

Copper's New Global Landscape

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Ladies and Gentlemen,

Good morning. When meeting yesterday and this morning, several of you asked me the key question: "Are you going to give us a forecast for copper?" My answer is: "Yes, I am going to give two forecasts for copper."

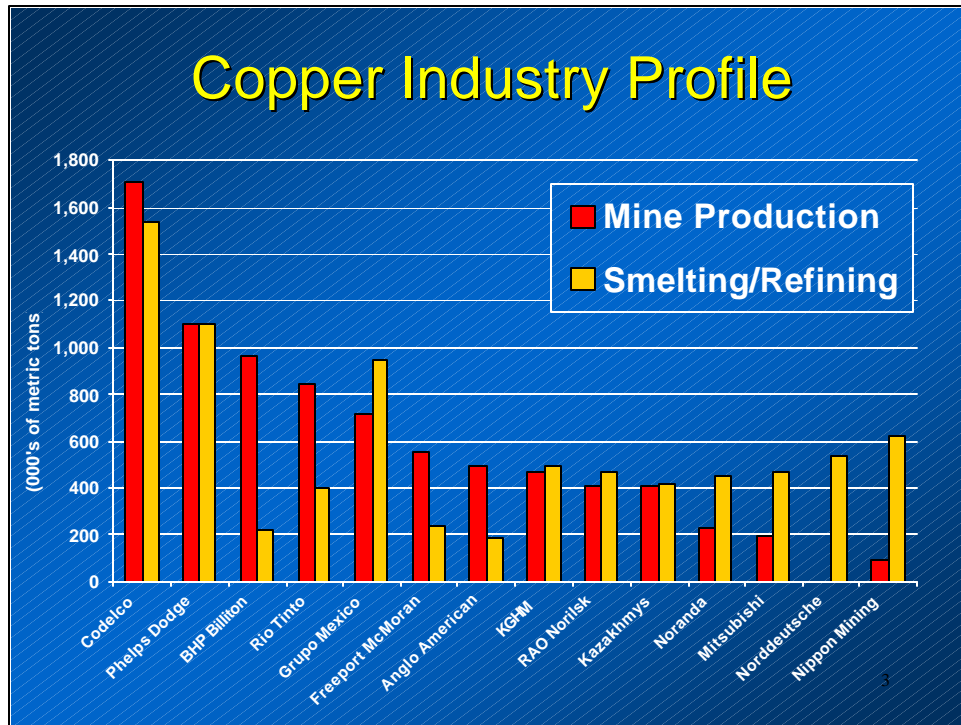
But before I do that, I will talk about the key trends that have occurred during the last decade, how they have changed the industry and what that means to the wire and cable industry and its customers.

Then I will speak about the current situation and the outlook both in the near-term and what can be expected over the long-term.

The 1990's: A Decade of Change

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The copper market during the decade of the nineties evolved through a number of very significant changes. Not only have the changes impacted the supply and demand issues of the market, but also the participants in the market.



Taking a look at the profile of the industry, there has clearly been a reshaping and reshuffling of the industry and its participants. Many of these names you will likely recognize because they are either your direct or indirect copper suppliers. Most of the companies, however, have been recently involved in a movement towards consolidation or trend from government-owned towards private ownership.

In fact, 76% of today's copper mined by the 10 largest companies is held by large privately-held corporations. In 1980, just 20 years ago, less than 40% was held in private hands. A significant shift when considering that industry decisions now are being made are more business oriented as opposed to political and social. Even Codelco, which is the largest of the producers today, run their operations much more like a private company.

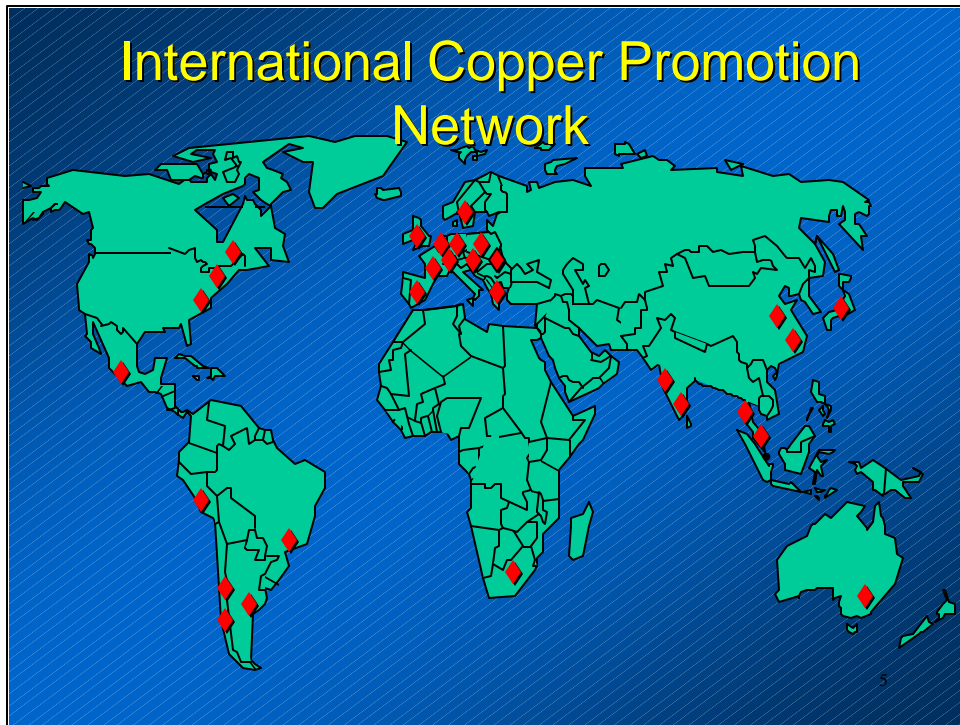
Another significant issue regarding the copper industry profile is the degree of integration compared to base metal segments such as aluminum. Copper, in general, is a non-integrated industry with a tendency for miners and refiners each to focus on their portion of the business. Miners typically remain segmented in mining rather than operating smelters and refineries and certainly not participating in the rod and wire and cable business. Phelps Dodge is the only company remaining in all links of the business chain.

