



# Strategies for Green Freight in Asia

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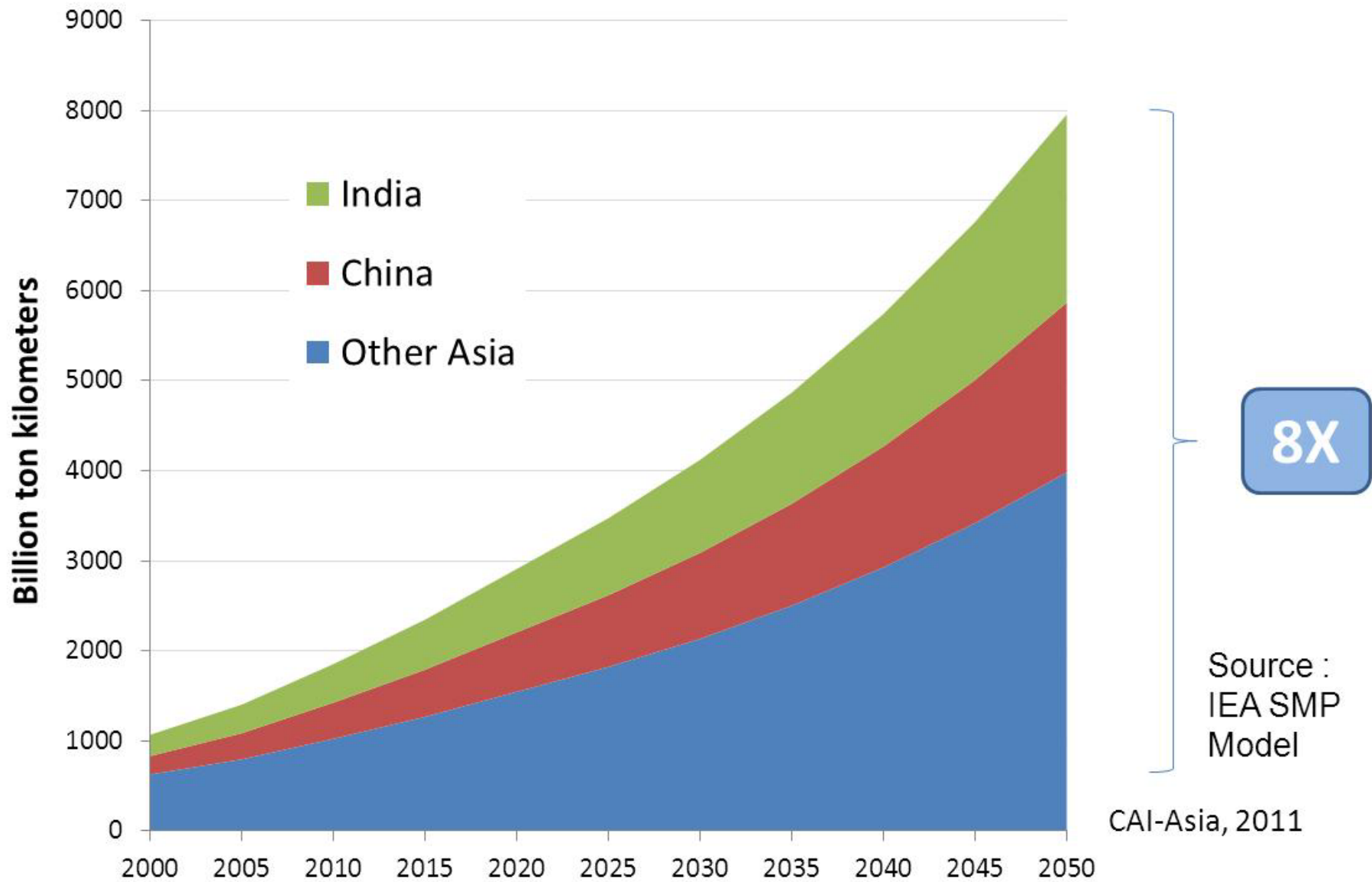
EST Forum

