

The Transport Contribution to CO2 in China

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TCMFTC



➤ The Full Name:

Tsinghua University– University of Cambridge
–Massachusetts Institute of Technology Low
Carbon Alliance Future Transport Research
Centre (TCMFTC)

➤ The Target :

A world-class interdisciplinary “Future
Transport” **research** and **exchange** center



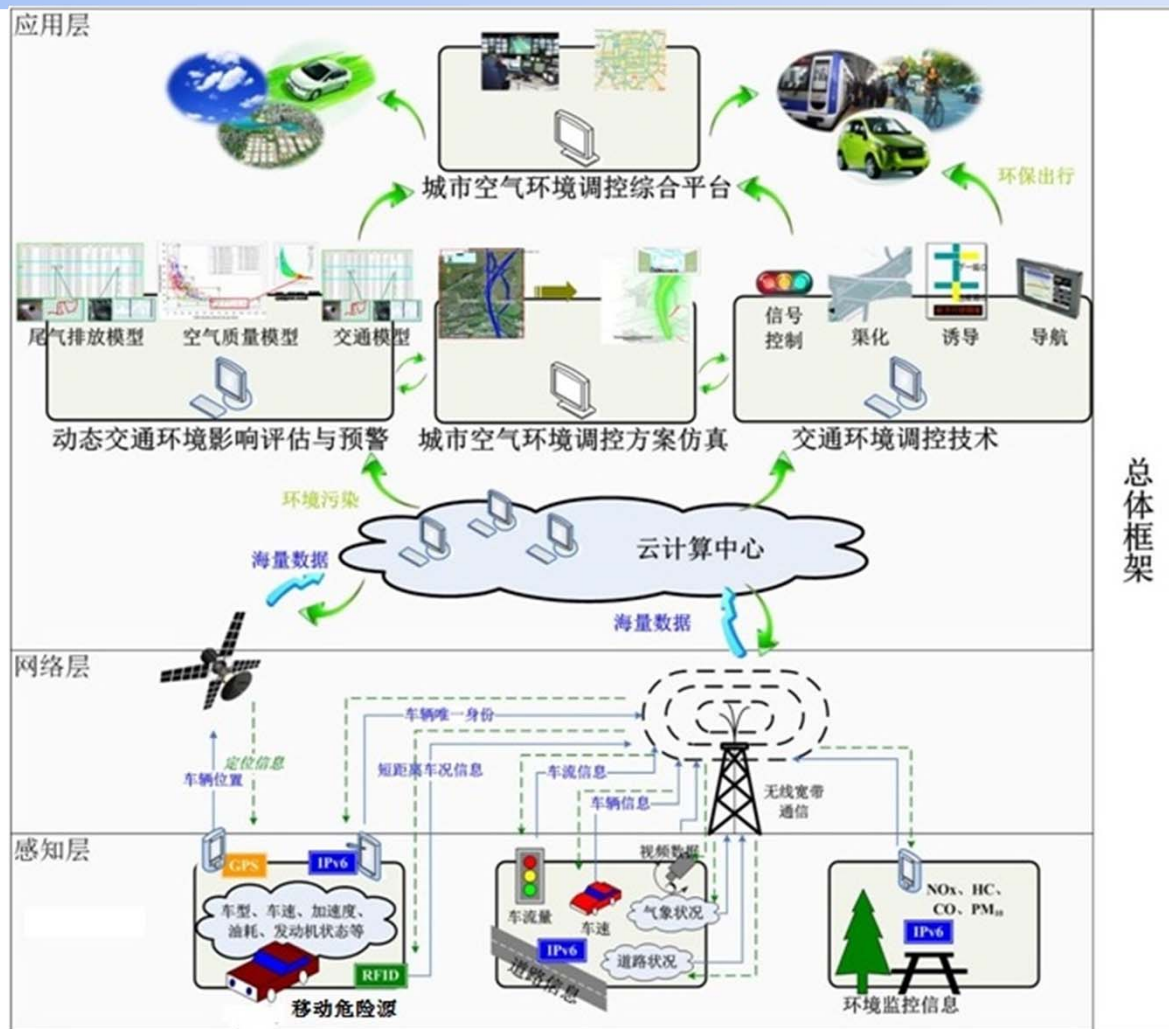
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- **Research:** Chinese Government, EU, UK-China, USA-UK-China,
- **University:** Cambridge, MIT, UCL, Southampton,
- **City:** Beijing, London, New York, Hangzhou,
- **Company:** IBM, SIMENS, NISSAN, CERC,



