

World Copper Market and China's Influence

Arthur Miele
Senior VP, Phelps Dodge Corporation
President, Phelps Dodge Sales Company



Dr. Kayoun, Session chairman

Now that you know the nice growth in China ahead of us, I am sure you are wondering how we will provide the proper raw materials to do that. Therefore we welcome now Art Miele, to speak about the copper market and in particular the influence of China. Art is a well known speaker at ICF, because I am sure lots of you remember his speech in Berlin in 2001. He is based in Phoenix, Arizona. Let us welcome Art.

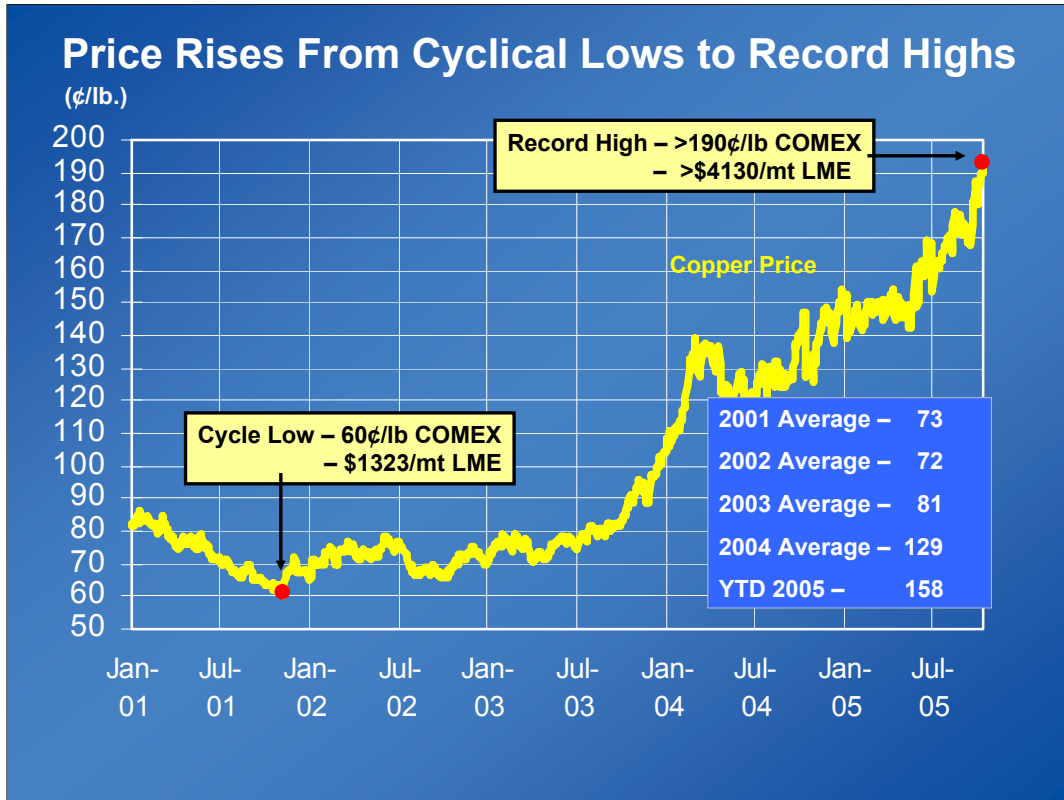
Mr. Arthur Miele

Thank you Pierre and good morning everyone.

- I. Market Update 2001 - 2005
- II. China's Role in the World Copper Market
- III. Outlook
- IV. Conclusions

As Pierre had previously mentioned, the last time I presented to an ICF conference was in 2001 (Berlin). Things were quite a bit different at that time.

Therefore, I thought I would begin this presentation with a market update to 2005 before I get into the meat of the presentation: China's Role in the World Copper Market. This update will be followed by an outlook and some conclusions.



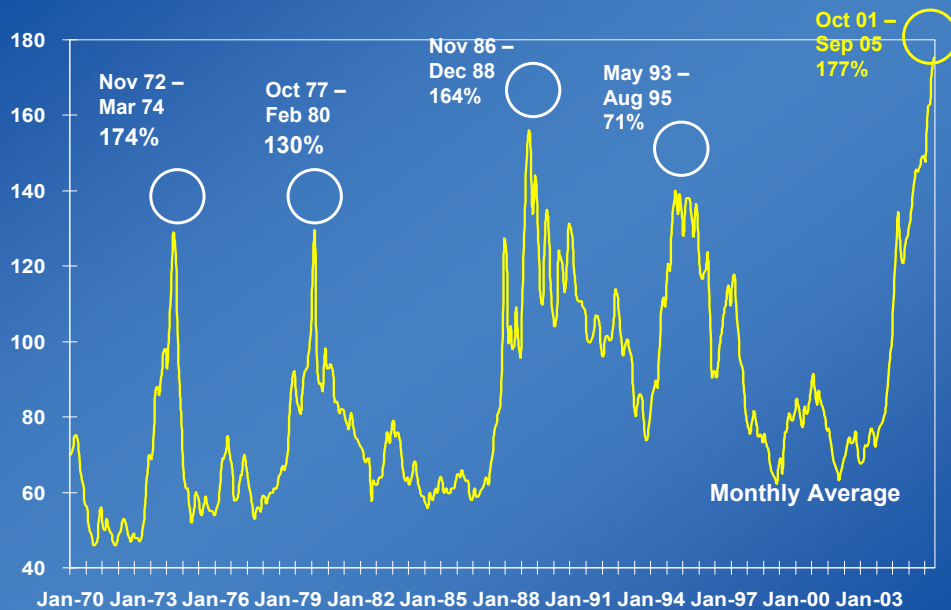
I. Market Update 2001 - 2005

I am sure you are familiar with a chart similar to this. When I was speaking to you in Berlin, this (red dot on the left) is where the copper price was then. It was 60 cents on COMEX and for those of you who prefer LME it was \$1323.

Clearly we are now in record territory on the high side with over \$1.90 on the COMEX and over \$4000 on the LME.

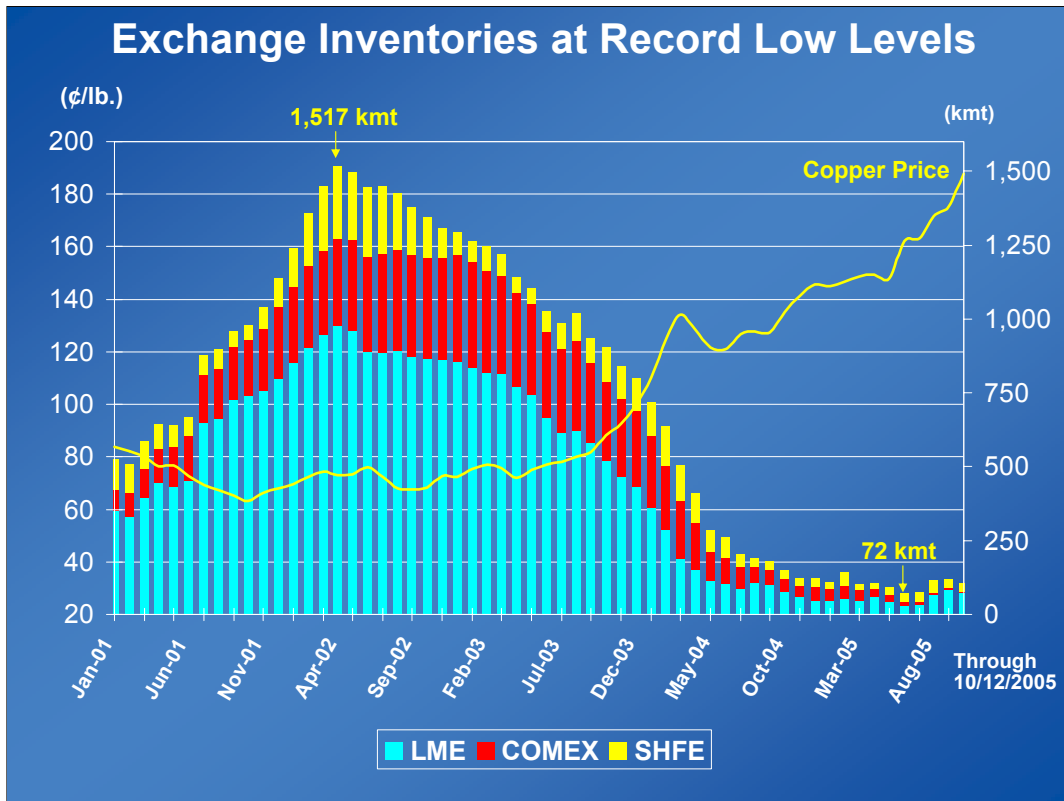
When we were talking about this in our organization, the question was: Is this price off the charts.

