

**CCAIA**

**SCAC**

# **Development of China Vinyl Industry**

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**World Vinyl Forum**

**Sep. 27, 2007**

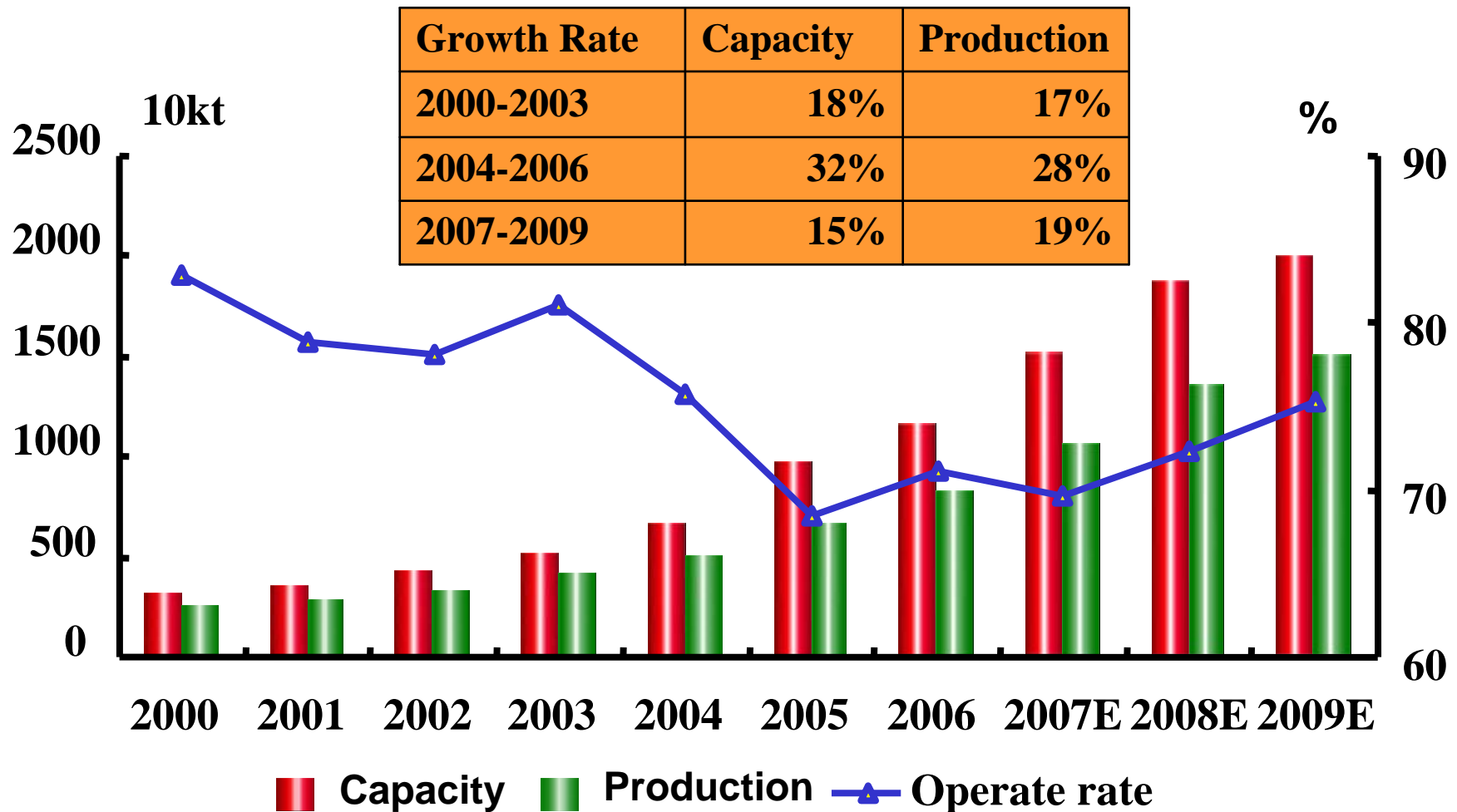
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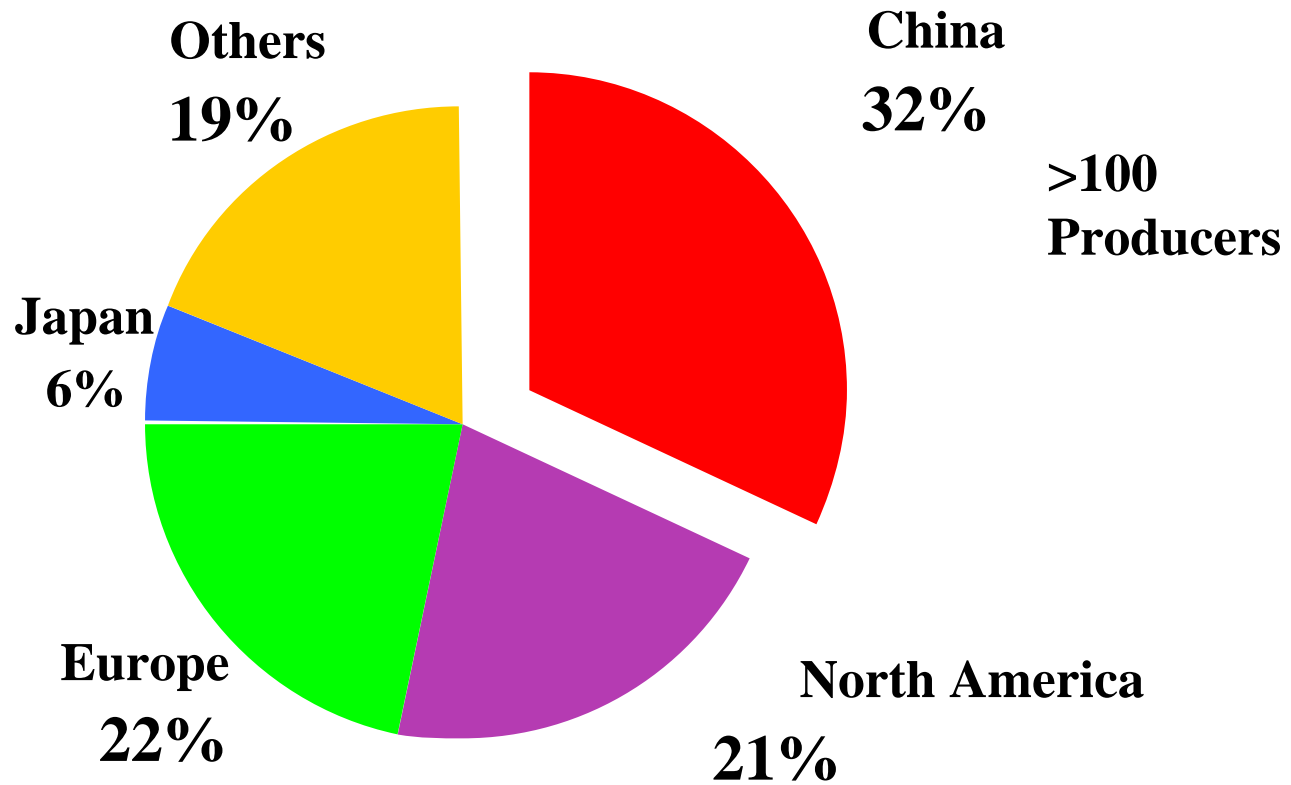
## OUTLINE

- ✓ *Outlook of China Vinyl Industry*
  - ✓ *Analysis on two processes of PVC production*
  - ✓ *PVC downstream application*
  - ✓ *Introduction to policies by the State and the Industry*
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# PVC Capacity and Production in Mainland China