Market Development and Industry Promotion

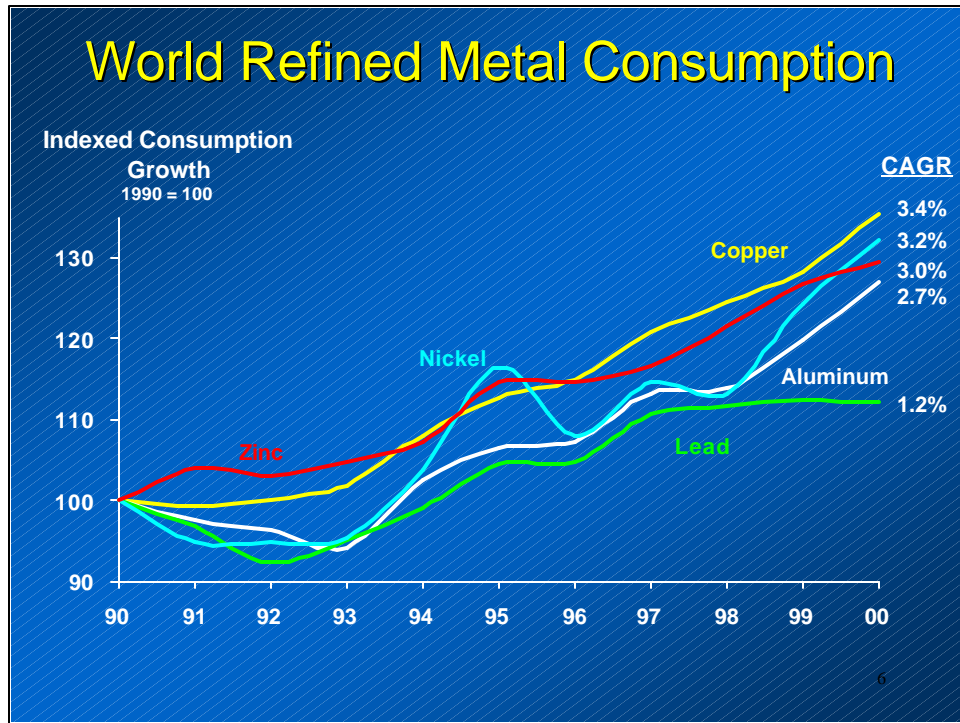
- **International Copper Association formed in 1989**
- **Partnership of producers, smelters, refiners and manufacturers of copper products**
- **Worldwide promotion program - 200 staff in 29 centers, supported by 60 major subcontractors and consultants**
- **Investment on promotion has gone from \$6.0 million to more than \$40 million in 2000**
- **However, the industry is spending ten times more on exploration than on market development**

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Copper's efforts have been focused through the International Copper Association. ICA is a partnership of the producers, the smelters, and refiners in cooperation with consumers like you. John Mollet of ICA, present here today, works with many of you in regional programs. This industry has gone from spending US\$6 million in 1990 to over US\$40 million this year and the five year plan is to double that to US\$80 million.

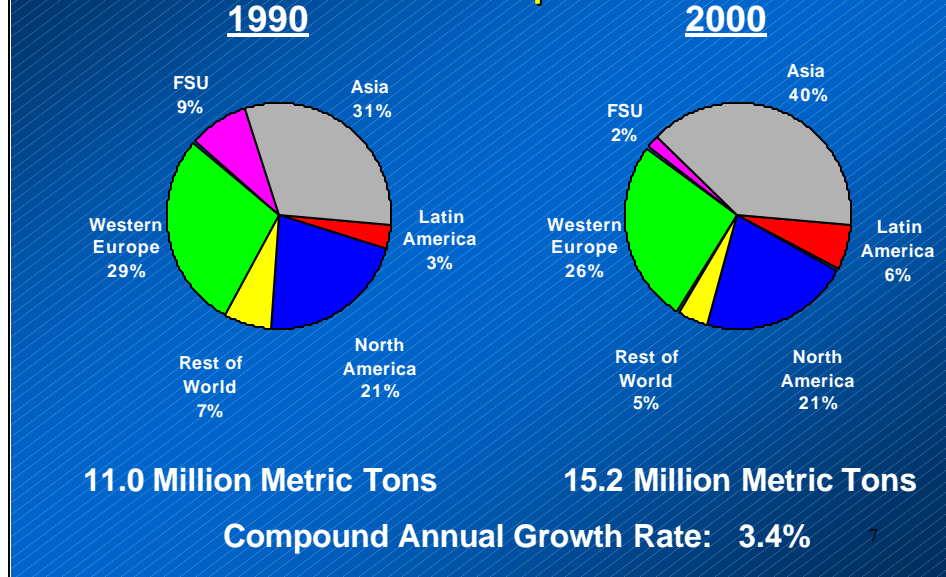


This map shows where the 200 employees of the International Copper Association (ICA) and of the Copper Development Association (CDA) are located. Many of you are already working with us and that cooperation is highly appreciated.

