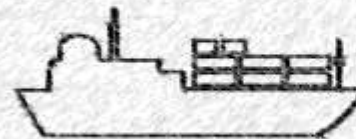


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Trade and Climate Change



*Vesile Kulaçoğlu, Director
Trade and Environment Division, WTO*

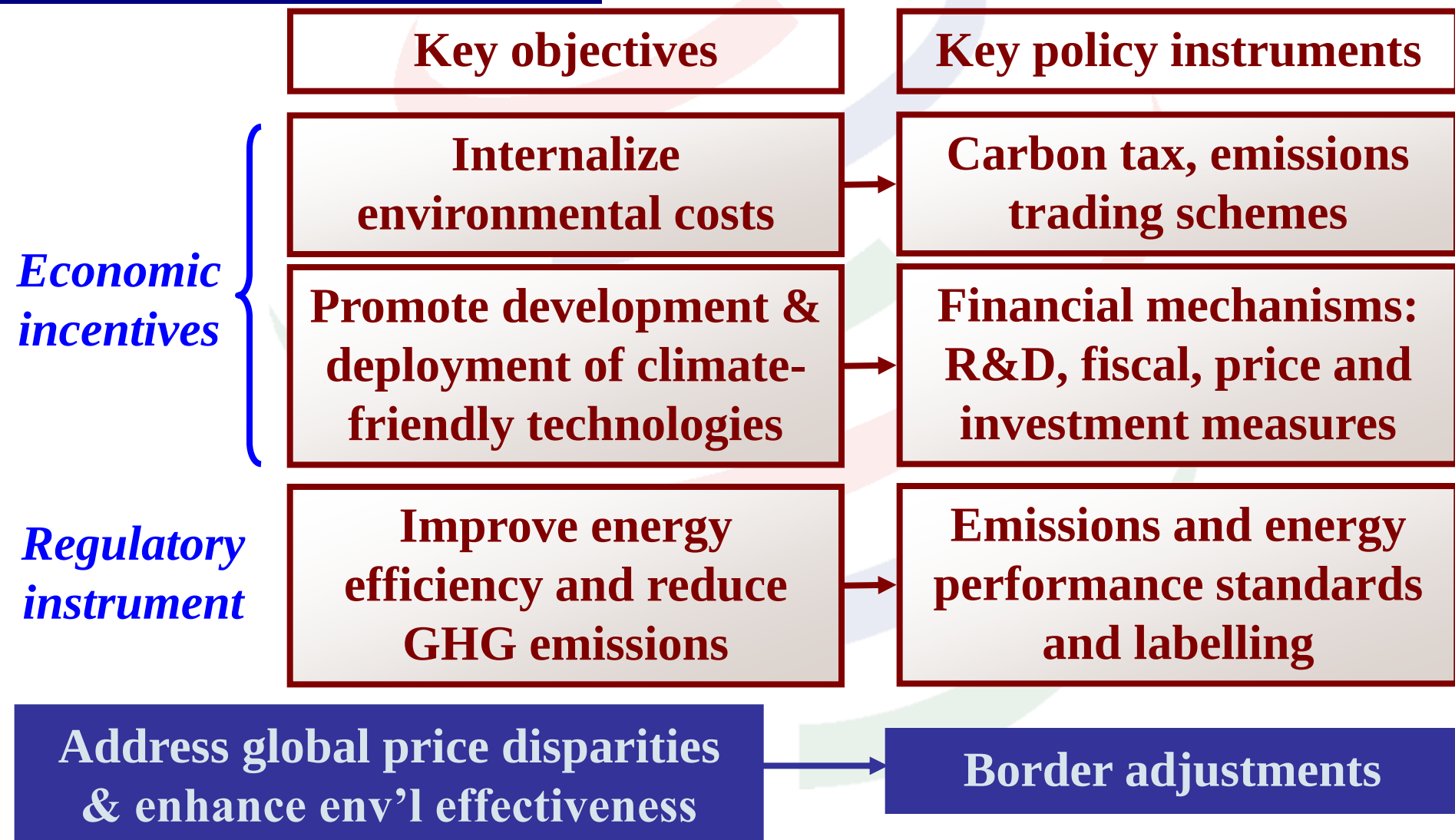
Trade and Climate Change

WTO-UNEP Report

Part IV: ***National Mitigation and Adaptation Policies and Trade Implications***



Taxonomy of Trade-related Climate Change Mitigation Measures



Carbon tax: Key characteristics

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Tax on the carbon content of fossil fuels, often combined with a tax on energy use

Energy tax on
Fossil Fuels

Carbon tax

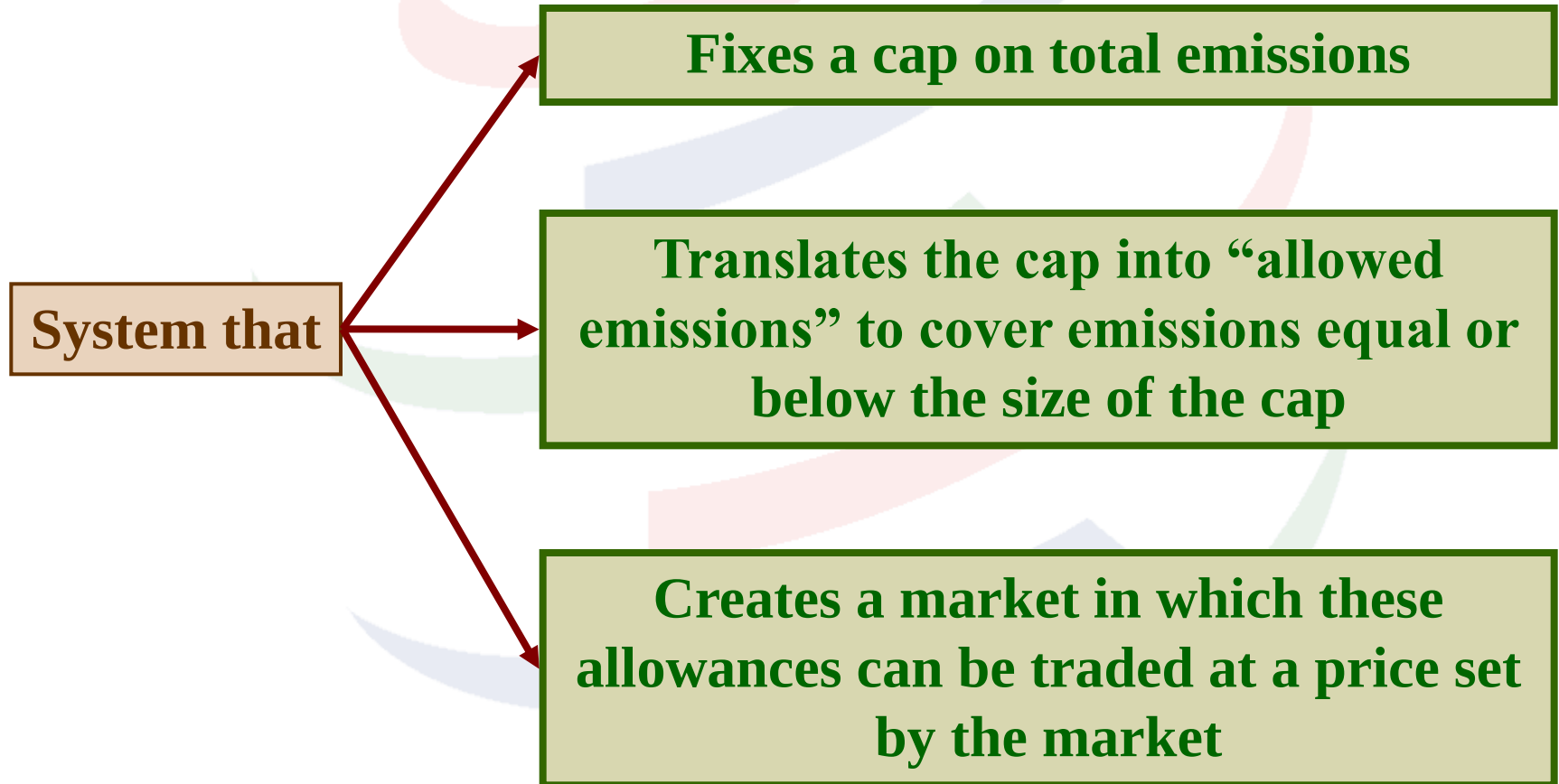
*“Implicit
Carbon Tax”*

Different tax base

Energy content (more
heavy on oil and gas)

Carbon content (more
heavy on coal)

Emissions trading scheme: Definition



Effectiveness: Carbon tax vs. ETS

Carbon tax

Price is determined directly by the regulators through the tax rate (exogenously)

Environmental uncertainty?

