

# International Trade and Policy

## WEEK 12 – Global Issues I: Trade and the Environment

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# Learning Objectives

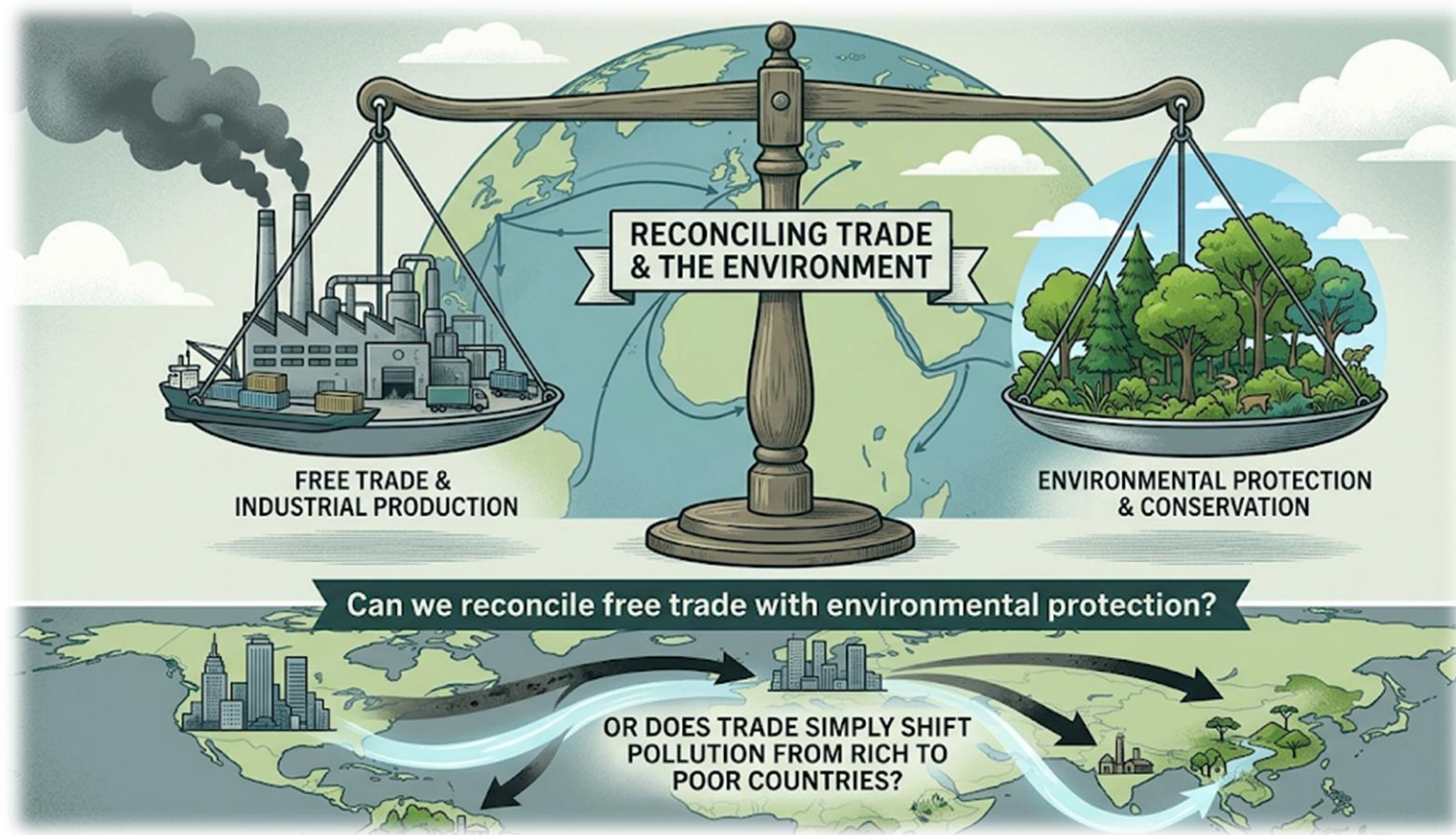
- Understand the pollution havens hypothesis and empirical evidence
  - Define carbon leakage and its mechanisms
  - Analyze environmental standards as non-tariff barriers (NTBs)
  - Evaluate interactions between MEAs (e.g., Paris Agreement) and trade rules (WTO)
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# Structure of the Presentation

- Carbon Leakage
  - Environmental Standards as non-tariff barriers (NTBs)
  - Multilateral Environmental Agreements & Trade Rules
  - Case Studies & Data
  - Conclusions & Policy Implications
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# Key Question

- Can we reconcile free trade with environmental protection?
- Or does trade simply shift pollution from rich to poor countries?



