

Trade and Climate Change

FAO EXPERT CONSULTATION ON
*Global Food Production under Changing Climate and Increased Variability:
Implications for trade and Food Policy*

6 November 2013
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Key Questions with significant Policy Implications

Does more trade lead to increase in GHG emissions?

The three effects

The transport channel

What are the main areas of intersection between climate change and trade policies?

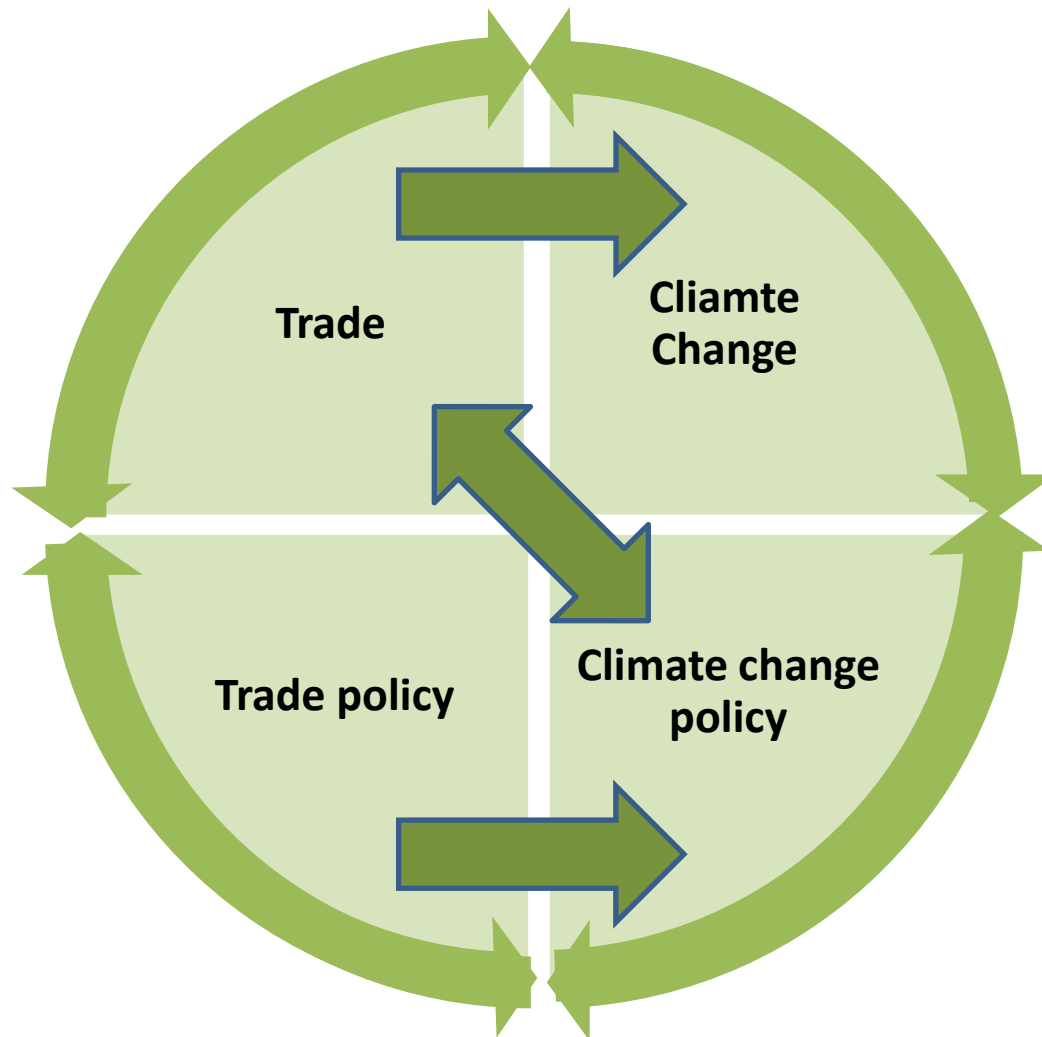
How does WTO address climate change ?

“building blocks”

Topics under discussion

- Access to climate-friendly goods and service markets
- Support to renewable energy technologies
- Carbon footprint and labelling
- Carbon Leakage and competitiveness loss
- and others

A two-way relationship



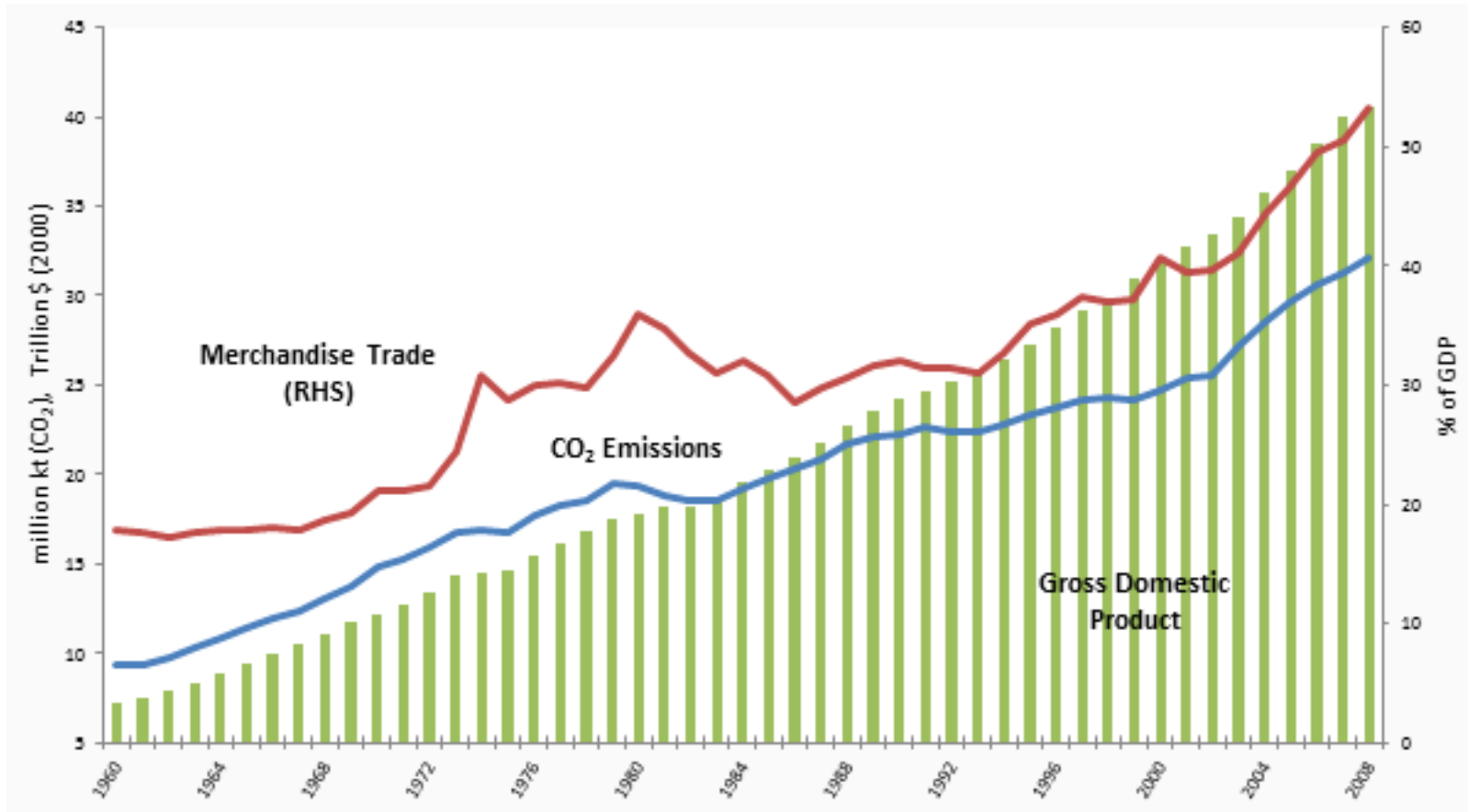
Impact of Climate Change on Trade

Trade Infrastructure and Routes (supply chain vulnerability)

- Changing trade patterns due to:
 - Rising sea levels and increased occurrence of extreme weather
 - Availability of new shipping routes (due to changes in sea ice, particularly in the Arctic)
- Increased vulnerability of supply chains, transport and distribution channels (increased costs of undertaking international trade)
- Developing countries who depend on international production chains may be vulnerable
- Agricultural yields, crop loss



Do emissions rise when countries trade more?