# PVC Capacity in all Areas

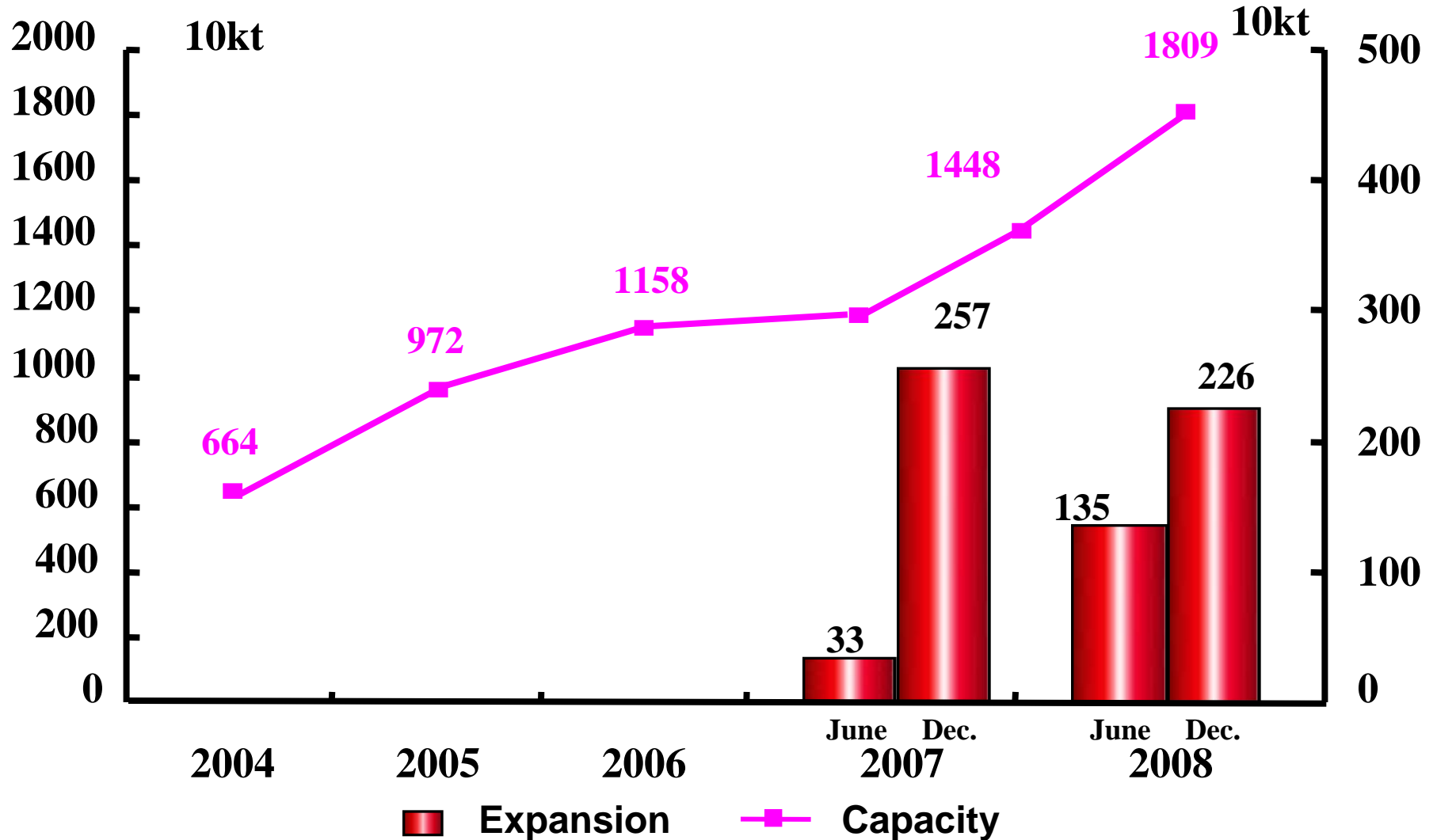


## Major PVC Producers

10kt

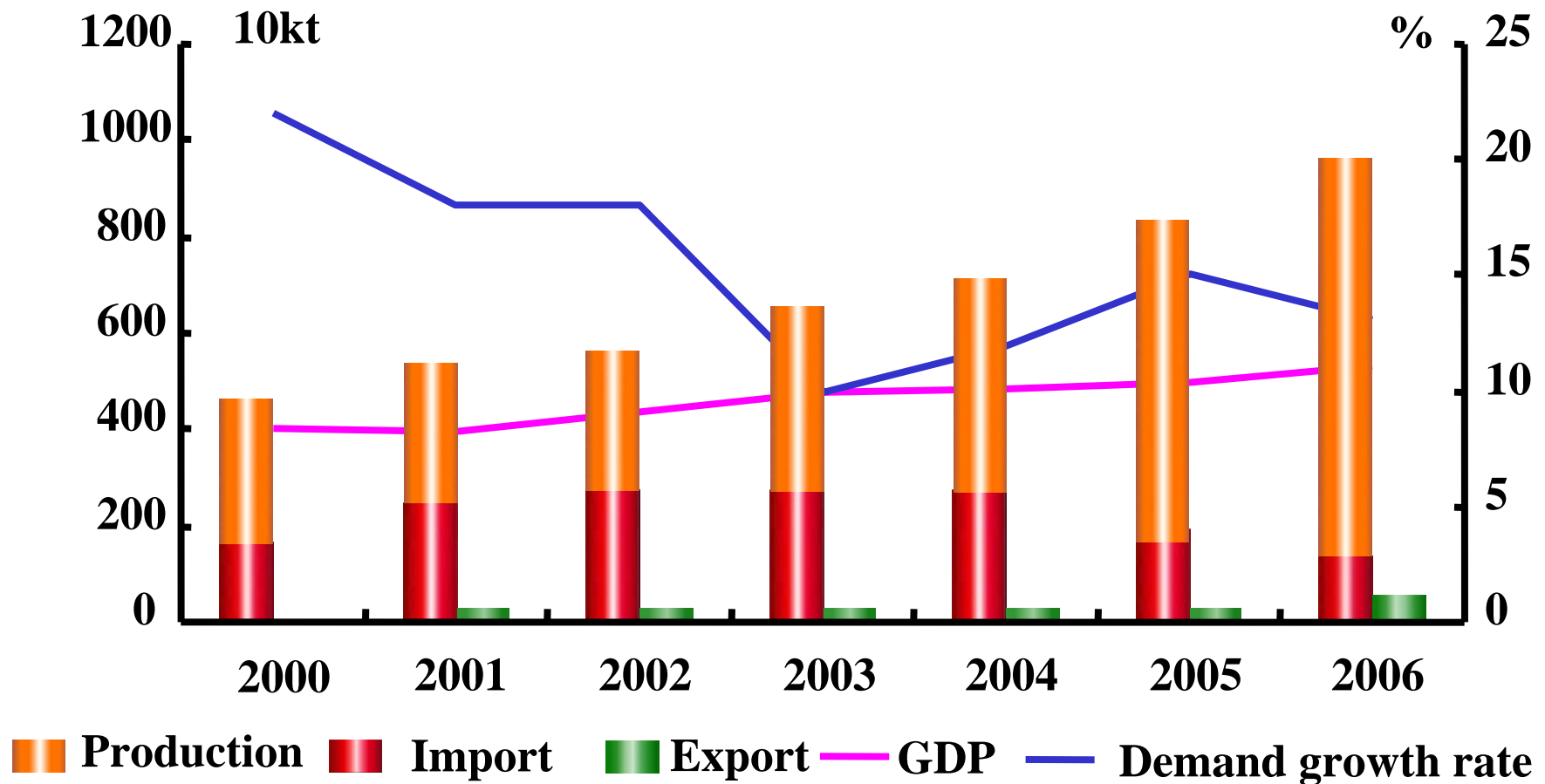
Company	Capacity	Production
Tianjin Dagu	70	58.2
Qilu Petrochem	60	57.5
SCAC	44	35.9
Xinjiang Tianye	36	32.0
Yibin Tianyuan	34	31.8
LG Dagu	34	31.5
Sichuan Jinlu	34	26.5
Xinjiang Zhongtai	26	23.6
Changzhou Chem	28	22.9
Quzhou Chem	24	21.3