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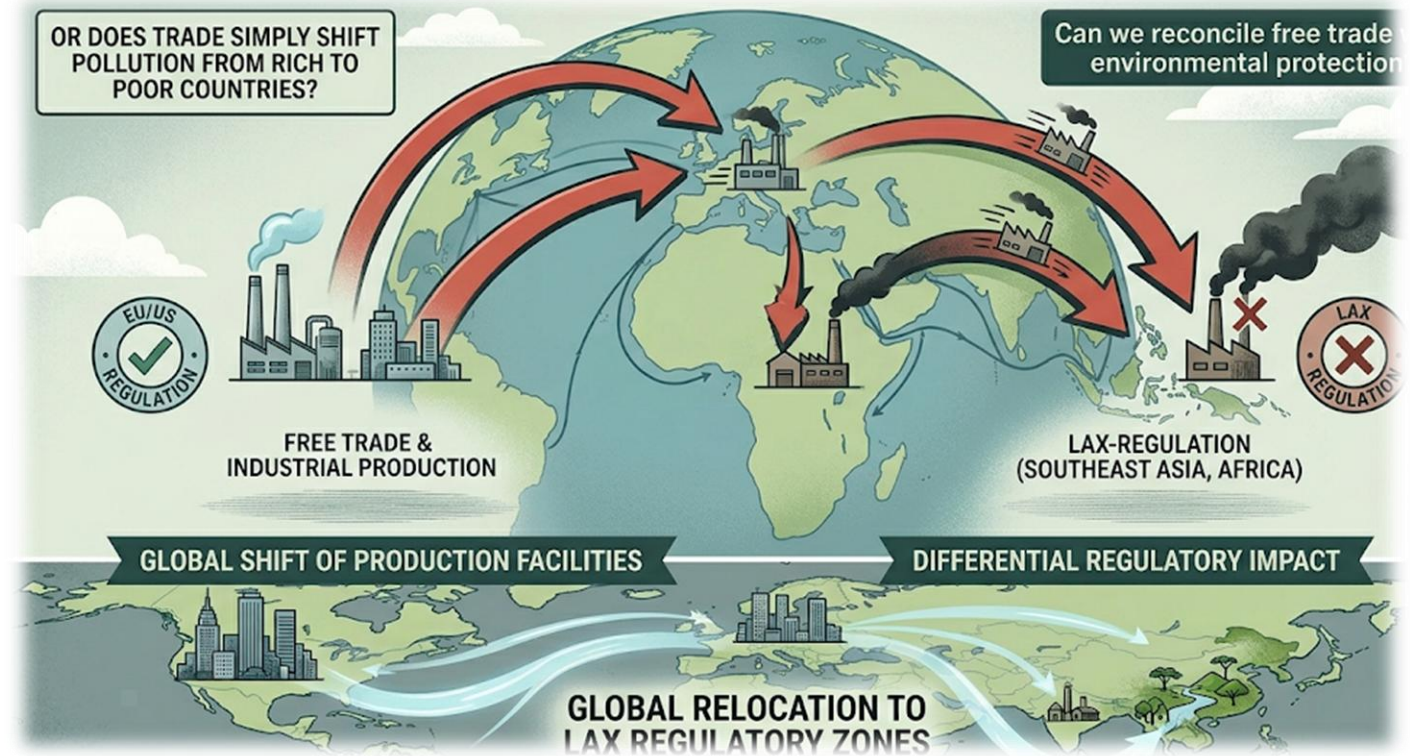
# The Trade-Environment Debate

- **Optimists:** Trade raises incomes → demand for cleaner environment → stricter regulations
  - **Pessimists:** Race to the bottom → pollution havens → carbon leakage
  - **Institutional gap:** WTO vs. MEAs – no clear hierarchy
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## Section 2: Pollution Havens Hypothesis

### Definition – Pollution Havens

- Firms relocate production to countries with weaker environmental regulations
- Result: “Dirty” industries concentrate where compliance costs are lowest