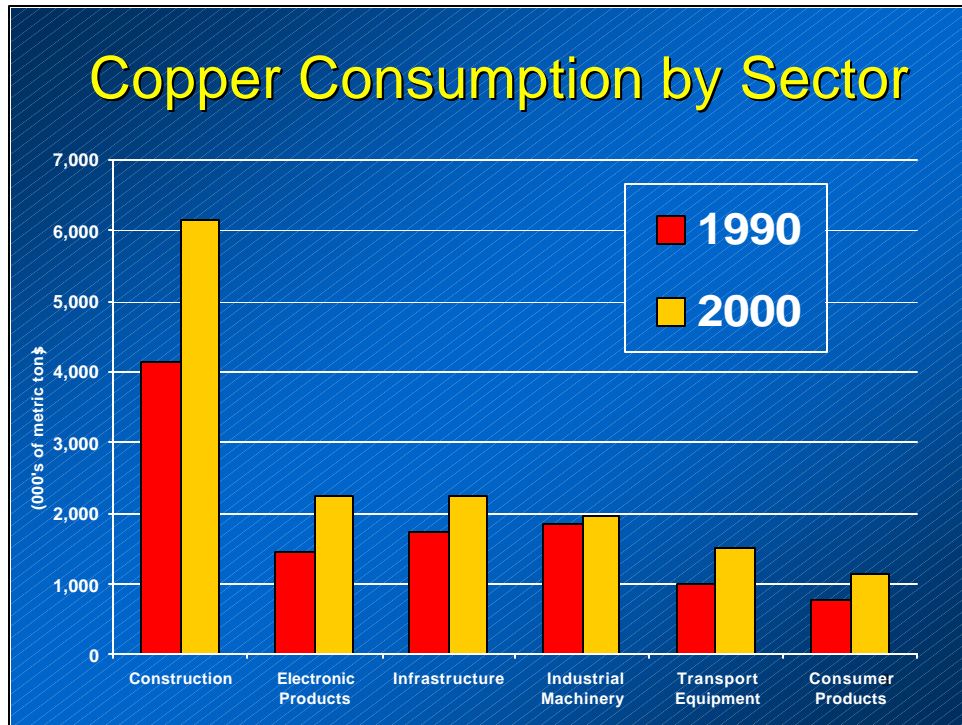


Switching to the changes in market fundamentals over the past decade, demand for copper grew faster than any of the base metals, including our sister metal aluminum, during the nineties. Growth in copper consumption was 3.4% per year during the past decade, clearly topping all others.

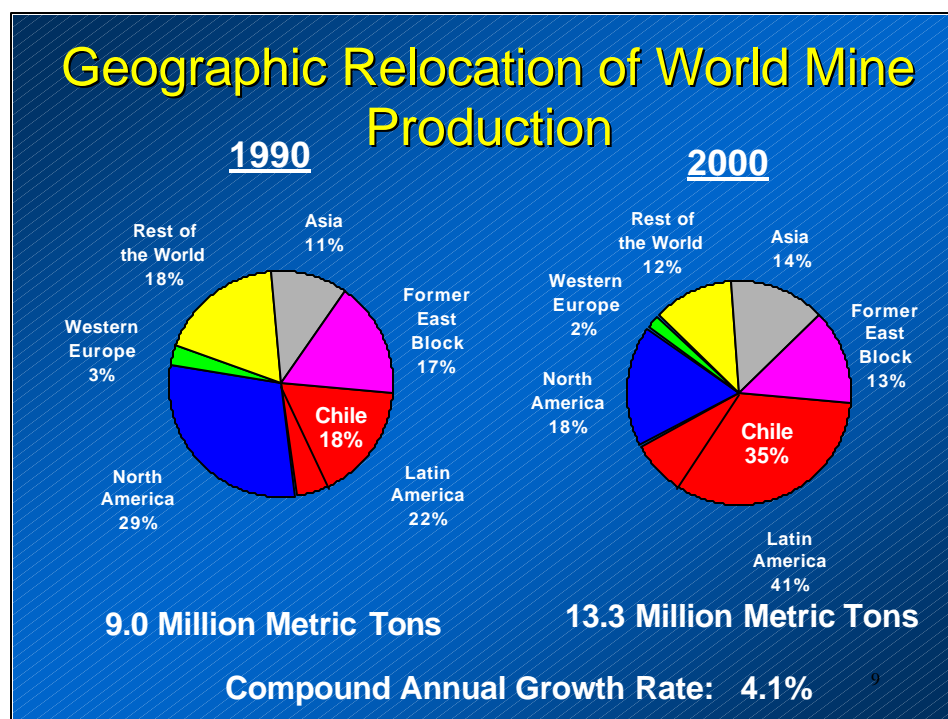
Geographic Relocation of World Refined Consumption



More significant, however, is where the demand growth took place. It was taking place in the emerging and developing economies of Asia such as Korea, Taiwan, and other Asian Tiger nations. Demand in Asia has gone up from 30% in 1990 to over 40% of the world's total and big part of that has been due to China's emergence. I'm sure it is of no surprise to anyone here since most likely you are all operating to some degree in those areas.



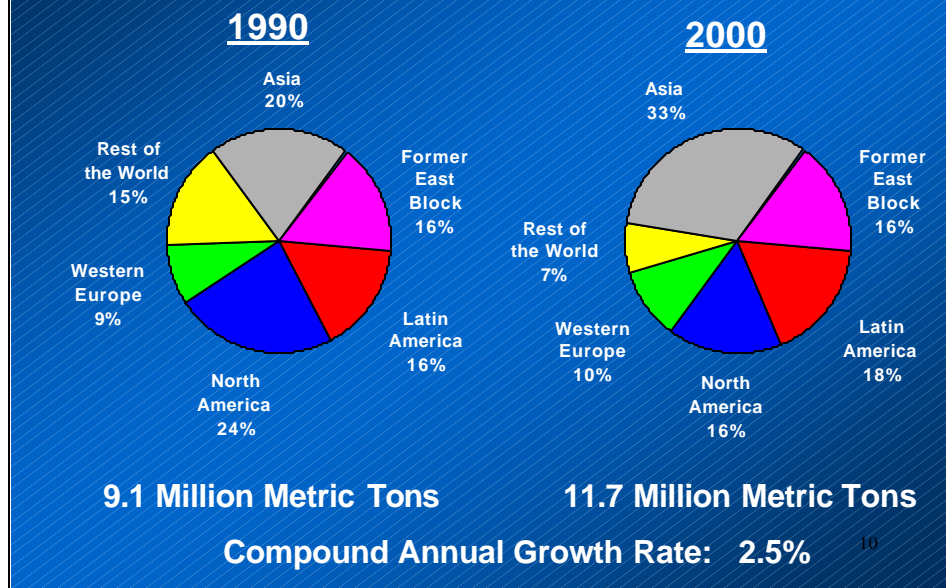
Comparing consumption changes over the past 10 years on a sector by sector basis, it is important to note that demand in all the sectors, excluding industrial machinery, grew more than 30% during the decade. While construction remained the largest consuming sector at over 40%, the fastest growing was the electronics and electrical products sector. And of course, that translates greater demand particularly from wire and cable.



