

Outside the box, high-level, long-term thinking:
“Make Co-benefits PAY”

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Presentation flow: Dual track approach

1. **Improve existing** carbon market mechanism (i.e. CDM) so it works better for transport measures
2. **Explore new** mechanisms that truly work for sustainable, low-carbon transport!
 - Air quality
 - Road safety
 - Fuel savings/security

Avoid-Shift-Improve



Avoid

- Smart Growth
- Zoning regulations
- Internet & Communication Technologies (ICT)
 - TOD



Shift

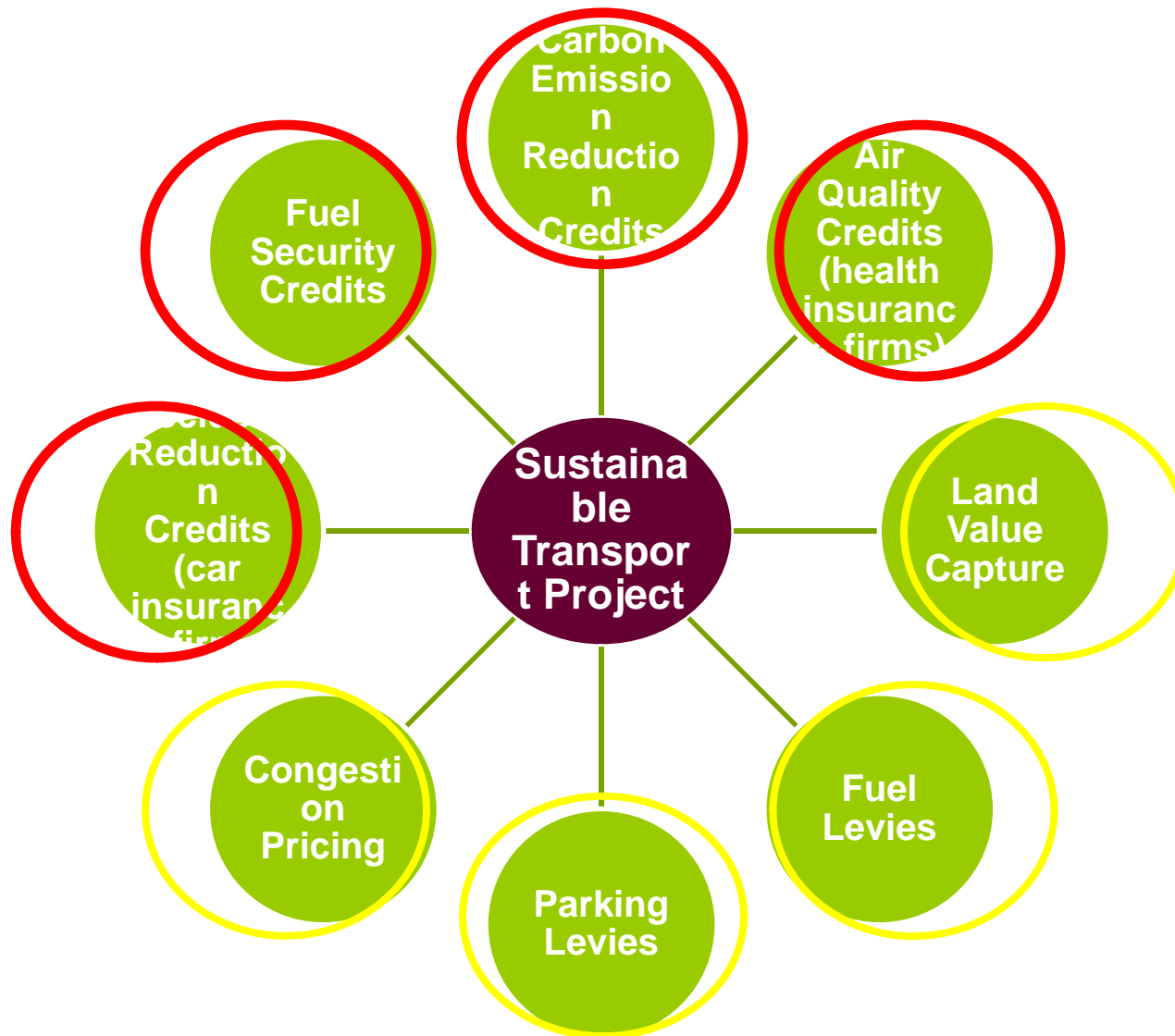
- Public transport
- Non-Motorised Transport
- Transportation Demand Management (TDM)



