

# Base Metals

Brad Mills

Ken Pickering

John Crofts

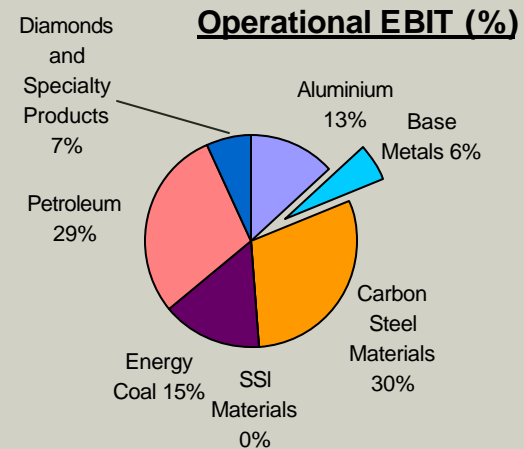
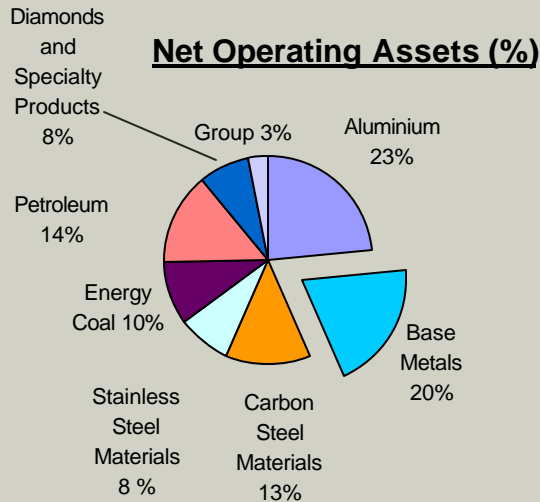
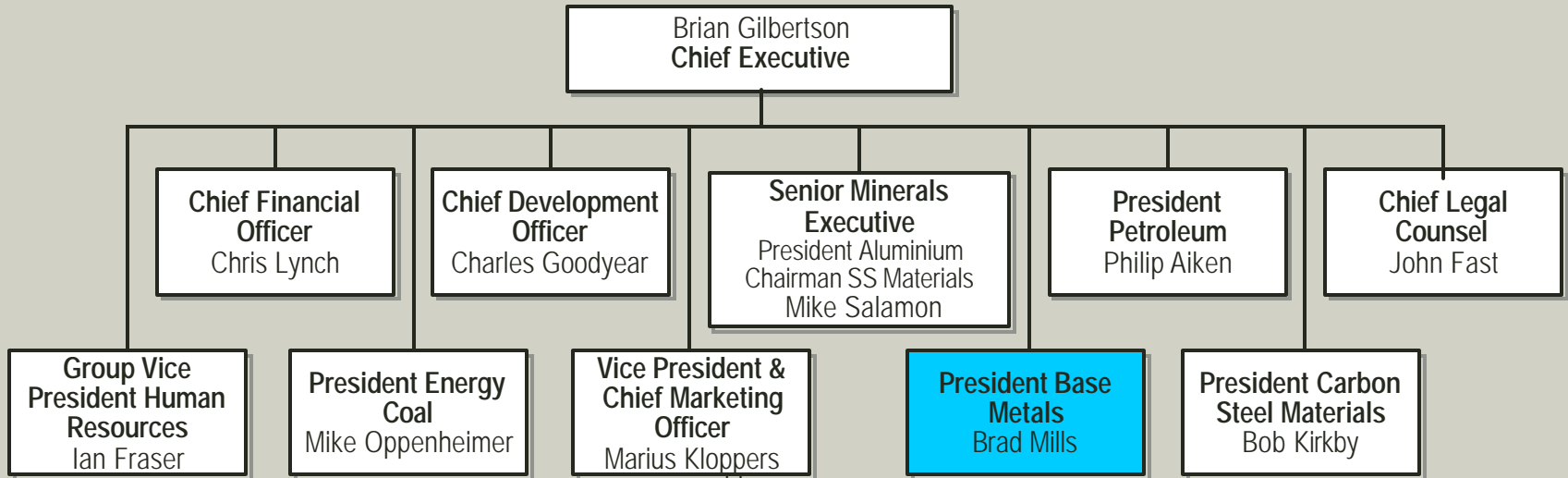


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# BHP Billiton Base Metals – Key Differentiators

- Best in class HSEC management
- Clear strategy
- Low cost, high quality operations
- Exceptional resource base
- Unrivalled growth opportunities
- Centralised Marketing Model
- Leaching technology
- Experienced, value focused management team and workforce

# Base Metals – A Foundation of BHP Billiton’s Strength and Diversity



# HSEC Management

Brad Mills



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## Base Metals aims high in Health, Safety, Environment & Community (HSEC)

- Our HSEC performance is a strength that will assure our ability to outperform our peers
- Foundation elements: BHP Billiton Charter and HSEC Policy
- Company-built HSEC Management System and commitment to certification to ISO 14001
- Base Metals commitment to “Zero Harm and making a contribution to social, environmental and economic progress”



Mine reclamation planning and know-how is a strength in Base Metals.

# STANLEIGH

Before



After

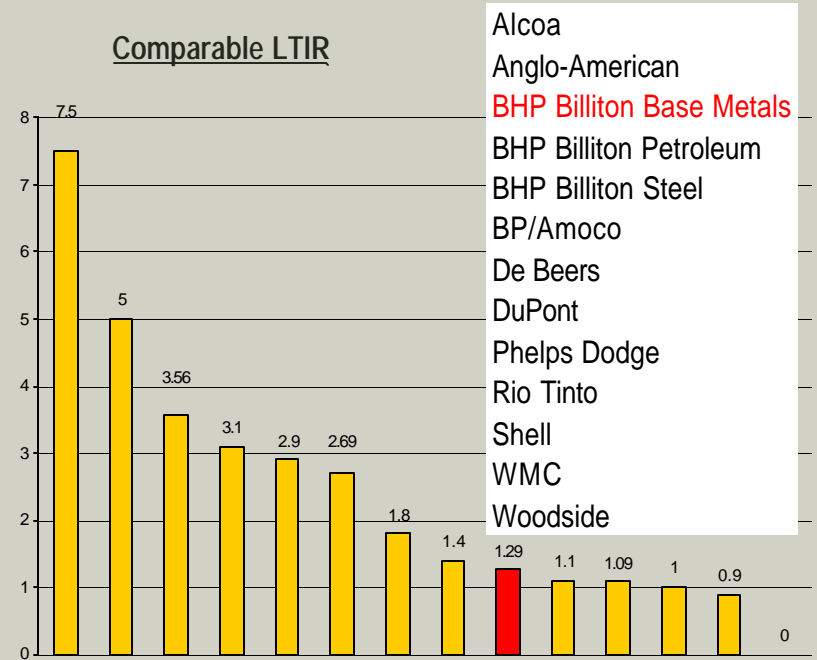


# Base Metals Safety Culture

We are aiming for no fatalities or serious injuries and are determined to achieve our goal by a cultural shift that will change the way people will view safety both on and off the job.

To do this we are committed to:

- investing in the quality of our people
- improving our training and observation skills at all levels of the organisation
- eliminating tolerance of poor practices



# HSEC

- Working with local communities
  - Escondida Foundation
  - Tintaya Mesa de Dialogo
  - Antamina – Ankach Foundation
  - Spence
  - La Granja – Restoration Project
  - San Manuel Community



