

**Energy Security Policy and Resources Securing  
Strategy in China  
Regional Cooperation in Asia for Stabilizing Energy  
Demand and Supply**



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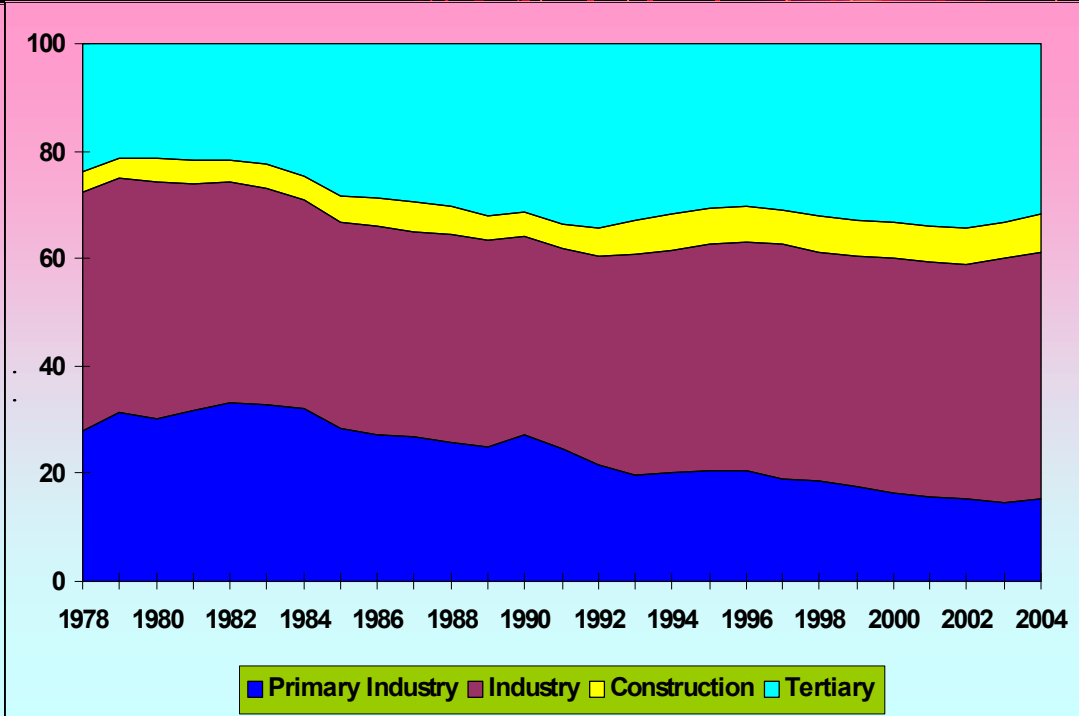
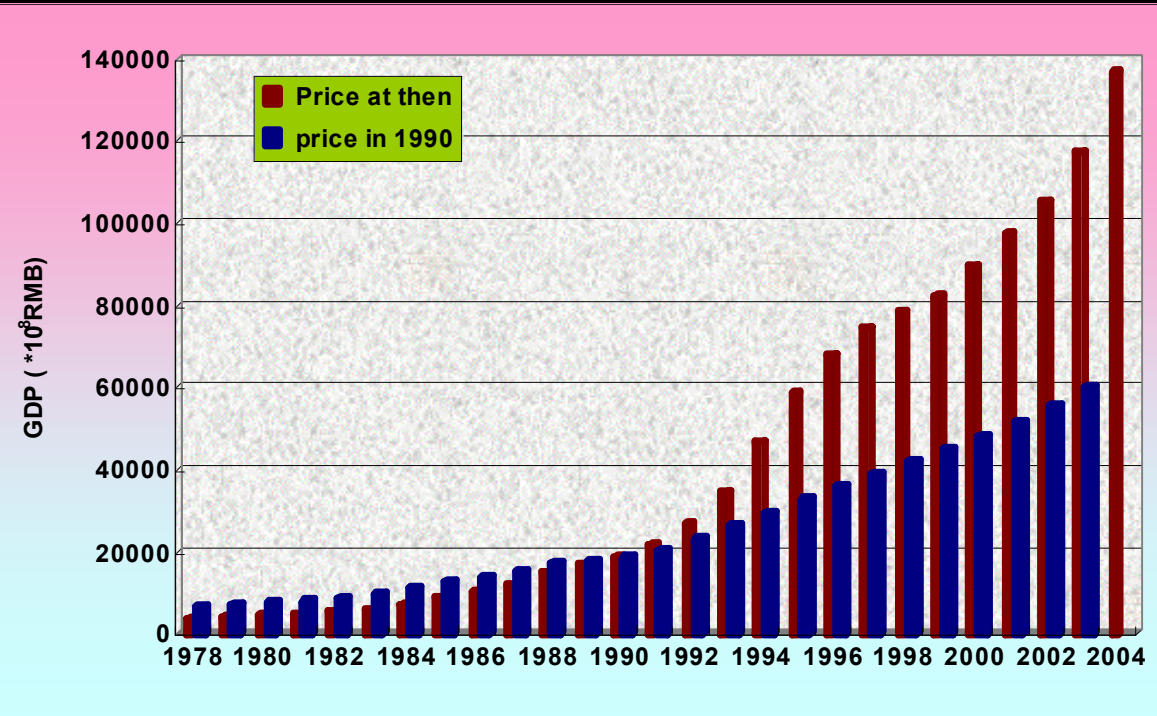


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# Situation of Society & Economy in China



