

# Chinese Copper Raw Materials Supply

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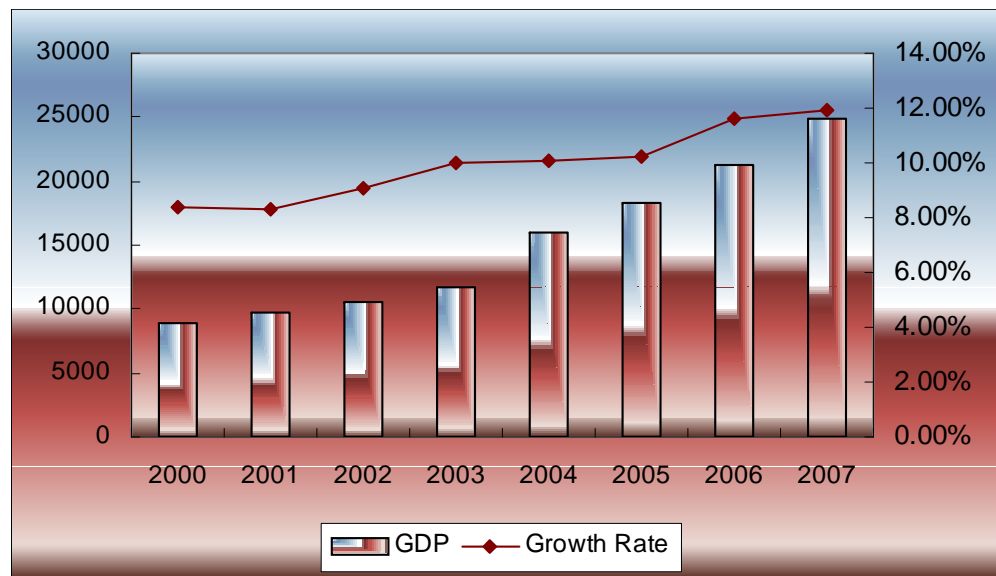
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# Outline

- **Overview China 2000-2007**
- **About 2008**
- **Prospect for 2009-2010**
- **How to secure sufficient raw materials supply?**

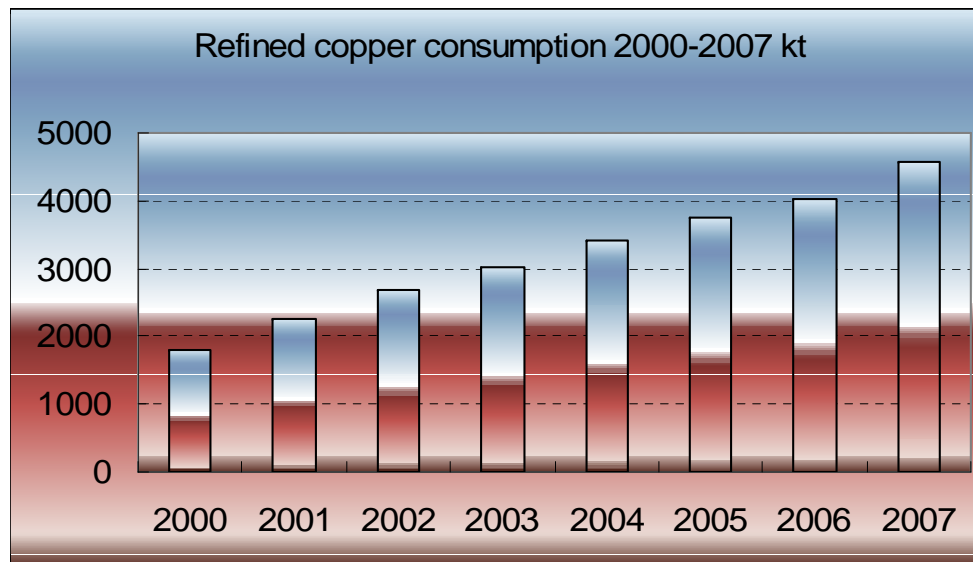
# China's GDP Growth 2000-2007 bln yuan



- China sustained rapid economy development in 2000-2007, with an annual growth rate of 10.15% on average, China's GDP is expected to be less than 10% in 2008, the first time to be below 10% in recent six years since 2003, mainly affected by the global financial crisis.

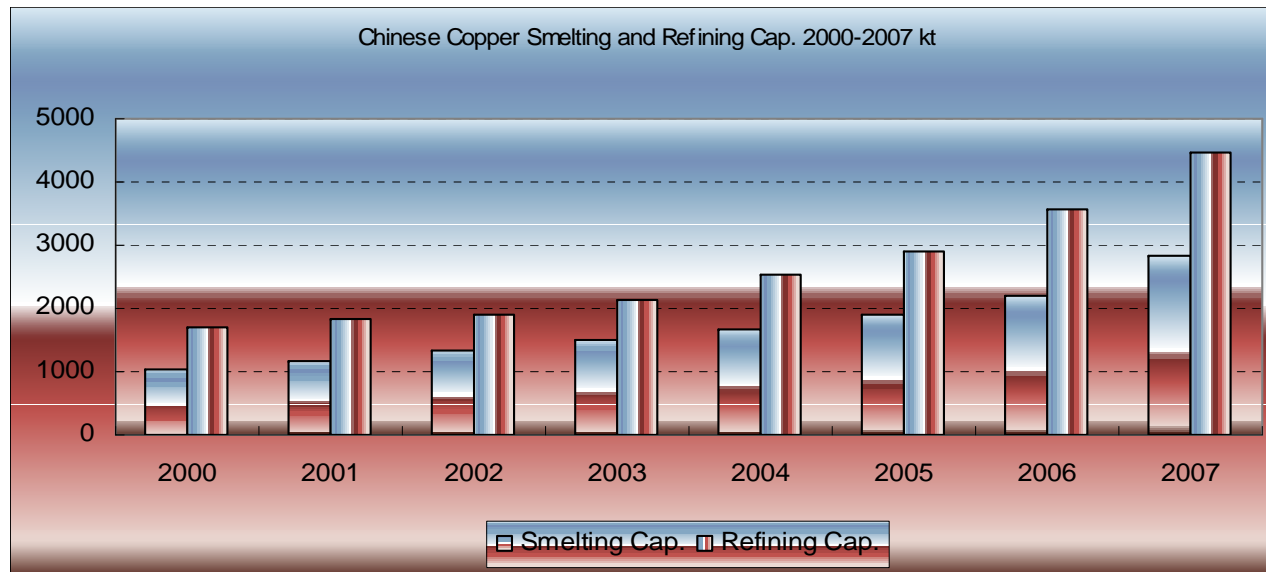
# Chinese Refined Copper Consumption in 2000–2007

