



**CPN 首届中国城市交通国际年会**

China Planning Network 1st Urban Transportation Congress

# Sustainable Urban Transportation Development Strategy

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# Structure of Presentation

- **Current Situation and Challenges of Sustainable Urban Transportation in China**
- **Definition and Connotation of Sustainable Urban Transportation**
- **Strategy proposals for Sustainable Urban Transportation Development in China**
- **Major Research Subjects for Sustainable Urban Transportation**



# China's Urbanization: An Epochal “Social Project”

- It has been 57 years since PRC was established in 1949. China, used to be a poor and underdeveloped country, has been a newly-developed oriental power with a good momentum of economic and social growth, strong overall national strength and technological progress.

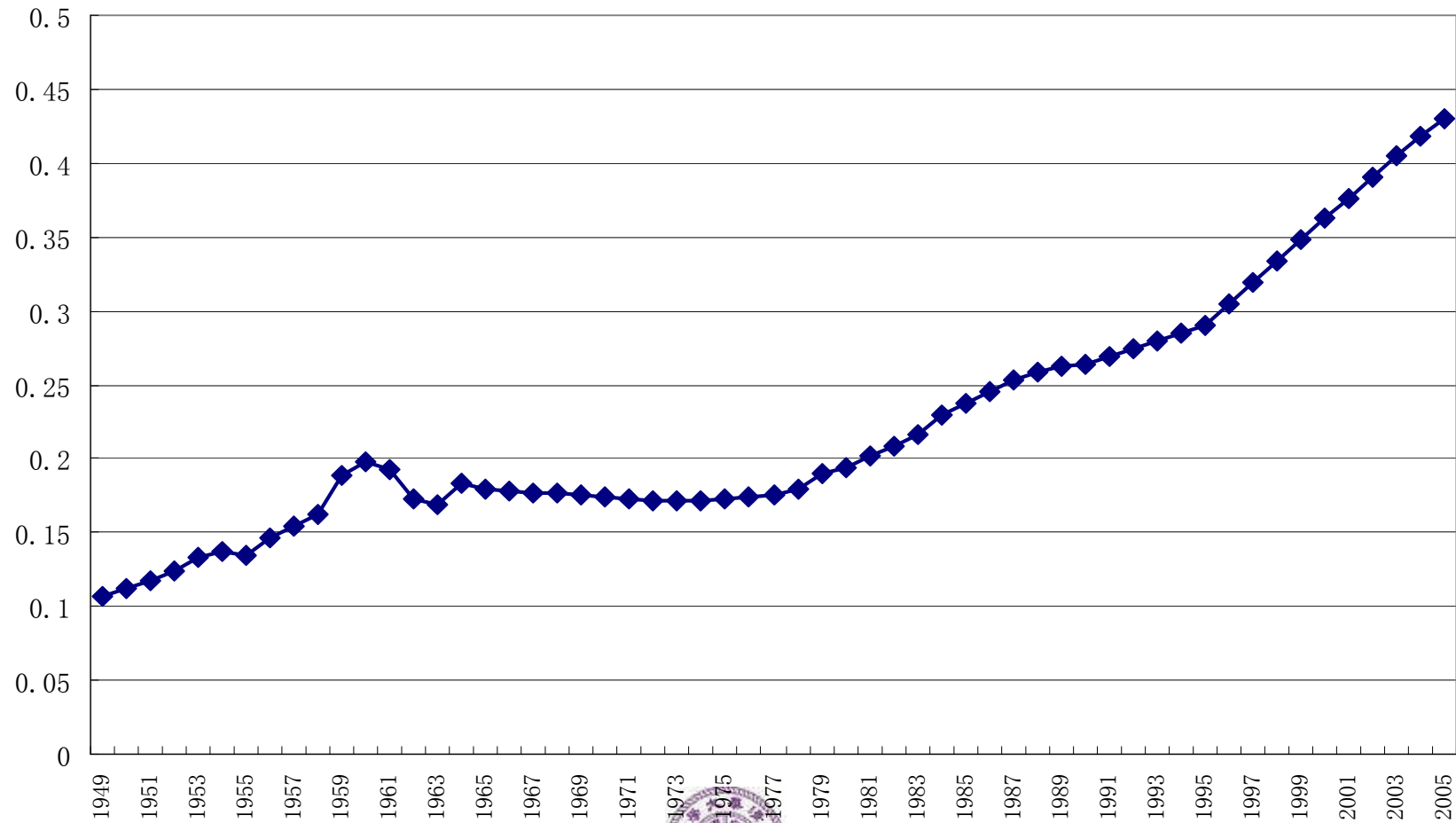


- The continual high-speed economic growth (average increase per year is 9.8%) since 1980 is unprecedented all over the world. Urban development, compared with social and economic development, also keeps a high speed especially over past two decades. The urbanization level has ascended from 10% in 1949 to 43% in 2006. The total urban population has grown from 57.65 million to 542.83 million(2004), which is about 1.8 times of the total population of U.S.



# China Urbanization Rate

Urbanization Rate in China (1949-2005)

