ICSG

International Copper Study Group

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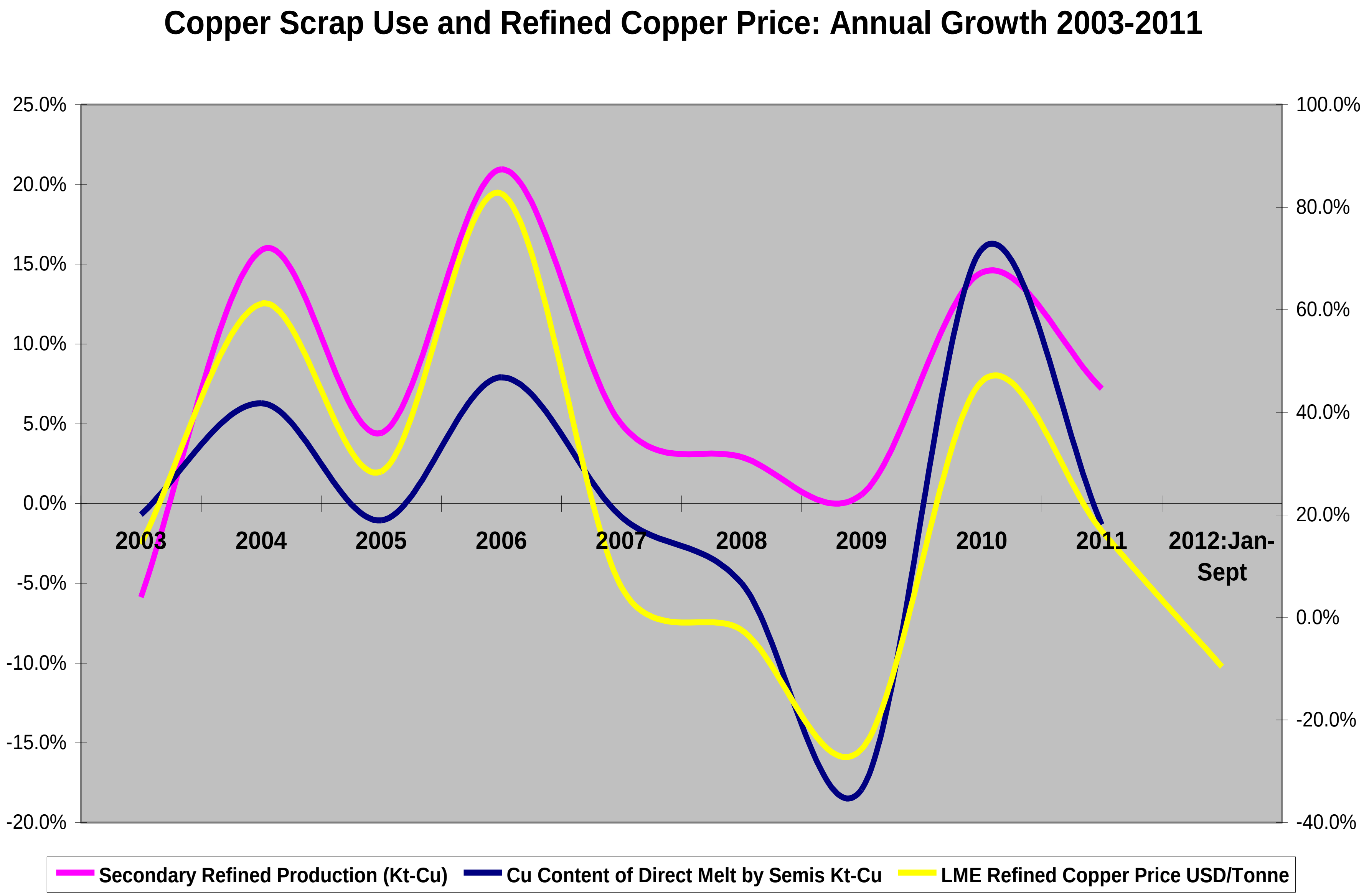
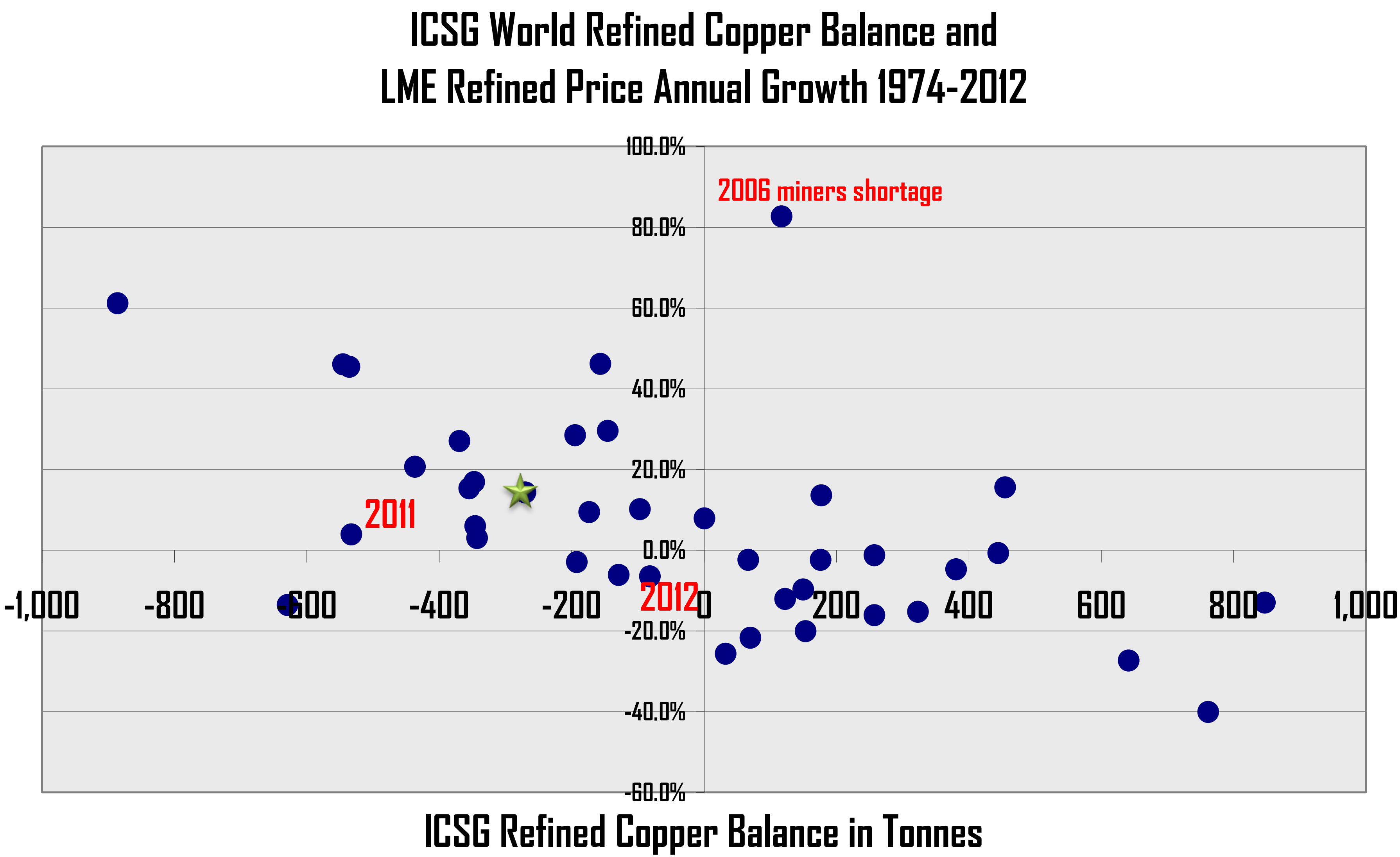
Copper and Copper Alloy Scrap Use and Trade in China and the Rest of the World

Carlos R. Risopatron
Head of Environment and Economics
International Copper Study Group
email: risopatron@icsg.org   www.icsg.org



The global use of scrap in smelters and fabricators is driven by refined copper prices.

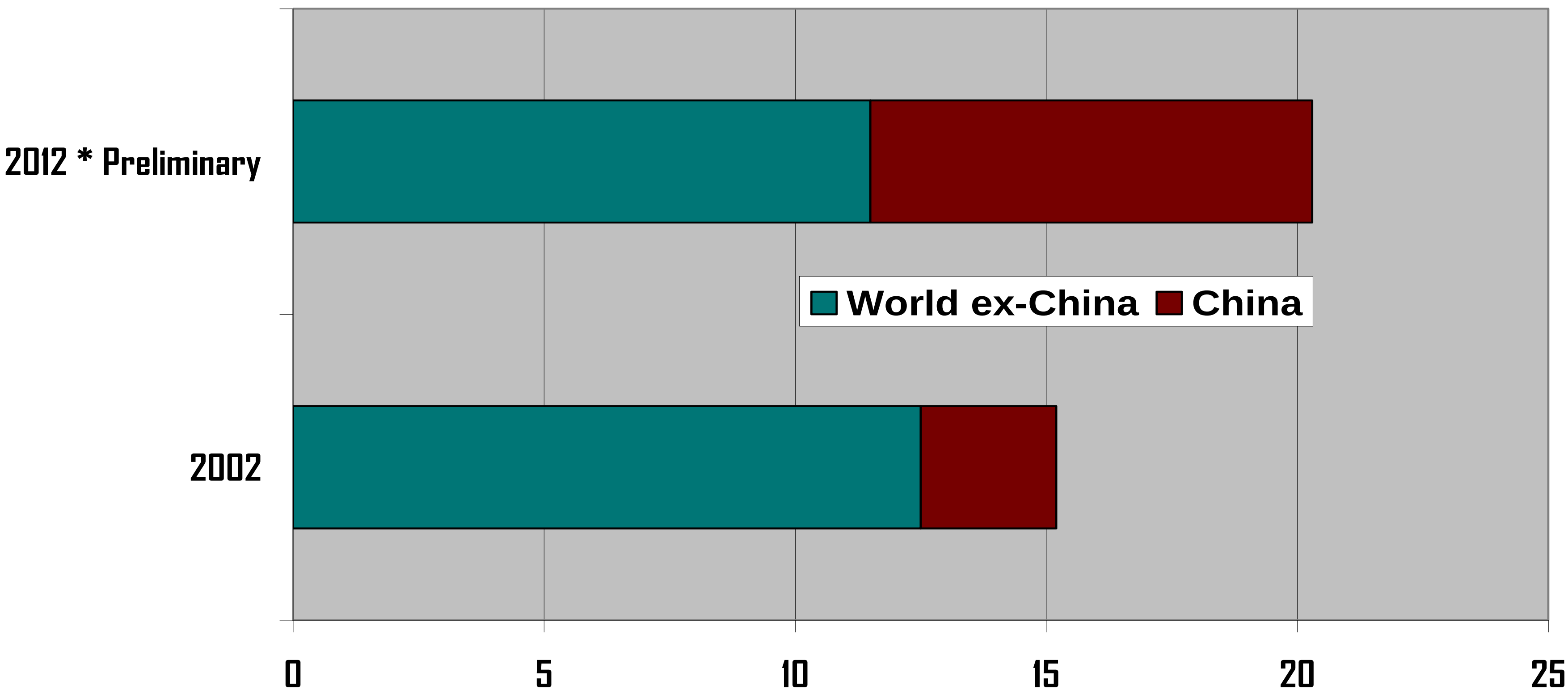
The price of refined copper is driven by the global balance of refined copper.