# Capacity Expansion Trend



# Reason for China PVC accelerating growth

➤ High GDP



# Driving Powers

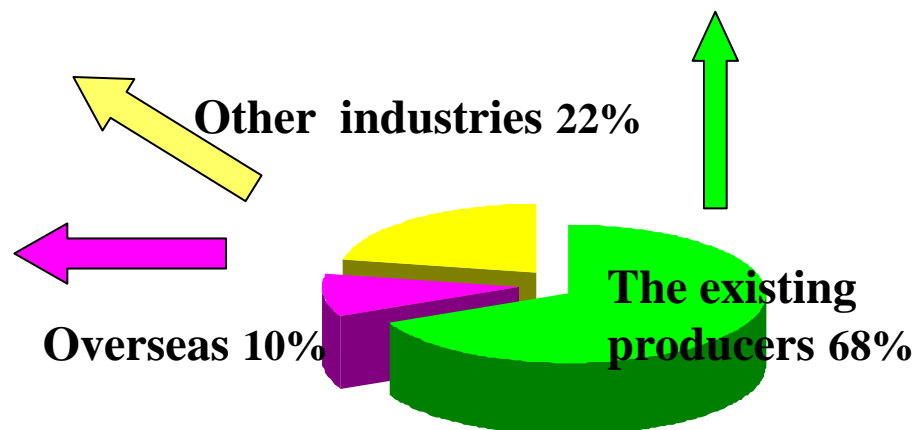
The Industry's expansion, other industries' entry and overseas investment

	2005	2008
Inner Mongolia Yili	0	40
Jilantai Saltchem	0	30
Sichuan Huarong	5	25
Sichuan Leshan	10	50
Fujian Quanzhou	0	45
Shanxi Luan	0	20
Guangxi Aluminum	0	15

	2005	2008
Xinjiang Zhongtai	27	75
Xinjiang Tianye	26	66
Tianjin Dagu	50	70
Shanxi Yushe	17	57
Yibin Tianyuan	32	50

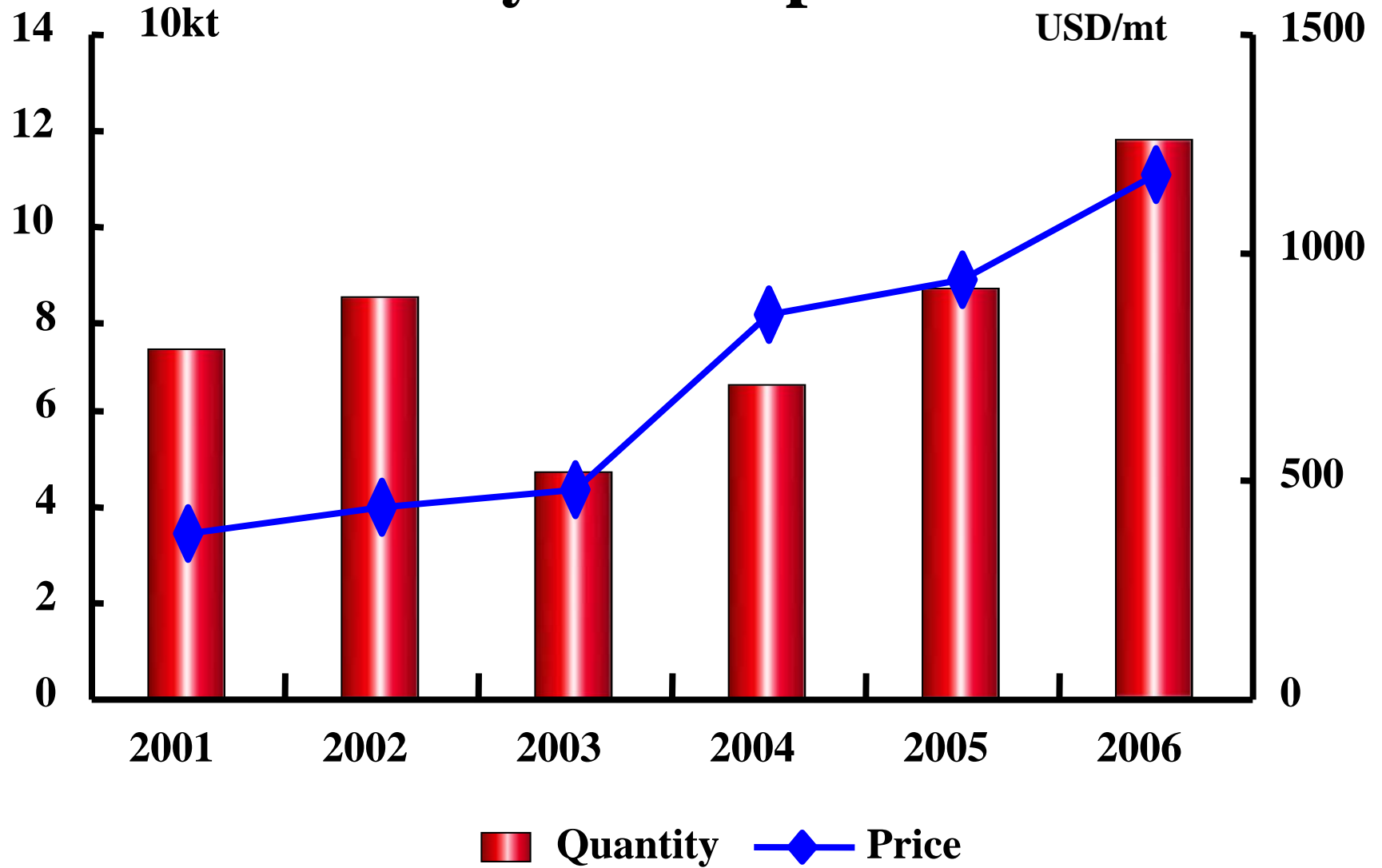
	2005	2008
LG Daggu	34	54
FPC Ningbo	30	60
Tosoh Guangzhou	0	22