Quantity of emissions to be reduced is a result of measures adopted by industry to reduce emissions (endogenously)

ETS

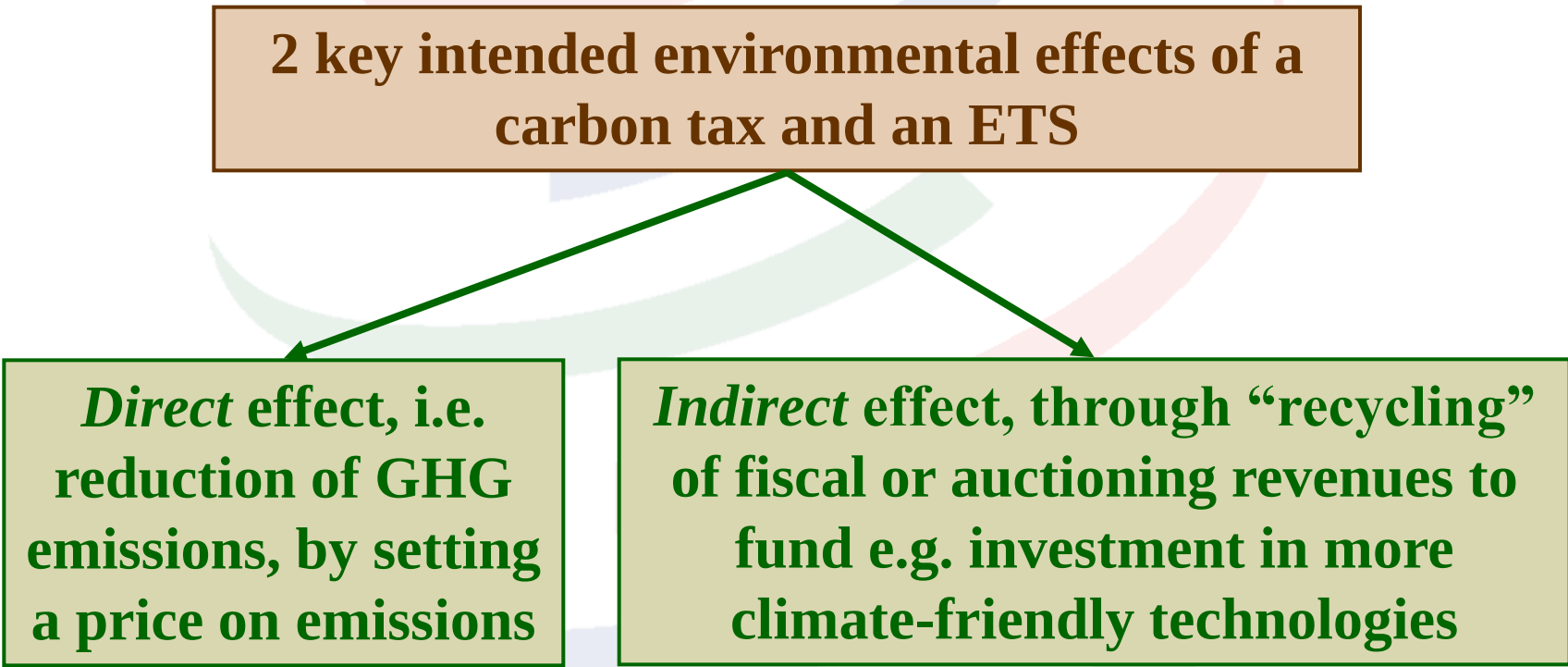
Price is determined by the market (endogenously)

Price uncertainty?

Quantity of emissions to be reduced is determined by regulators (exogenously)

Environmental effectiveness

2 key intended environmental effects of a carbon tax and an ETS



```
graph TD; A[2 key intended environmental effects of a carbon tax and an ETS] --> B[Direct effect, i.e. reduction of GHG emissions, by setting a price on emissions]; A --> C[Indirect effect, through “recycling” of fiscal or auctioning revenues to fund e.g. investment in more climate-friendly technologies];
```

Direct effect, i.e. reduction of GHG emissions, by setting a price on emissions

Indirect effect, through “recycling” of fiscal or auctioning revenues to fund e.g. investment in more climate-friendly technologies

Climate change border adjustments:

Rationale

*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!)*

Climate change border adjustments

**To offset
asymmetries in
competitiveness**

**To avoid carbon
leakage**



***Border
adjustment
measures***

Climate change border adjustments:

Rationale



Competitiveness

Definition

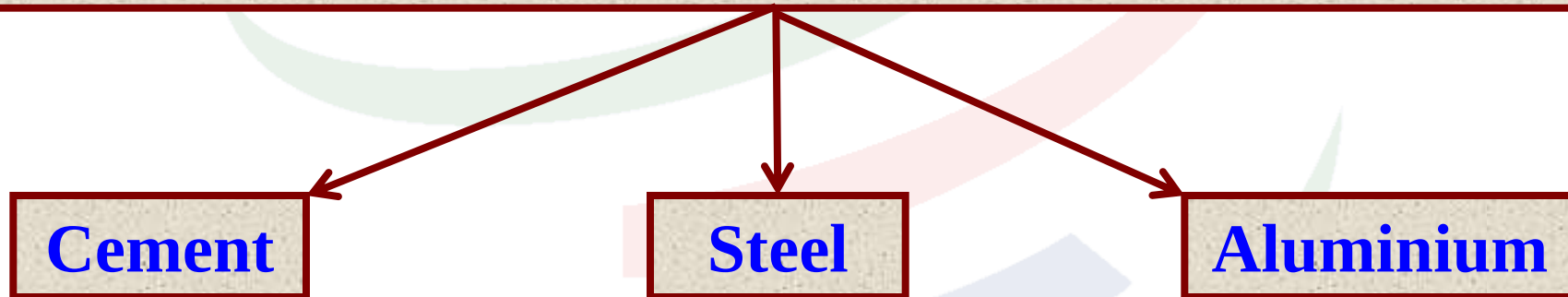
Ability of firms and sectors to maintain profits and market shares

Sectors may be competitively affected by carbon pricing due to a combination of the following factors:

- ✗ high emission and energy intensity per unit of output relative to cost structure – e.g. >10% of value added at stake with a carbon price of 20€/tCO₂
 - ✗ inability to pass-through cost increases to price (due to trade exposure, market structure, or lack of product differentiation)
- ✗ limited capacity for emission abatement or technological innovation

Climate change border adjustments: *Rationale*

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



Climate change border adjustments:

Rationale

Cement

High emission-intensity

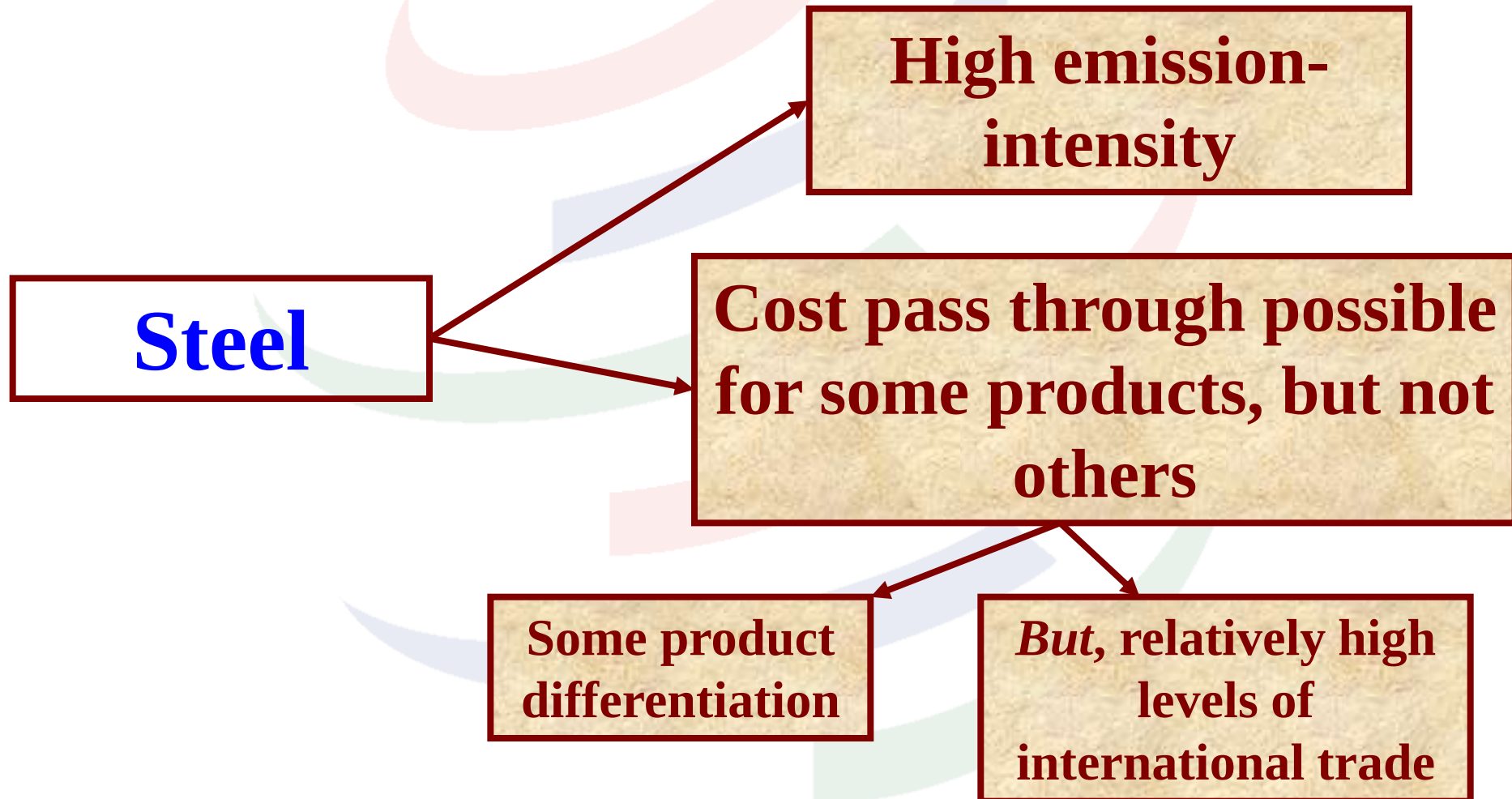
Limited ability to pass through costs

Homogenous product

But, relatively low levels of international trade

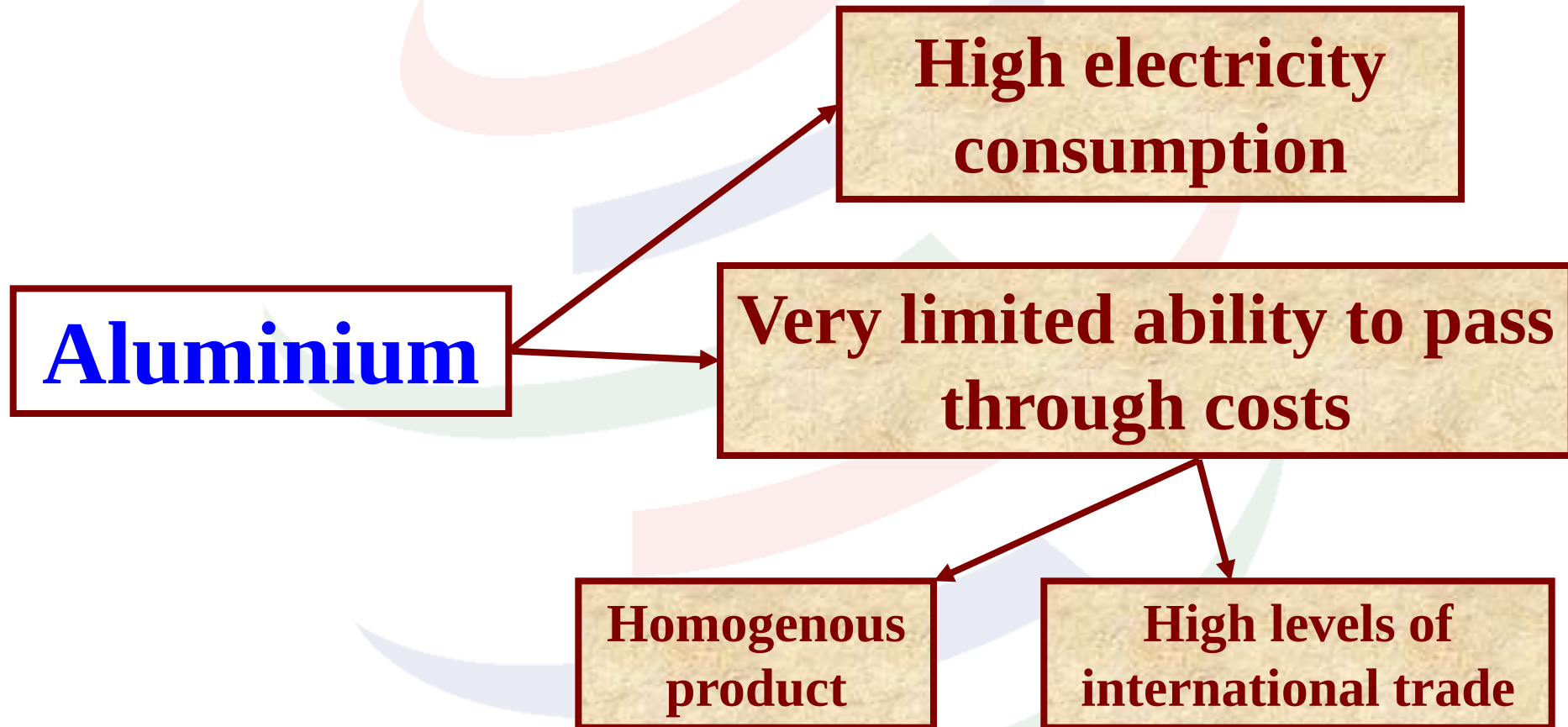
Climate change border adjustments:

Rationale



Climate change border adjustments:

Rationale



Climate change border adjustments: *Rationale*

Carbon leakage

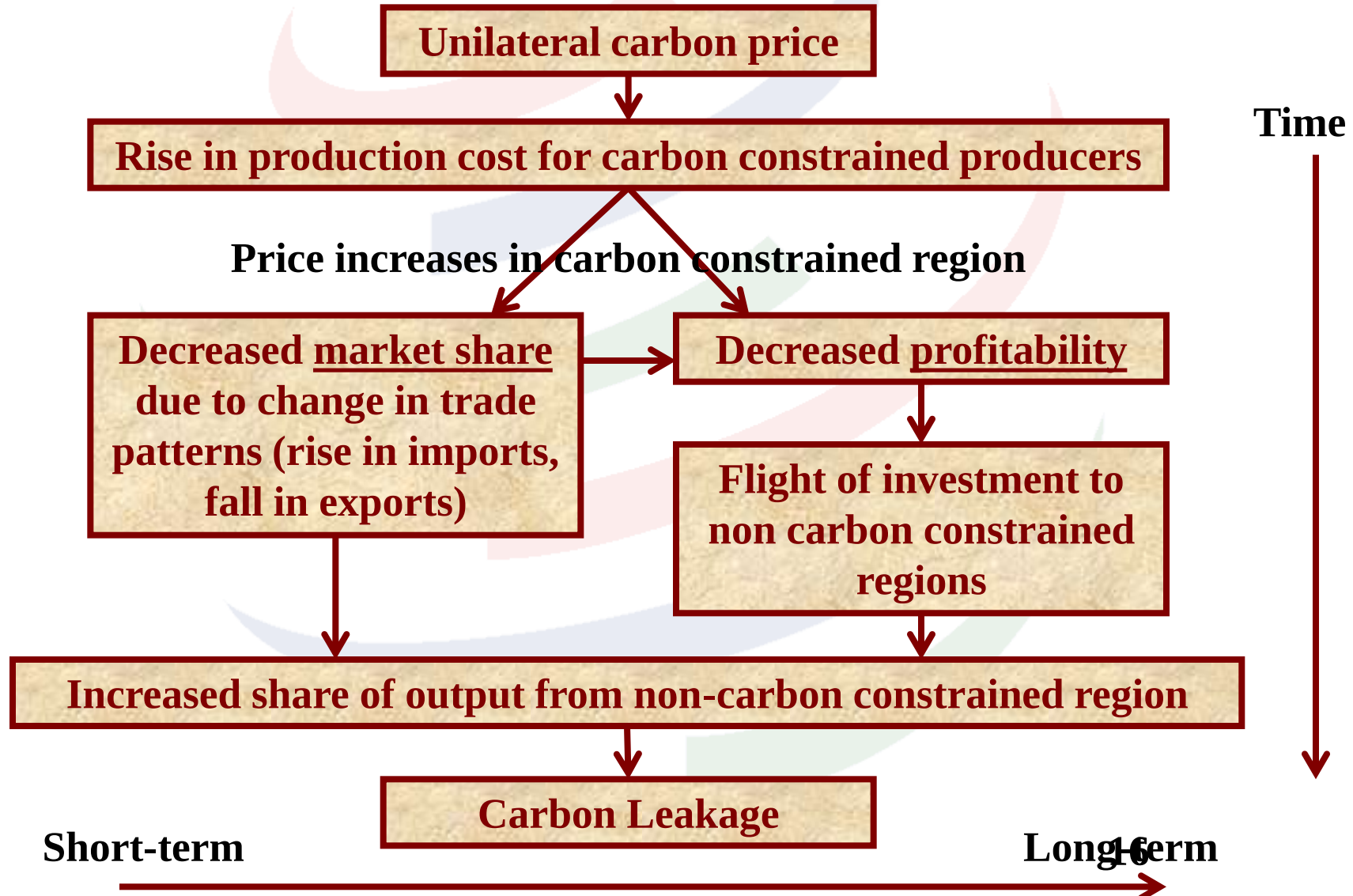
Increase in greenhouse gas emissions from a set of countries not taking climate mitigation action, which is directly attributable to mitigation actions taken in another set of countries

IPCC Definition:

Carbon leakage =

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

Climate change border adjustments: *Rationale*



Climate change border adjustments:

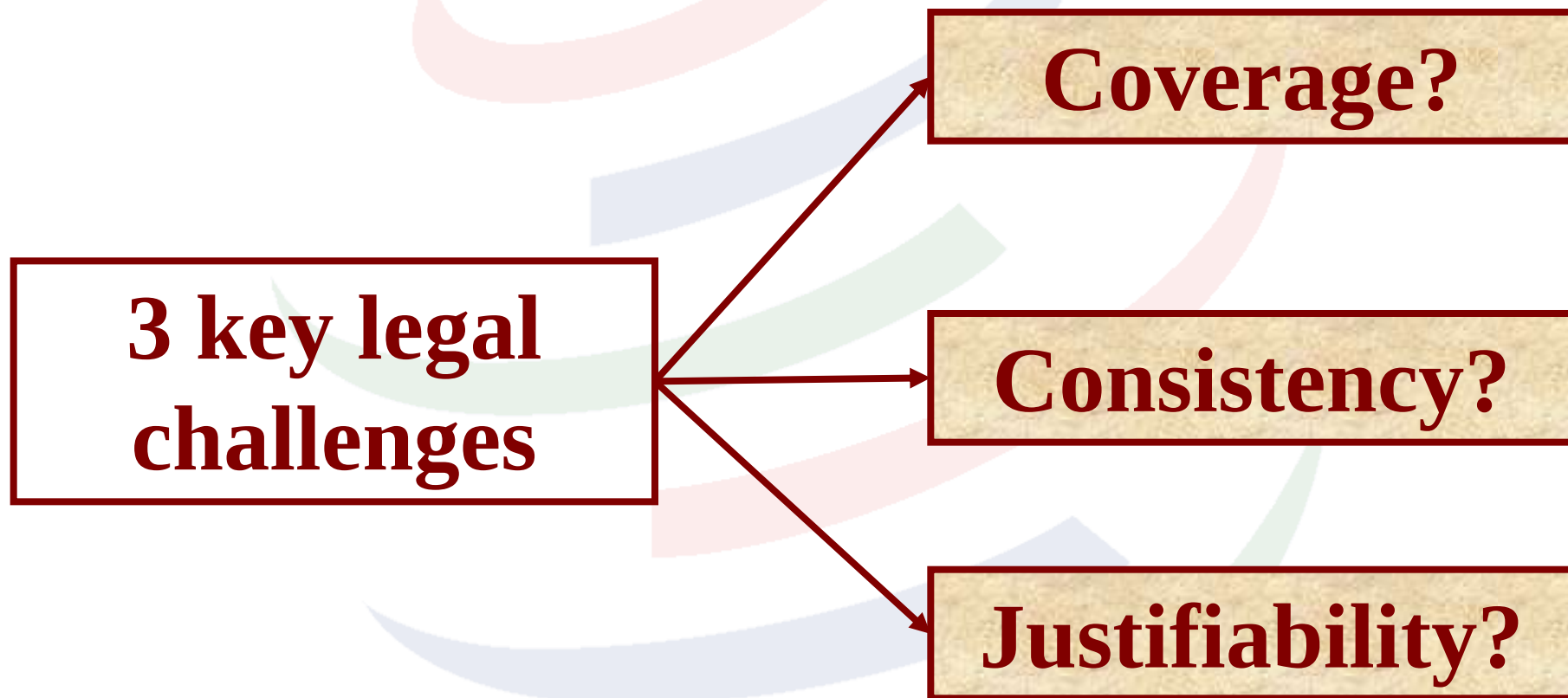
Rationale

However, other important mitigating factors may limit competitiveness impacts and the risk of carbon leakage via industrial relocation:

- ✘ **Design of policy:** What is the effective carbon price, availability of alleviations and exemptions?
- ✘ **Measures in other jurisdictions:** Carbon pricing or climate mitigation policy undertaken by trading partners?
- ✘ **Evolution of other cost factors:** fluctuations in other costs, such as input and raw material costs, transportation costs, energy prices, exchange rates, and cost of labour, may be more significant to a relocation decision than carbon pricing
- ✘ **Reluctance to relocate production:** Investment security, corporate reputation concerns

*All elements must be considered together,
on a sector by sector basis*

Climate change border adjustments and WTO rules



Climate change border adjustments: Relevant WTO rules



Justifiability?

Major practical challenges in implementation

- *assessing product-specific emissions*
- *fluctuations of the carbon price*
- *existence of carbon leakage*
- *...evaluate comparable action*

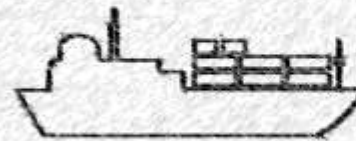
Implementation is key!