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总体框架



The 4th ANCST Workshop



4th ANCST Workshop: Climate Change and Urban Environment



Tsinghua University, Beijing, China,
15-17 July 2015



<http://www.ancst.org/?cat=2>





§ Contents



1 Transport Contribution to CO2 Emissions



2 Government Efforts

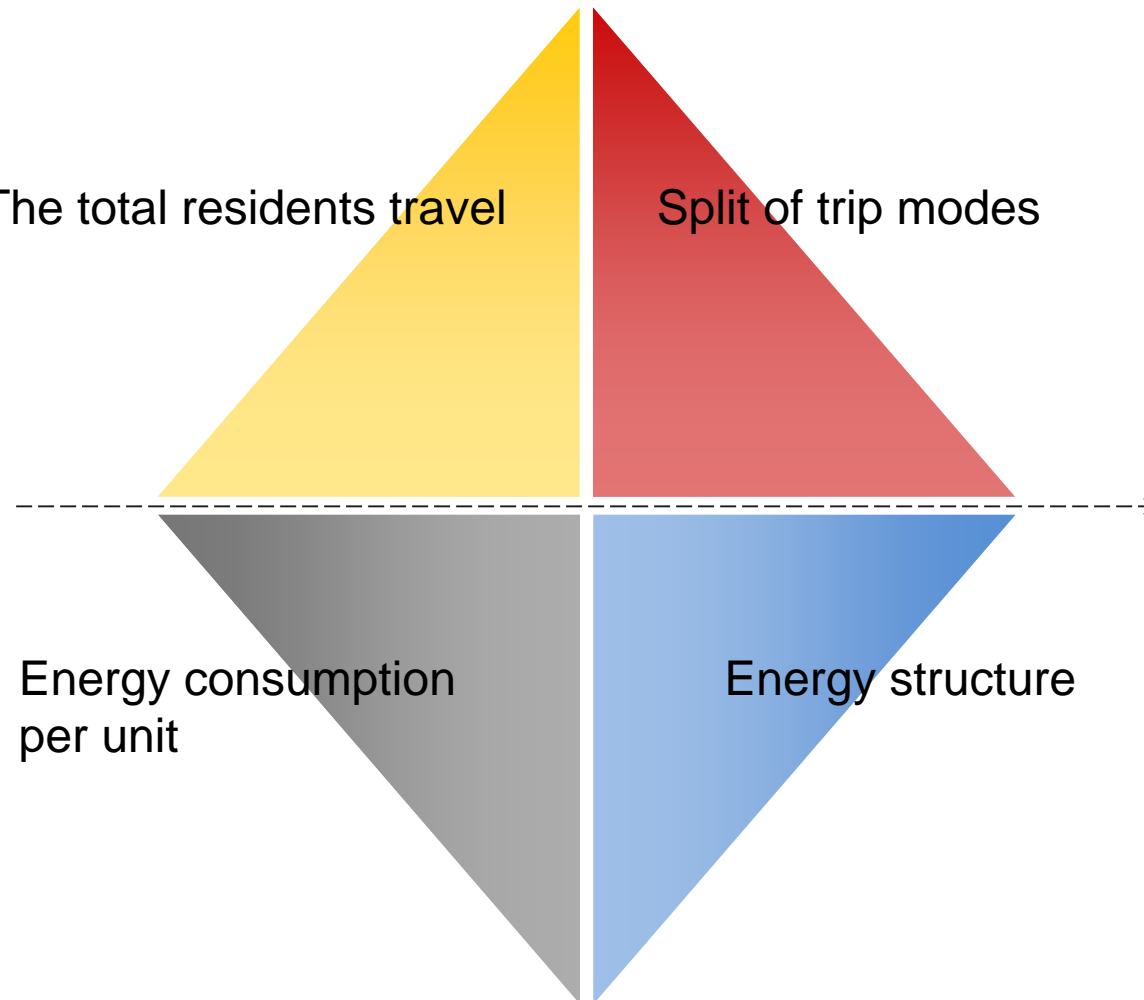


§ 1.1 Transport and CO2



