

# **Ideas on Resource Saving Manufacturing in China**

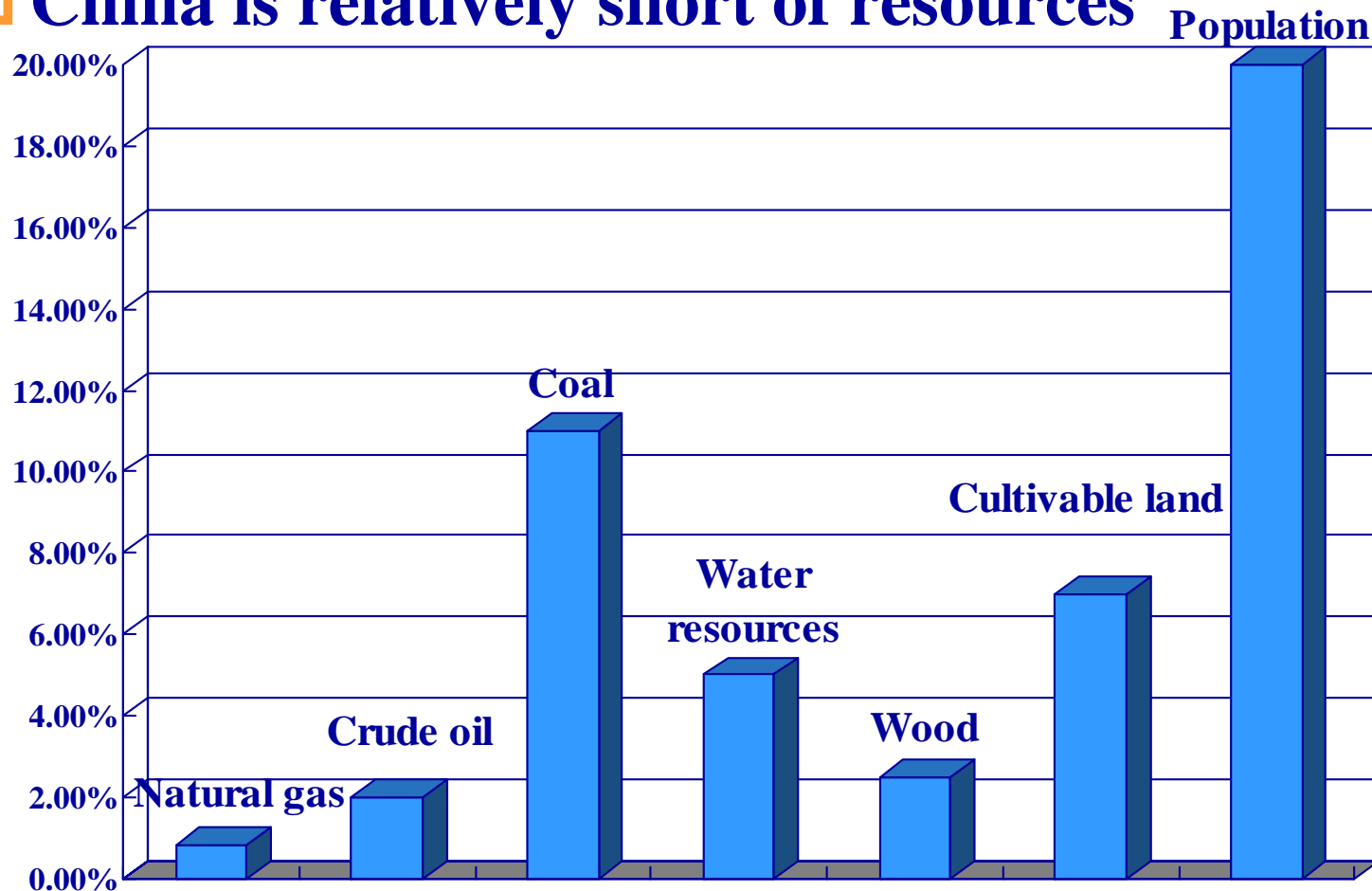
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