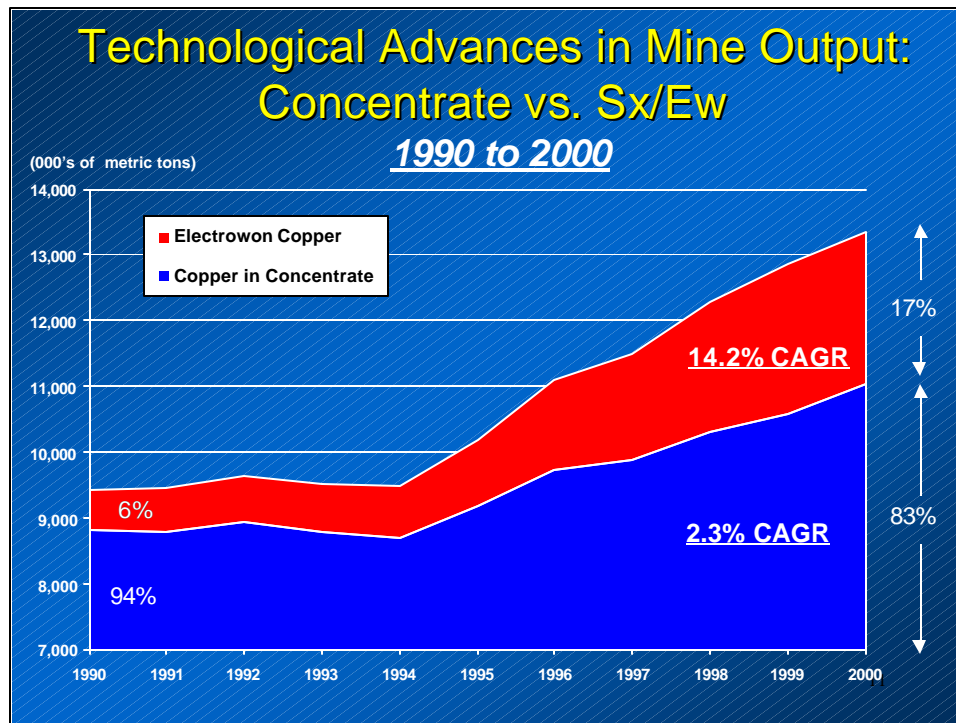
The most interesting changes in the industry, however, have taken place on the supply-side. In the 1980's, there was a backlog of very low-cost, world-class ore deposits in South America that had not been developed due to political and social barriers. During the 1990's, however, a changes in the regional political climate and a shift from public to private owners allowed for these properties to be developed.

As a result was an increase in the annual growth rate to 4.1% per year outpacing the rate consumption was growing. Much of the growth took place in Latin America as new mines gradually came online. South America's percentage of world production nearly doubled in ten years growing from 22% in 1990 to 41% in 2000. Chile's production alone went from 18% of global production to 35% in ten years time. Once the political and economic situation of the Latin American region had improved, it became the primary focus of international mining companies in search of investing in world-class resources, a reputation it still holds today.

Geographic Relocation of World Smelter/Refinery Production

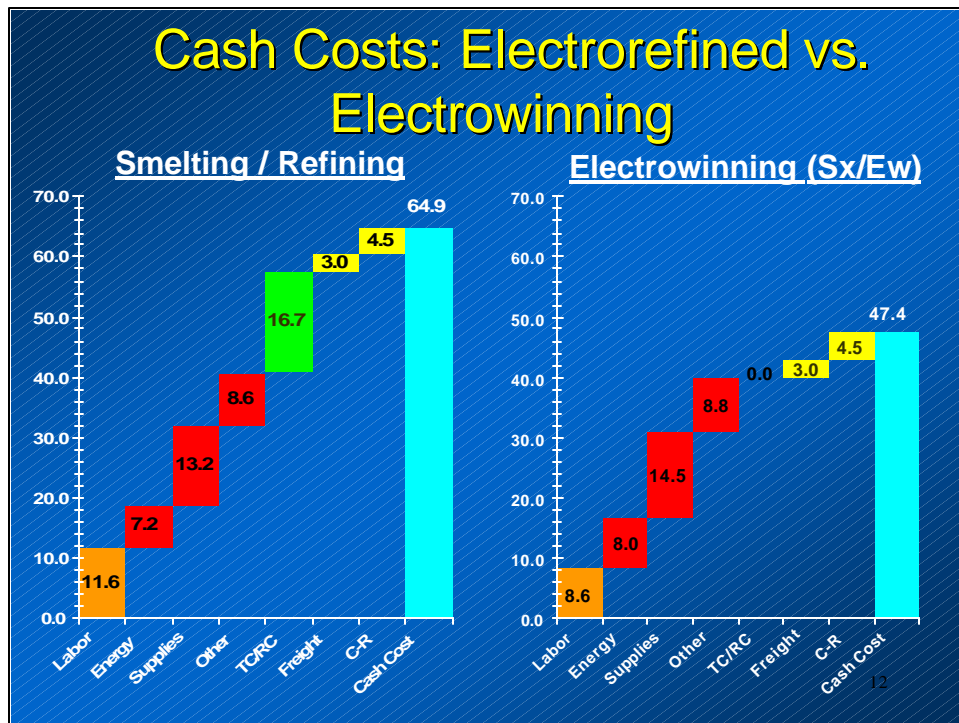


In contrast, investment in smelting and refining is taking place in regions of growing consumption. While the growth in smelting and refining capacity has been relatively modest at 2.5% per year, the expansion has been centralized in Asia where increases in capacity have been made in India, China and Japan at the expense of smelter output in North America and Africa.



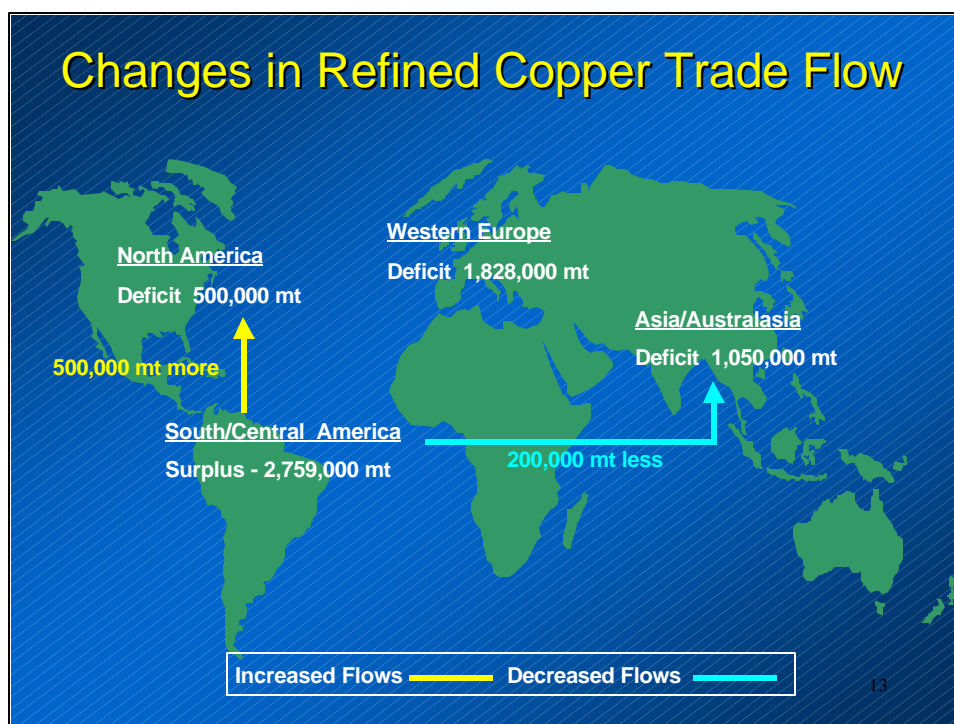
Another important supply trend were the technological advances made in metallurgy with the development of the solvent extraction and electrowinning process known more commonly as Sx/Ew. Sx/Ew has essentially created new sources of low-cost copper by taking advantage of oxide copper resources that in the past were considered too low of grade to be processed economically.