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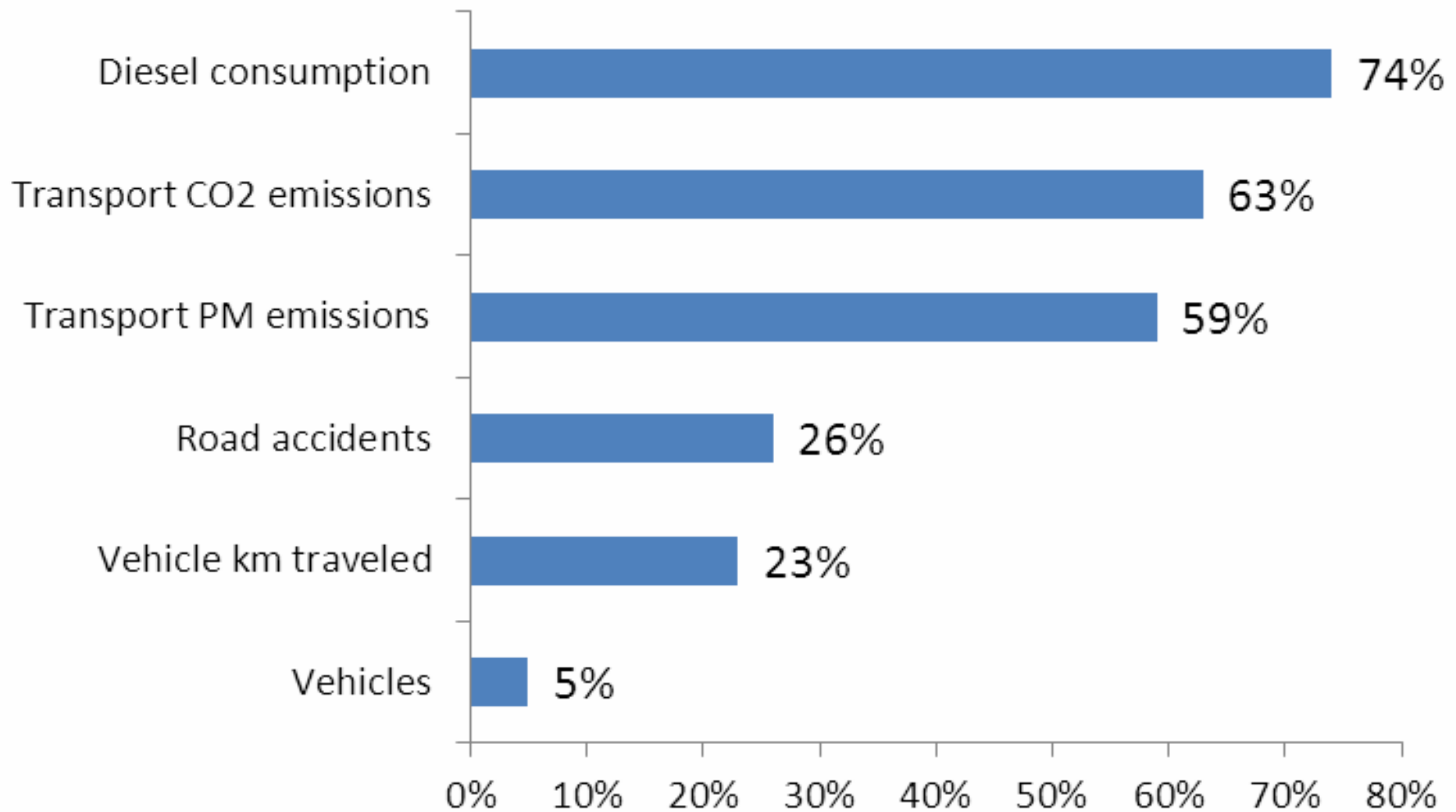
5 December 2011



# Explosive growth in road freight transport



# High impacts from trucks in India



# Actions for Green Freight in a Green Economy

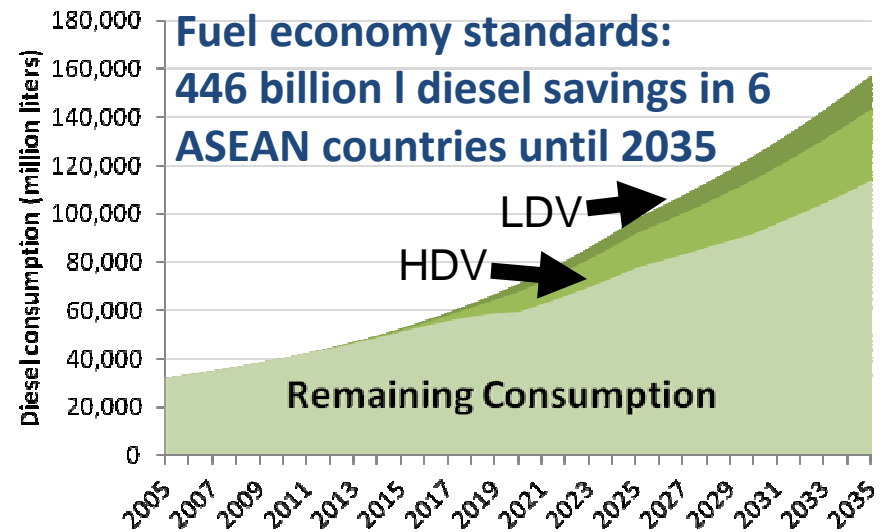


1. Adopt fuel economy measures
2. Reduce air pollutant emissions from trucks
3. Develop fleet management systems
4. Reduce truck empty miles
5. Shift from road freight to rail, waterways and smaller vehicles
6. Improve intermodal freight transfer
7. Address safety impacts of freight transport
8. Halt the spread of HIV/AIDS among truck drivers
9. Establish national Green Freight Programs
10. Measure progress towards green freight

# 1. Adopt fuel economy measures

## Governments:

- Fuel economy standards
- Vehicle labeling schemes
- Technology mandates
- Import restrictions
- Economic instruments
- Traffic control measures



## Truck manufacturers/companies:

- Tires and wheels
- Aerodynamics equipment
- Idling reduction technologies
- Technologies relating to fuel, engines and vehicles

## 2. Reduce air pollutant emissions from trucks

- **Vehicle emissions standards for HDV**
- **Low Sulfur diesel**
- **Emissions control technologies**
- **Vehicle inspection & maintenance programs**
- **Fuel inspection and compliance programs**
- **Vehicle labeling schemes**
- **Low emissions zones**
- **Truck scrapping / phase out schemes**
- **Import restrictions for trucks and engines**



