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International Shipping in a post-2012 climate deal

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- **Context**

- **Options to reflect common but differentiated responsibilities**

- **Costs and benefits for developing countries**

- **Impacts on exports, food prices, tourism and ship building**

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Shipping emissions are substantial…

Entity	Fossil fuel CO_2 emissions (MtCO2, 2004)
United States of America	6,046
China (Mainland)	5,007
Russian Federation	1,524
India	1,342
Japan	1,257
Maritime transport (2007)	847
Germany	808
Canada	639
United Kingdom	587

Source: Countries: CDIAC, 2008; Maritime Transport: MARINTEK et al,

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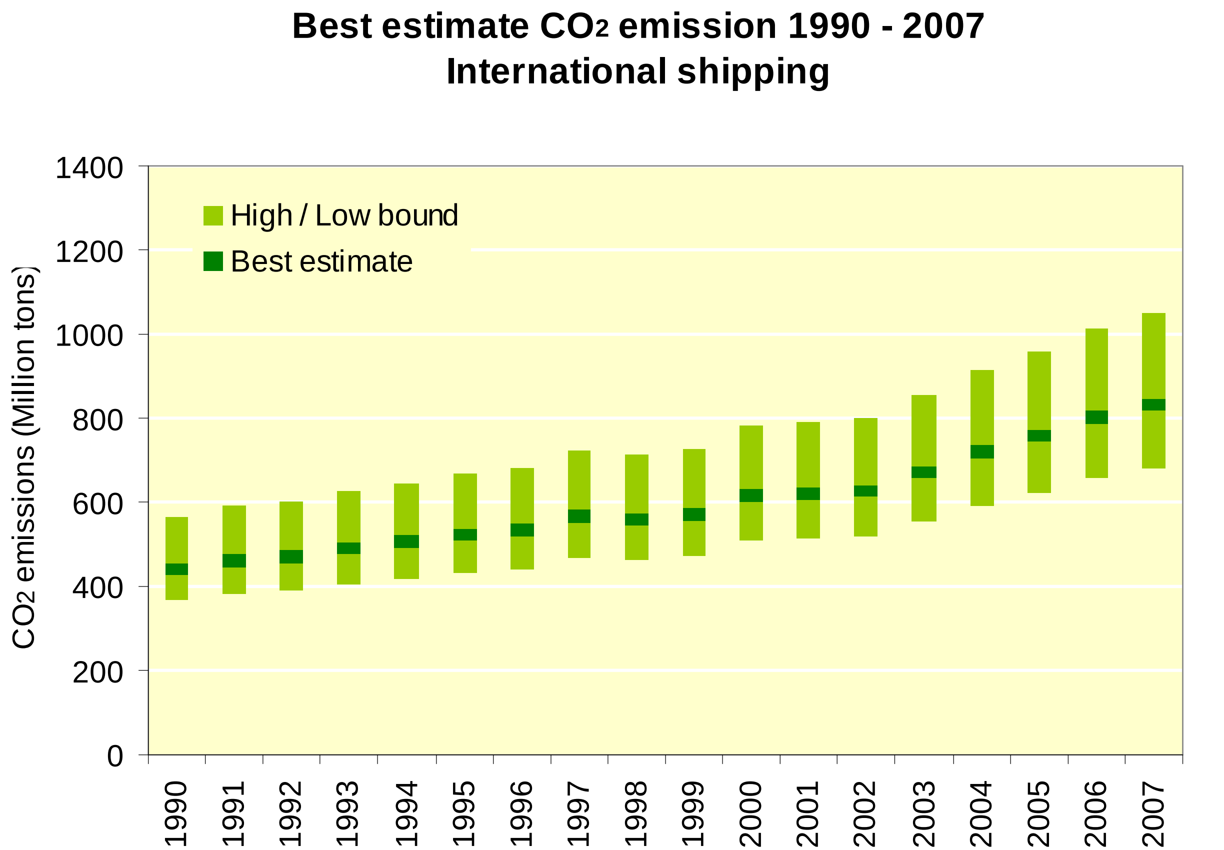
… and growing fast



KP Article 2.2

- The Parties included in Annex I shall pursue limitation or reduction of emissions of greenhouse gases not controlled by the Montreal Protocol from […] marine bunker fuels, working through […] the International Maritime Organization.

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UNFCCC vs IMO?

- UNFCCC: ‘Common but differentiated responsibilities and capabilities’ (CBDR)
- IMO: ‘Flag neutrality’; ‘No more favourable treatment of ships’
- Need to reconcile creatively

Option 1: differentiated policies

- By flag
- By owner
- By route (journeys ending in Annex I port)

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Option 1 cont.

- By flag:
  - 77% ship non Annex I - inequitable
  - evasion extremely simple
  - violates IMO principles

- By owner:
  - c. 65% Annex I - currently equitable, but
  - evasion relatively simple => inequitable outcome
  - violates IMO principles

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Option 1 cont.

- By route:
  - Routes to Annex I ports: ?60% total emissions (57.9% goods unloaded by weight)
  - administratively feasible (existing bunker delivery notes),
  - respects IMO principles, BUT
  - evasion (eg N African port call *en route* to EU) may be attractive at carbon prices of ~$30/tCO2

Option 2: Differentiated use of revenue

- Sectoral approach – onus on operators not Parties
- Total revenues potentially **$10-$45 billion** annually
- Revenues could be used for both adaptation and a variety of mitigation objectives. Below is ONE POSSIBILITY:

Total revenue	**42%**	**Adaptation**	**32%**	**LDCs**
			8%	**SIDs**
			60%	**Other developing countries and EITs**
	42%	**Mitigation**	**50%**	**REDD**
			50%	**JI/CDM**
	16%	**Technology**	**50%**	**Short-term technology transfer**
			50%	**Long-term R&D**

Source: IMERS, proposed by Andre Stochniol (2008)

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Option 2 cont.