Do emissions rise when countries trade more?

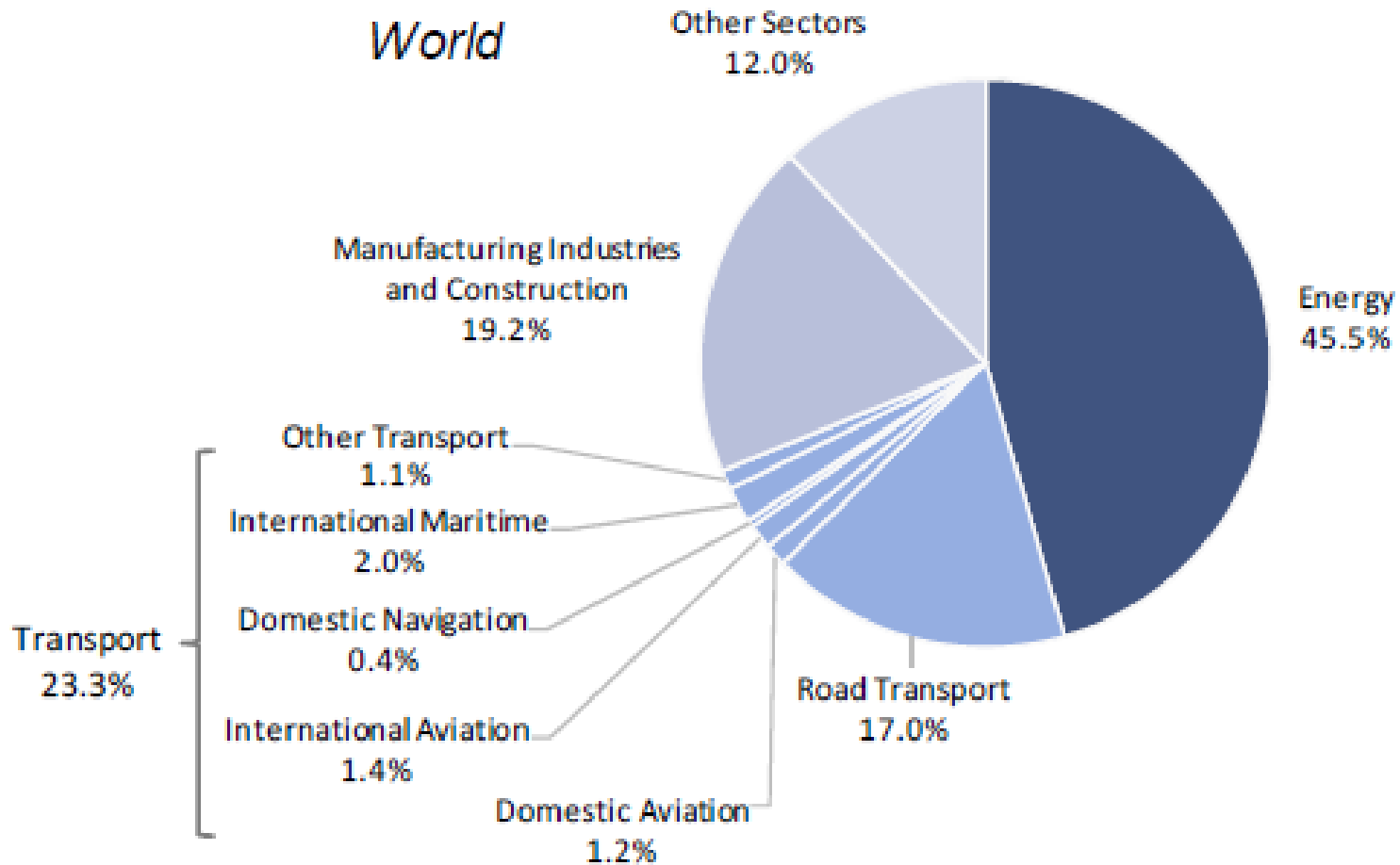
Scale effect:	Negative
Composition effect:	Negative/positive
Technique effect:	Positive
Net effect:	Indeterminate

Messages from theory

- Not possible to reach conclusion on the basis of theory alone
- Comparative advantage matters
- Overall effect of trade on the environment hinges on speed with and extent to which clean technologies are adopted

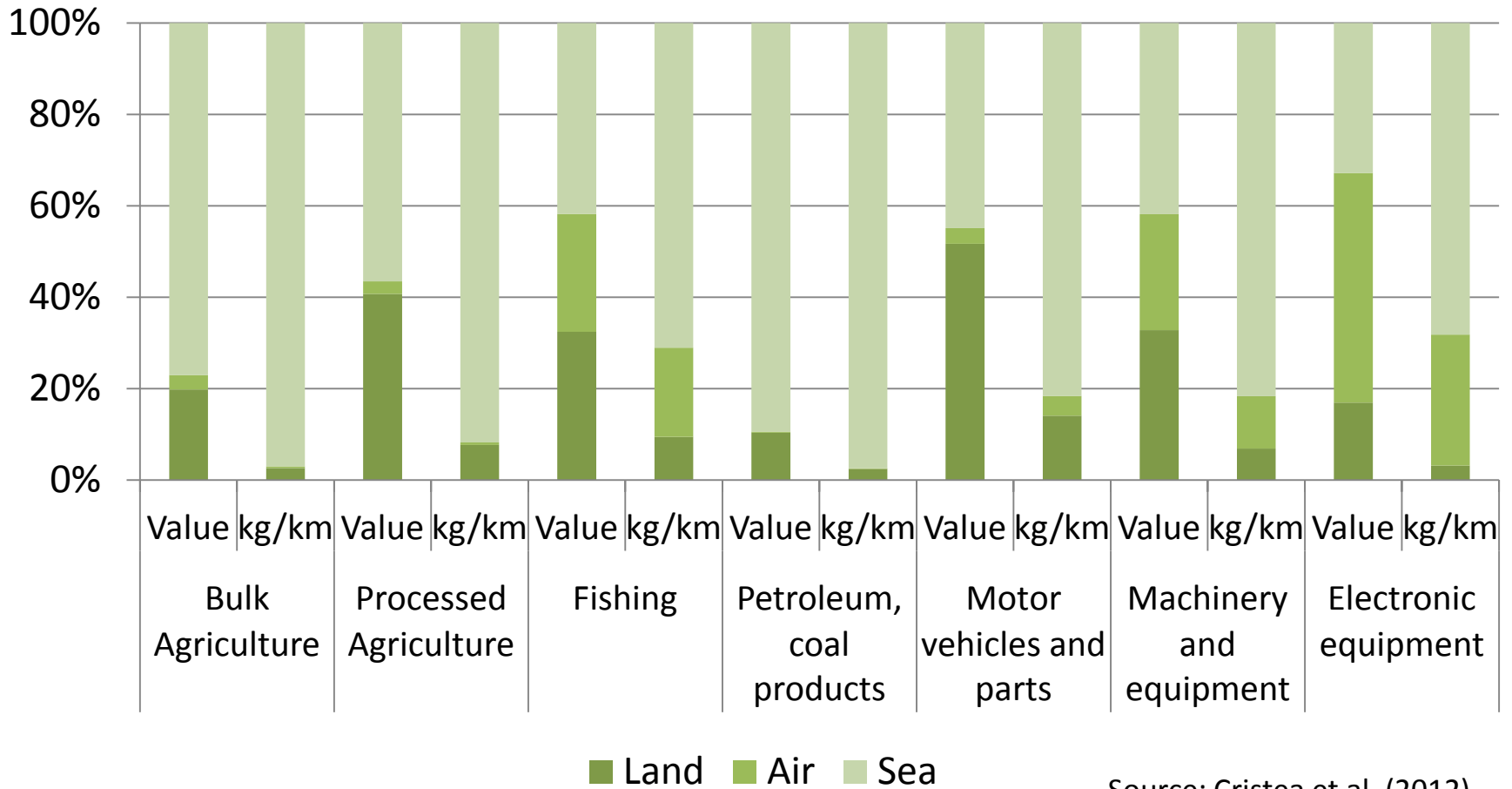
Environmental impact of trade must be determined empirically, since it is specific to each country depending on its development level, trade specialization, and environmental policies.

