

# Toll Road Development in PRC

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# What kind of Roads are Tolled in PRC

- Financed using bank loan
  - With operation right by concession
    - Invested by domestic or foreign economic entities
- Highway Law of People's Republic of China  
effective on 1 January 1998

# Toll Road Development Status

- First toll road

- First toll station, 1984, Dongwan Zhongtan Bridge
- Shen-Da Expressway, 375km, constructed in 1984

- Toll road reached 210,000 km in 2008

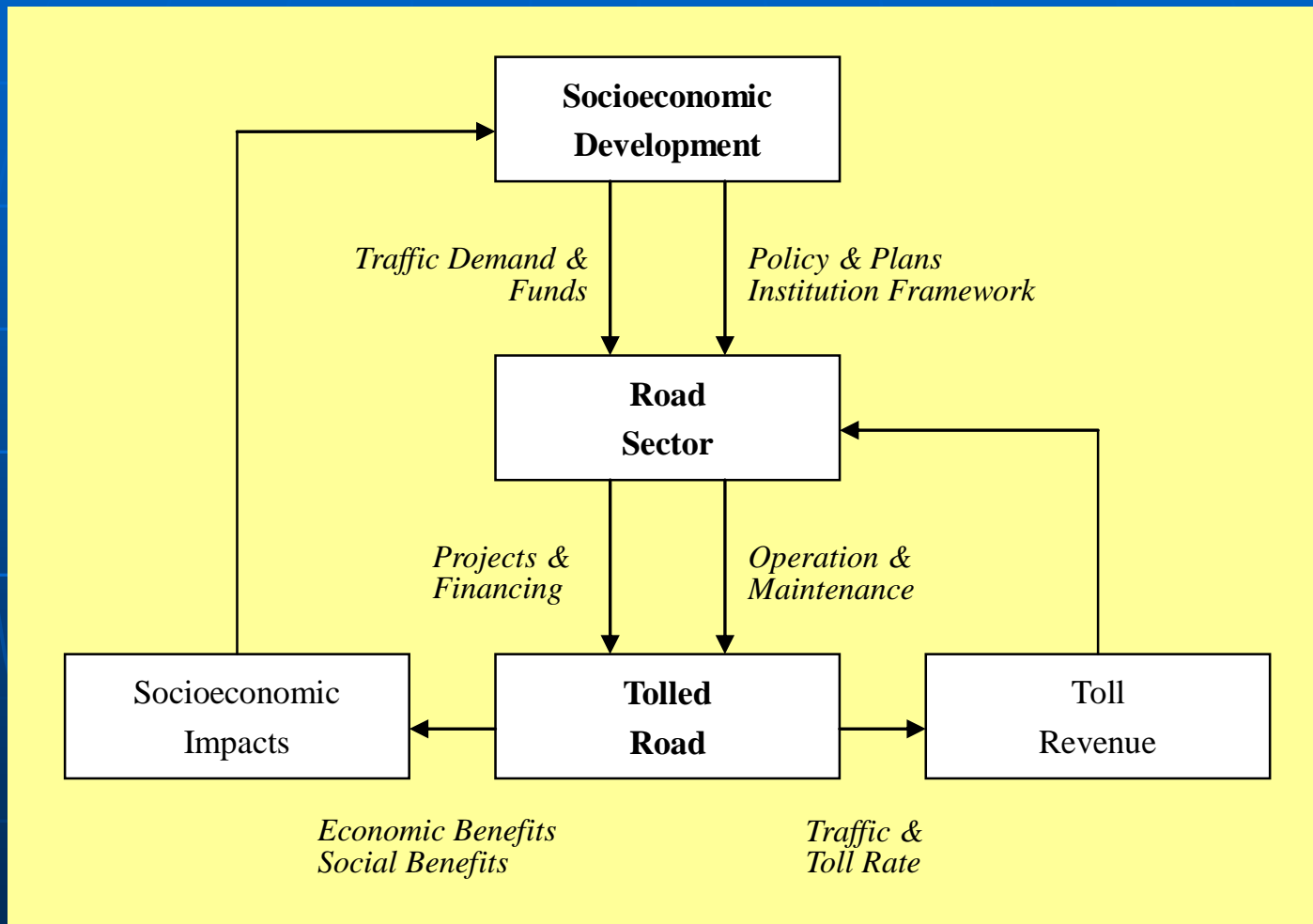
	2000	2008	Tolled in 2008
<b>Total</b>	<b>1,402.7</b>	<b>3,730.1</b>	<b>210.1</b>
Expressway	16.3	60.3	95%
Class I	20.1	54.2	61%
Class II	152.7	285.2	42%
Class III	276.7	374.2	
Class IV	750.3	2,004.6	
Out Class	186.7	951.6	