Cyclical Nature of the Copper Market



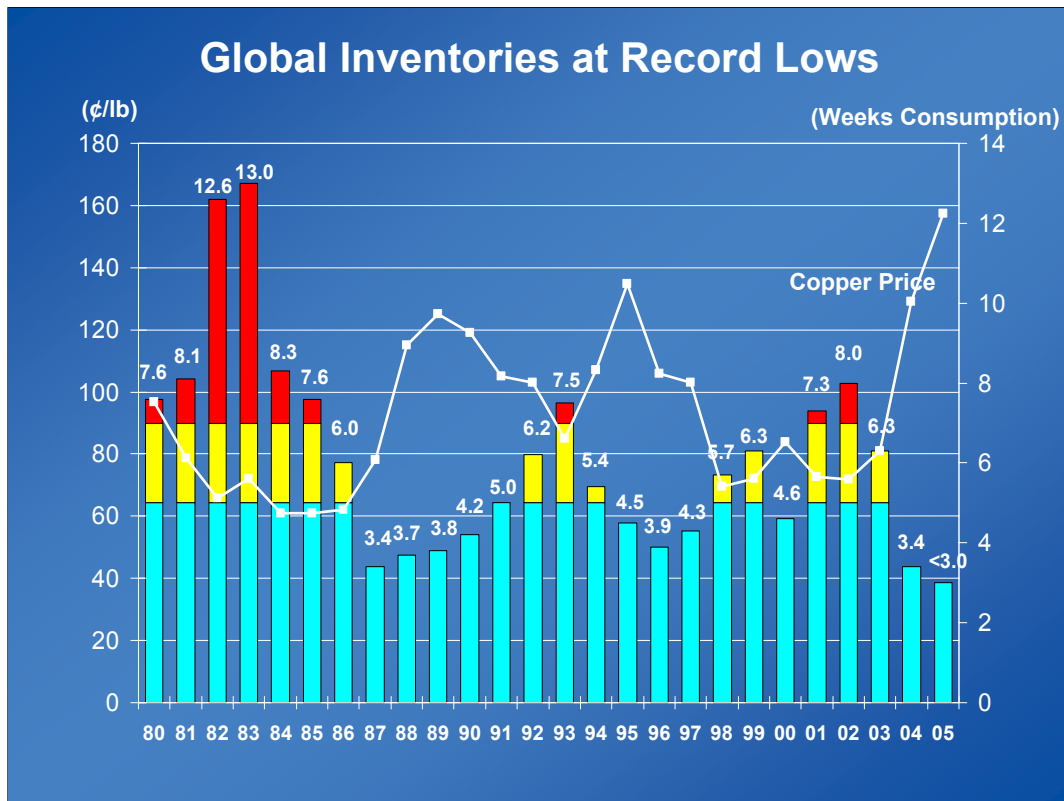
We went ahead and actually charted this copper cycle price with prior cycles. In fact, in 3 of the last 4 cycles, the order of magnitude from lowest price to highest price was very similar. So today's price is not that extraordinary in terms of commodity cycles.

So let us talk about what has happened since we were together in Berlin.



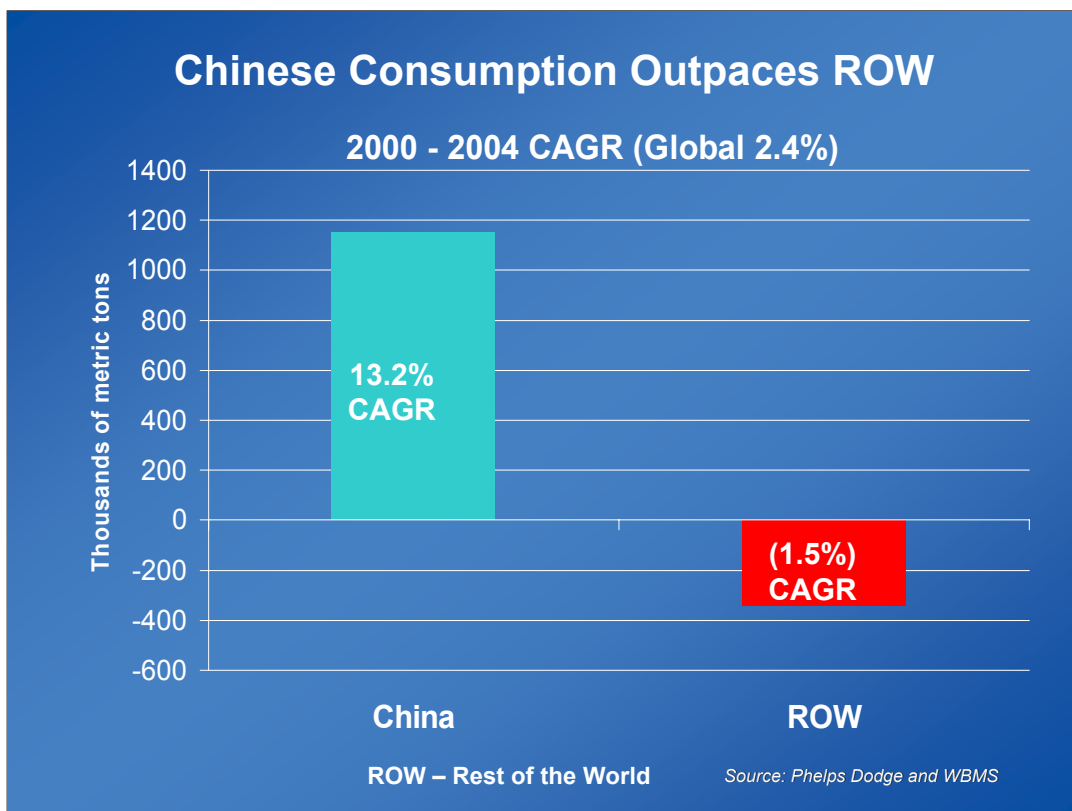
Early in 2001 the inventories of copper were just above 500,000 metric tons. However, as a consequence of the global economic slowdown, inventories grew to a record 1,500,000 metric tons. Some of the inventory accumulation was a consequence of the de-stocking in other parts of the downstream distribution chain.

The recovery which began in October 2003 in the USA, combined with strong Chinese consumption, have resulted in steadily declining inventories and those now stand at less than 100,000 metric tons, which is at or near historical low levels.