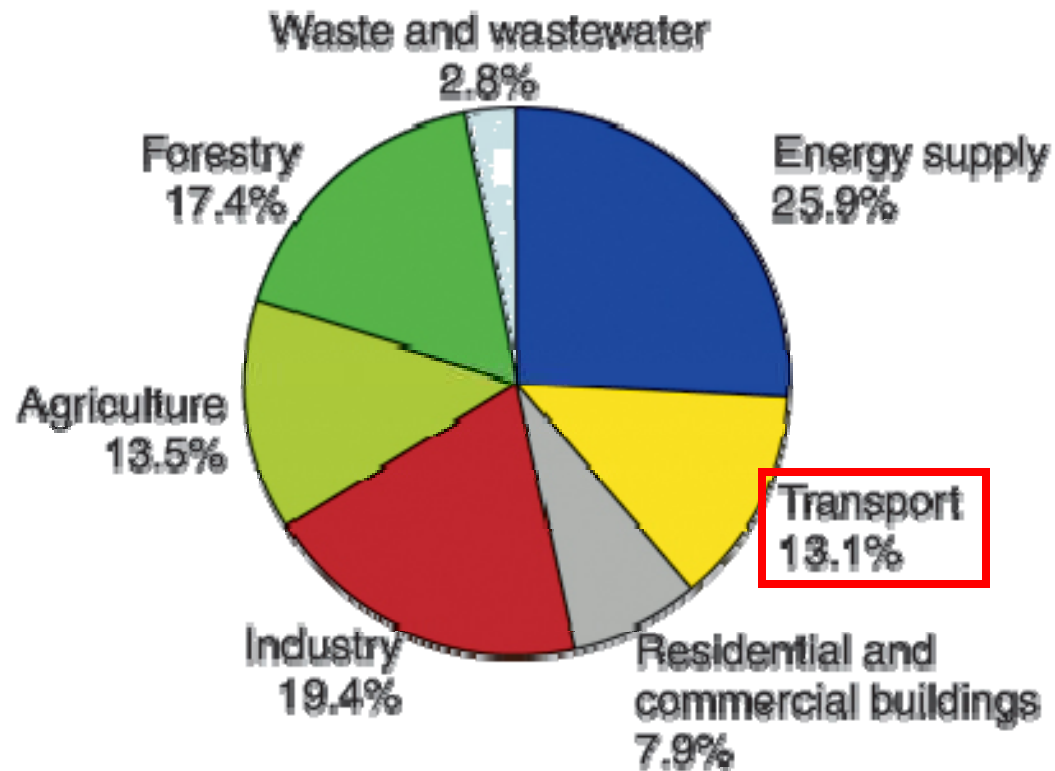
Improve

- Alternative fuels
- Fuel efficiency standards
- Vehicle maintenance
 - Vehicle testing

Food for Thought: Potential Market Mechanisms to Pay For Sustainable Low-Carbon Transport