In fact, the perfecting of the technology has lead Sx/Ew to become the fastest growing source of copper rising from 6% of all mined copper in 1990 to over 17% in 2000. I should add that Phelps Dodge produces approximately 50% of its copper utilizing this new technology while the remaining 50% is derived using the traditional smelting and refining method.”



That fact is important when considering the re-calibration in operating cost that has taken place. Cash costs of traditional extraction methods utilizing smelting and refining has averaged \$0.65 US cents per pound while Sx/Ew costs are generally 15 cents lower at \$0.50 per pound.

The combined impact of newly developed resources in South America and the advancement of new extraction technologies has lead to a significant shift in the underlying industry cost curve. On a cash cost plus depreciation basis, we have seen costs come down from average of nearly US\$0.75/pound in 1992 to slightly above US\$0.60/pound in 2000.



The downward shift to the right on the cost curve has forced a number of previous producers to operate on the outward fringe of the curve leading the closure of many operations during down cycles in the copper price. The most recent down cycle took place in 1998 that resulting in nearly 725,000 metric tons to be closed or cutback between 1998 and 1999. The shutdowns that took place in various countries were:

Canada	33,000mt
Chile	60,000mt
Malaysia	19,000mt
Peru	8,000mt
Spain	18,000mt
United States	482,000mt
Various others	104,000mt

As a result of the closures, a shift in the regional copper trade flows erupted rearranging the trade routes that refined copper and raw materials take to get to market. For example, the closure of 482,000 tons in the US has transformed the North American region from a balanced market to one that imports up to 500,000 tons from South America each year.

Copper Trends - Implications for Customers

World Class, Lower Cost Supply Base

- Production in hands of stronger, global, economically-driven companies will ensure long-term, cost-competitive supply
- Allows copper-based products to remain competitive with substitutes
- Non-integrated industry creates need for joint market development and promotion

Price volatility will continue, but cycles are likely to be shorter

- Risk management
- Inventory control

Shifting global supply patterns

- Globally knowledgeable and connected purchasing staff
- Partnering with integrated global suppliers

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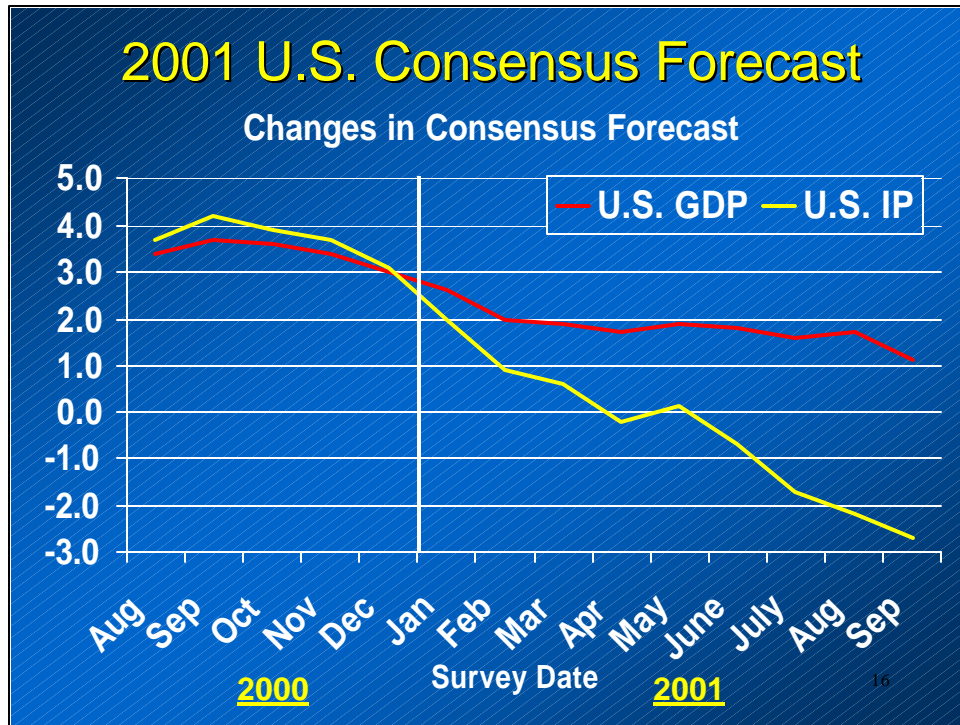
So what do all these changes mean to you, the downstream consumer? For the users of copper this means a more secure supply base, operating in the hands of stronger economically oriented producers. This allows copper to remain competitive with other substitutes and it highlights the obligation of a non-integrated industry to do joint market promotion.

Price volatility is likely to continue. The increase in private ownership will force quicker production decisions based on economic value. The trend will be more and more to use advanced risk management and inventory control tools to mitigate that volatility.

