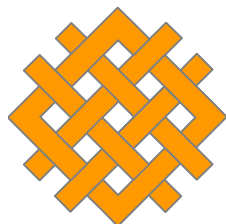
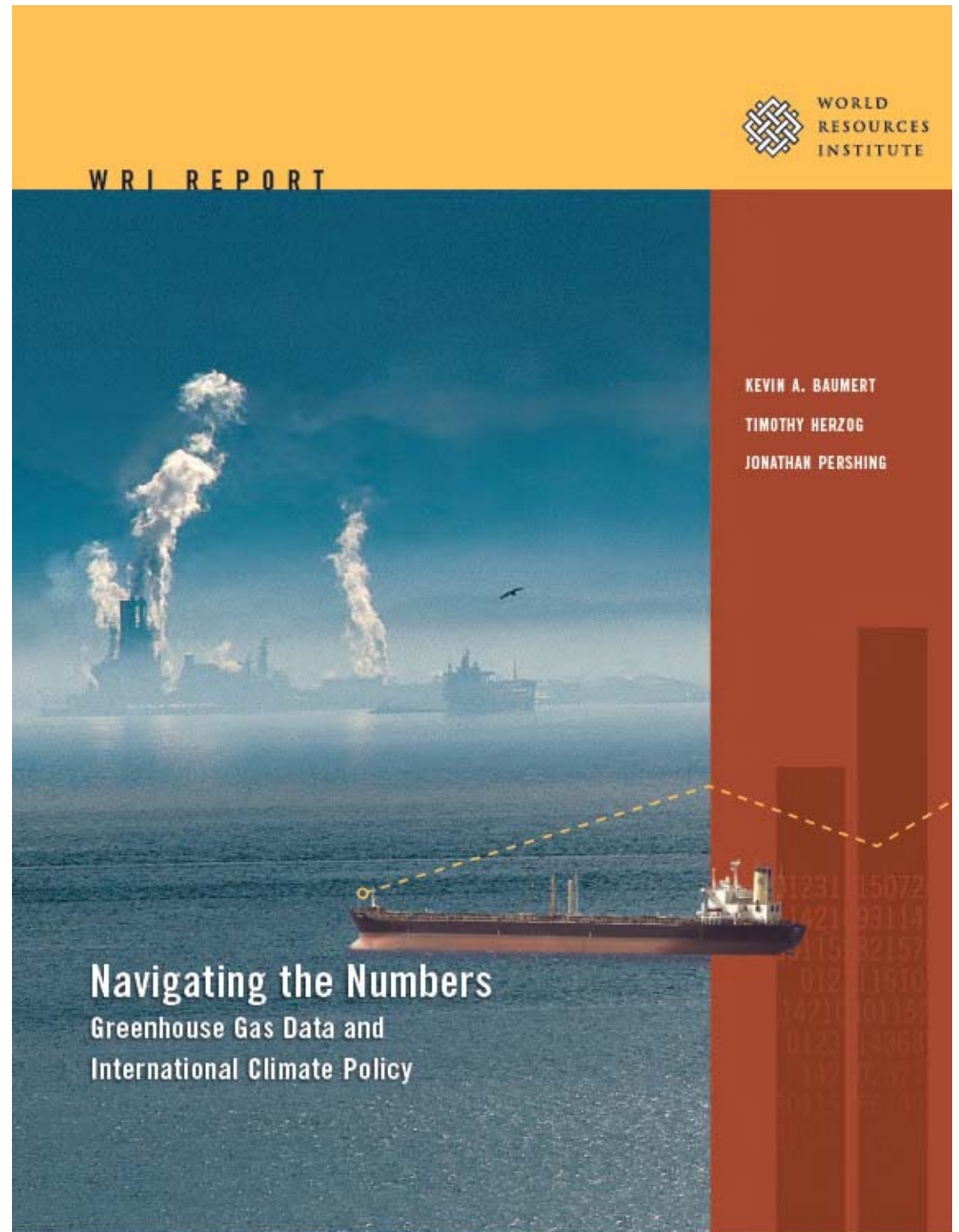


Assessing Potential for Cooperation in Different Sectors

OECD
March 27, 2006



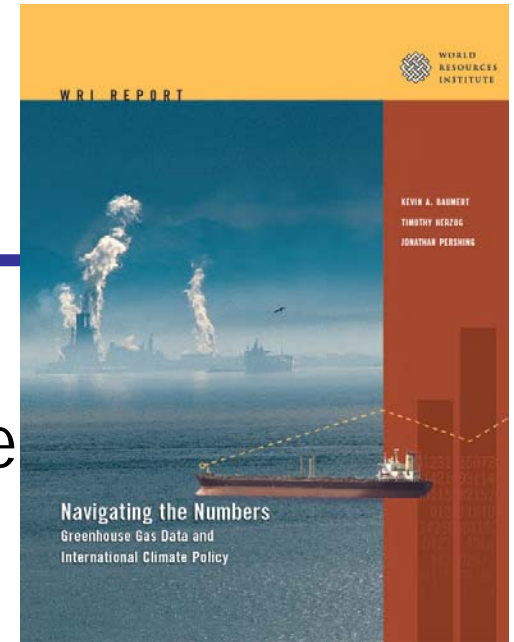
Kevin A. Baumert
Climate and Energy Program
World Resources Institute