- … such that benefits to ALL groups of developing countries outweigh costs:

Country group	Share of revenue payment	Share of revenue receipts
Developed Countries	59%	5%
Economies in Transition (without Russia)	2%	3%
BRIC	16%	30%
Least Developed Countries	1%	15%
Small Island Developing States	1%	4%
Other Developing Countries	22%	44%

Source: IMERS, proposed by Andre Stochniol (2008)

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Impacts on demand

- **All emissions** @ $30 t/CO2 =>
  - 4-8% increased transport costs (HFO = $700/t);
  - 6-12% increased transport costs (HFO = $450/t);

  (Assumption: Fuel costs ~ 30 to 60% of overall transport costs)

  - **<1% increased cost of shipped goods**

  (Assumption: Transport costs ~ 4 to10% total prices)

  - **1-2% reduction in demand**, relative to
  - >3% annual forecast growth

  (Assumption: price elasticity ~ -0.25)

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Food price increases

- Estimates using FAO data for islands most dependent on imported food:

Country	Increase in costs of food imports (% of food import values)		
	US$ 10 / tonne of CO_2	**US$ 30 / tonne of CO_2**	US$ 50 / tonne of CO_2
Sao Tome and Principe	0.12-0.21%	**0.37-0.62%**	0.62-1.03%
Cape Verde	0.06-0.10%	**0.18-0.30%**	0.30-0.50%
Tonga	0.11-0.18%	**0.33-0.55%**	0.55-0.91%
Dominica	0.04-0.06%	**0.11-0.18%**	0.18-0.30%
Samoa	0.11-0.18%	**0.32-0.53%**	0.53-0.88%
Saint Lucia	0.01-0.02%	**0.03-0.06%**	0.06-0.09%

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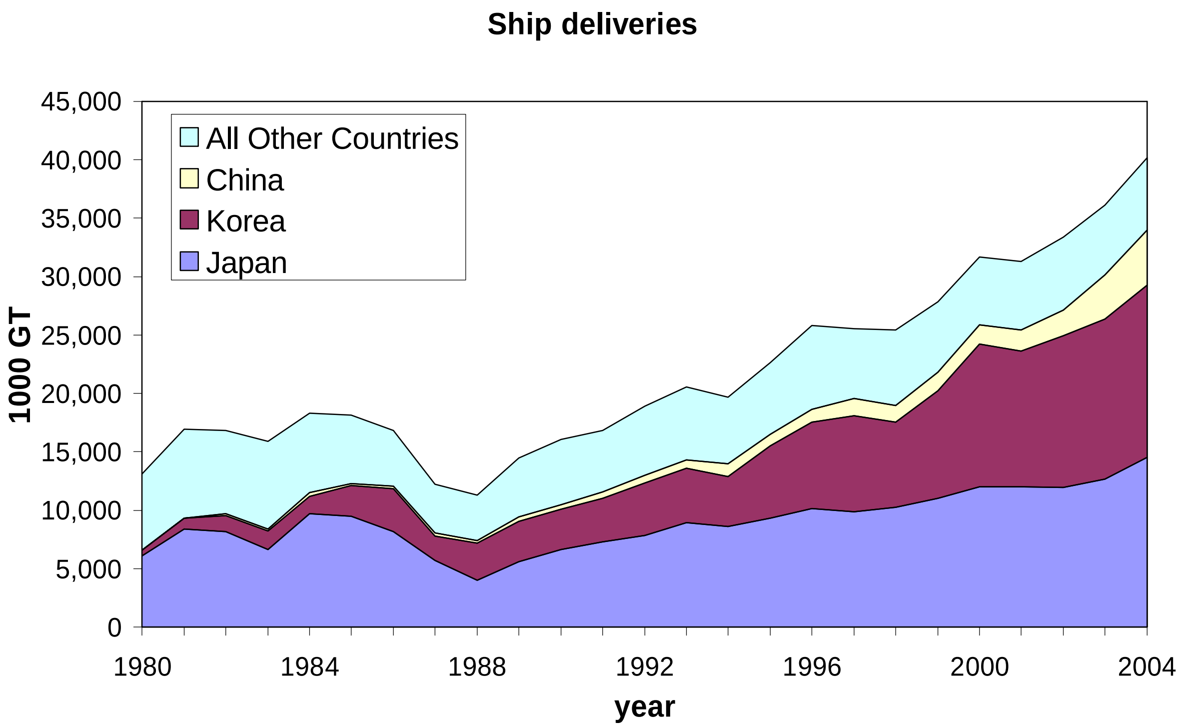
Tourism

- May have small impact on price of cruise holidays
- Own price elasticity of demand for tourism is low (-0.4 to -0.8)
- Cross-elasticities higher (ie choice between destinations / modes of travel)
- Slight shift possible, unless other modes included

Shipbuilding

- including shipping is likely to have a +ve effect on demand for shipyard services



- Potentially benefiting two non Annex I countries

Source: Lloyds register