

Market Analysis

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Mining



Smelting
and
Refining



Zinc



Copper

Strong global financial recovery

Growth 2004

- **Global**

- Cu consumption 7 %
- Cu production 6 %
- Zn consumption 7 %
- Zn production 2 %

- **USA**

- Cu consumption 8 %
- Zn consumption 8 %

- **Europe**

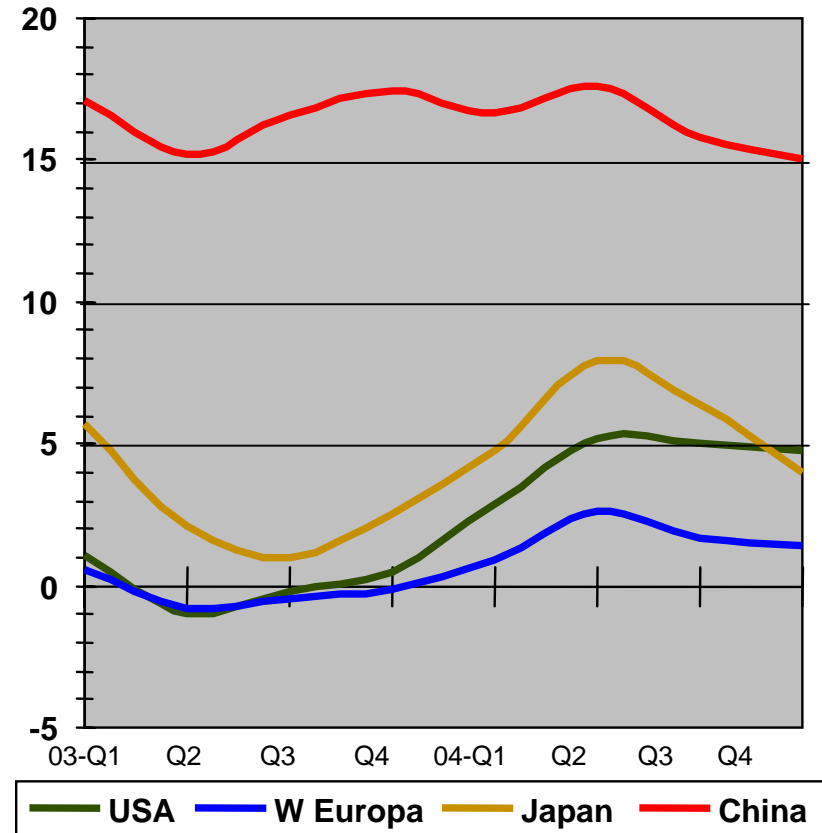
- Cu consumption 2 %
- Zn consumption 3 %

- **China**

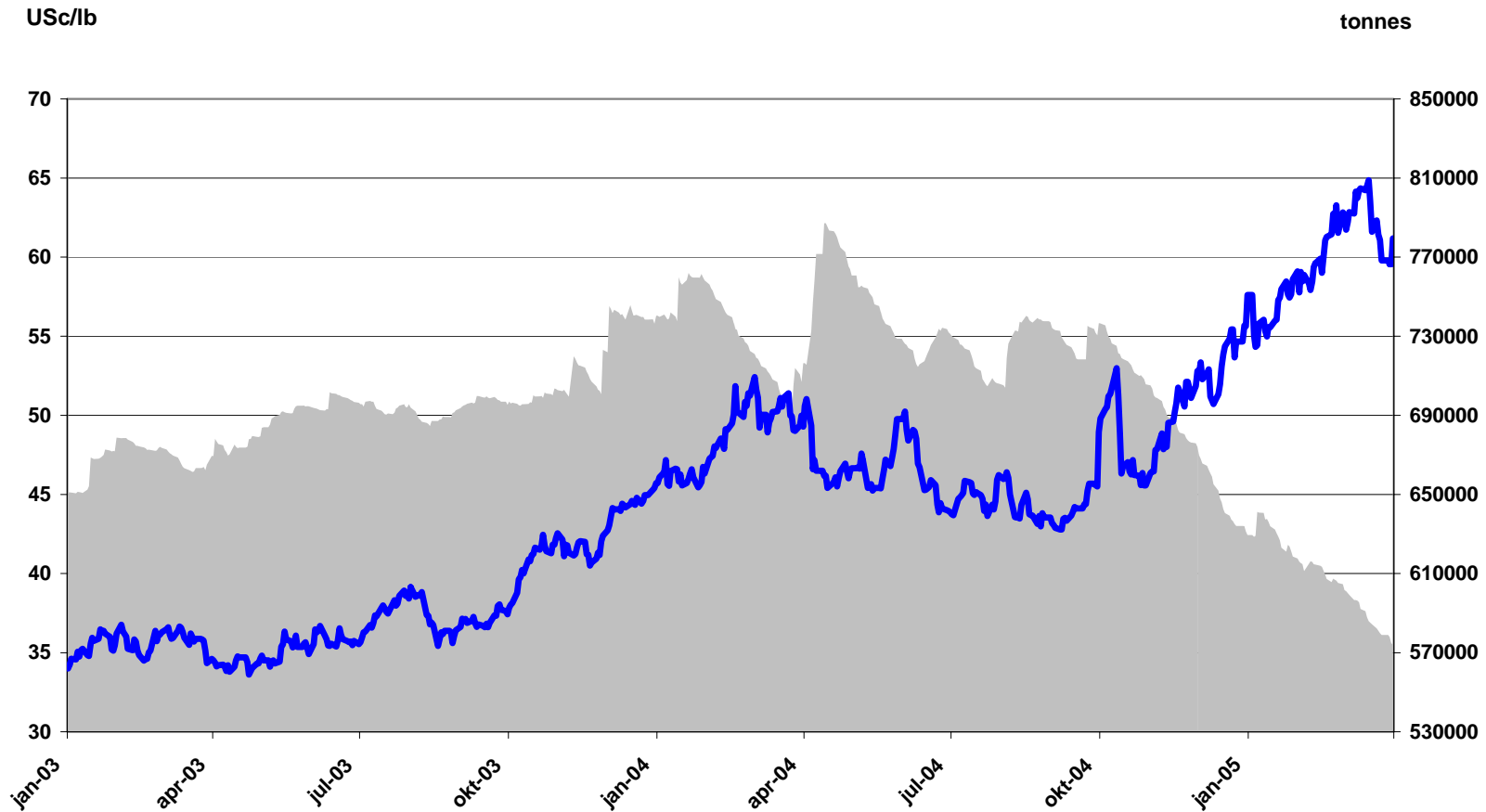
- Cu consumption 14 %
- Zn consumption 14 %