- Along with the rapid development of Chinese economy, the consumption of copper has been growing steadily in recent years. The average growth rate reaches 13.5% during 2000-2007, far exceeding the growth rate of the Chinese economy in the same period.
- .
- China has replaced the US as the largest copper consumer in the world since 2002. China will continue to be the main driver for global copper consumption in the years to come.

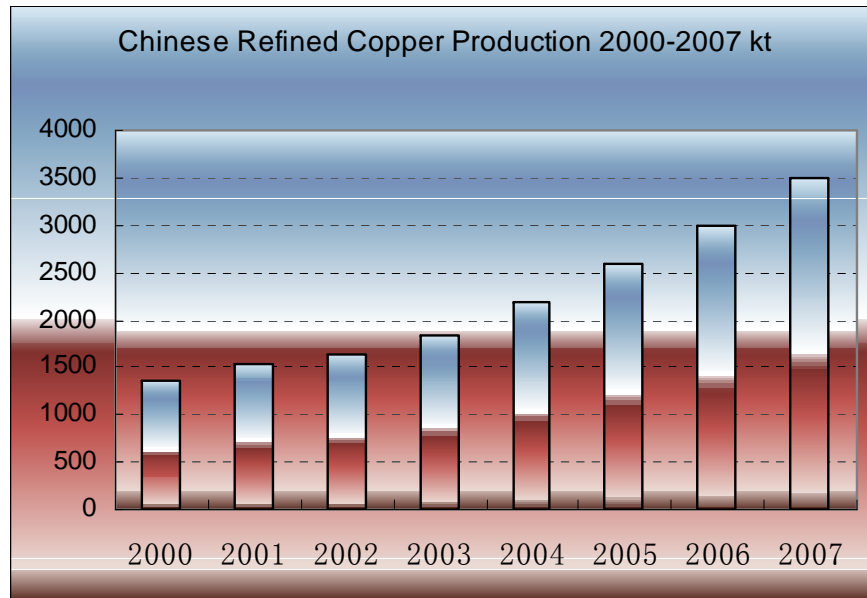


# Chinese Smelting and Refining Capacity 2000–2007

- Robust demand and higher TC/RC encouraged Chinese copper producers to expand smelting and refining capacities. Especially after 2003 when the copper prices was in upward trend and TC/RC began to rise. But the investment in smelting and refining has been curbed since the central government issued policies to restrict the overheat investment in the sector. CNIA data shows investment in new smelting projects has been slowing down since 2007. Most of the newly-added capacities are caused by the technology upgrading. Now, all the major copper smelters have adopted advanced process.