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# Theoretical Mechanism

- Trade liberalization + environmental regulation differences
  - Abatement costs vary (e.g., 5-15% of total costs in chemicals/metals)
  - Comparative advantage shifts toward pollution-intensive goods in lax-reg countries
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## Empirical Evidence – Mixed Results

- **Early studies (1990s):** Weak evidence – trade costs, scale effects dominate
  - **Recent meta-analyses (2010-2025):** Stronger evidence for "footloose" sectors (metals, paper, chemicals)
  - **Key study:** Levinson & Taylor (2008) – US environmental stringency reduces net imports from Mexico by 8-12%
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## Pollution Haven vs. Factor Endowment

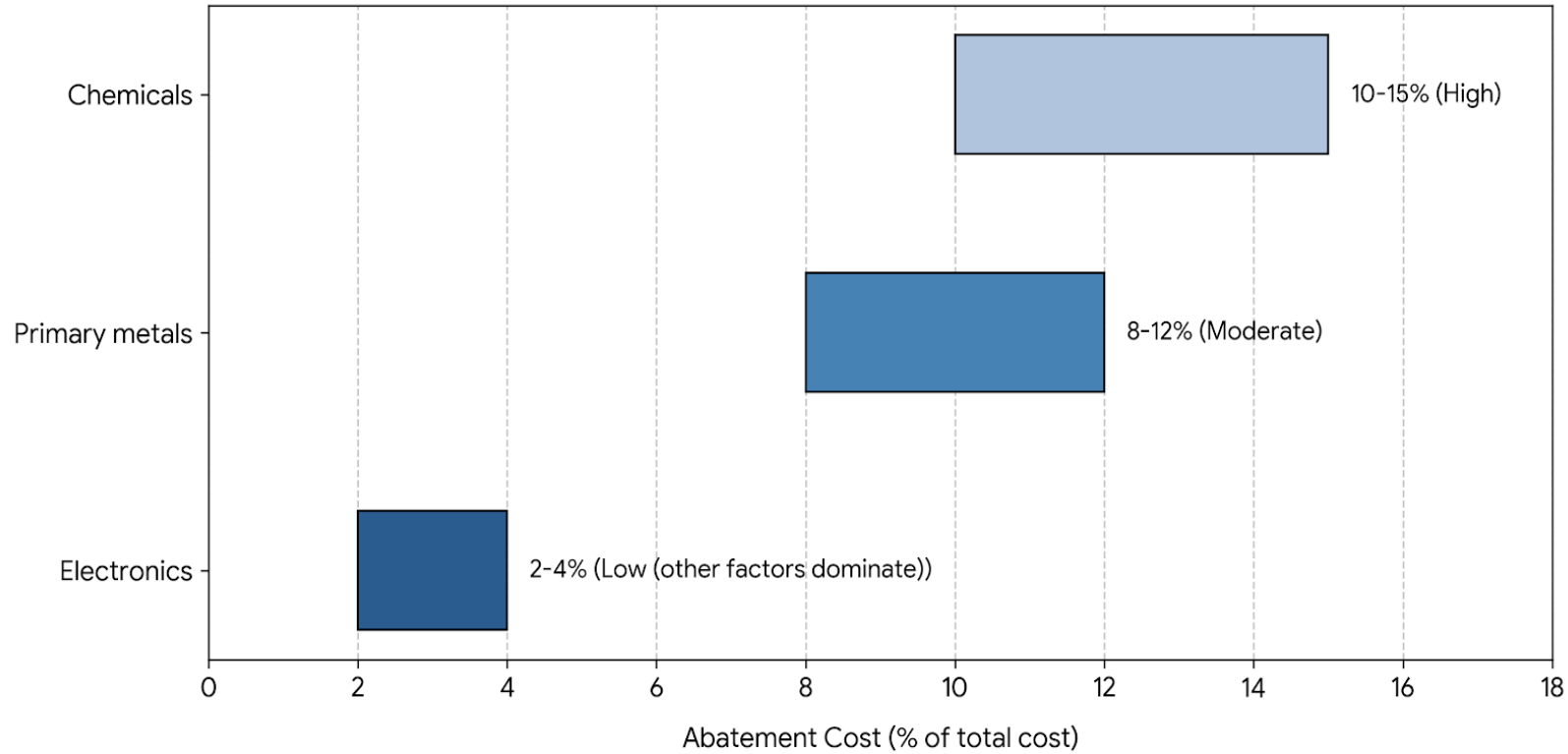
- Does dirty production go to poor countries because of lax rules OR cheap labor?
  - **Ederington et al. (2005):** Labor-intensive dirty sectors move for labor costs, not regulation
  - **Takeaway:** Regulation matters only at the margin – but that margin can be decisive
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## Real-World Example – US-Mexico Border (NAFTA era)