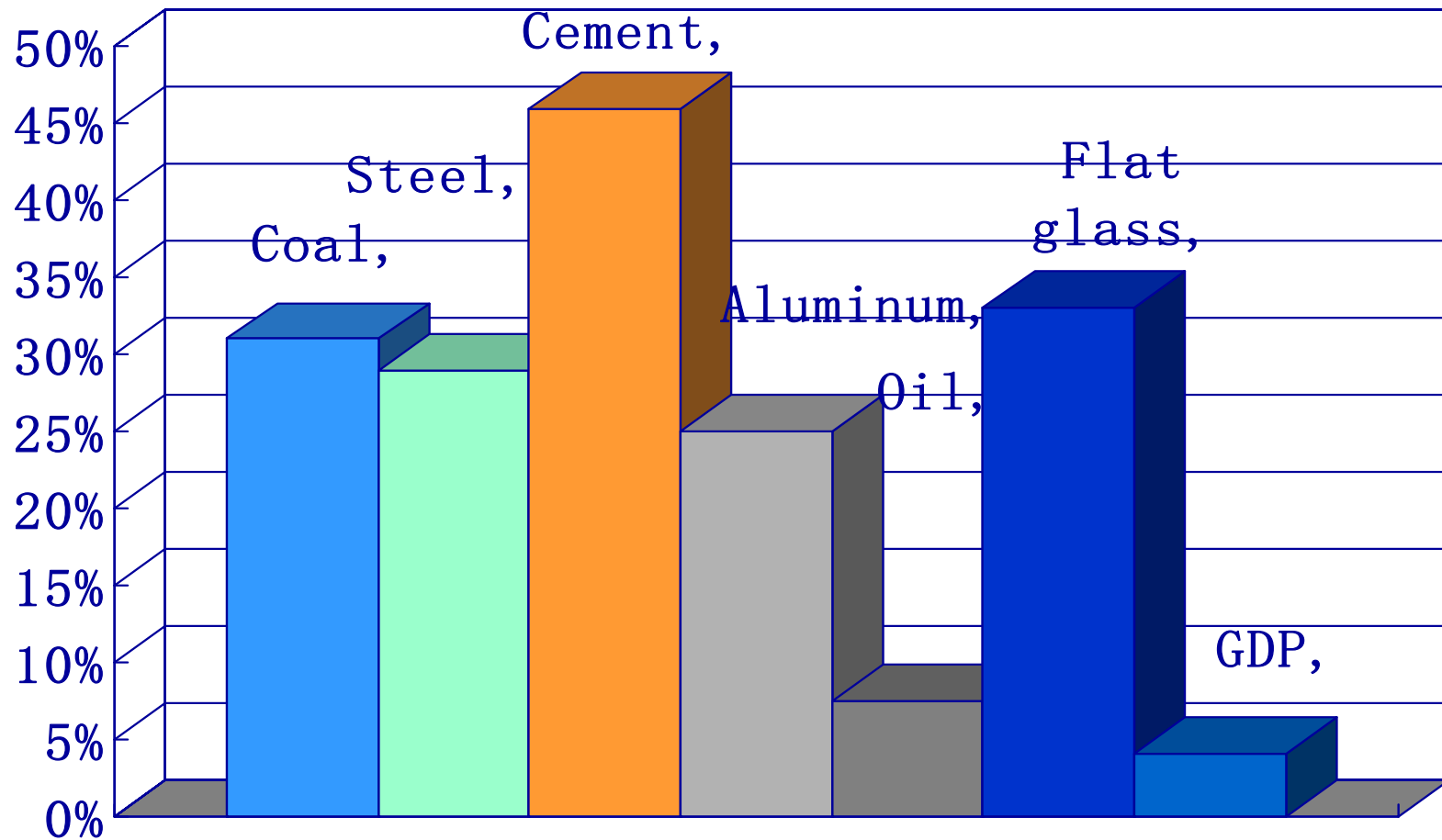
# 1. Building a Resource saving society is China's fundamental policy