# Sulfur Levels in Diesel

	96	97	98	99	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15		
European Union	500									50(10) <sup>f</sup>			10									
Japan <sup>b</sup>	500									50			10									
Hong Kong, China		500						50			10											
United States	500										15		10									
South Korea	500							430		100		30			15(10) <sup>f</sup>							
Singapore	3000		500							50												
Taipei, China	3000			500			350		100			50										
Thailand	2500			500					350							50						
China (metros) <sup>g</sup>	5000						2000		500		350			50								
China (national) <sup>e,f</sup>	5000						2000			2000 & 500					350							
India (metros)	5000				2500		500			350 <sup>a</sup>					50							
India (national)	5000				2500			500					350									
Malaysia	5000		3000				500 <sup>c</sup>							500 <sup>d</sup>								
Philippines	5000					2000			500												50 <sup>a</sup>	
Sri Lanka	10000							5000 <sup>d</sup>		3000&500			500			50 <sup>a</sup>						
Vietnam	10000											500										
Indonesia	5000								3500				350									
Cambodia						2000				1500												
Bangladesh								5000														
Pakistan	10000							7000 <sup>c</sup>														

CAI-Asia, 2011

Notes:  
 a - under consideration/ discussion; uncertain; b = nationwide supply of 50 ppm commenced in 2003 and for 10 ppm in 2005 due to voluntary goals set by the oil industry; c = marketed; d = mandatory; e = voluntary standard of 500 ppm, however formal standard remains 2000 ppm, product in the market nationwide varies 500-1000 ppm; f = various fuel quality available; g = Beijing, Guangdong, Shanghai  
 Source: CAI-Asia. 2010. Current and Proposed Sulfur levels in Diesel in Asia, EU and USA



### 3. Introduce fleet management systems

- Driving behavior
- Maintenance
- Health and safety
- Speed management
- Fuel consumption

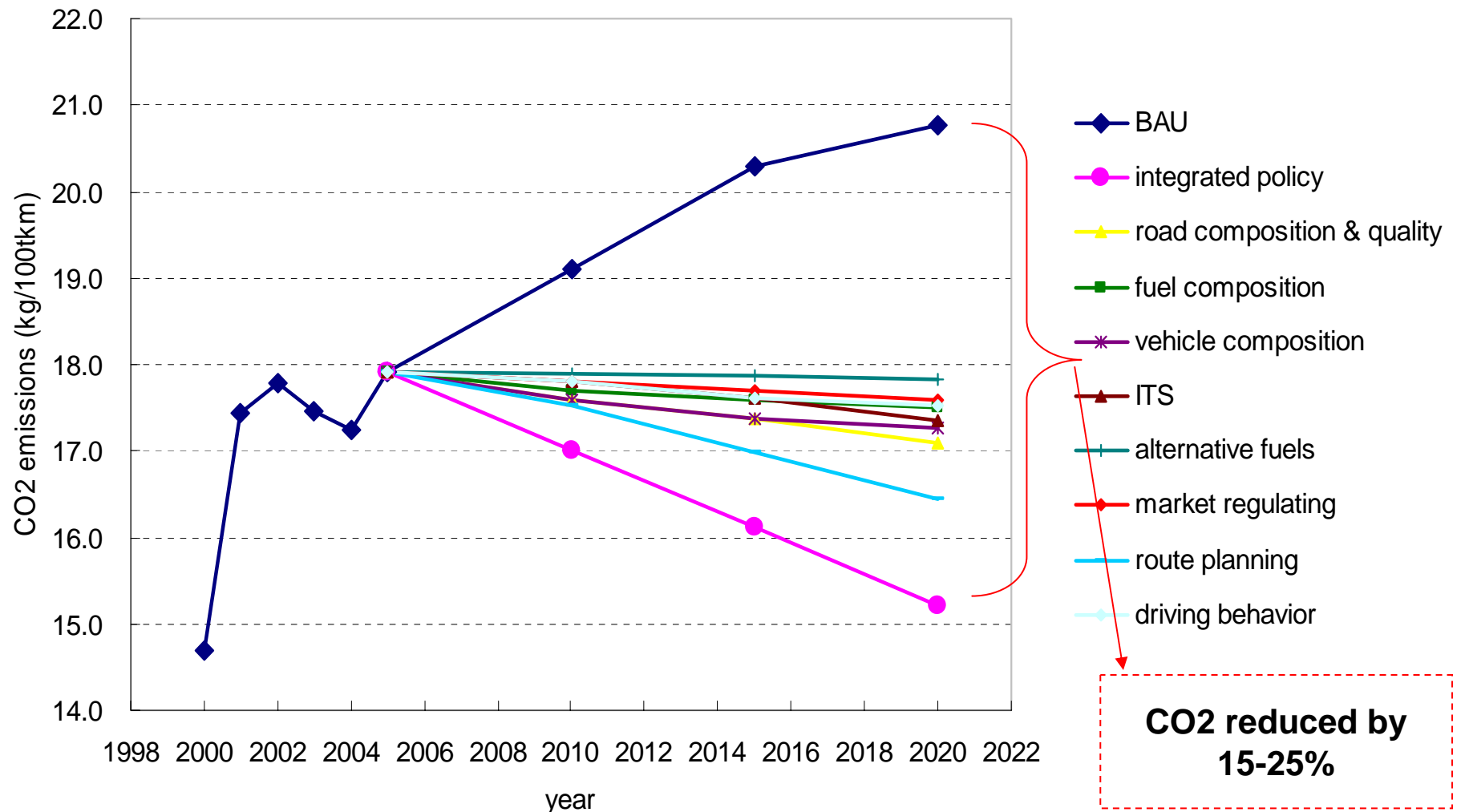
#### Technological tools

- Radio frequency identification tags (RFID)
- Global positioning systems (GPS)
- Vehicle routing software