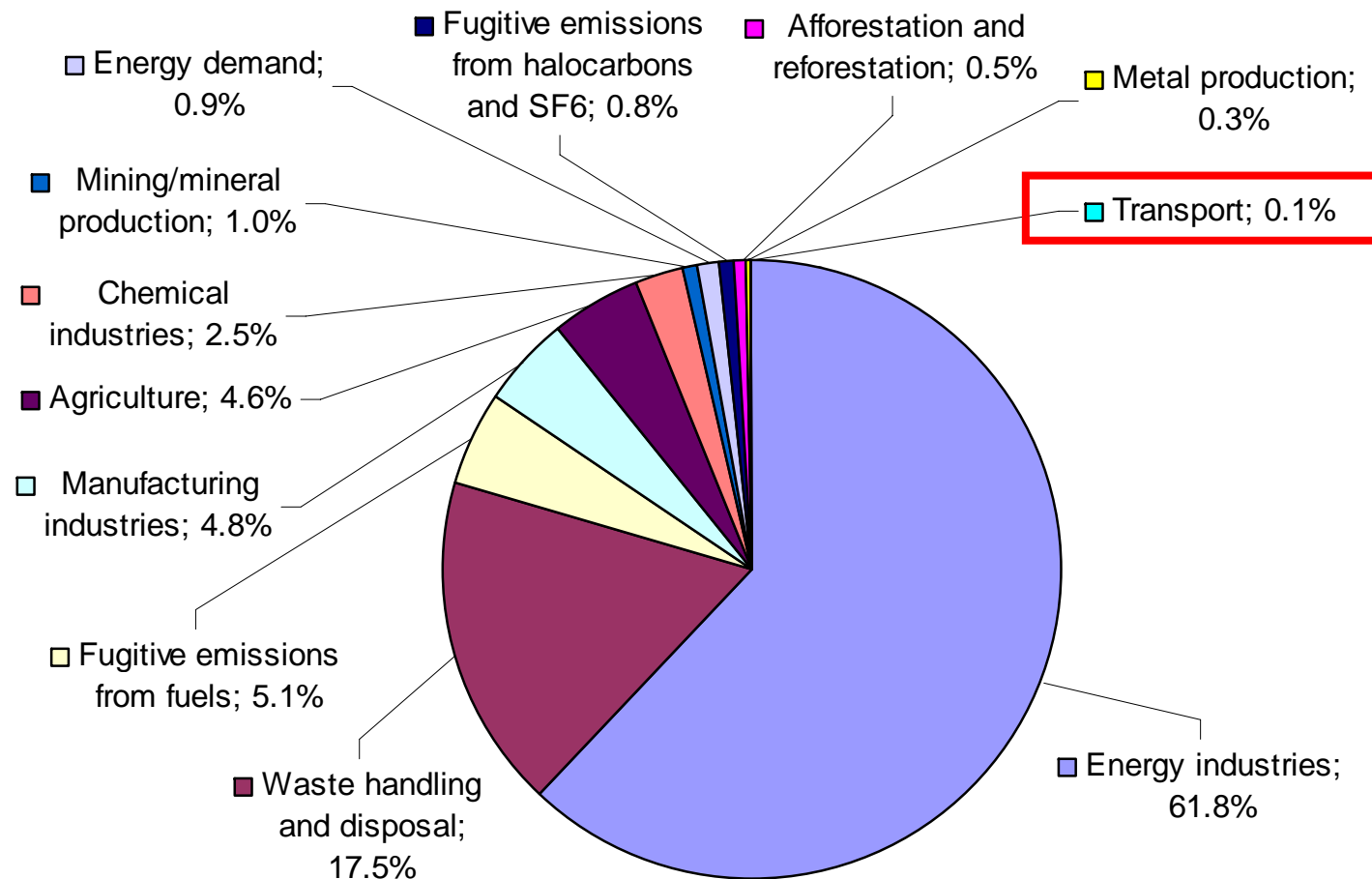


GHG emissions by Sector (2004)



Source: IPCC Fourth Assessment Report (2007), Synthesis Report, Summary for Policymakers

Registered CDM Projects by Scope



Source: UNFCCC (<http://cdm.unfccc.int/Statistics/>)

CDM: Transport Sector Project Statistics

Methodology	Registered CDM Projects	CDM Projects at Validation
Bus rapid transit (AM0031)	1	10
Mass rapid transit (ACM0016)	0	4
Efficiency through retrofit (AMS-III.AA.)	0	0
Low GHG vehicles (AMS-III.C.)	1	13
Low emission commercial vehicle fleets (AMS-III.S.)	0	0
Plant oil production and use for transport (AMS-III.T.)	0	1
Cable cars (AMS-III.U.)	1	0
Total	3	28

Source: UNFCCC (<http://cdm.unfccc.int/Projects/>)

Carbon Market-Transport Mismatch

1. Very few transport officials and experts were involved in the development of CDM rules
2. The carbon market pays entities to reduce GHG emissions
→ NO payment corresponding to enhanced energy security, air quality, transport access to the poor, safety, or other **EST co-benefits**

1. Improve existing system

- Some possible options:
 - a. Use SD index – put more weight on CO₂
 - b. Account for black carbon (e.g. a combined index of long- and short-lived GHGs)
 - c. Allow for geographical project boundary (similar to sector approach but not nation-wide)

Index to account for Sustainable Development objective of CDM

GHG	GWP (IPCC AR2)	Hypothetical SD Index	Combined index
CO ₂	1	10	10
CH ₄	21	5	105
N ₂ O	310	1	310
HFCs	Up to 11,700	0.5	Up to 55,350
PFCs	Up to 9,200	0.5	Up to 4,600
SF ₆	23,900	0.5	11,950

2. Explore new mechanisms

SLoCaT*: Co-benefits (selected) and “range” of beneficiaries

Benefit	Local	Regional	Global
Accessibility	X		
Road safety	X		
Air quality	X	X	
Energy security	X	X	X
Climate change mitigation	X	X	X

* SLoCaT = Sustainable Low-Carbon Transport

New mechanisms: Examples

- a. SO₂/NO_x market
- b. “Shared savings” modality between local governments and national healthcare/ private health insurance
 - Respiratory Diseases
 - Road accidents
- c. Energy security market

a. SO₂/NO_x market

- ❑ Started under 1990 U.S. Clean Air Act
- ❑ Traditionally regulates stationary sources (mainly power stations)
- ❑ Can it be broadened to include mobile sources by registering cities as eligible “entities”?
- ❑ For example, if a city manages to reduce its SO₂ emissions it can sell excess allowances to generate a revenue/funding stream