In '000 km

- Strengthen toll road administration

- Regulate toll road development and operation
- Eliminate toll collection for Class II roads

# Toll Road Development Mechanism



# Institutional Framework

State Council

*Approve and issue plans and policies for road sector development*

Ministry of Transportation

*Develop plans and policies  
Approve key road projects  
Provide technical standard and guidance  
Allocate road development funds*

**Provincial  
Communication  
Department**

*Implement national plan and policies  
Develop local road development plans  
Construct road projects according to plans  
Raise funds for road projects  
Operate and maintain road projects*

Prefecture/County  
Transport Authority

*Implement road projects  
Maintain local roads*

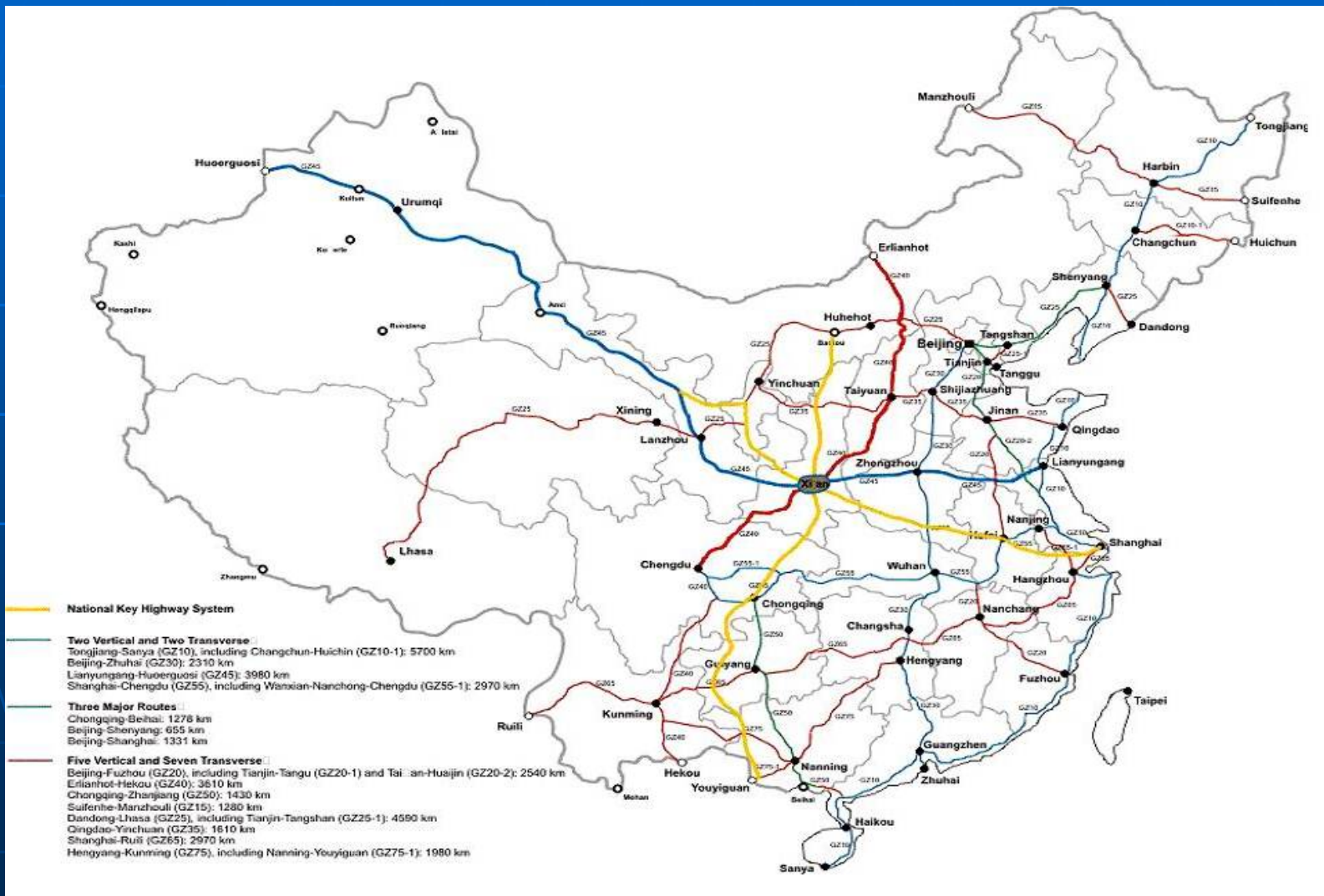
# General Policies for Toll Road Development