- **Outlook for 2005 – good**

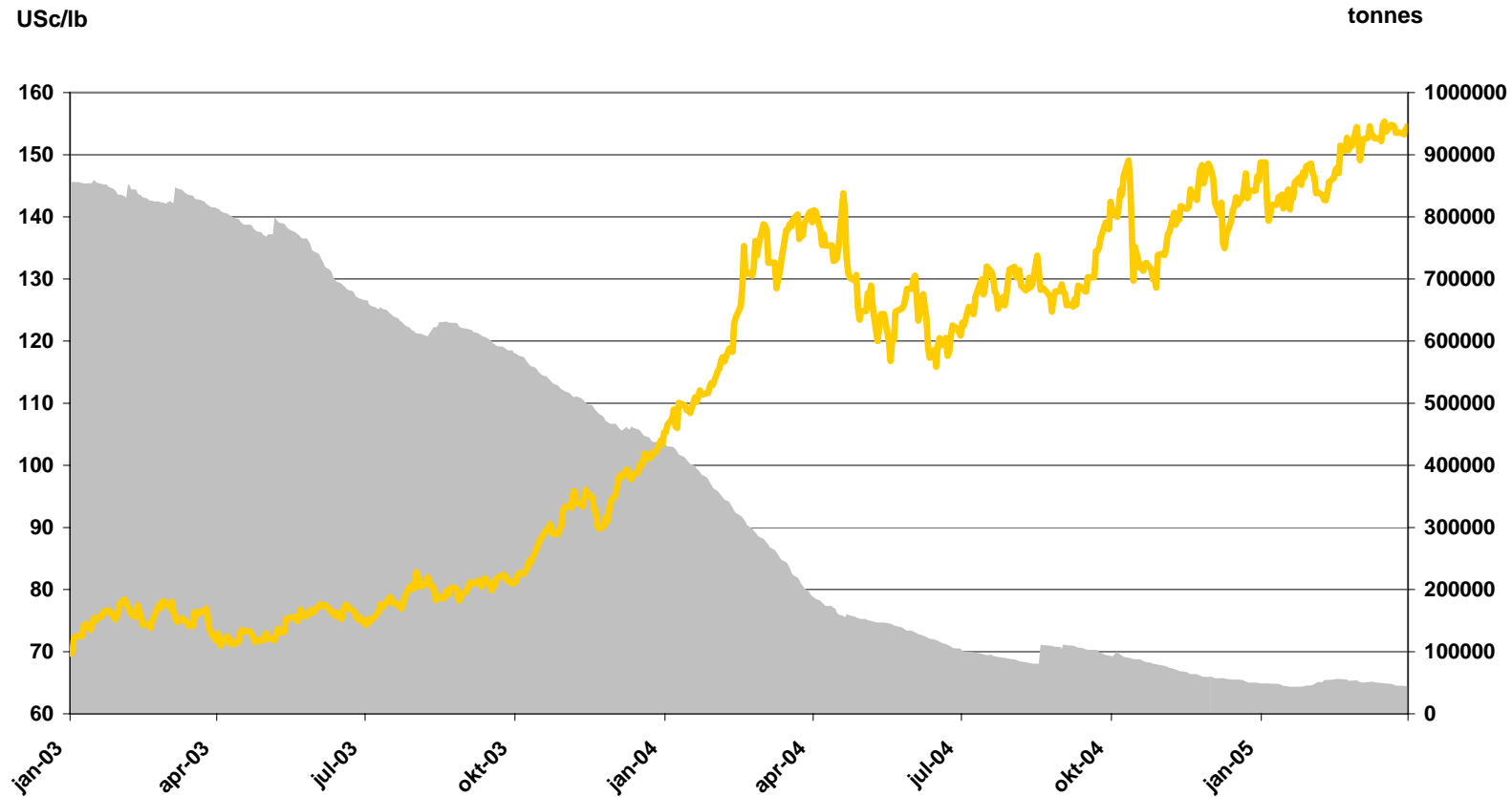
Industrial Production



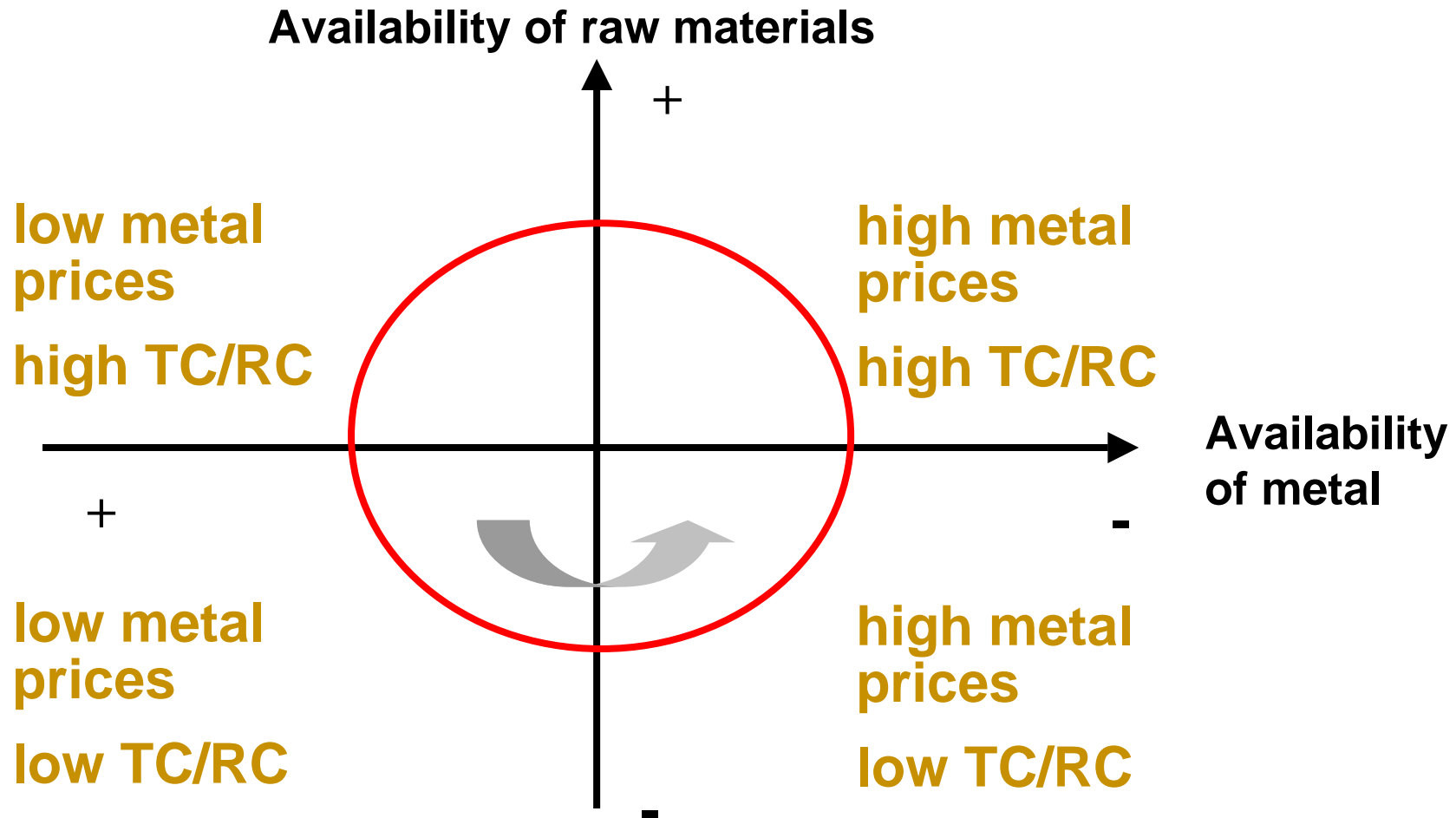
Zinc: Price and LME stocks



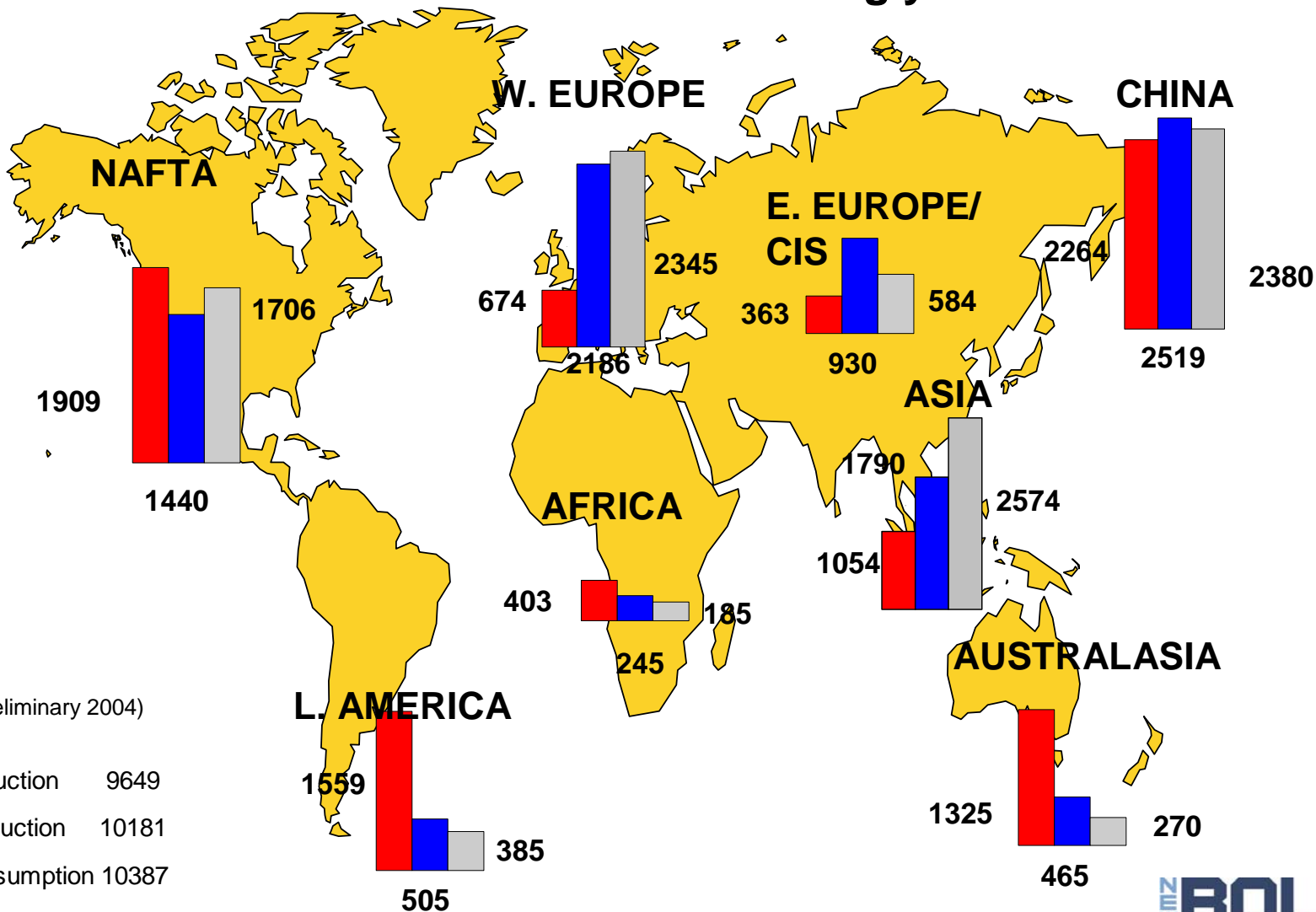
Copper: Price and LME stocks



Business cycle of metals



China and the rest of Asia together represent 47% of global zinc metal production and 48% of consumption and this region will dominate the zinc market in the coming years.