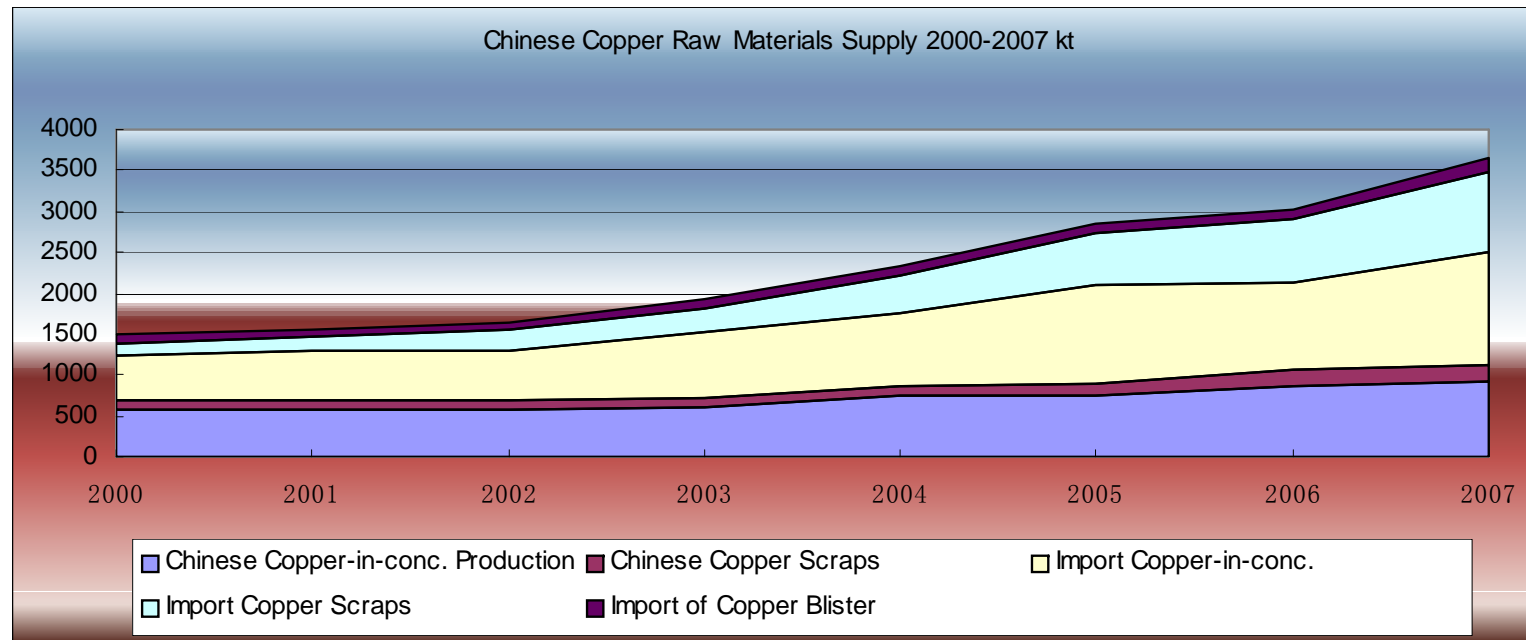


# Chinese Refined Copper Production 2000–2007



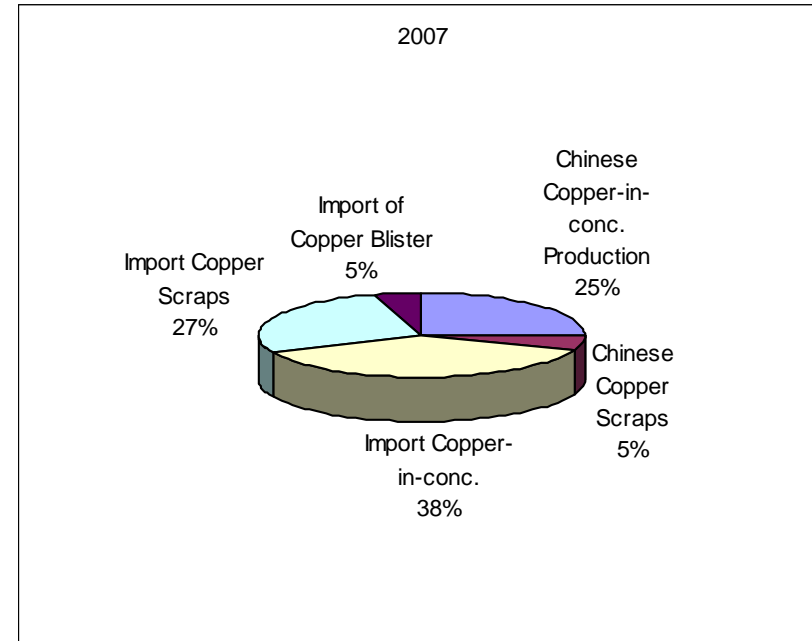
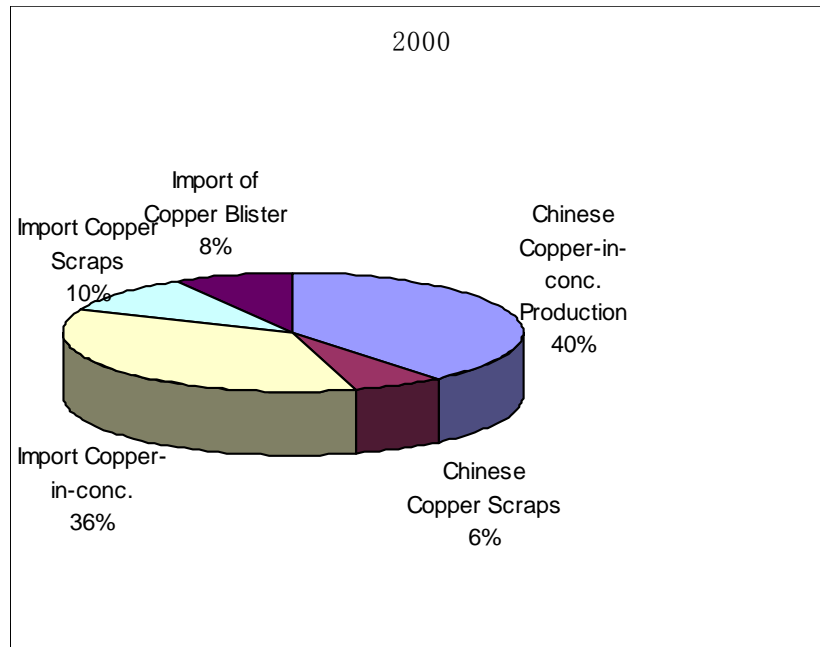
- Chinese refined production rose to 3,497kt in 2007 from 1,371kt in 2000, with annual growth rate of 14.4% in the period, driven by the robust domestic demand and brisk copper prices.

# Chinese Copper Raw Materials Supply in 2000–2007 (kt)



- With the increasing refined production in China, China is importing more and more copper raw materials, i.e. copper concentrate, blister and scraps.

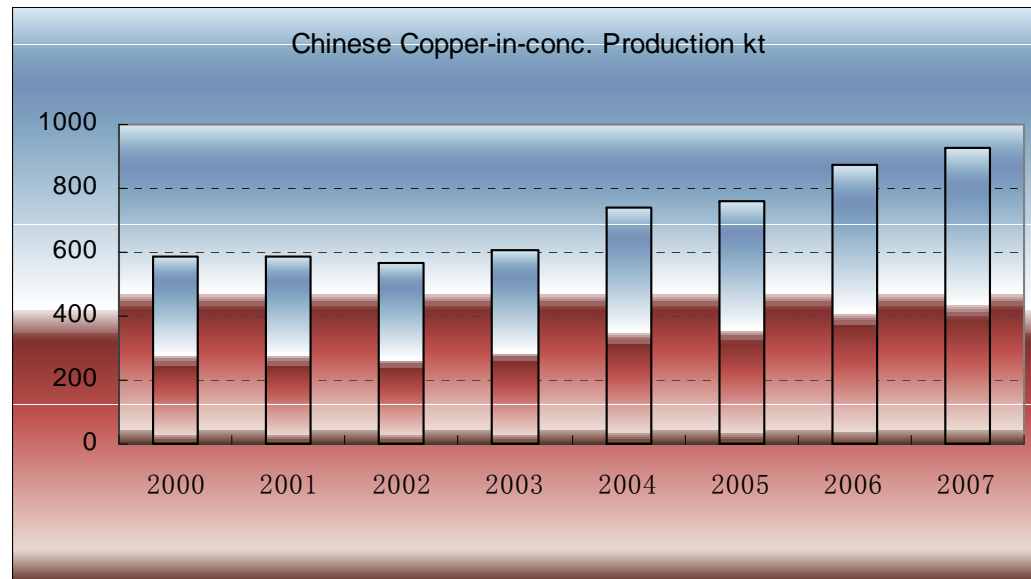
# Chinese Copper Raw Materials Supply in 2000 and 2007