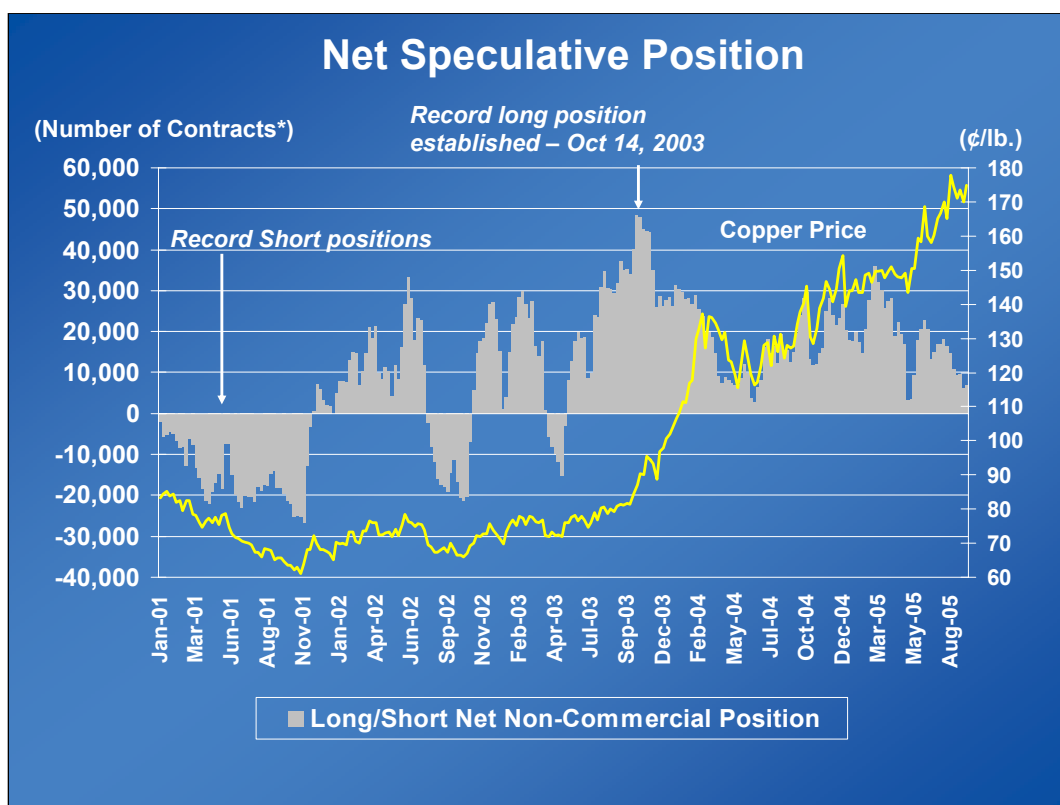


Another way of looking at inventory levels is in weeks of consumption. The time it takes for copper to get from the farthest point, which tends to be South America, to the rest of the world is 4 to 5 weeks. We consider 5 to 7 weeks of inventory normal to service the global market place. Today inventory levels are at approximately 3 weeks of consumption, far below critical levels.

On the supply side there have been significant disruptions both at mine sites and smelter/refining complexes. From 2001 to the present, the copper market has moved into deficit.



On the demand side, China has led consumption growth with double digit growth rates outpacing the rest of the world.

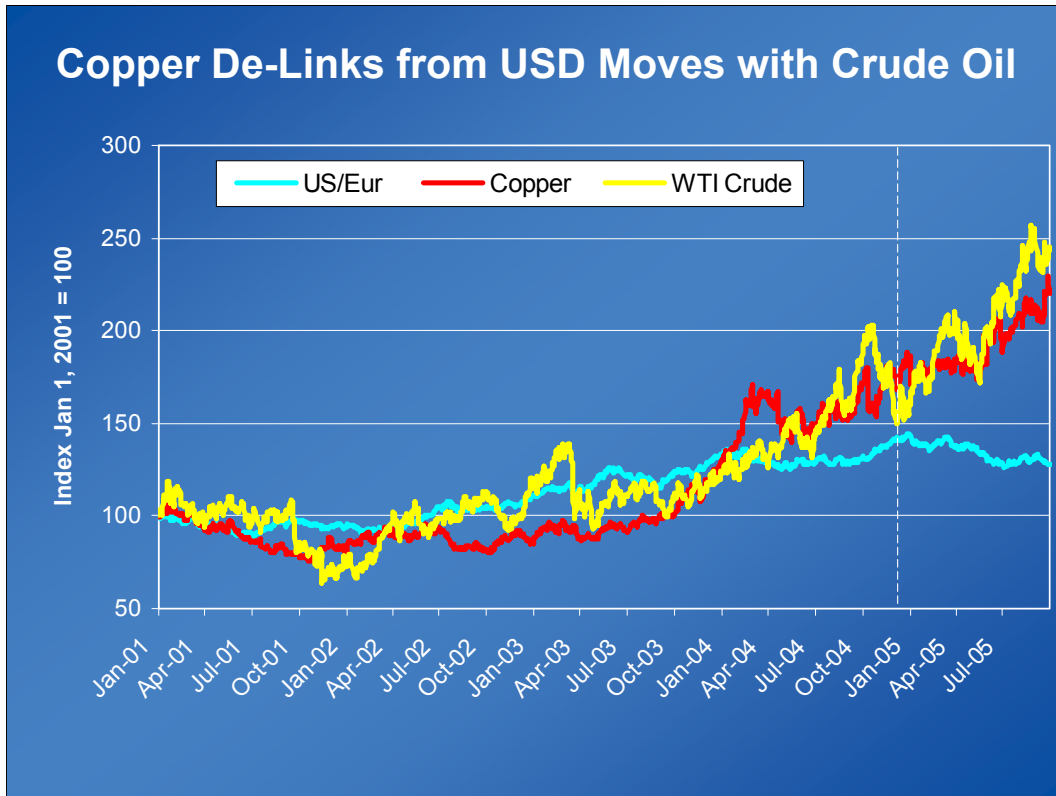


Your Standing Commission has asked me to talk a little bit about the financial futures side of the market. This chart illustrates the speculative positions on COMEX from 2001. A couple of things should be considered:

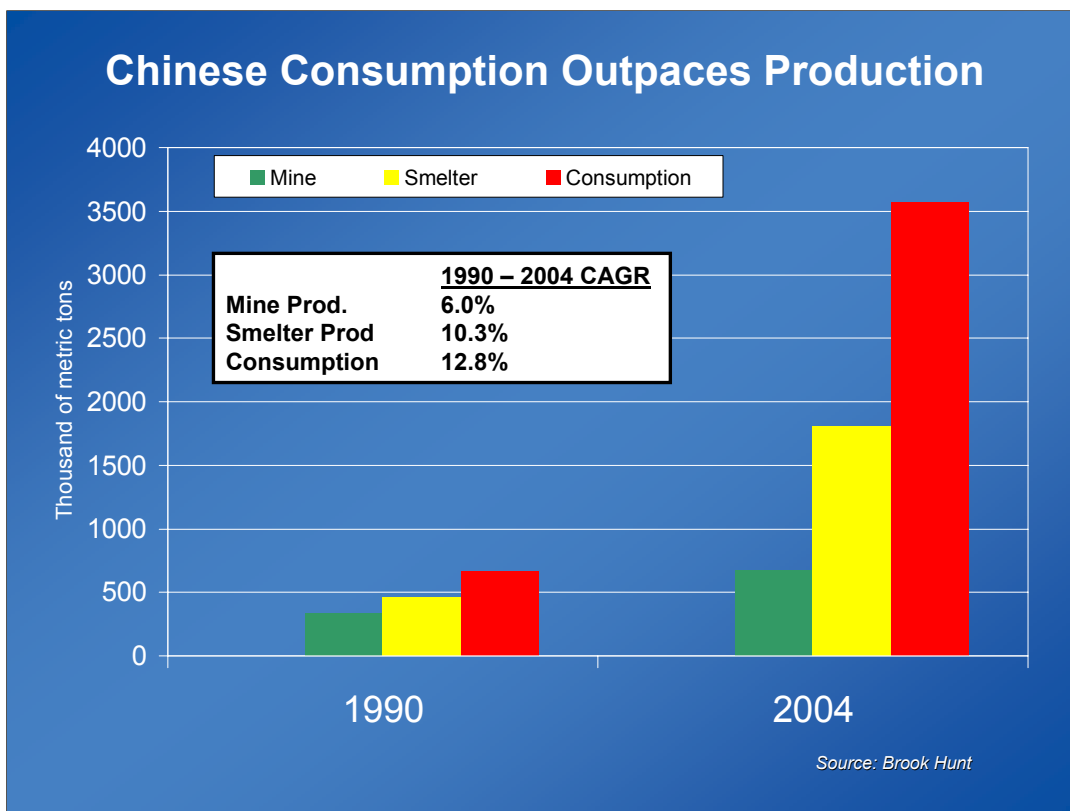
There are two basic speculative categories in the market place.