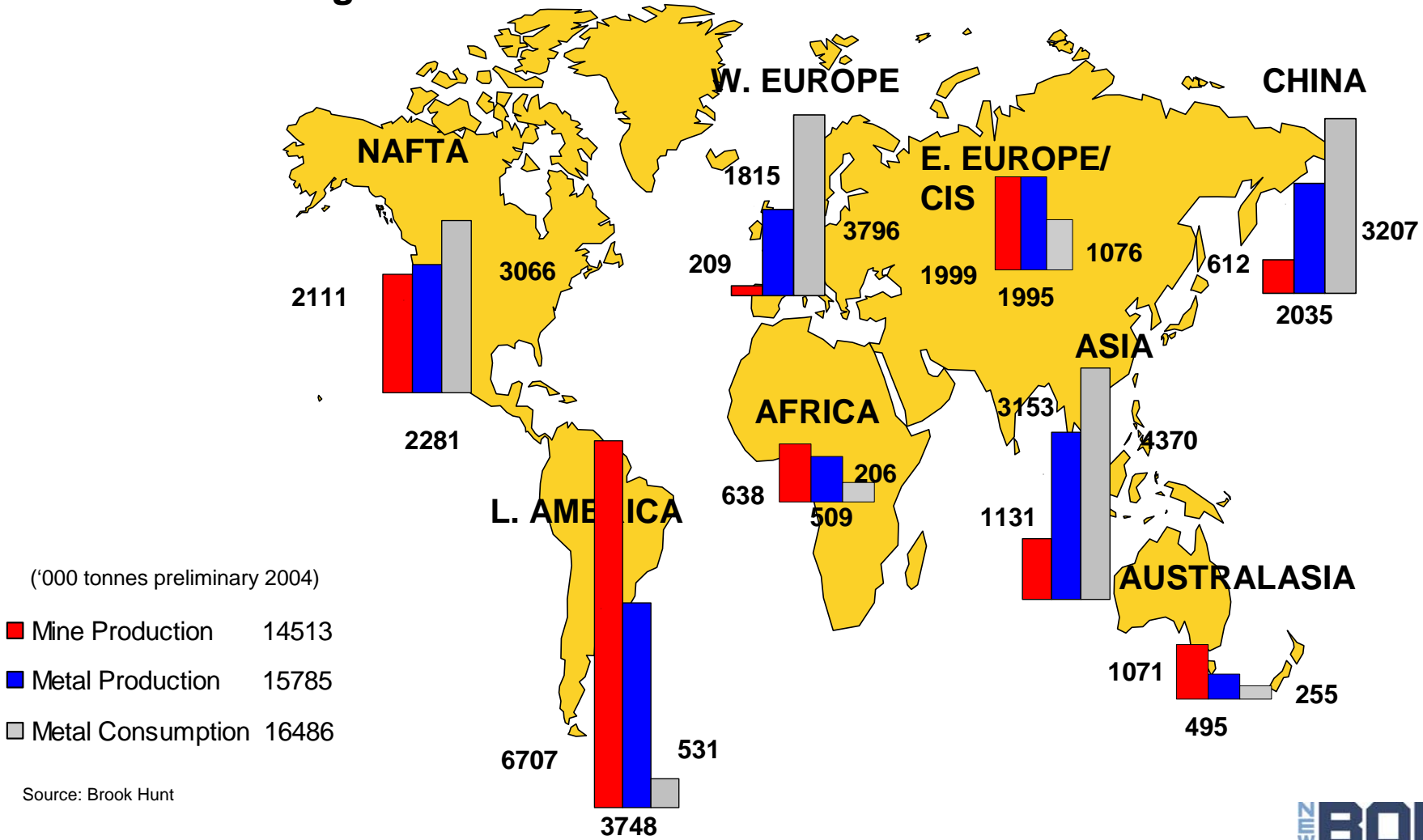


('000 tonnes preliminary 2004)

- Mine Production 9649
- Metal Production 10181
- Metal Consumption 10387

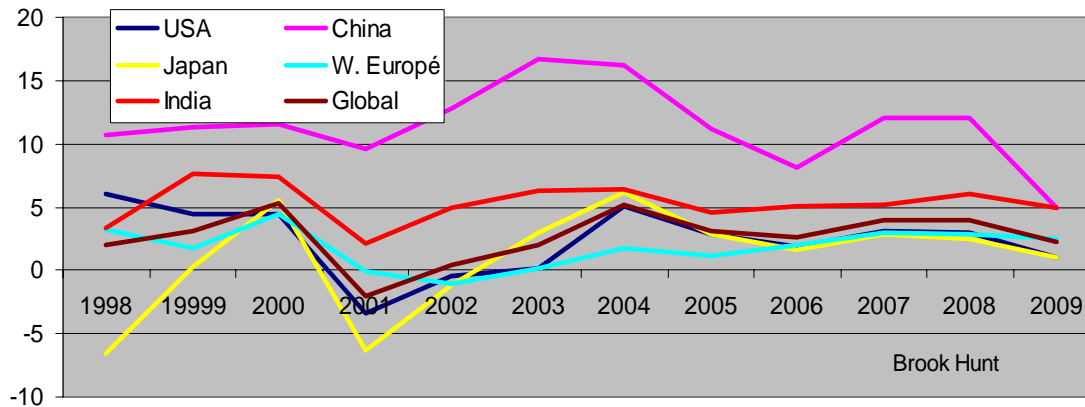
Source: Brook Hunt

China and the rest of Asia together represent 32% of global copper metal production but 48% of consumption. It is forecast that this region will increase its imports of copper metal during the planning period, thus creating an imbalance in the market

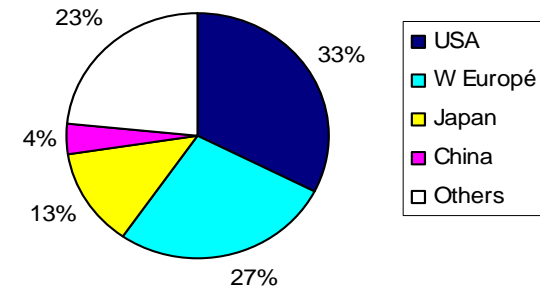


IP year over year indicates slowdown 2005 –2006, strongly influenced by US cyclic slow down.

IP % change over previous year



Global IP



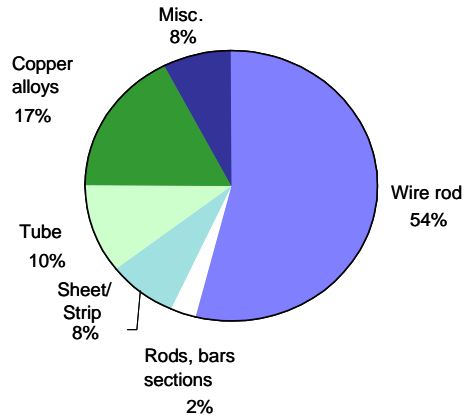
Flags of warning

- Inflation and oil price development
- Geopolitical constraints
- China soft landing scenario
- US budget & foreign trade deficits
- Christian-Islamic conflict
- Increasing threats & corruption in Russia

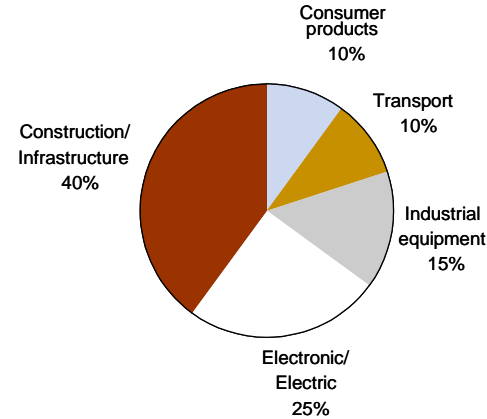


Boliden's major copper customers are found in the wire rod sector, where a premium is paid for quality. The major zinc customers are in the galvanizing sector.

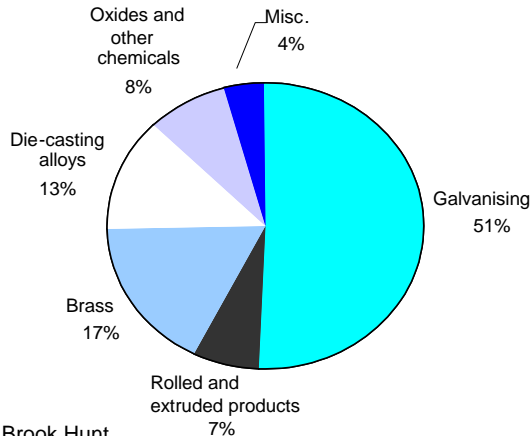
**Copper consumption by first use
Western World (2004)**



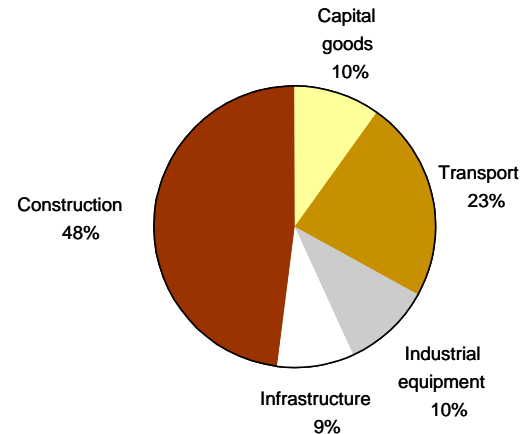
Copper consumption by end use (2004)



**Zinc consumption by first use
Western World (2004)**



Zinc consumption by end use (2004)