b. Shared savings of health benefits

- What is “shared-savings”?
- Very well established in energy sector

Example

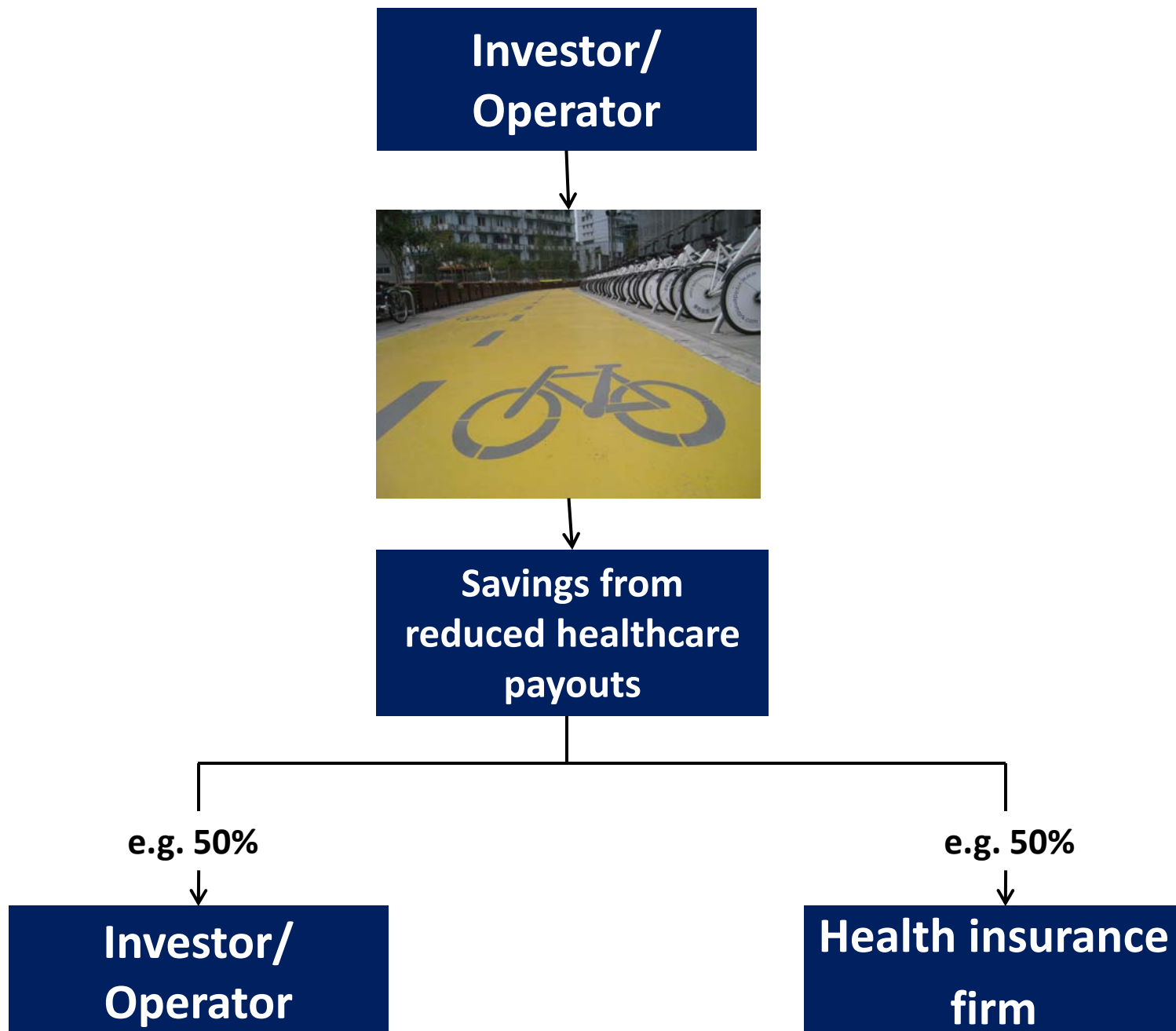
- Energy service companies, called “ESCOs”:
 1. Identify energy savings opportunities in industrial facilities and commercial buildings;
 2. Install energy savings equipment, including through use of loans; and,
 3. Share part of the energy bill savings accrued to the facility owners.