First, there are technical/fundamental traders, who are ever present in the market and provide day to day liquidity for hedging.

Second, There are the major macro hedge funds who take positions based on their view of general economic or commodity trends. They tend to come in with a longer horizon. Clearly, they saw an opportunity in October 2003 to enter the market in anticipation of the improved fundamentals. before the significant change in inventory. They recognized the robust growth in China and the recovery in the US economy. They basically took long positions as copper moved from 80 cents in October 2003 to 1 dollar by December 2003, as observed by the record long positions on the chart.



The other thing that the Standing Commission asked me to look at was the relationship of copper price trends and declining value of the dollar against major currencies, specifically the Euro. As you can see by the chart, there was a very close relationship between the decline of the dollar and the increase in copper prices until this year. This year we have seen the dollar strengthen somewhat and while the copper prices continued to increase. This phenomenon is also true of some other commodities.

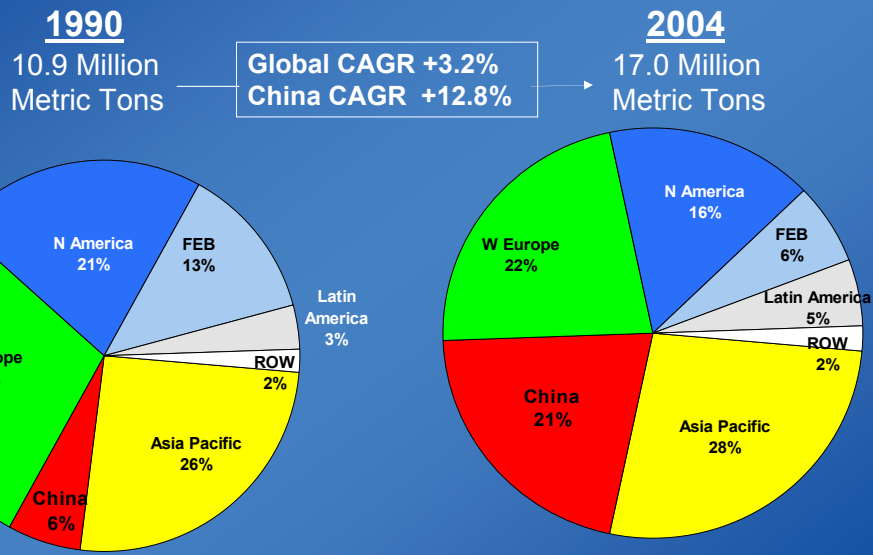


II. China's Role in the Global Copper Market

China's role is quite significant. This slide illustrates the change in mine production, smelter output and consumption in China since 1990. As you can see, consumption growth has been robust at nearly 13% on an annual compounded basis.

However, mine production has barely changed over this period. Smelter production has grown but fails to keep pace with consumption growth.

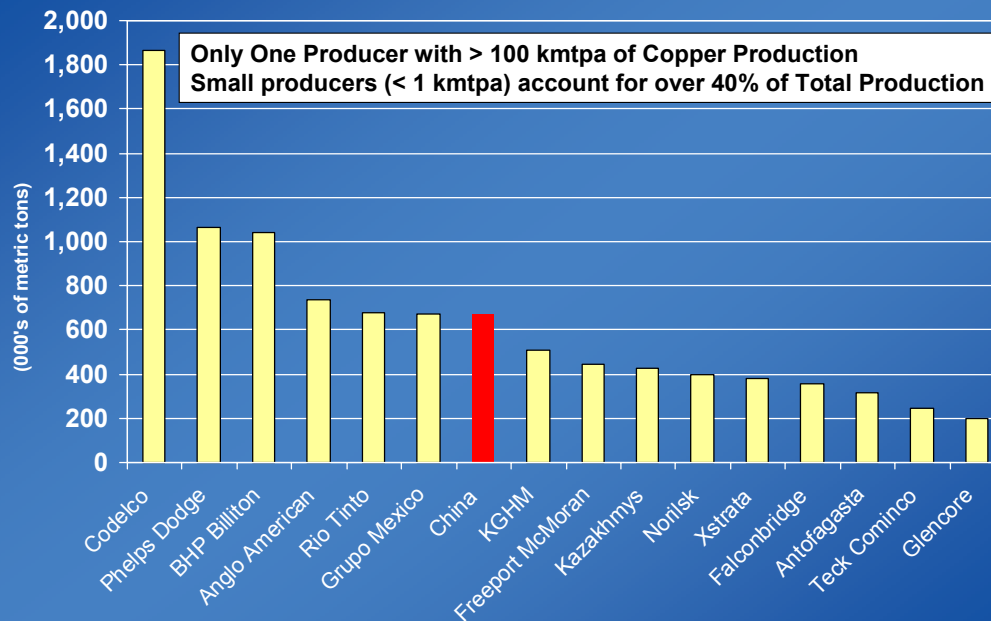
Consumption: Dramatic Shift to China



Source: Brook Hunt

This slide shows that China has grown from 6% of the world consumption to over 21%. Asia has grown from about a third to half of the world's copper consumption.

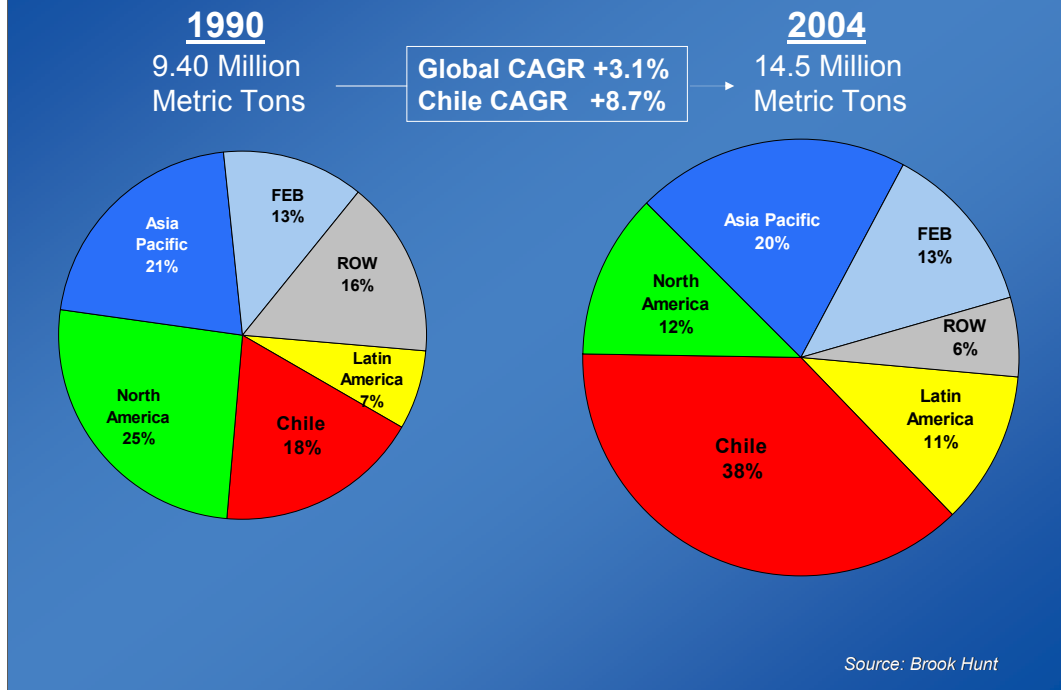
China – Modest Player in Mine Production



Source: Brook Hunt

In the mining industry China is a very modest player. As a country they are the seventh largest producer of copper but their industry is especially fragmented. There is only one producer producing 100,000 metric tons of copper per year. Exploration continues, but to date little new production appears to be on the horizon.