2012: a 10% fall in refined copper prices with unreported bonded stocks in Shanghai.

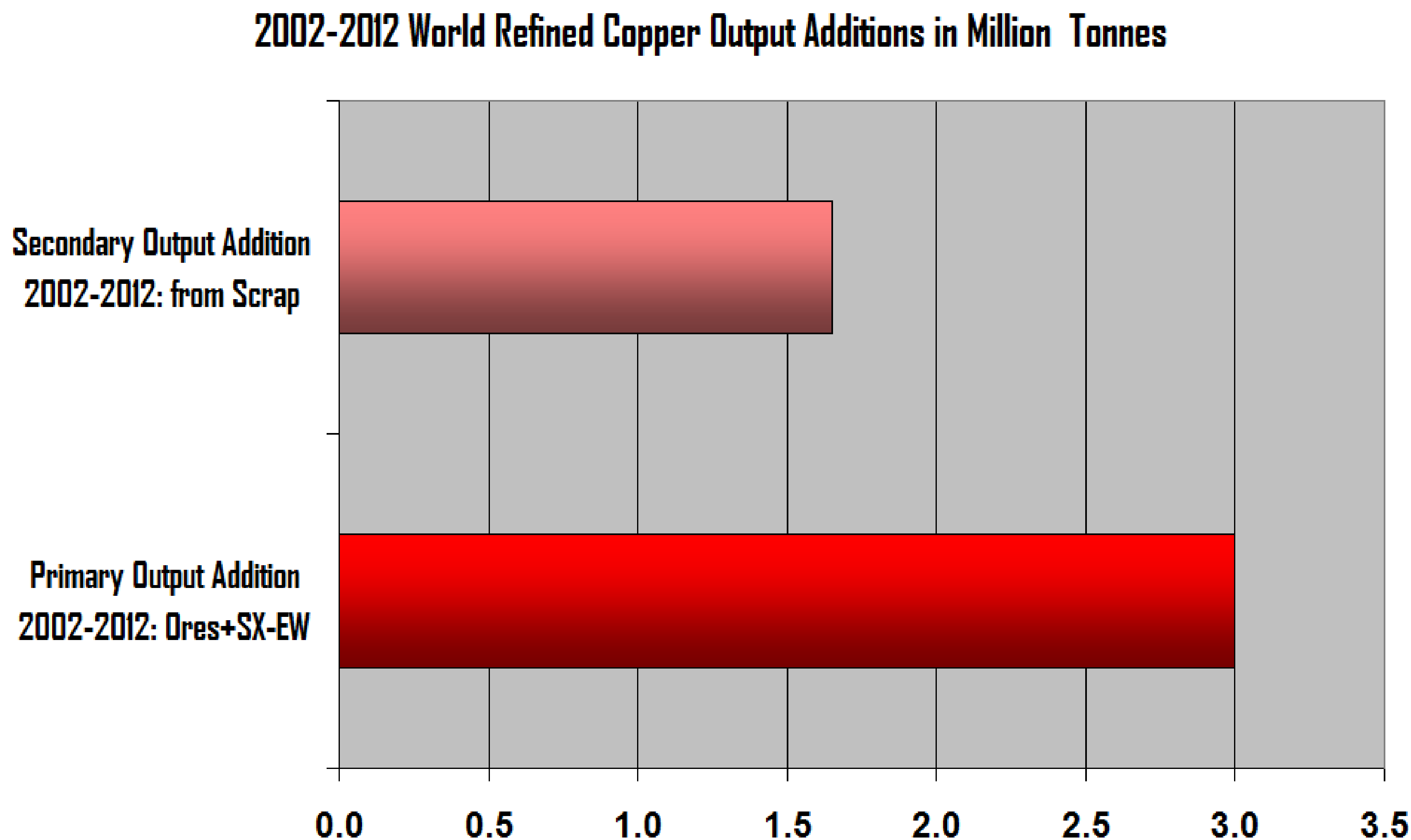
Increasing Chinese demand: the key factor driving the global shortage of refined copper in the last decade.

World Refined Copper Demand: Million Tonnes of Copper, ICSG.



	1974	2012	Growth
World Refined Demand Kg per Cápita	1.93	2.94	52.3%

Scrap recyclers helped to reduce the impact of the global copper shortage.

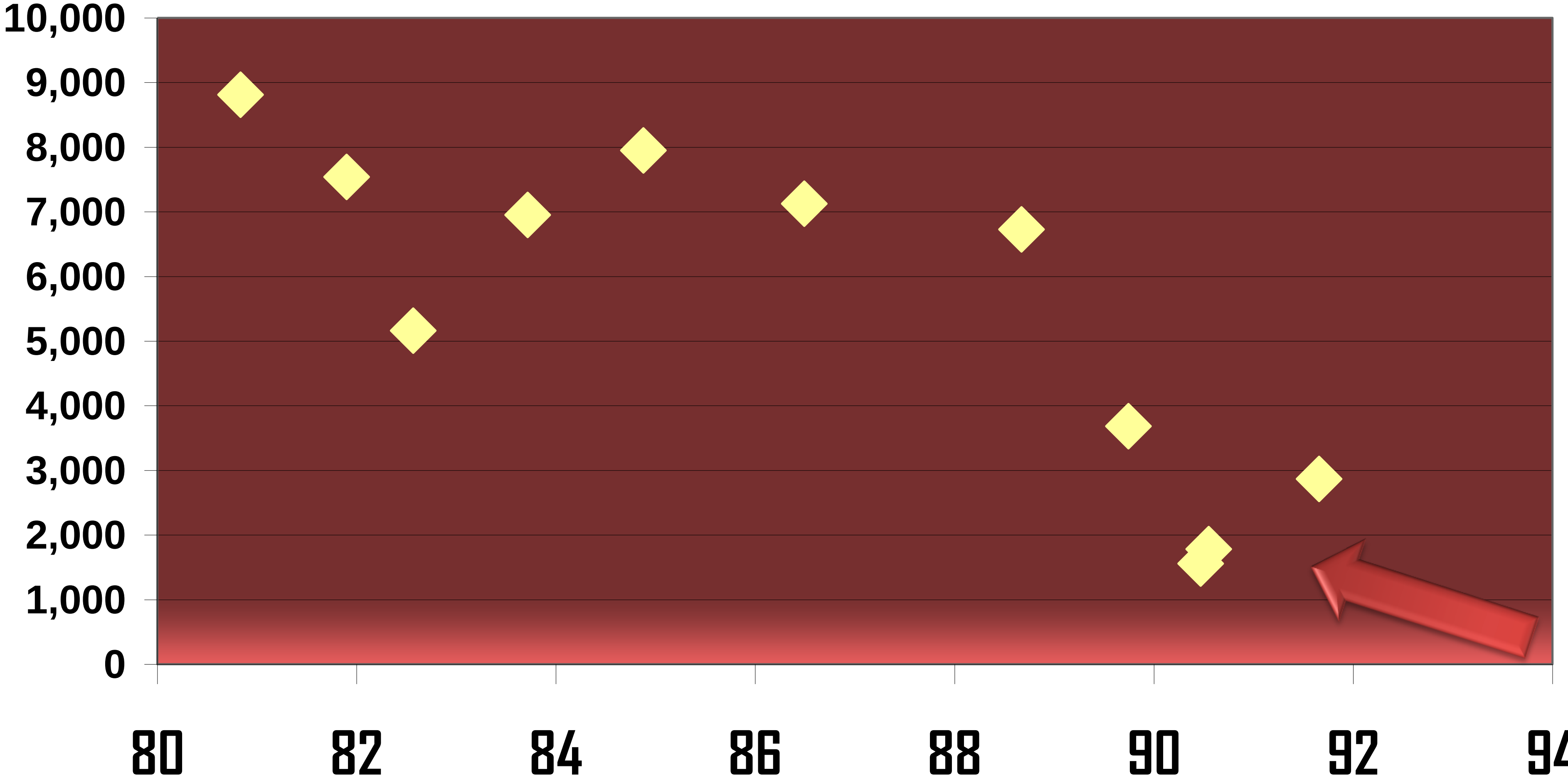


… but most of the supply response came at the end from copper miners.

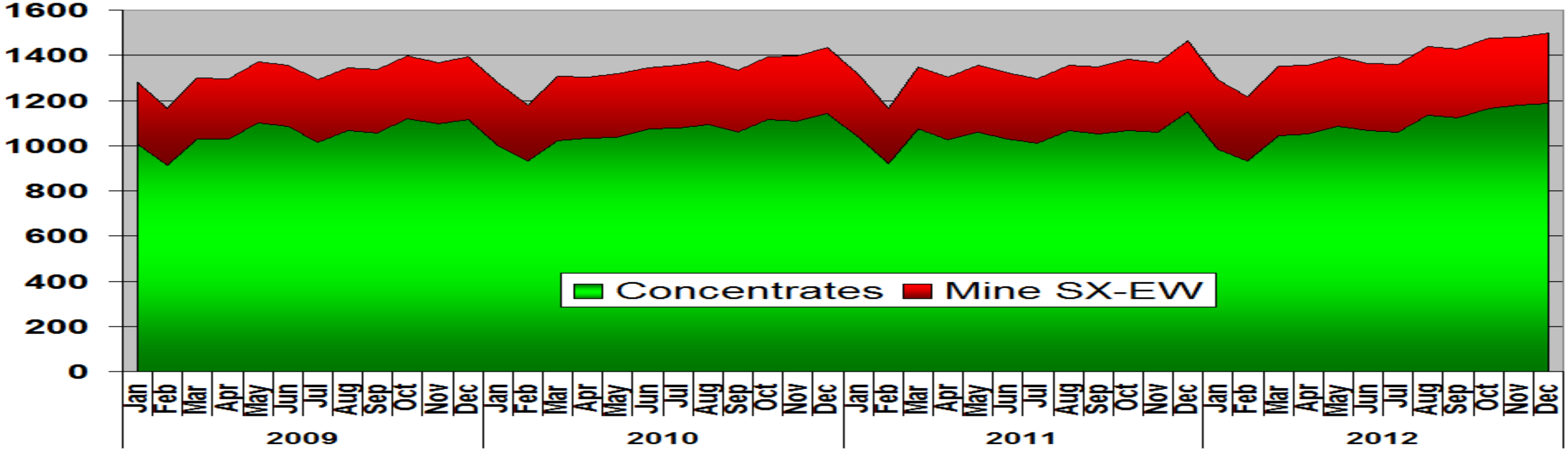
The other key factor of the global refined market shortage was a sharp contraction in copper mine capacity utilization.