Global CO₂ emissions from fuel combustion



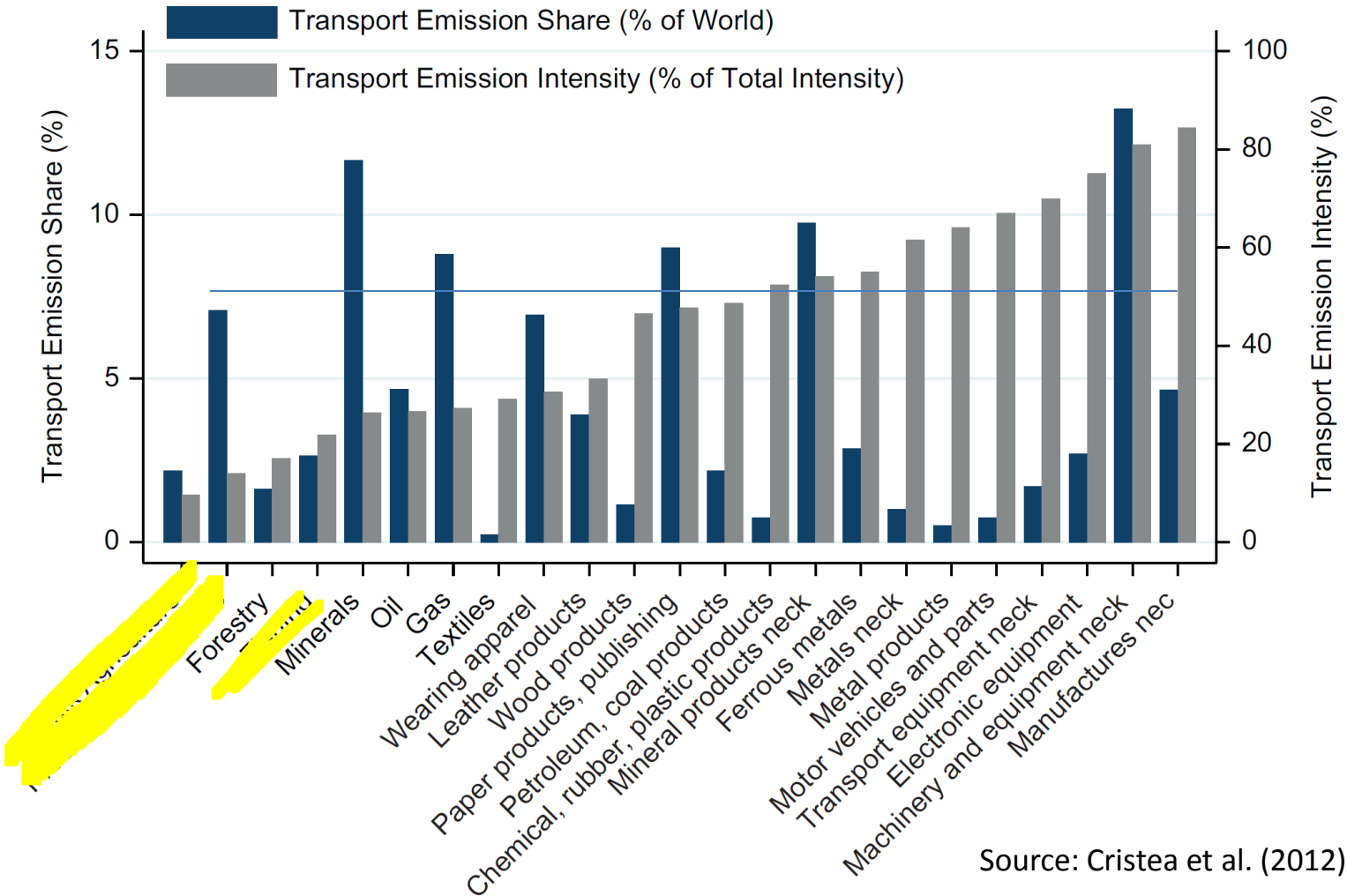
Source: International Transport Forum 2010

Sector modal shares



Source: Cristea et al. (2012)

Emission intensity of trade = emissions from **production** of traded goods
 + emissions from **transport** of traded goods

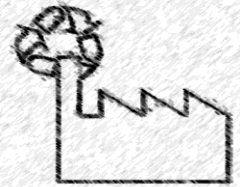
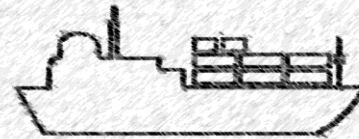


Source: Cristea et al. (2012)