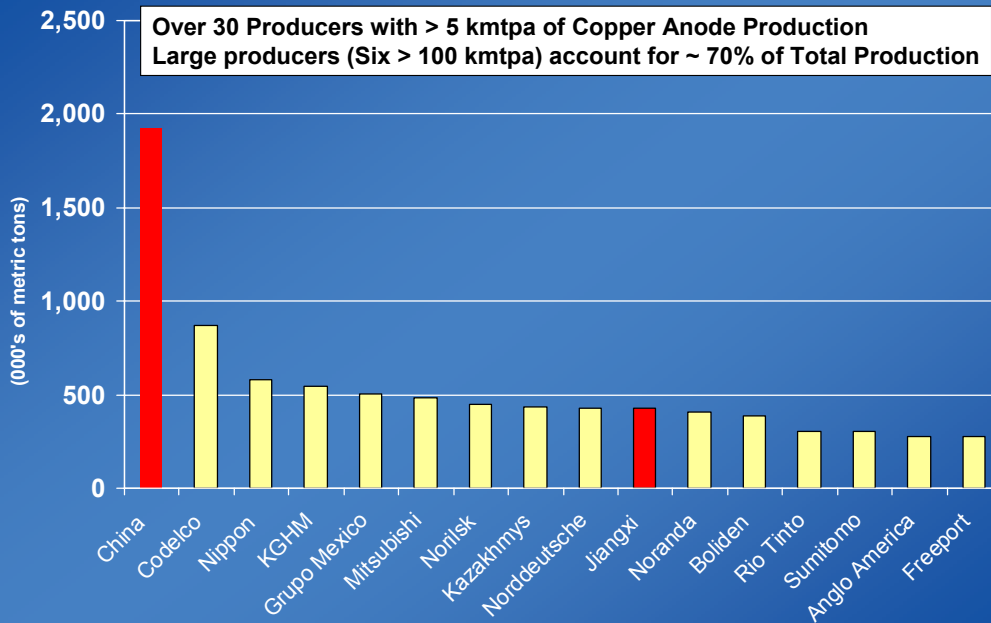
Mine Production: Dramatic Shift to Chile



Mine production is clearly dictated by where the ore is found. In just ten years we have seen a dramatic shift in production to South America, specifically Chile. The stable political climate coupled with strong infrastructure and of course high ore grades has fueled this growth.

Mine production in Chile that has grown from 18% of the world production to almost 40%. Latin American mine production has grown in total close to 50% over these years.

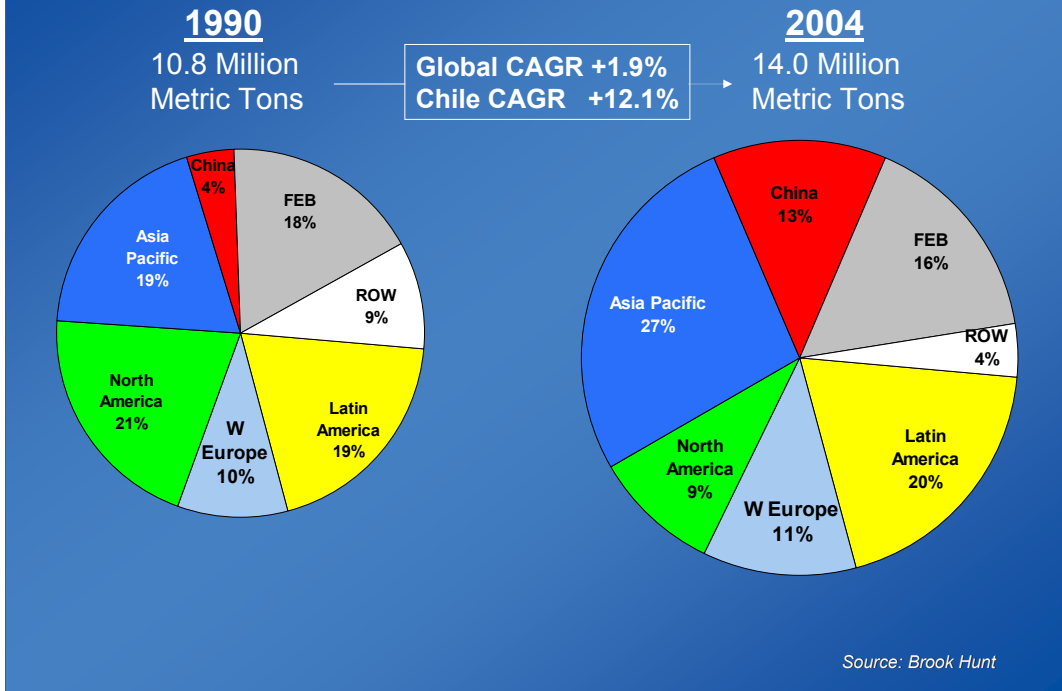
China – Major Player in Smelter Production



Source: Brook Hunt

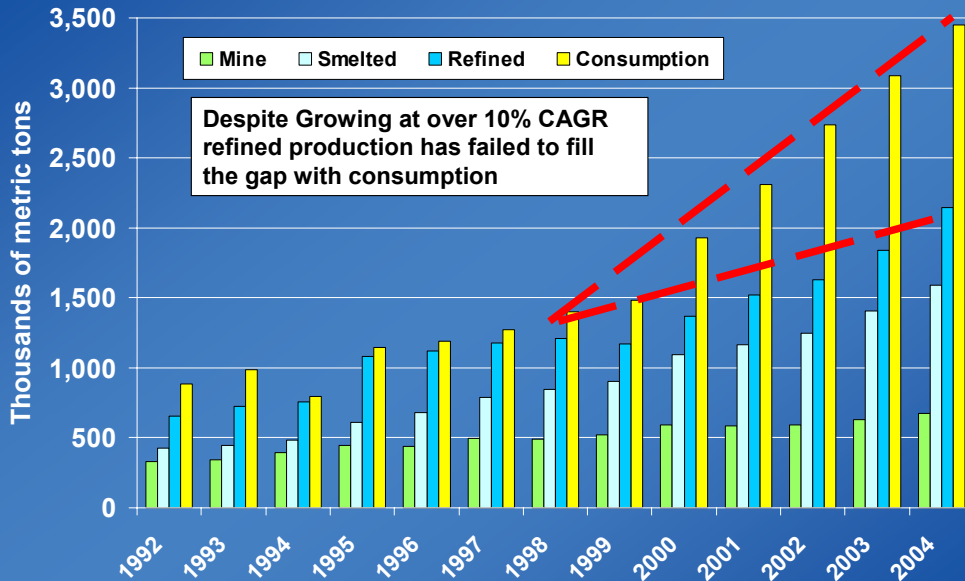
China is a major player in smelting. They have some relatively major smelters. As a country they have become the largest smelting producer in the world and considering their level of consumption, they need to be. However, they still are not self sufficient in smelting and refining to meet the needs of the domestic market..