Chinese reliance on import raw materials is growing. Imported raw materials in 2000 accounted for 54%, that in 2007 accounted for 70%. Copper scraps are playing increasingly crucial role. The proportion of secondary copper in 2007 doubled that in 2000. The trend will continue in the future.

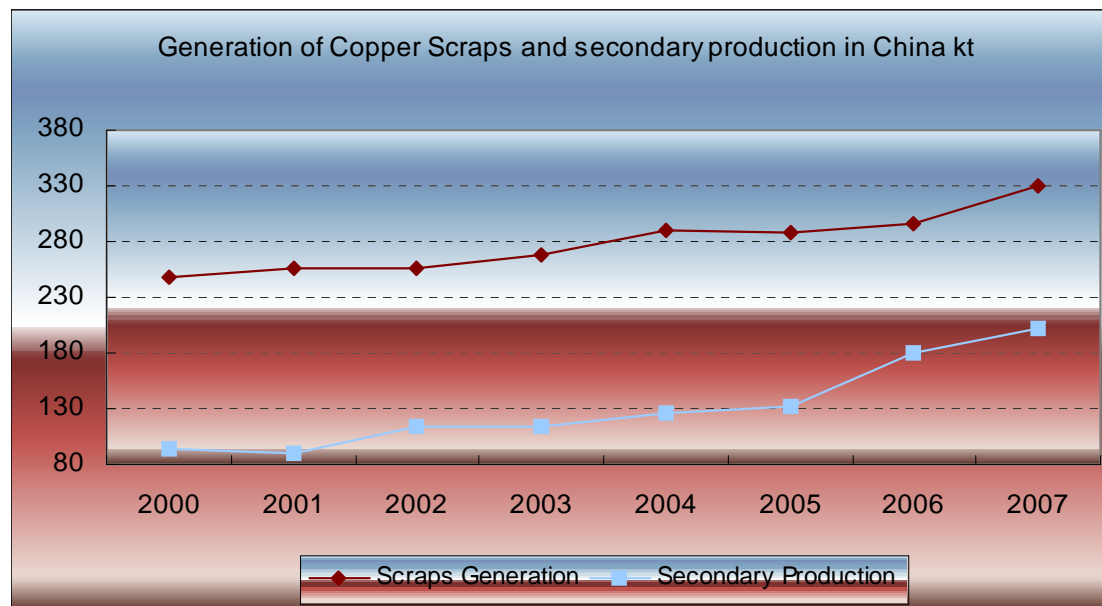
# Chinese Copper Raw Materials Supply in 2000–2007 -- Domestic Supply

- **Mine production**
- Chinese mine copper grows slowly in 2000-2007, except declining in 2000-2002 when the copper prices remained low. Boosted by the rising copper prices and demand since 2003, the mine production began to grow, the growth rate is 7.0% in 2003-2007, but falls behind the 17.38% growth of smelting capacity in the four years period.



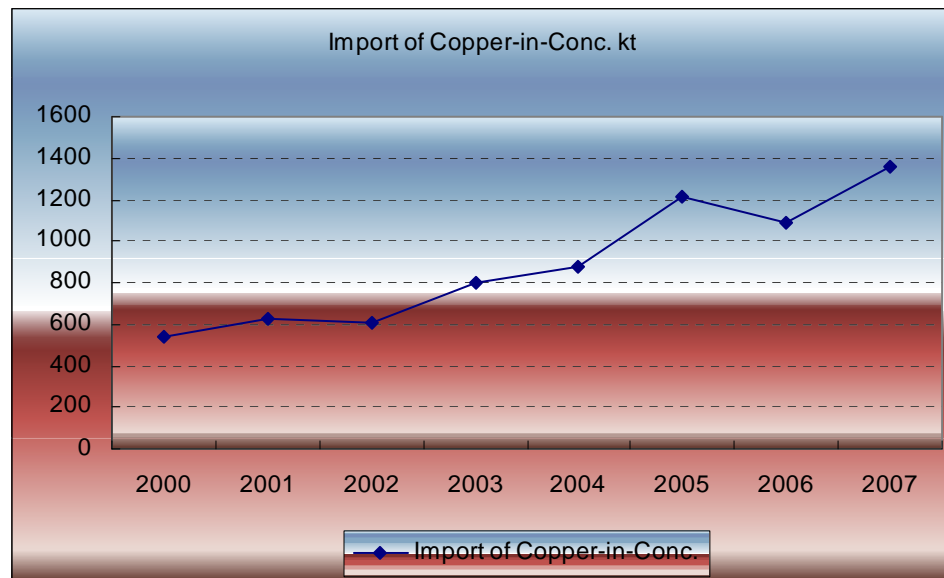
# Chinese Copper Raw Materials Supply in 2000–2007 – Domestic Supply

- **Scraps generation and production of secondary copper**
- Chinese annual copper consumption was at most 200kt in 1950s and 1960s, then increased to approximately 350kt in 1970s and jumped to 800kt in 1980s. Currently, the copper recovered from home-made copper scraps were initially used before 1990. Therefore, the quantity of recycled home-made copper scraps is still quite small and cannot meet the domestic demand. Antaiko estimated that Chinese annual copper scraps recovery quantity increased by 33.5% from 247kt in 2000 to 331kt in 2007.