10kt





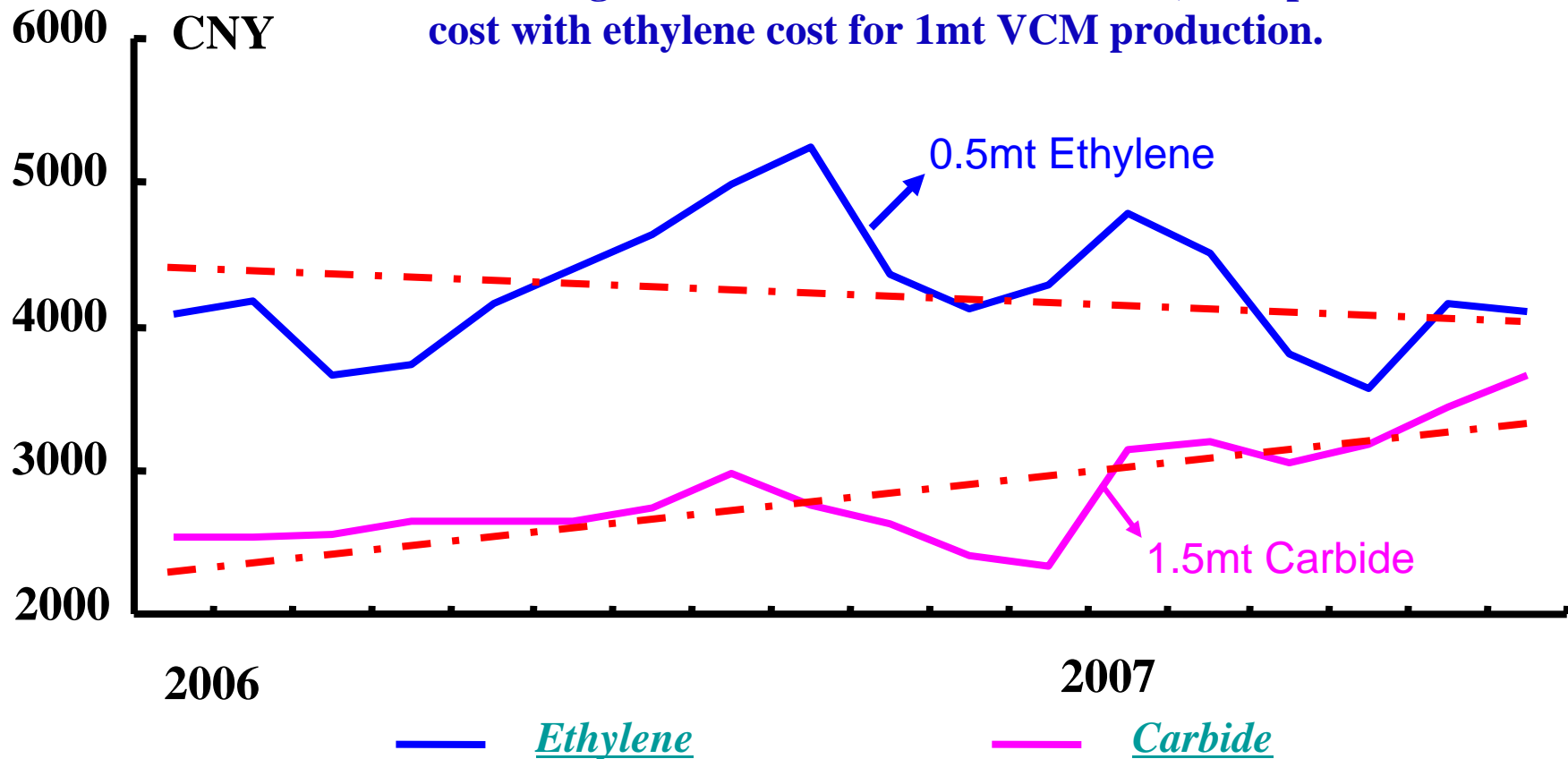
# Ethylene Imports



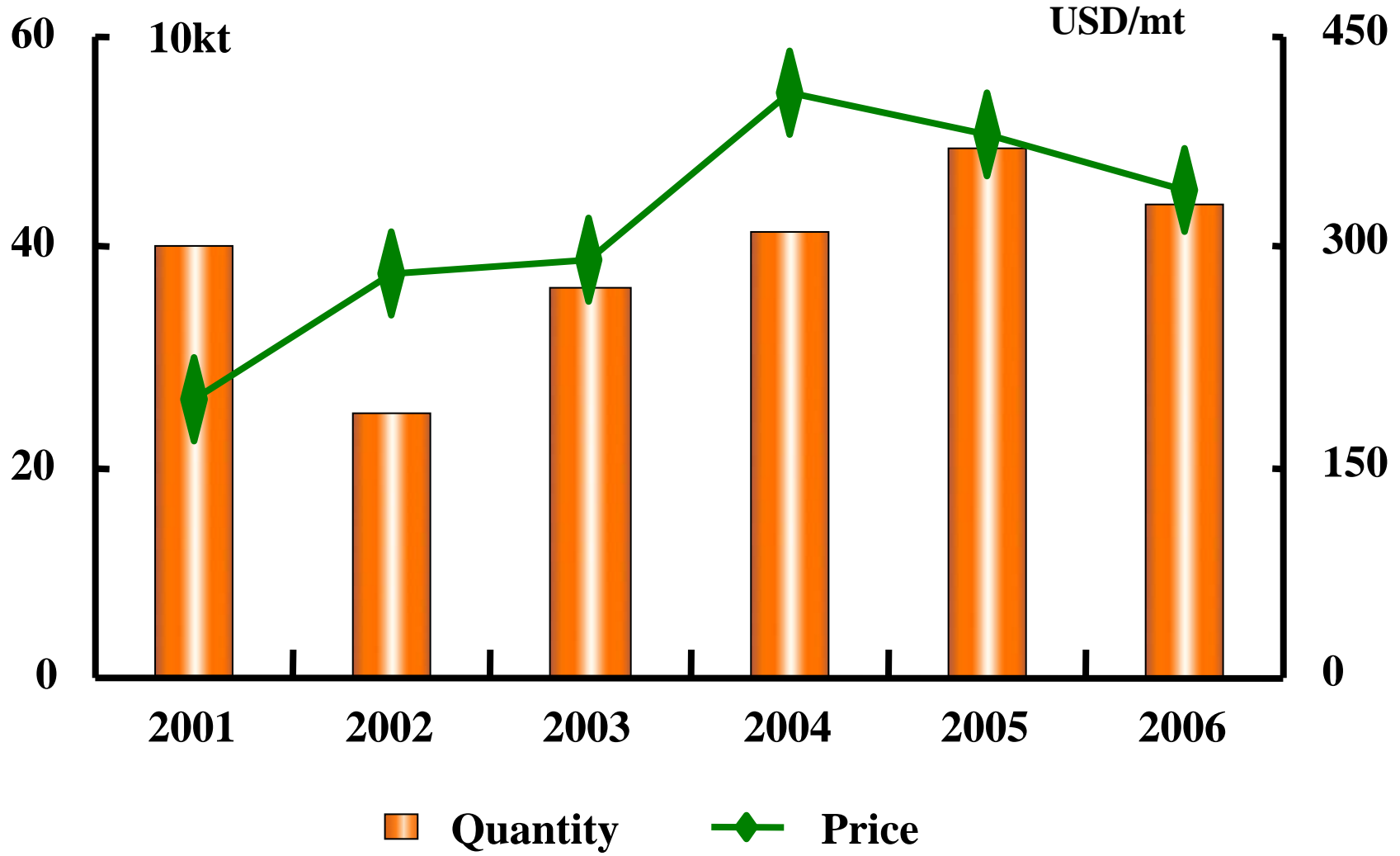
# Reason for China PVC accelerating growth