## GDP & Economy Structure



Period	1980-1985	1985-1990	1990-1995	1995-2000	2000-2004
Growth Rate (%)	10.71	7.87	12	8.01	8.25
	9.28		9.99		
	9.4				

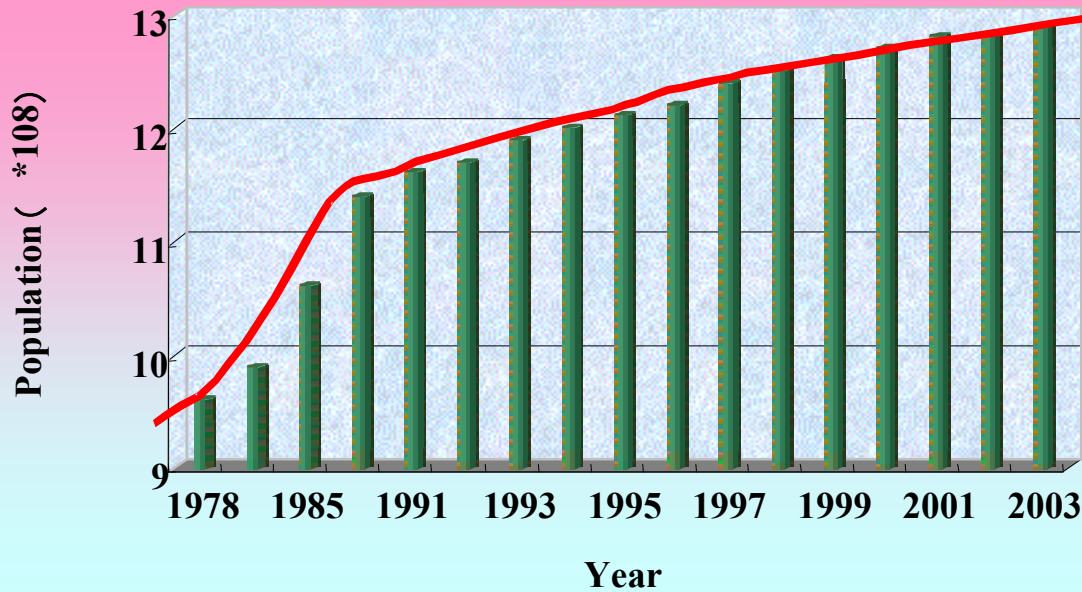
Year	Primary	Secondary	Tertiary
1980	30.1	48.5	21.4
1990	27.1	41.6	31.3
2000	16.4	50.2	33.4
2004	15.2	53.0	31.8