Smelter Capacity: Dramatic Shift to Asia



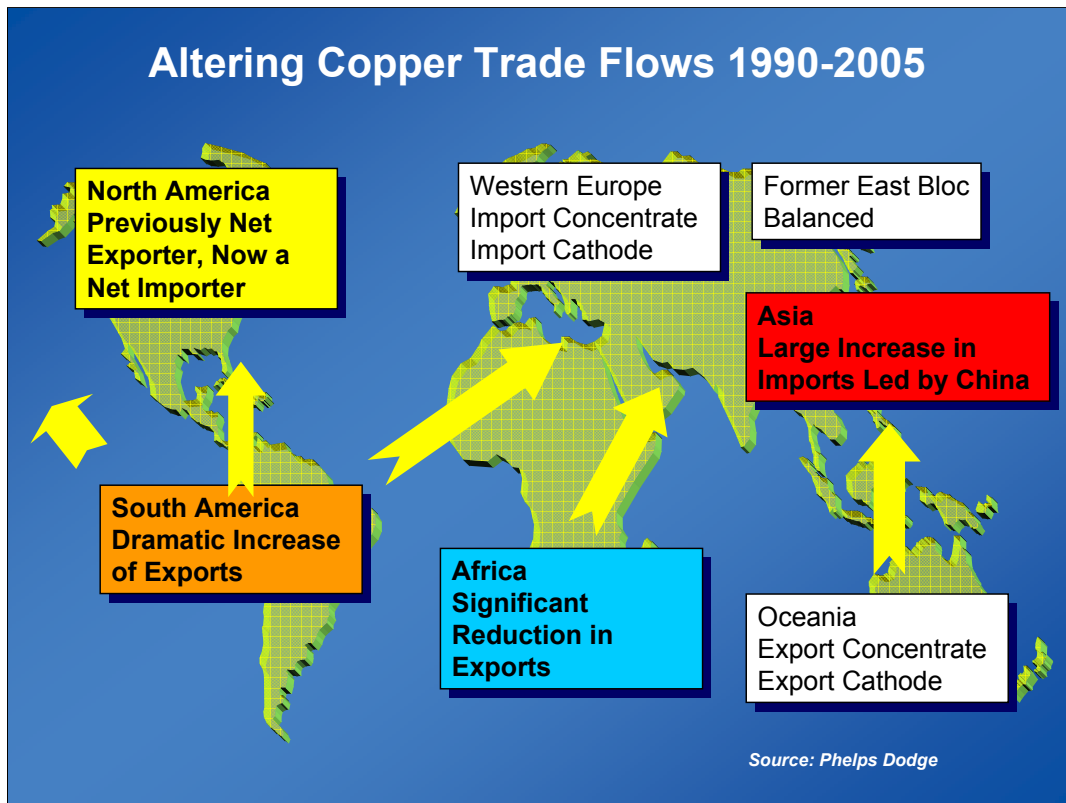
Here you can see the growth in smelting in China and also in Asia, and the need for the smelters to be close to consumption.

China's Growing Cathode Deficit



Source: Brook Hunt

This slide summarizes the fact that even with the efforts that have been made on the production side there is still a big gap in terms of cathode. China imports significantly, over a million tons, of cathode per year.



This chart reflects world copper trade flows and should be of importance to the wire and cable manufacturers. In the 1990s the USA produced all its copper needs and, in fact, exported some material.

Africa, South America were significant producers of copper, whereas Europe was a major consumer of cathode and Japan a major consumer of concentrate.

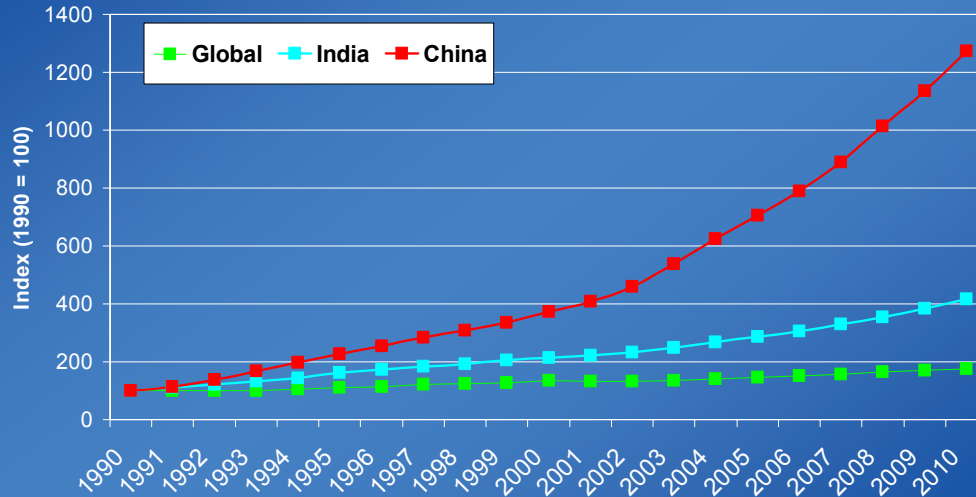
Today things have changed dramatically. The USA is a significant importer of cathode as is Europe and the fast growing economies of China, India and Asia in general. Africa is no longer a major supplier; South America is the major supplier.

From a trade-flow standpoint, at least half of the world's production must travel great distances to serve many growing markets, therefore requiring higher levels of inventory to meet these needs.

At 3 weeks of inventory there is a great deal of pressure on the trade flows.

China Remains the Key to 2010

Industrial Production Growth



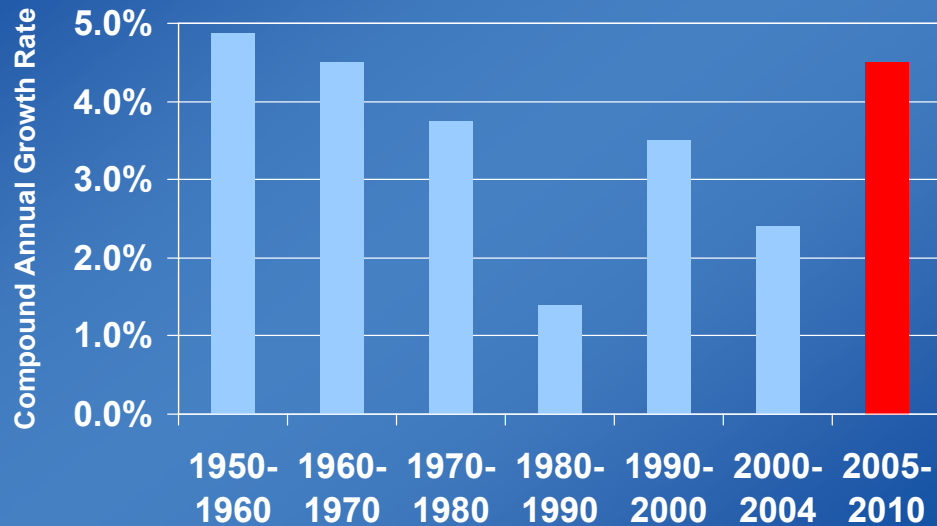
Source: Consensus Forecast

III. Outlook

This slide presents a consensus forecast of worldwide growth. The forecast expects strong global industrial production (IP) growth led by China. IP tracks copper consumption closely.