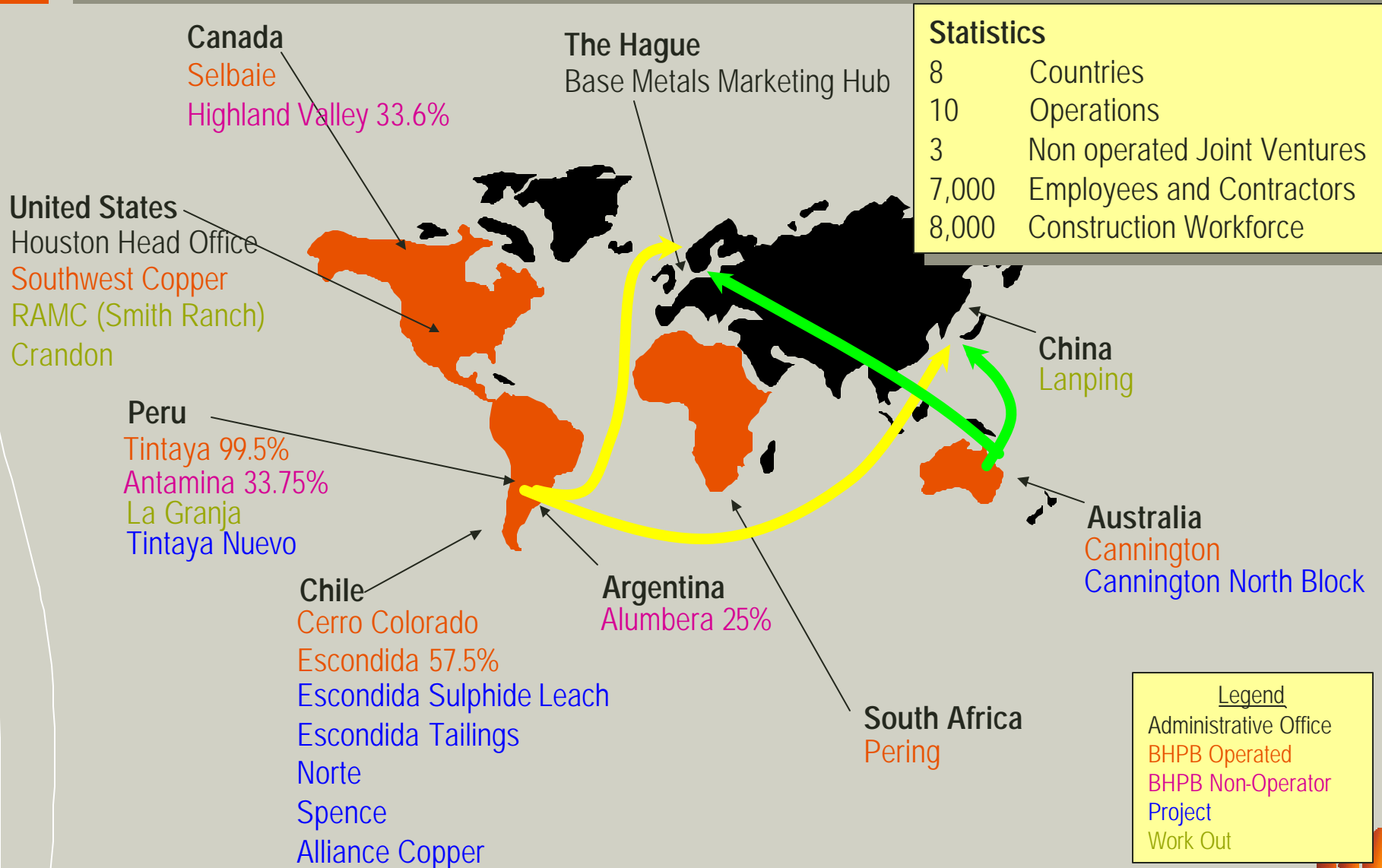
# Overview

Brad Mills



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# Base Metals World Wide



# Base Metals Management Team

President – Base Metals  
Brad Mills  
Houston

President Escondida  
Bruce Turner  
Santiago

Chief Operating Officer  
John Lill  
Houston

Joint Ventures  
Ian Ashby  
Houston

Chief Development Officer  
Ken Pickering  
Houston

Chief Financial Officer  
Philippe Monier  
Houston

Marketing Director  
John Crofts  
The Hague

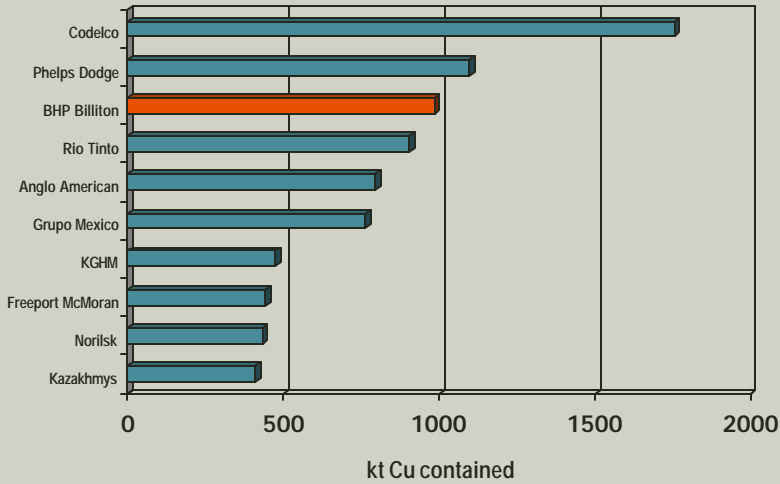
VP Human Resources  
Keith Shull  
Houston

VP HSEC  
Maxine Wiber  
Houston

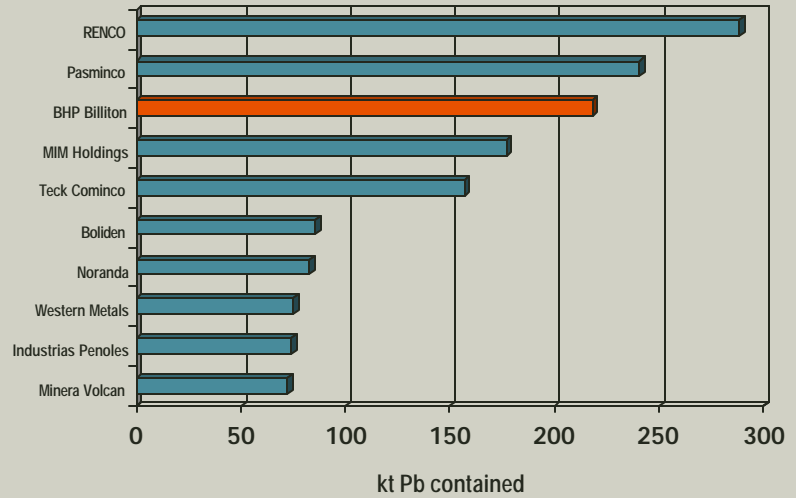
IT  
Karen Lay-Brew  
Houston

# Base Metals – 2001 Global Ranking by Mine Output

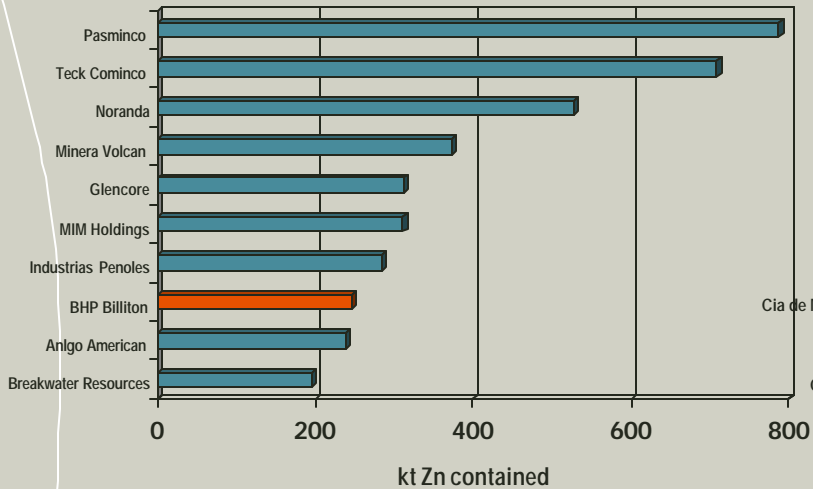
## Copper



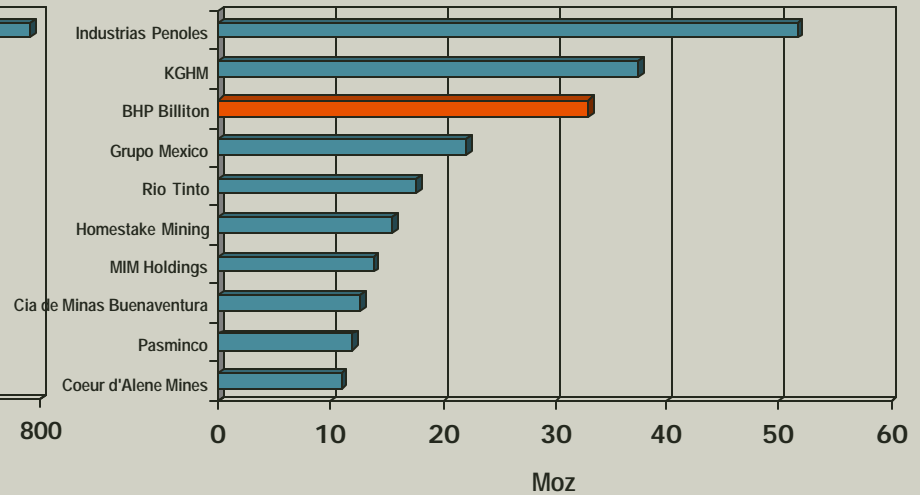
## Lead



## Zinc



## Silver



# Base Metals Financial Performance FY 2002

(US\$M)	2002	2001	% Change	(US\$M)	2002	2001	% Change
Turnover	<b>1,821</b>	1,719	+6	Profit from Operations	299	481	-38
EBIT				Overheads	(40)	(19)	
Escondida	<b>141</b>	311	-55	Development	(18)	-	
Cannington	<b>104</b>	85	+23	Write off of La Granja	(41)	-	-57
Cerro Colorado	<b>30</b>	37	-20	EBIT before exceptionals	<u>200</u>	<u>462</u>	
Alumbrera	<b>32</b>	22	+44	Exceptional items			
Antamina	<b>22</b>	-	n/a	South West C	(101)	-	
Tintaya	<b>(31)</b>	(3)	n/a	Tintaya	(31)	-	
Other Ops	<b>1</b>	29	-98	Merger related costs	(13)		
Profit from Operations	<b>299</b>	481	-38		<u>55</u>	<u>462</u>	-88
Ave Cu Price	<b>\$0.69</b>	\$0.78	-12				