- Post-NAFTA: Maquiladora plants increase along border
  - Air pollution along Texas-Mexico border: SO<sub>2</sub> and particulates ↑ 30% in Mexican cities
  - Environmental compliance costs in Mexico ~30% lower than US for cement & glass
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# Pollution Haven Hypothesis – Critical Data

Environmental Abatement Costs and Industry Relocation Tendencies



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## Summary – Pollution Havens

- Exists but not universal; strongest in footloose, high-abatement-cost sectors
  - Trade liberalization can amplify pollution havens if environmental governance is weak
  - Policy implication: Harmonize minimum standards or use border adjustments
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## Section 3: Carbon Leakage

### Definition – Carbon Leakage

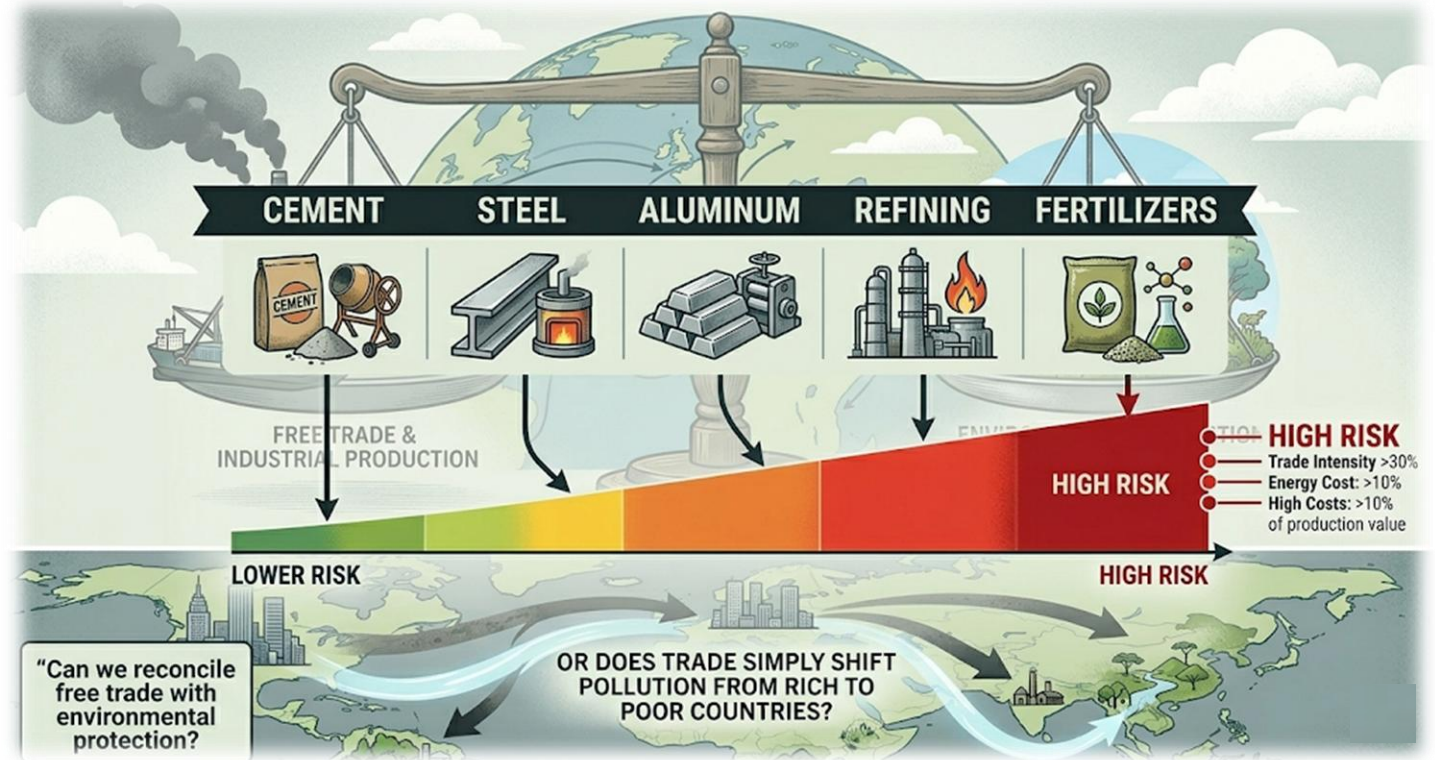
- Stringent climate policy in one country → production (and emissions) shift to countries with weaker policies
  - Leakage rate = (increase in foreign emissions) / (domestic emissions reduction)
  - **Typical estimates:** 5-25% for OECD carbon taxes
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# Channels of Carbon Leakage