□ China is relatively short of resources



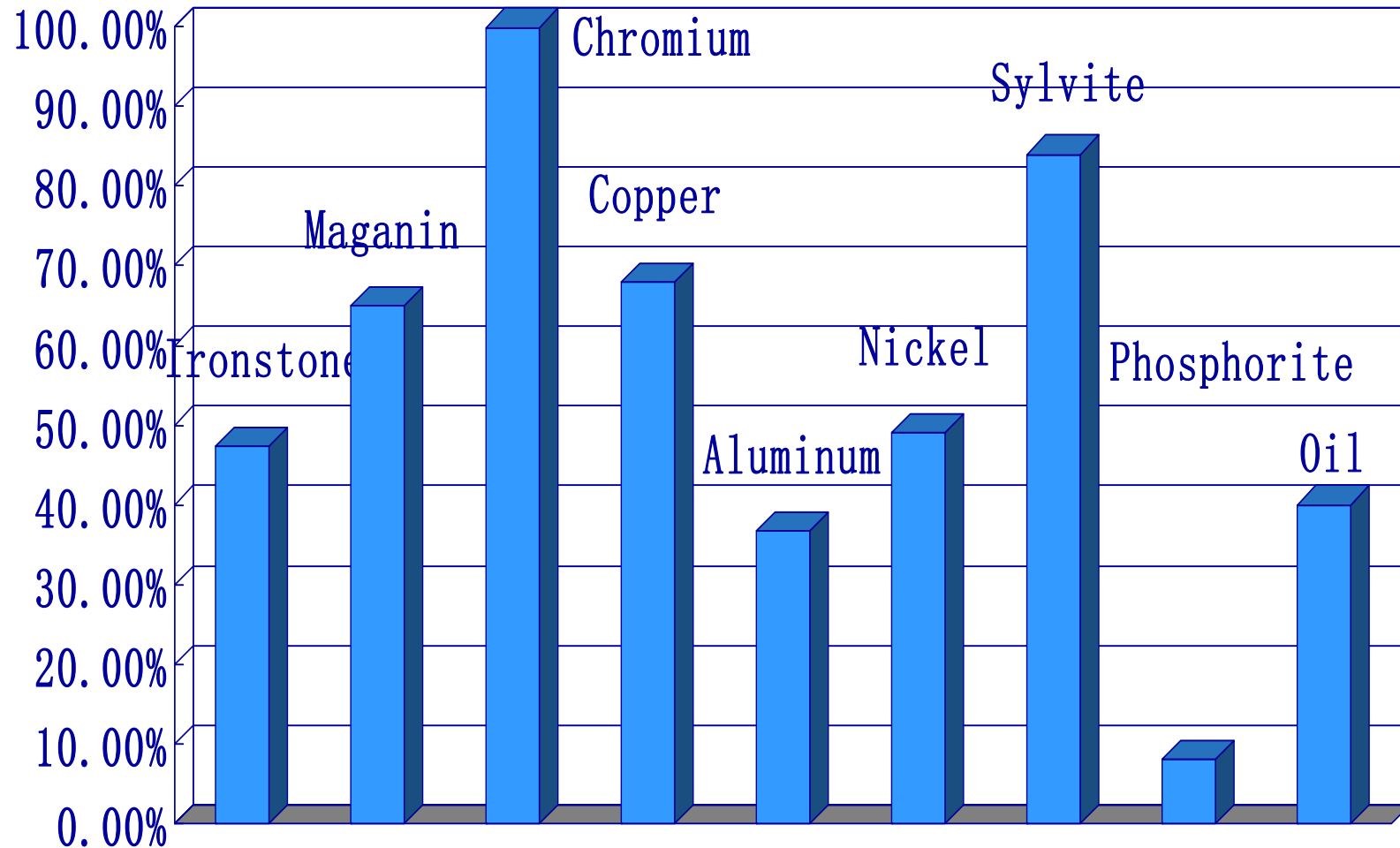
Percentage of China's resources in the world's