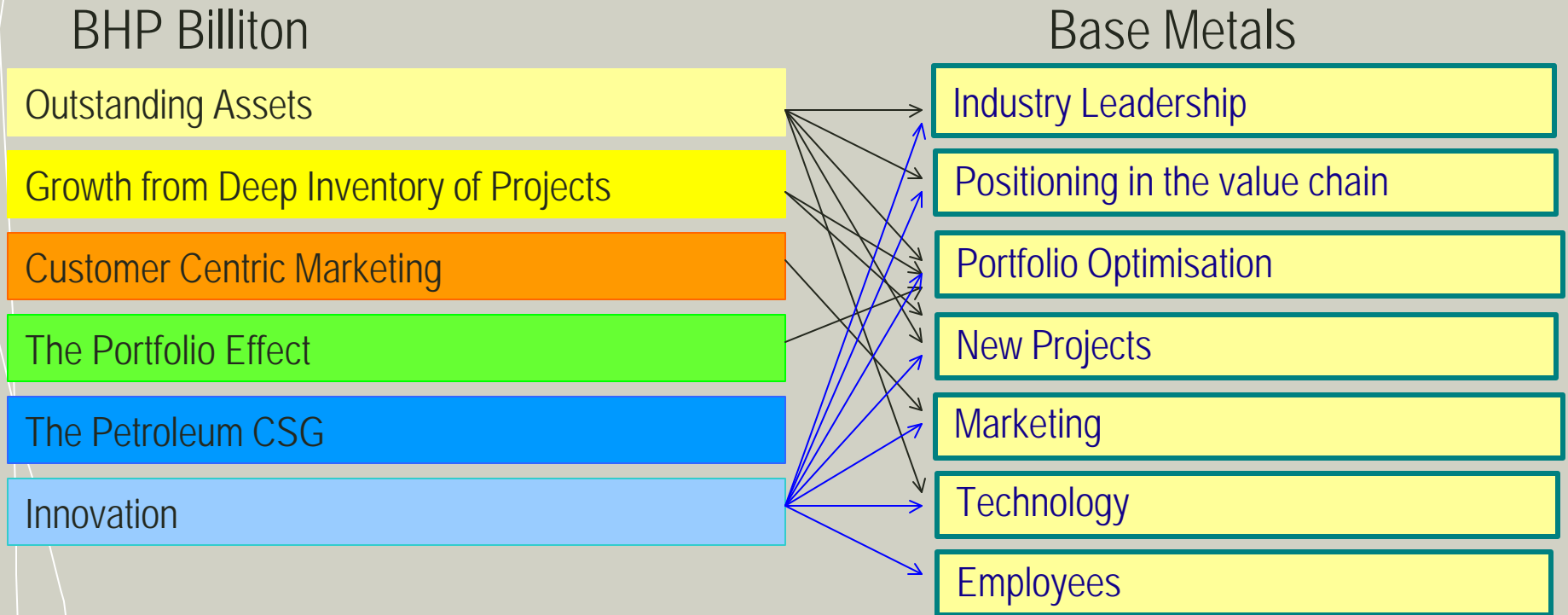
# Business Strategy

Brad Mills



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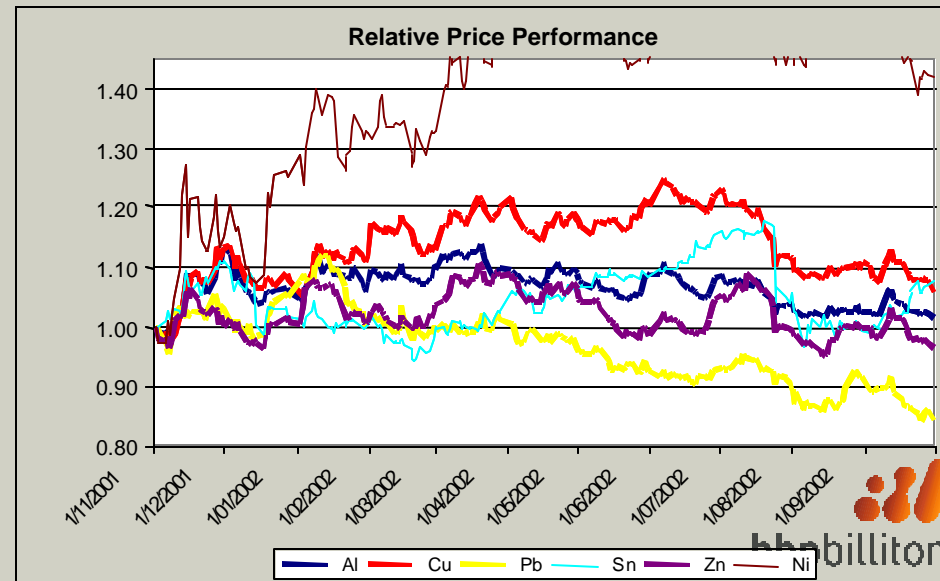
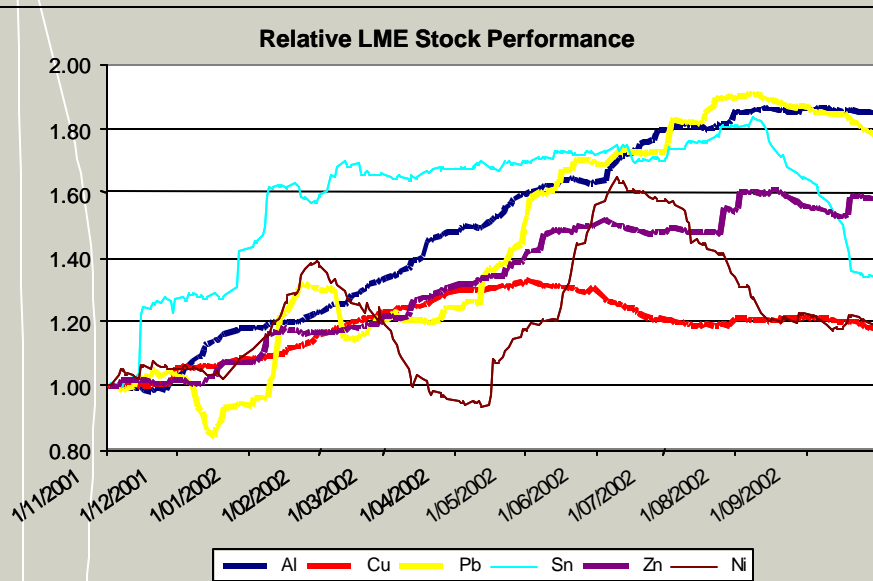
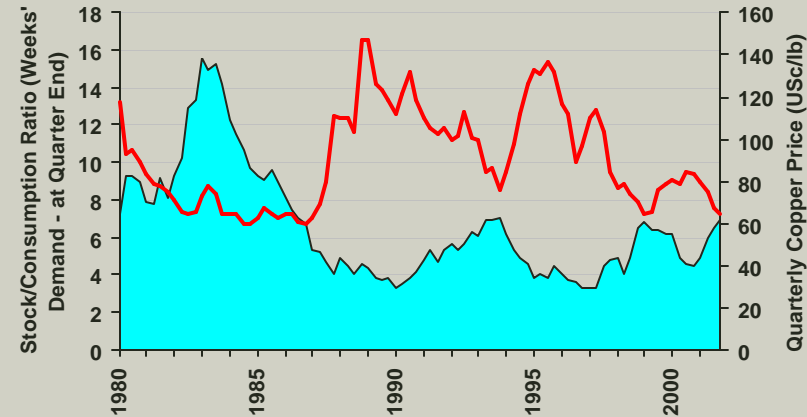
# Strategic Context



*Maximise the long term value creation for BHP Billiton shareholders through its exposure to the base metals value chain*

# Industry Leadership

- Following the merger in July 2001, rising stocks and falling demand indicated potential risks lay ahead for the industry.
- On November 8, 2001 BHP Billiton announced a new era in production management where mid and low cost production was reduced to assist in bringing supply in line with demand.
- Since the announcements copper has out performed the other major base metals, better positioning it for the eventual upturn in demand

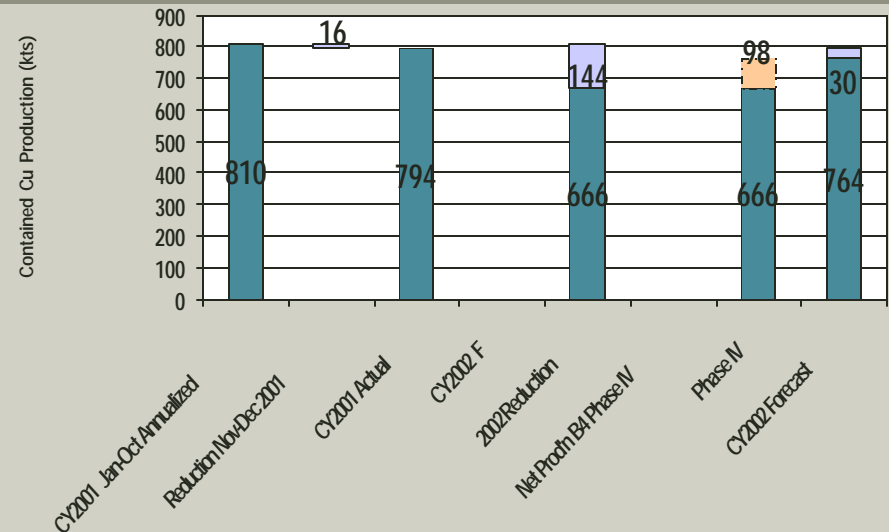


# Production Cuts

- From Nov 2001 through Dec 2002, Escondida will produce 150,000 t of copper in conc less than originally forecast
- Can only be measured over the year, not month to month
- Tintaya Sulphide has been on Care and Maintenance since January 1 reducing calendar 2002 output by 90,000 t of copper

## Looking forward

- We continue to focus on real market demand for copper
- Escondida production will be managed based on our view of real demand
- We regularly review Tintaya's position.



144kt reduction in CY 2002 is based against a forecast (excluding Phase 4 which was the same as the CY 2001 forecast of 810kt. Without the cuts Escondida would have produced 160kt more our latest estimate.

- BHP Billiton has unrivalled flexibility to increase production.
- While most companies have been high grading, Escondida has been low grading leaving higher grades to be mined when market demand increases.

# Outstanding Assets

Brad Mills



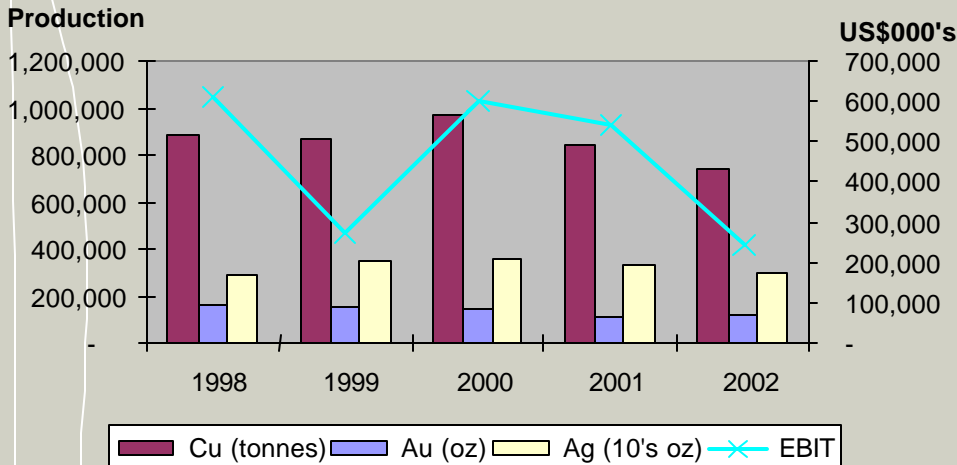
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# Escondida – Chile (BHPBilliton 57.5%)

- Largest copper mine in the world – capacity in excess of 1 Mt payable copper
- 1 Mt of material (ore and waste) moved each day
- Mill capacities existing 130ktpd, Phase Four 110ktpd
- Current SX/EW capacity of 150,000 tpa of cathode
- Current mineable reserves over 2 billion tonnes
- Escondida Foundation assisting the local communities to help themselves (US\$5m/year)
- Recognised leader in HSEC
- Ranked in the top 20 most respected companies in Chile (top 5 foreign owned companies)



**Escondida (100% Basis)**



**Escondida Total Resources**

Type	Tonnes Mt	%TCu	%SCu
Sulphide	2182	1.14	
Low Grade Float	1409	0.59	
Low Grade Leach	658	0.43	
Mixed	113	0.81	0.25
Oxide	280	0.64	

# Escondida Phase 4

## Project Scope

- World class safety performance during execution
- \$1045m capex and 22 month construction duration
- World class copper concentrator and infrastructure
  - 110ktpd capacity
  - Laguna Seca tailings and water reclaim facility
  - In pit ore crushing and conveying
  - Expanded mine equipment fleet
  - Slurry pipeline refurbishment and port modifications

## Status

- Mechanically complete – contractor demobilizing
- 32 million man hours worked. LTFI 1.08
- All wet and dry testing completed
- SAG mill and 2 ball mills completed 48hr vendor test run with ore
- Plant is currently in shutdown to check and re-torque mill bolts and finalize construction punch list items
- Plant expected to be operational for first concentrate production in second week of October