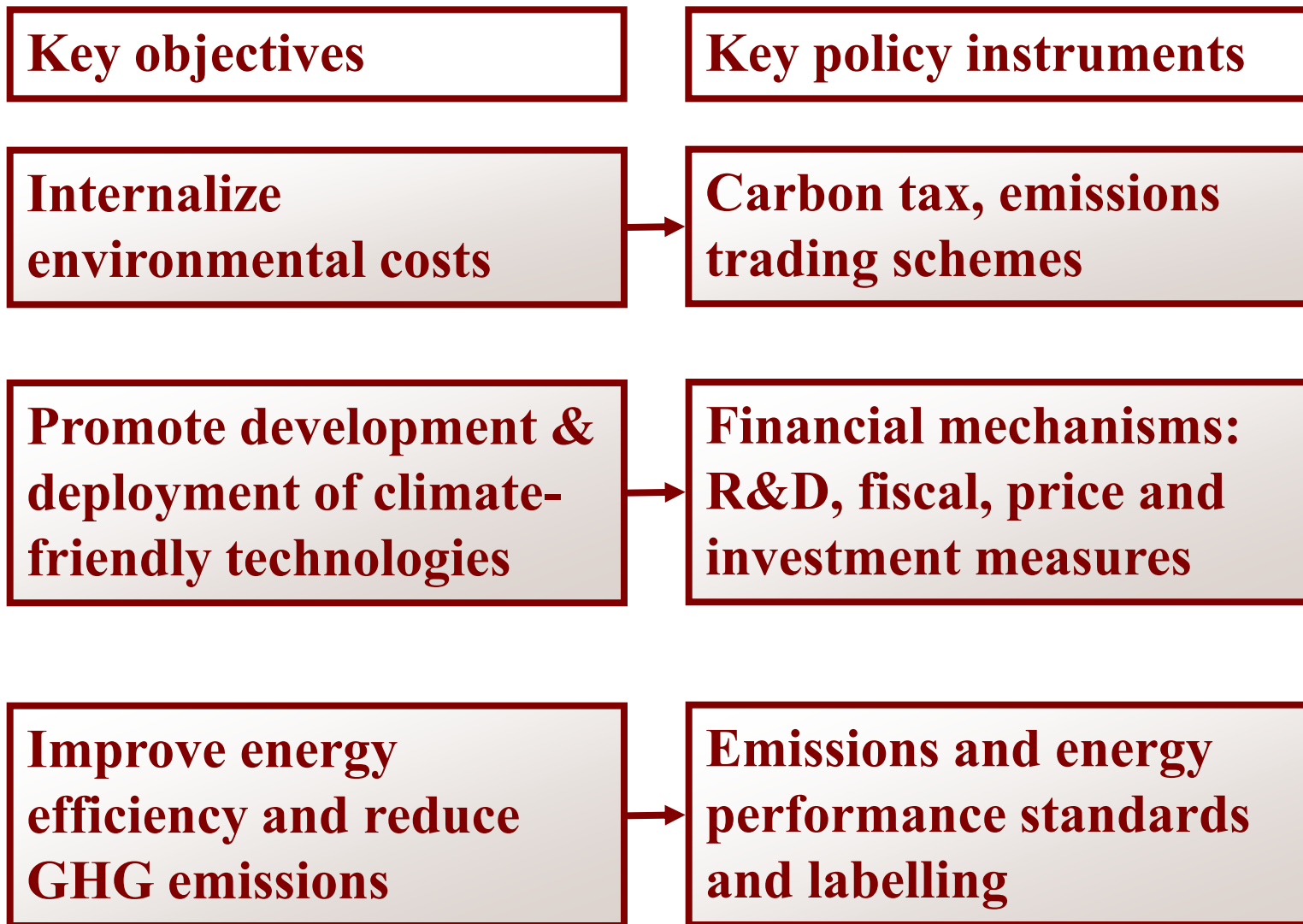


WORLD TRADE ORGANIZATION
ORGANISATION MONDIALE DU COMMERCE
ORGANIZACIÓN MUNDIAL DEL COMERCIO

Taxonomy of Climate Change Mitigation Measures



Climate change mitigation measures



Climate change mitigation measures

Key objectives

Key policy instruments

Key WTO Agreement

Internalize environmental costs

Carbon tax, emissions trading schemes

GATT

Promote development & deployment of climate-friendly technologies

Financial Mechanisms: R&D, fiscal, price and investment measures

SCM Agreement

Improve energy efficiency and reduce GHG emissions

Emissions standards, labelling on energy performance

TBT Agreement

Examples of Carbon tax

Finland (first national carbon tax), since 1990

Followed e.g. by the Netherlands and Poland (1990), Sweden (1991), Norway (1991), Denmark (1992), Costa Rica and Slovenia (1997), Italy (1999), Estonia (2000), Germany (2006), Switzerland (2008), India and Ireland (2010), Japan (2012)

Australia (carbon tax that will transition into national ETS), from 2012-2015

Examples of Emissions trading schemes

European Union (EU ETS), since 2005

New Zealand (first national economy-wide ETS), since 2008

Australia, South Korea (national ETS scheme), from 2015

United States, Canada, Japan: plans for national ETS dropped or delayed

Sub-national schemes: Western Climate Initiative (US states and Canadian provinces), Tokyo Emissions Trading System, California cap-and-trade scheme, Saitama Pref. (Japan) “Target-Setting Emissions Trading Programme”

EU ETS

Respiratory problems

EU ETS carbon spot price, € per tonne



Source: Thomson Reuters Point Carbon

Climate change mitigation measures

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Rationale

Development & deployment of new CC friendly technologies

May be occurring at a slower pace than desirable from an environmental point of view

May therefore need to be reinforced by national policies

Environmental externality: without cost, no direct incentive to find ways to reduce emissions

Negative factors

Cost of renewable energy is generally not competitive with wholesale electricity and fossil fuel prices