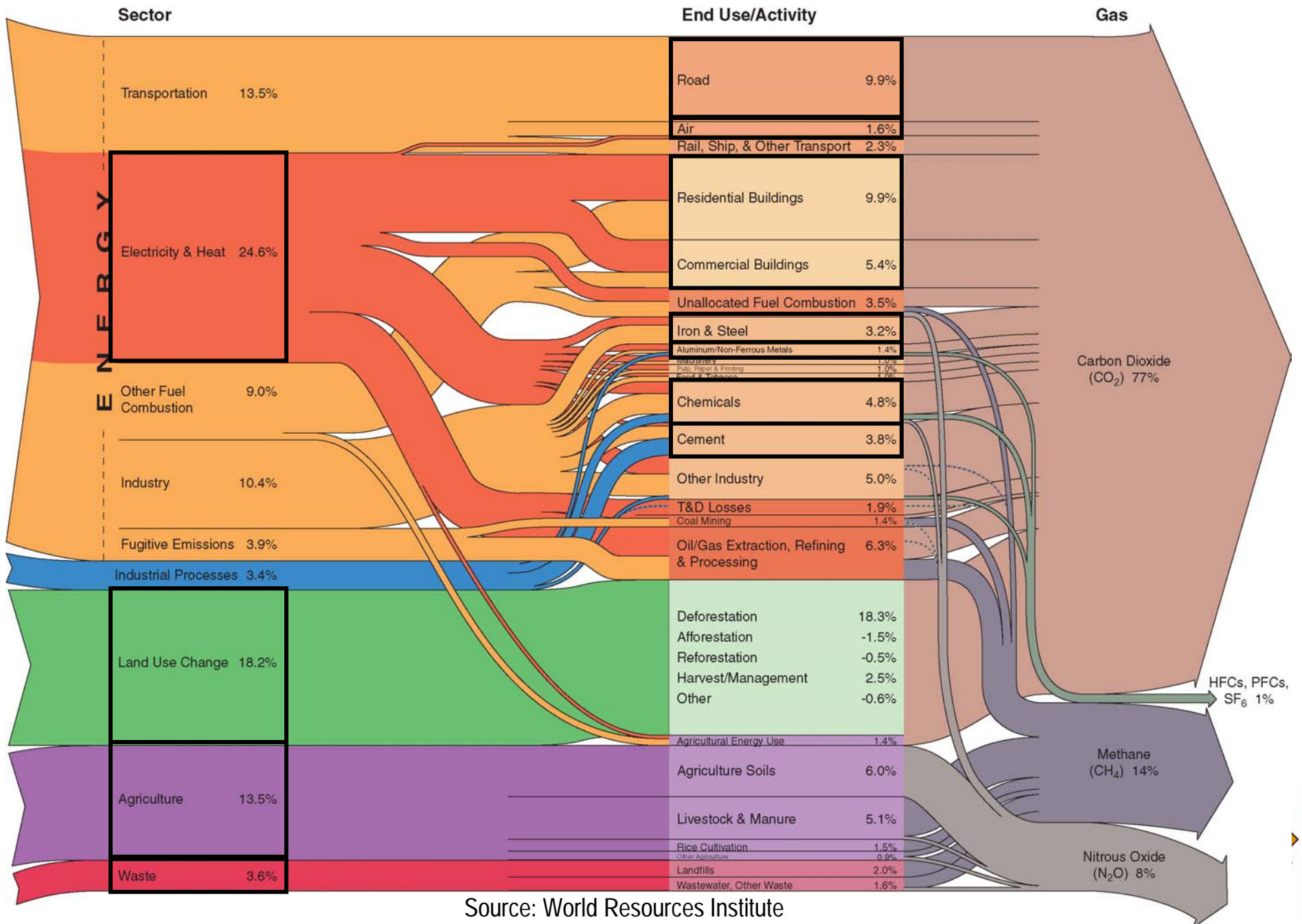
WRI Sectoral Study

Research Design

- Basic Question:
 - What sectors are conducive to or appropriate for international cooperation?
- Approach:
 - Gather data, including a global sectoral inventory of GHGs
 - Develop criteria for evaluating sectors
 - Evaluate using a simple grading system (+ / –)
- Did not evaluate various “forms” of cooperation



GHG Flow Diagram: Global Greenhouse Gas Emissions



Source: World Resources Institute

Sector Data and Evaluation

- Sector Emissions (e.g., “road transport”)
 - % share of global emissions
 - Country contributions to global emissions; trends
 - Data uncertainty
- Sector Context
 - Nature of products, processes, technologies
 - Trade and investment flows
 - Ownership, corporate structures (e.g., MNCs, SOEs, local enterprise), market shares
 - Government interventions (e.g., subsidies, regulation)



Criteria for Evaluating Sectors

<u>Criterion</u>	<u>Evaluation Indicator(s)</u>	<u>Grading</u>
International Exposure	- Scale of trade & investment flows - Role of MNCs	<p>“+” suggests high appropriateness or conduciveness for international sectoral cooperation.</p> <p>“-” suggests a barrier to international sectoral cooperation.</p> <p>No grade means evidence is mixed, ambiguous, or not relevant.</p>
Concentration of Actors	Number of emitting sources (companies, countries) or product producers	
Uniformity of Products / Processes	Number of distinct products, processes, and end products	
Government Role	Regulations, subsidies, and other requirements	
GHG Measurement Issues	Measurement errors; degree of uncertainty	
GHG Attribution Issues	Trade in energy-intensive raw materials; diffuse production / consumption patterns.	