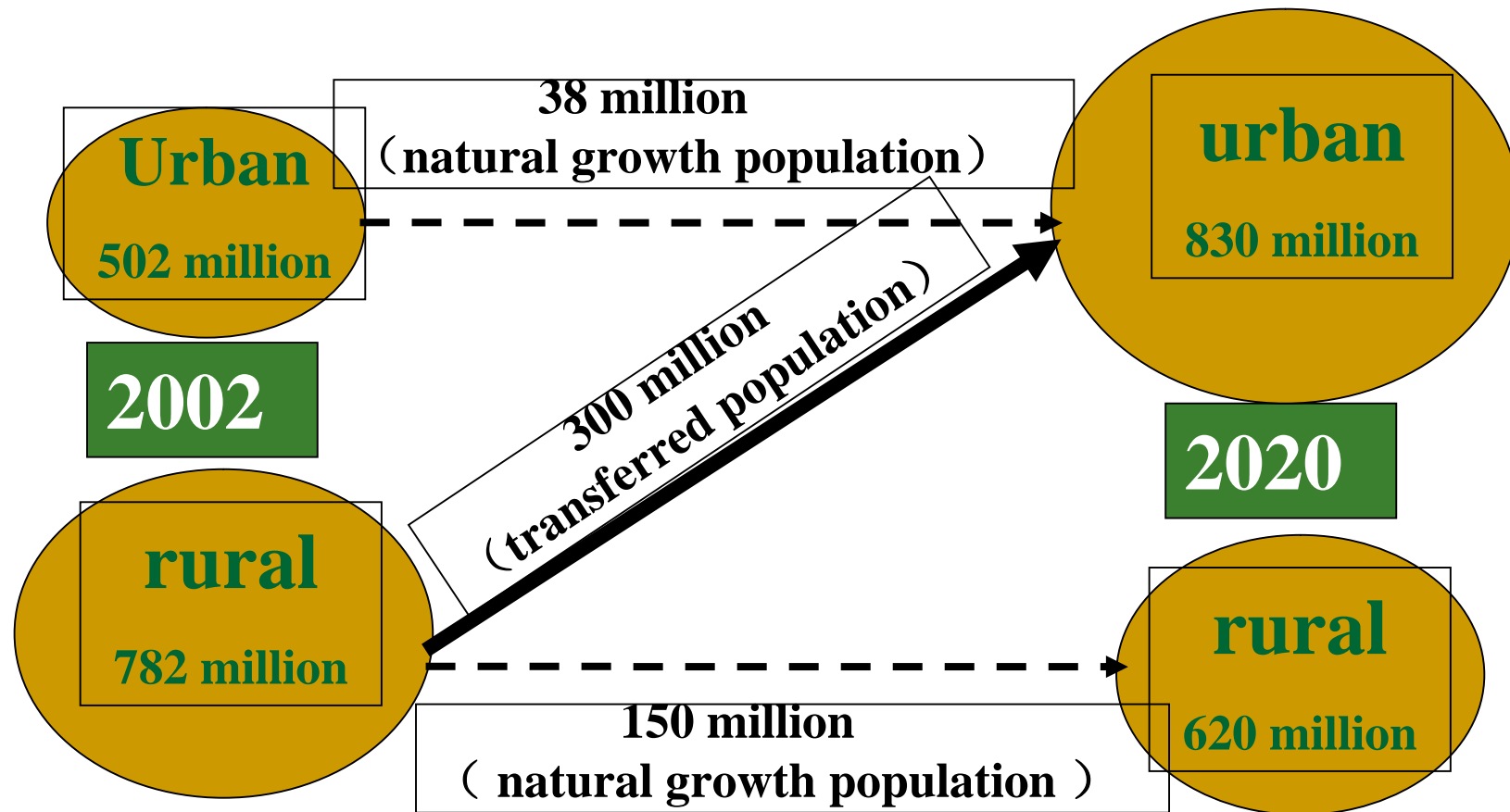


- China has been an “agricultural country” from of old. The total population is 1.3 billion which is the biggest of the world. There is still nearly 60% of the population living in the rural area despite more than 20-year high speed development. The living standard of farmers is lower than that of urban residents, and the gap is expanding.
- Because of the limited per capita cultivated land, a large number of surplus rural labors flow into big and medium-sized cities in coastal developed area for employment. According to the fifth national-wide census, there are 57.45 million transient populations in cities from rural area in 2000, which has become an important part of the urban society.



- It is full of opportunities in the future 20 years. By the push of industrialization China's urbanization will maintain a good momentum in a long period.
- Based on the analysis of the relationship between economic development and urbanization, it is estimated that the annual average increase of the urbanization level will keep around 1 percentage till 2020. Urban population will increase 326 million and urbanization level will reach 55%-60%. Then China will become a fairly urbanized country, which conforms to the aim of building a medium-developed country with a better-off society set by the central government.





From: National Medium- to Long-Range Program for Scientific and Technological Development—Report of program for scientific and technological issues in urbanization and urban development