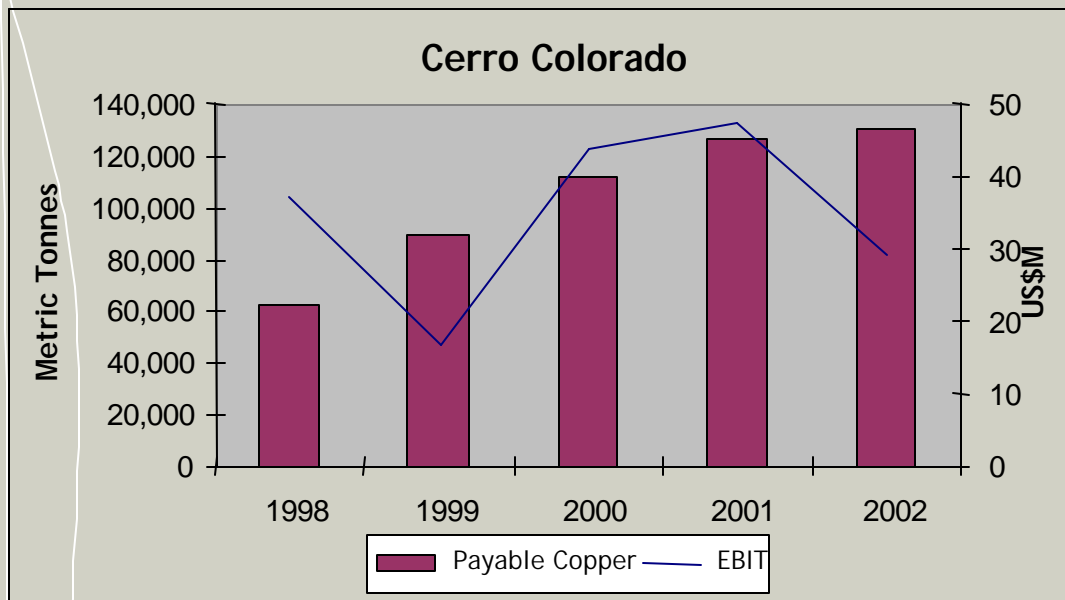
# Escondida Phase 4 Video



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# Cerro Colorado – Chile (BHP Billiton 100%)

- Commenced production in 1994 at 40 ktpa Cu
- Low cost SX/EW operation
- Leader in bacterial leaching of copper sulphide ores
- History of continuous improvement
- Total Ore Reserve sufficient for at least 15 years of mining with geological targets still to be drilled

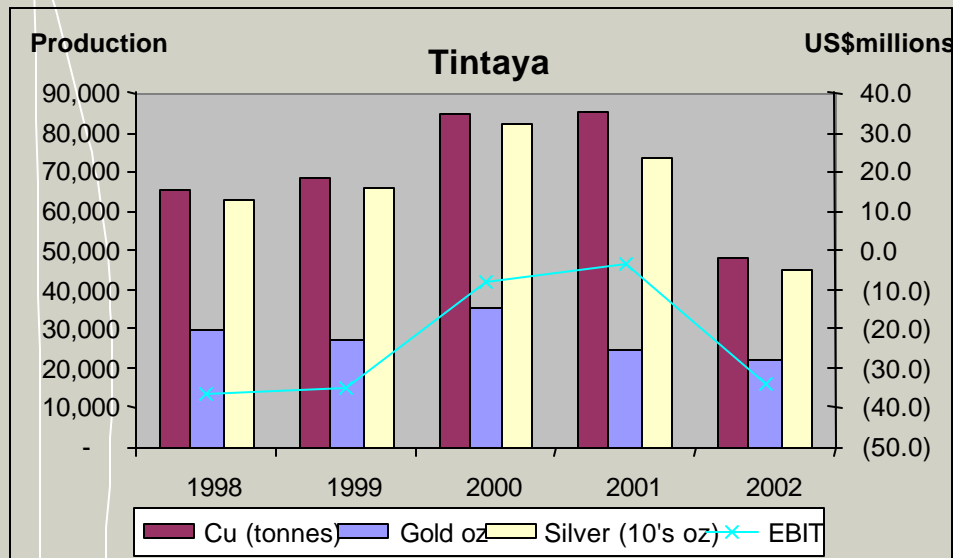


# Tintaya Peru (BHP Billiton 99.5%)

- Closed sulphide operations (+60c/lb) on January 1, 2002 in response to market demand.
- Tintaya Oxide (34 ktpa cathode) project commissioning commenced April 2002, 4 weeks ahead of schedule, 13% under US\$138m budget
- 2.8 million man-hours worked LTI free
- Op costs 36c/lb vs budget of 40c/lb

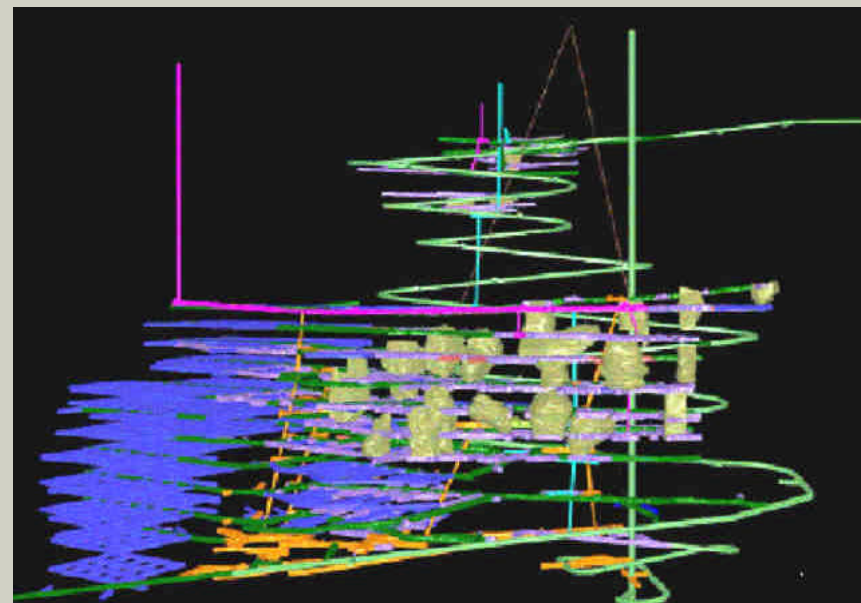
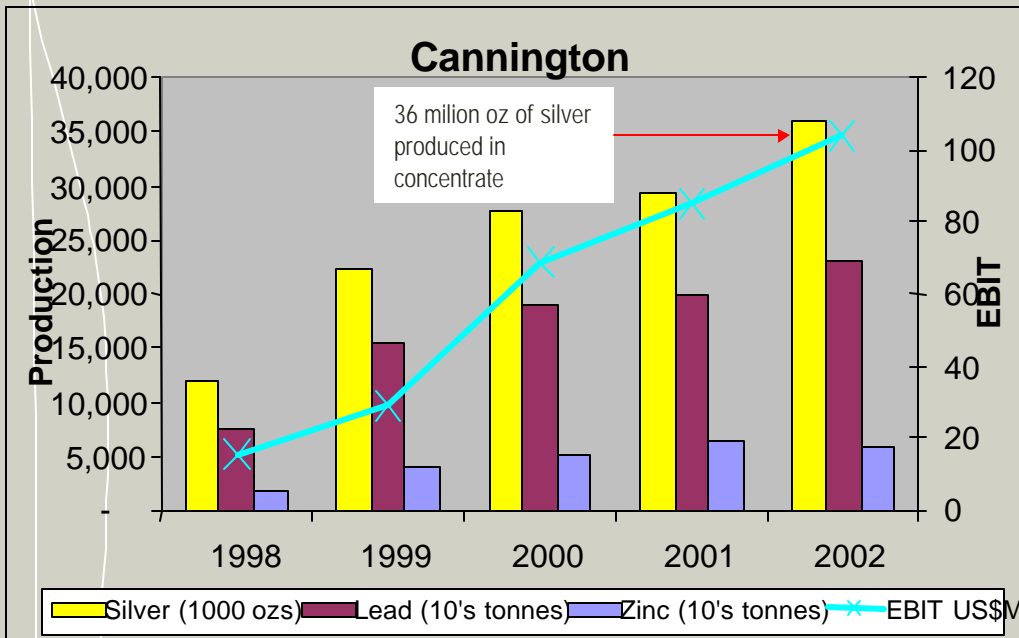
## Nuevo Tintaya

- Excellent success in proving additional reserves (to be updated in 2003)
- Potentially extends sulphide open cut mine life to more than 12 years, supports ultimate expansion of oxide to 60ktpa.
- Replacing old mining fleet with modern equipment from closed Nevada operations
- Average site costs +/-50c/lb once sulphide returns to full production
- Total production could reach 150 ktpa (90ktpa sulphide, 60ktpa SX/EW)
- Deeper resources drilled. Concept study verified potential for supplementary high grade ore from underground operations



# Cannington (BHP Billiton 100%)

- Hard rock underground mine
- Largest silver and lead mine in the world (Ag 26 Moz, Pb 230,000 tpa)
- Following commissioning in 1997 with a nameplate capacity of 1.5 mtpa of ore, continuous improvement has pushed production to 2.1 mtpa
- Currently evaluating increase to 2.4 mtpa and accessing the Northern zone
- Reserves sufficient for about 20 years
- Comfortable with zinc polymetallics but zinc industry structure is unattractive



## Antamina – Peru (BHP Billiton 33.75%)

- 70 ktpd processing plant
- Cu and Zn concentrates pumped 300kms to the port of Huarmey
- Mechanical completion of project facilities May 15
- Commercial production October 1, 2001 ahead of schedule and budget
- Largest ever project financing for a green fields mining project
- Expect financial completion for loans to go non-recourse early calendar 2003

100% Basis	Q1 FY 2002	Q2 FY 2002	Q3 FY 2002	Q4 FY 2002
<b>PRODUCTION</b>				
Payable Copper (000's Lbs)	PRE	171,129	164,257	199,385
Payable Zinc (000's Lbs)	COMMERCIAL	104,581	122,953	88,300
Ag Production (000's Oz)	PERIOD	3,792	1,870	1,687
Gross Revenue (000's \$)		150,361	201,299	185,462
EBIT (000's \$)		10,983	25,269	35,360