## ➤ Cost Advantage

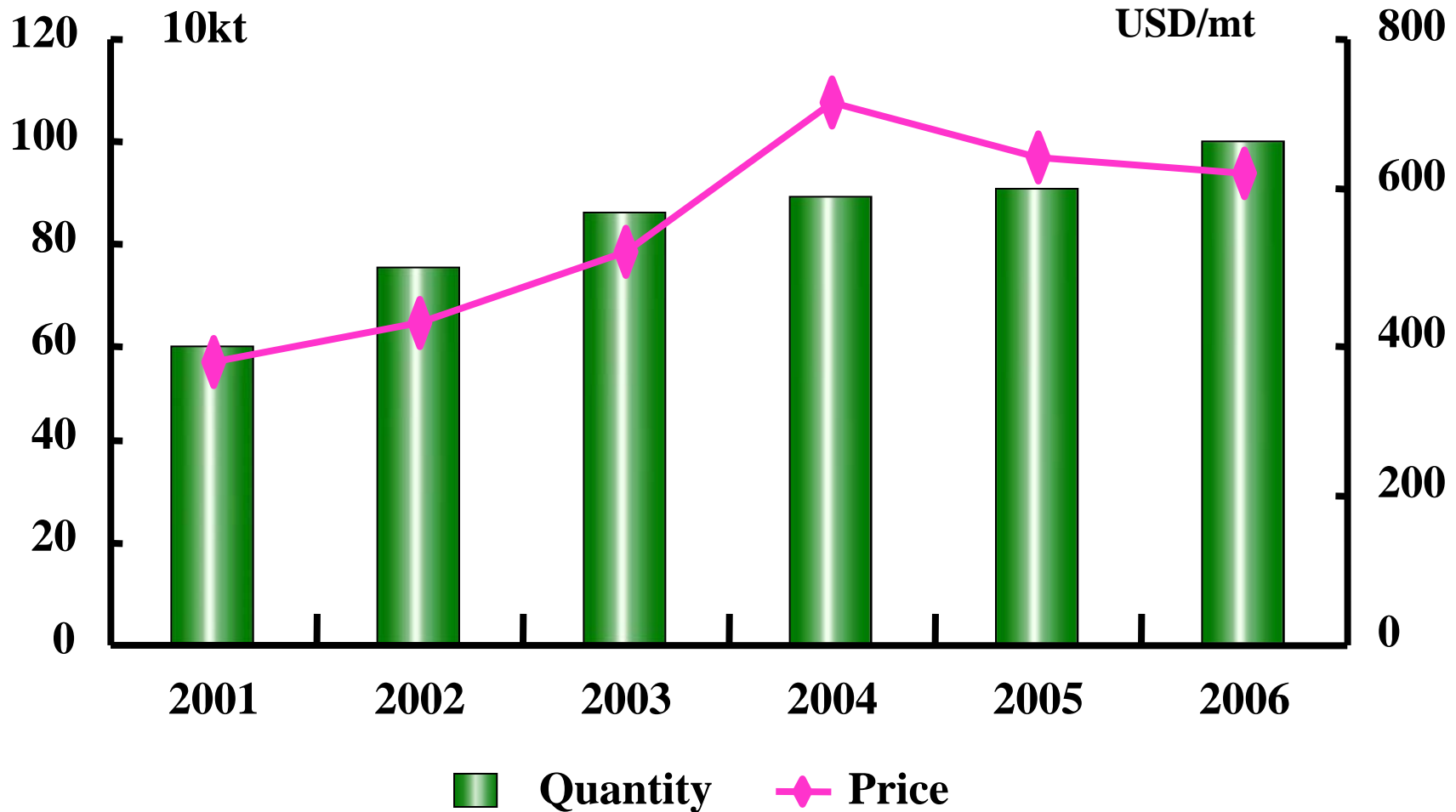
Assuming that other conditions are same, Compare carbide cost with ethylene cost for 1mt VCM production.