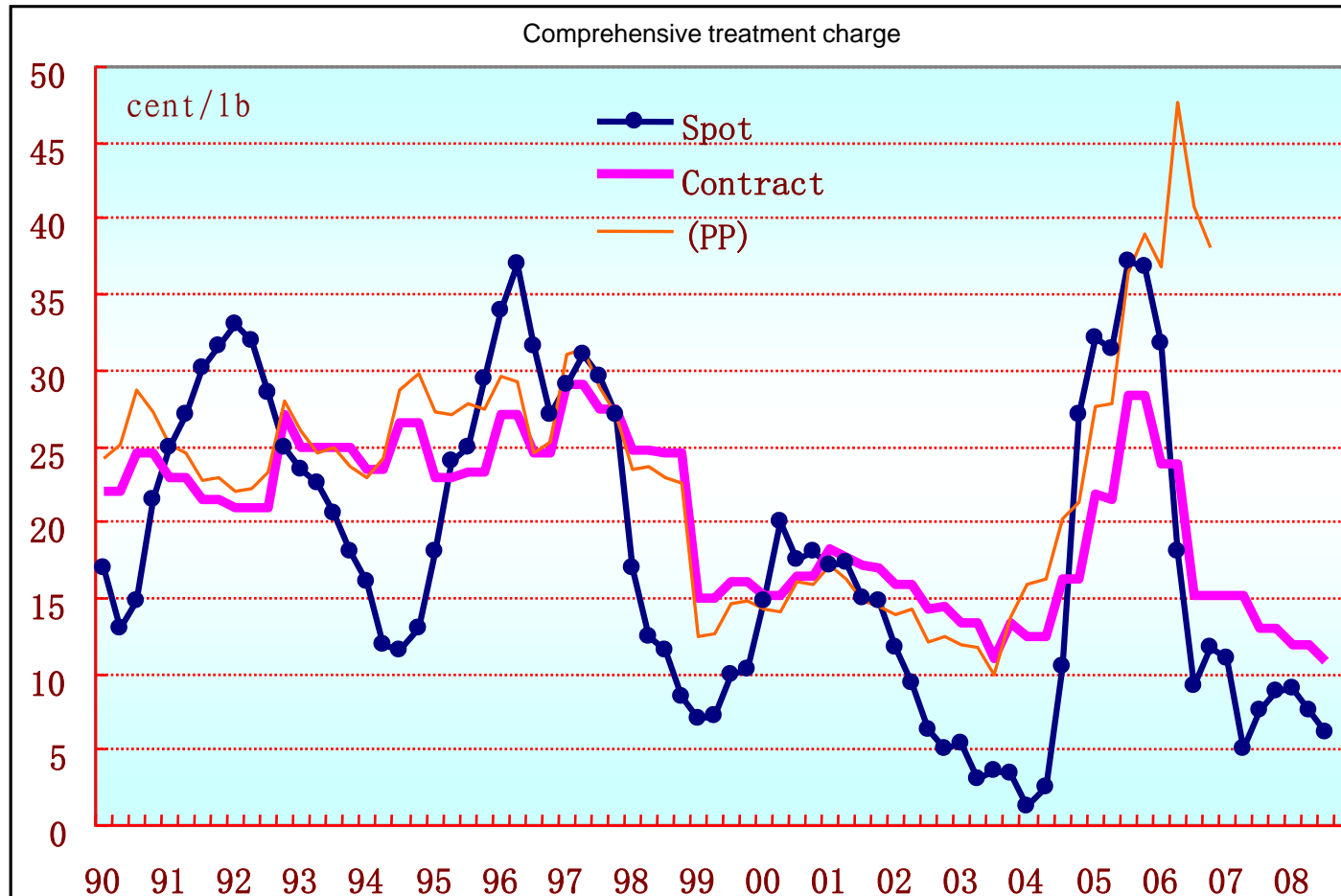


# Chinese Copper Raw Materials Supply in 2000–2007 – Import

- **Import of Copper concentrate**
- The import was only 543kt in 2000, it will jump to 1,360kt in 2007, 1.5 times that in 2000. But the growth rate in 2006-2007 slowed down, due to the dive in TC/RCs and PP term was totally cancelled. The profit of smelters has been squeezed.