# Potential of fleet management



**CO2 reduced by 15-25%**

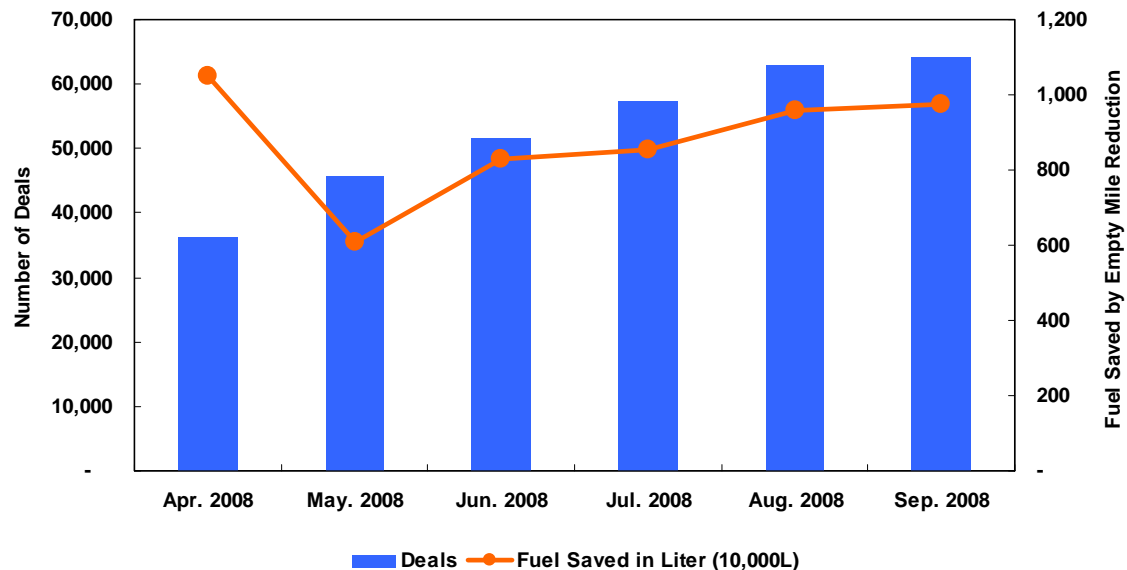
Study from China Academy of Transportation Sciences



## 4. Reduce truck empty miles

- Drop-and-hook
- Backloading and milk-run concept
- Logistics information platform
- Freight company consortium
- Freight consolidation centers

**Henan Anyang Logistics Info Platform ([www.8glw.com](http://www.8glw.com))**



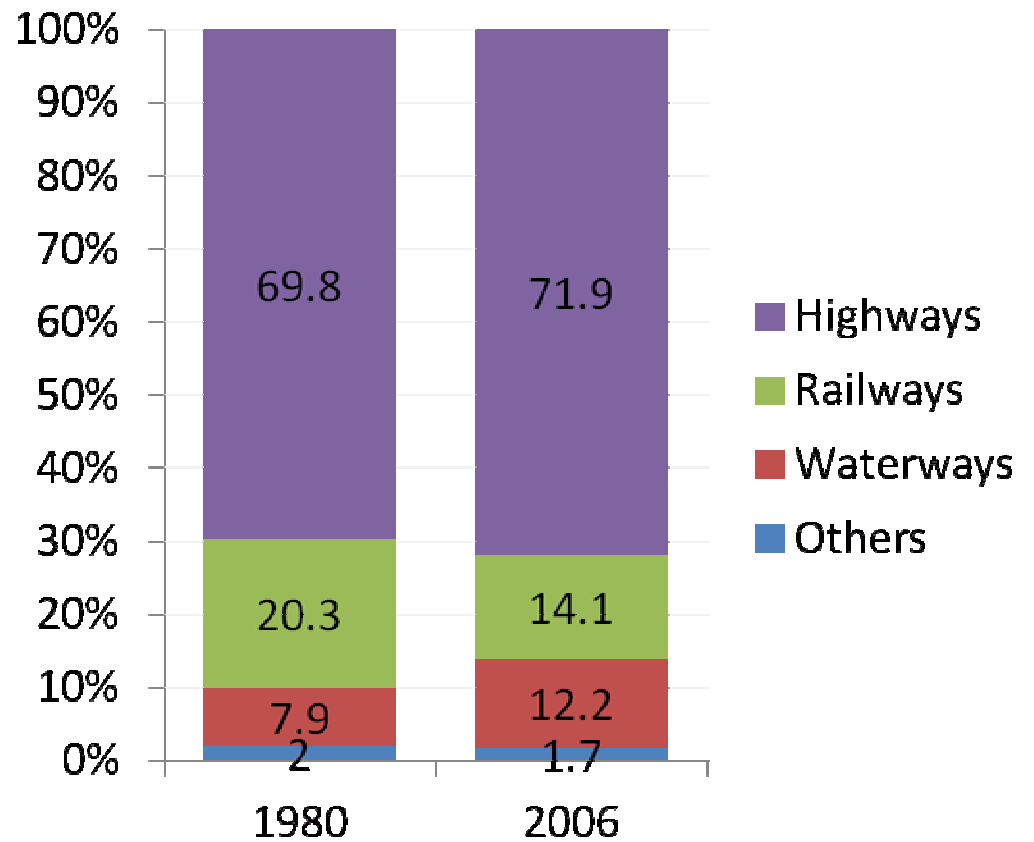
China surveys: 40-50% empty miles = 8 billion USD annual loss