World Mine Capacity Utilization and Refined Copper Price

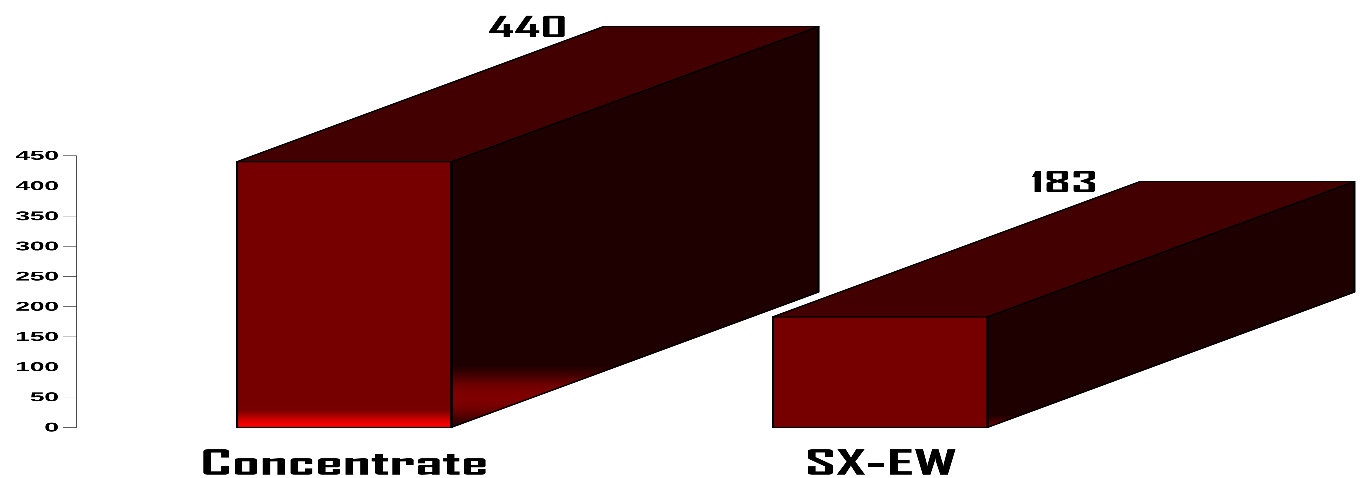
2002-2012. % Utilization and USD/Tonne.



But in 2012 world copper mine capacity utilization jumped.
Miners increased production before expected new capacity in 2013-2014.

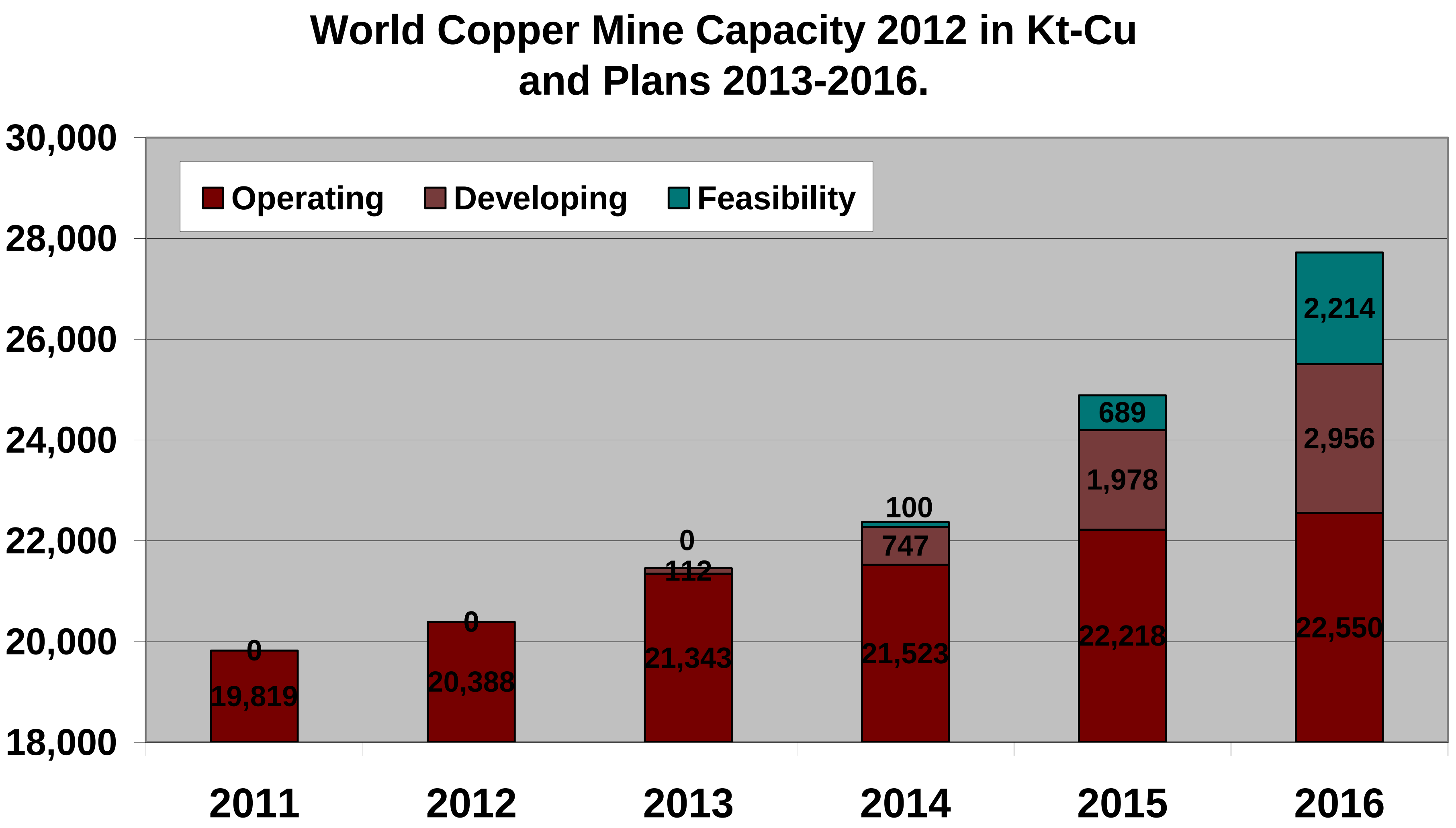


Additional World Copper Mine Production Jan-Nov 2012/2011



2013-2014 copper mine capacity projects pipeline is big as usual.

- 1.1 Mt-Cu in 2013, ~1 Mt-Cu in 2014, but mine output will grow slower than new capacity.



"Is time to stop building!"

Ivan Glasenberg, CEO Glencore International. (Miami, March 2013)

If copper holds a Ph.D. in economics this is the picture of the world economy.

Industrial use of copper up just in China and a few oil economies.

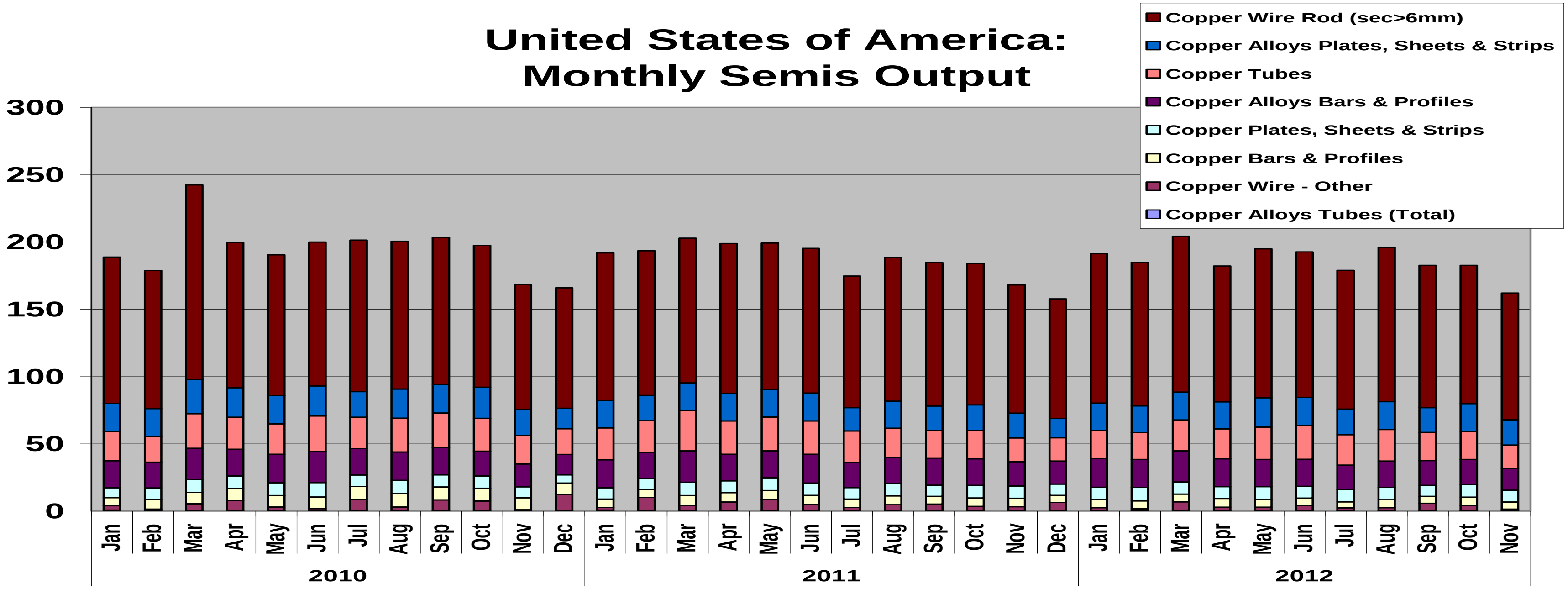
Fabrication of Copper and Copper Alloyed Products: 2012 Versus 2007

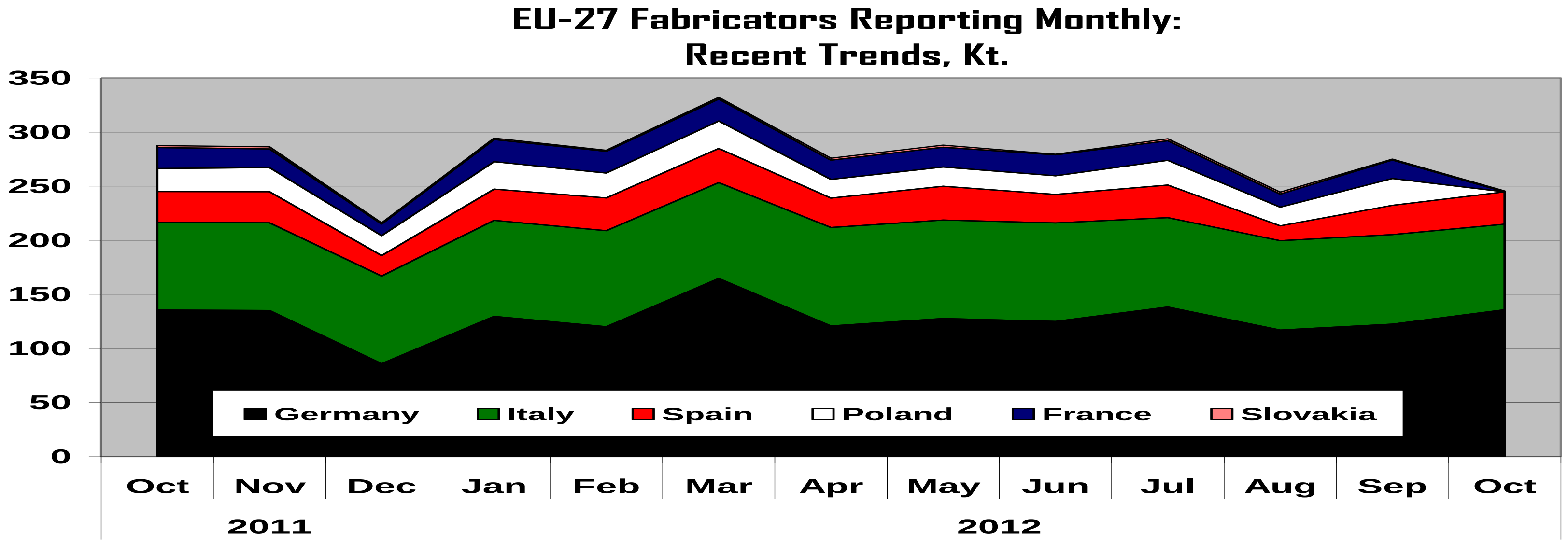
million tonnes gross weight, other alloyed metals included