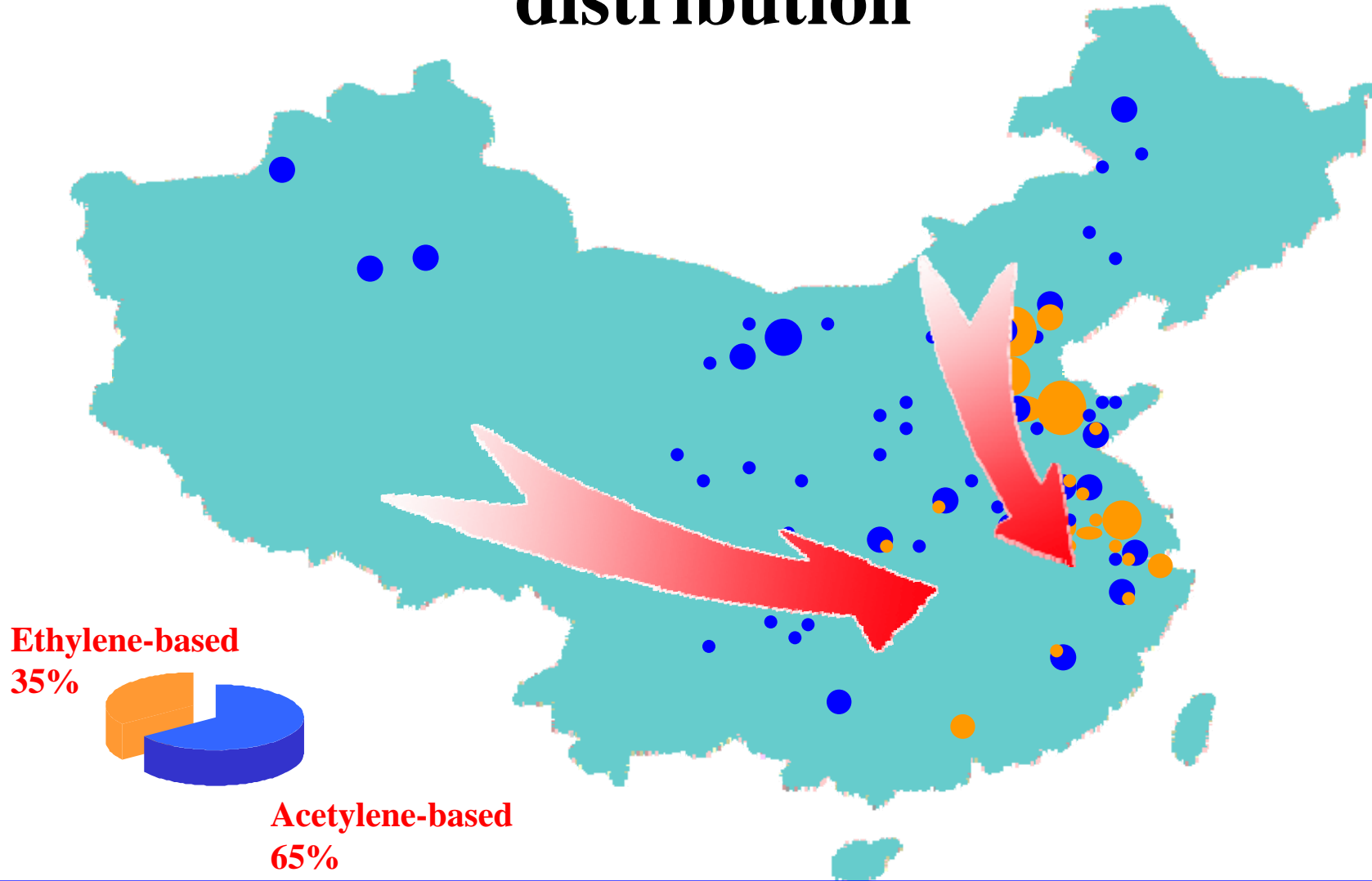
# EDC Imports



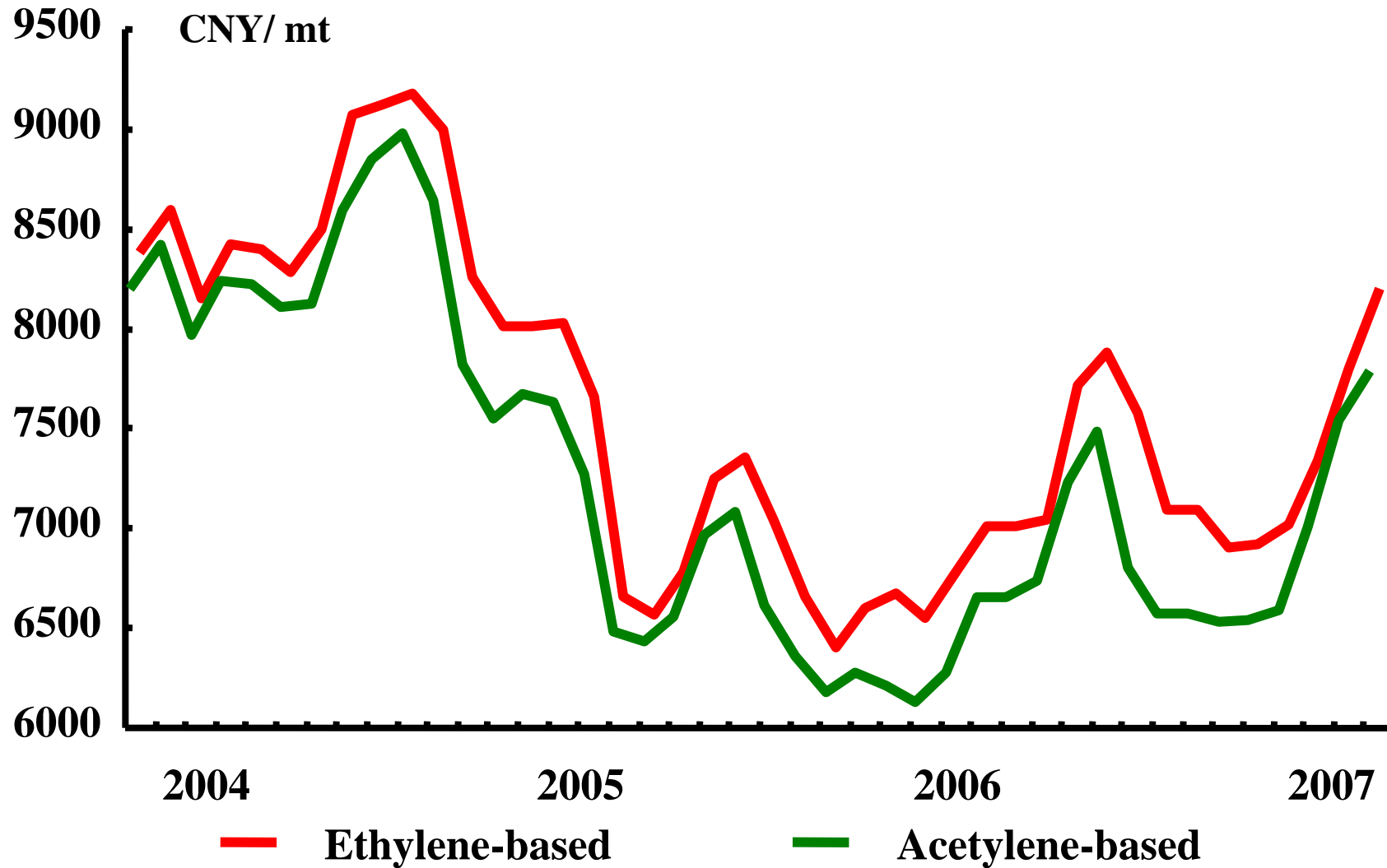
# VCM Imports



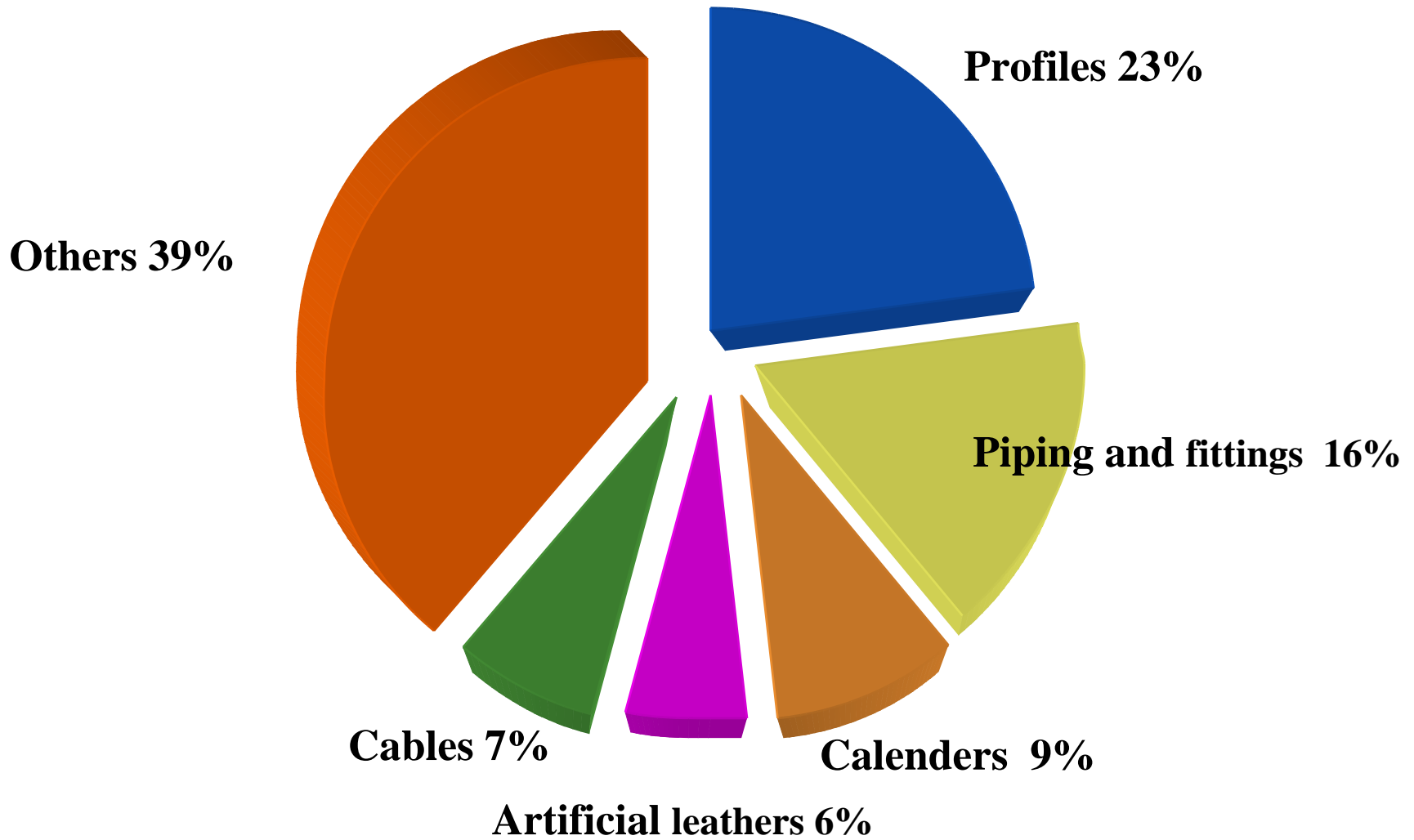
# PVC Production sites and market distribution