Philippines: 89% delivery vehicles empty return trips

India survey: 37-46% of trips are empty

# 5. Shift from road freight to rail, waterways and smaller vehicles

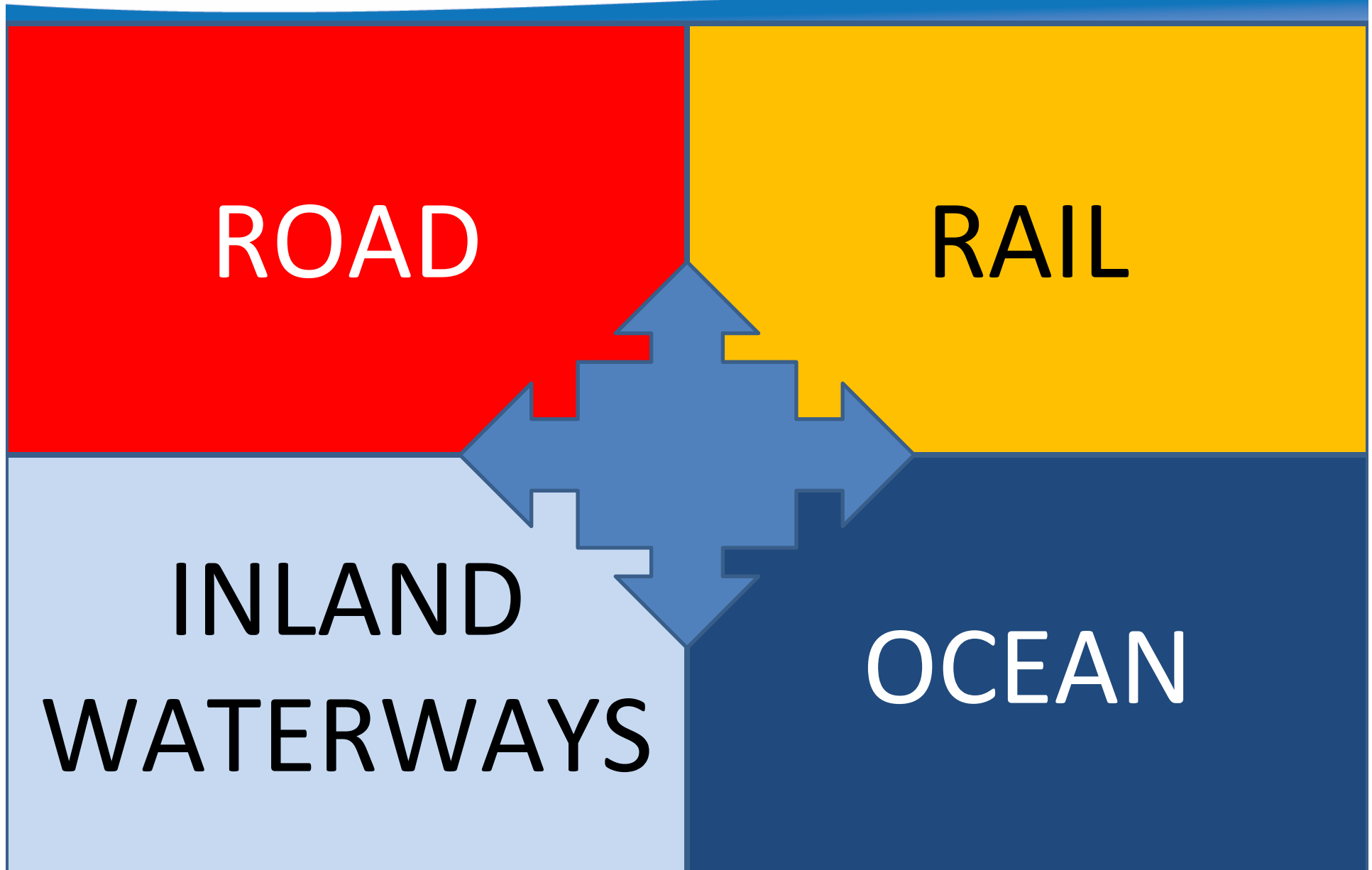
- Road freight to rail and waterways
- Trucks to vans and cargo bikes
- Governments to invest in rail and waterways infrastructure
- Governments to provide financial and policy incentives



Freight Transport Mode Share in 1980 and 2006 in China (%)  
Source: ADB (2008)



## 6. Improve intermodal freight transfer



## 7. Address safety impacts of freight transport

- Companies: driver training, maintenance and route planning and scheduling
- Governments: better enforce traffic rules and truck load restrictions and provide for training, especially for driver-owners