Capturing health benefits

Health insurance
firms benefit
financially from
sustainable
transport measures
that reduce illness



Capturing health benefits



b. Shared savings of health benefits: example

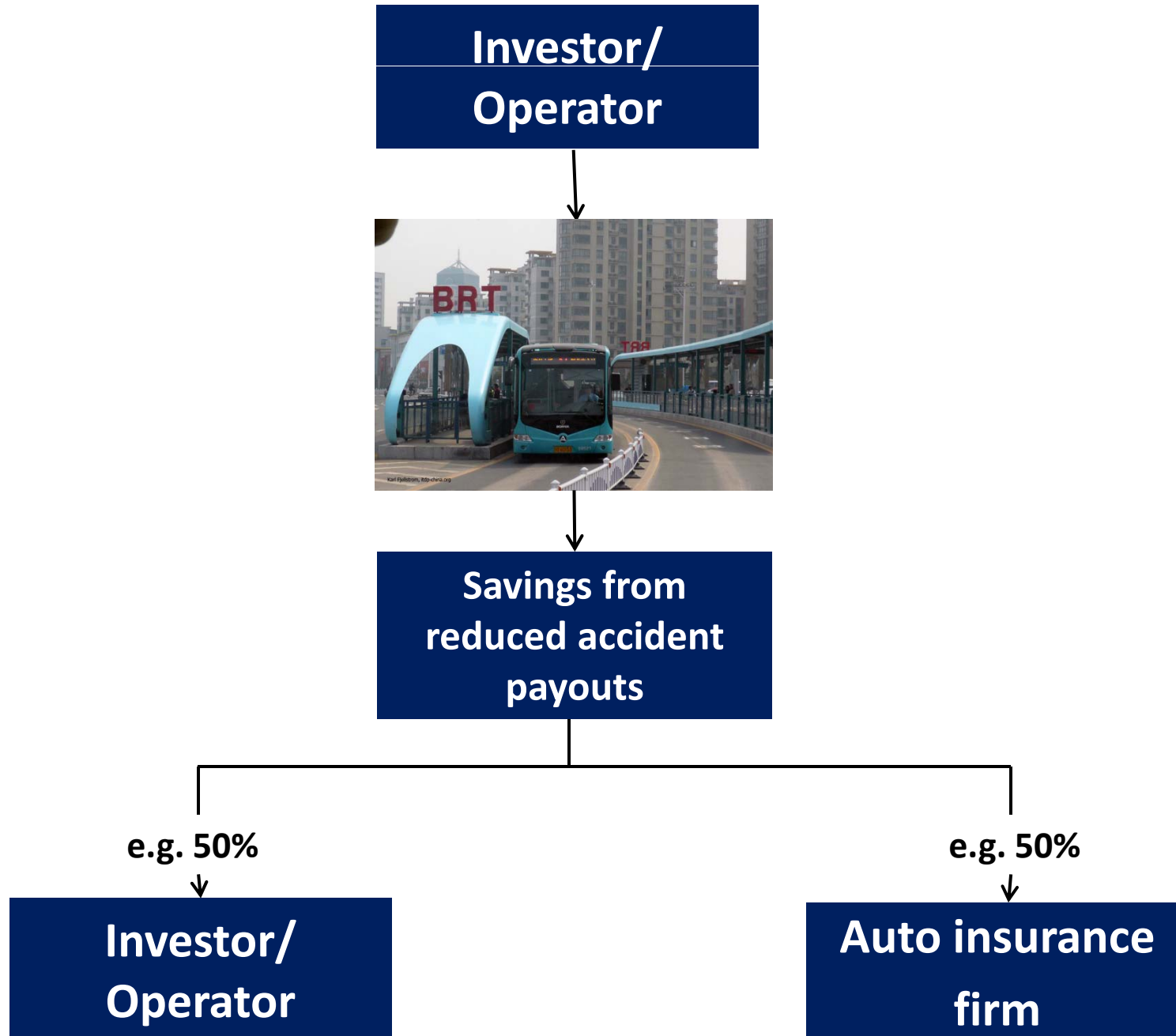
- ❑ Large city with 100,000 cases of treated patients
- ❑ Average pay out per patient is \$100; total payout sum is \$10 million/year
- ❑ If marked improvements in air quality cuts 50% of cases “savings” by the insurer would be \$5 million per year
 - Since many EST measures can lead to long term improvements in air quality the cumulative savings to the insurance company can be significant
- ❑ If agreed share is 50/50, this can create annual funding flow of \$2.5 million to the agency who may oversee continued implementation of existing SLoCaT measures and further improvements

Capturing road safety benefits

Vehicle insurance
firms benefit
financially from
sustainable
transport measures
that reduce road
accidents



