakeholder is marginalized. A coordinated global strategy that integrates sustainability with economic inclusion is essential for building a more just and resilient global economy. This approach would allow the world to address the pressing challenges of climate change while fostering inclusive growth, ensuring that environmental regulations advance sustainability without imposing disproportionate burdens on vulnerable economies. Achieving this balance is crucial for developing a sustainable global economy that is equitable, resilient, and capable of reaching long-term environmental goals.

ANNEX I – CONAR CASES ANNEX U

Company	Decision	Stakeholder	Sector	Date	Typology
Alesat Combustíveis	**Modification**	CONAR by consumer complaint	Fuels	Nov/23	Fake image
Braskem e Globo	**Archiving**	Group of consumers	Household Appliances	Jun/23	Narrative with an environmental cost
Caoa Chery	**Archiving**	CONAR on its own initiative	Automobile industry	Mar/23	Proven environmental commitment
Fiat	**Archiving**	CONAR by consumer complaint	Automobile industry	Mar/23	Proven environmental commitment
Volkswagen	**Archiving**	CONAR on its own initiative	Automobile industry	Mar/23	Proven environmental commitment
Nestlé	**Archiving**	CONAR on its own initiative	Food and drinks	Feb/23	Proven environmental commitment
UPDERM	**Modification**	CONAR by consumer complaint	Cosmetics	Feb/23	Narrative without evidence
FIEMG	**Modification**	Group of consumers	Mining	Nov/22	Uncertain speech
Heineken	**Modification**	CONAR by consumer complaint	Food and drinks	Sep/22	misleading argument
Química Amparo	**Suspension, Modification, and Archiving**	Competitor	Chemicals	Aug/22	Uncertain Labels
Vivo	**Archiving**	Consumer	Electronics	Jul/22	Narrative without evidence
Suzano	**Modification**	Consumer	Paper and Cellulose	Nov/21	Misleading speeches
Osklen	**Archiving**	CONAR by consumer complaint	business	Oct/21	Uncertain speech
Vale	**Modification**	CONAR by consumer complaint	Mining	May/20	Incomplete policy
Nestle	**Archiving**	CONAR by consumer complaint	Food and Drinks	Oct/19	Uncertain labels
Café Orfeu	**Archiving**	CONAR by consumer complaint	Food and Drinks	Nov/18	Uncertain labels
Coca-Cola	**Archiving**	CONAR by consumer complaint	Food and Drinks	May/18	Narrative without evidence
Tecnopharma	**Modification**	CONAR by consumer complaint	Chemical	Jul/17	Uncertain labels

Company	Decision	Stakeholder	Sector	Date	Typology
Fiat	**Modification**	Group of consumers	Vehicles and parts	Apr/17	Narrative without evidence
Chevrolet	**Modification**	Group of consumers	Vehicles and parts	Apr/17	Uncertain labels
Bradesco	**Archiving**	CONAR by consumer complaint	Finance and Insurance	Mar/17	Narrative without evidence
Ford	**Modification**	Group of consumers	Vehicles and parts	Mar/17	Narrative without evidence
Michelin	**Modification**	Group of consumers	Chemical	Feb/17	Uncertain speech
Volkswagen	**Archiving**	Group of consumers	Vehicles and parts	Dec/16	Narrative without evidence
Fiat	**Modification**	Group of consumers	Vehicles and parts	Dec/16	Uncertain labels
Pirelli	**Modification**	Group of consumers	Chemical	Dec/16	Uncertain labels
Sabor Glicerinado Biobrilho	**Modification**	Group of consumers	Chemical	Oct/16	Uncertain labels
Água Rocha Branca	**Modification**	CONAR by consumer complaint	Food and Drinks	Sep/16	Narrative without evidence
Papel HigiÊnico Personal	**Modification**	Group of consumers	Paper and Cellulose	Aug/16	Uncertain labels
Papel HigiÊnico Cotton	**Archiving**	Group of consumers	Paper and Cellulose	Aug/16	Uncertain labels
Borracha MAPED	**Modification**	Group of consumers	Chemical	Jul/16	Uncertain labels
Fiat Lux	**Modification**	Group of consumers	Chemical	Jul/16	Uncertain labels
Bombril	**Modification**	Group of consumers	Chemical	Jul/16	Uncertain labels
PMSP/Ecofrota	**Modification**	CONAR Council	Others	Jul/16	Narrative without evidence
Fósforo Paraná	**Modification**	Group of consumers	Chemical	Jun/16	Uncertain labels
Samarco	**Modification**	CONAR by consumer complaint	Mining	May/16	Misleading speech
Ypê	**Archiving**	Group of consumers	Chemical	May/16	Uncertain labels
Embalixo	**Modification**	Group of consumers	Paper and Cellulose	May/16	Uncertain labels
Carrefour	**Modification**	Group of consumers	Business	May/16	Uncertain labels
Lixo Santos	**Suspension**	CONAR by consumer complaint	Paper and Cellulose	May/16	Uncertain labels