***First best option is a successful multilateral
agreement!***

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Examples of categories of goods mentioned



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- Renewable energy (wind; solar; geothermal);
- Waste management (Solid and hazardous waste; waste water);
 - Air pollution control;
- Environmental technologies for conservation, monitoring, analysis and assessment;
 - Energy efficient products;
- Carbon capture and storage, gas flaring emissions reduction, efficient consumption of energy;

Examples of goods from the Hybrid Approach proponents

- Solar stoves & solar water heaters



- Water saving devices



- Hydraulic turbines



turbines

*Mainly climate
change products*

Link to Climate Change

- **US-EC proposal (2007):** Elimination of tariff and non-tariff barriers on list of *climate-friendly* goods and technologies on an accelerated timeframe by 2013 (43 items identified in World Bank study).
- **Japan (2009):** Including *energy efficient* products that contribute to climate change mitigation (time bound concessions, not permanent).
- **Argentina (2009):** Liberalizing goods required in context of *projects* under Clean Development Mechanism



Identifying goods/product coverage: Some challenges

- No agreed definition or criteria (past work in OECD, APEC – “defining by doing”)
- Coverage: industrial and agricultural goods?
- Majority of goods proposed have “multiple uses” (not just environmental)
- Technical issues relating to tariff classification (ability to distinguish at border; use of ex-outs)
- Constant evolution of the technology (Review mechanism needed? “one off” exercise?)

WTO Nominal Exports 2002-2010

(in Trillions of US\$, 153 Products, Source: UN Comtrade)

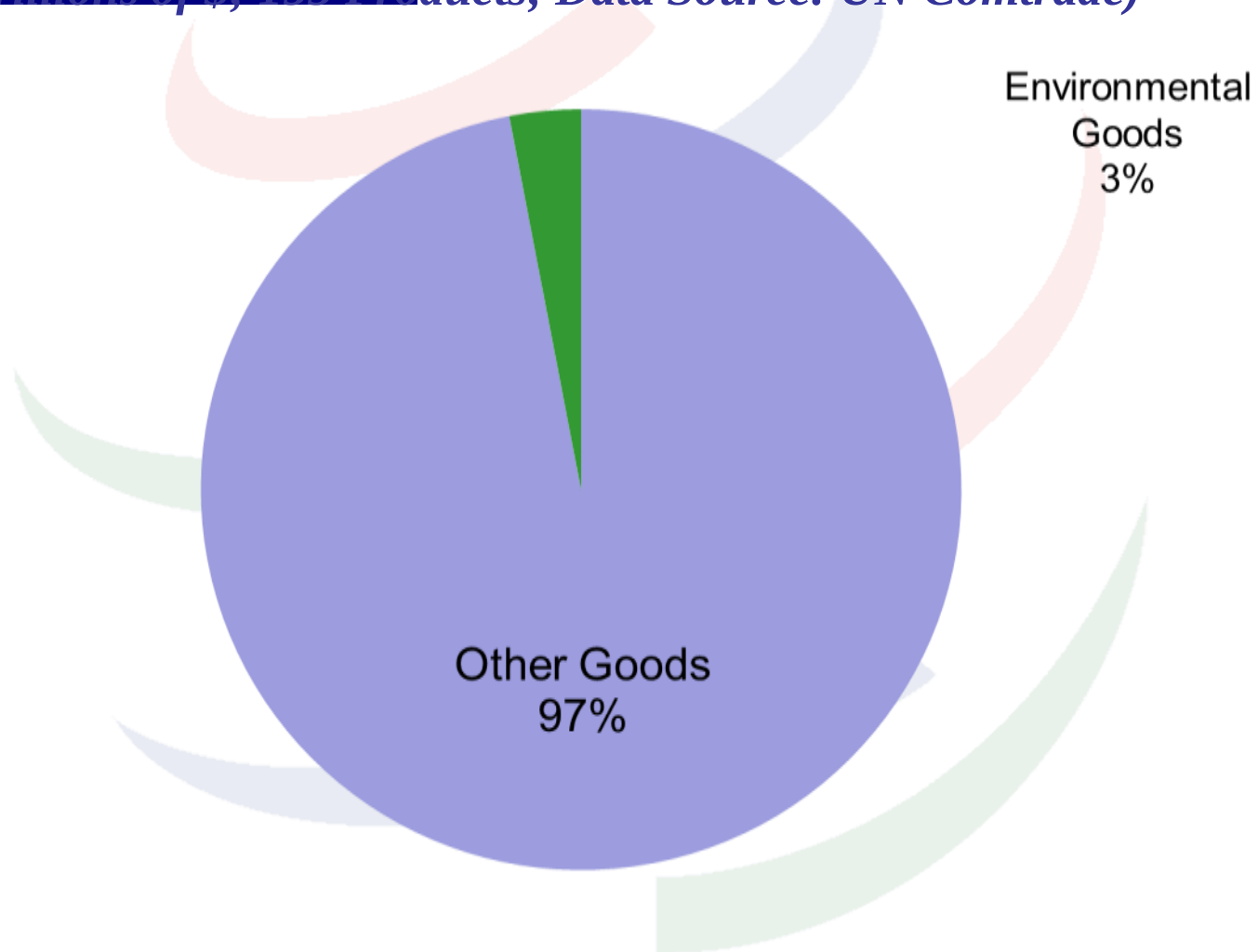


WTO OMC



Share of EGs in WTO Merchandise Exports 2008

(in Trillions of \$; 153 Products; Data Source: UN Comtrade)