- Complete legislation framework
  - Highway Law (1998)
  - Toll Road Management Ordinance (2004)
  - Toll Road Operation Concession Methodology (2008)
- Decentralize road development responsibility
- Enhance road development planning
- Encourage multimode financing
- Support poverty areas and rural road

# Plans of Road Network Development

- China National Trunk Highway System (NTHS)
  - developed in 1991
  - connect all provincial and regional capitals with populations of over 500,000
  - 36,000 km, including 20,000 expressway
  - to be completed in 30 years
- National Key Highway System (NKHS)
  - Developed in 2001, 71,000 km, 28 corridors
- National Expressway Network System (NENS)
  - Developed in 2004
  - 7 radiation, 9 north-south, 18 east-west corridors
  - 85,000 km, in 30 years, investment RMB2,000 billion
  - By 2008, 60,300km completed (70.9%)

# Planned China National Highway System (1991)





# Planned National Expressway Network System (2004)



# Fund Sources for Road Development

- Funds from central government
  - Road user charges / fuel tax (less than 20%)
- Funds from local government
  - Fiscal expenditure, toll revenue, (less than 20%)
- Funds from other sources
  - Domestic bank loan (36.4%, equity 35-25%)
  - Foreign capital (commercial and government loan, 1%)
  - Economic entities (BOT-30 years, joint-venture, 7%)
  - Securitization (18 expressways)
  - Operation leasing/concession (less than 25 years)
  - Leasing road facilities (advertisement, communication, equipment, service area, etc.)
  - Land development (road side)
  - Government and enterprise bond
  - Road development fund

# Example of Fund and Expenditure for Road Development and Operation in a Province

In RMB million

	2006	2007	2008	Total 06-08
<b>Total Revenue</b>	<b>15,138</b>	<b>20,154</b>	<b>24,361</b>	100.0%
1. Fee	2,952	3,234	3,551	16.3%
Road Maintenance Fee	2,437	2,790	3,023	13.8%
Passenger and Freight Transportation Surcharge	320	204	239	1.3%
Transportation Administration Fee	195	240	289	1.2%
2. MOT Subsidy	3,728	3,710	3,967	19.1%
3. Tolls	2,342	2,580	2,868	13.1%
4. Bank Loan	4,716	6,920	5,895	29.4%
5. Provincial Government Subsidy			1,400	2.3%
6. Transport Development Fund			400	0.7%
7. Local Government	1,400	3,710	6,280	19.1%
<b>Total Expenditure</b>	<b>15,138</b>	<b>20,154</b>	<b>21,066</b>	100.0%
1. Management and Operation	600	610	658	3.3%
2. Maintenance Engineering	595	610	669	3.3%
3. Passenger Transportation Infrastructure Development	320	204	239	1.4%
4. Transportation Service Administration	195	240	289	1.3%
5. Construction	10,825	15,390	15,731	74.4%
Key Projects	5,453	5,710	6,420	31.2%
General Projects	5,372	9,680	9,311	43.2%
6. Loan Repayment	2,603	3,100	3,480	16.3%
Principle	1,372	1,270	1,030	6.5%
Interest	1,231	1,830	2,450	9.8%
7. Contingency				0.0%

# Road Project Preparation and Construction

## ■ Project Preparation

- Traffic demand forecast
- Design (feasibility, preliminary, construction)
- Cost estimation

## ■ Project Construction

- Resettlement
- Engineering quality control
- Environment protection
- Socioeconomic impact monitoring

# Toll Road Operation

## ■ Toll road operator

- Government operator (government agency, 80%)
- Government company (corporatization)
- Economic entity (JV, BOT, concessionaire - privatization)