The total residents travel

Split of trip modes



Energy consumption
per unit

Energy structure

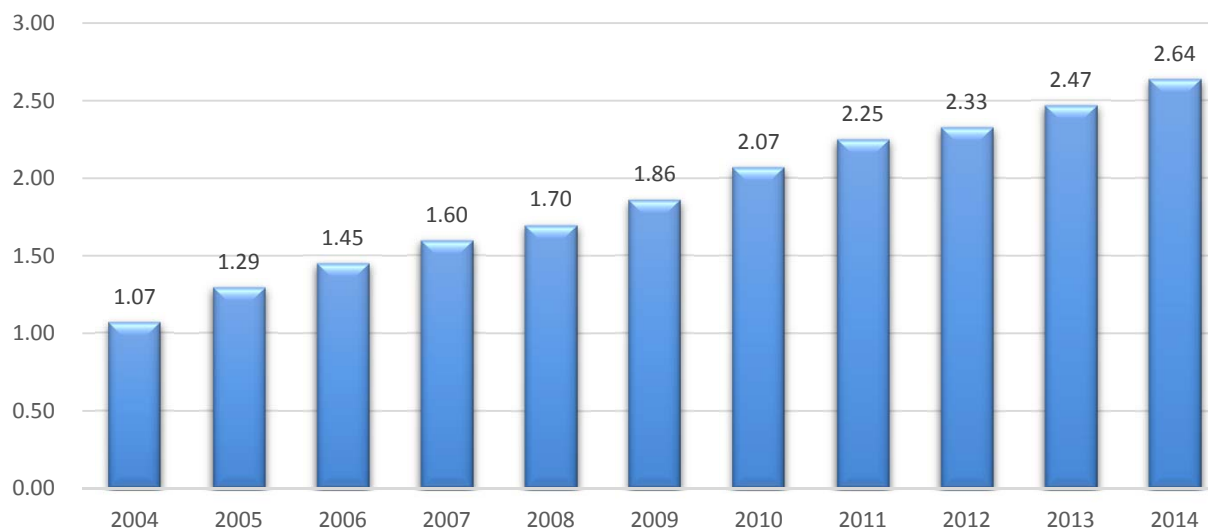


§ 1. 2 Motor vehicle ownership



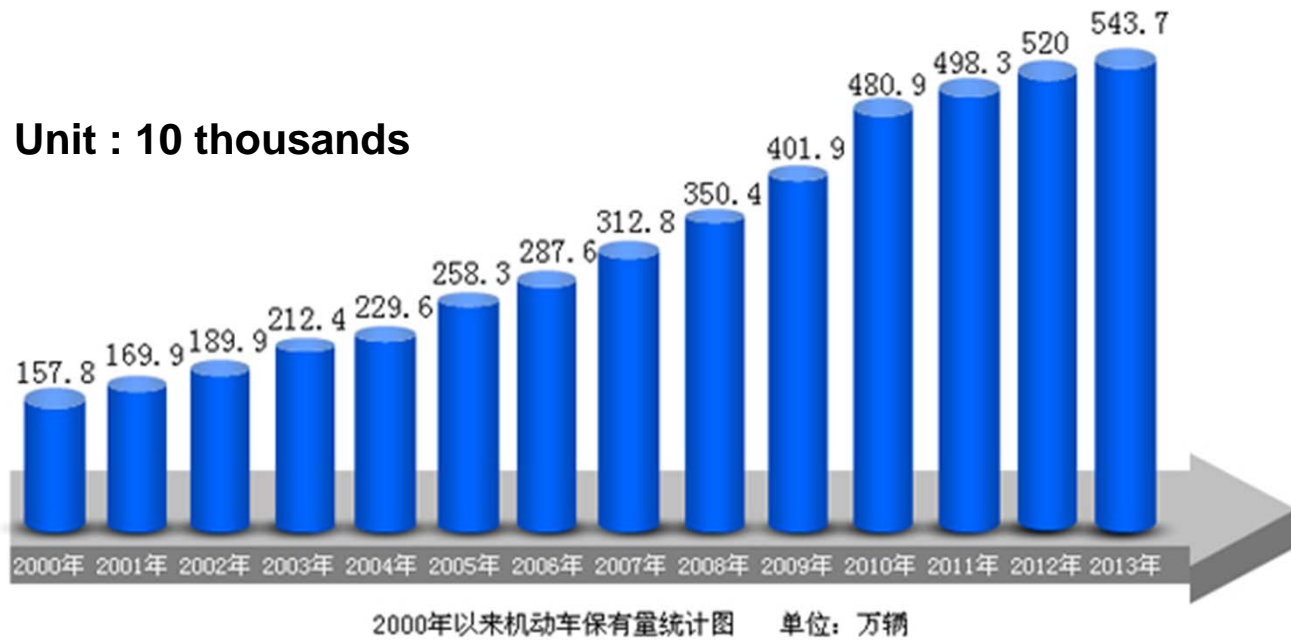
Unit : 100 million

Motor vehicle ownership in China



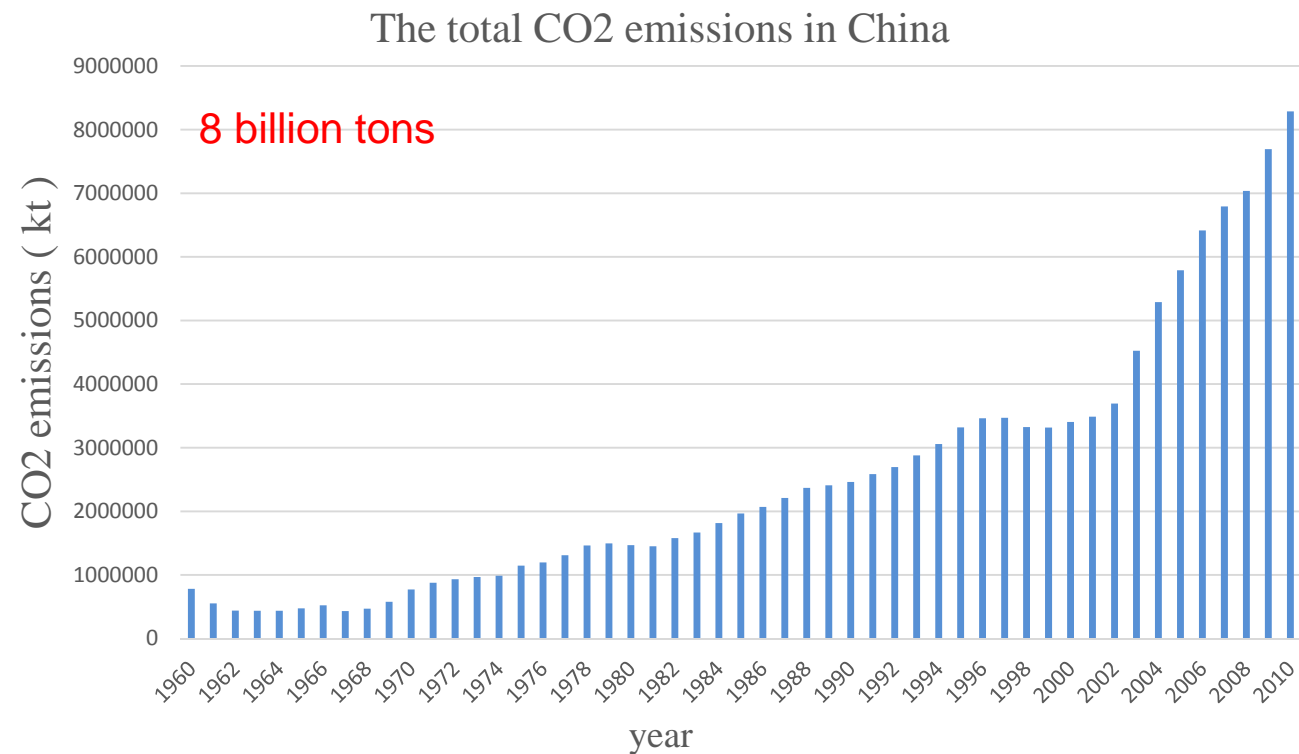
Source: Traffic Management Bureau of Ministry of Public Security of China

§ 1. 2 Motor vehicle ownership



Source: Beijing Traffic Management Bureau

§ 1.3 The Total CO2 Emissions in China



Source: World Bank, <http://www.worldbank.org.cn/>



§ 1.3 Transport Contribution to CO2



From 1994 to 2007



- CO2 emissions from transport sector in China grew **by 160 %**
- The total emissions increasing of China's energy activities **(118%)**