Learning cost

Type of support

**2 main
types of
support**

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graph LR; A[2 main types of support] --> B[Incentives to promote invention of new climate-friendly technologies and goods]; A --> C[Incentives to encourage the deployment of climate-friendly goods and technologies and the increased use of renewable sources of energy];
```

Incentives to promote invention of new climate-friendly technologies and goods

Incentives to encourage the deployment of climate-friendly goods and technologies and the increased use of renewable sources of energy

Incentives to promote deployment of CC technologies & renewable energy



Taxonomy of climate mitigation measures

Key objectives

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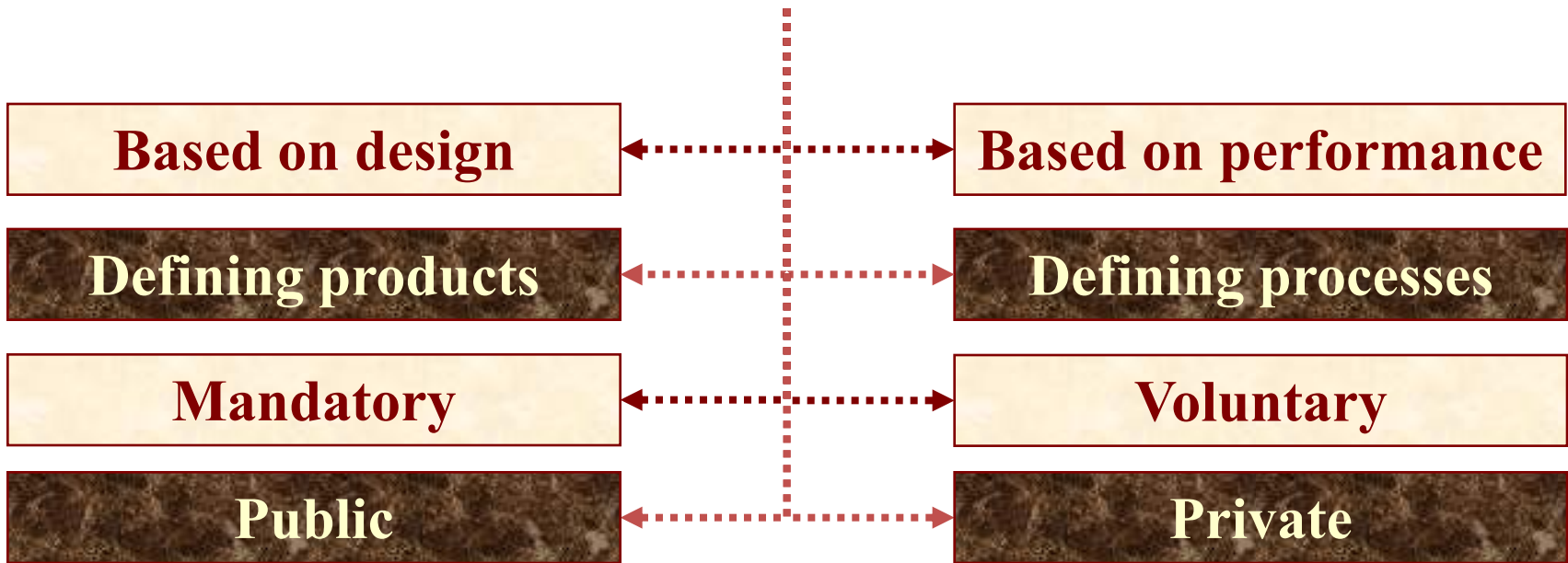
Emissions standards, labelling on energy performance

TBT Agreement



Key Characteristics of Emissions/ energy efficiency standards

Emissions/ energy efficiency standards and regulations can be...



Minimum energy-efficiency performance standards for major domestic appliances (Canada)

Leadership in Energy and Environmental Design (LEED) in the building sector (United States)

Key principles

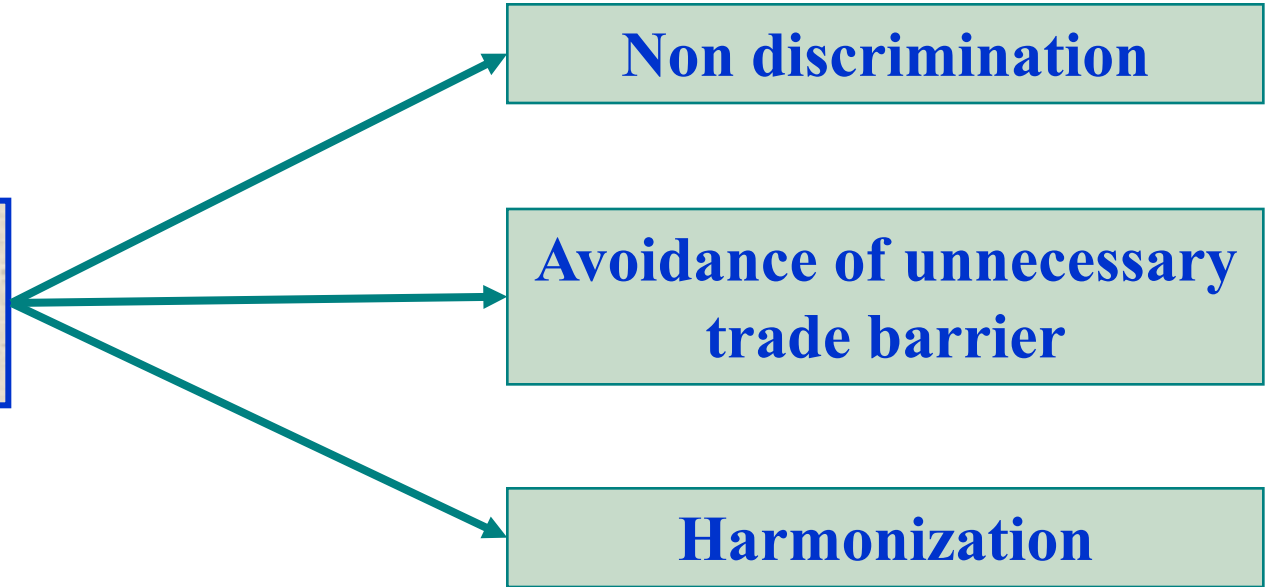
**Agreement on Technical Barriers
to Trade / GATT**

**Key principles
include**

Non discrimination

**Avoidance of unnecessary
trade barrier**

Harmonization



Key compliance tools: Labelling

Scope

Most OECD countries (energy-efficiency labelling)

Many non OECD countries, e.g. South Africa, Argentina, Sri Lanka and Tunisia

Information covered

Product's energy performance/emissions levels while in operation

e.g. EU, Australia, Canada and US require energy-efficiency labels for several household appliances

Product's entire life-cycle, including its energy efficiency

e.g. Nordic Swan, German Blue Angel and the EU's eco-label Flower

→ The issue of food miles

Carbon Footprinting