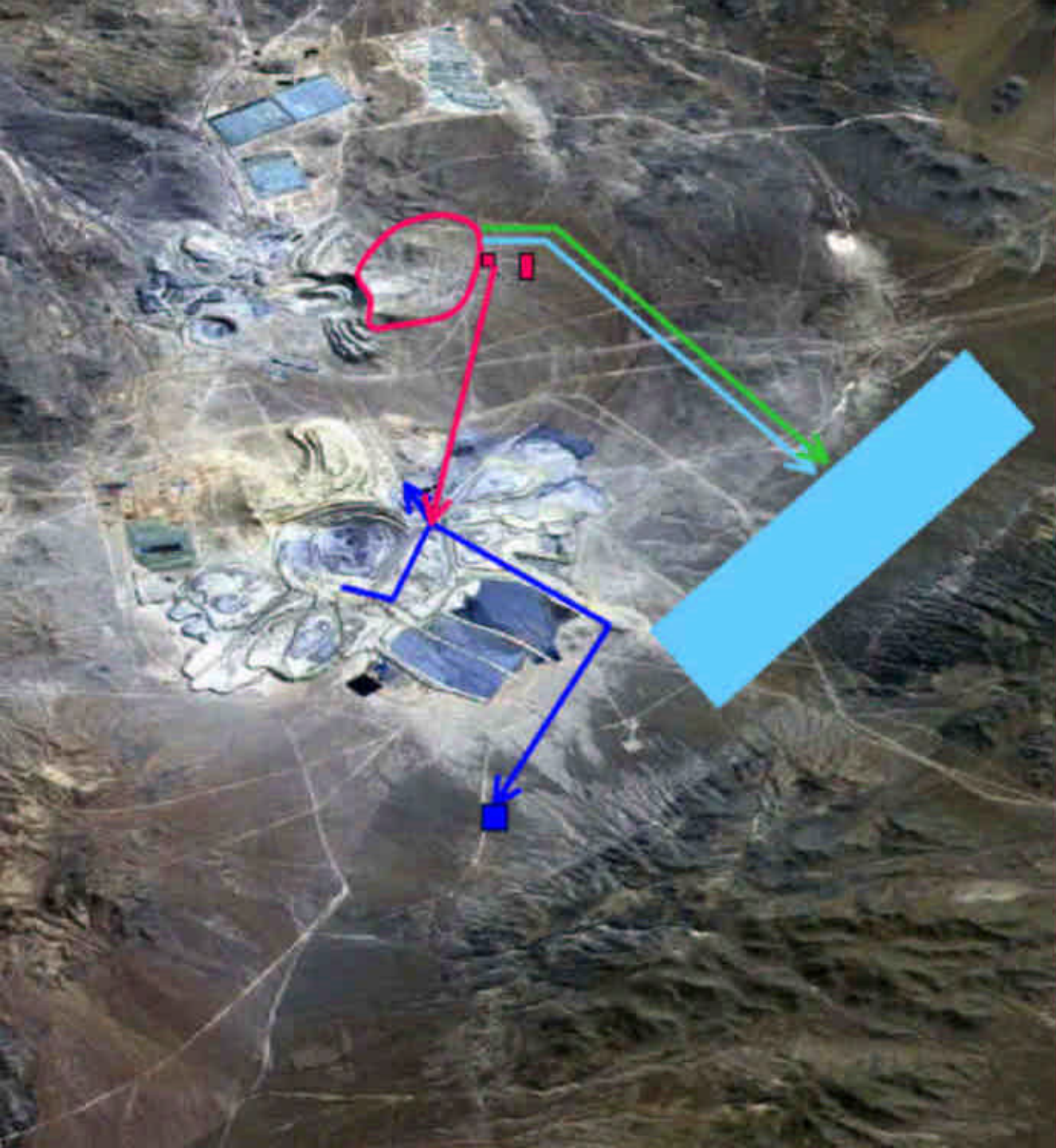
# Growth from Deep Inventory of Projects

Ken Pickering

The following projects are in various stages of analysis -from resource drilling through final feasibility. None have yet been given final Board approval.



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# Escondida Norte

Open Pit

Premine 250 MT

Sulphide Ore

•584 MT @ 1.3 % TCu

Oxide Ore

•97 MT @ 0.82 % SCu

Sulphide Low grade

•442 MT @ 0.6 % TCu

5 Electric Shovel

39 Haul Trucks

1 Semi Mobil Crusher

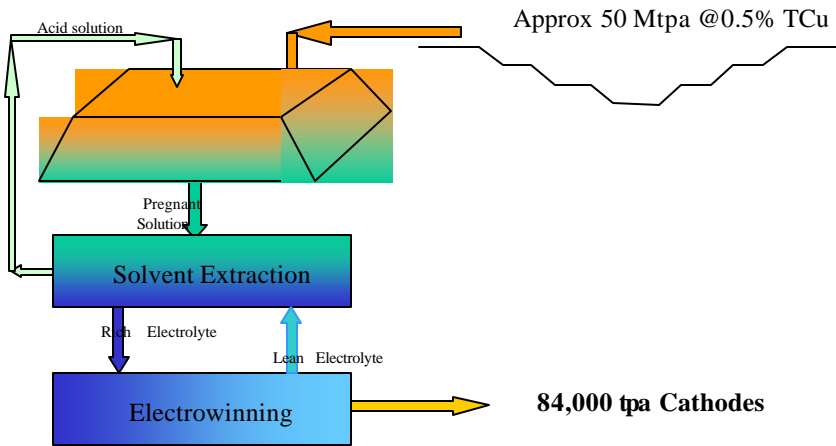
6 Km Land Conveyors

Maintenance Shop

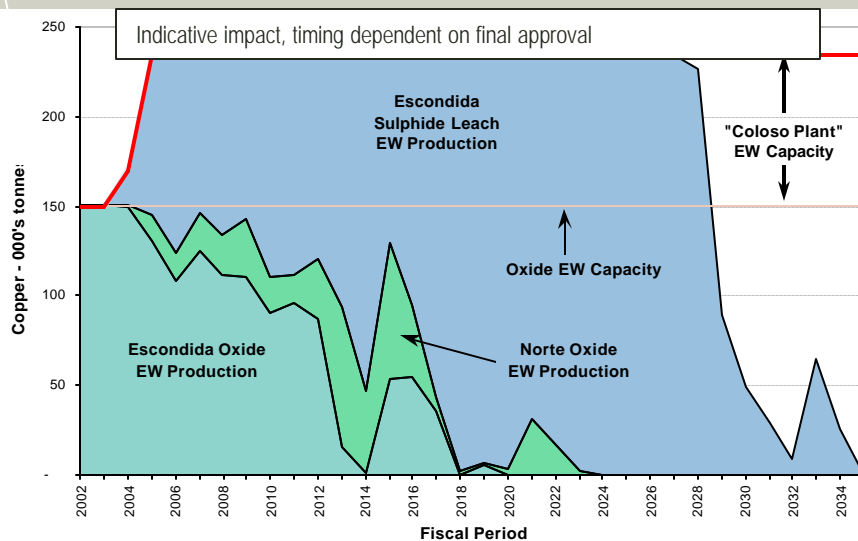
Capital – Order of magnitude  
US\$400m (100%) including  
US\$170 pre-strip

# Escondida Sulphide Leach Outline

## Sulphide Leach Circuit

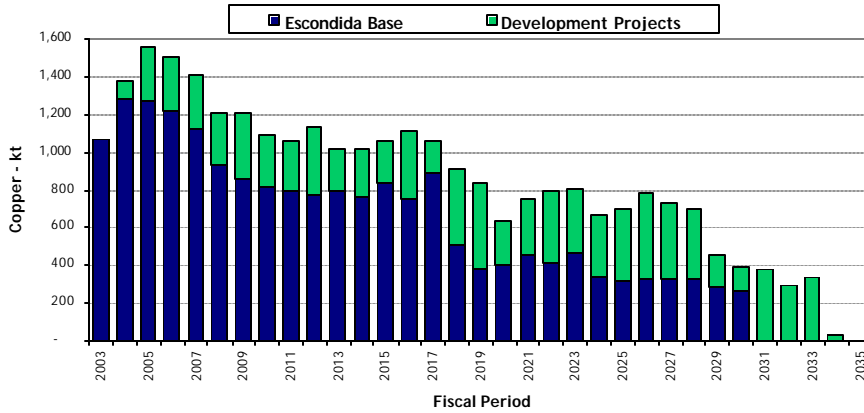


- 2.3 Billion tonnes sulphide ore at 0.55%TCu
- Current stockpile 86Mt
- Copper recovery by:
  - ROM leaching
  - Solvent extraction
  - Electrowinning
- Expected recovery 30-35%
- Approx 50% of Cu is chalcopyrite
- Tonnage & mineralogy highly variable
- Initial copper production 84 ktpa
- Increasing to 234 ktpa as ore supply increases and oxide T/H capacity becomes available
- Capital – Order of magnitude US\$500m

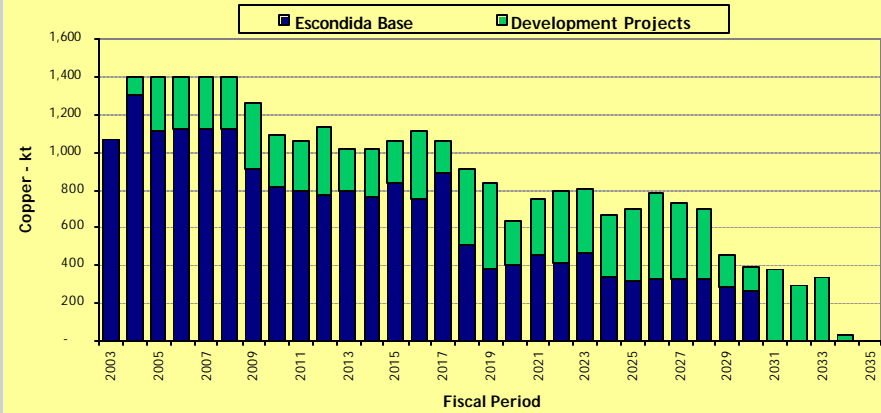


# Escondida – Amazing flexibility

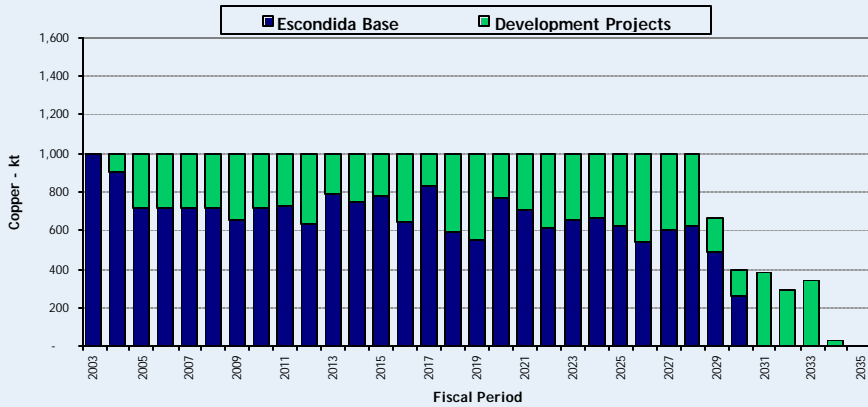
## No Limits



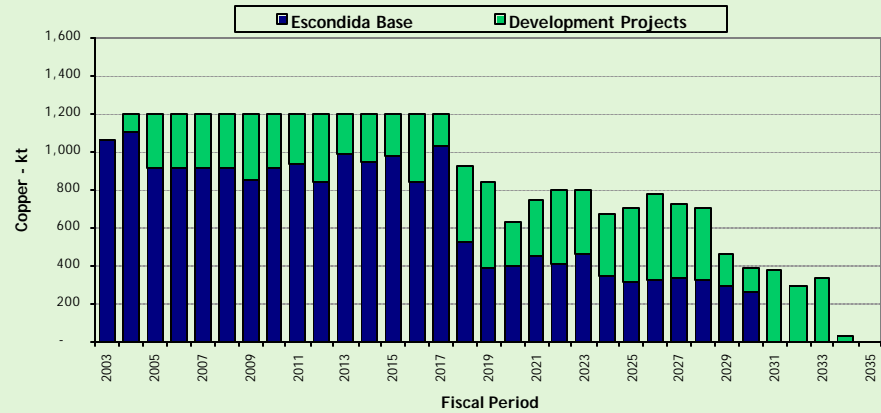
## Limited at 1,400 ktpa



## Limited at 1,000 ktpa



## Limited at 1,200 ktpa



# Spence (BHP Billiton 100%)

- World class deposit discovered by Rio Algom in 1996
- Pit reserves of 257 Mt @ 1.23% TCu with a strip ratio of 3.08:1
- Currently completing feasibility study for cathode leach project
  - 190,000+ tpa (for the first 10 years)
- Low technical risk (similar to Cerro Colorado)
- Excellent infrastructure
- Currently envisage 18 year mine life but with exploration targets still to be drilled
- Expect capital to be in the order of US\$850m and average cash costs of less than 35c/lb