Capturing road safety benefits



c. Energy security market concept

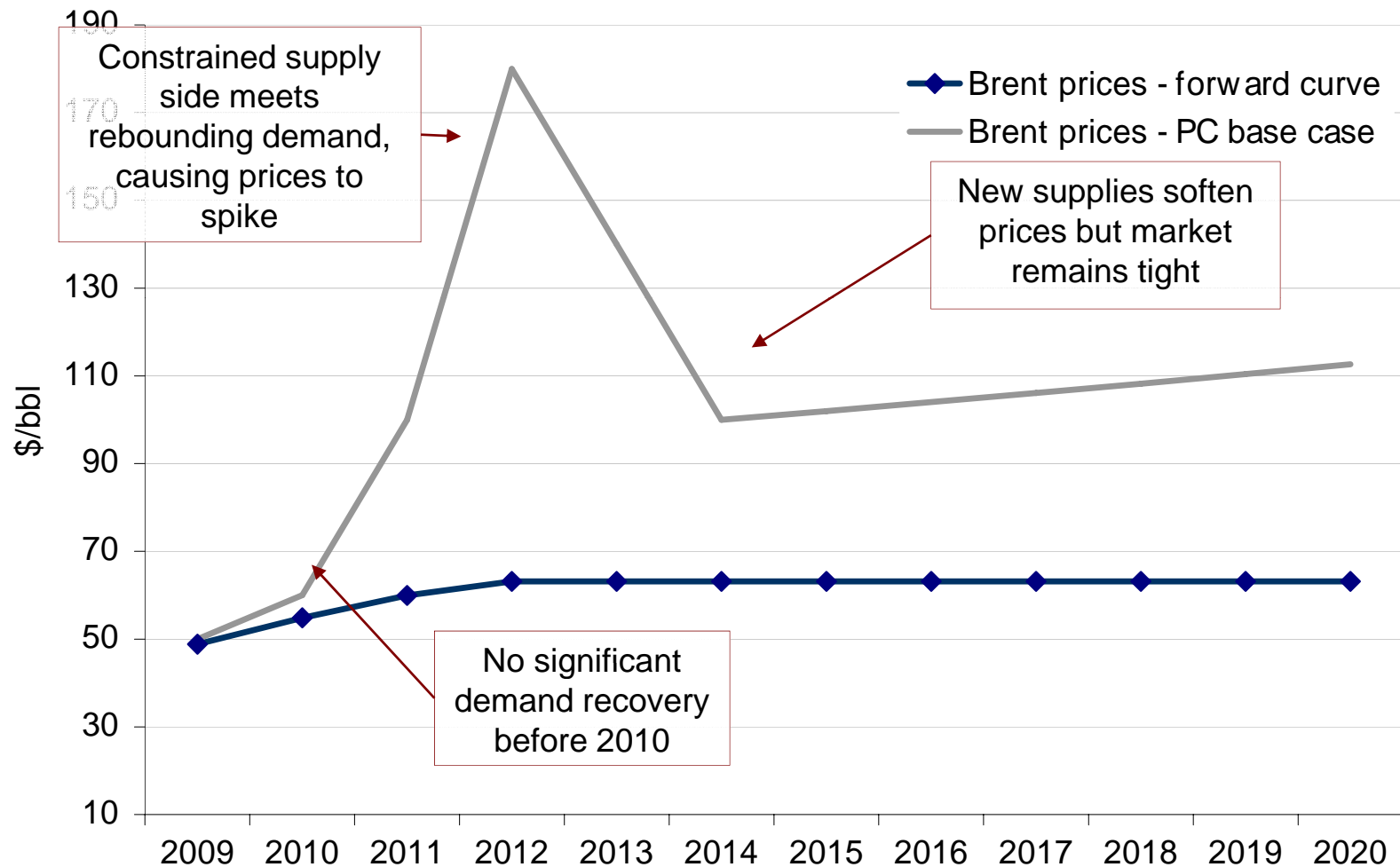
- ❑ Implementation of SLoCaT policies and technologies can enhance price elasticity (by providing more transport options) and contribute to lessen extreme price shocks – broad benefit to all countries and cities
- ❑ Consider fuel demand management and alternative fuels as a “public good” – package into “fuel savings credits”
- ❑ Additional flow of funding to developing countries to promote efficient and multi-modal transport