Information about the total amount of GHGs emitted during the life cycle of a good or service

Reduction and/or compensation of GHGs

Communication:
Display of this information on packaging and websites

Grams CO₂-eq. per unit of product

Methodologies

Mitigation

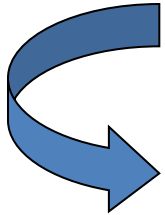
Labelling schemes

Concerns

Lack of transparency

Cost of conformity assessment

Lack of harmonization



Harmonization is underway on methodology (for government schemes), but labels and communication of claims of vary greatly

Concerns

Market access impacts of the proliferation of private standards

Non-neutrality of CFP methodologies

Confusion of consumers created by multiple labelling schemes



Carbon leakage and competitiveness

Competitiveness and Carbon Leakage

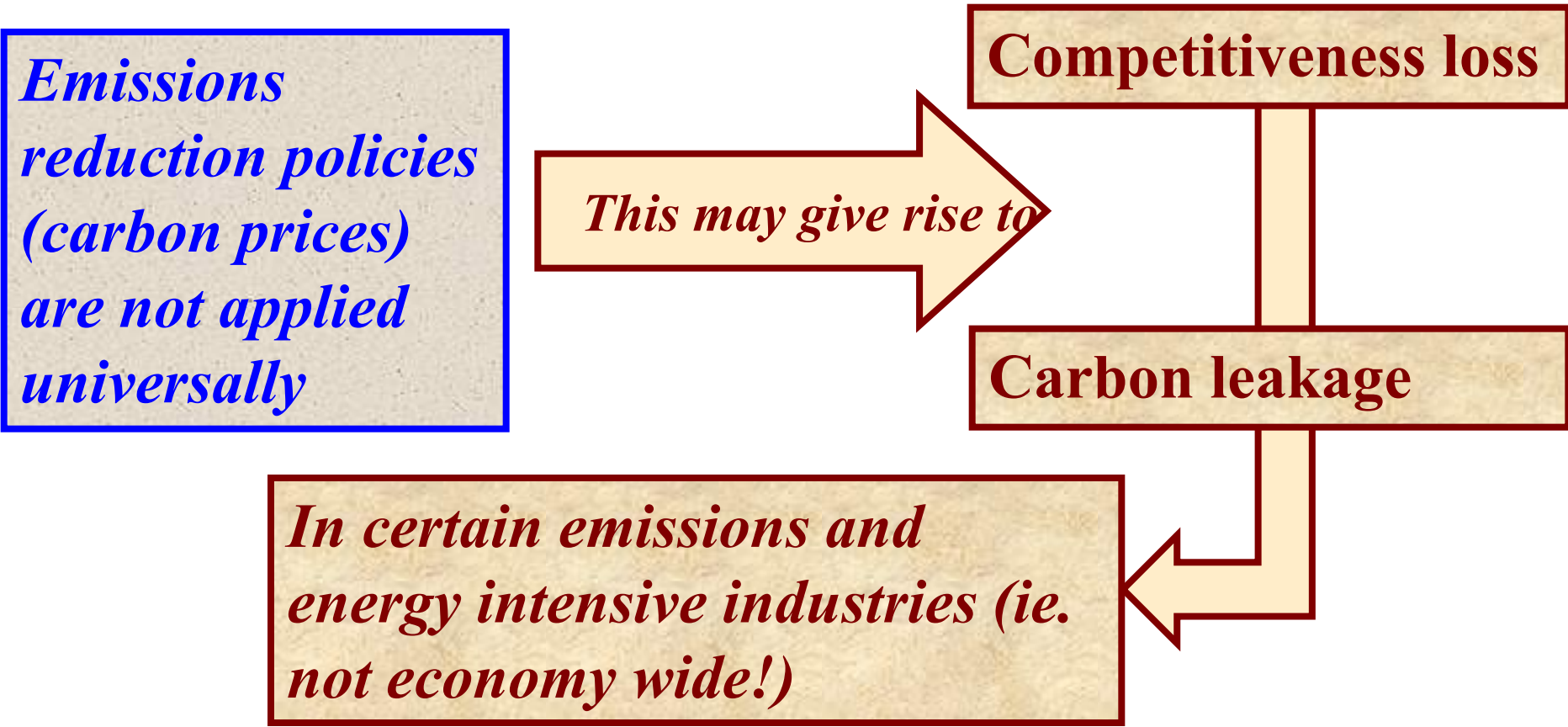
Emissions reduction policies (carbon prices) are not applied universally

This may give rise to

Competitiveness loss

Carbon leakage

In certain emissions and energy intensive industries (ie. not economy wide!)

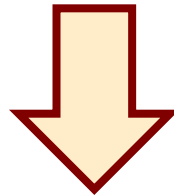


Sector Competitiveness Impacts

**Concern in these vulnerable sectors
enhanced competitiveness of non-carbon
constrained producers could:**

Erode market share
of constrained
producers

**Reduce profitability
of constrained
producers**



This could lead to carbon leakage

Sector Competitiveness Impacts

Studies have identified 3 sectors, among others, that may be particularly vulnerable to *competitiveness* loss under unilateral carbon pricing:

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graph TD; A[Studies have identified 3 sectors, among others, that may be particularly vulnerable to competitiveness loss under unilateral carbon pricing:] --> B[Cement]; A --> C[Steel]; A --> D[Aluminium];
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Cement

Steel

Aluminium

Carbon Leakage: Definitions

Carbon leakage

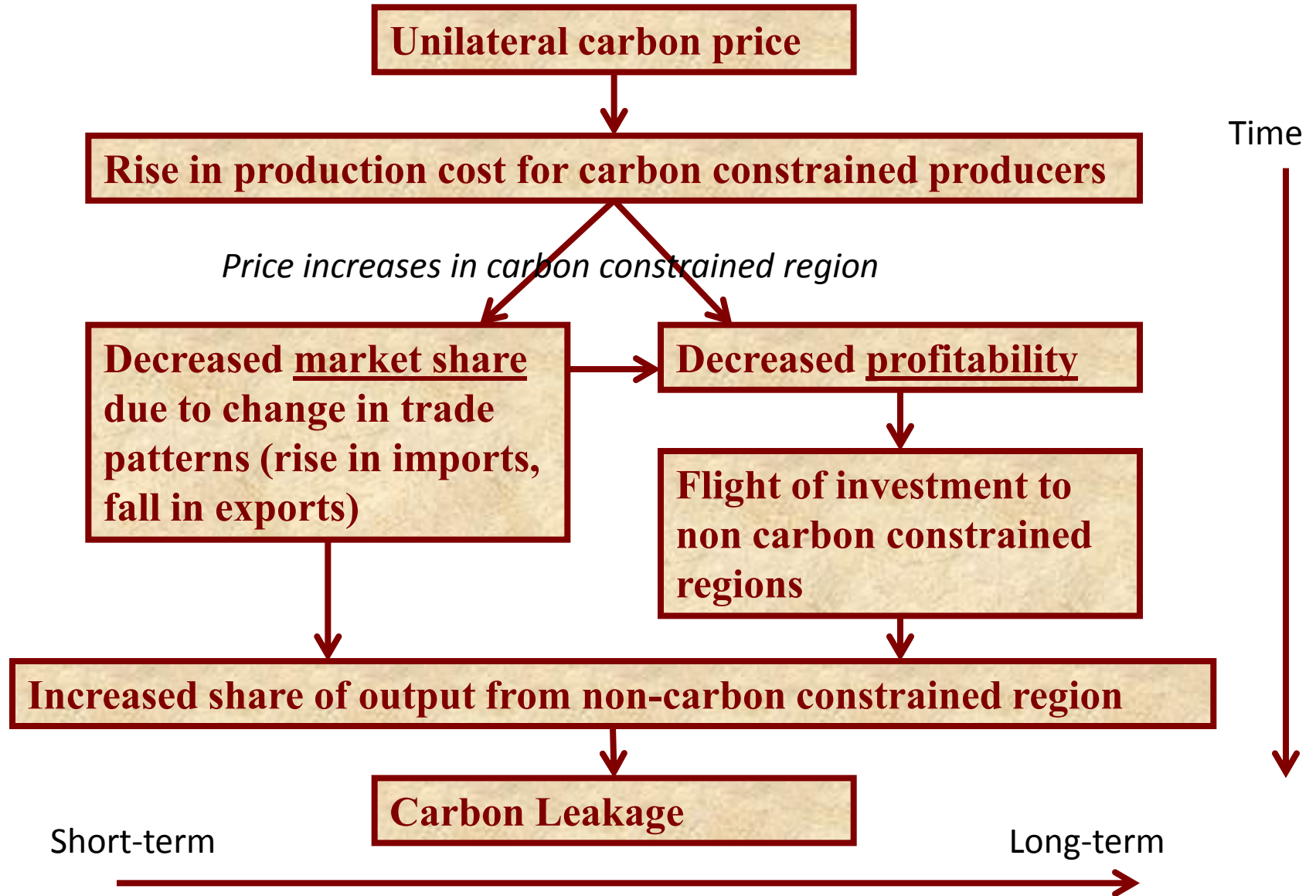