Company	Decision	Stakeholder	Sector	Date	Typology
Postos Ipiranga	**Archiving**	CONAR by consumer complaint	Oil and gas	Apr/15	Uncertain labels
Walmart	**Modification**	Competitor	Business	Feb/15	Uncertain labels
Anjor Copacabana	**Modification**	CONAR by consumer complaint	Construction	Sep/14	Narrative without evidence
Bombril	**Modification**	Group of consumers	Chemical	Jul/14	Uncertain labels
Bombril	**Modification**	Group of consumers	Chemical	Mar/14	Uncertain labels
Basf	**Archiving**	CONAR on its own initiative	Chemical	Sep/13	Narrative without evidence
Bril Cosméticos	**Archiving**	Group of consumers	Chemical	Aug/13	Narrative without evidence
Orgânica	**Archiving**	Group of consumers	Food and Drinks	Jul/13	Narrative without evidence
Danone	**Archiving**	Group of consumers	Food and Drinks	Jun/13	Narrative without evidence
Ford	**Archiving**	Group of consumers	Vehicles and parts	May/13	Narrative with an environmental cost
Bic	**Modification**	Group of consumers	Others	May/13	Fake image
Açucar Cristal	**Archiving**	Group of consumers	Food and Drinks	May/13	Uncertain labels
Coca-Cola	**Archiving**	Group of consumers	Food and Drinks	May/13	Uncertain speech
Native	**Modification**	Group of consumers	Food and Drinks	May/13	Uncertain labels
Organique Brasil	**Modification**	CONAR by consumer complaint	Chemical	Apr/13	Narrative with an environmental cost
Fiat	**Archiving**	CONAR by consumer complaint	Vehicles and parts	Mar/13	Fake image
Nestle	**Archiving**	Group of consumers	Food and Drinks	Nov/12	Uncertain labels
Toyota	**Archiving**	CONAR on its own initiative	Vehicles and parts	Jul/12	Narrative without evidence
TIM	**Modification**	CONAR on its own initiative	Telecom	Jun/12	Narrative without evidence
Springer	**Modification**	CONAR on its own initiative	Electronics	Jun/12	Narrative without evidence
Suframa	**Modification**	CONAR on its own initiative	Others	Jun/12	Narrative without evidence
Grupo RIC	**Archiving**	CONAR on its own initiative	Telecom	May/12	Narrative without evidence

Company	Decision	Stakeholder	Sector	Date	Typology
Apas	**Suspension**	Competitor	Business	May/12	Trade-off policies
Panasonic	**Archiving**	CONAR on its own initiative	Electronics	May/12	Narrative without evidence
DPNY	**Modification**	CONAR on its own initiative	Others	May/12	Narrative without evidence
Biô Sapatoterapia	**Archiving**	CONAR on its own initiative	Business	May/12	Narrative without evidence
Sabesp	**Modification**	CONAR on its own initiative	Water, sewage and other systems.	Mar/12	Narrative without evidence
Peugeot Citroen	**Modification**	CONAR on its own initiative	Vehicles and parts	Mar/12	Narrative without evidence
CCR	**Archiving**	CONAR on its own initiative	Transport	Mar/12	Narrative without evidence
Itaú	**Archiving**	CONAR by consumer complaint	Finance and Insurance	Mar/12	Narrative without evidence
Unilever	**Modification**	CONAR on its own initiative	Chemical	Mar/12	Fake image
Bril Cosméticos	**Archiving**	CONAR on its own initiative	Finance and Insurance	Mar/12	Narrative without evidence
Cervejaria Petrópolis	**Archiving**	CONAR on its own initiative	Food and Drinks	Mar/12	Narrative without evidence
Shell	**Modification**	CONAR on its own initiative	Oil and gas	Mar/12	Narrative without evidence
Batavo	**Archiving**	CONAR on its own initiative	Food and Drinks	Mar/12	Narrative without evidence
Bunge	**Archiving**	CONAR on its own initiative	Agriculture and Fisheries	Mar/12	Narrative without evidence
Ambipar	**Archiving**	CONAR on its own initiative	Others	Mar/12	Narrative without evidence
Ypê	**Archiving**	CONAR by consumer complaint	Chemical	Nov/11	Narrative without evidence
HP	**Modification**	CONAR on its own initiative	Electronics	Nov/11	Narrative without evidence
Água Mineral Rocha Branca	**Suspension**	CONAR on its own initiative	Food and Drinks	Nov/11	Uncertain labels
Neve Compacto	**Archiving**	CONAR on its own initiative	Paper and Cellulose	Nov/11	Narrative without evidence

Company	Decision	Stakeholder	Sector	Date	Typology
Fujitsu	**Archiving**	CONAR on its own initiative	Electronics	Nov/11	Narrative without evidence