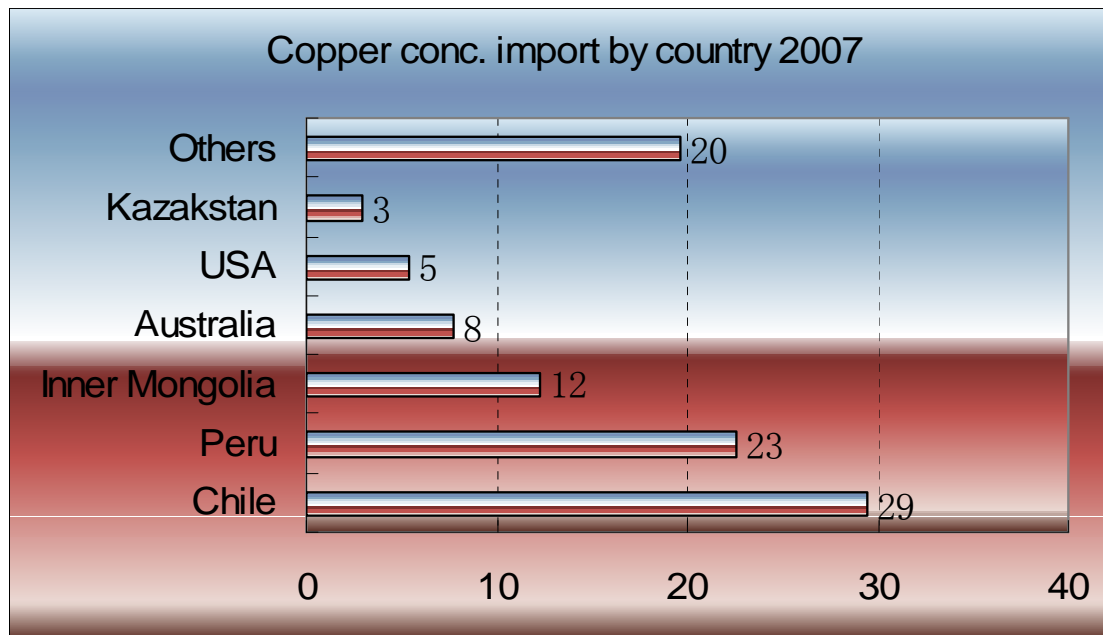
# Comprehensive treatment charge



# Chinese Copper Raw Materials Supply in 2000–2007 – Import

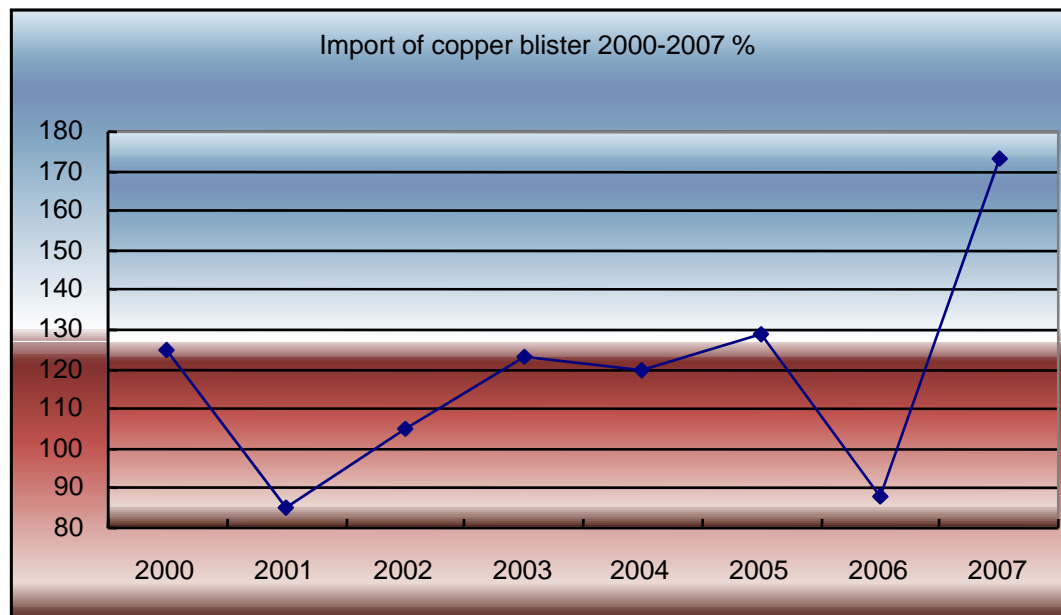
## Copper conc. import by country

Chile remains as the biggest supplier of copper concentrate to China, its supply to China accounted for 29% of China's total, followed by Peru, Inner Mongolia and Australia. Those countries are rich in copper resources. But China may face challenge in the future, with lowering grade, strike problems, uncertainties.



# Chinese Copper Raw Materials Supply in 2000–2007 – Import

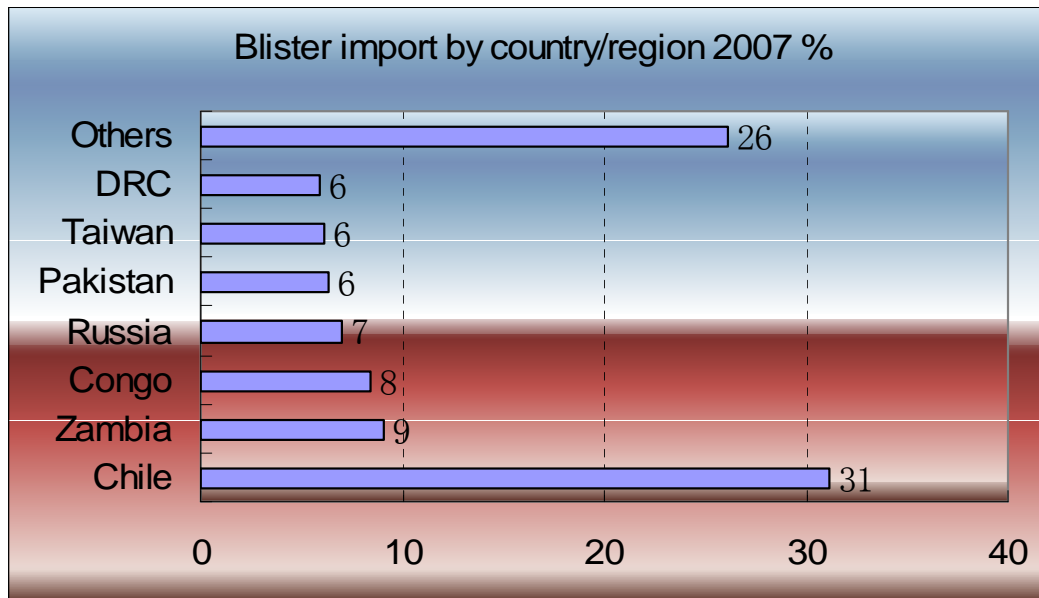
- **Import of Copper blister**
- To match with mounting up refining capacity, China has to import copper blister.