Country	2007	2012 Oct*	Growth	Source
	Mt	Mt	%	
China	6.3	11.31	79.5%	ICSG
United States	2.94	2.17	-26.0%	ICSG
Germany	1.85	1.52	-17.7%	ICSG
Japan	1.75	1.33	-23.9%	ICSG
Korean Republic	1.33	1.06	-20.2%	ICSG
Italy	1.75	1.03	-41.2%	ICSG
Taiwan (China)	0.85	0.71	-16.4%	ICSG
Spain	0.34	0.32	-4.7%	ICSG
Poland	0.34	0.23	-31.4%	ICSG
France	0.54	0.19	-64.5%	ICSG
Slovakia		0.02		ICSG
India	0.71	0.64	-9.6%	Estimate
Russian Federation	0.80	0.56	-30.2%	Estimate
Turkey	0.41	0.27	-34.0%	Estimate
Thailand	0.29	0.27	-5.6%	Estimate
Brazil	0.37	0.23	-38.4%	Estimate
Indonesia	0.20	0.22	8.5%	Estimate
United Arab Emirates	0.00	0.21	100%	Estimate
Saudi Arabia	0.19	0.21	8.4%	Estimate
Iran	0.19	0.20	7.5%	Estimate
Sample of Countries	21.1	22.7	7.4%	

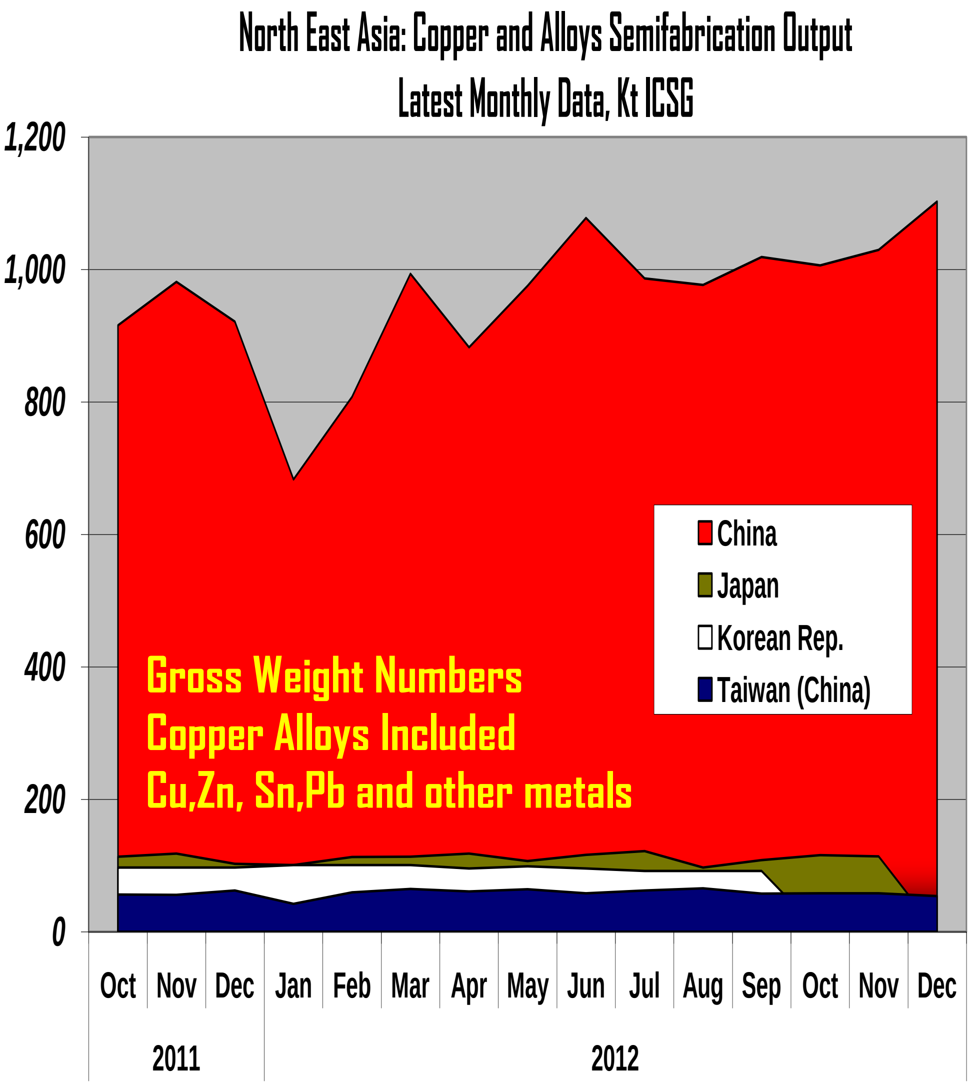
* 12 months before November 2012

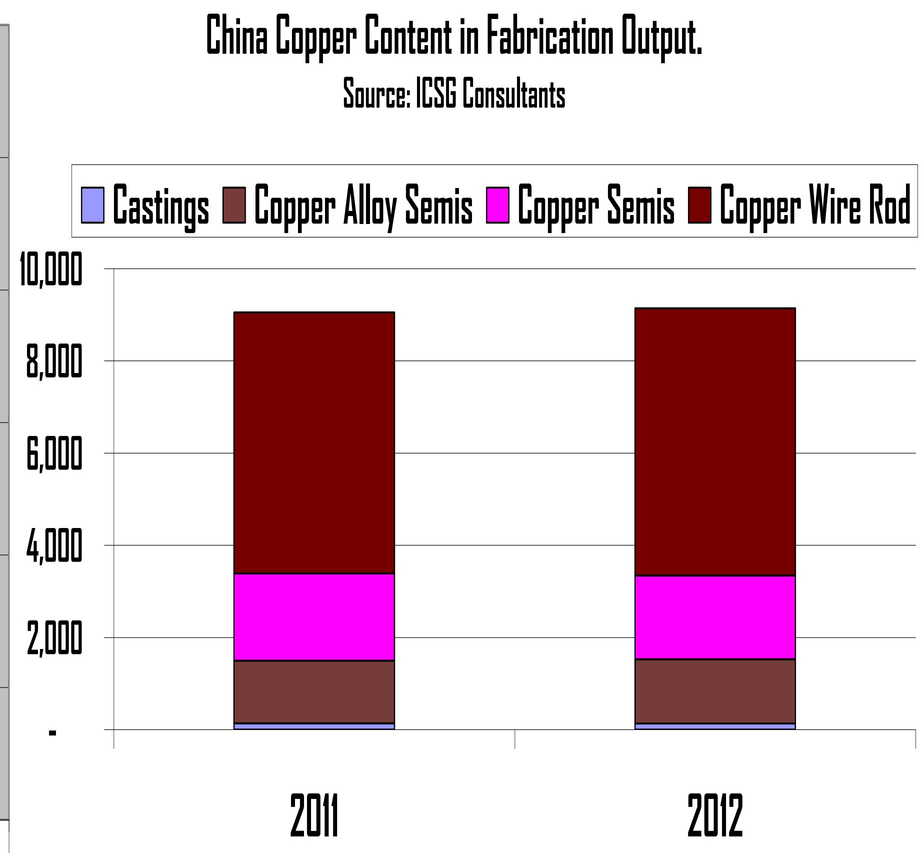
In the USA and EU-27, copper and copper alloy fabrication continue stagnated





Strong growth in China official fabrication statistics in 2012: up >12% to 11.5 Mt !