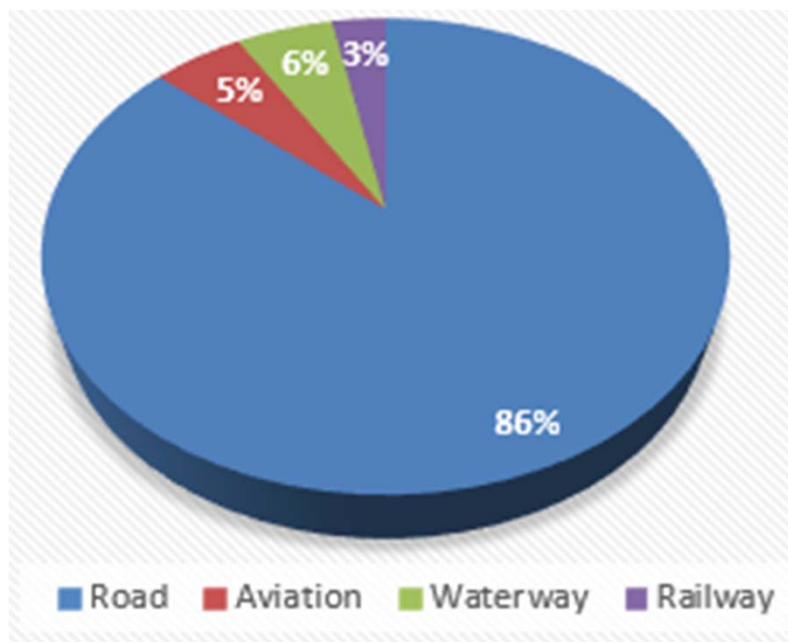


Source: Caibo Feng, "CO2 emissions from transport research in China".





§ 1. 3 Transport Contribution to CO2



The proportion of CO2 emissions from the various transport sectors in China (2007)



§ 1. 3 Transport Contribution to CO2



Prediction of carbon emissions from motor vehicles

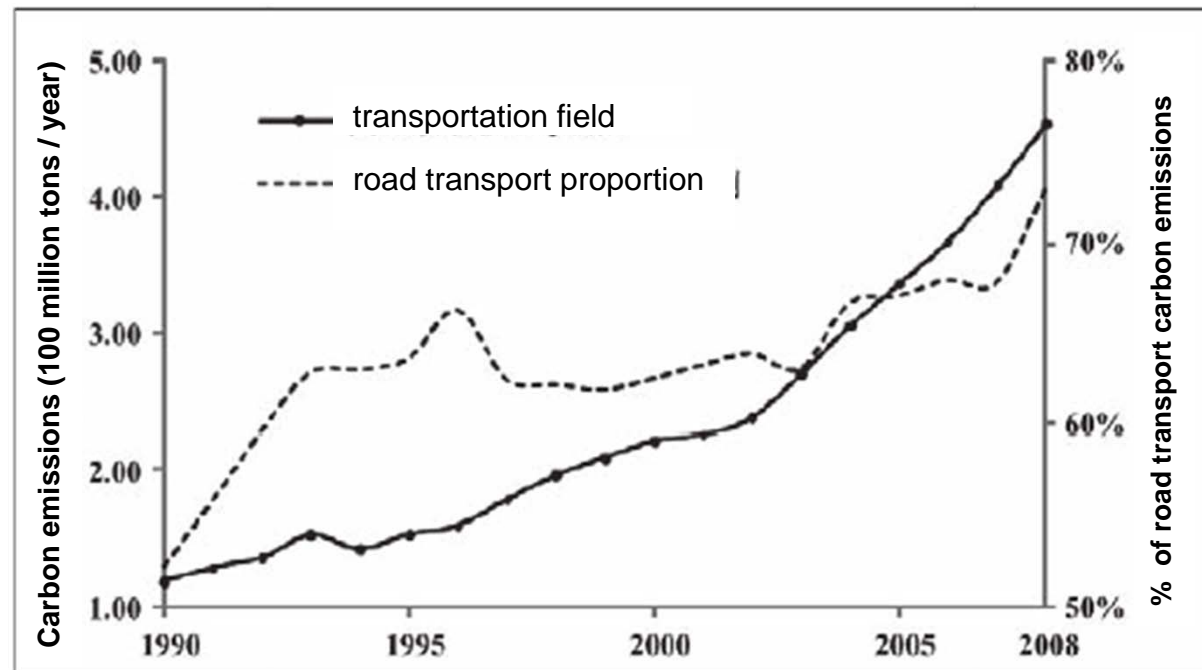
- CO2 emissions of the automotive industry in western countries is about **25% of the total emissions**.
- CO2 emissions of China's automobile industry around **for 8% -10% of the total emissions**.
- **2008-2030**, transport sector emissions is predicted increase by **3.5%** every year.