## China has huge energy consumption



**Contribution of energy consumption by the different industries in China**

## Large dependence on imported resources



# Dependence on imported resources

**□ Heavy pollution:**

**CO<sub>2</sub> discharge: the 2nd place in the world,  
after the USA**

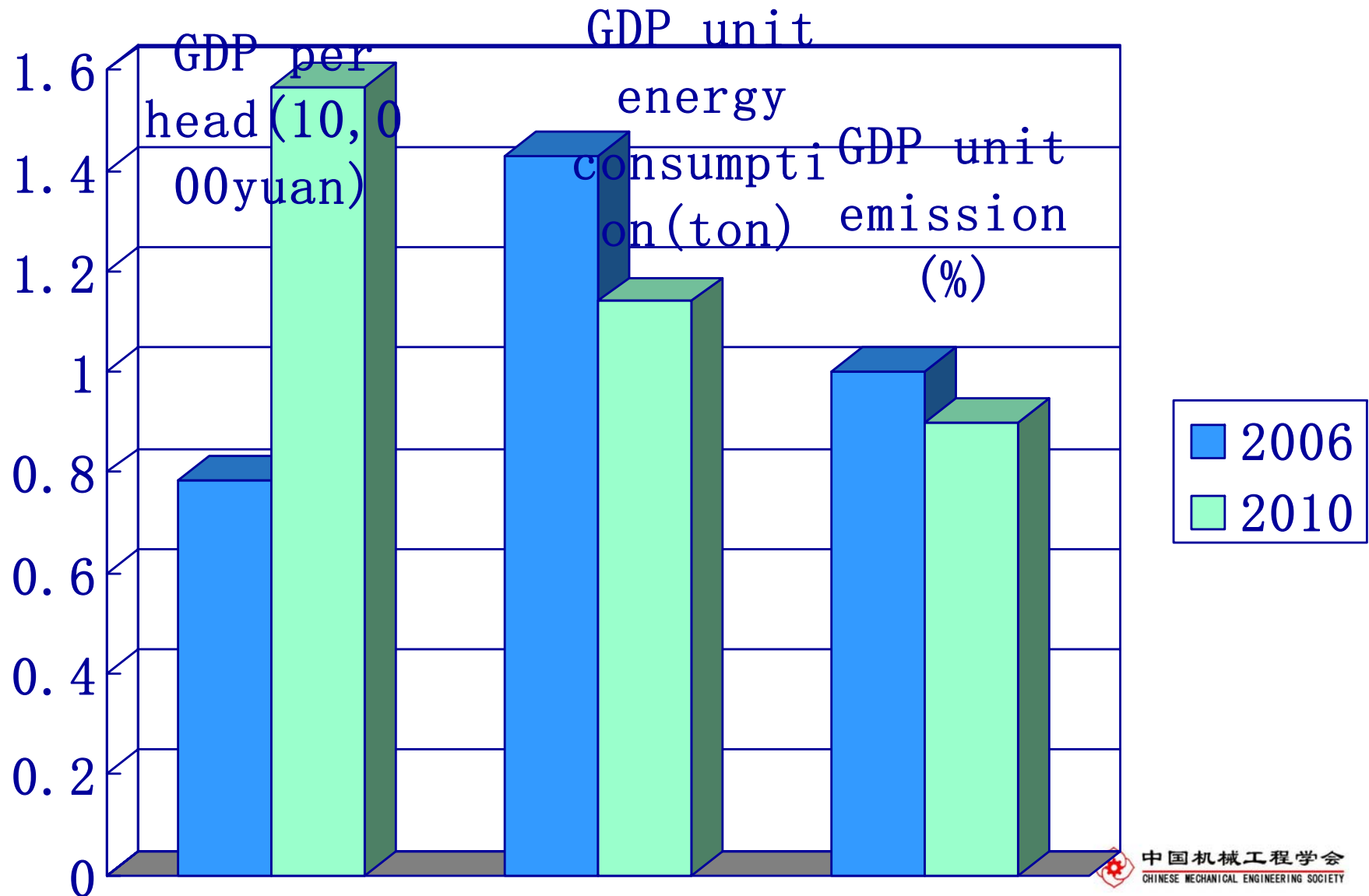
**SO<sub>2</sub> discharge: top in the world, one third of  
the nation land has acid rain**

**□ Serious water pollution**

# The Way out

- ❑ We should not reach the goal of fourfold the nation's GDP by 2020 compared with 2000 at the expense of resources and energy; a scientific concept on development is required;
- ❑ We should quicken the pace of adjusting economic structure, and change the way of Resource saving increase: we should highly develop the 3<sup>rd</sup>(service ) industry and hi-tech industry;
- ❑ China's fundamental policy is to build an Resource saving society by the progress of science and technology.