# Chinese Copper Raw Materials Supply in 2000–2007 – Import

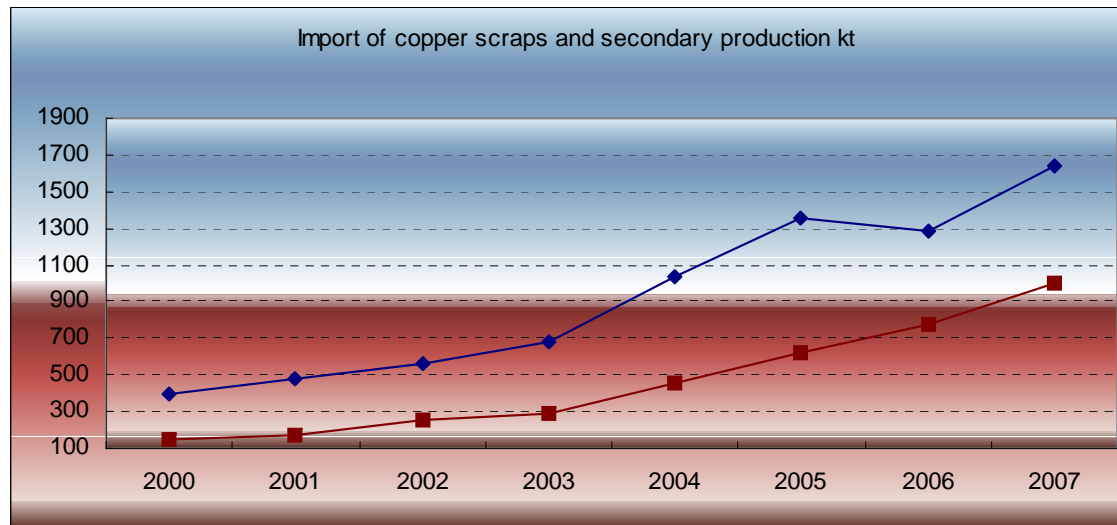
## Import of copper blister by country

Chile is the No. 1 exporter of copper blister to China. The import from Zambia is expected to increase when the 150kt Chambishi Copper Smelter is commissioned.



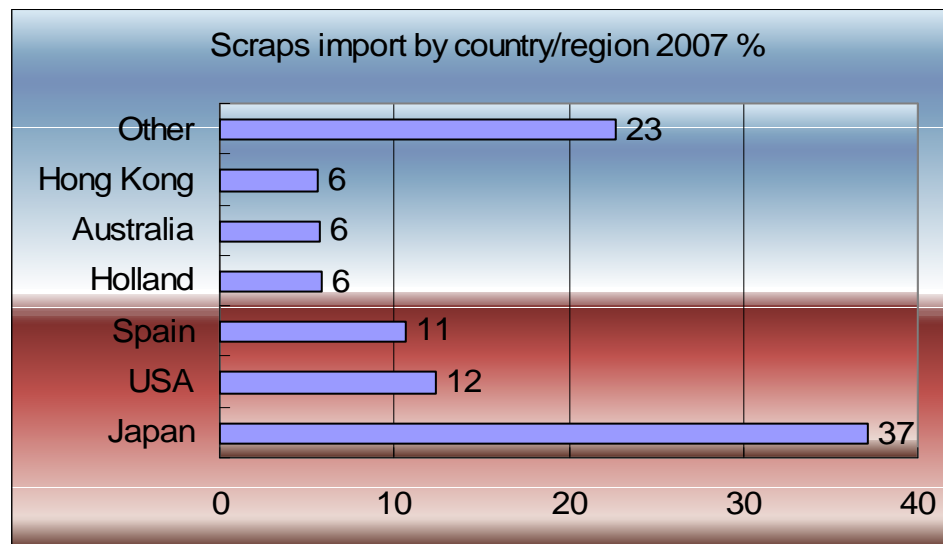
# Chinese Copper Raw Materials Supply in 2000–2007 – Import

- **Import of Copper scraps**
- China has become the world's largest copper scraps importer. According to statistics from China Customs, import of copper scraps increased from 2.50mt to 5.59mt from 2000 to 2007 with an annualized growth rate of 12.33%. Antaiko found that tonnage of copper contained in imported copper scraps increased from 400kt in 2000 to 1.642mlnt in 2008 and grade of the copper up from 16% to around 30%. The import scraps will play more important role in the future



# Chinese Copper Raw Materials Supply in 2000–2007 – Import

- **Import of copper scraps by country/region**
- Japan is the biggest copper scraps supplier to China, followed by other developed countries, such as USA, Spain, Holland and Australia



# About China 2008

Refined copper supply demand kt			
	2007	2008 Chn	yoy %
Production	3,497	3,750	7.23
Import	1,494	1,320	-11.65
Export	126	95	-24.60
Consumption	4,560	4,850	6.36
Balance	305	125	

Chinese raw materials supply 2008 kt	
Chinese Copper-in-conc. Production	980
Chinese Copper Scraps	215
Import Copper-in-conc.	1500
Import Copper Scraps	860
Import of Copper Blister	200

- Antaiko adjusted down Chinese copper consumption for this year to 4850kt from 4950kt due to the financial crisis.
- Chinese smelters reduced production since October due to the soft demand. Import of raw materials in the last few months this year will decrease.

# Chinese Copper Consumption 2009-2010

Chinese refined copper consumption in 2009-2010		
	2009	2010
Consumption	5,100	5,410

Along with the slowing down global economy, Chinese copper consumption will increase by 5-6% in the next two years, China will remain as the driving force for global copper demand.

IMF predicts world economy growth will be 3.75% this year and 2.2% in 2009, while China's GDP growth will be about 7.5% in 2009.

# Chinese Smelting/Refining Capacity in 2009–2010 (kt)

- Expansion of smelting and refining capacities will slow down in the next few years.
- Based on Antaiko survey to Chinese copper producers, there are still some new projects to be launched next year. But due to the soft copper prices and some uncertainties, Antaiko does not take those projects into consideration when making estimation on smelting and refining capacity for next two years.