Calculate at constant Price

# Situation of Society & Economy in China

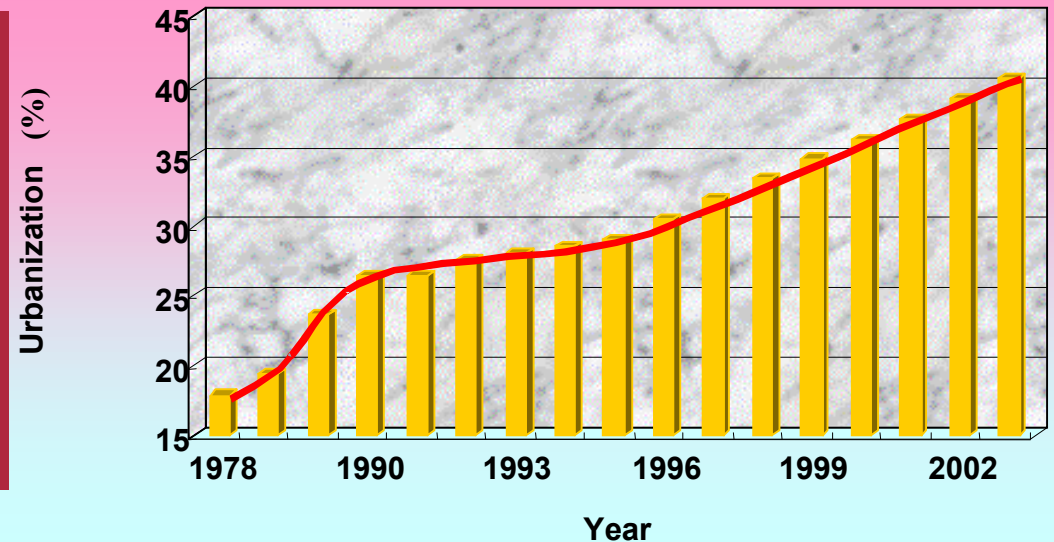


## Population and Urbanization

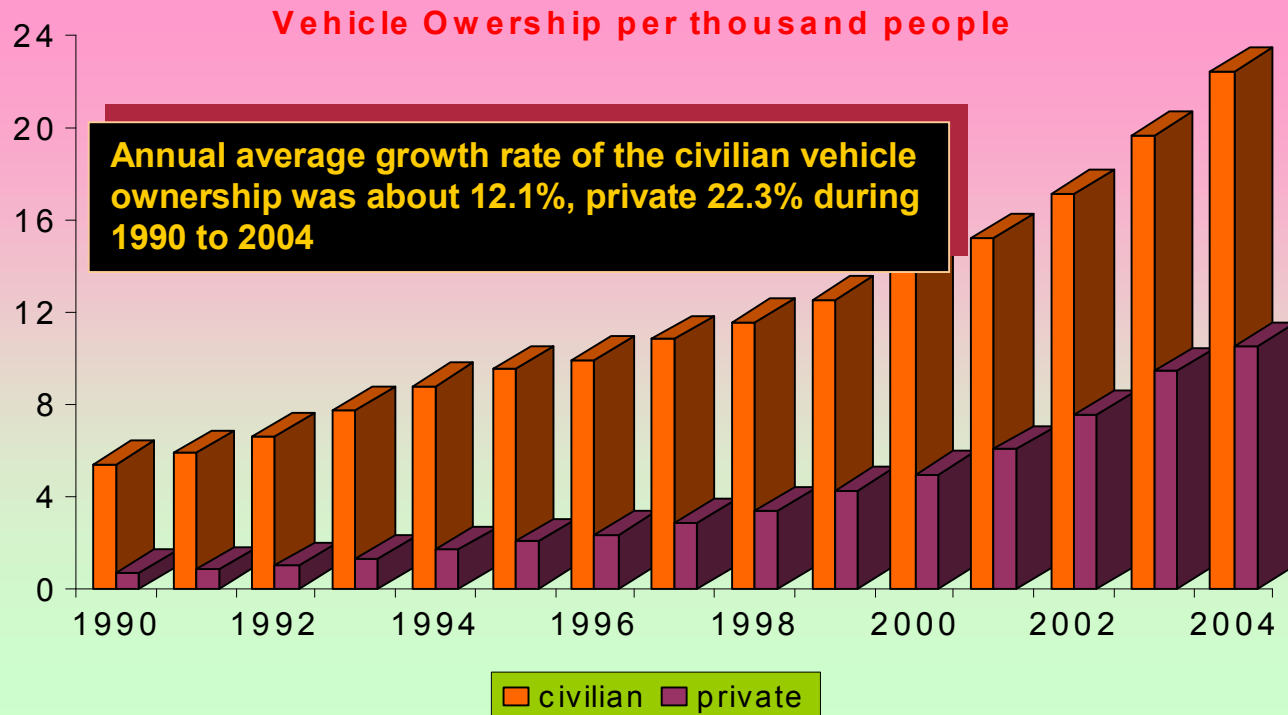


- The average annual growth rate of urbanization was about 1% since 1990.
- The urbanization proportion is still low, 41.8% by 2004, and only about half of that in developed countries.
- Residential energy consumption has been increased by 50 Mtce in 2004 than 1980 just because of the urbanization.

- The annual growth rate of China population has been controlled, only about 9.5‰ since 1990.
- China's population is about 21% of the total world, nearing to 1.3 billions by the end of 2004.
- Residential energy consumption has been increased more than 85 Mtce in 2004 than 1980 just because of the population increase.



# Situation of Society & Economy in China



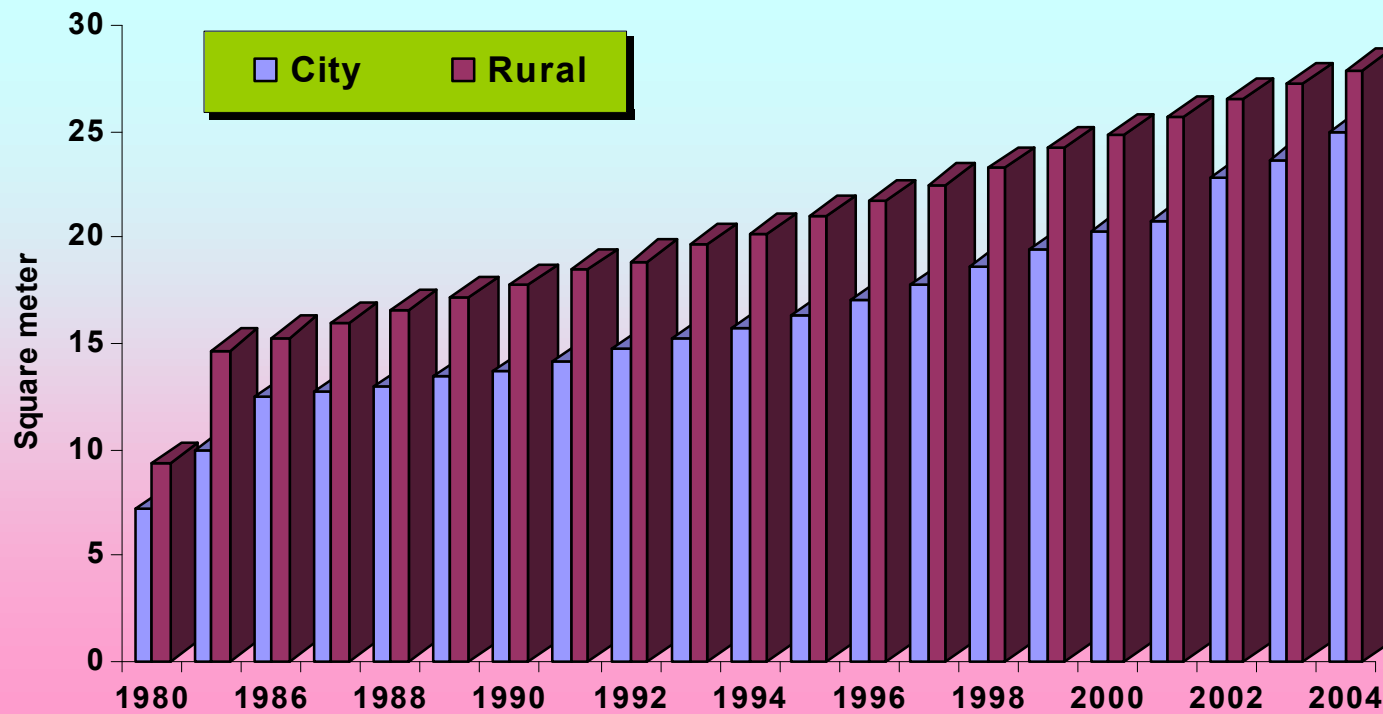
## Vehicle ownership per thousand

(2002)