Increase in greenhouse gas emissions from a set of countries not taking climate mitigation action, which is directly attributable to mitigation actions taken in another set of countries

IPCC Definition:

Carbon leakage =

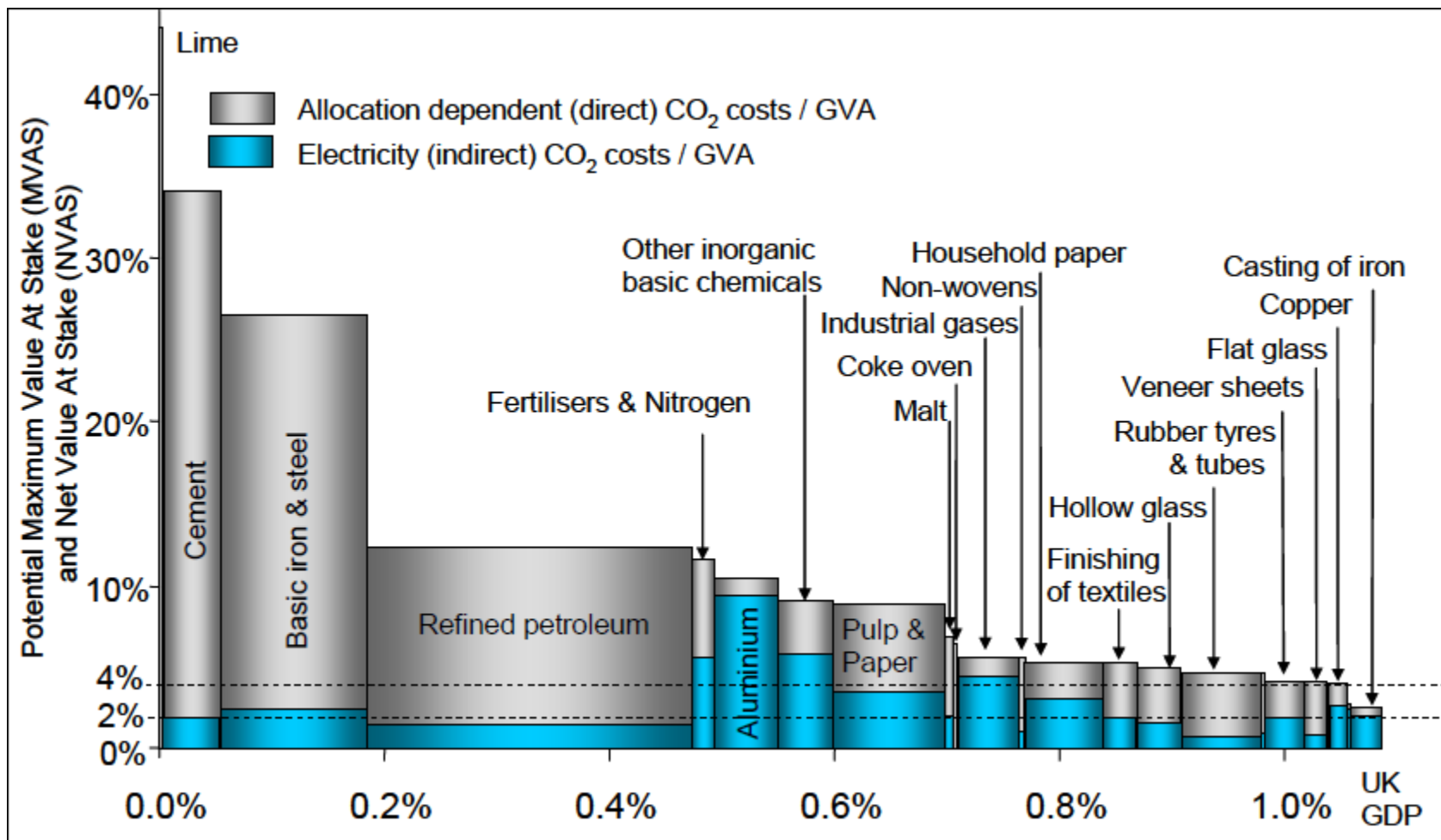
increase in CO₂ emissions outside countries taking domestic mitigation action
reduction in CO₂ emissions by countries taking domestic mitigation action

Channels of Carbon Leakage



Which sectors?

(Share of UK GDP at stake from carbon pricing)



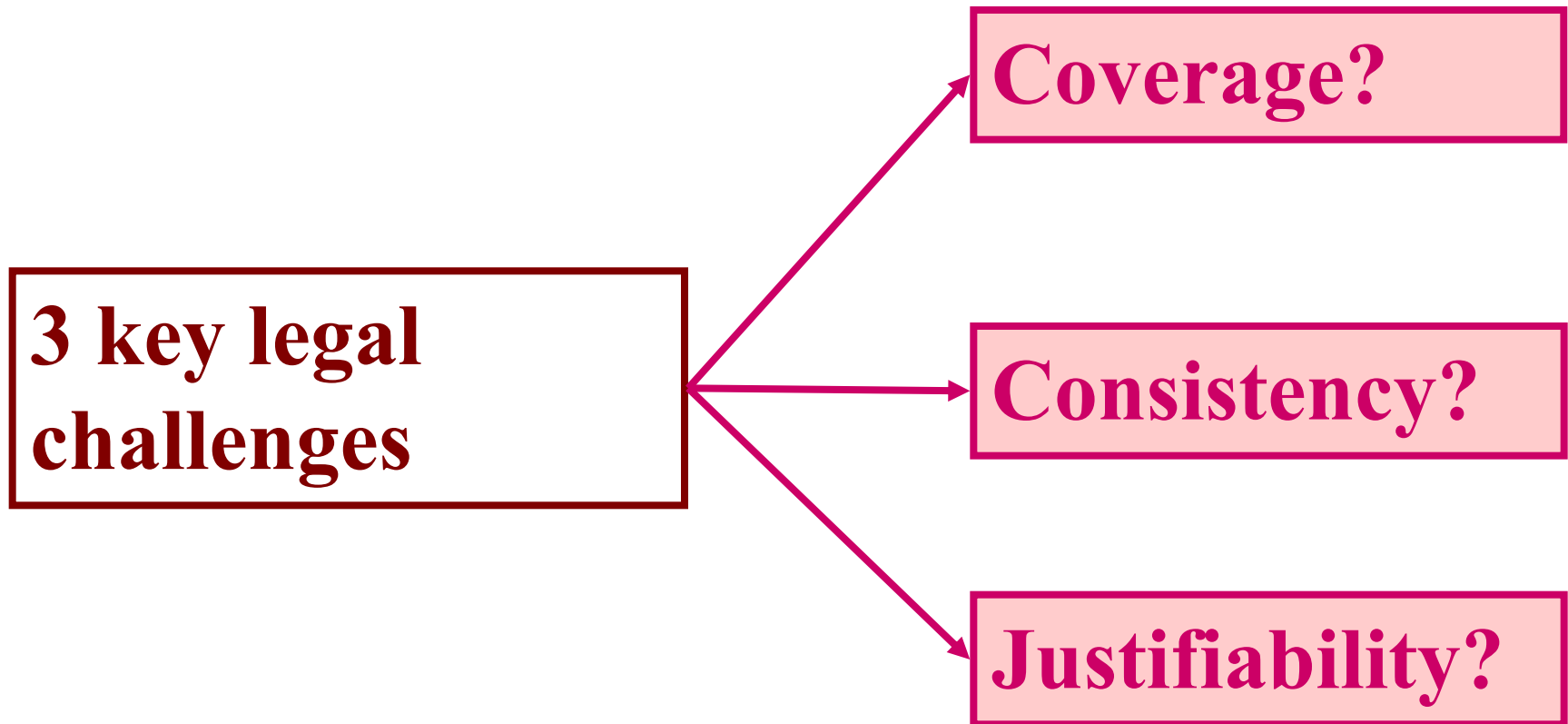
Source: Hourcade et al. 2007, Climate Strategies

Assumed carbon price of €20/tCO₂ and induced electricity price increase of €10/MWh

An aerial photograph of a university campus, likely Cornell University, showing a large, multi-story building complex surrounded by dense green trees. In the background, a large body of water (Lake Cayuga) is visible under a cloudy sky. The text "Border adjustments and WTO law" is overlaid in blue on the image.

Border adjustments and WTO law

Climate change border adjustments: Relevant WTO rules

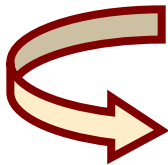


Climate change border adjustments:

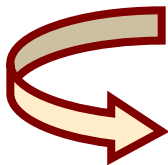
Relevant WTO rules

Coverage?

Importance to define the instrument at hand to determine relevant WTO/GATT provisions



A border adjustment to a tax?



A border adjustment to another carbon cost, e.g. an ETS?

Climate change border adjustments: Relevant WTO rules

GATT Article II.2(a) provides for the possibility of imposing at any time on the importation of any product:

A charge equivalent to an internal tax imposed consistently with the provisions of Article III.2 in respect of the *like domestic product* or in respect of an *article from which the imported product has been manufactured or produced in whole or in part.*

Climate change border adjustments:

Relevant WTO rules

Coverage?

A border adjustment to a regulation, e.g. an ETS?

*Relevance
of GATT
rules?*