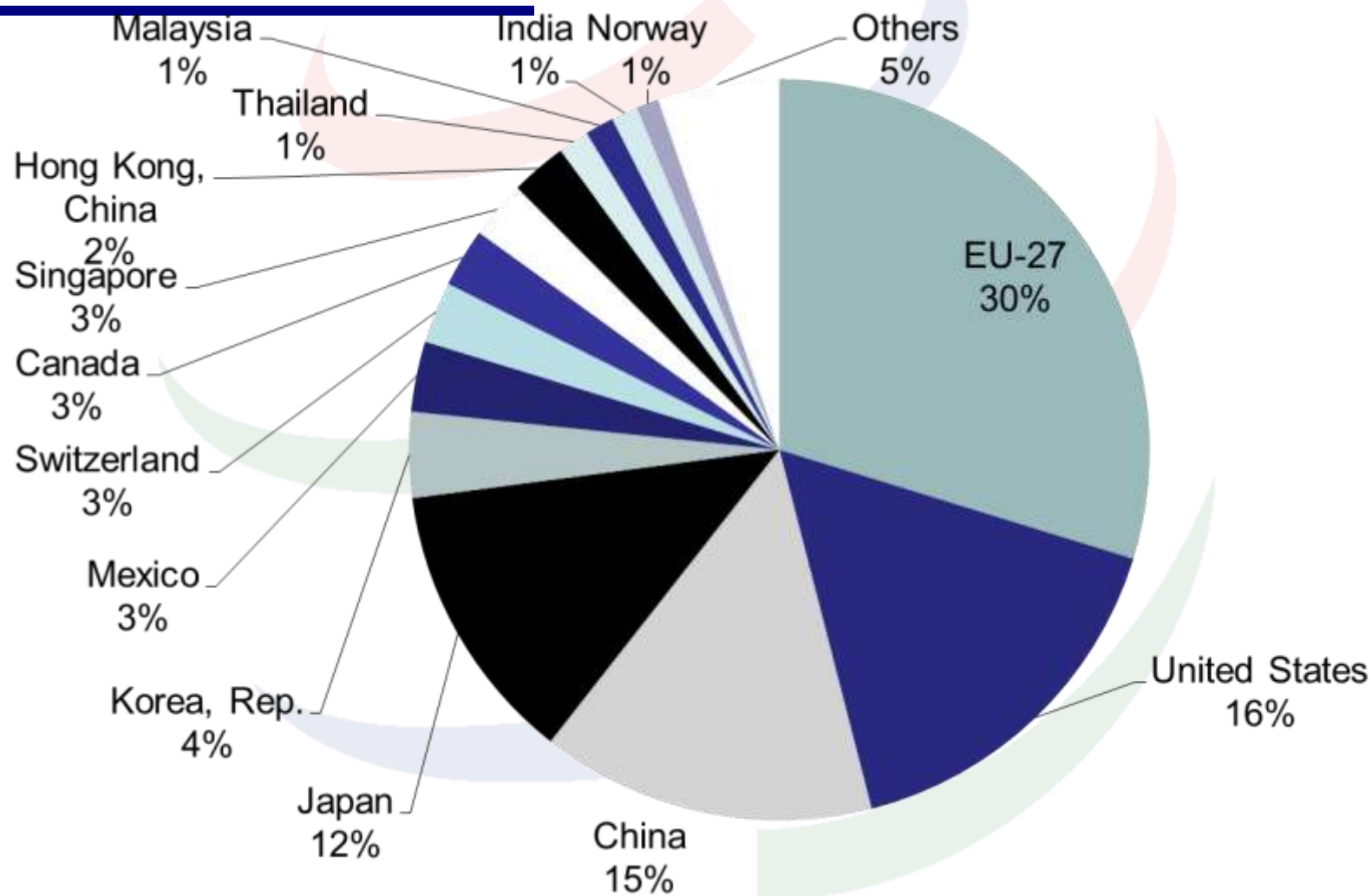


Top 15 WTO Exporters 2009

(108 WTO Members available, Data Source: UN Comtrade)