- USA : 782
- Japan : 582
- German : 584
- Korea : 293
- China : 22.4 (2004)
- World Average : 132

- Both of the output and sales of vehicles in 2004 were more than 5 millions, and increased 14.11% than 2003. The sale of vehicles was the third largest in the world. The vehicle ownership per thousand was 21 and the total was 27 Millions;
- The vehicle ownership per thousand will reach to 40, and the total civilian vehicles will get to 55 millions in 2010; and about 120 millions in 2020.

# Situation of Society & Economy in China



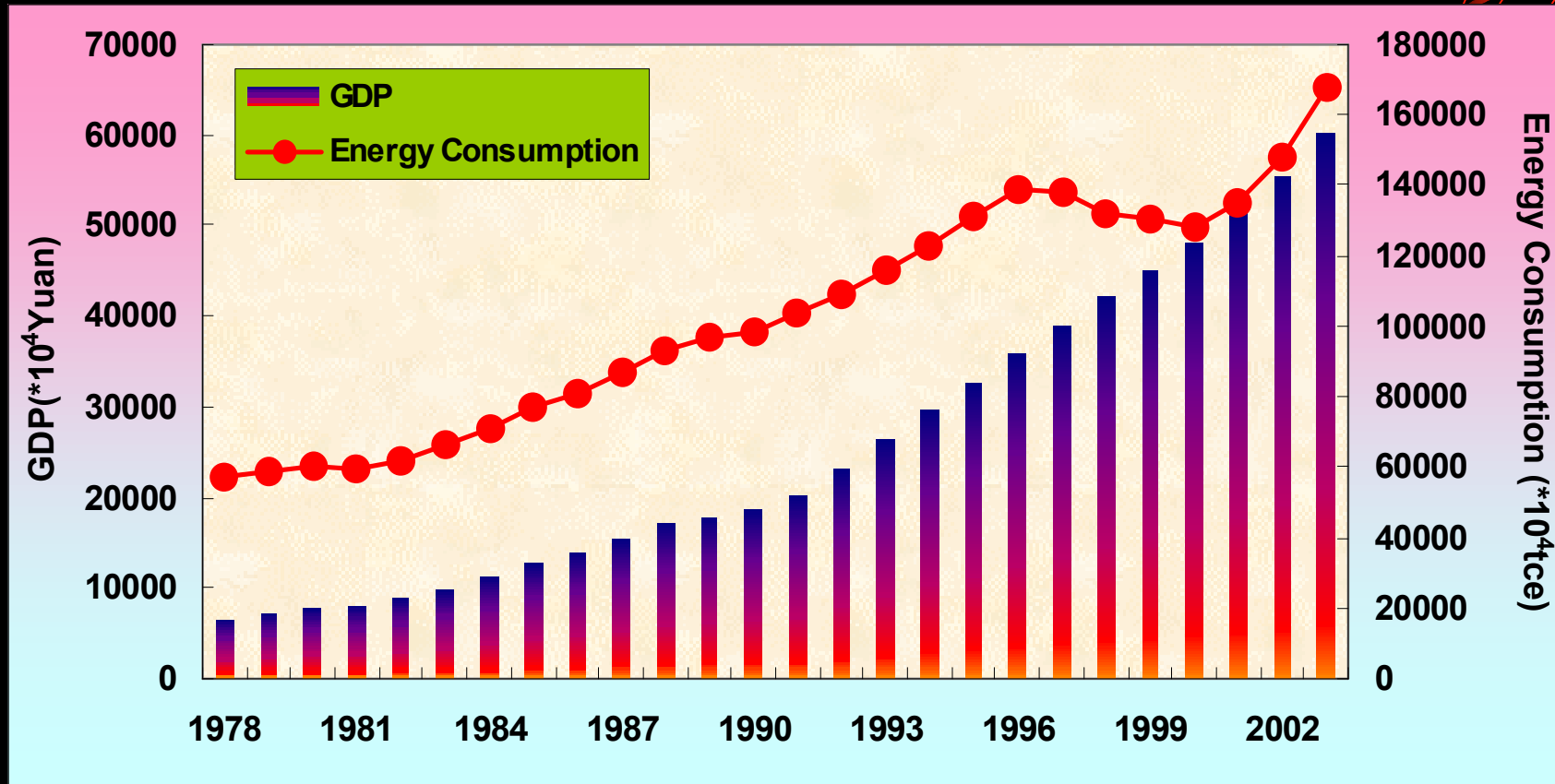
## Housing Area per Resident

(2002, m<sup>2</sup>)

- U.S.A : 55~60
- Japan : 30~35
- North Europe : 45~50
- British, France, German, Italy : 35~40
- China: 25 (2004)

- Adding more than 18 m<sup>2</sup> since 1980, 24.97 m<sup>2</sup> in the city and 27.9 m<sup>2</sup> in the rural area in 2004;
- The proportion of the house with air conditioner or heating equipment has been increasing;
- The ratio of the house reaching to the national standard of energy saving is still very low, only 6.5%;
- The energy consumption in the construction sector has reached to 27.6% of the total energy consumption;
- The average house area per capita will get to 26 m<sup>2</sup> in the city and 30 in the rural area in 2010.