## □ Goal of China's 11th Five-year Plan (2006-2010)



**□ GDP per head (Yuan, RMB)**

**Year 2000:7,828 (Yuan, RMB)**

**Year 2020:31,312 (Yuan, RMB)**

**400% up ↑**

**□ energy consumption (ton) per GDP unit  
(10,000 Yuan)**

**Year 2000:1.43 ton (coal)**

**Year 2020: 0.72 ton (coal)**

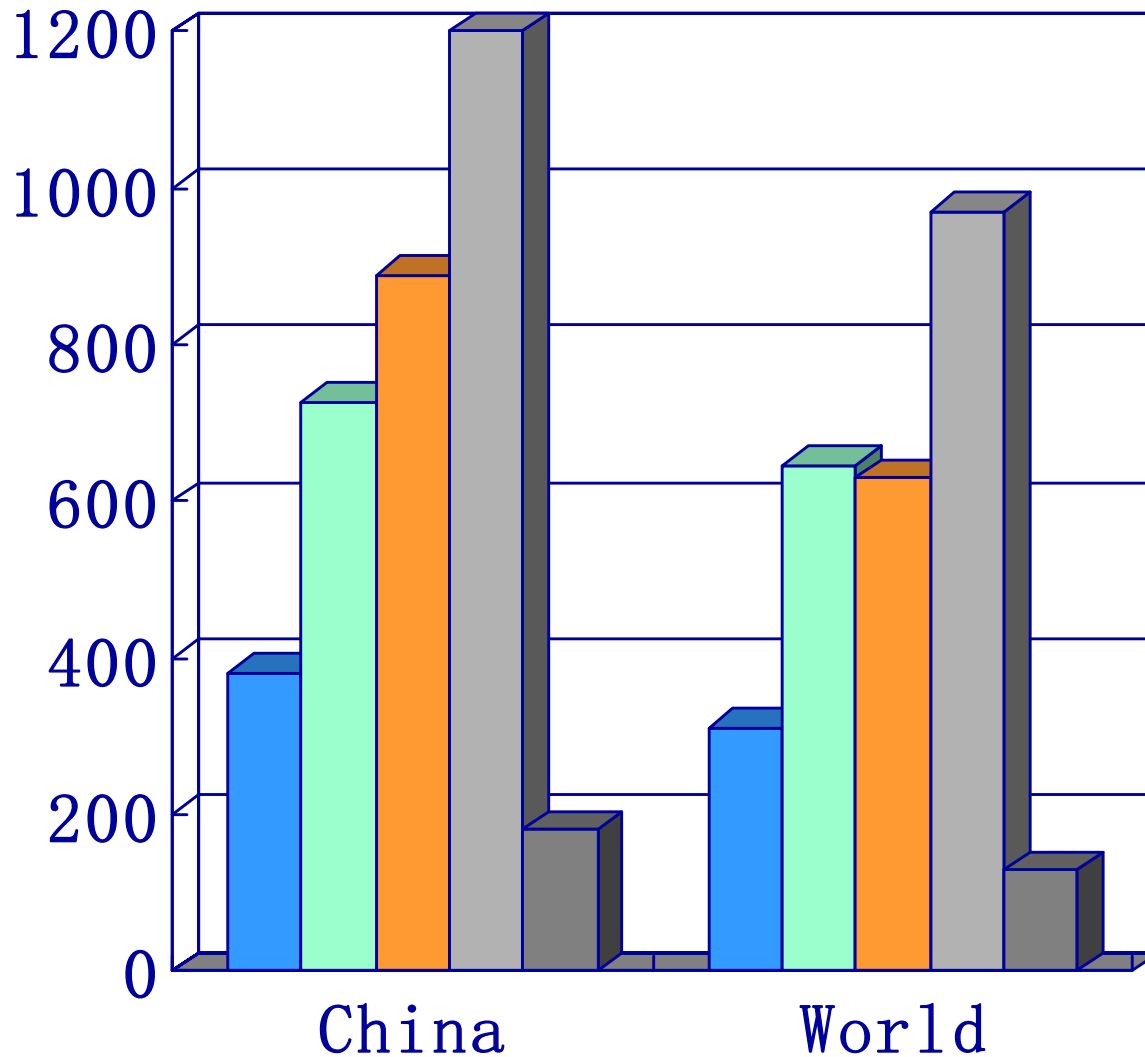
**50% down ↓**

## 2、 Resource saving manufacturing is important part of resource saving society

### □ Manufacturing is a huge energy consumer

<b>Year</b> <b>2003</b>	<b>total energy consumption</b> <b>b.ton</b>	<b>Coal consumption</b> <b>b.ton</b>	<b>Crude oil consumption</b> <b>b.ton</b>	<b>Natural gas consumption</b> <b>b.m<sup>3</sup></b>	<b>Electricity consumption</b> <b>t.b.kwh</b>
<b>Nation</b>	<b>1.7</b>	<b>1.63</b>	<b>0.25</b>	<b>33.9</b>	<b>1.9</b>
<b>Manuf.</b>	<b>0.93</b>	<b>0.58</b>	<b>0.21</b>	<b>17.5</b>	<b>0.95</b>
<b>%</b>	<b>54.7</b>	<b>35.5</b>	<b>83</b>	<b>51.6</b>	<b>50</b>

## □ The unit energy consumption of manufacturing



- Thermal power generation g/kw. h