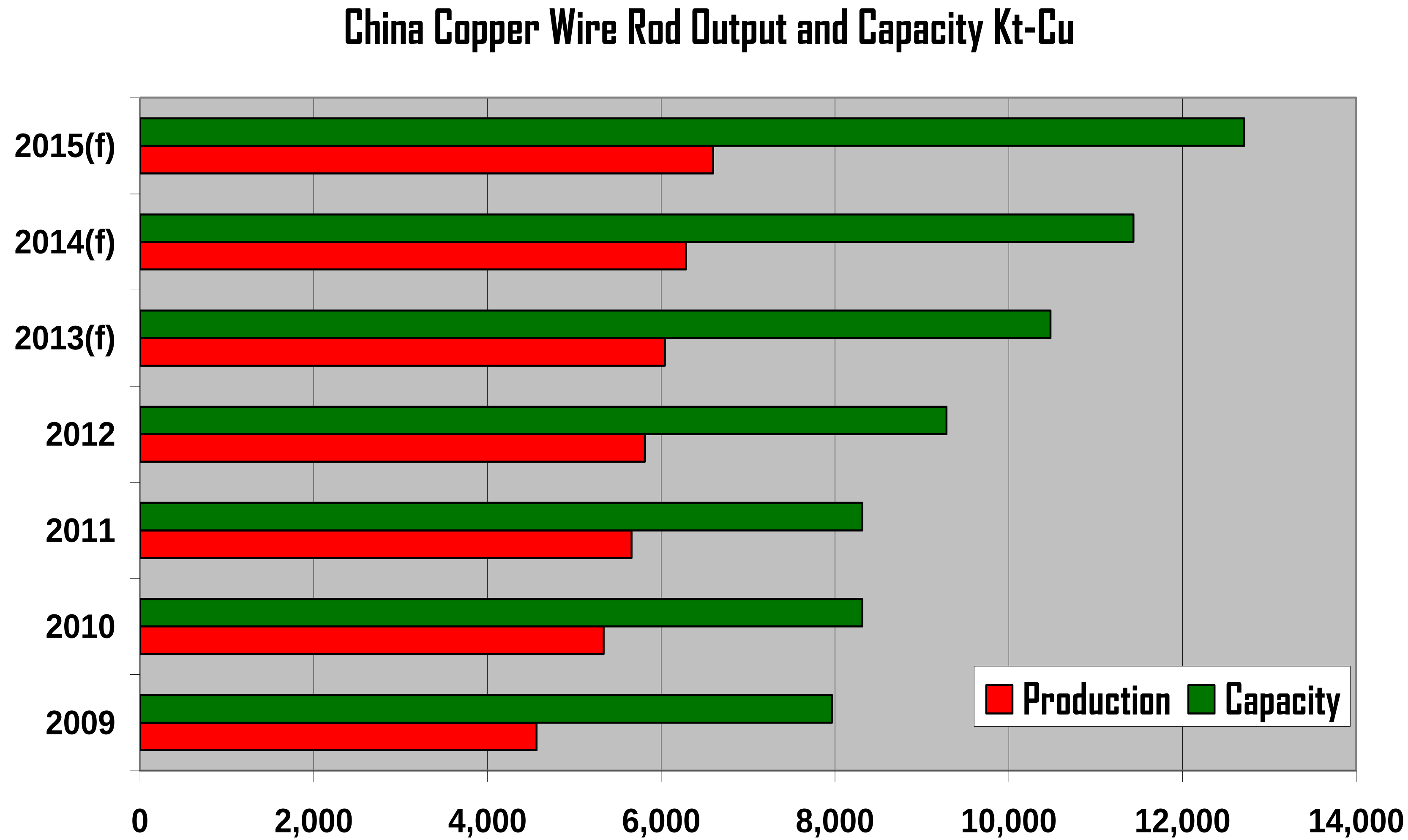




But copper content in Chinese fabrication ~9.2 Mt-Cu : just 1% growth in 2012

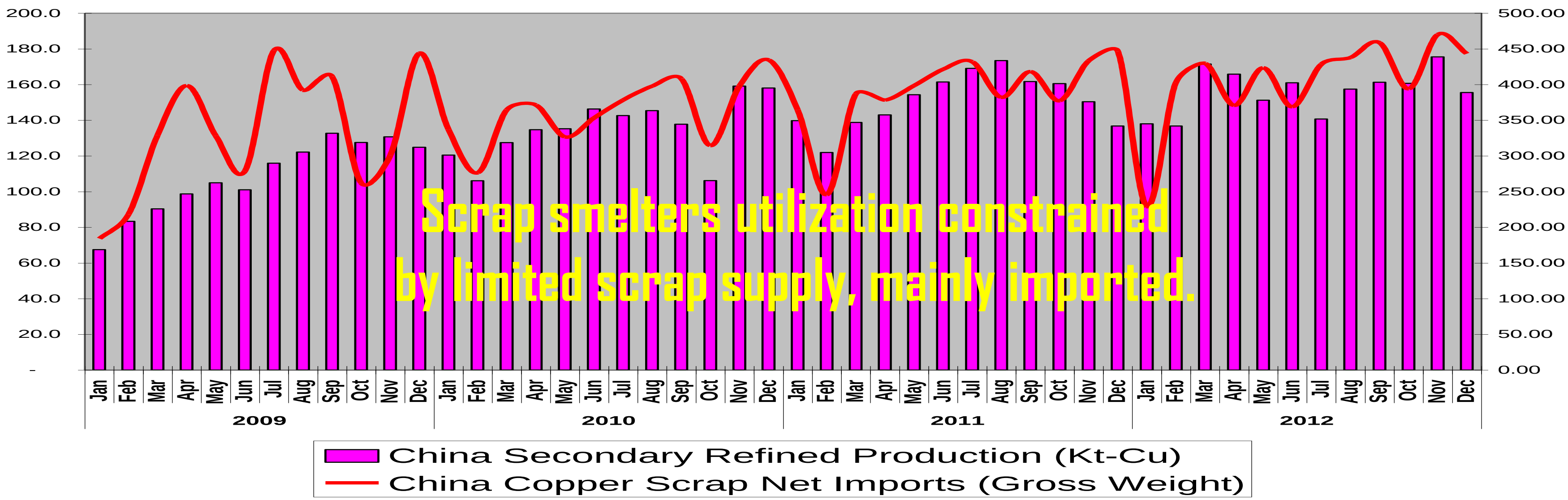
Chinese large semifabricators profits down around 50% in H1-2012!

China produced 5.8 Mt-Cu of copper wire rod in 2012.
Another 3.3 Mt-Cu used in copper semis, brass mills and castings.

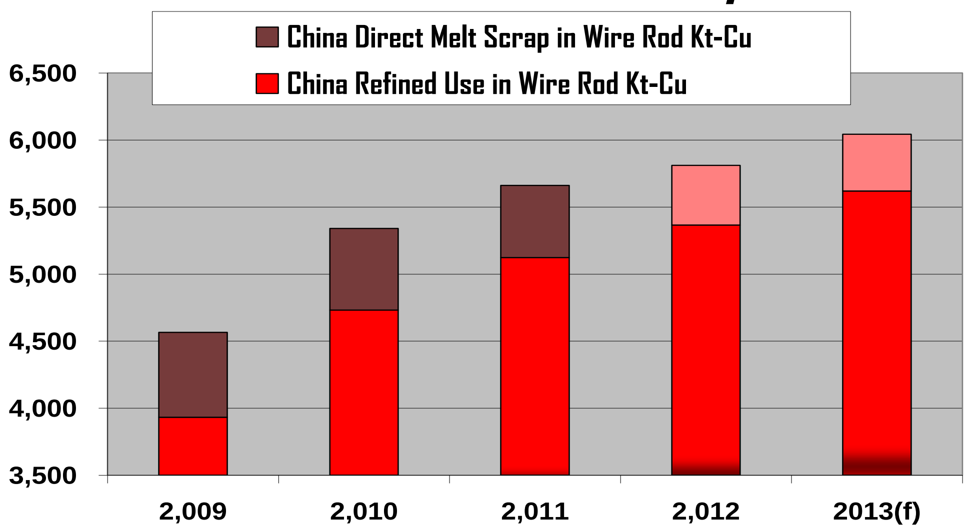


Wire rod capacity utilization around 50% and more plant capacity coming.

1. In China the main use of scrap is to produce refined copper. Refined copper output from scrap: ~1.87 Mt-Cu in 2012.



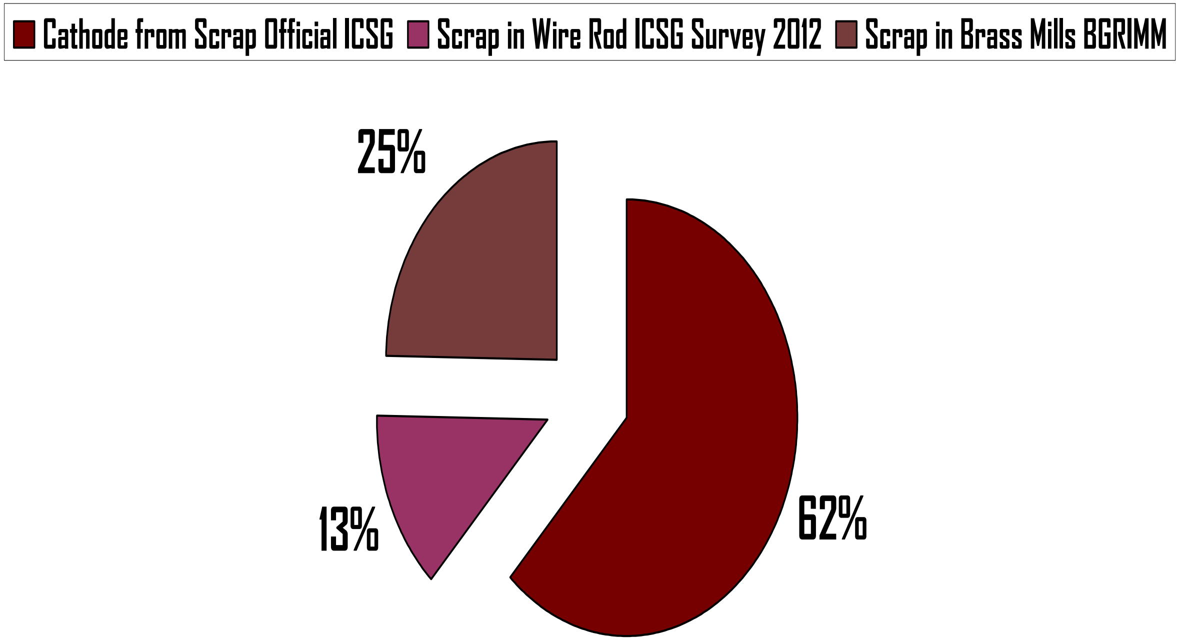
2. Only 400 Kt-Cu of copper scrap was used in wire rod last year



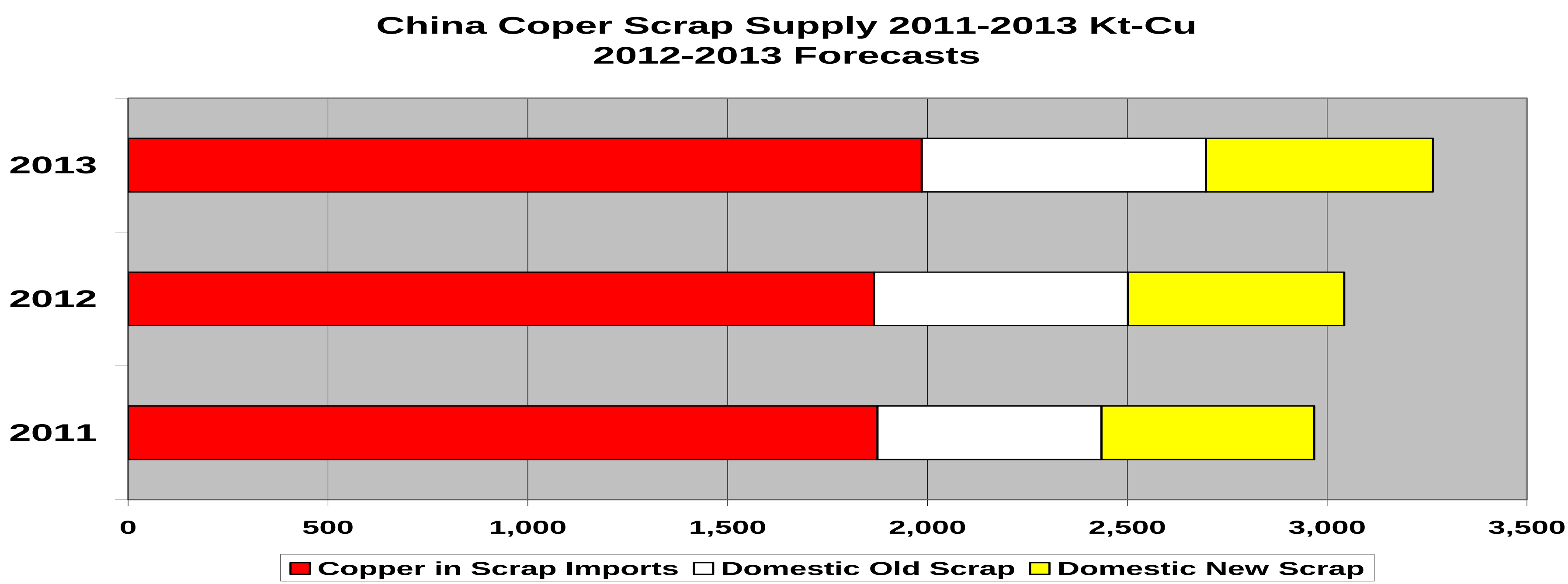
3. Scrap use in copper alloy semis fell to 750 Kt-Cu in 2012.