(Sources: NEVES, Guilherme Fidalgo. Greenwashing: uma análise das denúncias de stakeholders sobre os apelos de sustentabilidade das organizações. 2022, p. 55–65; updated by authors until June 2024)

ANNEX II – BRAZIL ENERGY TRANSITION BILLS

BRAZIL ENERGY TRANSITION BILLS			
Bill Nº	**Proposal**	**Summary**	**Current Status**
2,148/2015	June 2015	Bill No. 2,148/2015 regulates the carbon market in Brazil by establishing the Brazilian Emissions Trading System (SBCE). It sets emission limits for activities exceeding 25,000 tons of CO2 equivalent per year and requires those emitting over 10,000 tons to submit monitoring plans. The bill allows the use of voluntary carbon credits within the SBCE, with specific rules for their conversion and usage. Additionally, it defines the allocation of system resources and introduces new obligations for environmental compensation and the acquisition of assets by financial and insurance sectors.	Bill No. 2,148/2015, which regulates the carbon market in Brazil, was approved by the House of Representatives on December 21, 2023. The bill now moves to the Senate for further deliberation.
528/2020	March 2020	Bill No 528/2020 aims to promote sustainable mobility and carbon dioxide capture, create programs for sustainable fuels and decarbonization, and amend existing energy laws.	The bill has been approved with amendments by the Federal Senate and is now under review by the Chamber of Deputies.
576/2021	February 2021	The bill regulates the utilization of offshore energy potential, referring to the exploitation of energy resources in maritime areas. Additionally, the Bill proposes amendments to several existing laws, including Laws No. 9,478/1997, No. 10,438/2002, No. 9,427/1996, No. 14,182/2021, No. 10,848/2004, and No. 14,300/2022.	The Committee on Infrastructure Services conducted a public hearing to review Bill No. 576/2021. The session featured various stakeholders from the energy sector, including leaders from associations representing electric, gas, wind, and other energy industries. The bill has been removed from suspension and is now under the rapporteurship of Senator Weverton.

BRAZIL ENERGY TRANSITION BILLS			
327/2021	February 2021	Bill No. 327/2021 establishes the Energy Transition Acceleration Program (PATEN), which leverages tax credits and debts to fund sustainable infrastructure and renewable energy research. The bill creates an investment guarantee fund managed by BNDES and offers a tax settlement option to regularize tax arrears while encouraging investments in sustainability. PATEN aims to advance Brazil's energy transition and support the country in meeting international environmental commitments.	Bill No. 327/2021 is currently under review by the Senate Committee on Infrastructure. Recently, on September 11, 2024, amendments were proposed to modify and improve the bill. On September 5, 2024, the Committee held a public hearing with various experts to discuss the bill. After this hearing, the bill was returned to the rapporteur for further review. Additional public hearings have been scheduled to further discuss the bill. The bill is still in the discussion and review phase in the Committee before moving forward in the Senate.
2,308/2023	March 2023	Bill No. 2,308/2023 establishes the legal framework for low-carbon hydrogen in Brazil, aiming to encourage the industry's transition to sustainable energy. The law creates the Special Incentive Regime for Low-Carbon Hydrogen Production (Rehidro) and grants the National Agency for Petroleum, Natural Gas, and Biofuels (ANP) the authority to regulate and oversee the entire hydrogen value chain. It also establishes the Brazilian Hydrogen Certification System (SBCH2), responsible for certifying companies that comply with the emission limits set by the law, ensuring credibility and sustainability in hydrogen production.	The bill was enacted and published as Law No. 14,948/2024 on August 2, 2024. However, the Presidency vetoed articles 30 to 35, which would have established the Low-Carbon Hydrogen Development Program (PHBC).
5,751/2023	November 2023	The Bill No 5,751/2023 establishes the legal framework for low-carbon hydrogen in Brazil, defining the National Policy on Low-Carbon Hydrogen, including its principles, objectives, concepts, governance, and instruments. In February 2024, Bill No 5,816/2023, which was approved by the Senate on December 14, 2023, and sent to the Chamber of Deputies on December 28, 2023, was appended to Bill No 5,751/2023.	Bill No. 5,751/2023 is currently under review by the Committee on Environment and Sustainable Development, with Deputy Fernando Mineiro serving as the rapporteur. Bill No. 5,816/2023 has been appended to Bill No. 5,751/2023, consolidating the processing of both bills.
182/2024	February 2024	The Bill establishes the Brazilian Emissions Trading System (SBCE) and proposes amendments to several existing laws, including Laws No. 12,187/2009, No. 12,651/2012 (Forest Code), No. 6,385/1976, No.	Bill No. 182/2024 was sent to the Federal Senate after being approved in the Chamber of Deputies. The bill is awaiting a decision on the next steps and has

		11,033/2004, and No. 6,015/1973 (Public Records Law).	been published in the Federal Senate Journal.

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