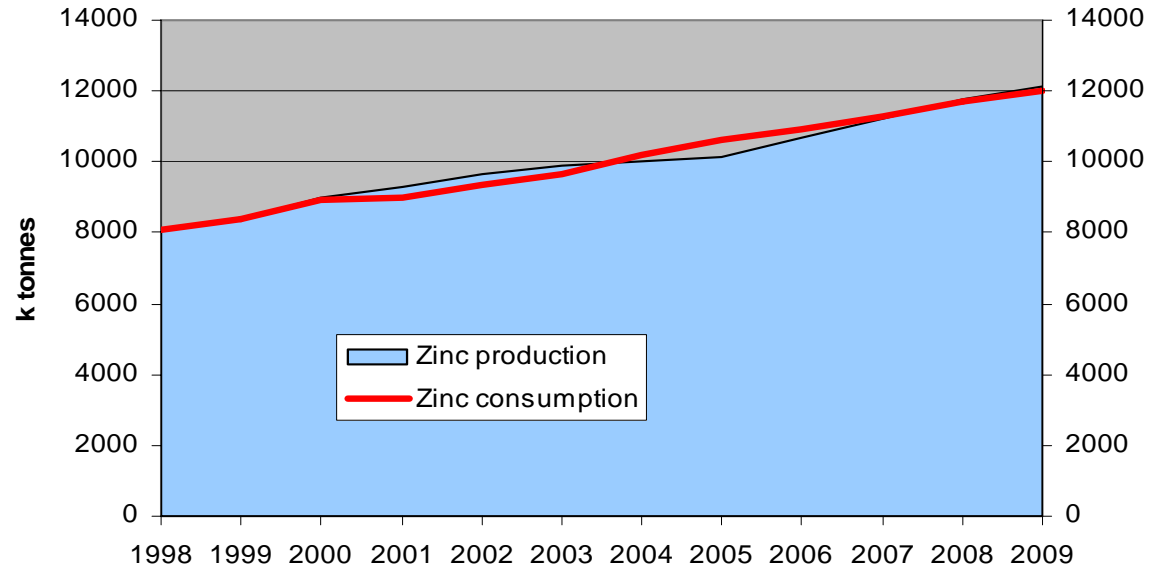


Source: Brook Hunt



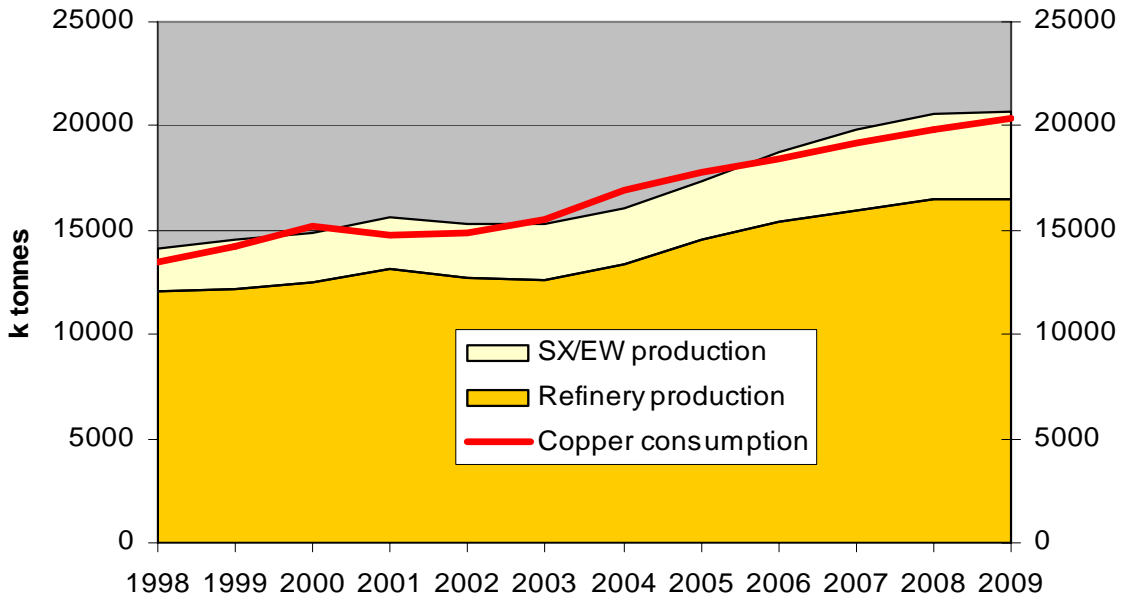


Metal consumption is expected to grow by about 3% per annum in the coming ten years. Some 40% of this increased consumption is expected to take place in China



Global Zinc consumption trends:

| | |
|-------------------------|------|
| Growth p.a. 1960 - 1973 | 5.1% |
| Growth p.a. 1974 - 1990 | 1% |
| Growth p.a. 1991 - 2003 | 3.2% |
| Growth p.a. 2004 - 2015 | 2.8% |



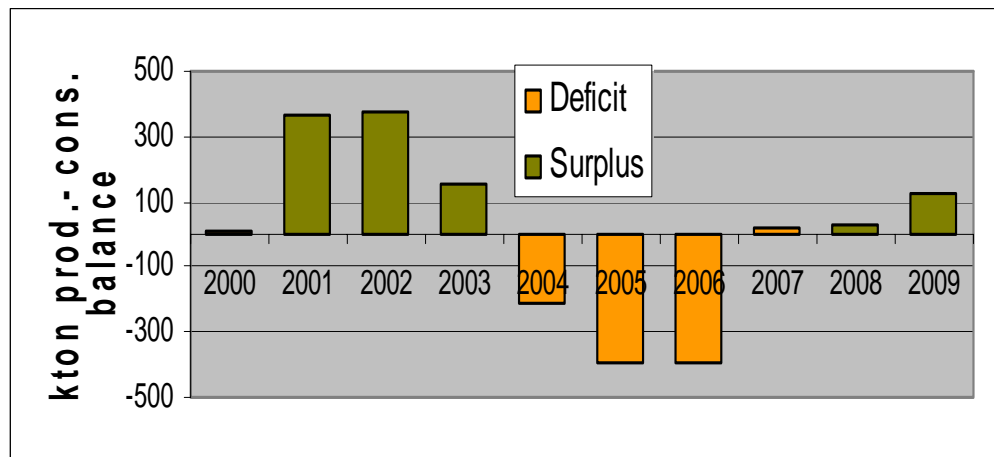
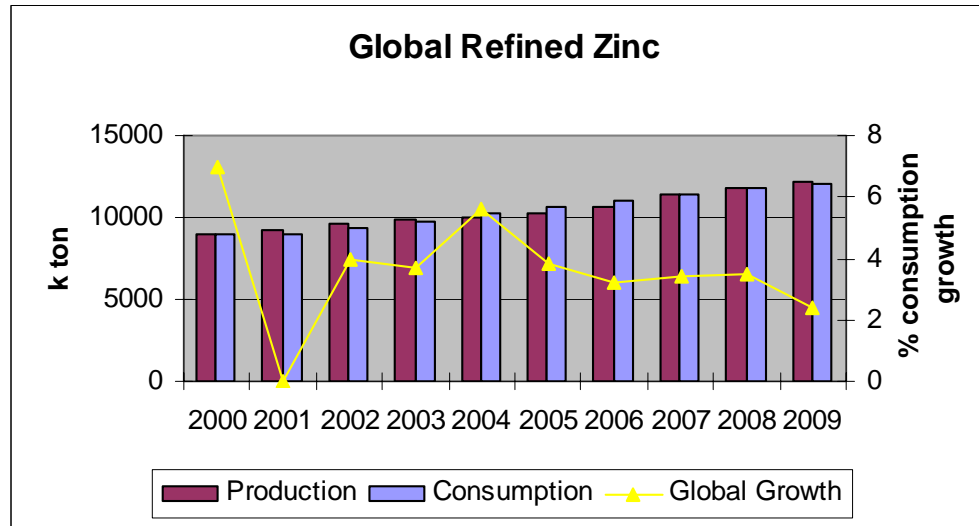
Global Copper consumption trends:

| | |
|-------------------------|------|
| Growth p.a. 1960 - 1969 | 4.6% |
| Growth p.a. 1970 - 1979 | 3% |
| Growth p.a. 1980 - 1989 | 1.6% |
| Growth p.a. 1990 - 1999 | 2.8% |
| Growth p.a. 2000 - 2015 | 3.2% |

Source: Brook Hunt

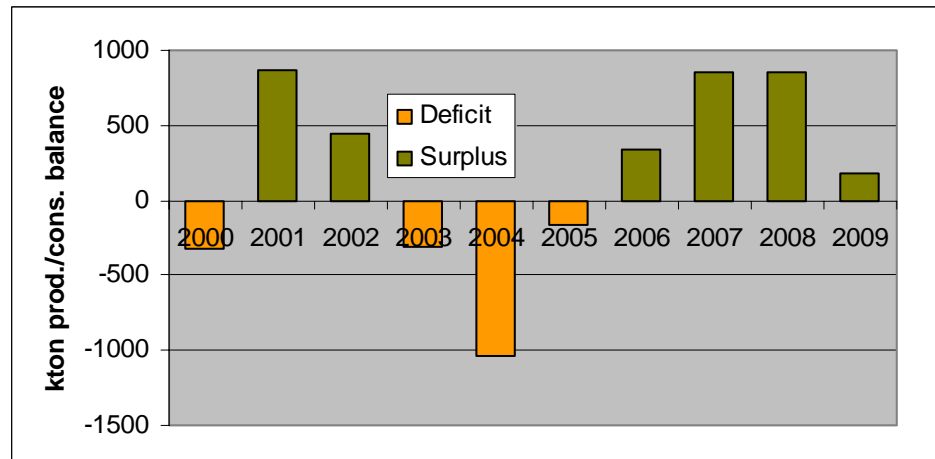
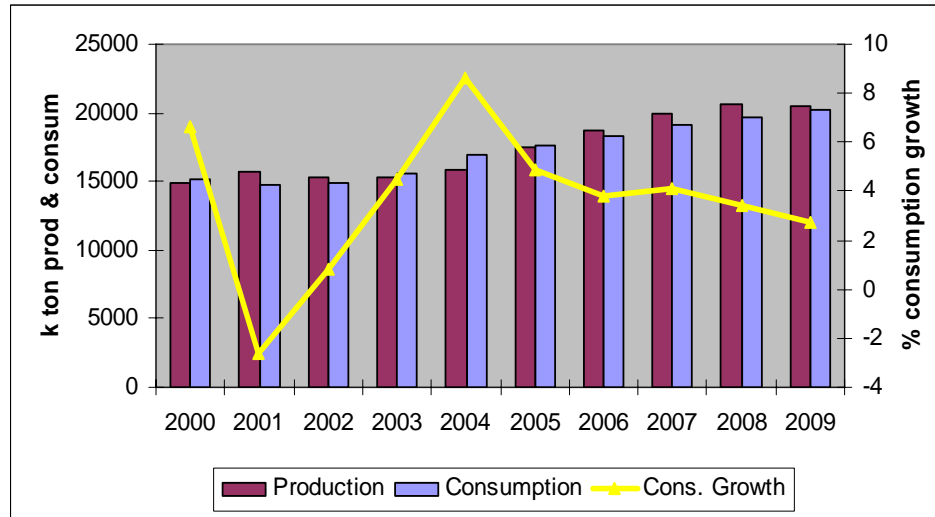


Additional zinc smelting capacity, mainly in the form of expansions in Asia, will create a relatively balanced zinc metal market during the planning period



Source: Brook Hunt

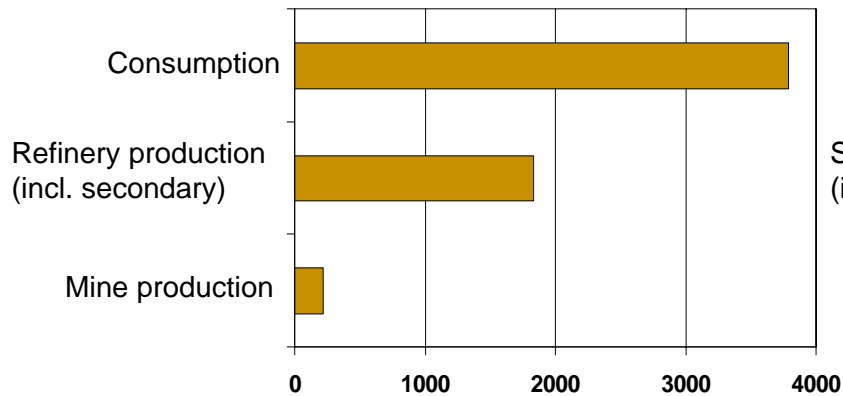
New copper projects will generate a forecasted copper surplus after 2006.