```
graph LR; A[Relevance of GATT rules?] --> B[Article III.2: Can the price paid by an industry to participate in an ETS be qualified as an "internal tax or other internal charge of any kind"]; A --> C[Article III.4: Can an ETS be included in the measures covered in Article III:4, i.e. "all laws, regulations and requirements affecting the internal sale, offering for sale, purchase, transportation, distribution or use"];
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Article III.2: Can the price paid by an industry to participate in an ETS be qualified as an “internal tax or other internal charge of any kind”

Article III.4: Can an ETS be included in the measures covered in Article III:4, i.e. “all laws, regulations and requirements affecting the internal sale, offering for sale, purchase, transportation, distribution or use”

Climate change border adjustments:

Relevant WTO rules

Coverage?

A border adjustment to a regulation, e.g. an ETS?

Potential requirements on importers

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graph LR; A[Potential requirements on importers] --> B[Submit emissions credits acquired abroad to cover the emissions during the production process of the imported good]; A --> C[Hold emission allowances, up to the amount of CO2 emitted during the production of imported products and applied on a per unit basis to each good];
```

Submit emissions credits acquired abroad to cover the emissions during the production process of the imported good

Hold emission allowances, up to the amount of CO₂ emitted during the production of imported products and applied on a per unit basis to each good

Climate change border adjustments:

Relevant WTO rules

Consistency?

With basic principles, e.g. non discrimination

National treatment

Most Favoured Clause

Prohibition to discriminate between “like” products

Climate change border adjustments:

Relevant WTO rules

Justifiability?

WTO rules, as confirmed by jurisprudence

Under certain conditions, Members can adopt trade-related measures aimed at protecting the environment

Essential to maintain a balance between

the right of Members to take regulatory measures to achieve legitimate policy objectives

the rights of other WTO Members under basic trade rules

Climate change border adjustments:

Relevant WTO rules

Justifiability?

Several disputes on measures that sought to achieve a variety of policy objectives

Conservation of clean air from air pollution

Conservation of sea turtles from incidental capture in commercial fishing

Protection of human health from risks posed by asbestos

Protection of human health from risks posed by the accumulation of waste tyres

WTO jurisprudence has confirmed that WTO rules do not trump environment, as long as...

Climate change border adjustments:

Relevant WTO rules

Justifiability?

...as long as several carefully crafted conditions are respected...

Environmental measures must not be applied in a manner which constitutes

→ a means of arbitrary/unjustifiable discrimination or

→ a disguised restriction on international trade

Climate change border adjustments: Relevant WTO rules

Justifiability?

Major practical challenges in implementation

- *in assessing product-specific emissions*
- *fluctuations of the carbon price*
- *existence of carbon leakage*
- *... How to take into account mitigation policies in exporting countries (e.g. technical regulations)*

Implementation is key!

WTO “building blocks” on climate change

- System of rules that apply to climate change measures
- Enforcement mechanism
- Transparency and discussion of trade-related concerns
- Negotiations on access to climate-friendly technologies

Key WTO provisions on environment

TBT

One legitimate objective for the Members not to use international standard as a basis for their technical regulation is for instance, the **protection of human health or safety animal or plant life or health, or the environment.**

SPS

Right of Members to take sanitary and phytosanitary measures necessary **for the protection of human, animal or plant life or health.**

TRIPS

Right to exclude from patentability inventions, whose prevention within their territory is necessary to protect, amongst other objectives, **human, animal or plant life or health or to avoid serious prejudice to the environment.**

Key environmental disputes

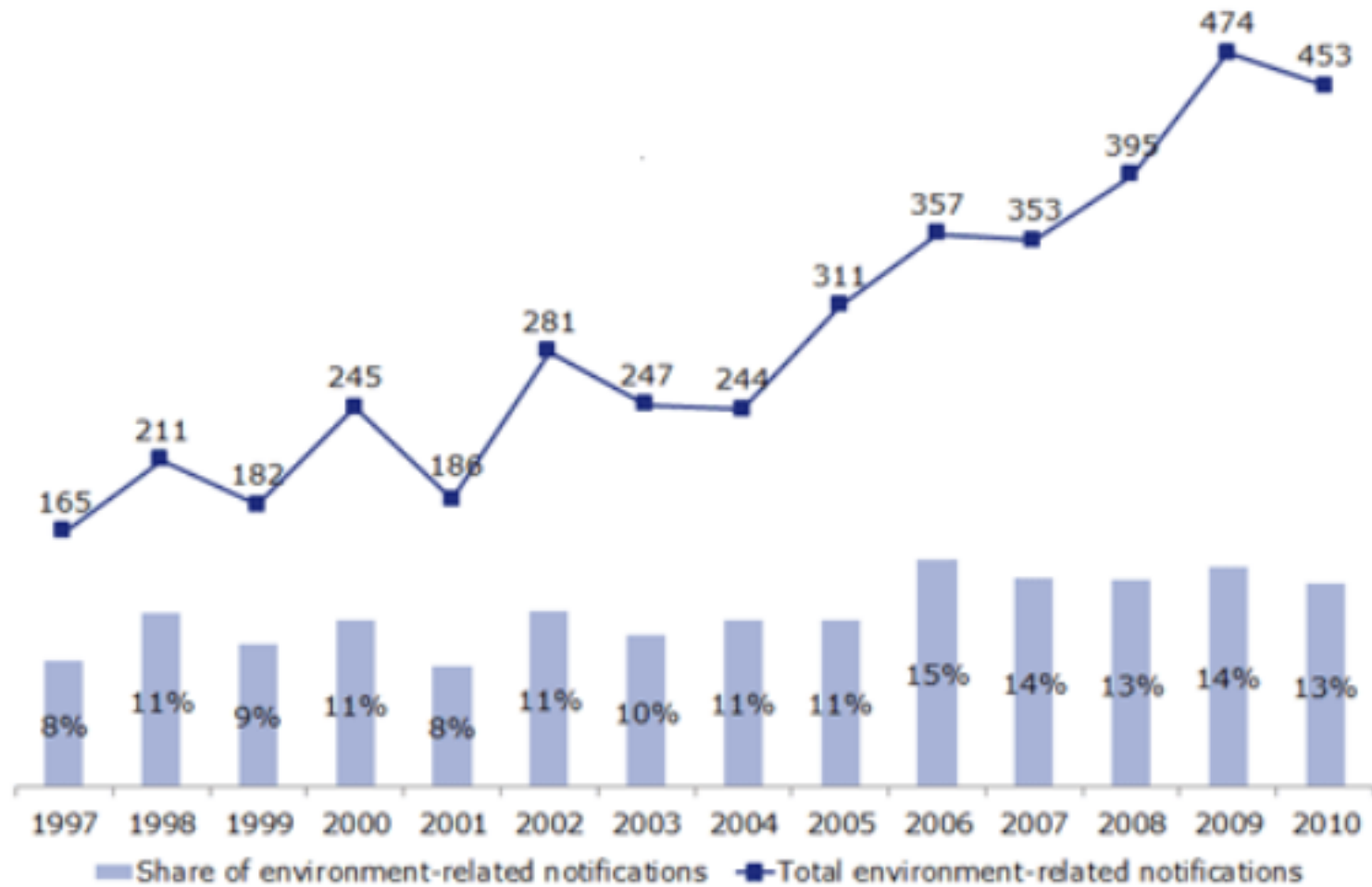
GATT:

- US-Canadian Tuna
- Canada-Salmon and Herring
- US-Tuna (Mexico)
- US-Tuna (EEC)
- US-Automobiles

WTO:

- US-Gasoline
- US-Shrimp
- EC-Retreaded Tyres
- US-Tuna II
- Canada-Renewable Energy

Environment-related notifications at WTO



Environment-related TBT Notifications

2009

Energy conservation and efficiency	32%	94	155	Technical/quality specification	53%	93
Chemical, toxic and hazardous substances management	27%	80		Conformity assessment procedure	32%	84
Water management	20%	58		Performance/efficiency specification	28%	56
Air pollution reduction	16%	47		Labelling/packages/markings specification	19%	32
Soil management	15%	44		Ban/Prohibition	11%	25
Biodiversity and ecosystem	13%	39		Handling/transportation/storage/distribution specification	8%	22
Climate change mitigation	10%	30		Harmonization specification	7%	
Animal protection	10%	29				
Plant protection	10%	29				
Alternative and renewable energy	5%	15				

Type of Objective

Type of Measure