- **Competitiveness channel:** Energy-intensive firms lose market share to foreign rivals
  - **Energy market channel:** Lower domestic fossil fuel demand → lower world prices → higher foreign consumption
  - **Investment channel:** New capital locates in lax-reg countries
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# Which Sectors Are Most Vulnerable?

- Cement, steel, aluminium, refining, fertilisers
- Trade intensity > 30% + energy costs > 10% of production value



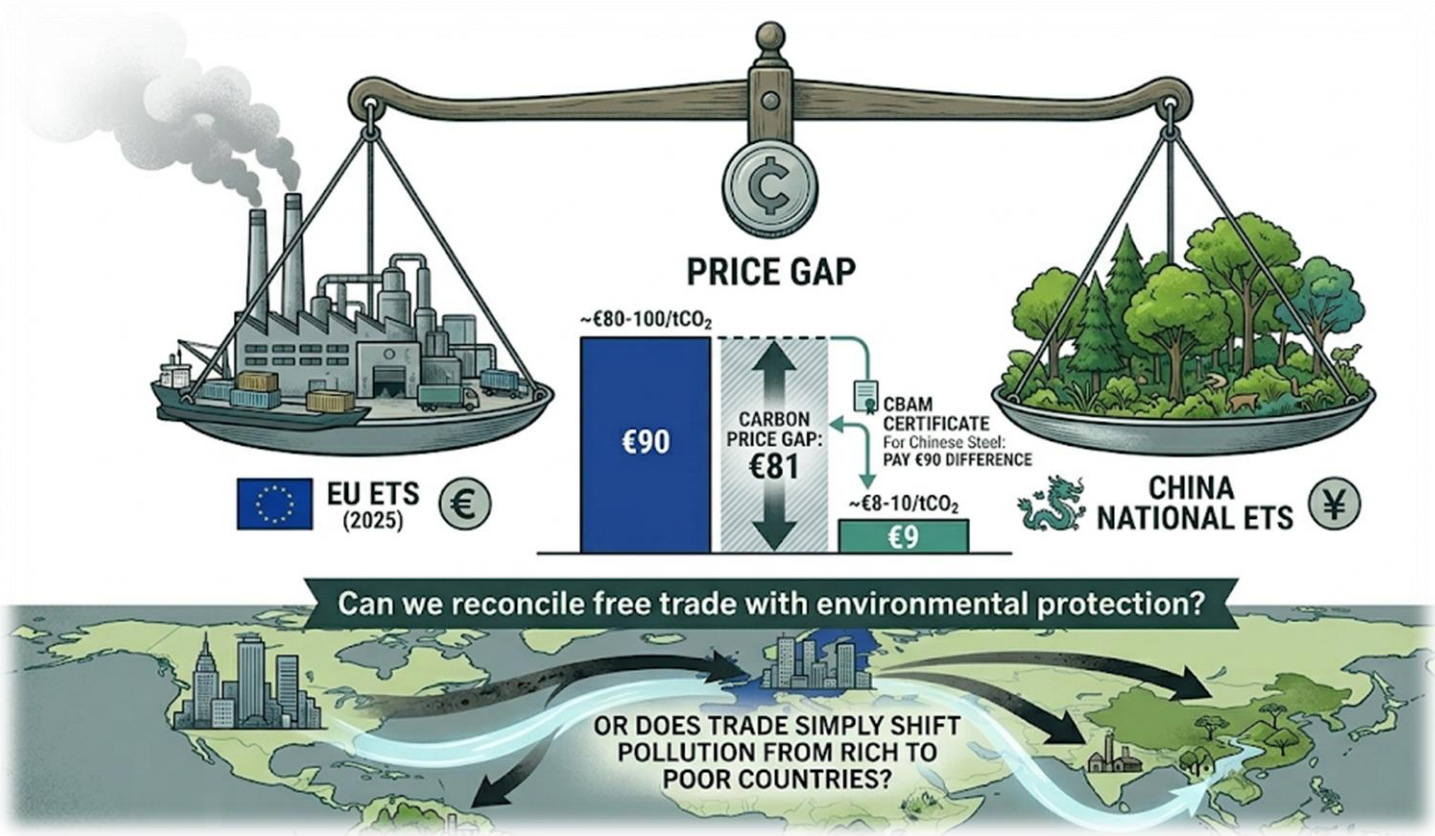
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## EU Example – Carbon Border Adjustment Mechanism (CBAM)