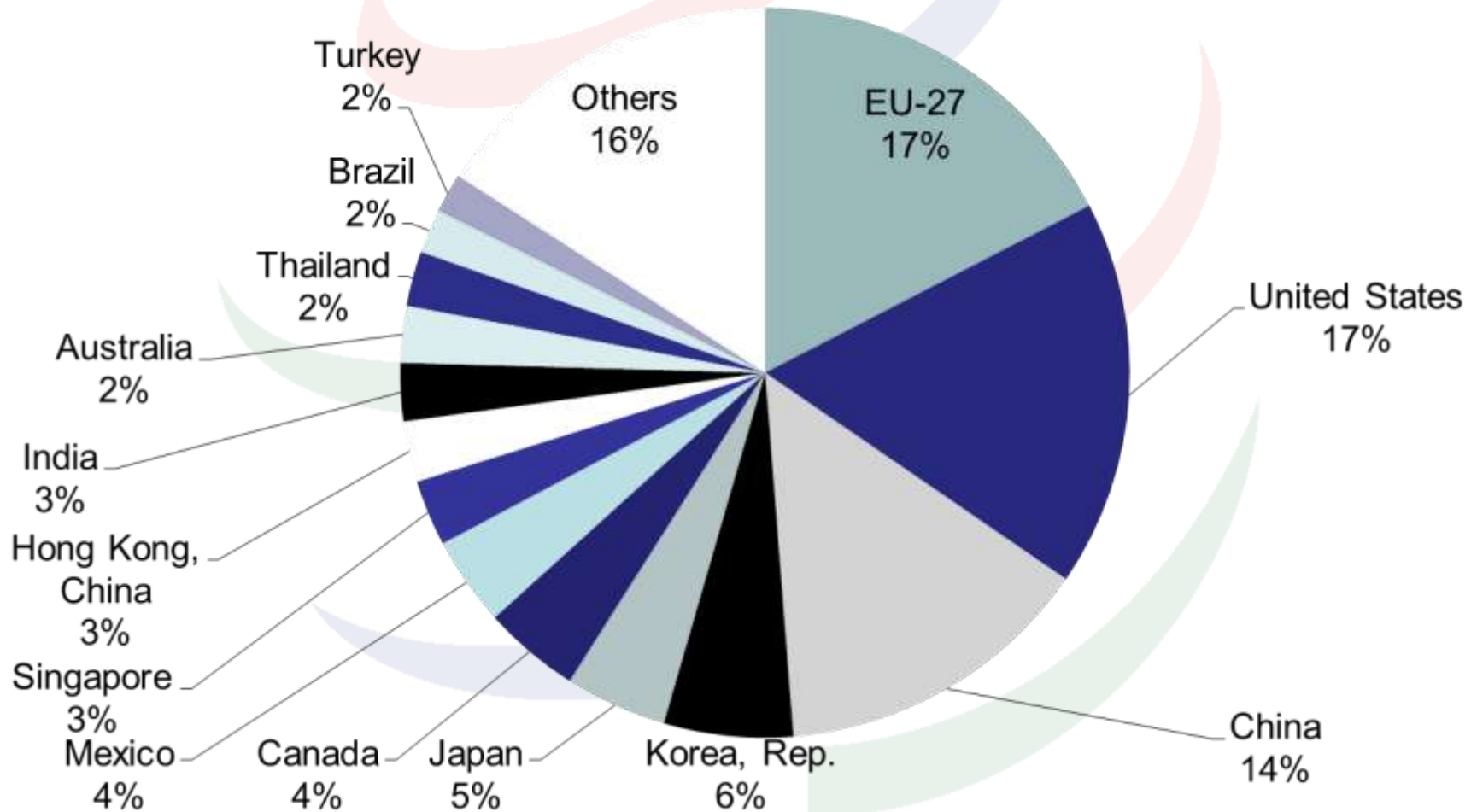


WTO OMC



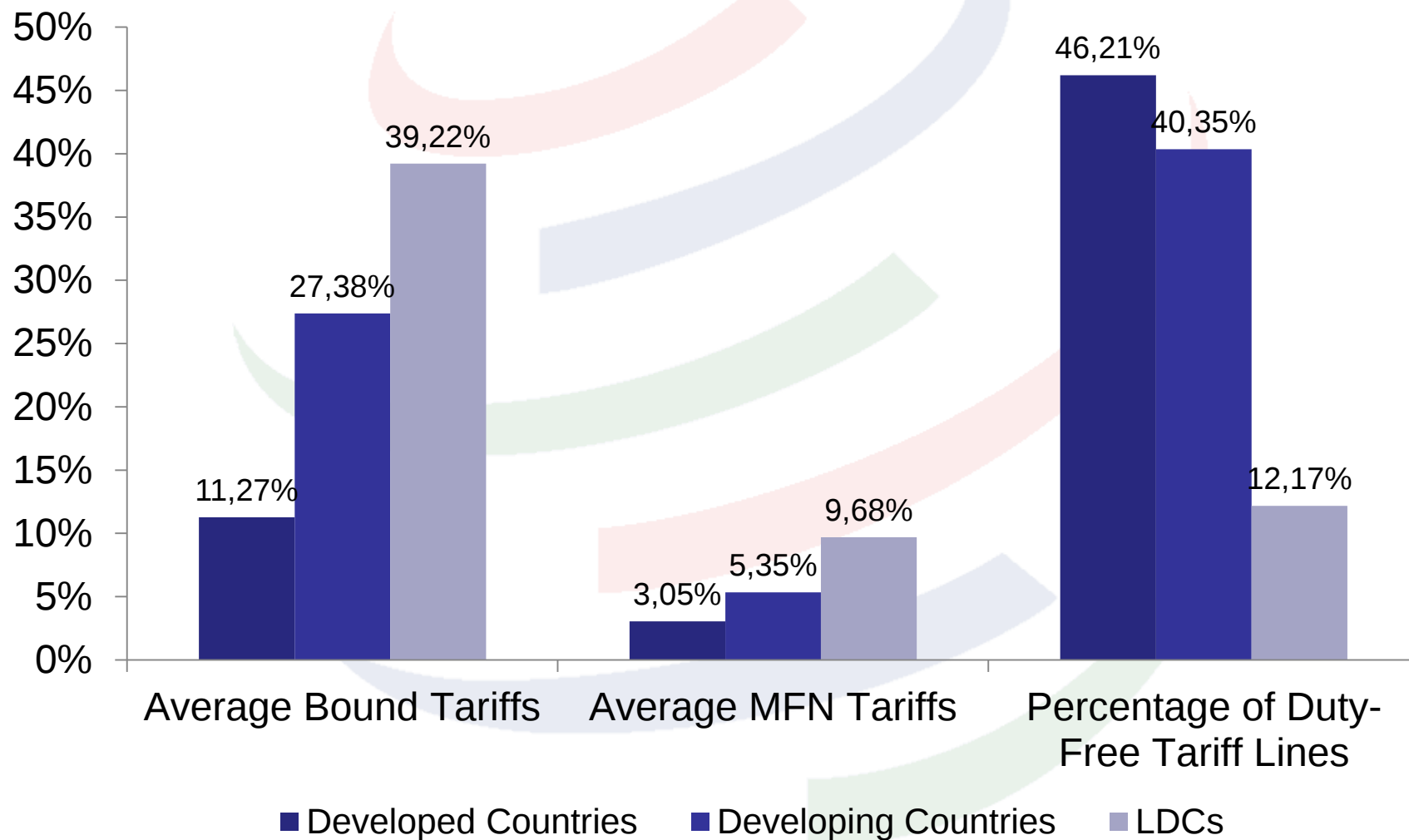
Top 15 WTO Importers 2009

(108 WTO Members available, Data Source: UN Comtrade)



Tariff Analysis 2009-2010

(153 Products, Data Source: WTO Integrated Database, TL-Weighted Averages)

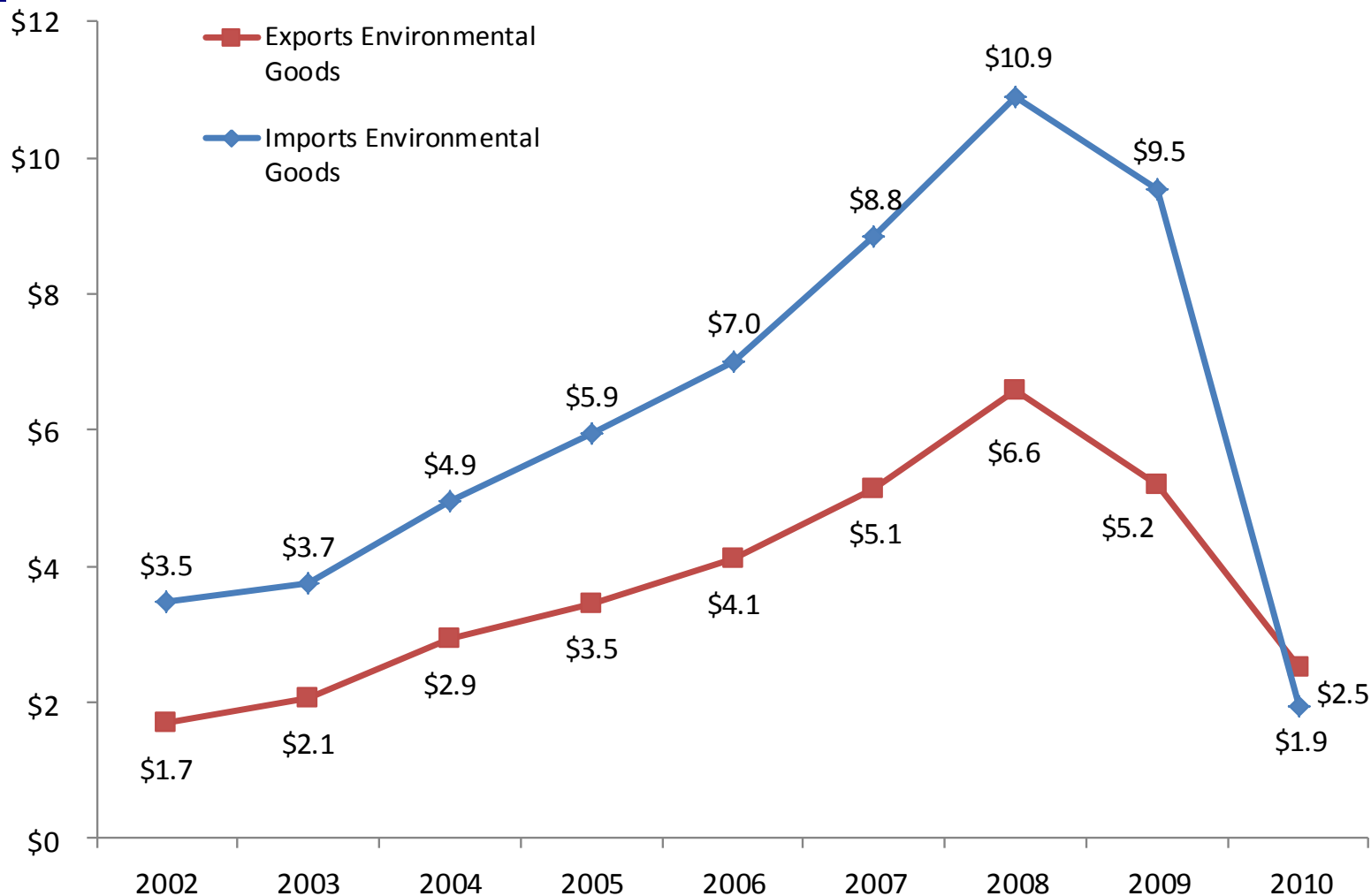


Turkey EGs Trade 2002-2010

(in Billions of US\$, 153 Products, Data Source: UN Comtrade)



WTO OMC



Turkey EGs Trade 2009

without Fuels/Cars (HS27xxxx and HS87xxxx)
(in Billions of US\$, 153 Products, Data Source: UN Comtrade)

