

1. Main Messages

Trade and sustainability policies significantly impact global greenhouse gas (GHG) emissions and environmental degradation, but effects differ across countries and sectors.

Trade agreements such as the EU-Ghana Economic Partnership Agreement (EPA) and the EU-Vietnam Free Trade Agreement (EVFTA) **have marginal global environmental effects but could contribute to regional carbon leakage**.

Carbon border adjustment mechanisms (CBAMs) could help mitigate emissions displacement but require careful calibration to avoid trade distortions.

Comprehensive CO₂ tariffs result in significant economic decline both globally and in the EU. While these tariffs lead to substantial emission reductions in the EU, they have no significant impact on global emissions.

Full trade liberalisation combined with carbon tariffs significantly reduces global water pollution.

2. Research Scope & Methodology

This study employs CGEBox, an advanced computable general equilibrium (CGE) model, to evaluate the environmental impact of trade policies. The methodology includes:

- Analysis of trade agreements (EU-Ghana EPA, EVFTA) and full EU trade liberalisation scenarios.
- **Assessment of CO₂-based tariffs and production taxes** as potential mechanisms to reduce trade-induced emissions.
- **Integration of sector-specific emissions data** to evaluate impacts on GHG emissions and water pollution.
- **Stakeholder consultations with policymakers**, industry representatives, and NGOs to validate policy implications.

3. Key Findings: Evidence Supporting Policy Discussions

3.1. Trade and Environmental Externalities

- **Trade liberalisation has complex environmental impacts**, improving efficiency in some sectors while increasing emissions in others.
- **CO₂-based tariffs can reduce carbon leakage** but may also shift emissions to other pollutants (e.g., methane, nitrous oxide).
- **Water pollution remains an overlooked externality**, requiring further integration into trade sustainability assessments.

PROJECT BRIEF 9:

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MODELLING THE ENVIRONMENTAL IMPACT OF TRADE AND SUSTAINABILITY POLICIES



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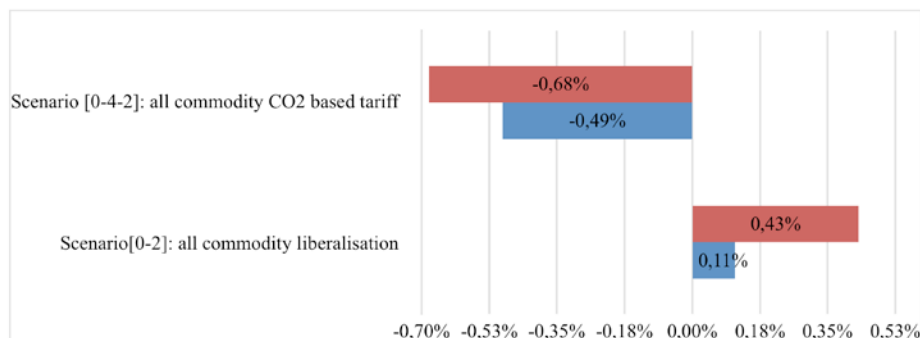
Implication: Future trade policies should include broader environmental criteria beyond CO2 emissions. Table 9.1 shows brief results for scenario runs, while Figure 9.1 shows water related results.

Table 9.1. Scenario results for liberalisation and CO2 based tariff

	Scenario[0-2]: all commodity liberalisation				Scenario [0-4-2]: all commodity CO ₂ based tariff			
	GDP		Emissions		GDP		Emissions	
	2024	2040	2024	2040	2024	2040	2024	2040
World	0.04%	0.07%	-0.07%	-0.12%	-0.07%	-0.23%	0.12%	0.12%
EU27	0.23%	0.66%	-0.24%	0.46%	-0.40%	-1.08%	-9.93%	-14.63%

Source: own composition.

Figure 9.1: Water pollution % change projected (baseline 2040 -> scenarios 2040)



Source: own composition.



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3.2. Trade Agreements and Carbon Leakage Risks

- **The EU-Ghana EPA shows mixed environmental effects**, with temporary emissions reductions in Ghana but long-term increases post-2030.
- **The EVFTA leads to rising emissions in Vietnam**, suggesting that trade growth may accelerate carbon-intensive industrialisation.
- **Full EU trade liberalisation scenarios indicate that removing tariffs alone does not lead to significant environmental benefits unless combined with sustainability measures.**

Implication: Stronger environmental safeguards are needed within FTAs to prevent carbon leakage and unintended environmental consequences.

3.3. Effectiveness of Carbon Border Adjustment Mechanisms (CBAMs)

- **CBAMs can partially offset emissions displacement risks** but may create trade tensions if not designed carefully.
- **CO₂-based import tariffs alone do not lead to significant global emissions reductions** unless combined with broader climate policies.
- **Retaliatory measures by trade partners could counteract** the intended climate benefits of CBAMs.

Implication: Carbon pricing mechanisms must be designed in coordination with international partners to maximise effectiveness.

4. Implications for EU Policy & Trade Governance

- **Expand the scope of EU sustainability impact assessments (SIAs)** to include non-CO₂ emissions and water pollution.
- **Develop sector-specific environmental thresholds** for trade agreements.
- **Enhance regulatory cooperation** between trade and climate policy frameworks.
- **Introduce binding environmental clauses** in EU trade agreements.
- **Ensure compliance** with the European Green Deal's climate neutrality objectives.
- **Enhance enforcement mechanisms** for sustainability commitments in FTAs.
- **Align CBAMs with WTO rules** to prevent trade disputes.
- **Introduce exemptions or transition periods** for low-income countries.
- **Ensure transparency and stakeholder engagement** in CBAM policy-making.



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5. Conclusion

This study highlights the need for **stronger environmental integration** in trade policy to align with climate and sustainability goals

Key takeaways:

- Trade agreements must incorporate **stronger environmental safeguards** to prevent emissions displacement.
- Carbon pricing mechanisms like CBAMs **require careful calibration** to avoid trade conflicts.
- **Water pollution and non-CO2 emissions should be integrated** into future sustainability assessments.

This Project Brief is based on **Deliverable 3.3.** of the TRADE4SD project.



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Trade4SD is a 4-year project devoted to research on a topic which is high on the domestic as well as multilateral, EU and bilateral trade policy agenda. The ambition of the project is to explore and foster the positive linkages between trade and sustainable development is to provide policy recommendations for the creation of new opportunities for agents involved in the global, regional and national agri-food value chains, and to define conditions for sustainable livelihoods of farm producers in the EU and developing partner countries. Trade is a central factor in shaping global, regional and local development. Increased trade, empowered by the growth of Global Value Chains (GVCs), has boosted productivity and incomes in many countries.