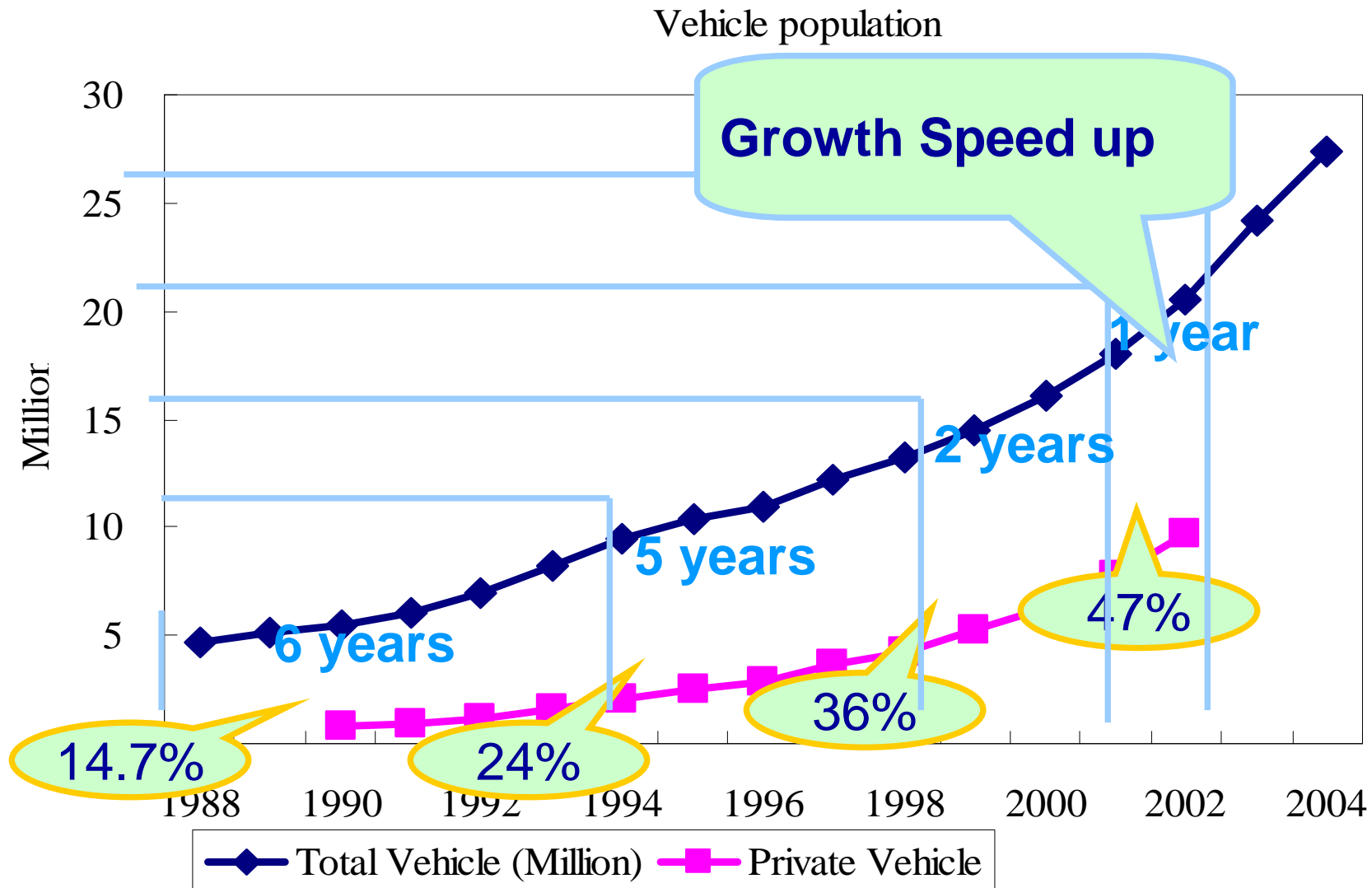


- **Till June, 2007, there are 150 million vehicles in China, among which 53,558,000 cars, 83,548,000 motorcycles, 800,300 trailers, 14,880,500 tractors on road, 20349 vehicles of other types.**

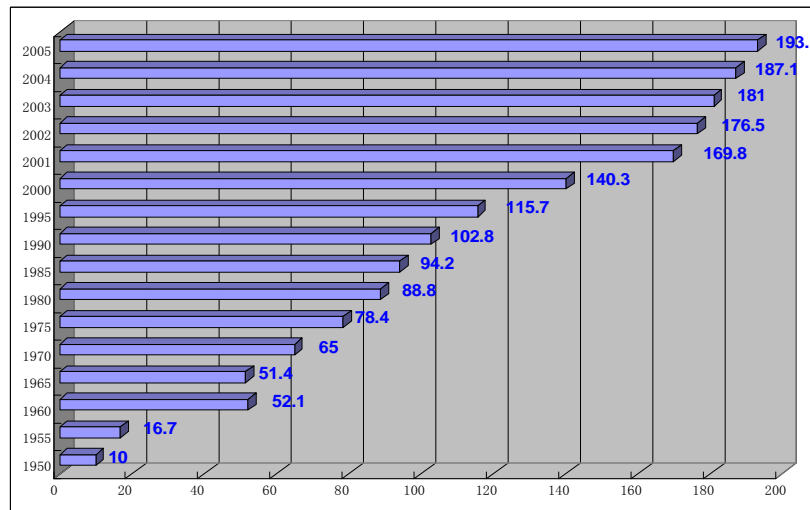
City	Car Ownership	Date
Beijing	2.88 million, including 2.06 million private cars	2007.2
Shanghai	2.13 million	end of 2006
Guangzhou	1.8 million	end of 2006
Chengdu	1.6 million	2006.11
Hangzhou	1.18 million	2006.10
Qingdao	1.04 million	2003.12
Tianjin	1.16 million, including 2.06 million private cars	2006.9
Chongqing	1.0 million	2006.6
Shenzhen	0.96 million	end of 2006
Jinan	0.83 million	2006.1
Nanjing	0.73 million	end of 2006
Wuhan	0.65 million private	end of 2006
Shenyang	0.58 million	end of 2006
Dalian	0.5 million	2006.1
Xi'an	0.45 million	2006.1