# Energy Consumption and supply in China

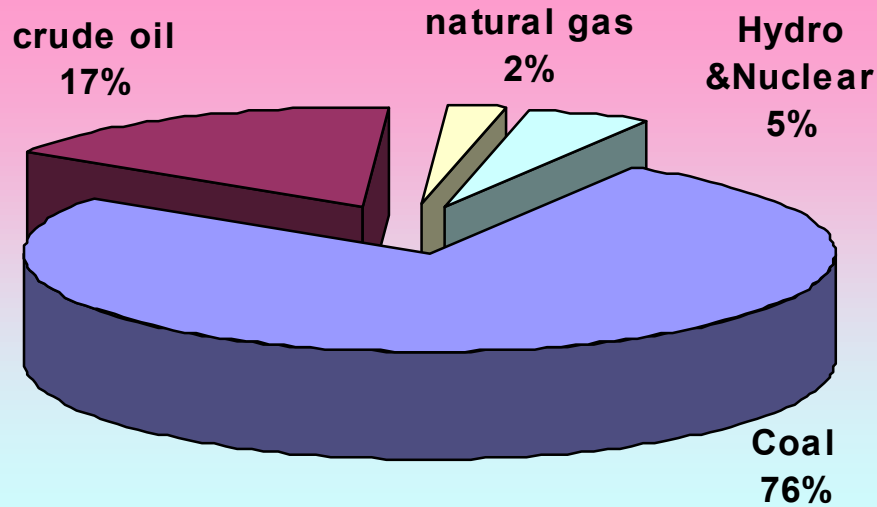


**Primary energy consumption per GDP in 2002**  
(toe/MUSS)

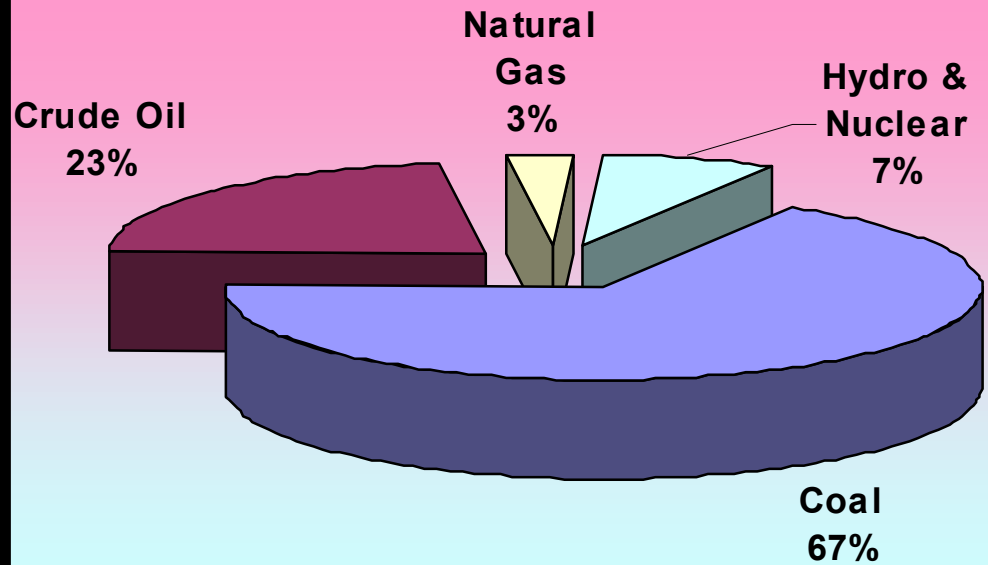
**USA: 249**  
**UK: 166**  
**Germany: 128**  
**France: 145**  
**Italy: 140**  
**Japan: 90.3**  
**South Korea: 299**  
**India: 619**  
**China: 837**  
**Average of world: 262**

period	1980-1985	1986-1990	1991-1995	1995-2000	2000-2004	2001	2002	2003	2004
GDP AGR (%)	10.7	7.9	12	8.3	8.8	7.5	8.3	9.3	9.5
	9.28		9.99						
	9.4								
Energy consumption AGR(%)	4.9	5.2	5.9	0.6	9.6	4.3	7.4	13	15.2
	5.1		2.8						
	5.1								
Energy consumption elasticity	0.46	0.66	0.49	0.07	1.09	0.57	0.89	1.40	1.60
	0.55		0.28						
	0.54								