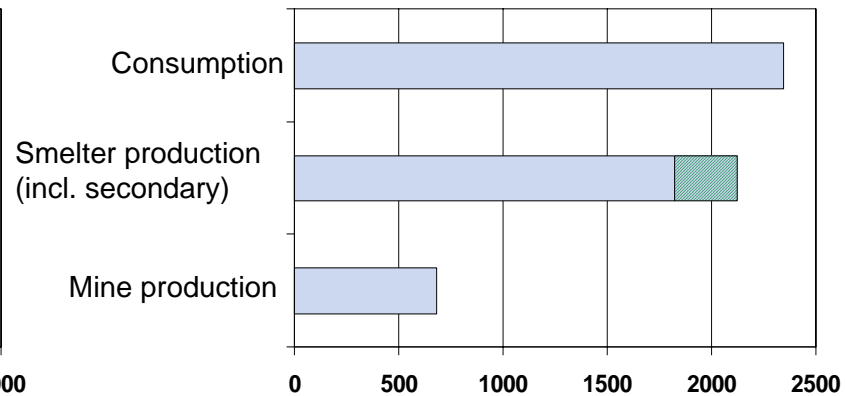
Source: Brook Hunt

Western Europe copper and zinc balance

W. Europe copper balance (kt Cu)



W. Europe zinc balance (kt Zn)



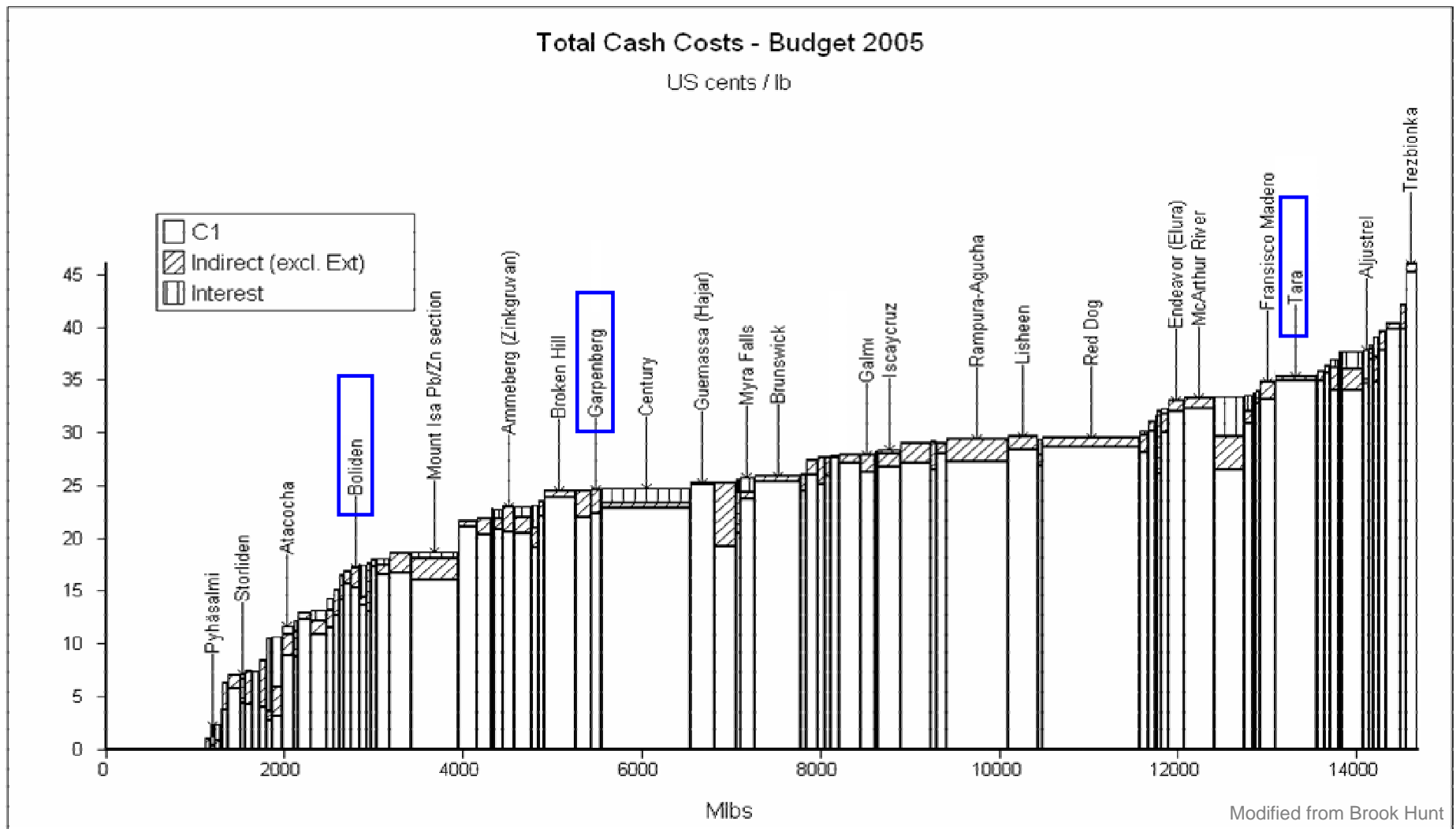
Copper balance and market in Western Europe

- Depending of import of copper concentrate and copper cathodes.
- Consumption of copper is far beyond production capability.

Zinc balance and market in Western Europe

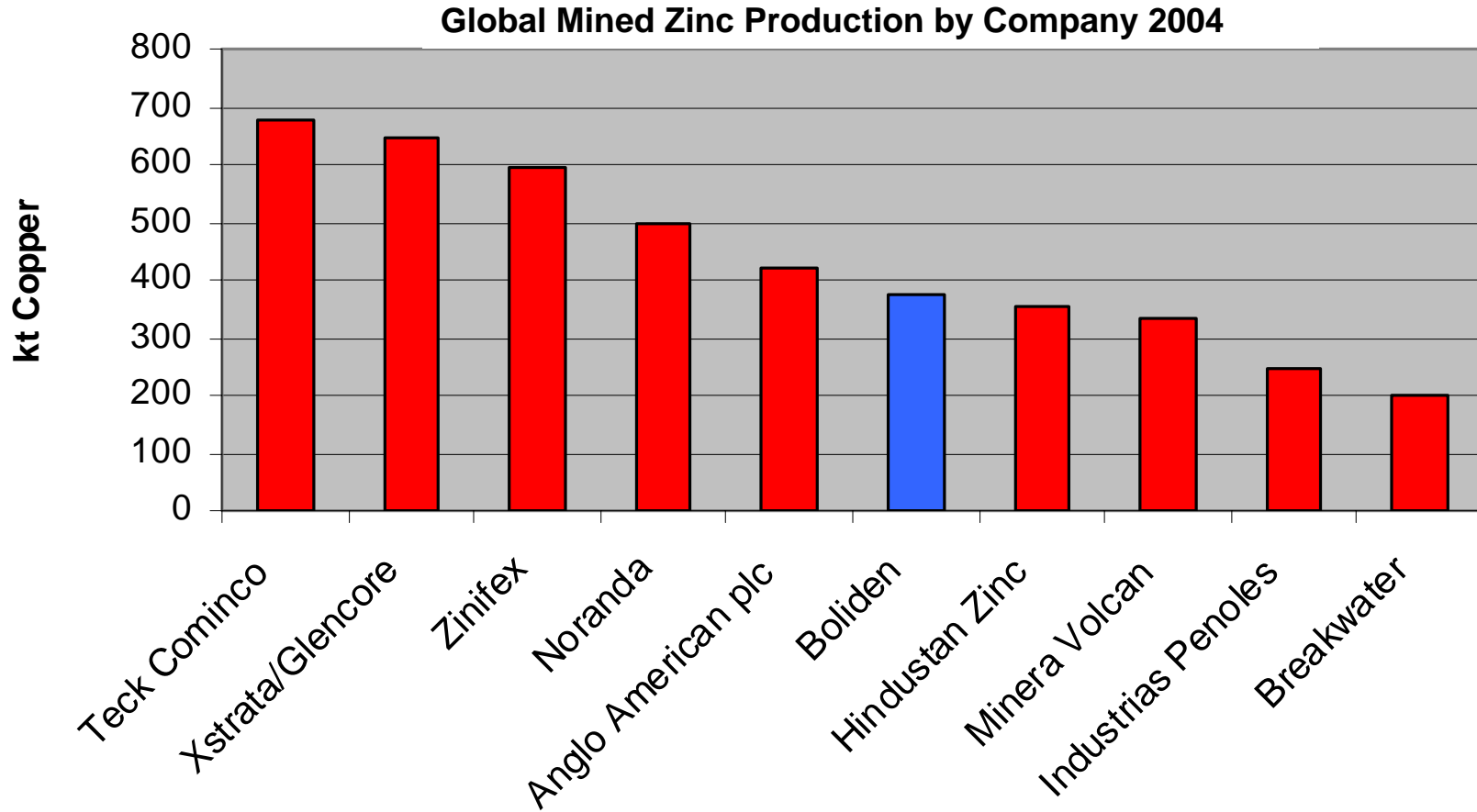
- Depending of import of zinc concentrate.
- Consumption and production of zinc, balanced by import from E. Europe.
- Announced closures 2005

Boliden's zinc mines are in an intermediate position from the operating cost standpoint at current exchange rates





Zinc mining sector is less concentrated than copper mining sector. Zinc mines tend to be smaller than copper mines and mainly underground.