**Developing-nations of Asia will account
for 70 percent of the global increase in
fuel oil consumption up to 2030.**

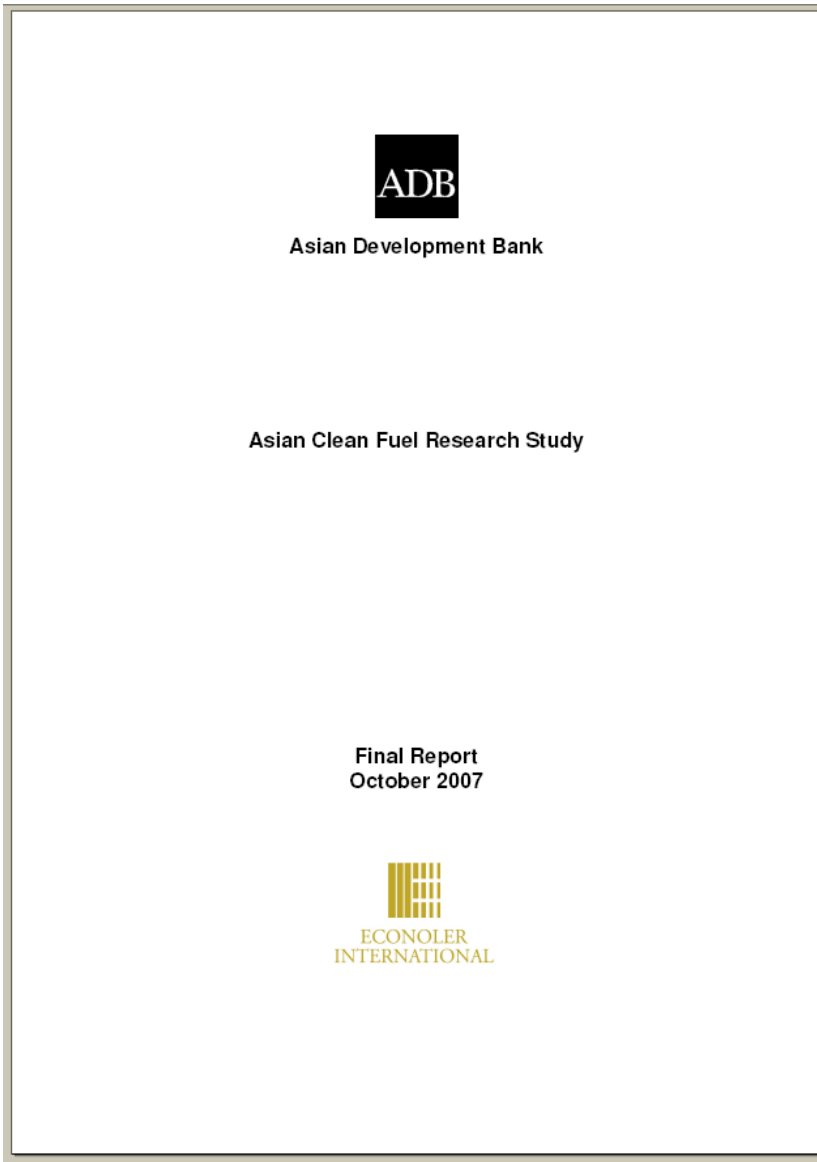
Source: IEA, 2008

Energy security: Oil price projections



Source: Point Carbon (2009)


Pilot study commissioned by ADB in 2006



ADB
Asian Development Bank

Asian Clean Fuel Research Study

Final Report
October 2007



ECONOLER
INTERNATIONAL

B	C	D	E	F	G	H	I
Spreadsheet Oil Demand Outlook in Asia-Pacific New Technology and Fuel Savings							
October 2007 Version							
This Spreadsheet is an appendix to the ADB report on Oil Demand Outlook.							
It contains two parts:							
-Oil Demand Outlook							
<i>ADB members</i>							
<i>Outlook from four different sources</i>							
<i>Outlook using an adjustment factor to target ADB DMCs</i>							
<i>Outlook comparison</i>							
-New Technologies							
<i>Technology information input</i>							
<i>New technologies and their fuel savings outlook</i>							
<i>Scenario</i>							
<i>Subsidies</i>							
<i>CERI</i>							
Note: All numbers within blank cells: <input type="text"/> can be changed to influence results This option is included for experimental and precision purpose.							
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Income / ADB members / RIS / IEA / IEEJ / EIA-DOE / Forecast Comparison / Technology Info / Hybrid electric /							

Preliminary Results (1)

Annual (2030) savings

Baseline global consumption of **5,900 MTOE in 2030**
(IEA and US DOE estimates in 2006)

Description	Oil Savings (MTOE)	Oil Savings (%)
Centered on BRT and flexible-fuel vehicles	369	6.3
Centered on flexible-fuel vehicles	285	4.8
Centered on BRT and hybrid vehicles	211	3.6
Centered on CNG-LNG vehicles and BRT	208	3.5
Centered on advanced diesel and biofuels	186	3.2
Centered on electric and fuel-cell vehicles	185	3.1
Centered on biofuels	174	2.9

Preliminary Results (2)

Annual (2030) government budget savings for countries with fuel subsidies*

Country	Savings from Scenarios (USD million for 2030)	
	From	To
Providing Oil Subsidies		
People's Republic of China	3 914	8 292
Indonesia	2 222	4 706
Malaysia	788	1 669
Thailand	516	1 094
Pakistan	593	1 257