China: Copper in Scrap Use	
Copper Content Kt-Cu	
	2012
Cathode from Scrap ICSG	1,870
Scrap in Wire Rod ICSG Survey	400
Scrap in Brass Mills - BGRIMM	750
Copper in China Scrap Use	3,020

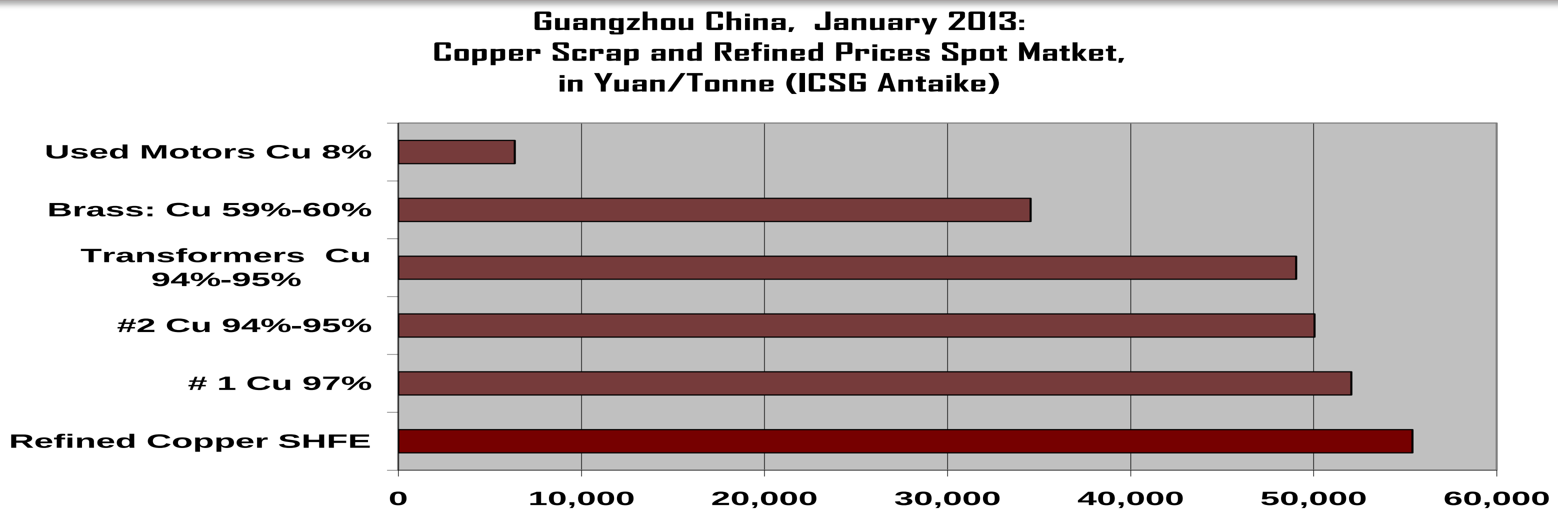
China 2012: Copper in Scrap Use 3.02 Mt-Cu Copper Content



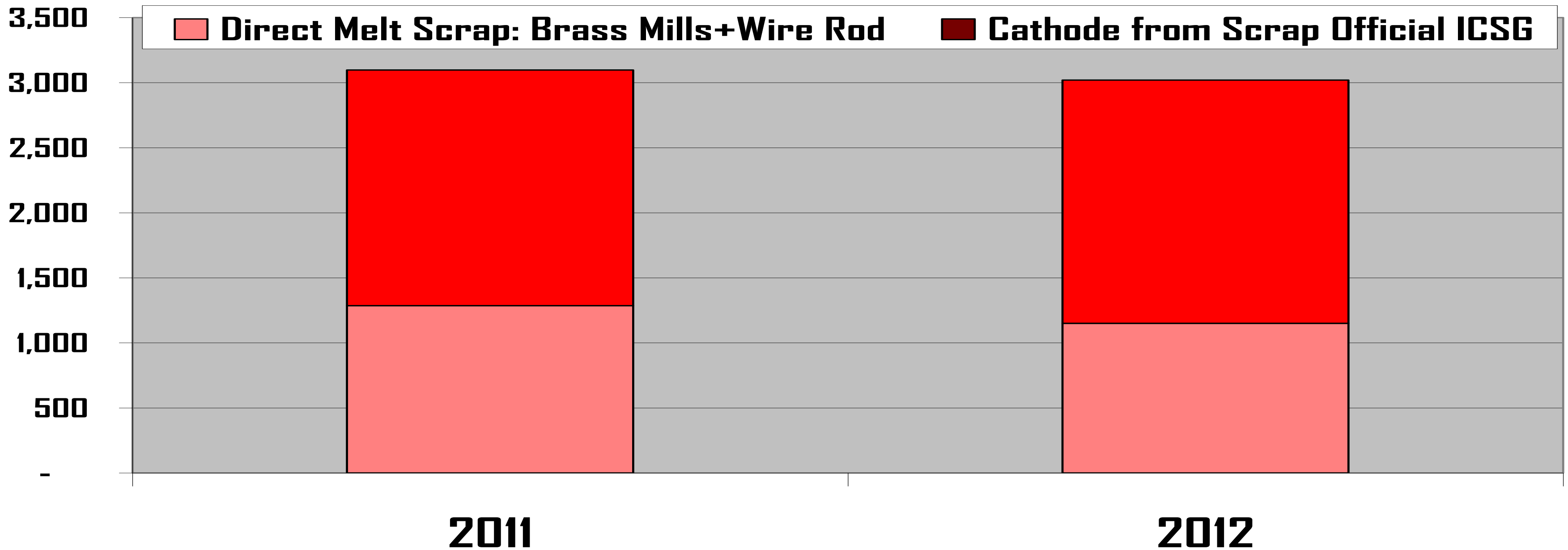
- ❑ Copper in imported scrap to China ~ 1.8 Mt-Cu in 2011, +/- the same in 2012 !
- ❑ Domestic old scrap recycling growing slowly:
  - •slow GDP 2011 and 2012,
  - •lower copper scrap prices,
  - •low historic stock of copper.



Cheaper cathode replaced expensive direct melt scrap in Chinese fabrication again.

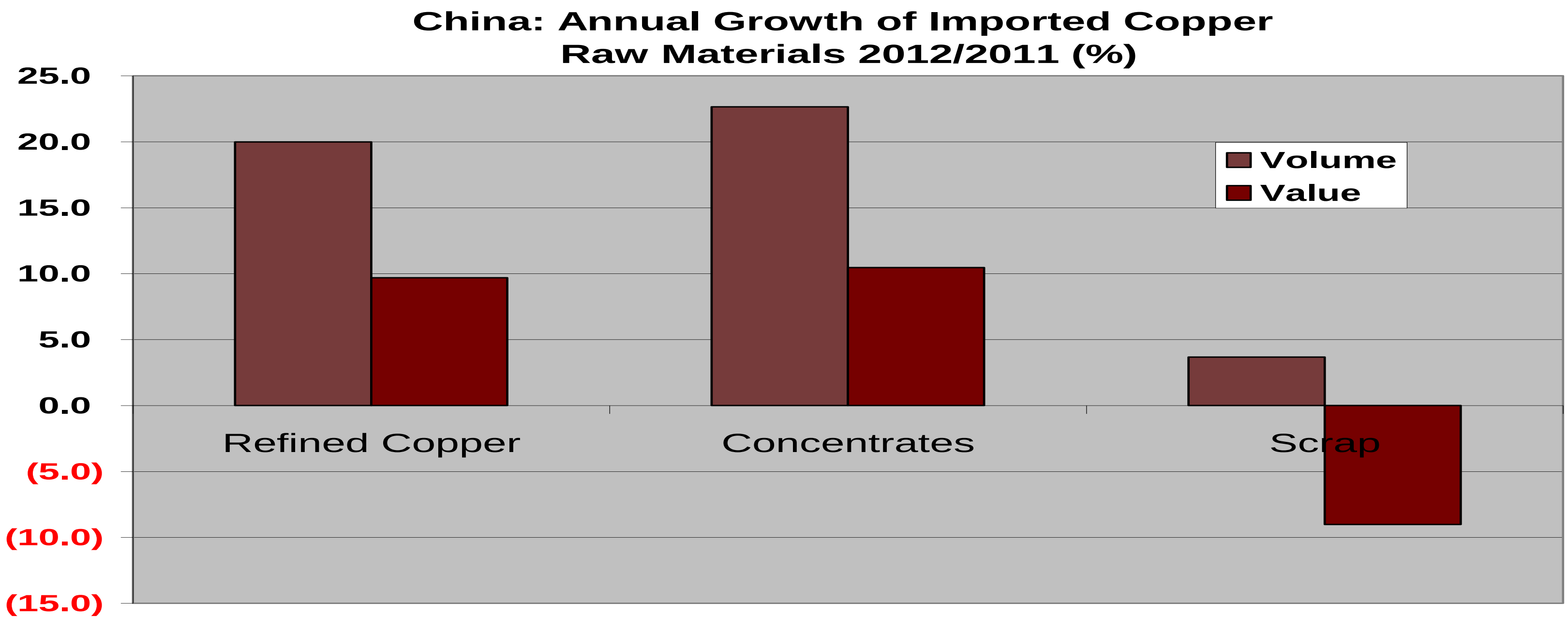


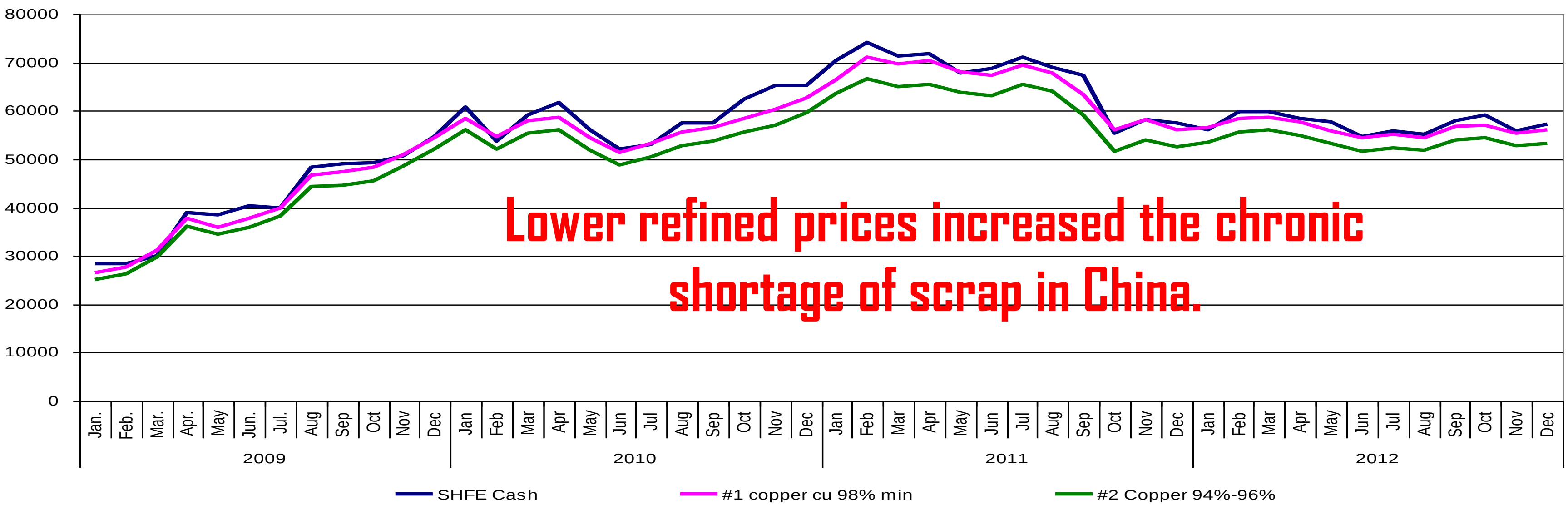
So the direct melt scrap used by Chinese fabricators fell 11% in 2012 !