- Steel kgce/t
- Ethylene kgce/t
- Synthetic ammonia kgce/t
- Cement kgce/t

## ❑ **Low reutilization of Resources**

- Reutilization of mineral resources is about 30%, 20% lower than that of foreign advanced levels;**
- Reutilization of wood is about 60%, lower than the foreign advanced level-80%;**
- Reutilization of industrial solid waste is about 55.8%;**
- Reutilization of waste paper is 28.7%, lower than the world's 70%**

# High energy and goods consumption of some products

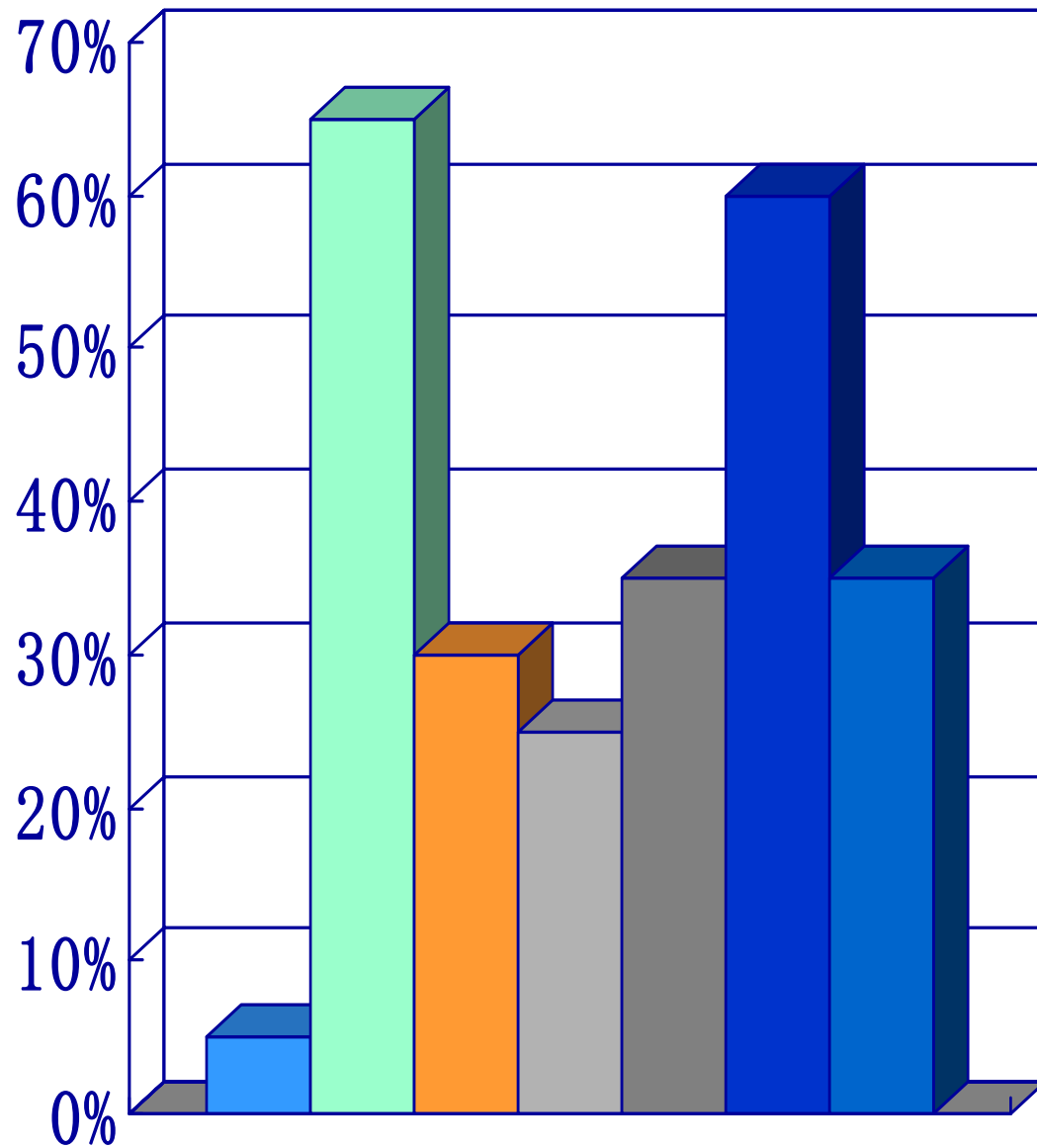
- **Architecture is the major consumer of land and materials. In this field:**
  - **construction plus utilization accounts for 30% of the society's energy consumption, three to four times that of the world's average;**
  - **steel consumption accounts for 30% of the nation's consumption;**
  - **cement utilization accounts for 25% of the nation's consumption;**
  - **water utilization accounts for 47% of city's consumption**