## ■ Toll road facilities

- Toll station, service area, monitoring center, traffic and accident control

## ■ Toll rate scheme

- Vehicle based, vehicle-km based, and weight based

# Toll Road Facilities



# Toll Scheme

- Vehicle-based toll (by vehicle-km)

Vehicle Type	Standards		Toll Rate
	Freight Vehicle	Passenger Vehicle	
Type 1	$M \leq 2t$	$N \leq 7$	0.50
Type 2	$2t < M \leq 5t$	$8 \leq N \leq 19$	0.80
Type 3	$5t < M \leq 10t$	$20 \leq N \leq 39$	1.10
Type 4	$10t < M \leq 15t$	$40 \leq N$	1.30
Type 5	$15t < M$		1.50

Note: M = Standard Freight Vehicle Load (Ton), N = Standard Passenger Vehicle Seats

- Weight based toll (by ton-km)
  - Base toll (0.08 yuan/ton-km)
  - Normal toll (0.04-0.08 yuan/ton-km)
  - Overload Punishment (6 times of base toll)
- Non-tolled vehicle (3-5%)
  - Special vehicle, green channel, cross-region agriculture harvest vehicle
  - Local vehicle (annual/monthly fee, no toll)

# Toll Revenue and Road Maintenance

- Toll revenue management
  - Government fiscal revenue (government operated road)
  - Company revenue for non-road sector operator
  - Non-toll revenue (advertisement, service, facility renting, land development, etc., 3-10%)
- Toll Road Maintenance
  - By toll road operator
  - Routine, medium repair, periodical maintenance
  - Standard and regulation for maintenance



# Socioeconomic Benefits

## ■ Economic Benefits

- Vehicle Operation Cost (VOC) saving
- Passenger and freight transport time cost saving
- Accident reduction cost saving
- Emission reduction and energy cost savings

## ■ Social Benefits

- Regional Cooperation (trade, technology, culture)
- Employment (during construction, after opening)
- Market access (products, technology, labor)
- Health care, education, woman, minority group

## ■ Environment Benefits

- Emission reduction (CO<sub>2</sub>)
- Energy saving

# Recent Policies

- Encourage private sector participation
- Apply Fuel Tax
- Eliminate toll collection for Class II road
- Regulate toll road development and operation
- Develop rural road
- Support poverty and special area
- Protect environment and promote energy saving

# Lesson Learnt

- Adequate plans and policies
- Decentralized responsibility
- Multimode financing and operation
- Social and environmental impacts
- Toll rate scheme
- Rural road development and maintenance
- BOT and operation concession

# Thank You

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# Toll Level Consideration

- Alternative transport infrastructure
  - Parallel roads, railway, waterway
- Transport cost of alternatives
  - Transport cost, toll, transshipment
- Affordability of road users
  - Economic development and income
- Importance of economic benefits
  - VOC saving, time saving, accident reduction, comfortability
- Psychological and conventional behavior

# Policy and Measurement for Transmitting Road Benefits to Poor

- Increase government expenditure to poor and implement enhanced poverty alleviation program
- Provide subsidy to poor on transport project and develop rural road network
- Develop and promote public transportation service in rural area
- Help regional product development planning, support production of local products, and develop market in rural area
- Revise policy on taxation, pricing, land use and labor migrants

# Key Points in Toll Road Management Ordinance

- Only certain roads are tolled
- Toll collection period
  - Government financed <15-20 years
  - Others entity financed <30 years
- Toll station
  - Fully controlled road (entry/exit, networked toll collection)
  - Opened road, >50 km
- Toll level
  - Road class, investment, affordability, loan period, traffic
- Non-tolled vehicles
  - Special vehicle, green channel, cross-region agriculture harvest vehicle
- Toll road operation concession
- Axload control
- Law and requirement
  - maintenance, landscaping, environment protection, traffic safety
- Punishment regulation and standard

# Key Points in Road Concession Methodology

- Legislation framework
  - Highway Law & Toll Road Management Ordinance
- Condition of road concession
  - Above Class II, non foreign financed, 20-25 years, same toll level
- Procedure of concession
  - Approval, asset evaluation, bidding, contract
- Revenue management of concession
  - Loan repayment, road development
- Recall of conceded road
  - Keep good condition, inspection and acceptance
- Responsibilities of each party
  - Owner: law, assistance, non-interference, connect road
  - Concessionaire: law, operate/maintain/management, health/safety, environment, historical finds, contractors