- Implemented transition phase 2023, full effect 2026
  - CBAM covers: cement, iron/steel, aluminum, fertilizers, electricity, hydrogen
  - Importers buy certificates = EU carbon price – carbon price already paid in origin country
  - Goal: Prevent leakage + incentivize foreign carbon pricing
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# CBAM Data (Illustrative)

- EU carbon price (ETS): ~€80-100/tCO<sub>2</sub> (2025)
- China national ETS: ~€8-10/tCO<sub>2</sub>
- CBAM certificate for Chinese steel: pay €90 difference



Source: Created by the author

# Critiques of CBAM

- **WTO compatibility?** Possible violation of most-favored-nation (MFN)
  - **Developing country objection:** Unfair burden, "green protectionism"
  - **Complexity:** Monitoring embedded emissions along supply chains
  - **Retaliation risk:** China, India, Brazil may impose counter-tariffs
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# Carbon Leakage – Summary

- Real and measurable, especially for energy-intensive trade-exposed (EITE) sectors
  - Unilateral climate policy without border measures  
→ leakage rates 15-25%
  - CBAM is first major policy experiment – outcomes will shape future trade-climate governance
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## Section 4: Environmental Standards as Non-Tariff Barriers : Definition – Environmental NTBs

- Domestic environmental regulations that affect imported goods
  - Legitimate goal: Protect human health, ecosystems, climate
  - **Problem:** Can be intentionally or unintentionally discriminatory
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# Examples of Environmental NTBs

- **Product standards:** Maximum pesticide residues, fuel efficiency, chemical bans (e.g., REACH)
  - **Process & Production Methods (PPMs):** Dolphin-safe tuna, timber from legal harvest (FLEGT)
  - **Packaging & labeling:** Recyclability, plastic-free, carbon footprint labels
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# WTO Rules on Environmental NTBs

- **GATT Article XX(b):** Necessary to protect human, animal, plant life/health
  - **GATT Article XX(g):** Relating to conservation of exhaustible natural resources
  - **Chapeau (intro clause):** Must not be arbitrary or disguised protectionism
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## Landmark WTO Case – Shrimp-Turtle (1998)

- US banned shrimp imports from countries without turtle-excluder devices (TEDs)
  - **Initial ruling:** Violated GATT (discrimination)
  - **Appellate Body (modified):** Allowed if US negotiates multilateral agreements first
  - **Key principle:** Unilateral PPMs can be WTO-legal but must be non-arbitrary
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# Environmental NTBs – Legitimate vs. Protectionist

Legitimate use	Protectionist abuse
Phasing out ozone-depleting substances (Montreal Protocol)	Complex testing requirements only foreign firms fail
Ban on toxic lead in paint	Different standards for imported vs. domestic organic produce
Energy efficiency labels	Frequent changes in standards without notice

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## Developing Country Concerns

- Compliance costs high (testing, certification, redesign)
  - Small producers excluded from supply chains
  - **Example:** EU Deforestation Regulation (2024) – requires geolocation of farms; smallholders in Indonesia/DRC struggle to comply
  - **Call for:** Technical assistance + longer transition periods
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## Summary – Environmental Standards as NTBs

- Necessary for legitimate environmental goals
  - But can become hidden protectionism
  - WTO allows them if: necessary, non-arbitrary, least trade-restrictive
  - Need for transparency, harmonization, and capacity-building
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## Section 5: MEAs & Trade Rules

### What Are Multilateral Environmental Agreements?

- Legally binding treaties among multiple countries on environmental issues
  - **Examples:** Montreal Protocol (ozone), CITES (endangered species), Basel Convention (hazardous waste), Paris Agreement (climate)
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# Trade Measures in MEAs

Many MEAs include trade restrictions to achieve environmental goals:

- **Montreal Protocol (1987):** Ban trade in ozone-depleting substances with non-parties
  - **CITES (1975):** Trade permits for endangered species; ban on commercial trade
  - **Basel Convention (1989):** Prior informed consent for hazardous waste trade
  - **Rotterdam Convention (1998):** Prior informed consent for hazardous chemicals
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## The Conflict – MEAs vs. WTO Rules

- **WTO complaint:** Trade measures in MEAs may violate MFN, national treatment, or prohibition on quantitative restrictions
  - **MEA argument:** Environmental necessity should override trade rules
  - **Legal gap:** No WTO agreement explicitly exempts MEA trade measures
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# Vienna Convention & Montreal Protocol – A Success Story

- Trade bans on CFCs with non-parties → universal participation (197 parties)
  - No WTO challenge ever filed – pragmatic cooperation
  - **Lesson:** When environmental threat is clear and alternatives exist, trade measures work
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# Paris Agreement (2015) – Trade Measures?

Paris Agreement itself has **no explicit trade measures**

But Nationally Determined Contributions (NDCs) often imply trade policies:

- ✓ Carbon border adjustments (CBAM)
- ✓ Fossil fuel subsidy phase-outs
- ✓ Green procurement rules

**Unresolved:** Can a country impose trade restrictions to enforce another's NDC?

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# WTO Committee on Trade & Environment (CTE)

Established 1995 – forum for dialogue, not dispute resolution

## **Key debates:**

- ✓ Should MEAs get a "waiver" from WTO rules?
- ✓ Criteria for judging MEA trade measures?
- ✓ Observer status for MEAs in WTO disputes?

**Outcome:** No consensus after 30 years

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## Proposed Solutions to MEA-WTO Tension

- **Mutual supportiveness clause** in future trade agreements (e.g., CETA, CPTPP)
  - **Advisory opinion** mechanism from WTO dispute panel on environmental cases
  - **Limited waiver** for MEA trade measures under specific conditions (transparent, proportional, time-bound)
  - **Interpretative note** that GATT Article XX includes compliance with MEAs
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## Real-World Clash – EU Seal Ban (2015)

- EU banned seal products for animal welfare reasons
  - Canada, Norway challenged at WTO (DS400, DS401)
  - **WTO ruling (2015):** Upheld ban as covered by Article XX(a) (public morals)
  - **Importance:** First time WTO allowed trade restriction based on animal welfare – shows flexibility
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## Summary – MEAs & Trade Rules

- Many MEAs use trade measures effectively (Montreal Protocol)
  - WTO has not struck down an MEA measure yet – de facto coexistence
  - Paris Agreement's interaction with trade rules remains the next frontier
  - Likely future: More climate-related trade measures, more disputes, need for reformed WTO rules
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## Section 6: Case Studies & Data Slides