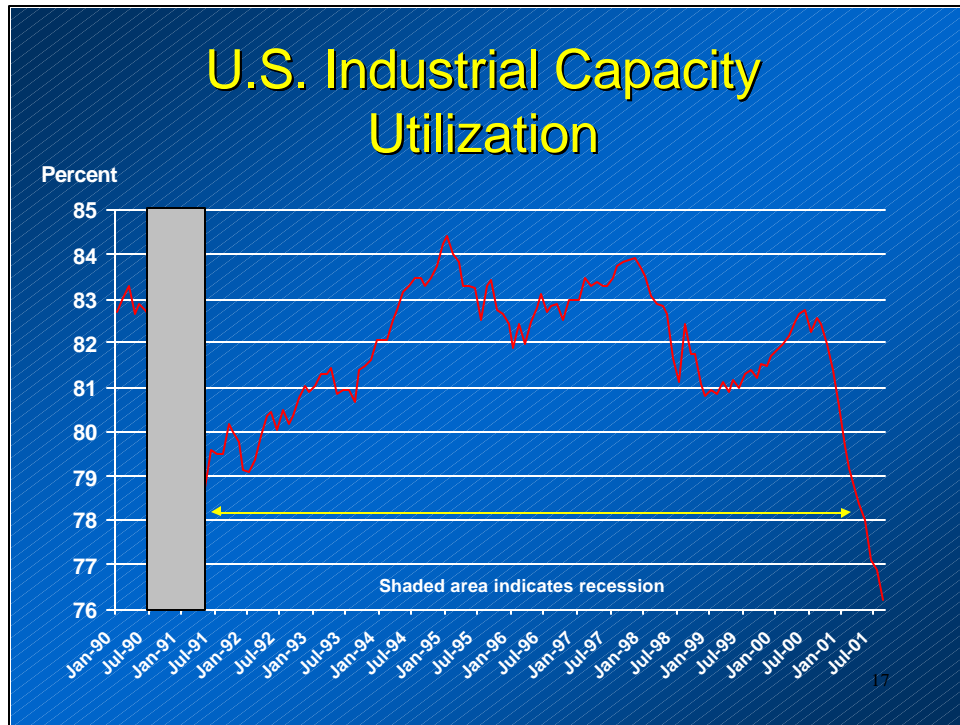
Lastly, the shifting supply patterns will make it necessary to have a global presence with a knowledgeable staff while developing relations and partnerships with integrated suppliers as globalization moves forward.

Copper Market Outlook: 2001 and Beyond

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Turning our focus towards the current market and the underlying economy, I think we should start by looking at the impact the declining US economy has had on the copper industry. A quick glance at rapid decline in US GDP and IP give us a good understanding of what is happening in the States. Over the August, September and October 2000 time period, the consensus of 20 reputable banks and financial institutions forecasted that GDP and industrial production figures would grow between 3 and 4% during 2001. However, by the end of last year, reports by economists made it apparent that the US economy would not proceed its economic expansion at the levels that had proceeded over the past 10 years. By April, IP had dipped below 0.0% signifying a contraction in manufacturing output leading to our current levels of -3.0% for IP and less than 2% for GDP growth.



The industrial production figures suggest that we are already in a manufacturing recession highlighted by the sharp decline in industrial capacity utilization. Our manufacturing plants and factories operated at 76% of capacity, lower than levels previously experienced during the past recessionary period of the early 1990's.

In terms of copper, last year during October, when production capacities were in the 80% range, the concern was about low copper inventories and high prices since the outlook was for a year of tight supply. Industrial production was estimated to grow 4.2%. Now, however, the forecast for IP is negative further effected by the recent attacks that took place on September 11th. For copper, the forecast was a for a 3% growth in demand, but now we are expecting a decline of at least 1.5% which could even get worse.

Copper Market Forecast 2001

	<u>2000</u> Actuals	<u>Last Year's</u> Forecast	<u>Current</u> Forecast
Refined Consumption - (000 tons)	<u>2000</u> 15,068	<u>2001</u> 15,160	<u>2001</u> 14,840
- % Change	6.7%	3.0%	-1.5%
Refined Production - (000 tons)	14,813	14,960	15,340
- % Change	2.9%	3.1%	3.6%
Inventory Change - (000 tons)	(255)	(200)	500
Weeks of Consumption in Inventory	5.2	4.7	7.0
<u>Mining Consultant/Analyst Copper Price Forecasts</u>		<u>2001</u> 90¢ - 103¢	<u>2001</u> 70¢ - 73¢

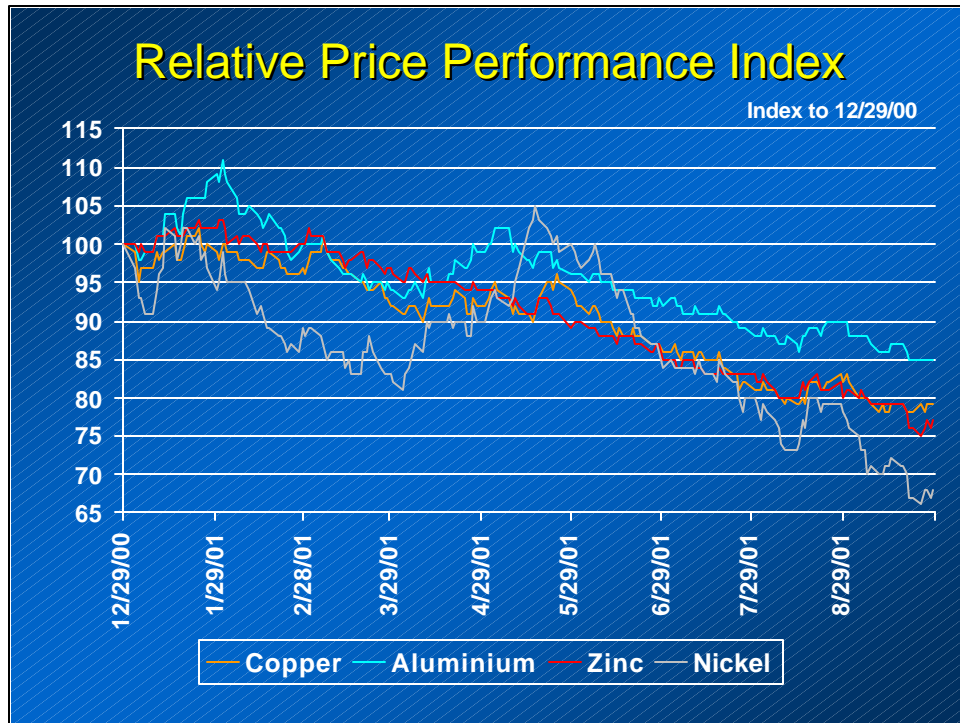
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This table is very useful in understanding the current market by comparing the supply and demand to derive a market balance for the year. Last year, year 2000, inventory levels declined more than 250,000 metric tons. The forecast for 2001 called for an additional decrease in inventories to a level equal to 4.7 weeks of consumption. Below 5 weeks is considered a very tight market.