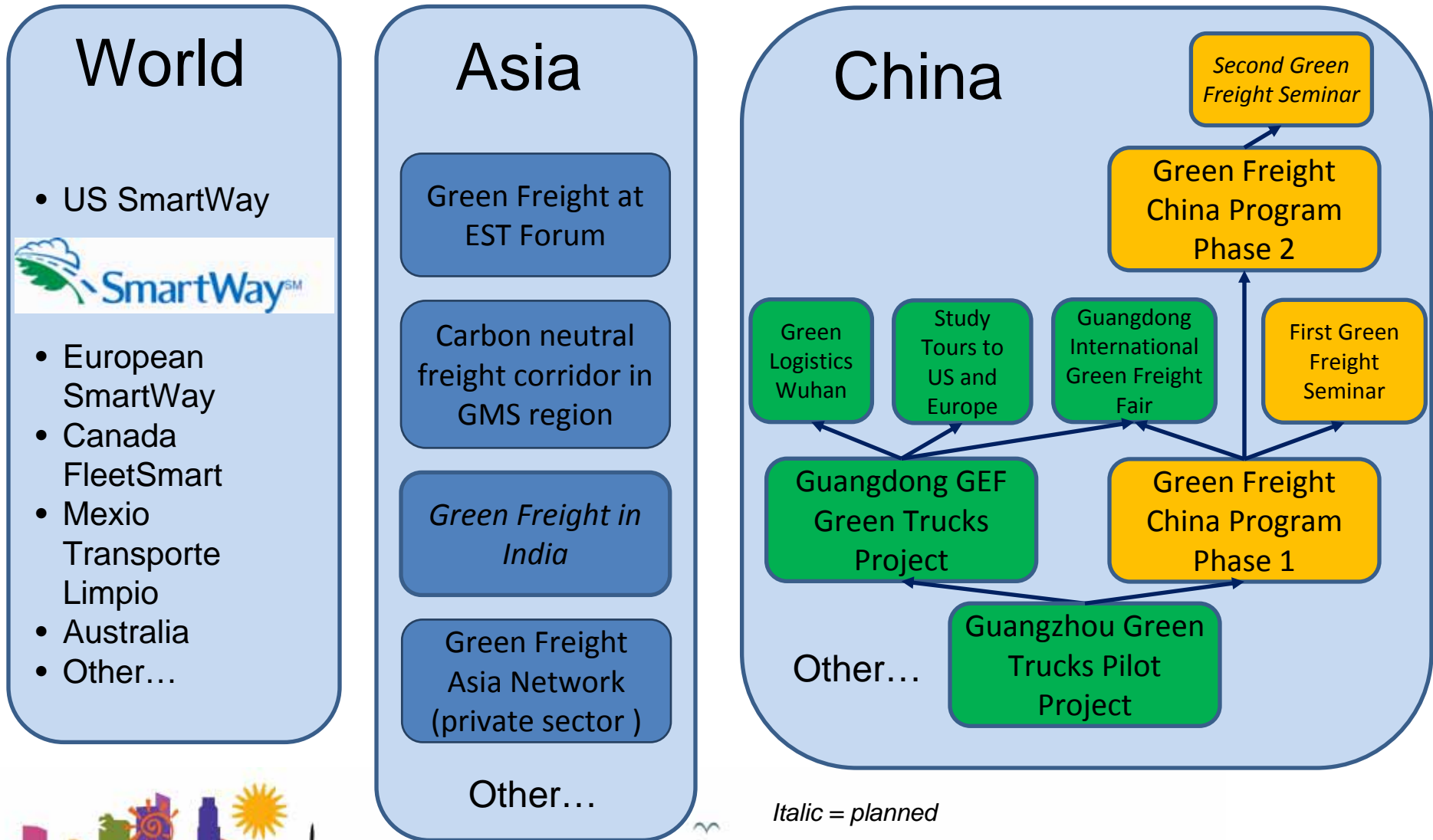
India: trucks 5% of vehicles but 30% of road accidents

## 8. Halt the spread of HIV/AIDS among truck drivers

- Route in South India: 16% of truck drivers have HIV compared to the national rate <1%
- Governments and companies can adopt HIV/AIDS programs
  - Awareness raising of men and women
  - Education
  - Monitoring
  - Counseling
  - Medical support



# 9. Establish national Green Freight Programs





# Guangzhou Green Trucks Pilot Project

(Dec 2008 – Feb 2010)



- Develop “proof of concept” for a truck program in Guangzhou/China



World Bank  
世界银行



USEPA  
美国环保局



CAI-Asia Center  
CAI-Asia中心



CSS  
美国CSS组织



Supported by:



# Guangdong Green Trucks Demonstration Project – launched Oct 2011



- Guangdong International Green Freight Fair
- Guangdong Green Freight Workshop
- Technology pilot for 1200 trucks
- Logistics, capacity building, financing mechanisms

Supported by: GEF, Guangdong Government, World Bank



# Green Freight China Program: Objective

- Design a Green Freight China Program for improved fuel efficiency, reduced fuel costs and greenhouse gases and air pollution, that:
  - Covers road, rail, shipping and aviation, but initial focus on road trucks
  - Builds on 12<sup>th</sup> FYP and existing efforts in China
  - Makes use of international programs, especially SmartWay US
  - Fill gaps: policy, institutional, stakeholder cooperation,
  - Multi-stakeholder approach with clear benefits for each group
  - Can be used as a model for other developing countries in Asia

<http://cleanairinitiative.org/portal/projects/GreenFreightChinaProgram>

Supported by:



THE CHINA SUSTAINABLE ENERGY PROGRAM  
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中国可持续能源项目  
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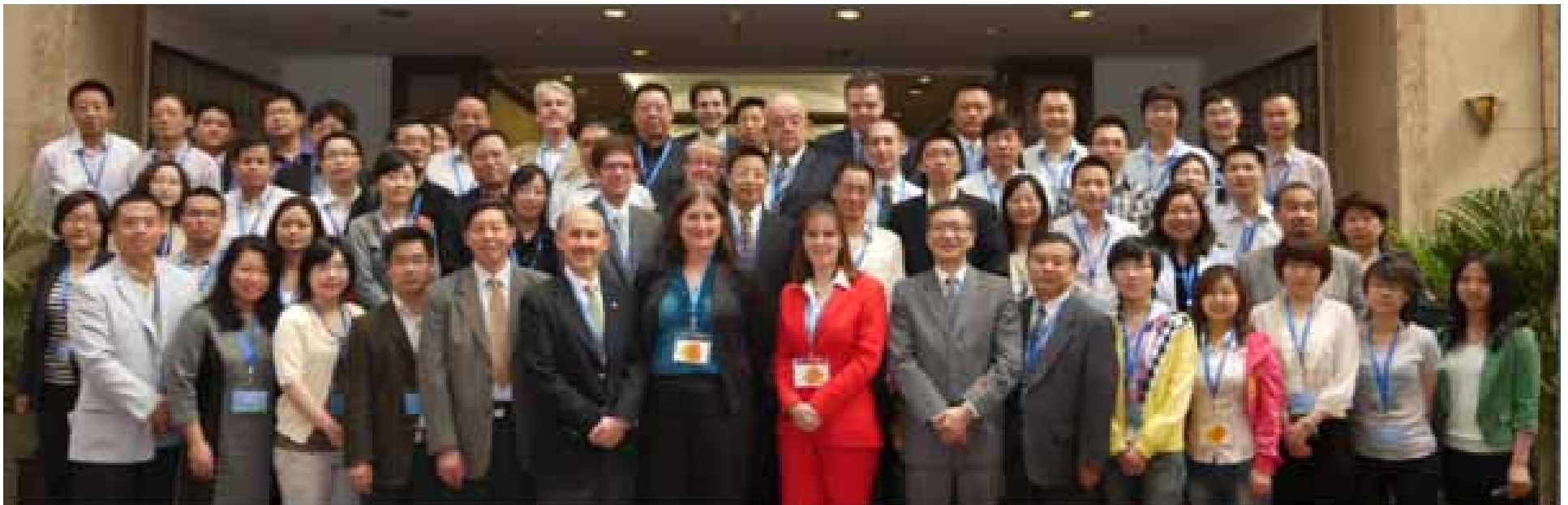


# Green Freight China Program: Framework



# Green Freight China Program: 2010/2011

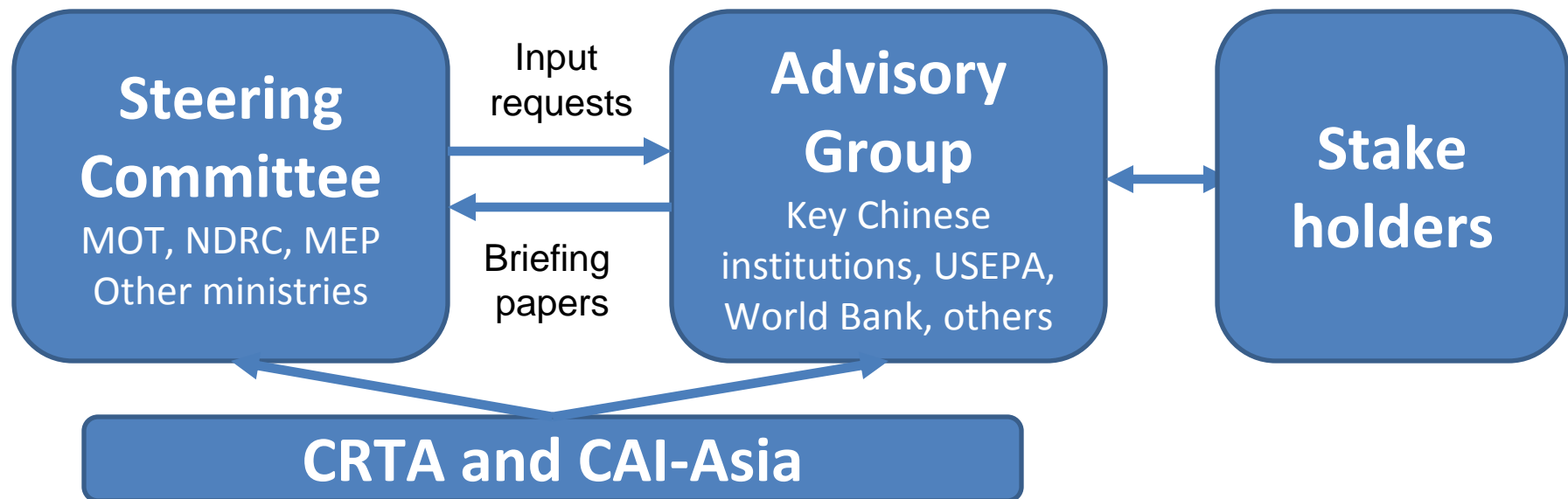
- Design program **framework** *building on US SmartWay*
- Obtain support from **Ministry of Transport**
- Review **policy and institutional set up** and gaps
- **Surveys** of technologies, logistics solutions
- **Consult** with private sector and other stakeholders
- **First Green Freight China Seminar** – May 2011, Beijing