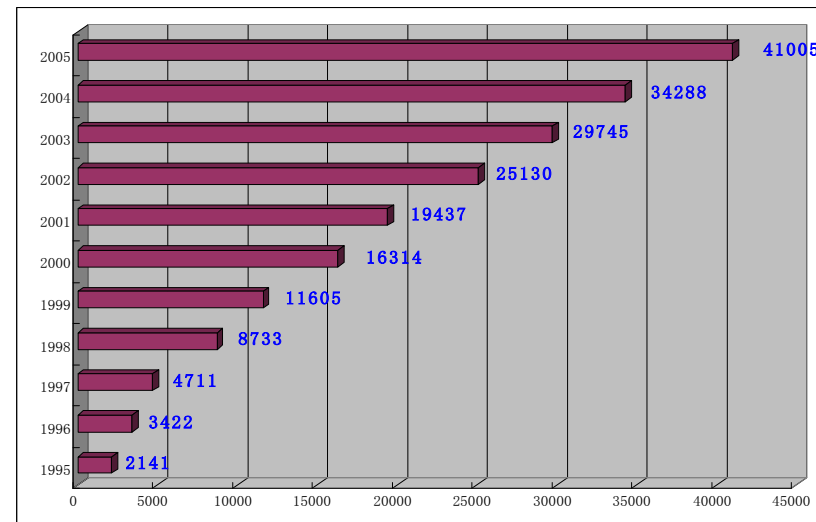
# Briskly growth of vehicle population



# Transportation Infrastructure change



Length change of highway between 1949—2005 (Unit: 10000)