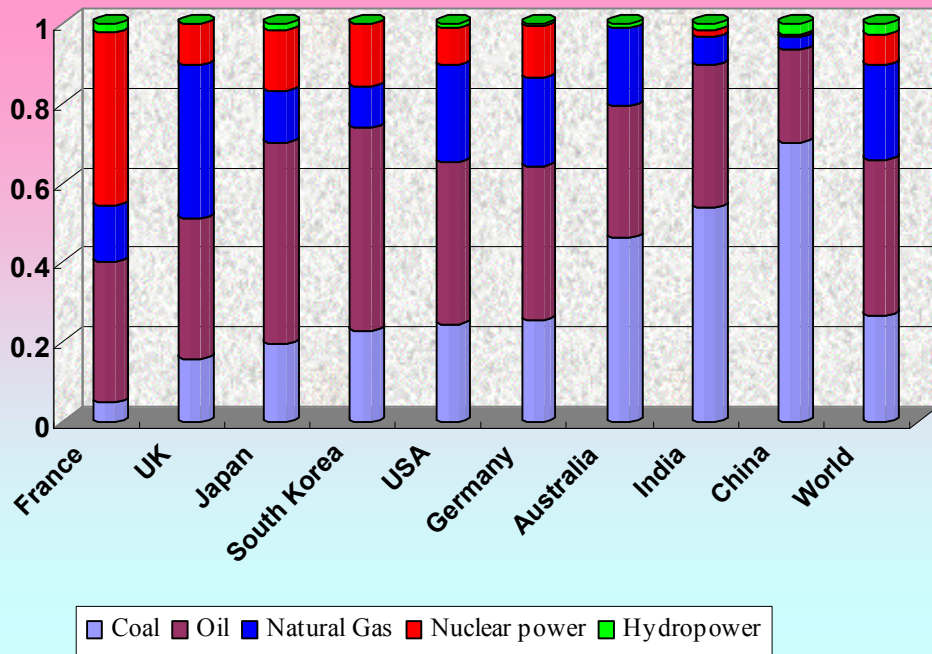
# Energy Consumption and supply in China



1990



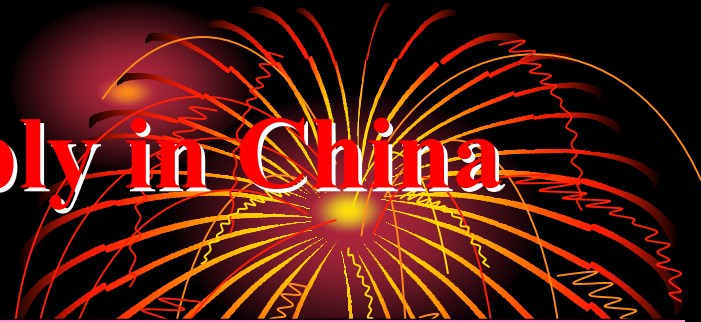
2003



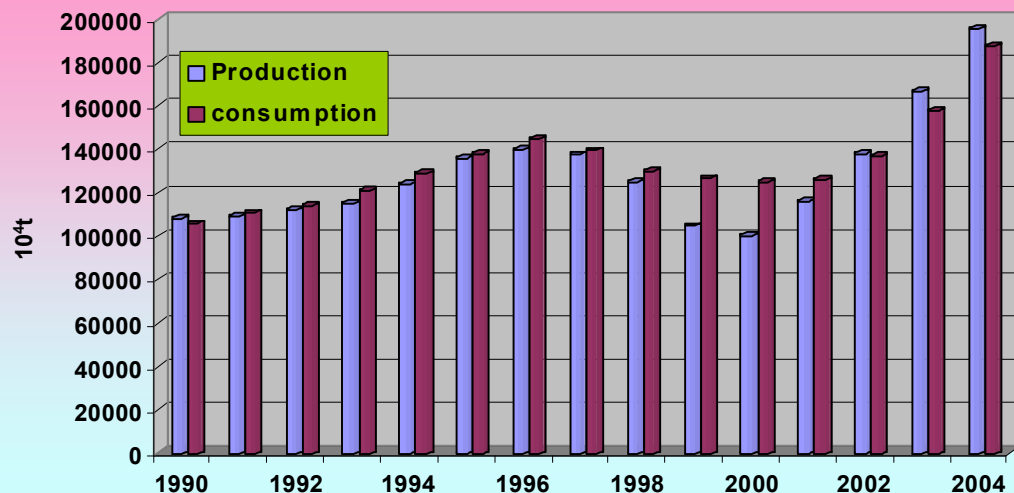
- \* The Mix of Chinese energy consumption has been optimized gradually;
- \* Comparing with advanced countries, the mix of China energy consumption is still unreasonable;
- \* Unreasonable mix of energy consumption has caused a serious environmental problem, low energy efficiency, and low profit.



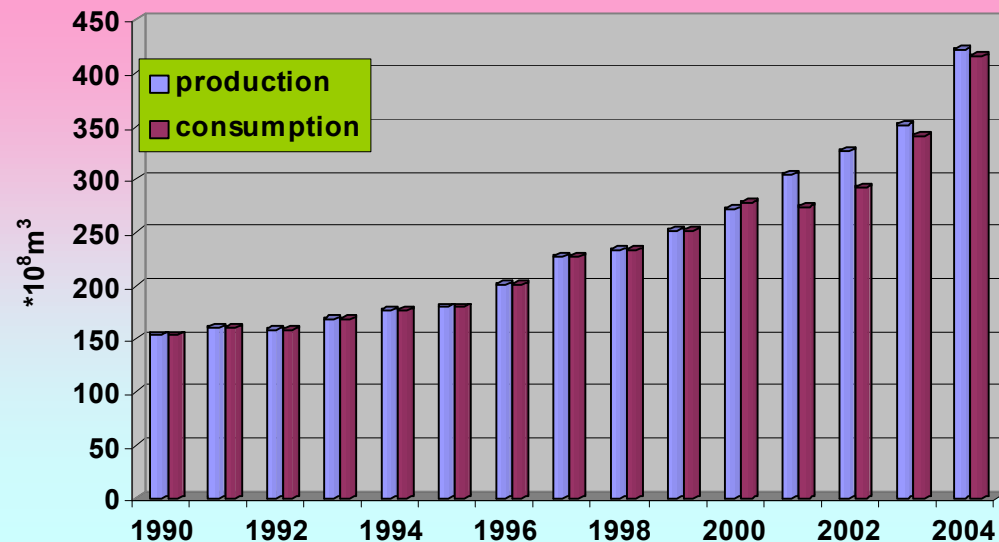
# Energy Consumption and supply in China