Upside Scenario Led by China and Other Developing Economies

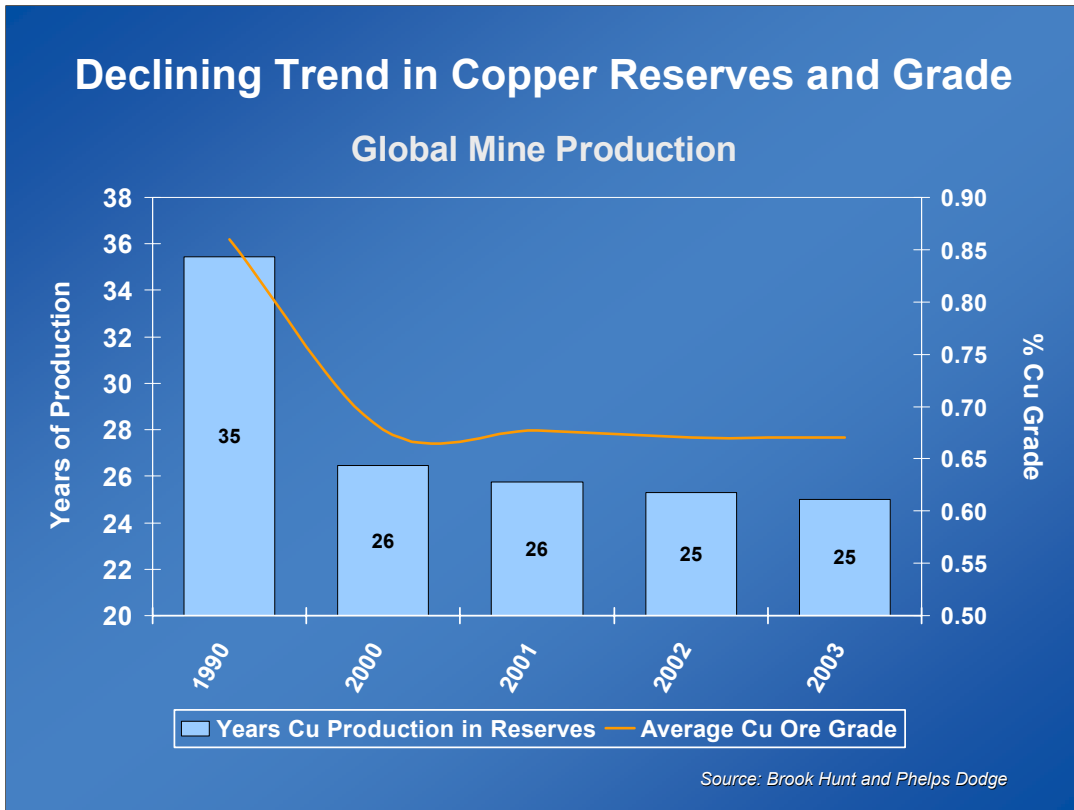
Comparative Growth Rates



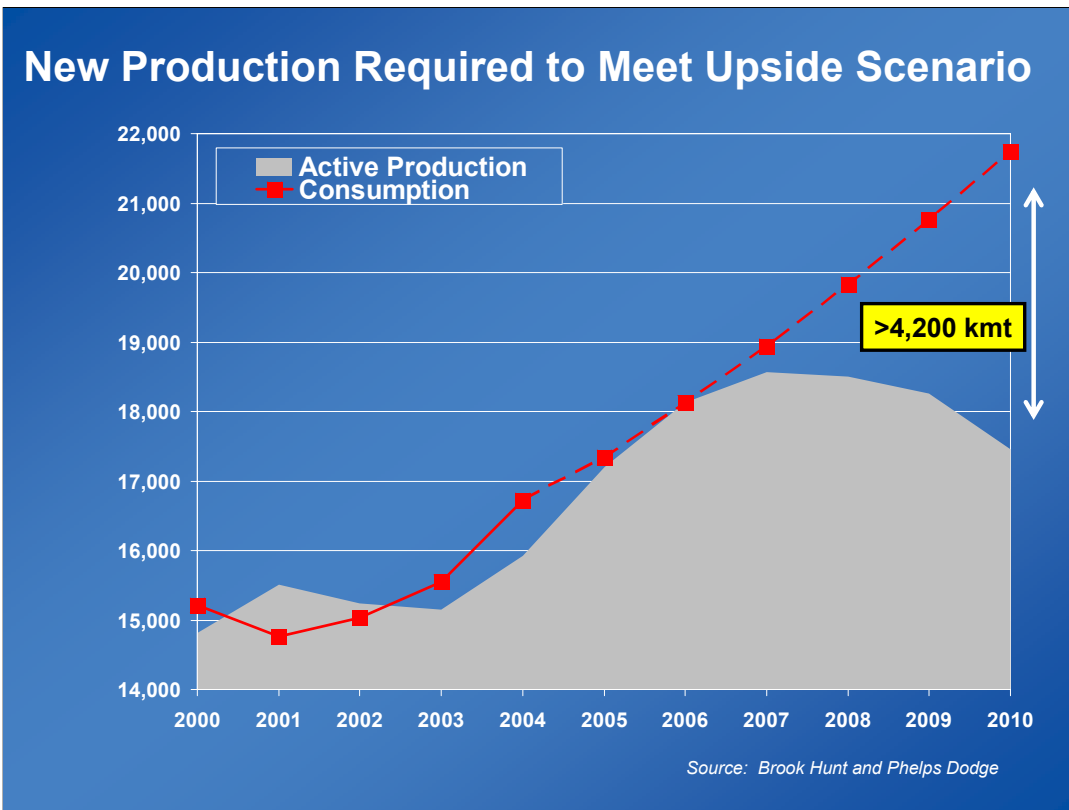
Source: ABMS, WBMS and Phelps Dodge

Let us look at growth scenarios over the period 1950 to 2005. You can see on the left hand side of this chart, the growth rates for copper consumption in the 1950's and 60's were close to 5% based on strong infrastructure in the USA and Europe. We think it is not inconceivable that with the growing potential of China, India, Brazil and the other developing countries, that we would see higher growth rates.

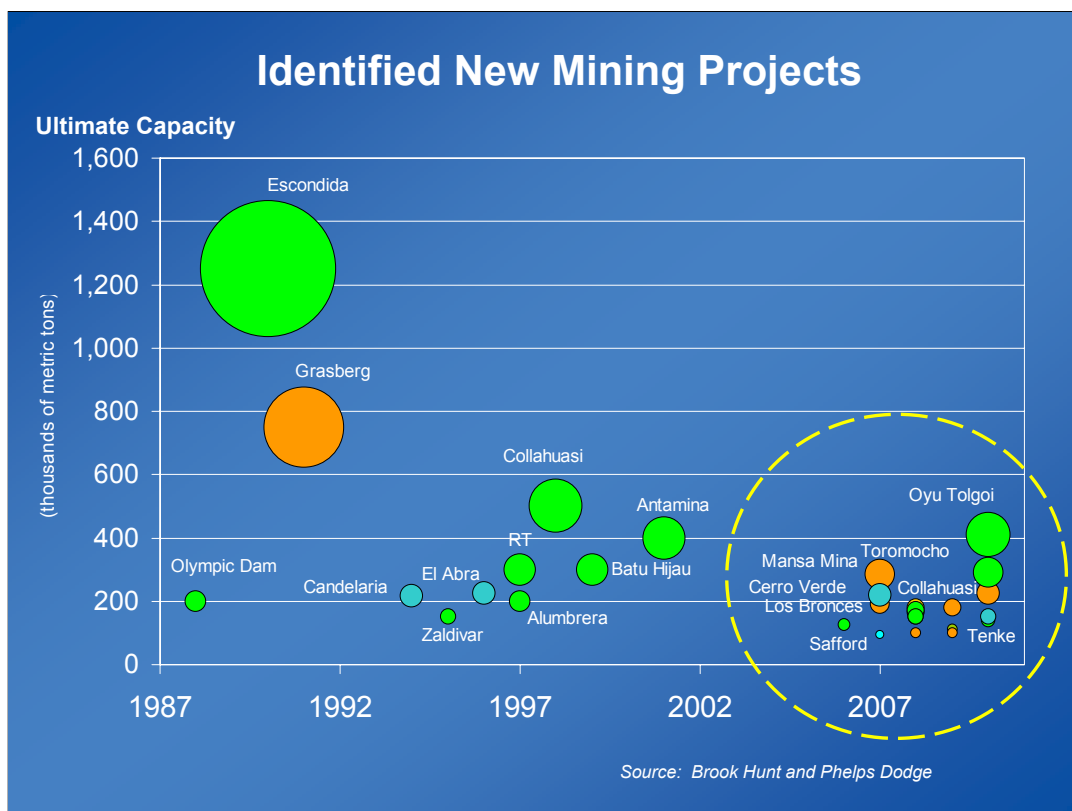
This does not mean that the market would be free of normal cycles. The cycles will exist and they will occur. We will have recessions and we will have accelerations.



From the mining side the challenges going forward are significant because of decreasing grade at mature mines around the world.



The copper market requires an injection of new mining developments to fill the gap in this upside scenario.