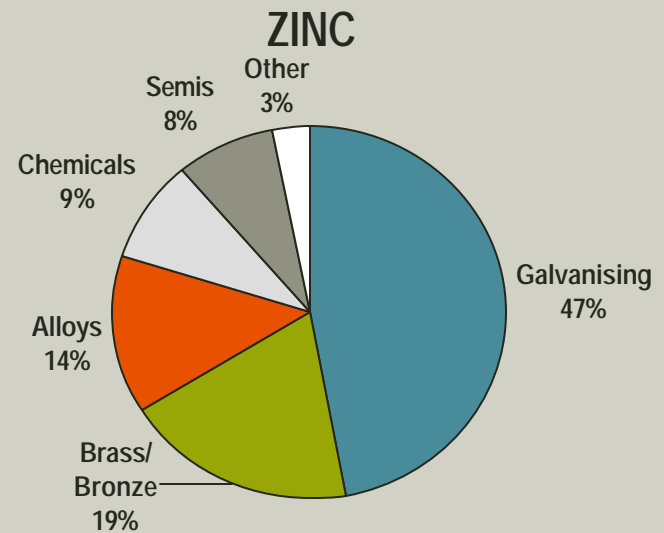
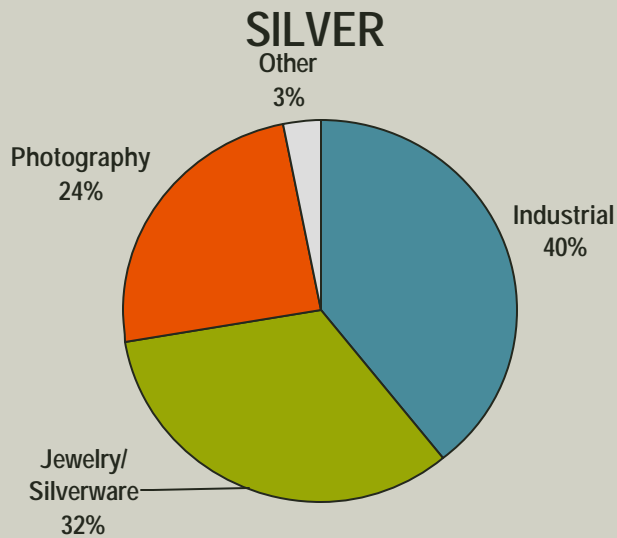
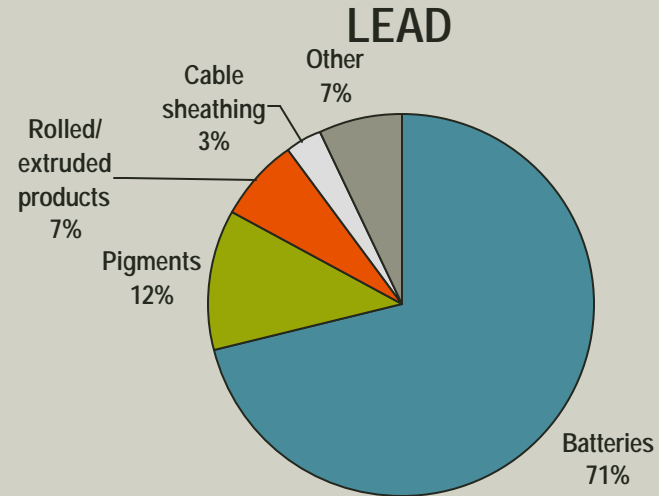
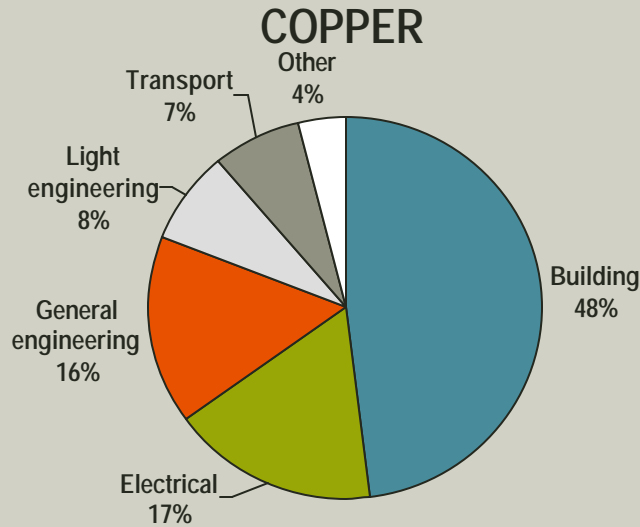
# Base Metals Marketing

John Crofts



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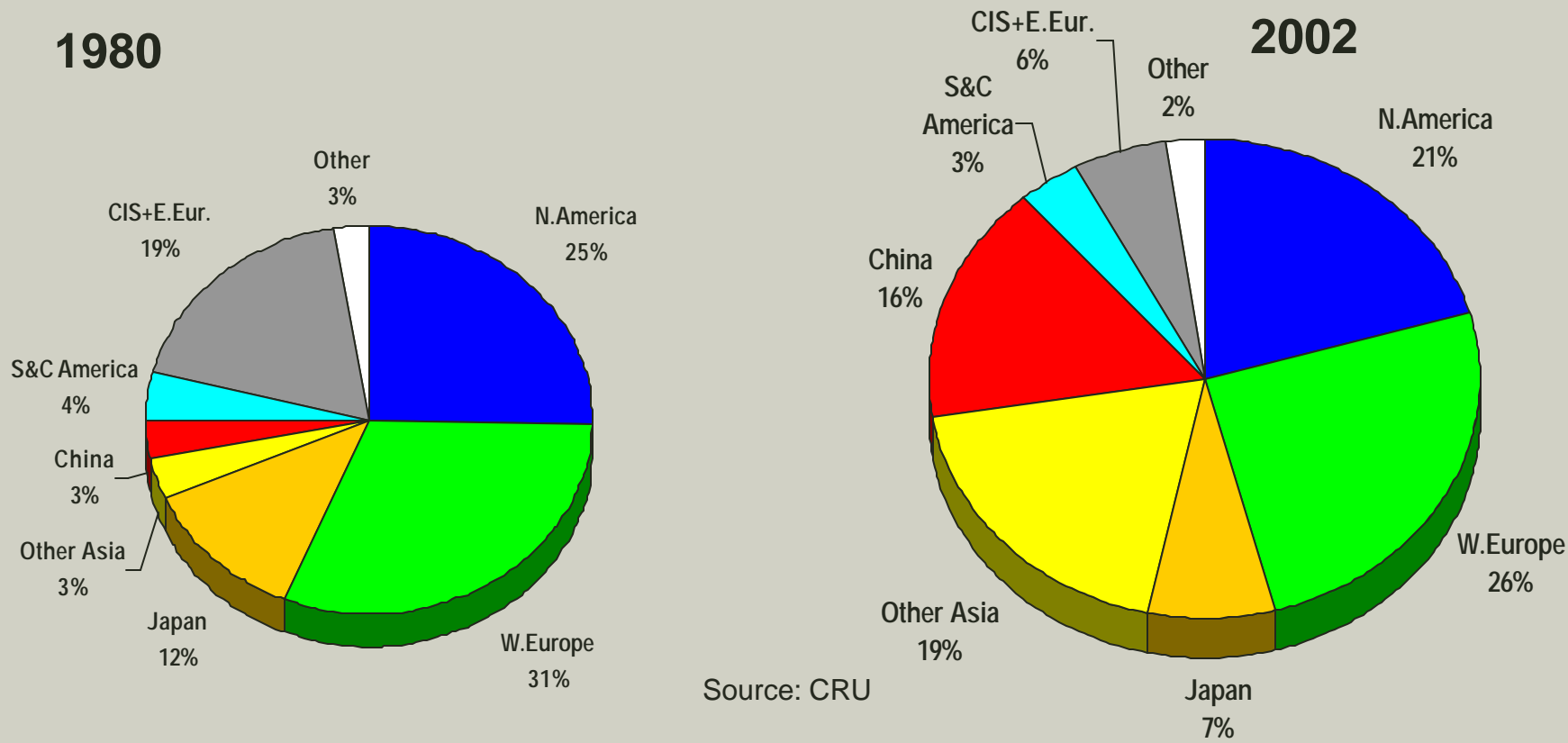
# Base Metals' End Uses



# Market share of refined copper demand: Asia accounts for more than 40% of reported off take

Growth in consumption has taken place in China, South Korea and Taiwan at the expense of Europe, the USA and Japan, as manufacturing has migrated