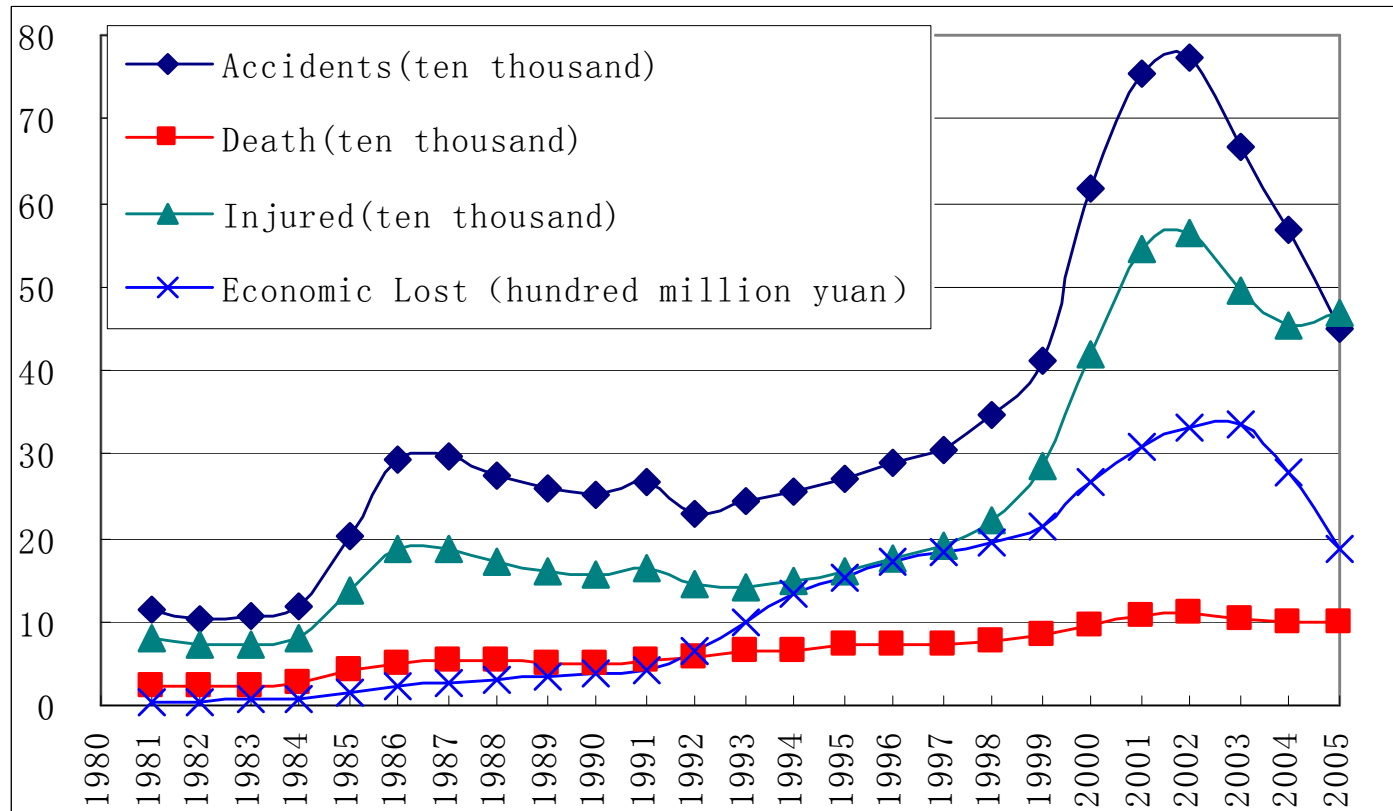


Length change of expressway between 1995—2005



# Traffic Accidents Analysis in China

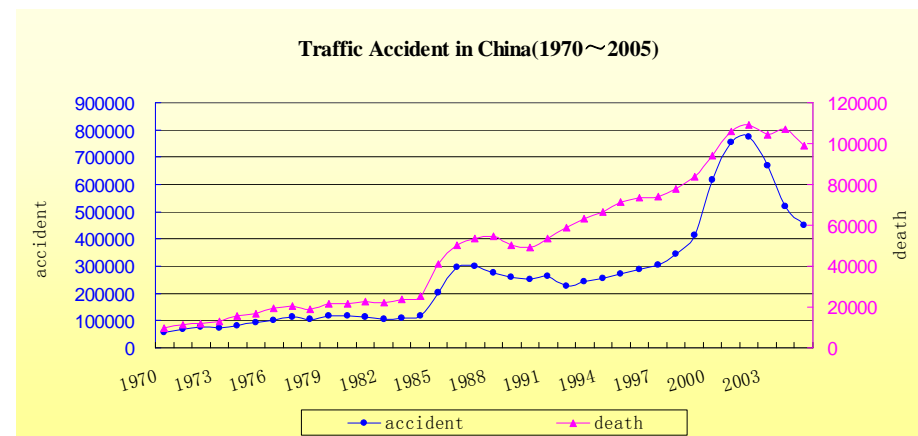
## ➤ Road Traffic Accident Condition of China in the Past Years



the number of deaths resulting from traffic crashes increases from **22,000** in 1981 to **106,000** in 2001 and **109,000** in 2002, which is **15%** of the total number of the world, while at the same time the vehicle ownership is just the **2%** of that of the world.

# Traffic Accidents Analysis in China

- After 2002, due to various efforts, many accidents index has been improved
  - The number of deaths in 2005 has decreased to **98,738**.
- But this does not indicate the situation becomes better, because the traffic casualties in China are still listed as the No.1 in the world and other indices are also at the top of the list.
- The “death rate per 10 thousand vehicles”
  - In China, **13.7** in 2002 and **7.6** in 2005,
  - The average number of **2** in developed countries.