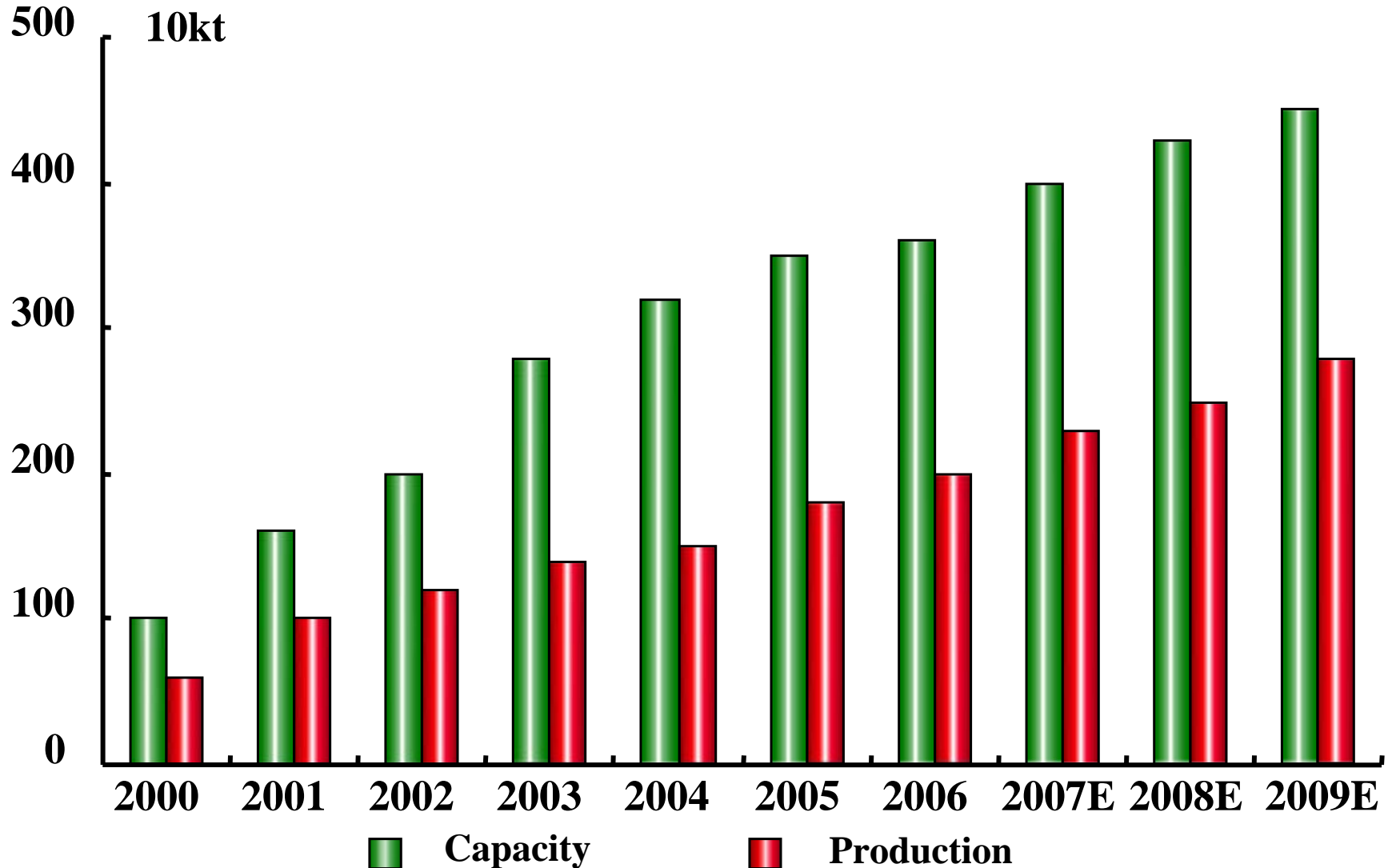
# PVC Market Price



# PVC downstream application



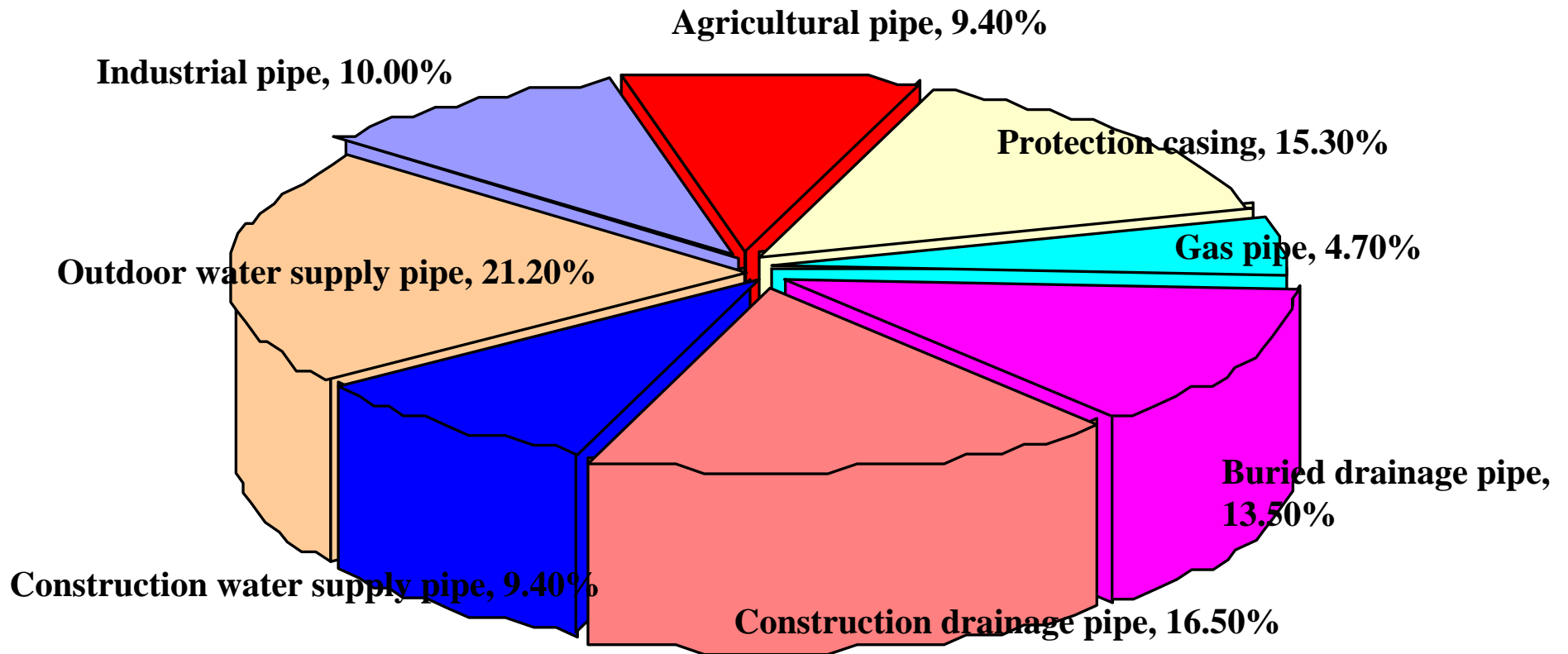
# PVC profiles (plastic doors and windows)