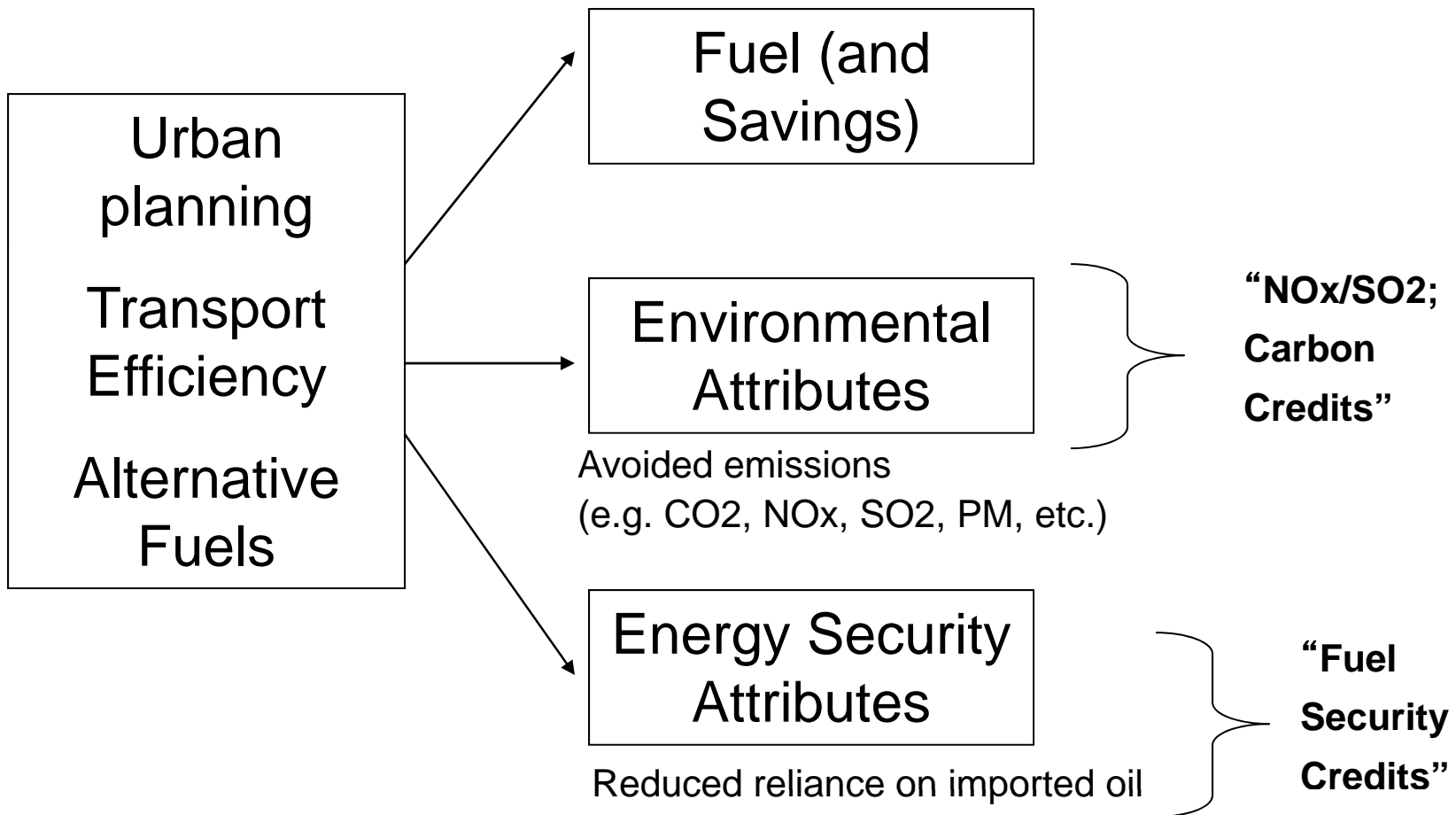
* Using IEA estimates for 2006

Preliminary Results (3)

Annual (2030) Economy-wide savings for large importers

Country	Savings from Scenarios (USD million for 2030)	
	From	To
Major Oil Importers		
<u>DMC</u>		
India	4 404	9 284
People's Republic of China	11 172	23 554
Philippines	609	1 284
Republic of Korea	1 982	4 179
Singapore	1 048	2 209
<u>Non-DMC</u>		
Australia	921	1 943
France	1 579	3 330
Germany	2 052	4 325
Italy	1 336	2 817
Japan	3 342	7 045
United States	16 284	34 331

Energy Security market concept?



Conclusion

Make Co-benefits PAY!

1. **Improve existing systems**
2. **Explore new mechanisms**
 - Innovative solutions that work for transport and cities
 - Reminder: a few **visionaries** conceptualized all the market mechanisms available today. Why not have the next one emerge from Asia's transport-environment community?

Thank you!

For more info on “make co-benefits PAY”
please contact:

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