Industry analysts and consultants alike had been expecting prices from US\$0.90 to US\$1.00 per pound. Due to the rapidly changing economic situation, those same analysts and consultants are now expecting a price range of US\$0.70 to US\$0.73 per pound.



However, as this graph depicts, the current copper price is below US\$0.65 per pound which could drag the average price for the year even further down.



A quick look at the other base metals, though, reveals that copper's current tough times are not exclusive. The only base metal that has done better than copper is aluminium which has benefited from a 5% curtailment in production due to the rising expense of electricity.

2001-2002 Industrial Production Forecast

<u>% World Copper Consumption</u>		<u>2001 Forecast</u>	<u>2002 Forecast</u>
26%	Western Europe	0.6%	1.8%
22%	North America	-2.6%	0.5%
41%	Asia Pacific	-3.2%	0.9%
6%	Latin America	3.1%	4.5%
5%	Eastern Europe	3.6%	5.4%
	World	-1.1%	2.7%

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Moving to a world economic basis, the downward trend in industrial production is not localized to the US, but has spread due to the impacts of trade and globalization. The consensus for the same 20 banks suggests that world IP will contract 1.1% this year followed by growth of 2.7% next year.

Copper Market Forecast 2001 - 2002 Mild Recession/Mid-2002 Recovery

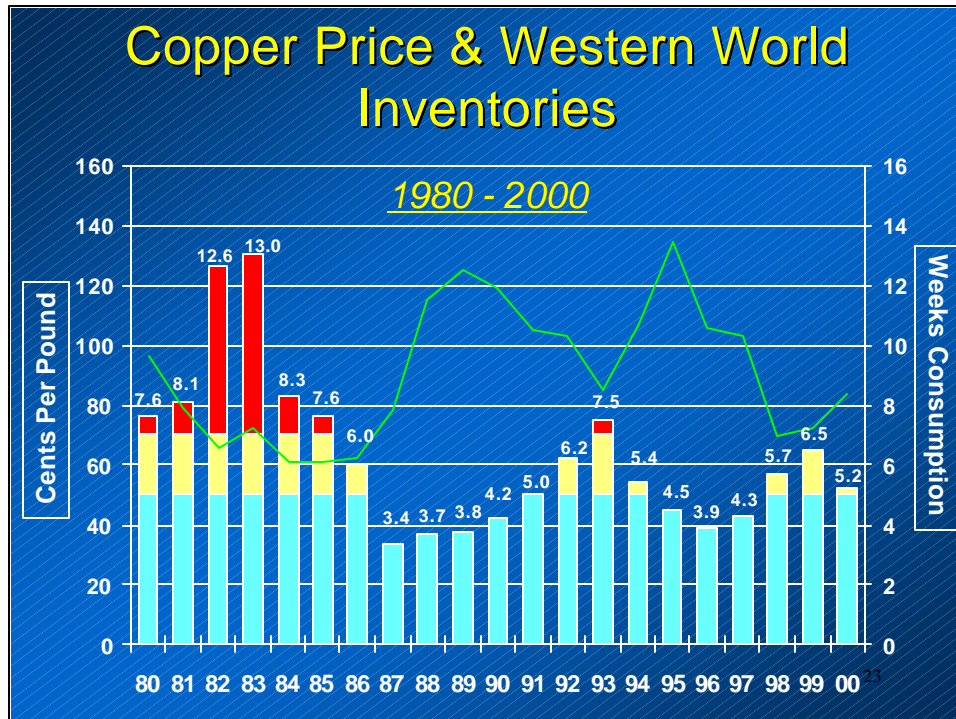
	W/O Cuts	With Cuts
	<u>2002</u>	<u>2002</u>
Refined Consumption - (000 tons)	15,296	15,286
- % Change	3.0%	3.0%
Refined Production - (000 tons)	15,546	15,066
- % Change	1.3%	-1.8%
Inventory Change - (000 tons)	250	(220)
Weeks of Consumption in Inventory	7.7	6.1
	<u>2002</u>	<u>2002</u>
Estimated Copper Price Range	65¢ - 70¢	80¢ - 85¢

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Looking at next year's copper market, even with 3% demand growth and only a small increase in refined production, inventories are expected to increase. Weeks of consumption will be well above 7 weeks and copper prices are estimated to range between 65 and 70 cents. There are some who think it could go as low as 60 cents before moving higher.

The chart also illustrates a forecast along the right hand column assuming that cutbacks in production were to occur.

So as promised, my two forecasts are 1) Copper prices without production cuts as low as 60 cents per pound, and 2) production cuts leading to prices of 80 to 85 cents before yearend.