Summary of Sectoral Analysis

Sector	Share of Global GHG Emissions	International Exposure	Concentration of Actors	Uniformity of Products/Processes	Government Role	GHG Measurement Issues	GHG Attribution Issues
Electricity & Heat	24.6%		-	+	-		
Transport	13.5%						
<i>Motor Vehicles</i>	9.9%	+	+	+	+		
<i>Aviation</i>	1.6%	+	+	+		+	+
Industry	21.1%						
<i>Chemicals</i>	4.8%	+	-	-			+
<i>Cement</i>	3.8%		+	+			
<i>Steel</i>	3.2%	+	+	+			+
<i>Aluminum</i>	0.8%	+	+	+			+
Buildings	15.4%		-	-	+		
Agriculture	14.9%		-	-	-	+	
Land-Use Change & Forestry	18.2%			-	-	+	
Waste	3.6%		-	+	-	+	

International Exposure

- Electricity. LOW.
 - ~3% is traded across borders
 - Growing FDI, but heavy national control
- Transport: Road. HIGH.
 - 10% of all world trade
 - 5 multinationals = 50% of global production
 - Large FDI, joint ventures common
- Transport: Aviation. HIGH.
 - Several firms dominate global industry



Leading Motor Vehicle Manufacturers

Company (& other brands)	Total Vehicles, 2004	
	Millions	% World
General Motors (Opel, Vauxhall)	8.1	12.6
Toyota	6.8	10.6
Ford (Volvo, Jaguar)	6.6	10.4
Volkswagen Group (VW, Audi)	5.1	7.9
DaimlerChrysler (Evobus)	4.6	7.2
PSA Peugeot Citroën	3.4	5.3
Honda	3.2	5.0
Nissan	3.2	5.0
Hyundai-Kia	2.8	4.3
Renault-Dacia-Samsung	2.5	3.9
Fiat-Iveco-Irisbus	2.1	3.3
Suzuki-Maruti	2.0	3.1



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International Exposure (2)

- Chemicals. HIGH.
 - ~30% of production is traded (\$800 billion/yr)
 - Large MNC presence, but also lots of local enterprise
- Steel. HIGH.
 - ~37% of production is traded (\$180 billion/yr)
 - Growing FDI
- Aluminum. HIGH
 - ~45% of production is traded
 - Large MNC players (Alcan and Alcoa)
- Cement. MODERATE.
 - ~6% of production is traded
 - Growing FDI and MNC presence...but China factor



International Exposure (3)

- Buildings. LOW.
 - Domestic sector
 - But appliances: large international trade and investment
- Agriculture. MODERATE.
 - Mainly local, but heavy product trade (~9% of global trade)
- Land-Use/Forestry. MODERATE
 - Mainly local, but large global markets for forest products
- Waste. LOW.
 - Usually state/local ownership



Summary of Sectoral Analysis

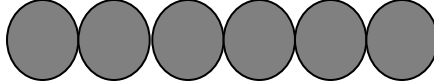
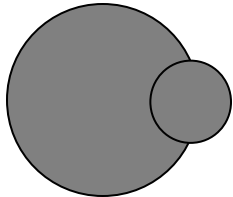
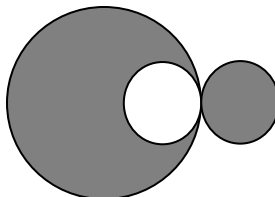
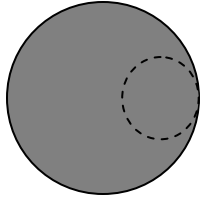
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Caveats / Limitations

- Redefining a “sector” can alter results
- Other factors, not examined here, are also relevant
- Positive scores do not signal “likelihood” of sectoral agreement
 - E.g., Aviation; LUCF. GHG measurement or attribution difficulties make any agreement challenging
- Positive scores do not signal “desirability” of sectoral agreement
 - This depends on the ability of an agreement to address competitiveness/leakage concerns and incentivize reductions



Four Models of Sectoral Cooperation

- **Sector-only Model** → 
 - No comprehensive agreement; sectoral agreements could be linked
- **Complimentary Model** → 
 - E.g., KP plus a global agreement on motor vehicles
- **Carve-out Model** → 
 - E.g., aviation; CFCs
- **Integrated Model** → 
 - E.g., LUCF in KP; Sectoral CDM

Thank you!

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