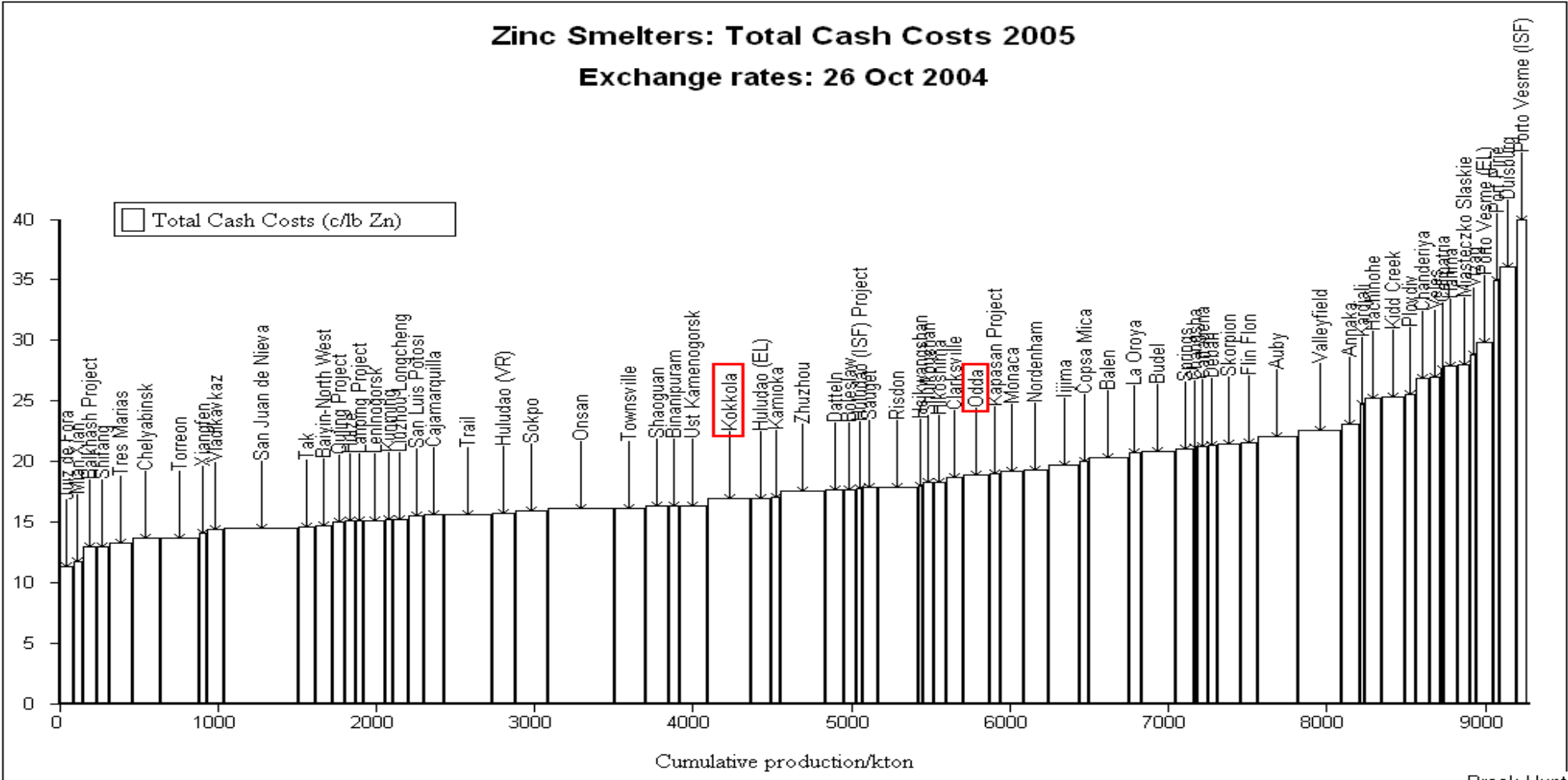


Source: Modified from Brook Hunt





Odda and Kokkola are in the middle of the operating cost curve but are well positioned in comparison with Boliden's European competitors. However, they are very exposed to fluctuating exchange rates.

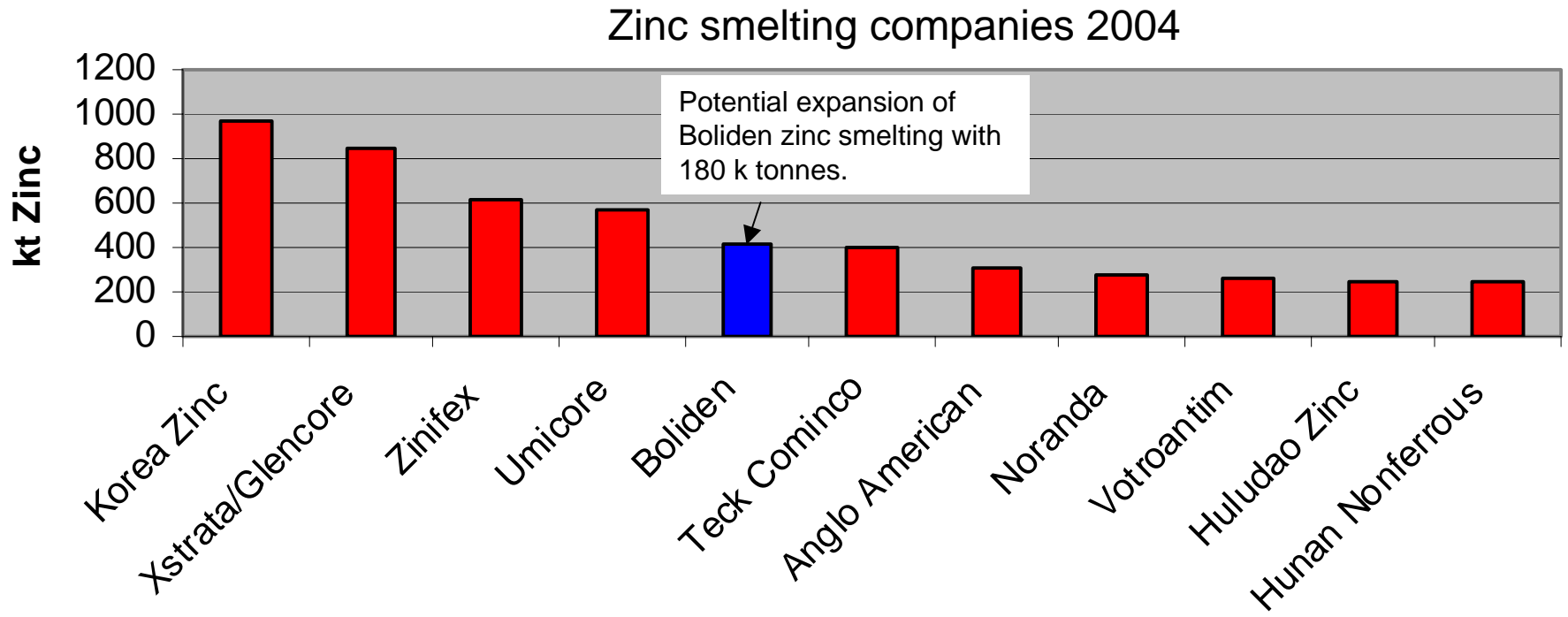


Brook Hunt





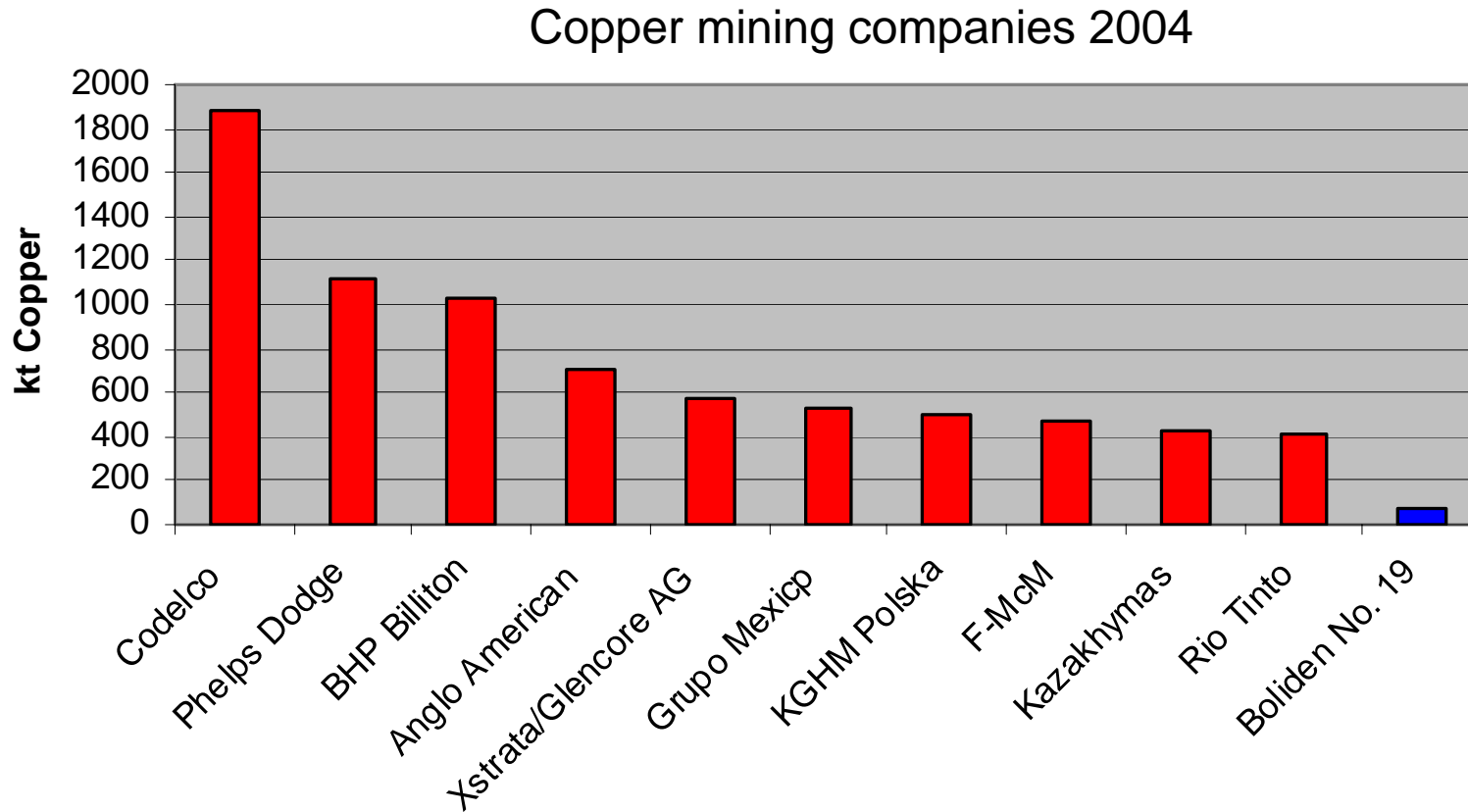
Xstrata/Glencore's aggressive acquisition strategy has lifted the group into second place of world zinc smelting companies.