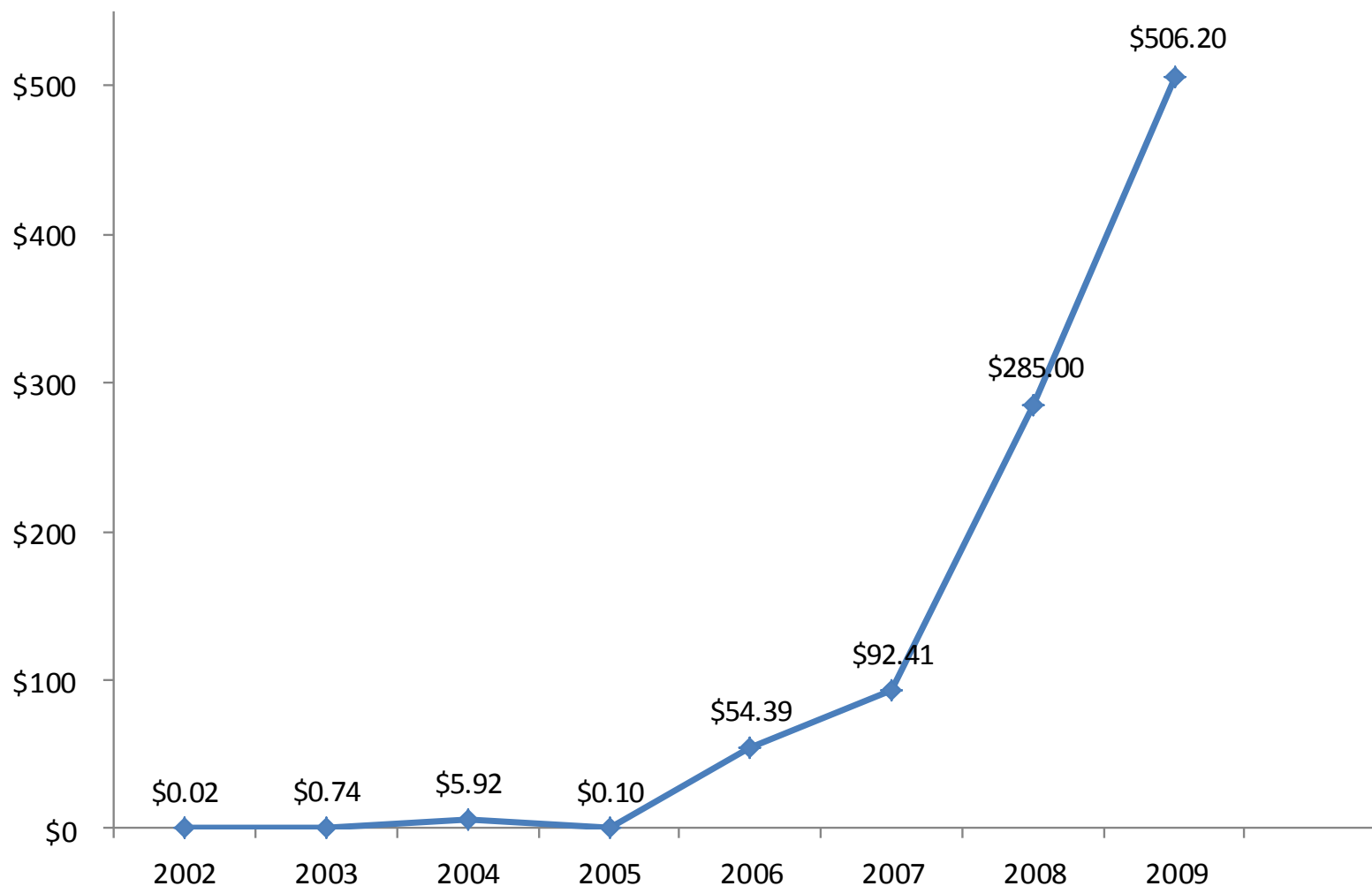


Turkey Imports of Wind-Powered Generating Sets 2009

(in Millions of US\$, Data Source: UN Comtrade)



WTO OMC



Environmental services

6. <u>ENVIRONMENTAL SERVICES in W/120</u>	CPC prov.
A. Sewage services	9401
B. Refuse disposal services	9402
C. Sanitation and similar services	9403
D. Other	- -

Remaining CPC items

- **Cleaning services of exhaust gases**
 - CPC 9404
- **Noise abatement services**
 - CPC 9405
- **Nature and landscape protection services**
 - CPC 9406
- **Other environmental services n.e.c.**
 - CPC 9409

Environmental services and modes of supply

Mode 1 – cross-border supply	Remote monitoring and control of air pollution levels
Mode 2 – consumption abroad	Solid waste are treated abroad
Mode 3 – establishment of commercial presence	Subsidiary provides solid waste treatment services
Mode 4 – presence of natural persons	Foreign technician provides natural disaster assessment services

How GATS schedules are structured



WTO OMC

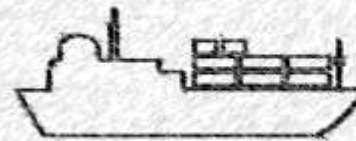
Modes of supply: 1) Cross-border supply 2) Consumption abroad 3) Commercial presence 4) Presence of natural persons

Sector or subsector	Limitations on market access	Limitations on national treatment	Add. com.
6. ENVIRONMENTAL SERVICES			
A. <u>Sewage Services</u> (CPC 9401)	1) Unbound	1) Unbound	
B. <u>Refuse Disposal Services</u> (CPC 9402)	2) None	2) None	
C. <u>Sanitation and Similar Services</u> (CPC 9403)	3) None	3) None	
D. <u>Other</u> - Cleaning services of exhaust gases (CPC 94040) - Noise abatement services (CPC 94050) - Nature and landscape protection services (CPC 94060)	4) Unbound, except as indicated in the Horizontal Section	4) Unbound, except as indicated in the Horizontal Section	
	envserv/feb10		35

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Emissions trading scheme: Important design characteristics

Emission targets

Overall emission level (cap-and-trade)

Emission standard for each source (rate-base)

Number of participants and sectors covered

Type of gases covered

Allocation
method

Free allocation based on historical emission levels (“Grandfathering”) or on emissions per unit of output (“benchmarking”)

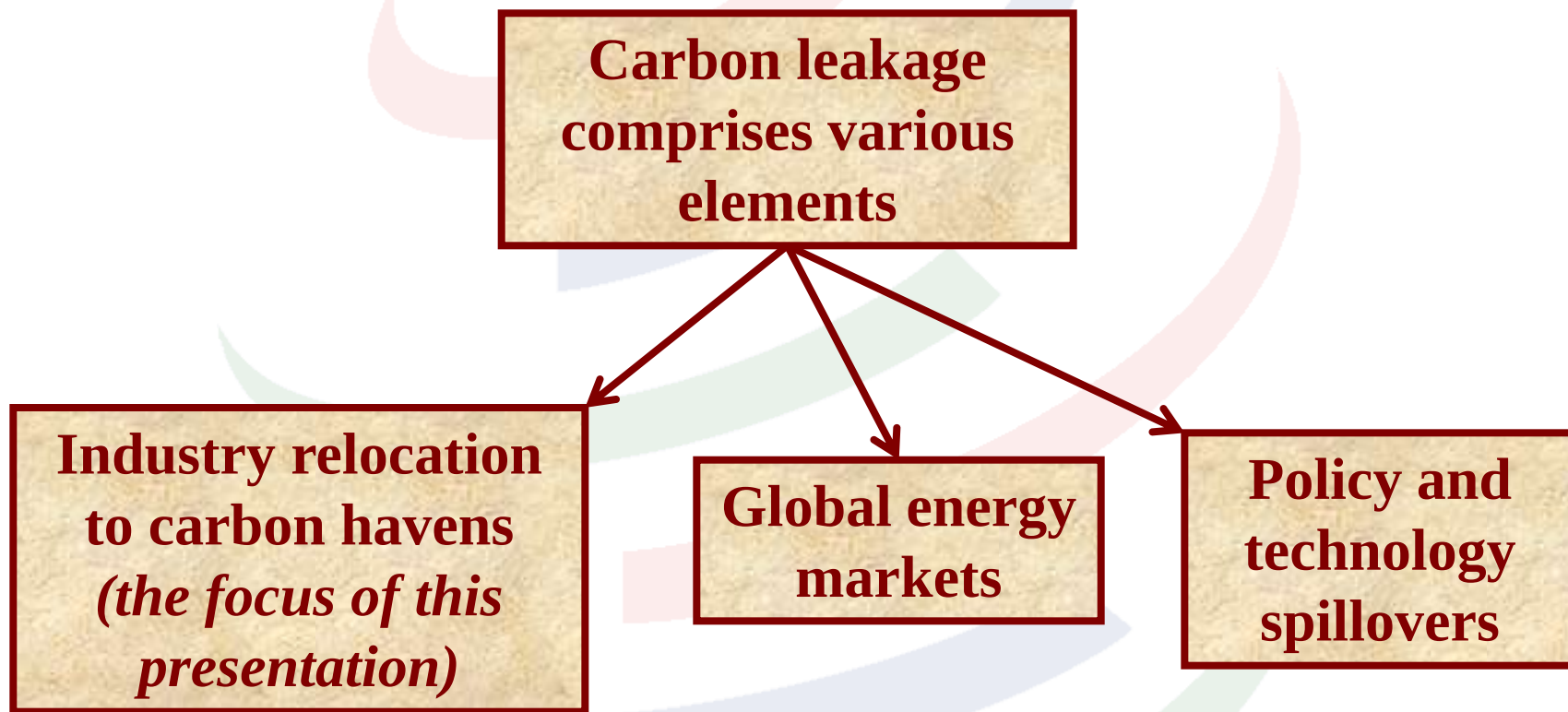
Auctioning

Linkages with other emission trading schemes

Flexibility mechanisms such as banking, borrowing

Climate change border adjustments:

Economic Rationale



Climate change border adjustments:

Rationale

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