## **□ High oil exhaustion in automobile industry**

- higher than that of Europe by 25%;**
- higher than that of Japan by 20%;**
- higher than the average level of the USA by 10%;**
- the design value of oil cost for automobile engine per 100 kilometers is higher than that of developed countries by 10-15%**

## □ The goal of resource saving for China's 11<sup>th</sup> Five-year Plan

GDP produced by the unit consumption of 15 resources in 2010 should be raised by **25%**, compared to that of 2003, with the following targets:



- Increase rate of city rubbish
- Recycling resources
- Recycling lead
- Recycling aluminum
- Recycling copper
- Reuse. solid waste
- Recycl. minerals

## **4、 Resource saving manufacturing by innovation of science and technology**

- ❑ Design for resource saving, developing products with Resource saving**
- ❑ Resource saving production: reducing energy and resource consumption**
- ❑ Application of new materials**
- ❑ Improve manufacturing quality and prolong the products life cycle**
- ❑ Recycling, reusing and remanufacturing to improve the comprehensive efficiency**

## **5、 17 proposed key projects to build resource saving society by CAE**

- ❑ Water saving and effective using engineering for agriculture**
- ❑ Water pollution treatment and waste water reusing projects**
- ❑ Improvement of infield with medium and low harvest**
- ❑ Project in the utilization of waste, used wood and paper**

- ❑ Project of effectively developing and utilizing the lean or complex ore**
- ❑ Improvement of exploring and recovering the primary energy sources**
- ❑ Large scale and high-efficient power generation and transmission**
- ❑ Fuel saving and replacing projects in automobile industry for environmental protection**

- ❑ **Scaled utilization of renewable energy**
- ❑ **Production of new steels with multifunction**
- ❑ **Reutilization of nonferrous metals**
- ❑ **Project in improving the utilization rate of petrochemical resources**
- ❑ **Phosphorus saving and complex utilization**
- ❑ **Cement and walling material saving manufacture**
- ❑ **Energy saving technology in architecture**
- ❑ **Recovery and utilization of city wastes**
- ❑ **Recovery and remanufacturing of machinery and electronic products**

**By 2020, these 17 projects would have been completed, then:**

- ❑ 550 million tons of standard coal would be saved;**
- ❑ Renewable energy sources with capacity of 450 million tons of standard coal provided**
- ❑ 20 million hectares of low productive fields improved;**
- ❑ 60 billion cubic meters water saved;**
- ❑ 2 billion tons of nonferrous metals saved;**
- ❑ 10 million tons of phosphorus saved;**
- ❑ a lot of construction materials saved.**

By 2020, compared to 2000,  
the **fourfold** our GDP, with  
our resources consumption  
**doubled**, this is one

Goal of Building a  
chinese resource saving  
society

Thanks for  
your attention