Source: Modified from Brook Hunt



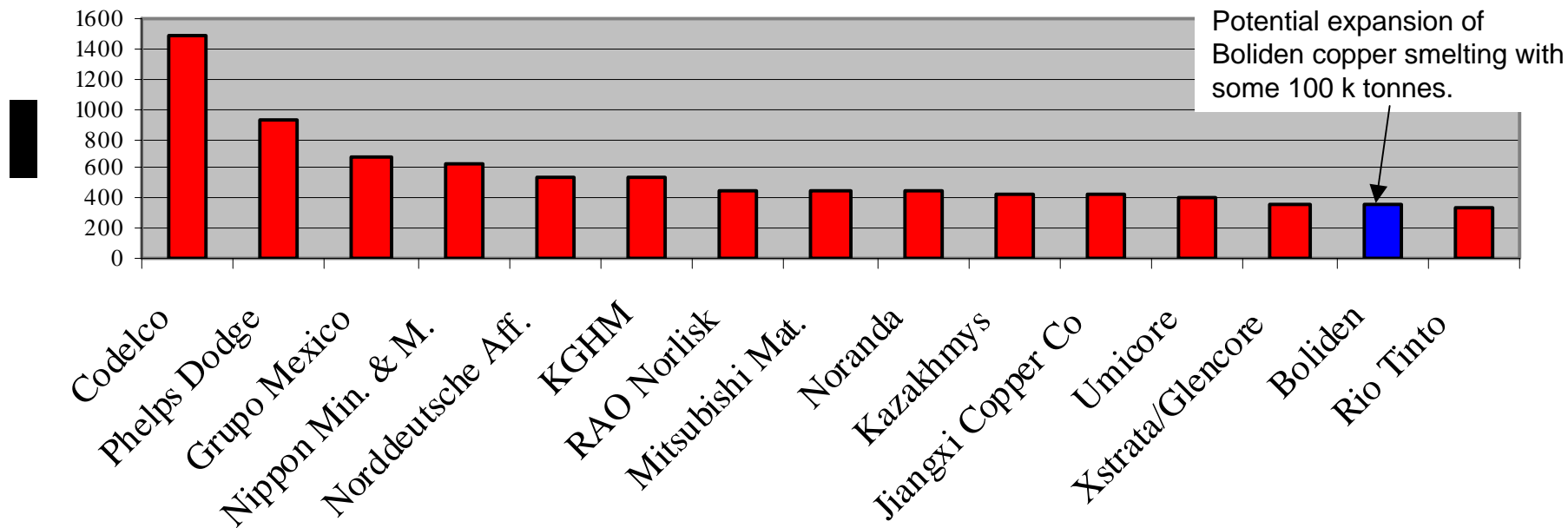
Planned transactions can increase production capabilities further for Xstrata/Glencore and Grupo Mexico.



Source: Modified from Brook Hunt

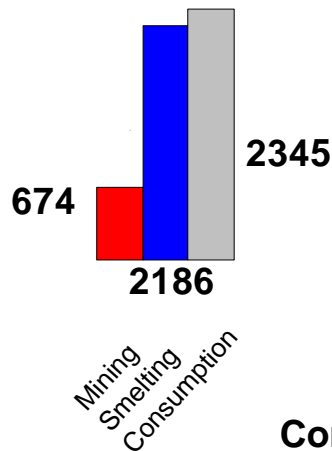
Expected consolidations will change the relative company position the coming year.

Refined Copper Production by Company 2004



High transportation costs make nearby markets most profitable for Boliden's zinc metal sales.

W. EUROPE 2004



Zinc consumption,
W. Europe

Total consumption
of primary zinc (kt)

Boliden
market share

Nordic

121

115

94%

UK

185

70

39%

Germany

522

95

18%

France

319

30

9%

Largest customers are steel mills (zinc coated steel) and hot dip galvanizers.

Company

Sales Europe (kt)

Market shares in W.Europe

Xstrata

615

28 %

UMICOR

531

24 %

Boliden

425

19 %

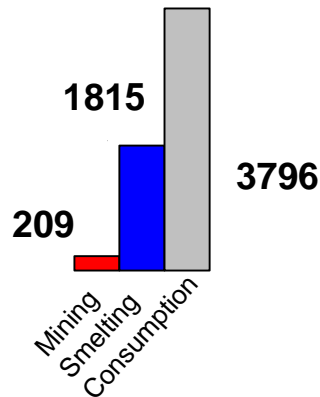
Zinifex Budel

220

10 %

Less than 50% of Europe's copper consumption is met by European production, and consumption is slowly growing.

W. EUROPE

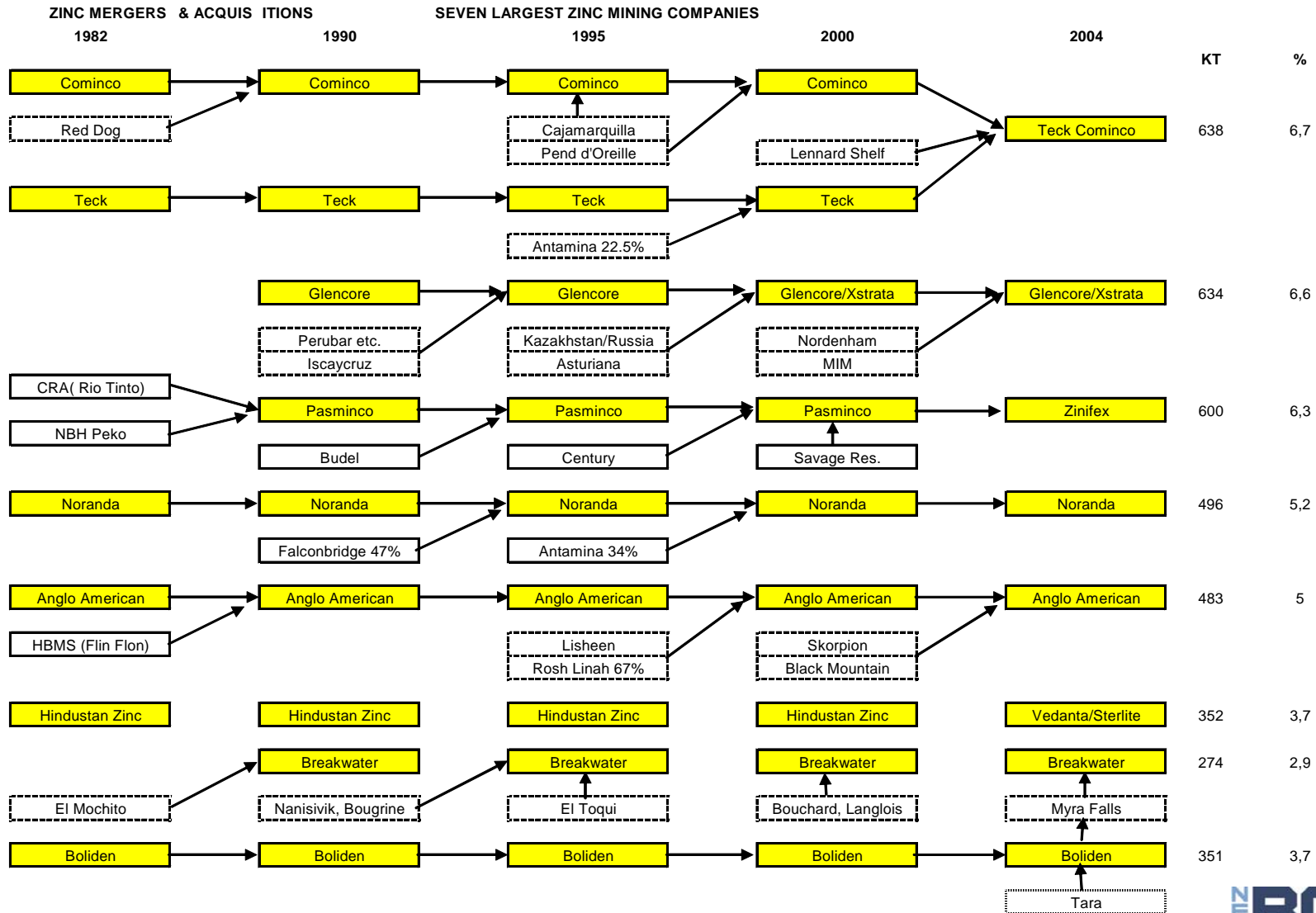


- **Total Consumption, W. Europe** 3 796 kt (2004)
- **New Boliden, market share W. Europe** 360 kt (2004)
(85 % from concentrate, 15 % from 2nd material)
- **Largest costumers** Wire rood producers