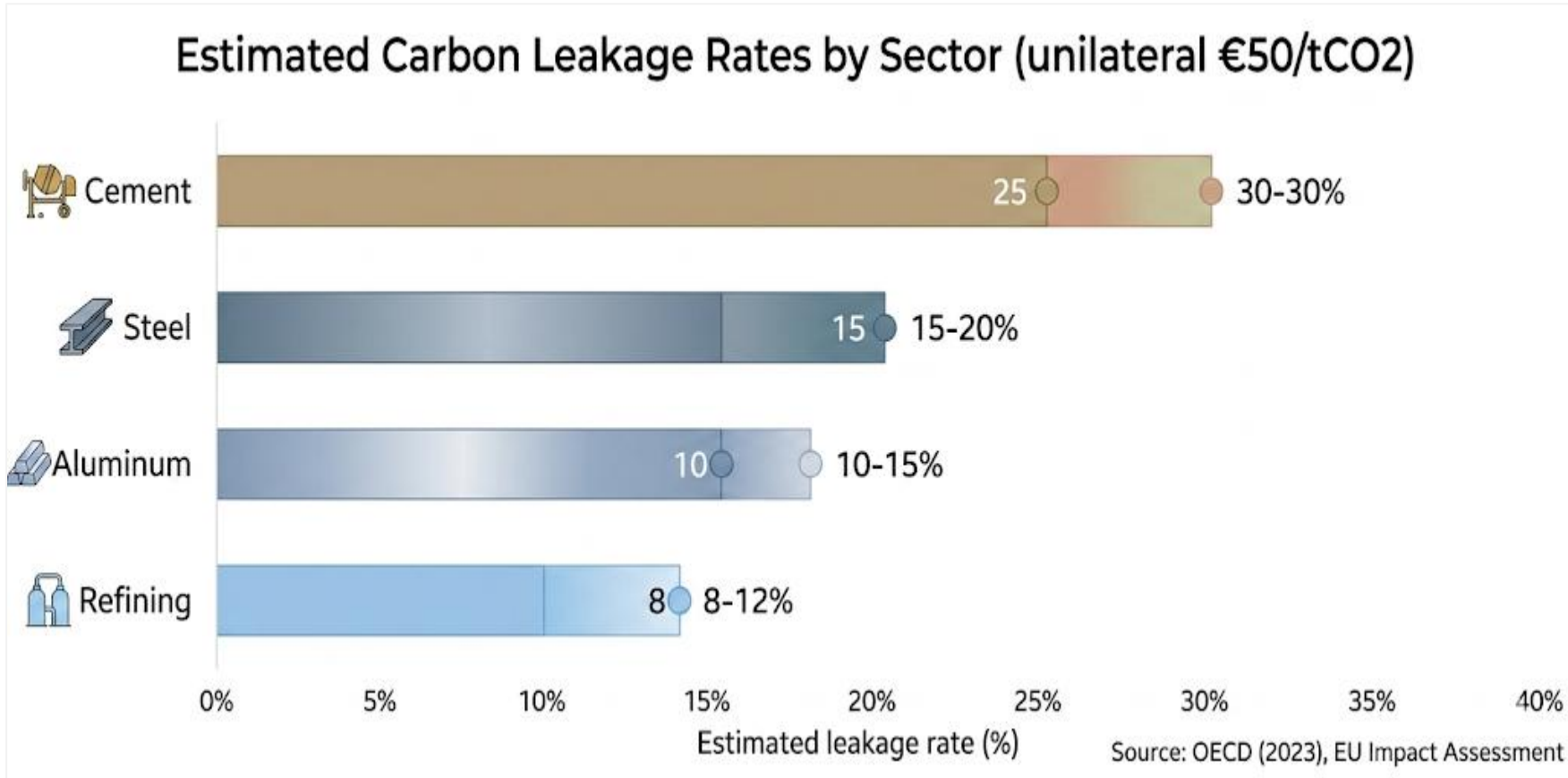
### Case Study 1 – China's Waste Import Ban (2018)

- Under Basel Convention, China banned imports of plastic waste (National Sword policy)
  - **Trade effect:** Global recycling markets collapse; waste diverted to SE Asia (Vietnam, Malaysia, Thailand)
  - **Environmental effect:** Illegal dumping and open burning in receiving countries ↑
  - **MEA/trade lesson:** Unilateral environmental ban shifts problem, not solves it – need global Basel amendments (adopted 2019)
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## Case Study 2 – EU’s Deforestation Regulation (EUDR)

- Requires proof that imported commodities (soy, beef, palm, coffee, cocoa, timber) not from deforested land after 2020
  - **Trade partners’ complaint:** Brazil, Indonesia say it violates WTO, burdens smallholders
  - **De facto NTB or legitimate environmental policy?** Ongoing WTO consultation request (2024)
  - **Outcome (as of 2025):** Delayed implementation, but still moving forward with adjustments
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# Key Data – Carbon Leakage Rates by Sector



## Data – Environmental NTB Notifications to WTO (1995-2024)

- Total TBT (technical barriers) notifications: ~30,000
  - Labeled "environmental": ~4,500 (15%)
  - Fastest growth: climate-related (carbon labels, recycled content)
  - **Top notifiers:** EU, US, China, Brazil
  - **Disputes filed:** 14 involving environmental NTBs; 3 decided against regulator (mostly discrimination)
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# Conclusions & Policy Implications

## Key Takeaways

- **Pollution havens** are real but sector-specific; trade policy must account for abatement cost differences
  - **Carbon leakage** requires border measures (CBAM) or international carbon price floor
  - **Environmental NTBs** are legitimate but must avoid disguised protectionism; transparency and technical assistance key
  - **MEA-WTO interaction** is cooperative in practice but legally unresolved; Paris Agreement will test this
  - **Reform needed:** WTO dispute resolution reform (including environment expertise); climate club agreements
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## Final Discussion Question & References

### Discussion Question:

*Should the WTO allow countries to impose trade sanctions against Paris Agreement non-compliant countries?*

*Why or why not?*

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## References

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**Thank you!**