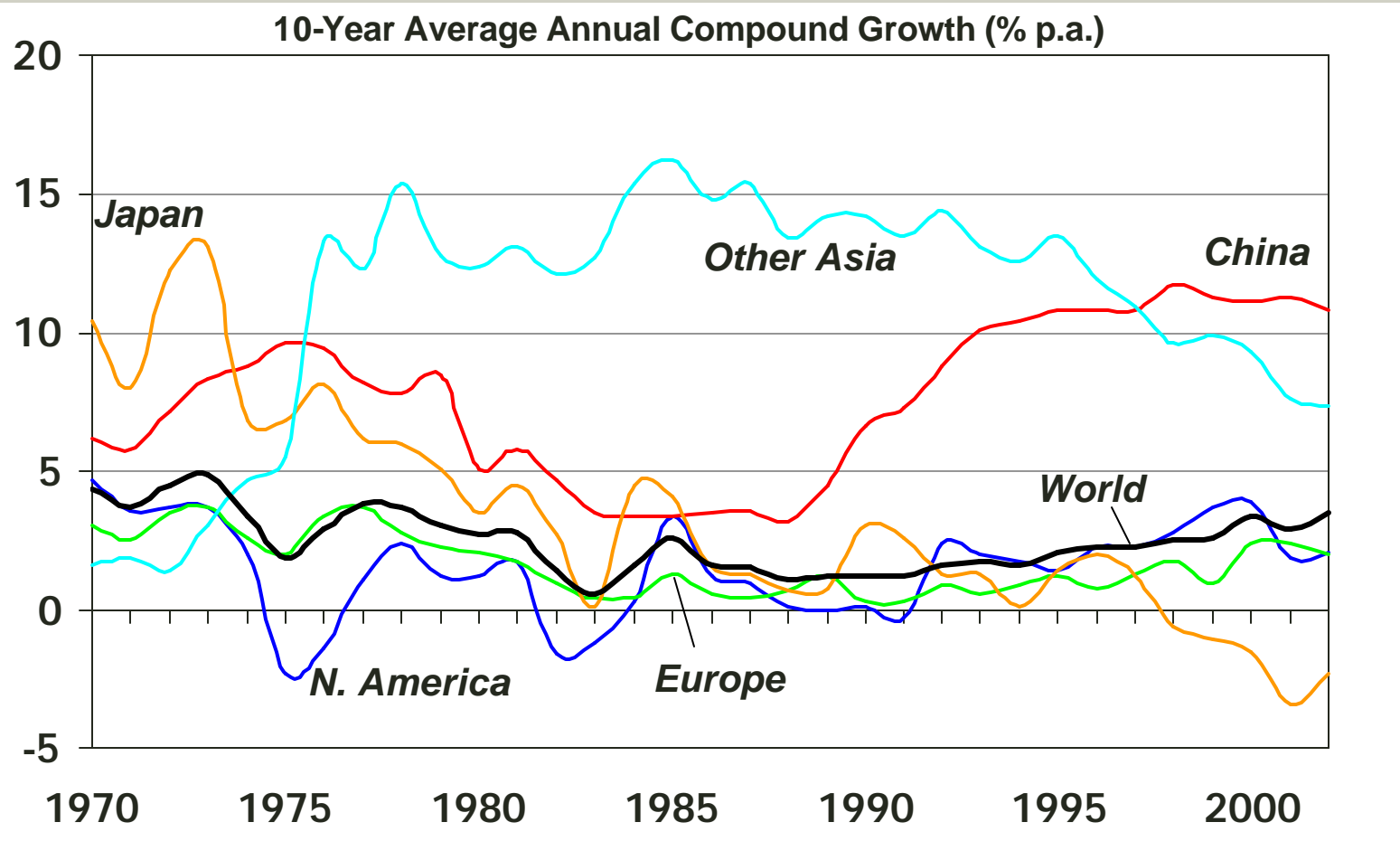
Demand for Refined Copper – Market Share (%)



Note: Demand for refined copper is reported in customs and trade statistics. Data for refined copper do not reflect the final consumption of copper contained in semi-fabricated and manufactured goods which are subsequently exported

10-year average annual demand growth rates – subject to wide variation at regional/national level but heavily influenced by China

China's copper demand growth at more than 10% p.a. is a key influence in lifting world demand rates since the 1980s



# We have a leading position in most of our markets

- **Copper concentrates**

- Around 35% of custom traded market (largest supplier)
- Escondida is the largest copper mine in the world (metal contained)

- **Lead concentrates**

- Nearly 20% of custom traded market (largest supplier)
- Cannington is the largest single mine producer in the world

- **Copper cathodes**

- Around 5% of traded cathode market

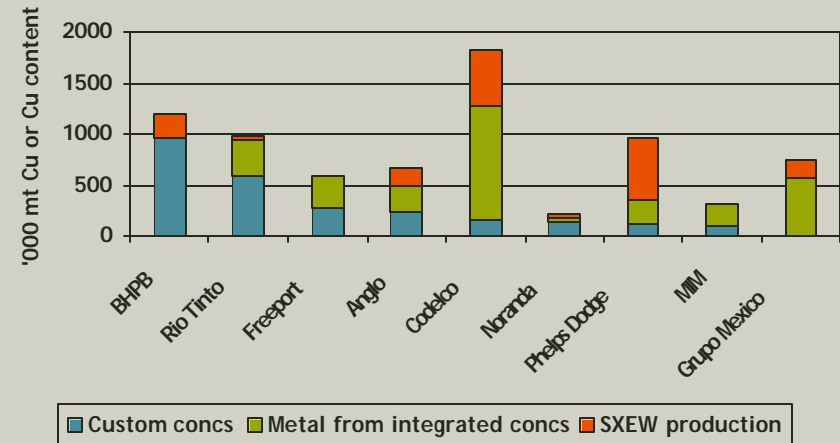
- **Zinc concentrates**

- Around 2% of custom traded market

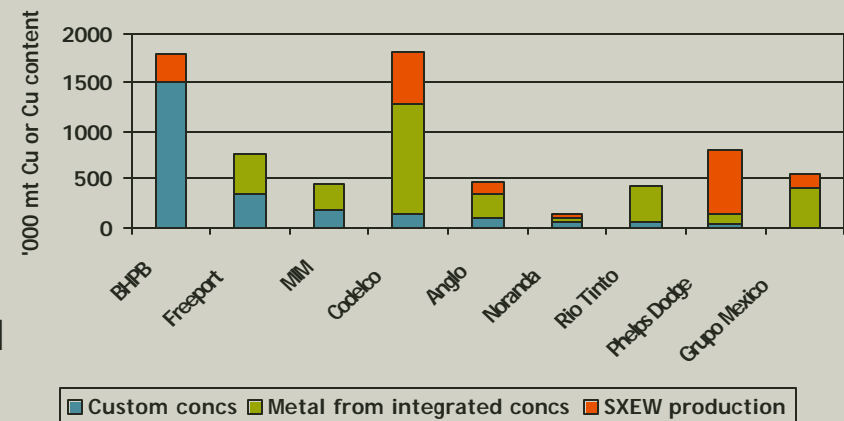
- **Silver**

- Cannington is the largest silver mine in the world (contained in concentrate)

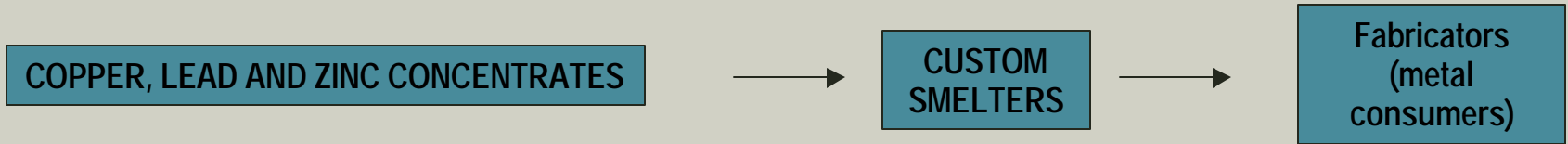
**EQUITY OWNERSHIP**



**MARKETING RIGHTS**

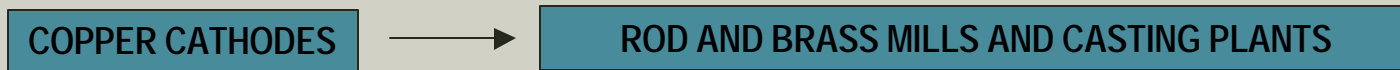


# Channels to Customers

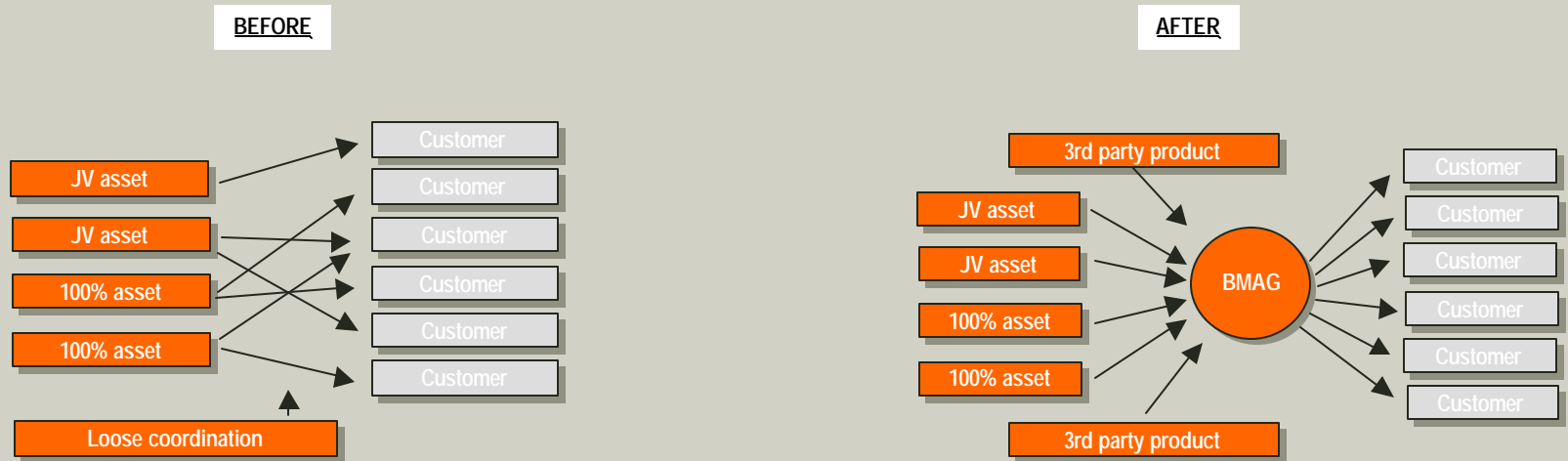


Strategy is to get closer to the actual metal consumer  
Diversified smelter base - 30 copper smelters worldwide

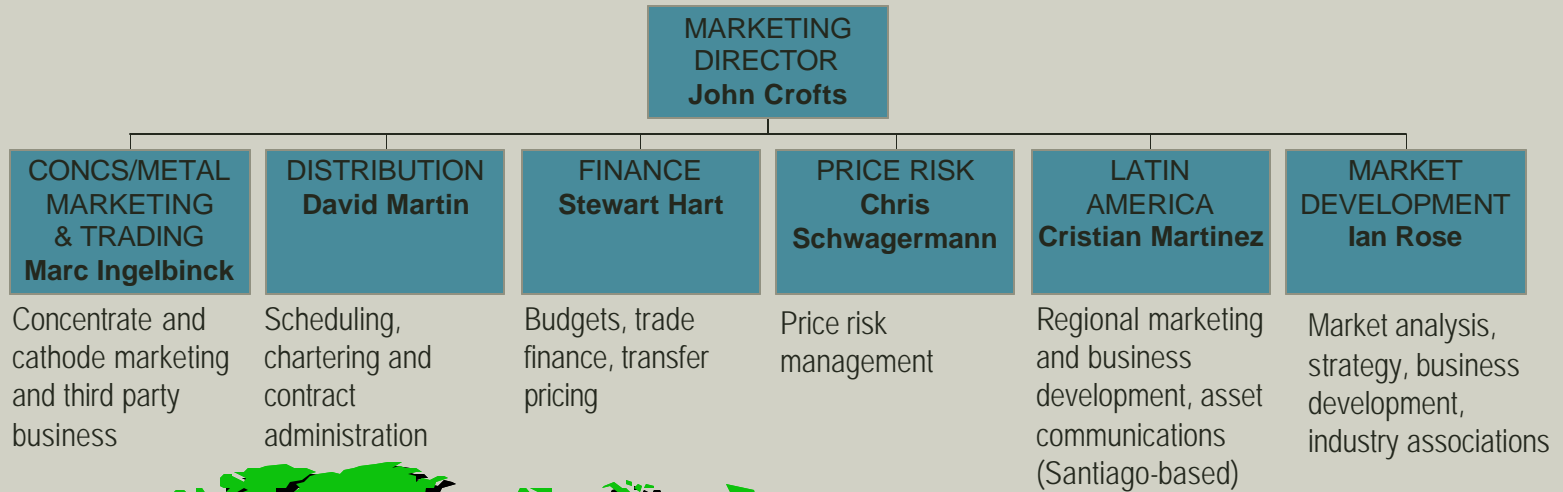
- 14 lead and zinc smelters in Far East and Europe