With lower prices, China imported more refined and concentrate than scrap in 2012

Imported copper scrap values fell in proportion to falling refined copper prices.

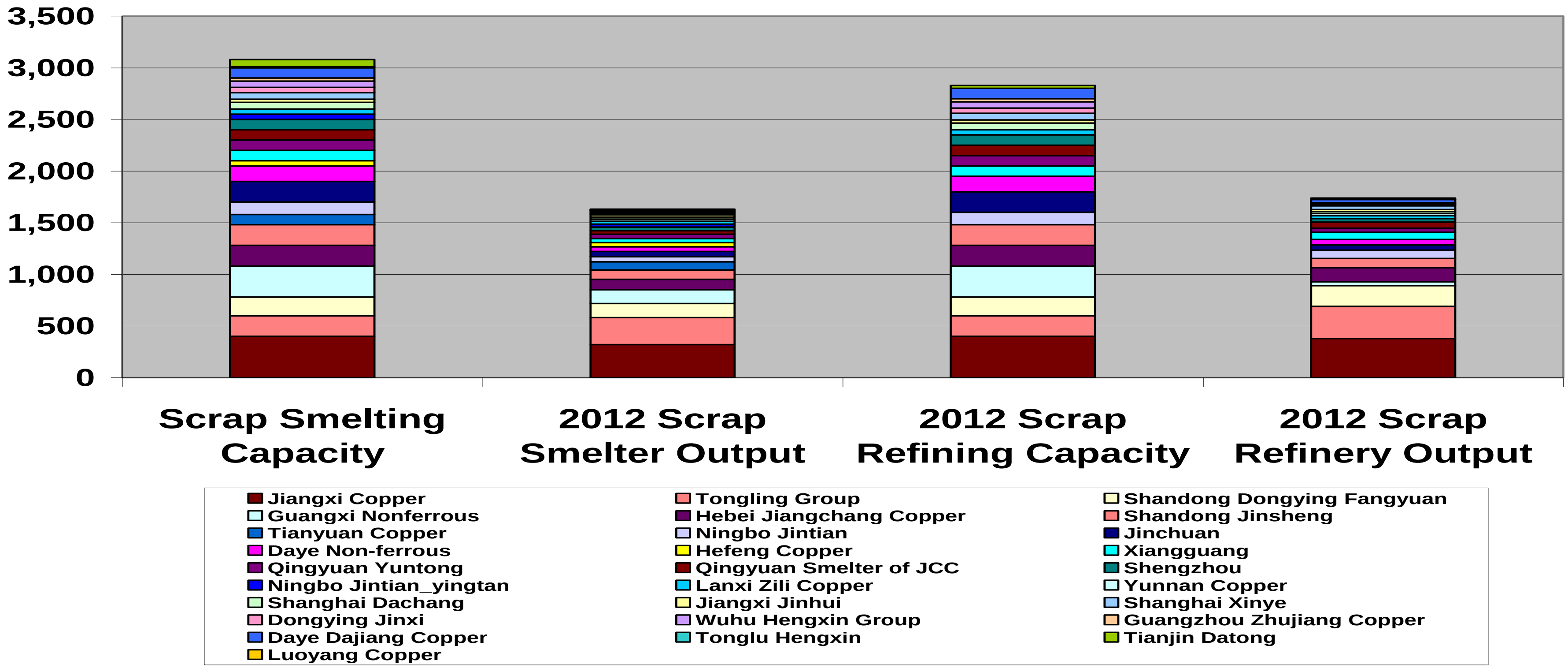




So the increasing copper scrap smelting capacity in China remains under-utilized.

Survey: Capacity Utilization 2012

Smelters	Refineries
53.0%	61.4%

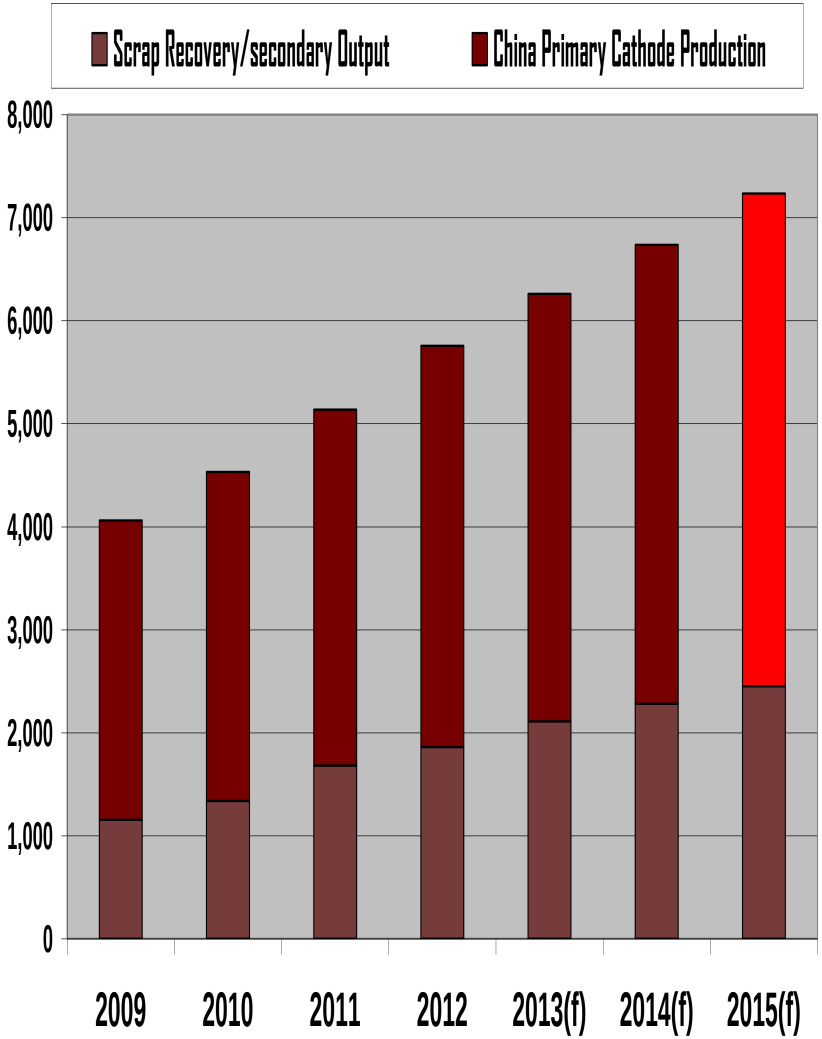


China Copper Scrap Smelters Pipeline 2013-2015

Plant, Location & Technology	Capacity kt/a	Operating
Jinsheng Copper, Sahndong NGL	100	2013
Shandong Dahai NA	200	2013
Shandong Xinze Smalter & Refinery	200	2013
Tongling Group NGL	120	2014
Jinchian, Fangchenggang, Guangxi AUSMELT	200	2014
Yantai Humon , Shandong NGL	200	2014
Tianjing Datong Ausmelt	200	2015
Total	1,220	3 Years

- Scrap smelting capacity 2013-2015: to grow even more to >1,2 Mt-Cu
- Main reason to invest: EIA approval easier versus mine smelters.

Refined copper output from scrap may grow faster in China...
but profits at Chinese scrap smelters are squeezed by the small spreads.

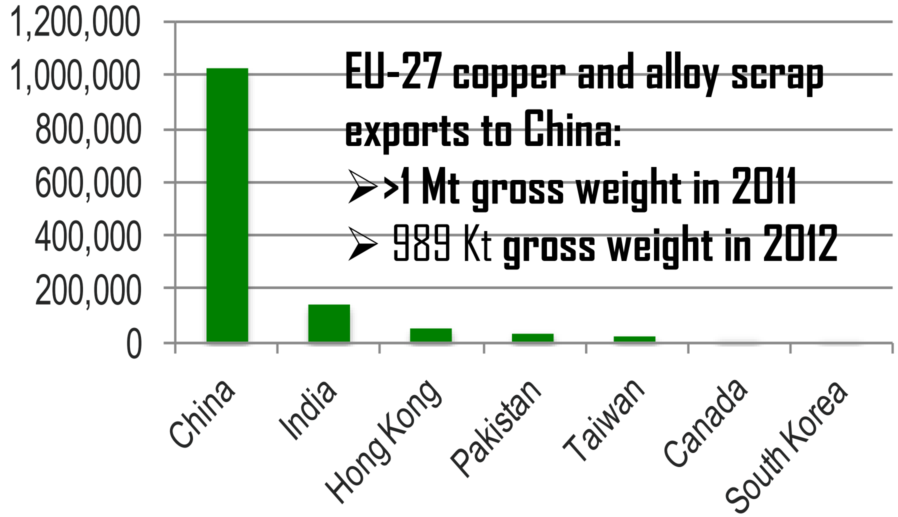


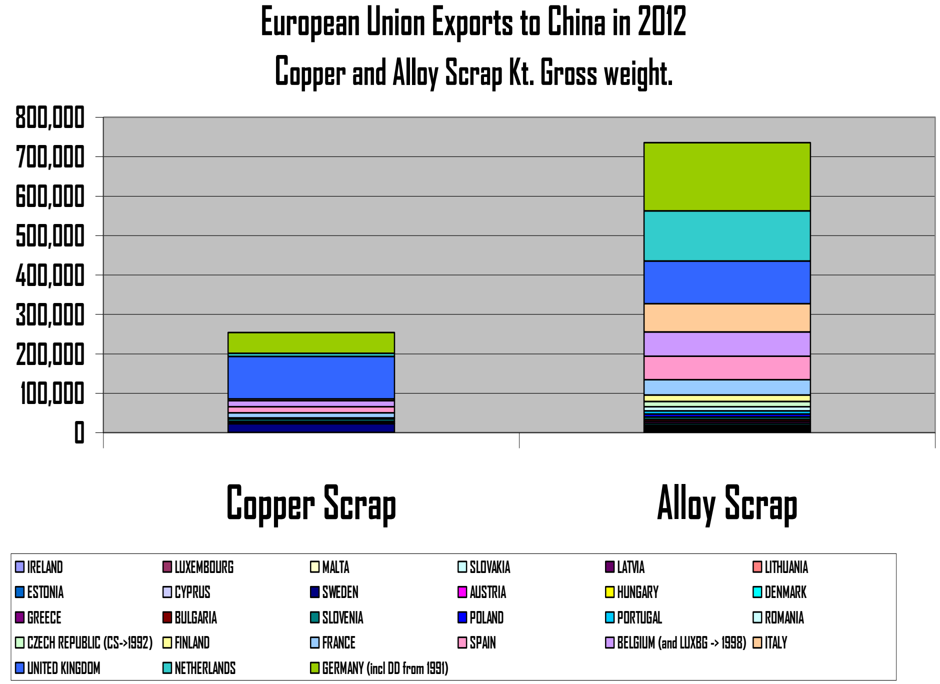
- New Scrap Direct Melt Use Capacity
  - >= 50kt Allowed.
  - <20kt to close by 2015.