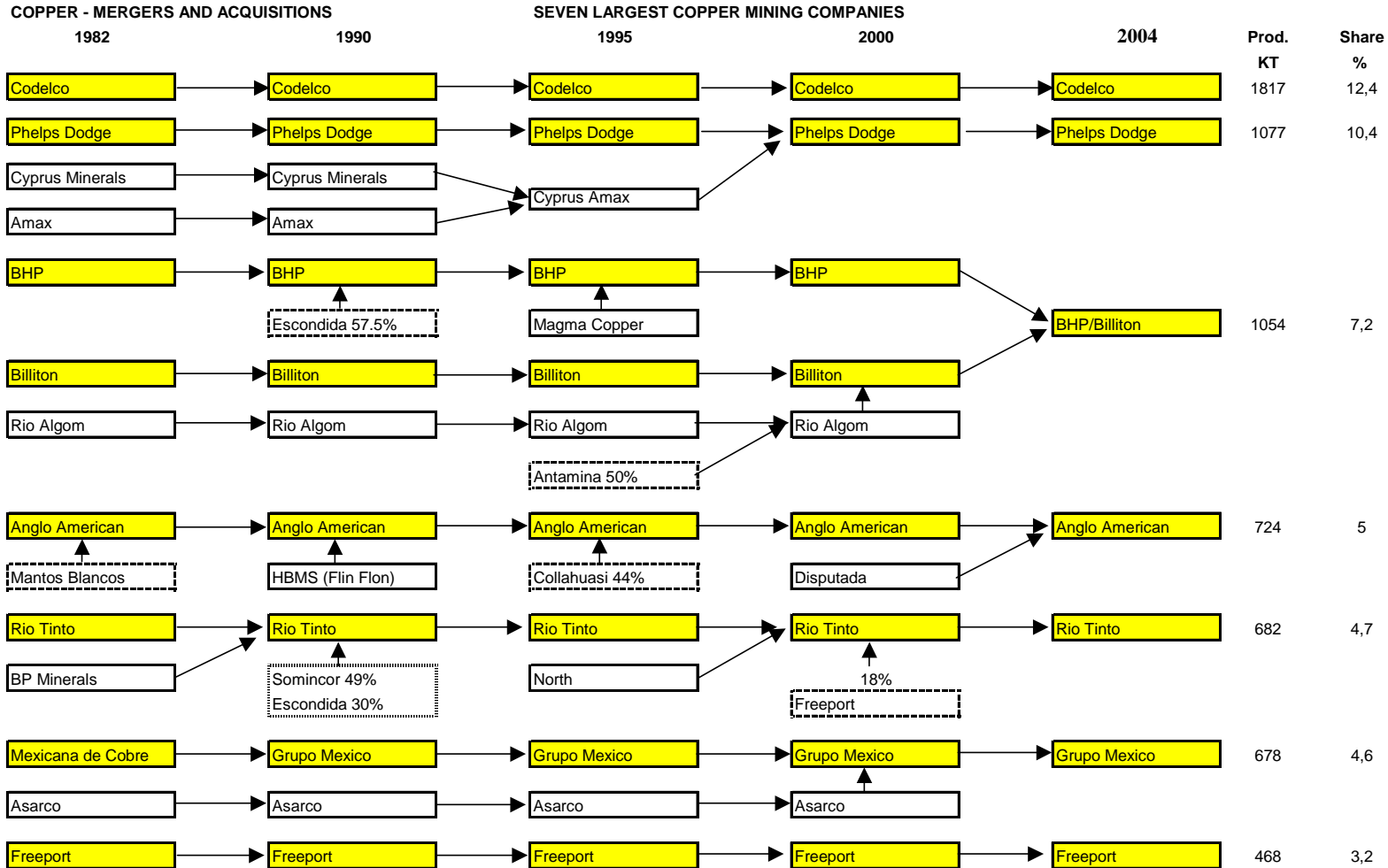
| <u>Company</u> | <u>Sales Europe (kt)</u> | <u>Market shares in W.Europe</u> |
|-----------------|--------------------------------|----------------------------------|
| KGHM | 530 | 14 % |
| NA | 502 (incl. Hüttenwerke Kayser) | 13 % |
| Boliden | 360 | 10 % |
| UMICORE | 341 | 9 % |
| Atlantic Copper | 235 | 6 % |



Most of the leading zinc miners have achieved growth through acquisition, benefiting from the exploration success – and sometimes the financial misfortune – of others. Privatization has also been a major contributing factor

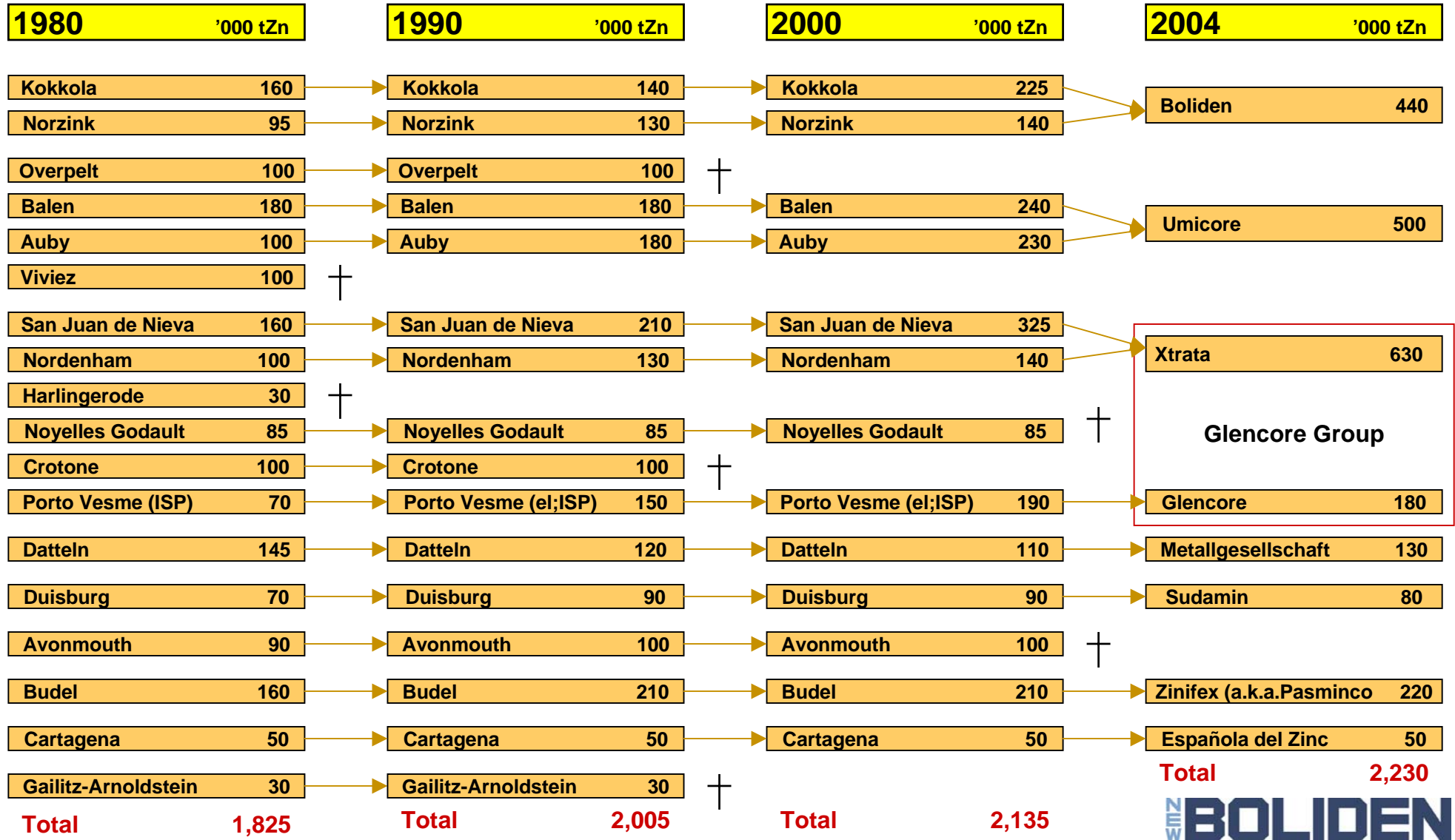


Codelco is unique – built on assets nationalized in the 1960’s and organic growth since then. Freeport was built on a single mine. The others have achieved rapid growth through mergers and acquisitions, although Phelps Dodge has had some exploration success.





Large-scale consolidation of zinc primary producers in Western Europe...





...and in Eastern Europe 1980 – 2004, with a slight total volume growth.

| 1980 | '000 tZn | 1990 | '000 tZn | 2000 | '000 tZn | 2004 | '000 tZn |
|--------------------|------------|--------------------|------------|--------------------|------------|---------------------|------------|
| Szopienize | 30 | Szopienize | 30 | Szopienize | 30 | Szopienize | 30 |
| Miasteczko Slaskie | 90 | Miasteczko Slaskie | 75 | Miasteczko Slaskie | 75 | Miasteczko Slaskie | 80 |
| Boleslaw | 50 | Boleslaw | 50 | Boleslaw | 70 | Boleslaw | 70 |
| Copsa Mica | 30 | Copsa Mica | 40 | Copsa Mica | 50 | Copsa Mica | 70 |
| Skopje | 60 | Skopje | 60 | Skopje | 60 | Skopje | 60 |
| Trepsa | 70 | Trepsa | 70 | | | | |
| Sabac | 30 | Sabac | 30 | | | | |
| Plovdiv | 50 | Plovdiv | 50 | Plovdiv | 60 | Plovdiv | 60 |
| Kardjali | 30 | Kardjali | 30 | Kardjali | 30 | Kardjali | 30 |
| Cinkur | 20 | Cinkur | 20 | | | | |
| Ukrzink | 30 | Ukrzink | 20 | | | | |
| Elektrozink | 80 | Elektrozink | 80 | Elektrozink | 90 | Elektrozink | 90 |
| Chelyabinsk | 100 | Chelyabinsk | 100 | Chelyabinsk | 130 | Chelyabinsk | 160 |
| Almalyk | 100 | Almalyk | 50 | Almalyk | 50 | Almalyk | 50 |
| Ust-Kamenegorsk | 100 | Ust-Kamenegorsk | 150 | Ust-Kameneorsk | 150 | Katzzink (Glencore) | 250 |
| Leninogorsk | 100 | Leninogorsk | 100 | Leninogorsk | 100 | | |
| Total | 970 | Total | 955 | Total | 895 | Total | 860 |