# Some Congestion Spots in Beijing

Beijing Railway Station



Chongwenmen West



West Changchun Street



Ping'an Street



Xinjiekou



Xuanwumen West



# Traffic Conditions in Dalian

Three years ago

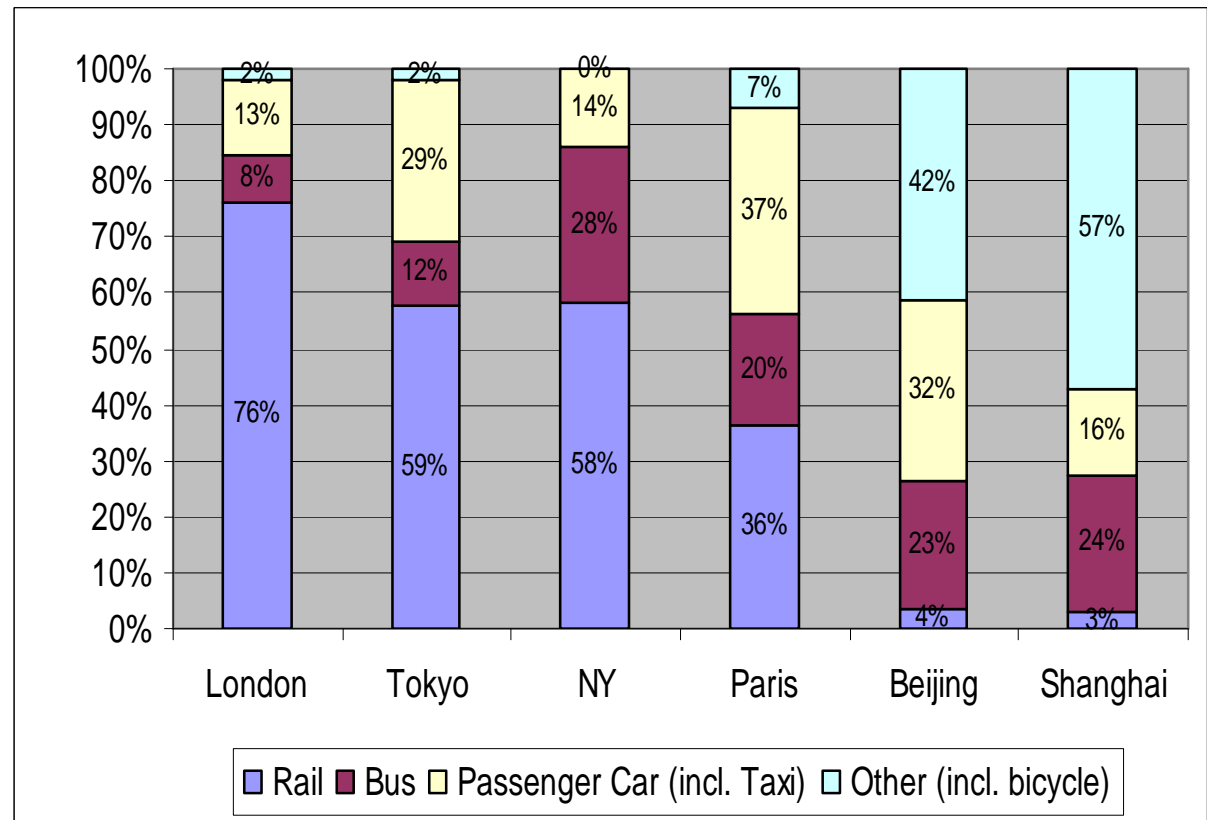


**NOW, ...**



# Poorly Developed Public Transport

- Lack of guidance and mistakes of construction and management lead to excessive private car use.
- In peak hour, 60%~80% of travels are made by public transit in European and American cities, but the proportion in Beijing is only 30%.





# Hubs ?

- These two pictures show the Xizhimen public transport hub. Passengers have great difficult of transfer.