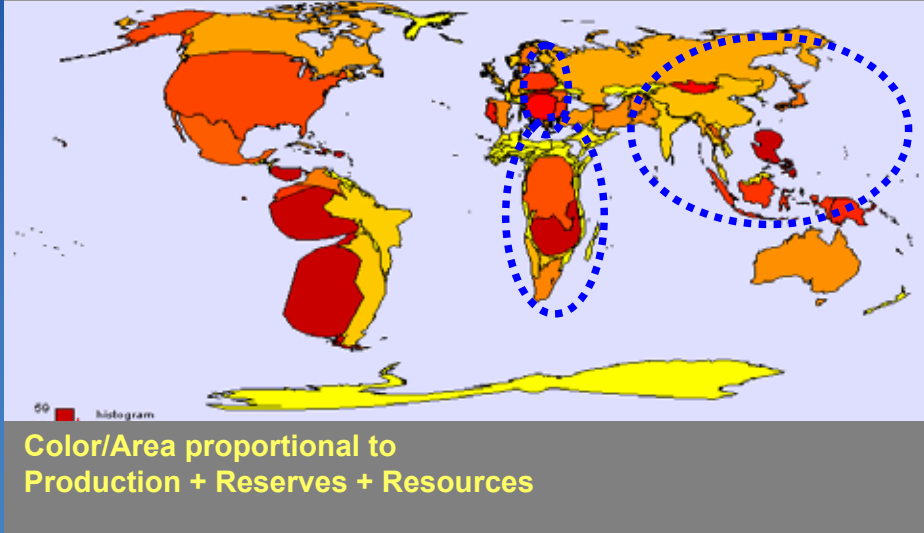


Within the yellow circle in this slide are the probable new mining projects that are available to come on stream over the next five years. Many of those are either underway or in the feasibility stage.

There are a couple of points to consider in this chart. In the early 1990's the industry had a large inventory of projects, some which could be characterized as mega projects. These were for the most part in South America, i.e. Chile, Peru, countries where the investment climate had become politically positive. As we consider the probable mine projects looking forward we can clearly observe, there are really no mega projects on the horizon.

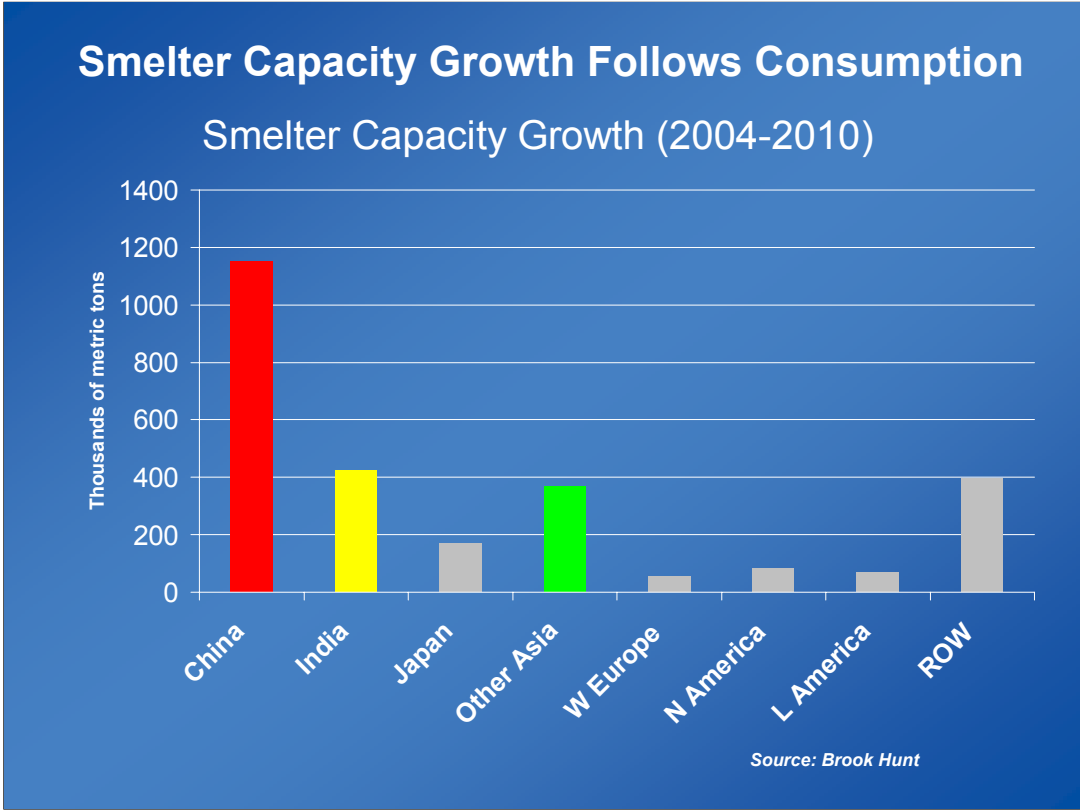
Additional Mine Production Required from Higher Risk Areas

Central Africa, Mongolia, South East Asia and Former Eastern Bloc



Source: Brook Hunt and Phelps Dodge

Furthermore, many of these projects are in high risk geographic areas, like Central Africa, Mongolia and South East Asia. Phelps Dodge is currently looking at a number of new projects one of which is in the Democratic Republic of the Congo. We recognize the risks but also the need to take those risks. We are hopeful to be up and running in 2008 in the DRC. We also have expansions in the USA and South America.



The consuming countries have the obligation of investing to get their smelter capacity in line with their consumption. Delays in bringing on new smelting capacity is causing today's bottleneck.

Conclusions

- Commodity cycles are inevitable but very difficult to forecast.
- China has become the dominant copper consumer and will continue to be a significant importer of copper for the foreseeable future.
- Demand from developing economies (BRICs) will likely lead consumption growth to a higher level in the next cycle.
- New production in riskier geographic areas will be required to bridge the supply gap.
- Many small projects are required to compensate for lack of mega projects.
- Downstream processing will continue to migrate to the fast growing consumption markets.
- Cable makers will need to develop relationships with suppliers taking into consideration the altering trade flows.

On this slide you can see my conclusions.
Thank you.

Questions and Answers

Question by **Mr. Colin Paskins**, Dubai Cable Company

You seem to be very bullish about the demand for copper. How do you see the copper price move in general terms?

Answer by **Mr. Arthur Miele**

Overall I am bullish on copper. However, we will experience another commodity cycle at which time we will see some prices somewhat below today's prices.

Question by **Mr. Gérard Hauser**, Nexans

I am not totally sharing your point. Nexans is buying about 800,000 tons of copper per year. We do not understand at all the level of copper pricing, although there is no copper shortage. For our customers the backwardation over 24 months creates a very difficult situation.

Answer by **Mr. Arthur Miele**

Unfortunately, I do not have an answer specifically on backwardation. We are dealing in general with low inventories worldwide especially considering the changing trade flows. Europe, however, is a place where there is the least pressure during the year, because Europeans bought fully on their contracts.

Question by **Mr. Evangelos Moustakas**, Hellenic Cables

I would like to know about the effects of replacement of copper by other materials like aluminium.

Answer by **Mr. Arthur Miele**

Substitution is becoming a major issue at these current price levels. The most critical area is in the plastics competition for plumbing tubes in the USA and Europe. On the aluminium side there has not been, as far as we can tell, a significant move to aluminium in North America and Europe. We have seen some substitution in Asia.

Global Development Alliance - ICA

- US Agency for International Development, International Copper Association and its Partners:
US\$ 5.0 million in cash, goods and services
- Targets: Rural and slum Electrification
 - Safety, power quality and energy efficiency
 - Power distribution, building wiring
- Goal: Best practices/standards developed by pilot projects, replication by major financial institutions
- OPPORTUNITY for ICF Members

I like to bring to your attention some information on ICA. We are not asking for money.

We are looking for some support in terms of people and services, that could help this effort.

Contact person:

John R. Mollet

Vice President

International Copper Association, Ltd.

260 Madison Avenue - 16th floor

New York, NY 10016-2401 USA

tel 1-212-251-7243

fax 1-212-251-7245

email jmollet@copper.org

<http://www.copperinfo.com>

Thank you very much.