20 fabricator customers worldwide



# Our organisation structure reflects the new model of marketing as a business in itself



- Regional offices
- Marketing headquarters
- Base Metals headquarters



# Market Focused Business Strategies

- One aligned Market Focused Business Strategy
- Capturing the full benefits of the centralized marketing model and common execution systems
- Increased liquidity and risk management
- Pursuing opportunities for aggregation of third party product (concentrates and metal)
- Implementing strategies to obtain a higher proportion of metal units in the form of cathodes
- Evaluating opportunities for bundled products and new customer offerings
- Supporting industry promotion

*Maximising the value of the Base Metals business by combining the stability of a producer, the flexibility of a merchant and the risk management and structuring skills of a bank*

# Technology

Ken Pickering



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# Technology R&D

- R&D programs are focused on generating breakthroughs in the leaching of primary and secondary copper sulfide ores and concentrates
- Leveraging bioleaching, geochemistry, process modeling and process engineering expertise of BHPB internal technology centres
  - Johannesburg and Newcastle Technology Centres joint staff of 110 with over 60 scientist and engineers (JTC is a world renowned centre for bioleaching)
  - Cooperative projects with world class universities and external research providers (CSIRO, AMIRA, U of Queensland, U of British Columbia, U of Warwick)
  - Chalcopyrite dump/heap leach program integrated from laboratory to field testing at Pinto Valley, Cerro Colorado and Escondida operations
  - Core bioleaching technology (mesophile and thermophile) support of Alliance Copper Limited BHP Billiton 50% : Codelco 50%

Direct spending on R&D \$7.5 million with an additional \$30 million for ACL prototype plant for concentrate bioleaching

# Technology



Alliance Copper (BHPB 50%) –  
Chuquicamata, Chile

- EPCM project is more than 30% complete
- Earthworks are finished and bioleach reactors are being installed on their platforms.
- Bacteria inoculation to start in May 2003.
- Full mechanical completion and start of commissioning during Q3 CY 2003.
- Decision on commercial scale plant 2005



Leach test cribs, Cerro  
Colorado, Chile



Pinto Valley – Chalcopyrite leach  
test pads

# The Way Forward

Brad Mills



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# BHP Billiton Base Metal Position on the Cost Curve

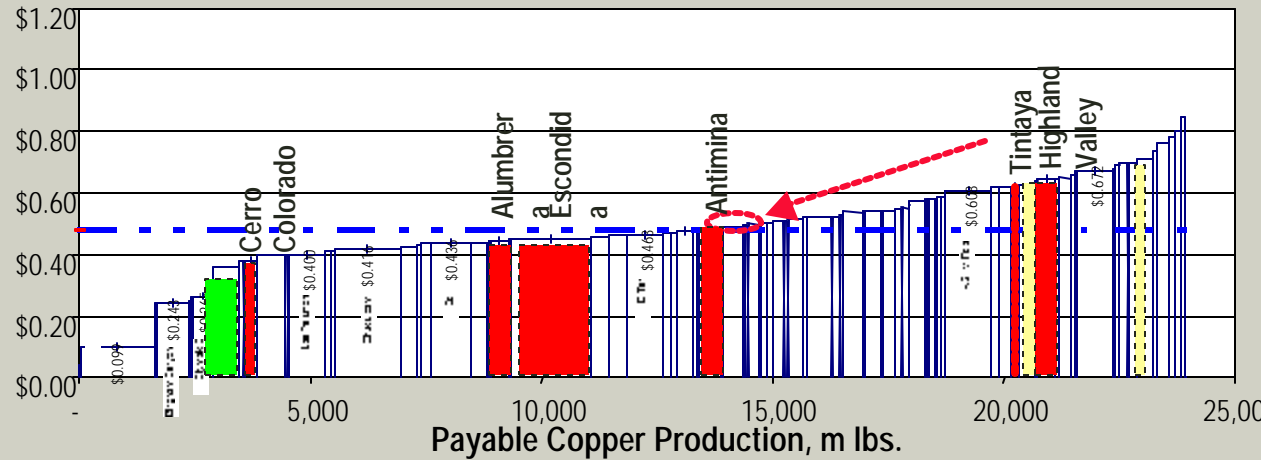
• Brook Hunt's 2001 cost curves (with BHPB's estimate of Robinson and Pinto Valley overlain in yellow and Spence in green) are indicative only

• Indicative only

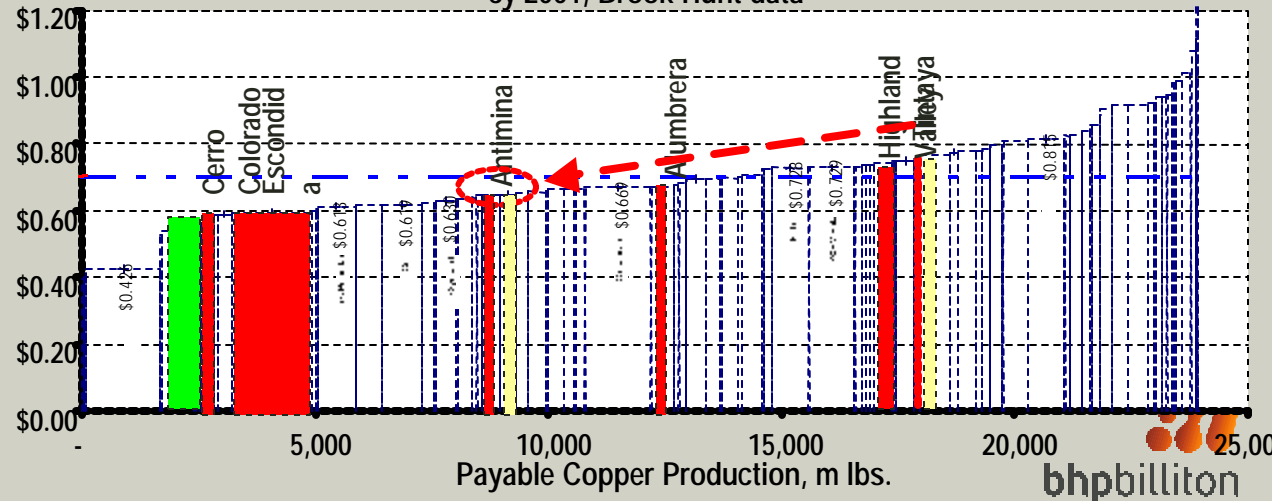
• BHP Billiton has the ability to flex production to meet the growth in real market demand

• In 2007 the production of the Escondida site could be nearly double that of 2001

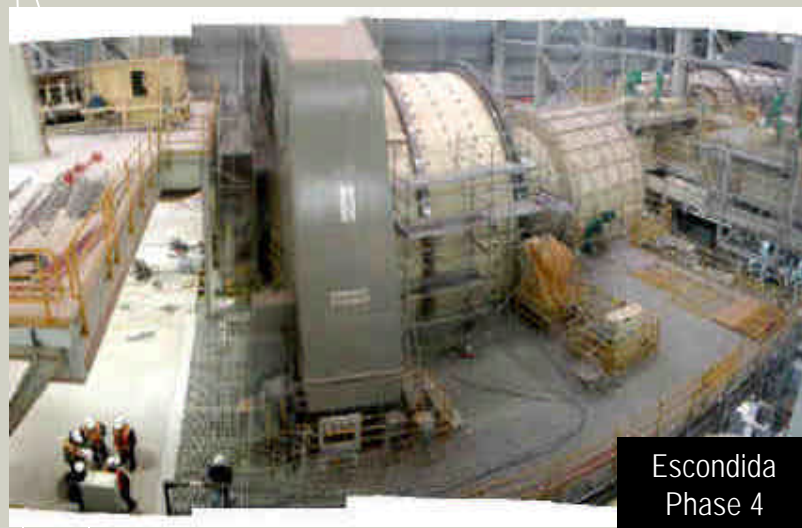
C1 Unit Cost  
cy-2001, Brook Hunt data



C3 Unit Cost  
cy-2001, Brook Hunt data



# Flexible Production



# Looking forward

- We do not attempt to predict short term price variations
  - Demand is still weak
  - At the CESCO conference in Santiago in February we indicated that commodity prices had got ahead of themselves and that the pick up in IP did not necessarily indicate a recovery
  - We know that 5 of the last 6 recessions have been “double dip”
- Our view is:
  - the longer the downturn now,
  - the more competitors are stressed
  - the continued absence of new projects and discoveries
  - the healthier the recovery will be and, when it arrives

**BHP Billiton Base Metals will be well positioned to react**

# BHP Billiton Base Metals – Key Differentiators

## • Best in class HSEC management

- BHP Billiton Charter
- Zero harm
- Community Relations
- ISO 14001

## • Clear strategy

- Flexible production, demand focused
- Optimising capital efficiency
- Maximising the value of our resources
- Increasing the proportion of production as metal

## • Low cost, high quality operations

- Bias towards open pit leaching projects with low technical risk

# BHP Billiton Base Metals – Key Differentiators

## ● Exceptional resource base

- Escondida
- Cannington
- Spence

## ● Unrivalled growth opportunities

- Escondida Norte and Sulphide Leach
- Spence
- Cannington North
- Tintaya Nuevo

## ● Centralised Marketing Model

- Coordinated approach
- Managing risk

# BHP Billiton Base Metals – Key Differentiators

## ● Leaching technology

- Technology Labs
- Pinto Valley chalcopyrite dump leach test bed
- Escondida Sulphide Leach
- Alliance Copper

## ● Experienced, value focused management team and workforce

- Operations and project management
- Continuous improvement – Six Sigma
- Committed to the BHP Billiton Charter

Maximising Shareholder Value

END

Video