# The expansion of smelting capacity slowed down

Projects	Ownership	Smelting	Refining	Commissioning time
Penghui	Penghui	100	-	Feb. 2008
Jinlong	Tongling	-	100	Jun. 2008
Jinfeng	Jinfeng	110	-	Apr. 2008
Jinjian	Tongling	120	-	Oct. 2008
Fangyuan	Fangyuan	100	-	Nov. 2008
Guixi	Jiangxi copper	-	160	Early 2009
Huludao	Huludao	100	-	Jun. 2009
Qingyuan Yuntong	Yunan copper	-	100	2009
Jianchang	Seamless steel tube	-	100	2009
Others		33	160	-
Total		563	620	-

# Chinese Production of Copper Conc. and Scraps in 2009–2010

	2009	2010
Chinese Copper-in-conc. Production	1,030	1,080
Chinese Copper Scraps	209	229
Import Copper-in-conc.	1,400	1,550
Import Copper Scraps	1,200	1,350
Import of Copper Blister	220	250
Total Supply	4,059	4,459

- Import copper concentrate, blister, and scraps from overseas suppliers
- Disadvantages: low TC/RCs, not stable
- Advantages: low risk, flexible

# Copper Mines to be Developed in China

- **Yulong Copper Mine** is one of the large copper mines in China. According to the initial plan of Western Mining Company, the biggest shareholder, the mine will be built by three stages, the first stage with 30-50ktpy would be commissioned in 2008, the second stage and the third stage is 100ktpy and 150-200ktpy. The 10ktpy to be commissioned in August is part of the stage one project.
- **Suoerkuduke Copper Mine**, belonging to Baiyin Nonferrous Metals Group put its first stage project with 2,300t copper-in-concentrate annually this year. The mining capacity will be lifted to 1.0mtpy when the second stage is finished.
- **Ashele Copper Mine**, The copper mine produced 28,400 tonnes of copper-in-concentrate and 9,800 tonnes of zinc in 2007. The construction of its stage 2 technology-upgrading project is ongoing now. The project will not bring a growth on capacity, but will make the mine's output of ores stabilize at 4,000 tpd.
- **Wunugetushan Cu-Mo Mine's** first stage project will be finished by the end of this year. It will be capable of mining and concentrating 30,000tpd ores and produce 25,900tpy copper-in-concentrate and 2,958t molybdenum-in-concentrate.
- The project is invested by China National Gold Corporation. The mine bears 2.67 mln copper reserve and 540kt molybdenum reserve. It will be developed by three stages. The investment on the first stage will be 2.854 bln yuan. After the three stages completed, 120ktpd ores can be mined and concentrated.

# Copper Mines to be Developed in China

- **Jiangxi Copper Corporation**
- Dexing Copper Mine plans to construct an expansion project in Q2 2008 to Jul. 2009. The expansion project has capacity of mining and dressing 7,500 tpd copper ores. The copper mine plans to produce 124,000 tonnes of copper-in-concentrate in 2008. It is expected to raise its capacity to 130,000 tpd in 2011.
- Yongping Copper Mine plans to invest 114 million yuan in turning from open-pit mining to underground mining in 2008. The project will be fulfilled in 2009.  
Dongtong Mining Co., Ltd. is now constructing exploitation project in depth of its No. 5 mine body.

## **Yangla Copper Mine of Yunnan Copper Co., Ltd.**

The Copper Mine, located in Deqin County, Diqing Prefecture, Yunnan Province, commissioned its stage 1 project by the end of 2007 after two years construction. The first stage of the project cost 700 million yuan and has capacity of 20,000tpy copper-in-concentrate. When its stage 2 project is commissioned in 2010, the mine's capacity will climb to 50,000 tonnes of copper-in-concentrate.

# Going out to Secure Supply–Acquisition

Zambia Chambishi Cu mine	NFC Africa Mining PLC (NFCA)	
Peru Rio Blanco Cu-Mo mine	Xiamen Zijin Tongguan Development Co. Ltd 89.9%	US\$1.44bln
Peru Toromocho copper mine	Chinalco	US\$1.5bln
Peru Galeno copper-gold-molybdenum	China Minmetals Non-Ferrous Metals Co., Ltd. and Jiangxi Copper Company Ltd.	US\$980mln
Afghanistan Anayk copper mine	China Metallurgical Group Corp. and Jiangxi Copper Co.	US\$4.2bln
Mexico Bahuerachi Copper-zinc project	Jinchuan Group Ltd.	US\$600mln
Canada Yukon Wolverine Copper-zinc mine	Jinduicheng Molybdenum Group, Ltd. and Northwest Nonferrous International Investment Company	181mln Canada dollars

- **Lower risk**
- **Higher cost**

# Going out to Secure Supply- Grass-root Prospecting

- Some Chinese companies have gone out and applied for exploring right from local government or cooperate with local partners to apply for exploring right. But it is still in early stage.
- High risk
- High cost
- Long period
- Lack of experience
- Not familiar with local policies

# Conclusion

- China will continue to import both refined copper and copper raw materials to satisfy its appetite. But the import will be a little different with before, because China will import some concentrate from the mines they acquired.
- Growth in copper raw materials import will slow down following the decelerating smelting capacity expansion.
- Domestic copper mine production growth will be limited.
- With Chinese domestic copper scrap resource accumulating and escalating, growth rate in use of home-made scraps will be higher than that of imported scraps.
- China will continue to import copper concentrates from Chile, Peru, etc, but may face challenge in future years.
- China will keep importing copper blister from Chile, Zambia, and scraps from developed countries.

# Data Sources

- *Import and export data is quoted from China Customs*
- *Production data is sourced from CNIA and Antaike*
- *Consumption is estimated by Antaike*
- *Projects information is collected by Antaike*

# Thank You

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