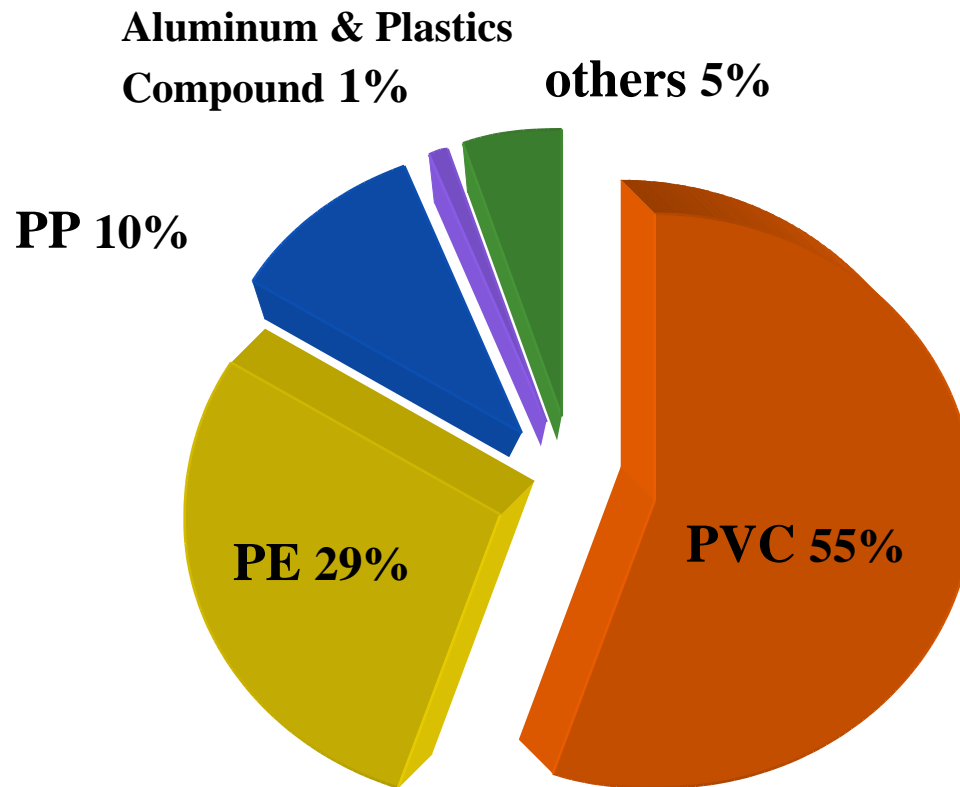


# Plastic Pipes Application

The total amount of plastic pipes in 2006 is 2.9 million tons, among which PVC pipes account for 55%.



# PVC pipes' share in all plastic pipes



# Lead-free Drinking Water Pipes

## PVC-U Pipes Application

<b>Drainage pipes</b>	<b>45%</b>
<b>Water-supply pipes</b>	<b>30%</b>
<b>Protection casing</b>	<b>15%</b>
<b>Others</b>	<b>10%</b>

**GB/T1002.1 standard took effect on Aug. 1, 2006. Pipes by drinking water should be marked with “ Non-Lead Stabilizer ”**



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## **State regulating Policies**

- ✓ **Eliminating behind plants**
  - ✓ **Implementing discriminated power prices**
  - ✓ **Reducing export drawback**
  - ✓ **Promoting admittance regulation**
  - ✓ **Executing clean production**
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# Environmental Problems by acetylene-based PVC production

**pollutants**

**Carbide slag**  
**Waster water**  
**Mercuric catalyst**



**New technology**

**Circling application**  
**Dry process for acetylene production**  
**R&D for non-mercury catalyst**



# The Industry Self-discipline

## HSE

**All plants newly-built or expanded must pass the pre-examination organized by the industry association and the evaluation of HSE**

**All plants newly-built or expanded must accord with the requirements for wastes disposal and resource synthetically utilization released by the State council of reform and development and the State general bureau of environmental protection.**

**Newly-built Carbide plants must be supported by carbide slag recycle & treatment facility.**

# **The Industry Self-discipline**

## **Admittance conditions for PVC production**

### **✓ Sustainability principles :**

**Optimized layout, well-ordered development, reengineering structure, economizing energy,**

**Environmental friendship, production in safety, technology advancement**

### **✓ Scale, Process and Equipment :**

**Newly-built acetylene-based PVC plants must reach 300kmt capacity.**

**Relocated acetylene-based PVC plants must be expanded to 200kmt capacity.**

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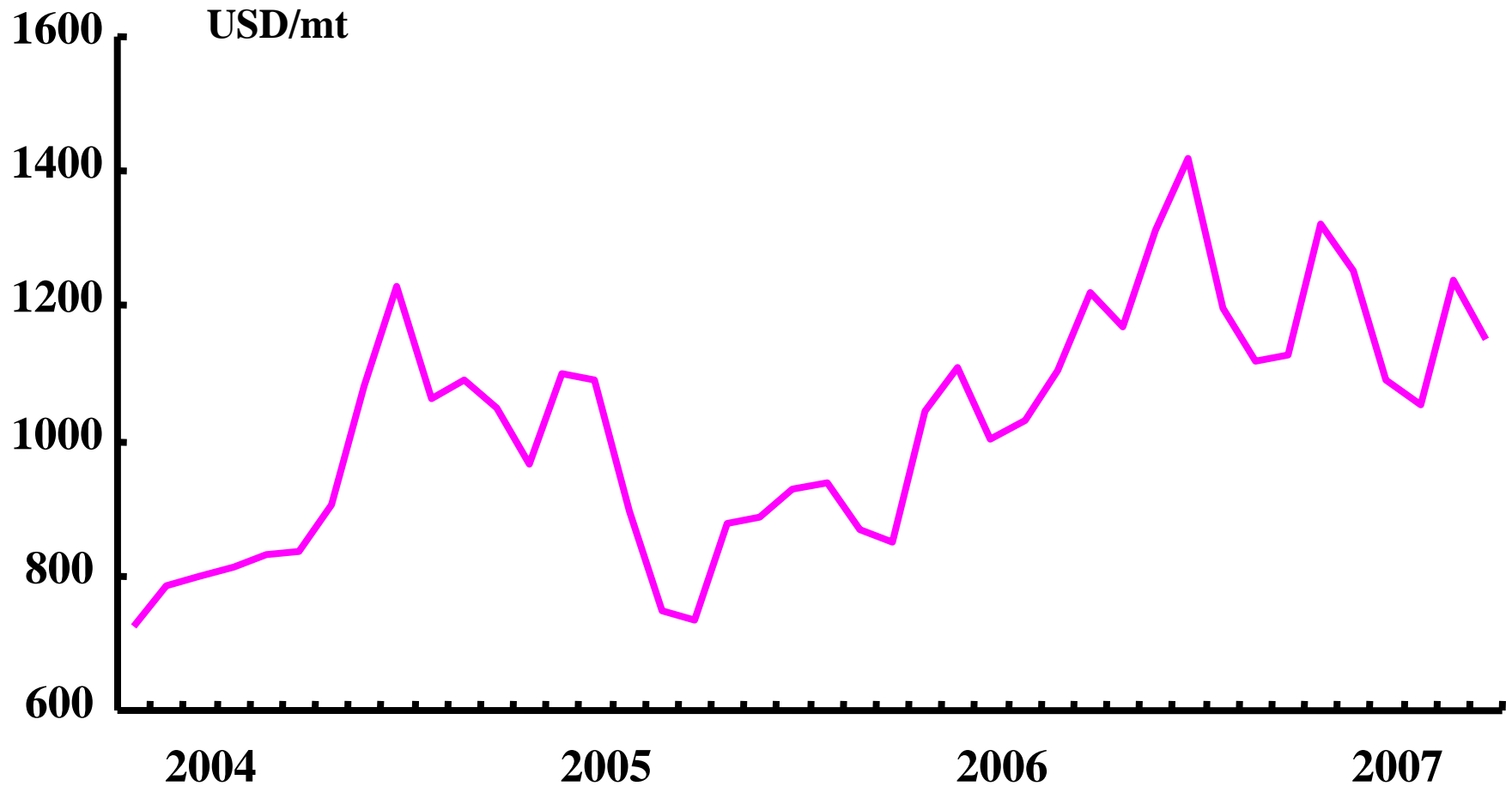
## **The Industry Self-discipline**

**“Safety Manual for Chlorine and Caustic products”**

- ✓ To standardize management for production in safety**
  - ✓ To reinforce recognition for responsible care**
  - ✓ To implement pre-measures for emergency**
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# Imported Ethylene Price



# Average Carbide Price