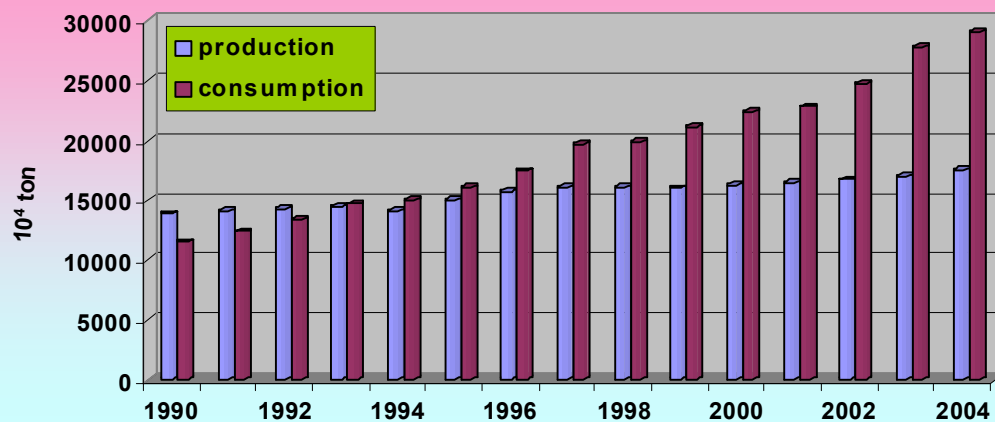
## Coal production & Consumption



## Natural gas production & consumption



## Crude oil production and consumption



## China energy Position in the world (2004)

Energy Type		Rank in the world
Coal	Production	1
	Consumption	1
Oil	Production	5
	Consumption	2
Natural Gas	Production	16
	Consumption	16