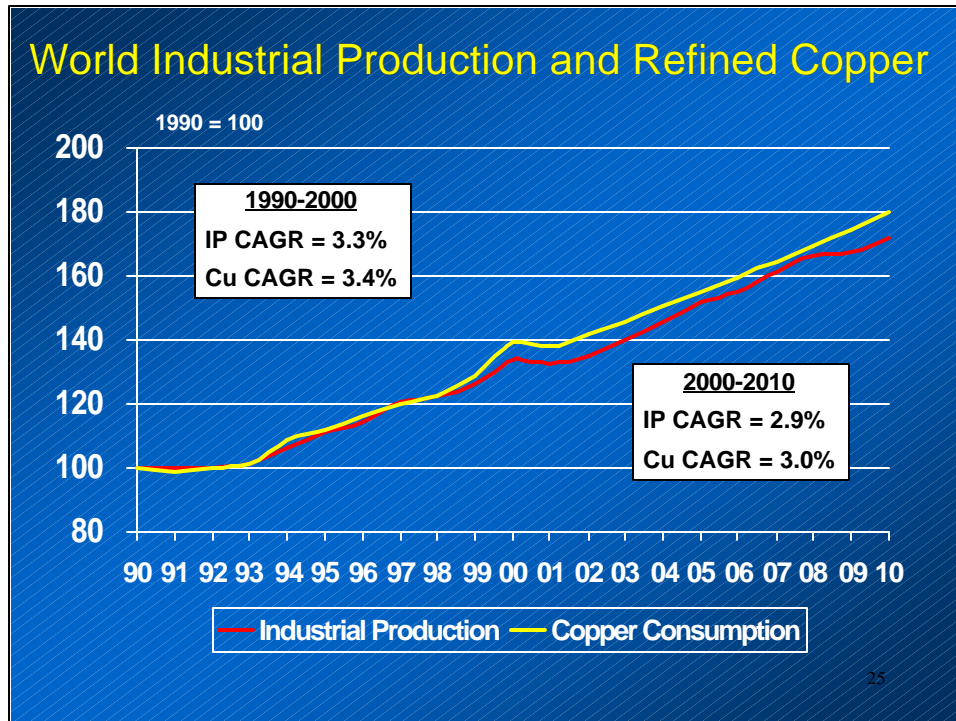


I was also asked to comment on how copper prices react and why they move the way they do. This chart explains much of how the market moves. The blue bar represents up to 5 weeks of consumption. Anything within 5 weeks of consumption is considered a tight market. The yellow band represents two additional weeks meaning a transitional market between tight and excessive inventory. The red band is an excess market characterized by falling prices and rising stocks. In the early 1980's, copper inventories climbed to 13 weeks. With 6 weeks of inventory considered "normal", there was clearly excessive inventory. It took three years of strong consumption to work down those inventories and return prices to above the 60 cent range.

We are currently suffering a similar situation right now. Inventories are again building to record levels. Looking at the 1998-1999 period, inventories built up to over 6 weeks during those years. However, the combination of robust demand growth in 1999 and 2000 plus the curtailment of 725,000 tons of production capacity resulted in a rebound in copper prices.

Long-term Copper Trends

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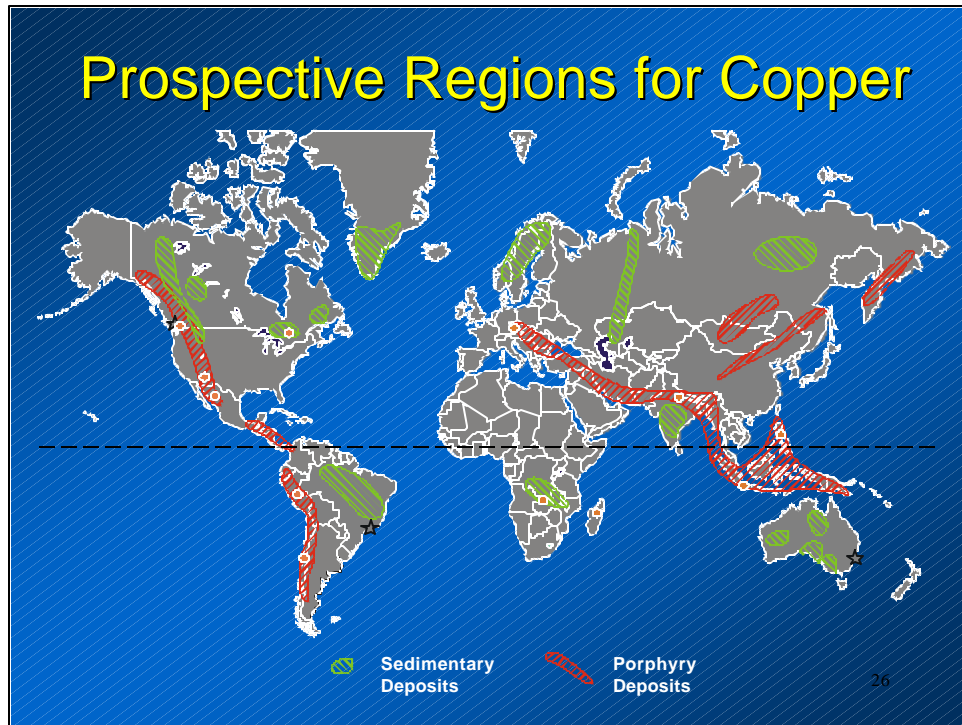


As illustrated in this chart, the curves for industrial production and copper consumption match very well. Assuming the long-term projection based on the consensus for global industrial production, the statistics suggest that world copper consumption should grow by greater than 3.0% annually through 2010.

Based on the assumption that copper demand will grow at 3%, copper demand can only be met with identified new capacity on the order of 7 million tons of copper with includes:

- 1) 2.5 million tons of expansions at currently existing mine at relatively low incremental cost.
- 2) 4.5 million tons of greenfield capacity, some of which will have to come from countries with higher perceived political and investment risk.

In the 1990's new districts for exploration were opened in Latin America that filled much of the need for new sources of new mined material. There still exists many new opportunities in that region, but in the future, much of what is required will have to come from new developments located in countries that were not considered likely sources in the past.



This map shows the various copper belts around the world. While exploration opportunities and the potential of developing new mines in Latin America remains the strongest in the world in countries like Chile, Brazil, and Peru, much of the world's future production will have to come from countries like China, Russia, and nations of southern Africa. At the moment, these are generally considered higher risk areas which will require a higher rate of return in order for private investors to be enticed to bring explore, develop and extract these resources from the earth. An independent study estimates that it will likely require a copper price of US\$0.90 per pound in order to obtain a 12% pre-tax return on these greenfield projects alone.

Conclusions

Short-term

- Prior to September 11 there were differing views regarding economic recovery.
- Current consensus is that the U.S. will experience a recession with negative impact on global trading partners.
- Copper prices will remain under pressure with a high probability of production curtailments.
- Synchronized worldwide effort to stimulate industrial economies could provide the basis for a meaningful recovery by mid-year 2002.

Longer-Term

- Longer term new production will have to come from non-traditional, higher investment risk sources.
- Private sector will play a vital role in developing these orebodies and bringing them to market.

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In conclusion, before the tragedies of September 11th there were some mixed opinions whether the global economy would slip into a global recession. Now, following the events, it is believed there will be a recession, at least in the United States.

Copper prices will likely remain under intense downward pressure which could trigger production cuts that will be needed to lift the market back into balance.

In the longer-term, strong growth in copper demand will require mining companies to explore and develop new reserves using evolving technologies in areas of the world that have not been traditional sources of copper.

Thank you for your attention.