# Main Challenges Faced by China

- 1) Rapid urban development is poorly coordinated with urban transportation development;**
- 2) Rapid mobilization characterized by sharp increase of car ownership is poorly guided, placing great pressure on urban transportation system;**
- 3) Public transport is poorly developed;**
- 4) The traffic accident rate remains high;**
- 5) Pollution related to transportation is serious, while energy demand is increasing;**
- 6) Etc.**



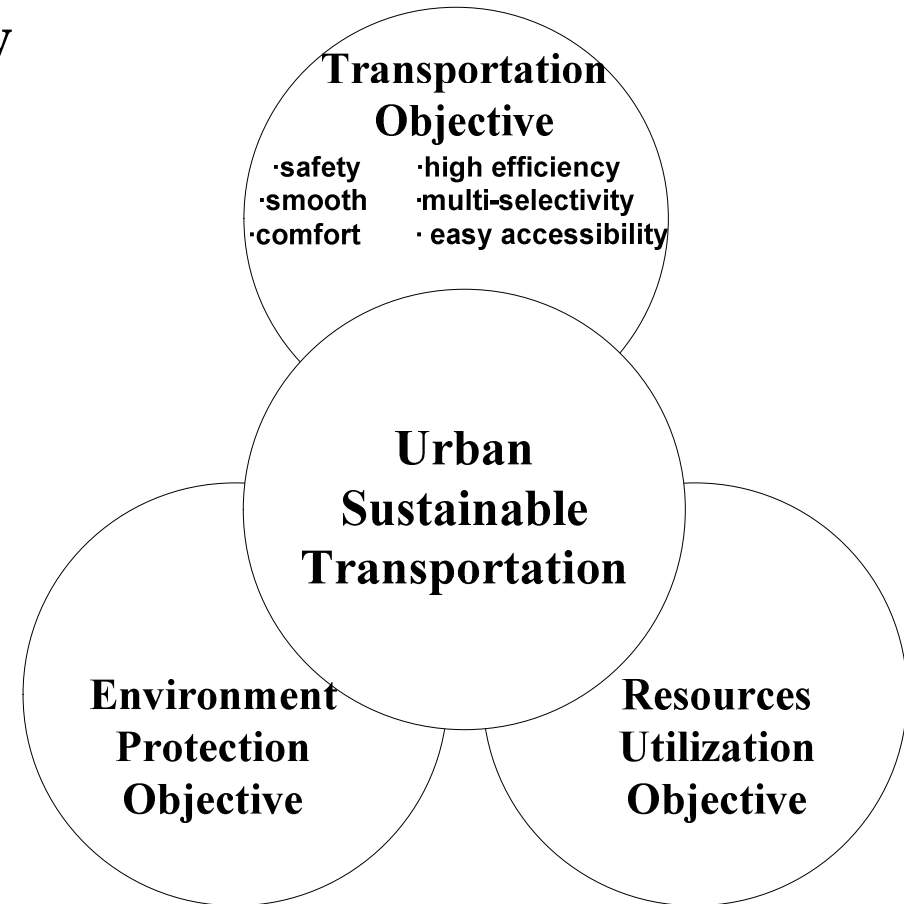
# Definition of Sustainable Urban Transportation