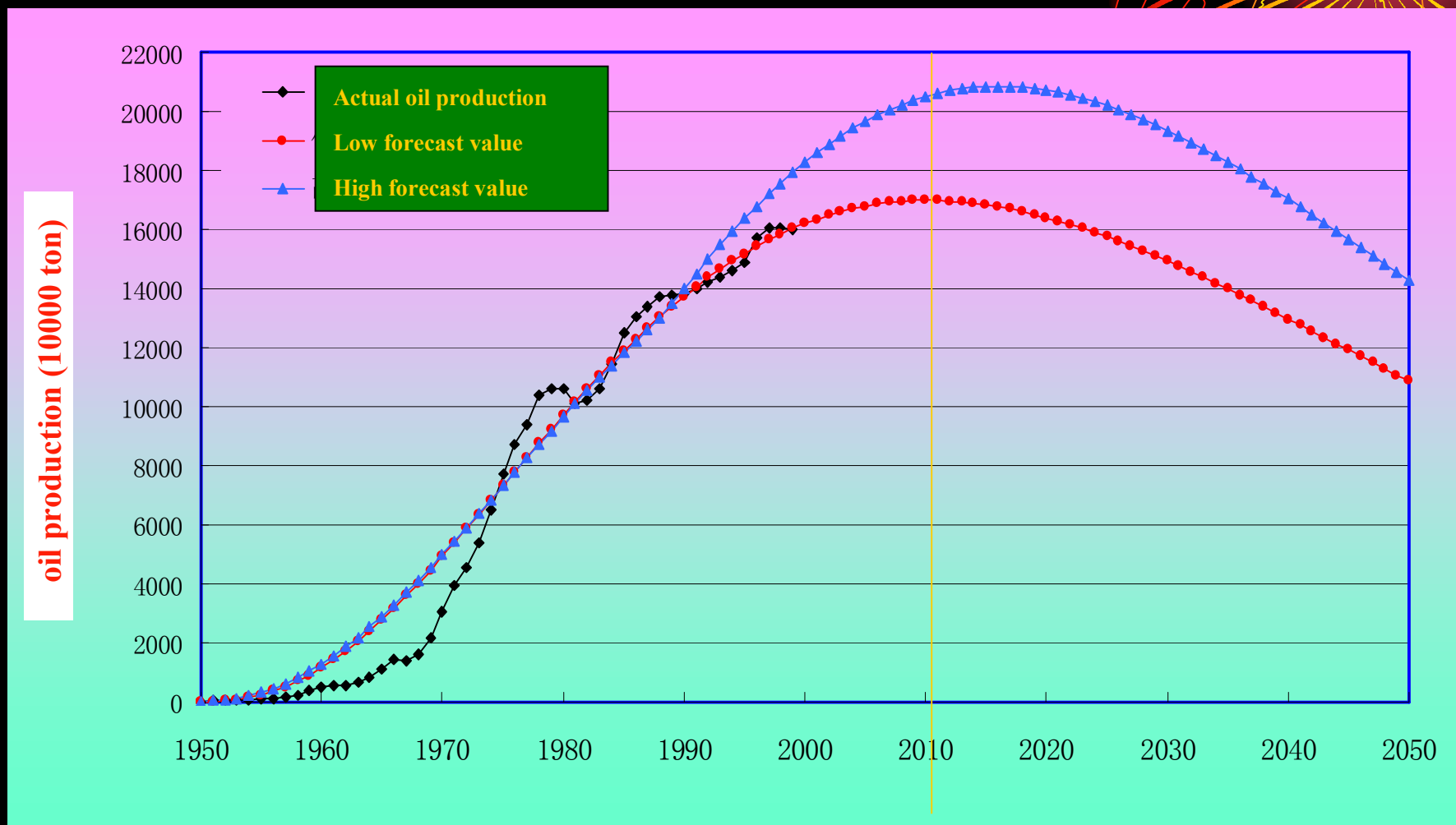
# Forecast of Energy Demand in China



	Unit	2000	2010	2020
Coal	$10^8$ ton	14.5	19~24	24~28
Oil	$10^8$ ton	2.3	3.5~3.8	4.8~5.2
Natural Gas	$10^8$ m <sup>3</sup>	239	1000~1200	2000~2200
Primary Power	$10^8$ kWh	3930	6600~8200	11000~13500
Total	$10^8$ tce	14.4	21~24	30~32

**According to the energy development situation in recent years, Chinese energy demand should be over 3.6 btce by 2020 when China will be quadruple the 2000 GDP, if no economic structure adjustment and no energy saving measures(energy consumption elasticity will be over 0.66)**

# Potentials of oil production in China



- The maximum oil production will get to 180~210 Mton between 2010 to 2020;
- The oil production can maintain over 100 Mton by 2050

# Potentials of Natural Gas production in China



	Year		
	2005	2010	2020
<b>Total (bcm)</b>	<b>48.8</b>	<b>82~87</b>	<b>120~135</b>

Region	Year	2020
Northeast China		6
Bohai Rim		6
Northwest China		65
Southwest China		20
Southeast Coast China		18
Coal bed methane		5
<b>Total</b>		<b>120</b>

Source: AGPRCC

# Energy Security Policy in China



- **To make energy conservation the top priority;**
- **To enhance the exploration and development of domestic energy resource;**
- **To participate international energy development and collaboration, take advantage of foreign energy resource;**
- **To diverse the import sources of oil and natural gas;**
- **To build up the Oil stockpile;**
- **To develop the replacement of oil, such as CTL、alcohol fuel and biochemical fuel .**



## Oil Stockpile in China

**Amount:** 2005: 30 days of net import  
2010: 50 days of net import  
long term: 90days of net import

**Style:** Oil field  
Land Storage  
Sea Storage  
Underground storage

**Place:**  
first stage: Zhenghai, Daishan,  
Dalian, Huangdao.



By 2008: Guangdong and Fujian  
6~7 Mt/a

By 2010: Tangshan, Dalian, Qingdao, Shanghai, Zhejiang  
18~20 Mt/a

By 2015: Tianjin, Jiangsu and Guangxi About 8~9  
Mt/a

20~30 Mt/a in short term  
50~60 Mt/a in long term



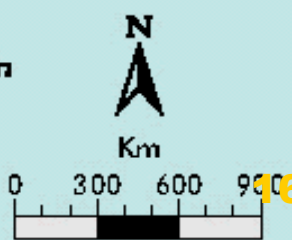
From West Siberia

From East Siberia

From Sakhalin

From Central Asia

- Existing pipelines
- - - Under construction
- - - Planned/possible pipelines
- Offshore gas fields
- LNG terminal under construction
- Planned LNG terminals
- Cities





# Resources Securing Strategy in China



- **Energy Resources are owned by country;**
- **Permission system for energy resources exploited;**
- **Energy resources have been valued;**
- **Develop the large scale of coal group and close up the small coal mining;**

# **Background on Regional Energy Cooperation in Asia**



- **The important driving force for economy growth of the world;**
- **The biggest oil and natural gas reserves and the major supply to the world;**
- **The fastest increasing energy demand in the world, especially in East Asia;**
- **Huge dependency of Middle East supplies;**
- **Lack in linking between suppliers and consumers;**
- **Lack in cooperation among energy users.**

# **Barriers of Energy cooperation in Asia**



- **Lack of political faith due to historical problem;**
- **No self-contained energy infrastructure: crude oil and natural gas pipeline;**
- **Insufficient energy cooperation organization and no energy cooperation frame among Asia countries;**
- **Lack of financial mechanism for cross-border investment in energy sector among Asia countries;**
- **Vulnerable under outside intervention**

# Regional Cooperation in Asia

- **To maintain peace and stability in Asia and in the world;**
- **To develop and maintain the friendly political and economic relationship among Asia countries;**
- **Promote regional cooperation organization, such as Shanghai Cooperation Organization, CAFTA, 10+3, etc;**
- **Dialogues/Forums should be kicked off for regional energy cooperation;**
- **The counsel system of the Asia energy cooperation should be established;**

# Regional Cooperation in Asia



- **The rule as Energy Charter Treaty should be set up;**
- **To promote the infrastructure projects of crude oil or natural gas transportation pipelines among countries in Asia, especially in NEA, to be implemented;**
- **Encourage the development of Asian supply capacity: East Siberia, Far East of Russia, Middle Asia, and Middle East;**
- **Regional cooperation on the common oil stockpiling of the main consumption countries in Asia;**

# Regional Cooperation in Asia



- **Enhancing cooperation in the world oil and gas resources contest;**
- **Cooperation on the dialogue with OPEC and cooperation on elimination of Asia premium of oil price;**
- **Cooperation on energy-using technique;**
- **Cooperation on the security of oil channel;**
- **Cooperation on exploration and exploitation of oil and natural gas in the disputed sea area.**

Thank you for your attention!!!