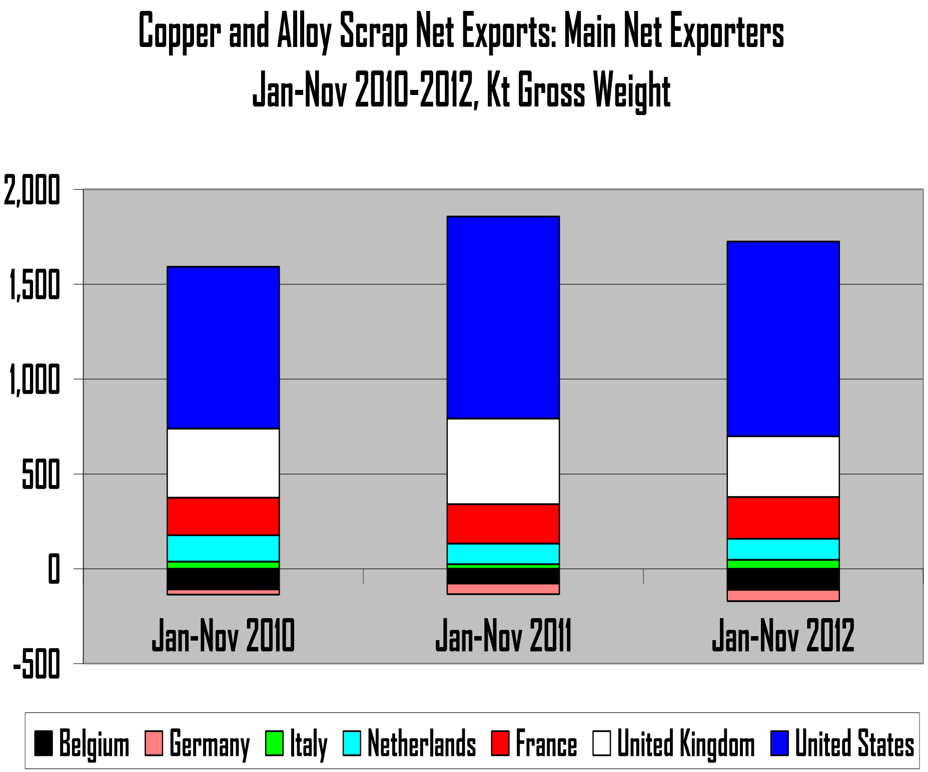
- New Scrap Smelters Capacity
  - > 100 Kt Allowed.
  - < 50 Kt to close by 2015.

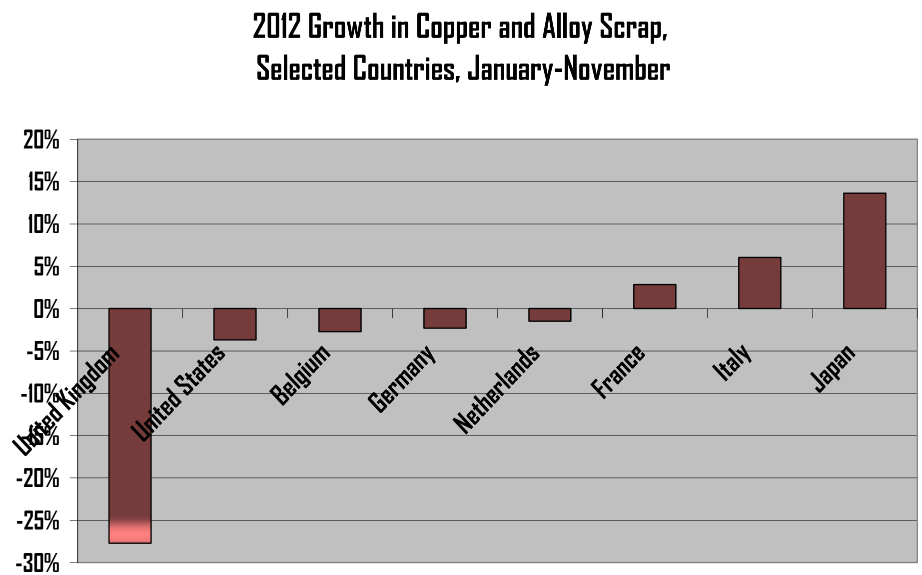
Small fabricators and smelters using scrap in China will close in late 2015 (MIIT)

Small brass mills to be replaced by large copper alloy plants. Less money to new smelters.



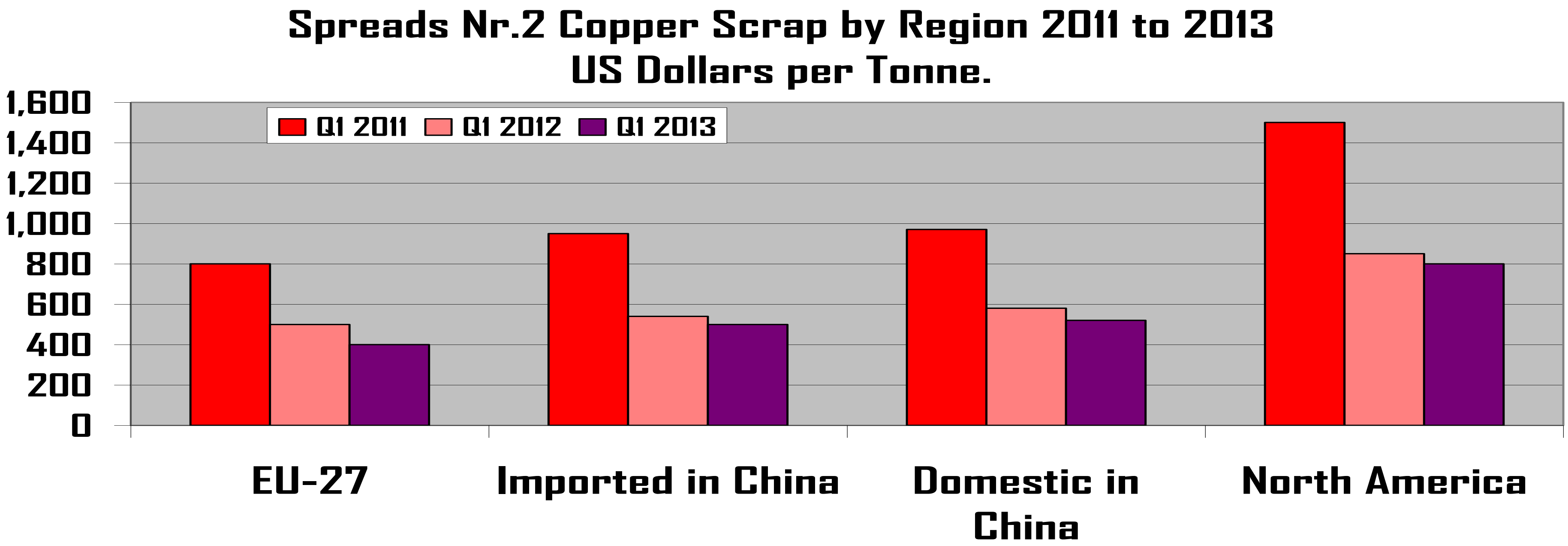


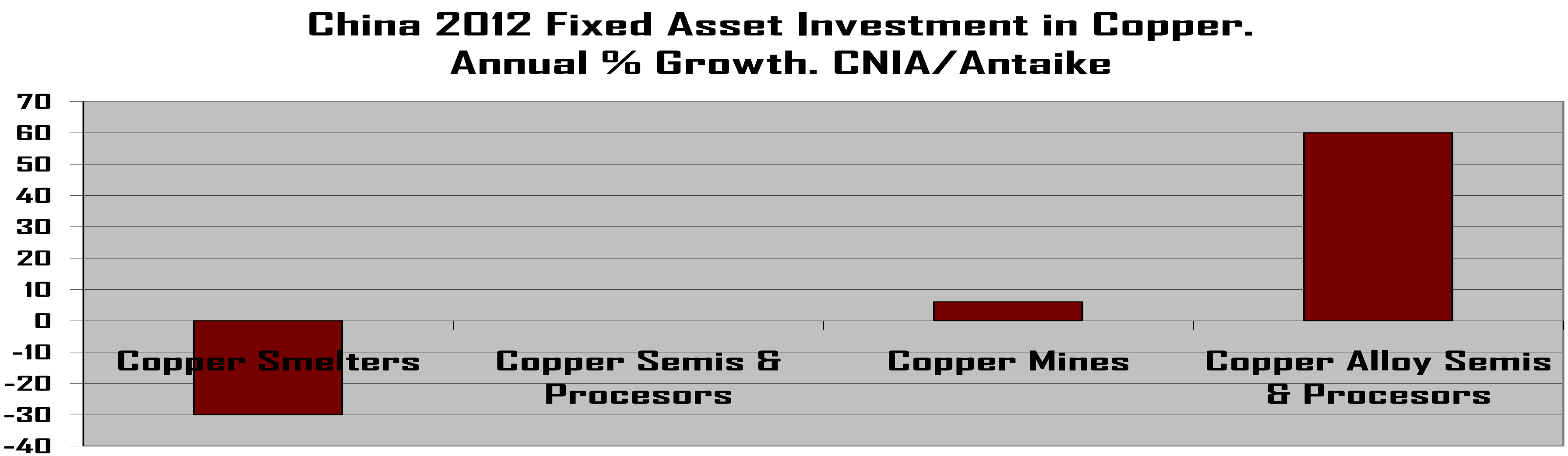




With lower prices in 2012, global scrap exports down 4%... UK and USA most affected.

In a time of decreasing global availability of copper scrap...





... is not a surprise to see Chinese capital going to copper alloy fabrication.

ICSG Publications Available in 2013: mail@icsg.org

ICSG PUBLICATIONS

- The ICSG Monthly Publication: COPPER BULLETIN - 2012
- ICSG DIRECTORY OF COPPER AND COPPER ALLOY FABRICATORS - 2012
- ICSG DIRECTORY OF COPPER PLANTS AND MINES - 2012
- Access to ICSG ONLINE STATISTICAL DATABASE
The ICSG STATISTICAL YEARBOOK - 2012
- Survey on Non Ferrous Metal Use in Chinese Semifabrication Plants -2012
- Copper Scrap Supply Survey in China -2012
- Copper Scrap Market Recycling in NAFTA -2012
Study of By-products of Copper, Lead, Zinc and Nickel - 2012
ICSG Historic Recyclables Surveys - 2011
- ICSG Global Copper Scrap Research Project Final Report - 2010
- Domestic Copper Scrap Generation in China -2009
China Scrap Usage Survey to Smelters and Semis -2009
- Copper Scrap Market and International Trade in Japan -2009
- The Copper Scrap Market in India -2009
- The Chinese Copper Scrap Market -2009

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