- Sustainable transportation system should at least include the following subsystems: (1) social economies; (2) traffic demand and supply; (3) energy; (4) environment.
- According to the actual problems in the urbanization process of Chinese cities, a definition to Sustainable Urban Transportation is given as follows:
- Sustainable urban transportation system is a comprehensive transportation system that can meet the demands for mobility brought about by social and economic development and the improvement of living quality of the people to the utmost extent with relatively small investment of resources and small environmental costs.



# Objectives of Sustainable Urban Transportation

- meet the demand for mobility
- optimize use of resources
- improve environmental quality
- promote social harmony
- increase level of safety
- realize the virtuous cycle of society, economy, mobility and environment.



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# Coordination between Transportation and Land Use

- **The master plan and the comprehensive transportation planning must be synchronized and coordinated .**
- **To match with urban spatial restructuring and master plan for all-round coordination, the government needs to adopt strict measures in planning procedures.**
- **The priority of urban construction should be shifted strategically, and overdevelopment of downtown areas needs to be avoided.**
- **A system of transportation impact assessment for transportation projects should be established.**



# “Transit priority” policy

- **The implementation of the “Transit priority” policy involves a whole spectrum of socio-economic issues in urban life. It is the duty of governments at various levels to undertake a leading role in promoting the development of public transportation.**
  - Formulation of transit strategies and planning
  - Supervision and Macro-control of transit commercialization
  - Incorporation of transit development into the public finance system
  - Using government functions to guarantee the priority of public transport by formulation of laws, regulations, standards, criteria and their implementation



# Establishment of Policies Promoting Comprehensive Urban Transportation System

- **Various transportation modes have their own technical and economic characteristics and application fields.**
- **Enhancing healthy development of urban railway transportation;**
- **Promoting mass Bus Rapid Transit (BRT) operation system;**
- **Making full use of the normal public transportation mode as the major parts;**
- **Encouraging the use of bicycles and providing a safe and comfortable environment for it.**





# Establishment of Policies Promoting Comprehensive Urban Transportation System

- **Guaranteeing to provide a safe, harmonious, and continuous walking space.;**
- **Continuing to improve the construction of urban road network systems;**
- **Adopting region-differentiating supplying strategy;**
- **Parking facilities and parking management.**



# Implementation of Travel Demand Management

- **Guiding the use of automobiles through road toll: the government has the responsibility to guide the use of automobiles through economic and market means in the wake of rapid motorization.**
- **Staggering office hours and regulating transport demand from a temporal perspective: the government can adopt administrative means to enforce a flexible working hour scheme.**
- **Developing an urban structure with low traffic load**



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# Major Research Subjects for Sustainable Urban Transportation in China

- **How to coordinate the developments of land use and transportation**
- **How to efficiently develop public transport system**
- **How to establish suitable urban transportation structure**
- **Planning and design theories and methods of comprehensive urban transportation system**
- **How to make efficient use of existing infrastructure**
- **How to improve transportation safety**
- **Etc.**



**Thank you!**