Source: The research report on the carbon emissions of automotive industry



§ 1.4 Motor Vehicle Contribution to CO2



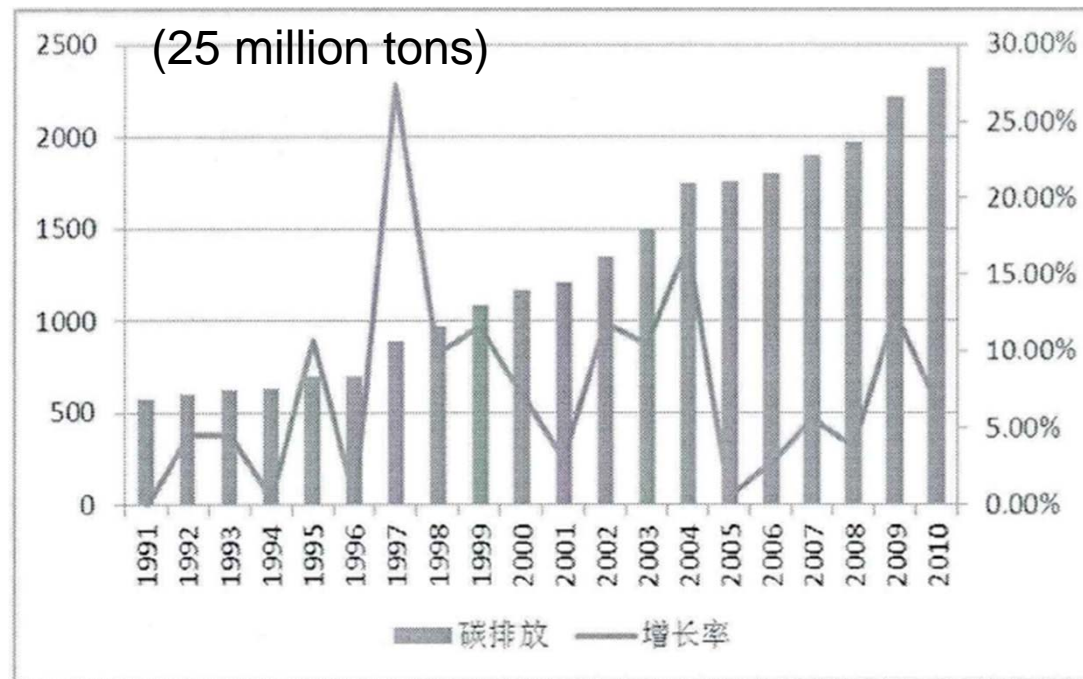
- In 2008:
 - Transport CO2 emissions **450 million tons**
 - Road transport **330 million tons**,
 - with an increase of **440.8%** compared with 1990.

Source: Caibo Feng "low-carbon policies and actions in the transportation field of China"

§ 1.4 Motor Vehicle Contribution to CO2



Road transport carbon emissions in Beijing



Carbon emissions (ten thousand tons/ year)

The growth rate of carbon emissions

Source: Xie Feifei "urban transport carbon emissions influential Factors and low carbon transport development research"