# Green Freight China Program: 2012

- **Institutional mechanisms** for MOT support and more effective coordination and communication
- Develop **training package** for truck carriers
- Recommend verified **energy saving technologies** to companies
- Scale up **best practices** in the road transport industry
- Hold “**Green Freight China Seminar**” annually in May

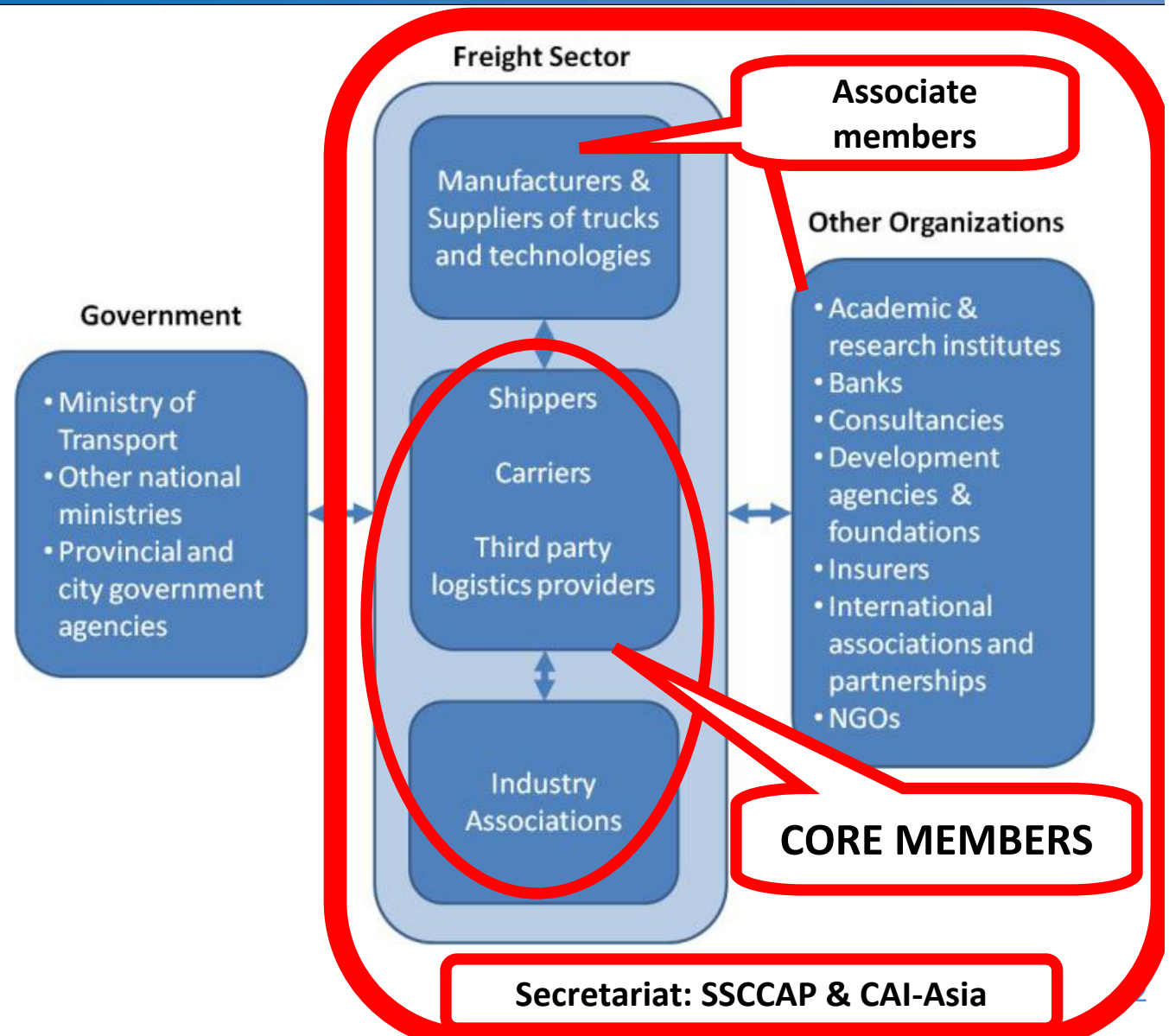




# Green Freight Asia Network

Platform for shippers, carriers and 3PLs to

- Share practices, tools and methodologies to reduce fuel, costs and emissions from freight transport
- Ensure active participation of the private sector in the development of national green freight policies and programs





# Private Sector Declaration on Green Freight in Asia towards a Green Economy



## Key success factors for Green Freight Programs

- Clear vision / scope / objectives / benefits of program
- Multi-stakeholder approach with clear benefits for relevant stakeholders
- Neutral body to host the program
- Clean governance structure and mechanism
- (Global) alignment on methodology / standard for carbon measurement and reporting and ensure confidentiality of data
- Success stories, best practices and knowledge exchange in Asia
- Financial mechanisms as transition measures mainly for carriers
- Alignment with governmental policies and government endorsement
- Well defined way forward including a timeline



## 10. Measure progress towards green freight

- Number of kilometers of freight rail lines
- Number of inland dry port
- Freight transport emissions per ton-km or energy use in relation to output measures as ton-km
- Freight transport intensity (ratio of total freight moved to GDP)
- Traffic fatalities involving freight vehicles – number and percentage of total traffic fatalities



# For more information



[www.cleanairinitiative.org](http://www.cleanairinitiative.org)

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