§ Contents



1 Transport Contribution to CO2 Emissions



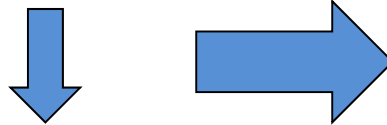
2 Government Efforts



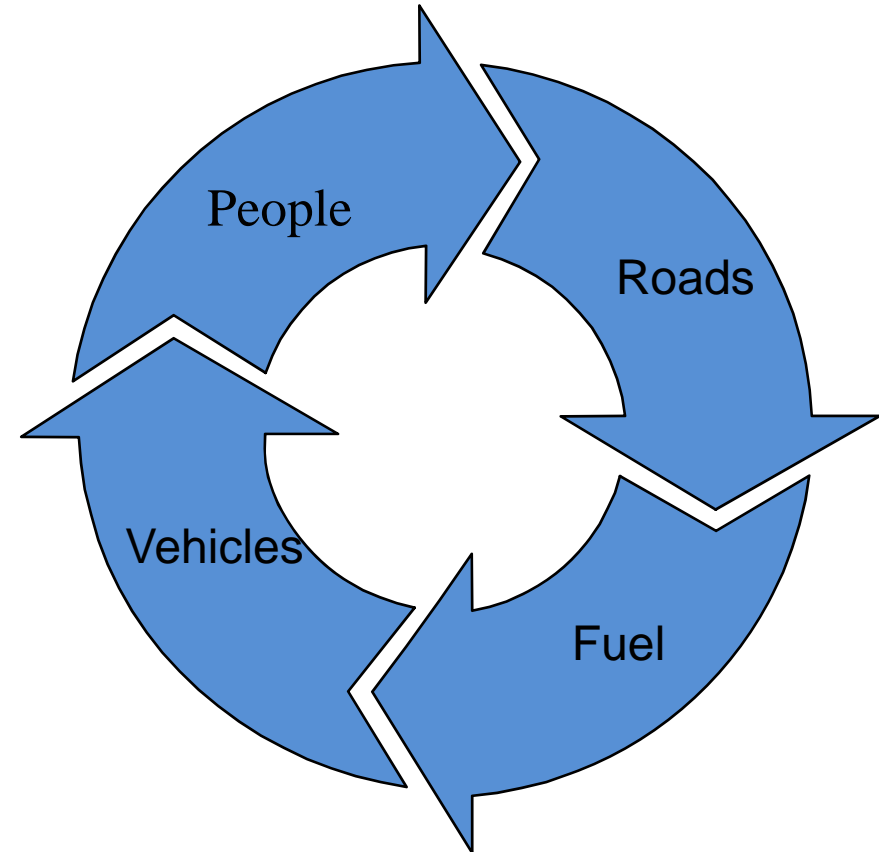
§ 2 Government Efforts



Motor vehicle CO2 emissions



Low Carbon Transport Policy



2.1 Measures on fuel



Alternative fuel policy (2001)

To promote the use of fuel ethanol, government enact "denatured fuel ethanol GB18350-2001" and "ethanol gasoline GB18351-2001".



Fuel tax policy (2009)

Gasoline consumption tax was increased from 0.2 to 1 yuan per liter. Diesel consumption tax increased from 0.1 to 0.8 yuan per liter.



2. 2 Measures on vehicles



Motor vehicle in different tax rate

Motor vehicle restriction policy



Since 2006: Different **tax rate** for **different size of** vehicles

Shanghai: vehicle license auction
Beijing: Motor vehicle lottery system, Tail restrictions.





2.2 Measures on vehicles



Clean energy, new energy vehicle promotion

- Policies to **speed up production** of new energy vehicles since 2005.
- By May 2010 : 20 new energy vehicle demonstration **pilot cities**
- From June 2010: **Subsidize** the private purchase of new energy vehicles



2.3 Promotion of public transport



- **Low bus fare** in Beijing
- Bus (lane) **priority**
- BRT (by 2008, **20 BRT lines in China**)
- By the end of 2008, **10 cities building BRT**
- By the end of 2008, urban rail transit mileage **775.6 kilometers**, and **1800 km** under construction





2.4 Other measures



Provide **information of public transport system**, reduce unnecessary delays due to lack of information.



Actively promote **TOD mode**, making urban public transport network layout coordinated with the urban land use.





2.5 Efforts on Electric Vehicle



- International cooperation
- July 2010, China and America launched Electric Vehicles Initiative (EVI),
- 15 countries have joined the EVI, (China, America, France, Germany, Britain, Denmark, Finland, Italy, New Zealand, Portugal, Spain, Sweden, Japan, India, South Africa and IEA).





2.5 Efforts on Electric Vehicle



➤ The Shanghai Jiading Pilot Zone

- 45 types of electric vehicles
- 17 international automobile enterprises (e.g. GE, Volvo, ……)
- 849 AC charging piles
- 10 DC charging piles,
- 2 charging stations
- 1 hydrogen refueling station
- data collection and monitoring of 5,000 cars simultaneously





2.5 Efforts on Electric Vehicle



➤ Targets:

➤ By 2015, production and sales of 500,000 electric vehicles

➤ By 2020:

➤ production and sales of 2 million electric vehicles

➤ fuel cell vehicle and vehicular hydrogen energy reach to the international advanced level





2.5 Efforts on Electric Vehicle



➤ Beijing

➤ By 2013:

➤ 5,000 electric vehicles

➤ By 2015,

➤ 50,000 electric vehicles

➤ By 2020,

➤ at least 50% of newly increased private cars will be electric vehicles.





Thank you !