

# BHP Billiton Technology Bergforsk

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Mining and Exploration Technology

8 June 2006



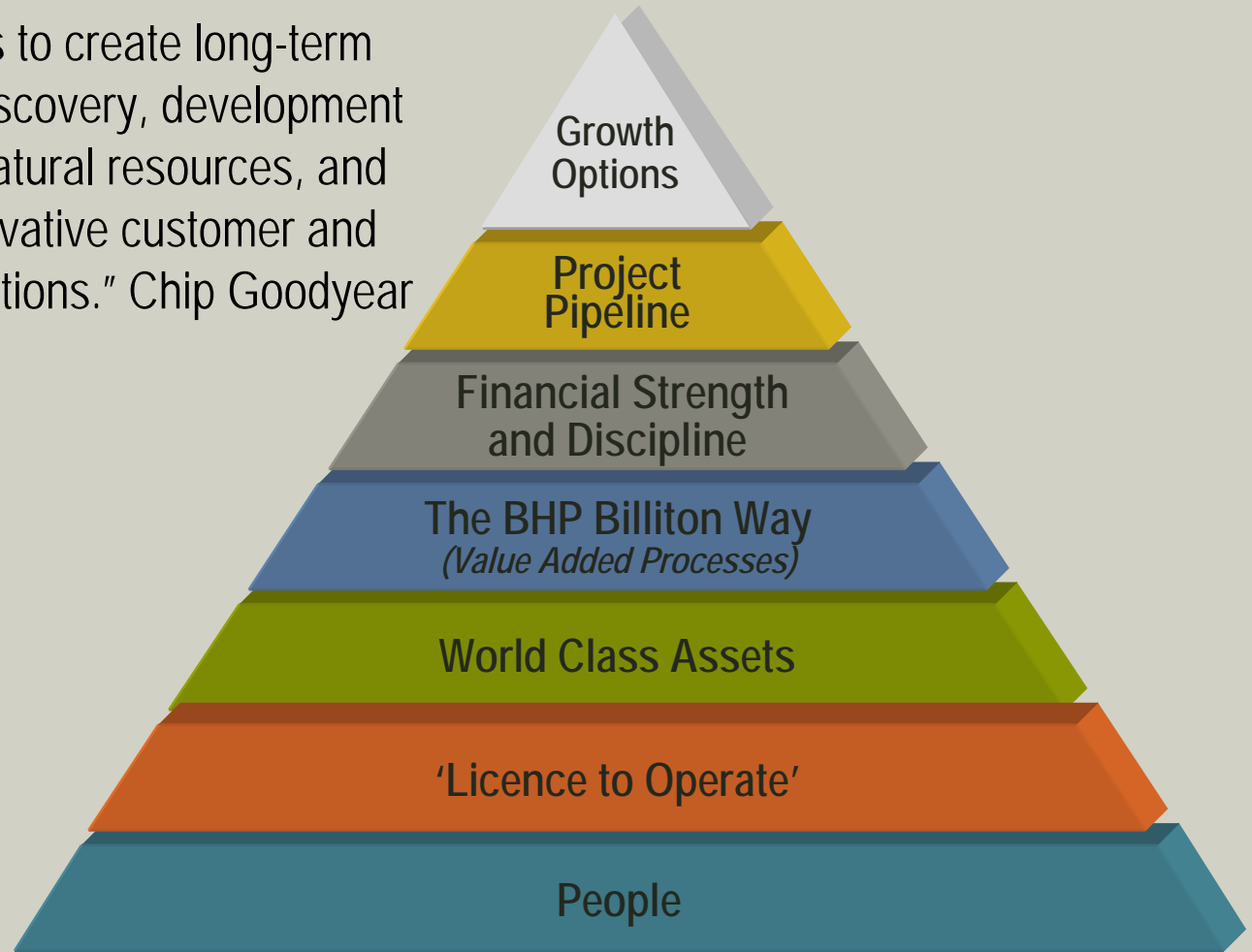
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# BHP Billiton Vision



# Strategic drivers

"Our core purpose is to create long-term value through the discovery, development and conversion of natural resources, and the provision of innovative customer and market-focused solutions." Chip Goodyear



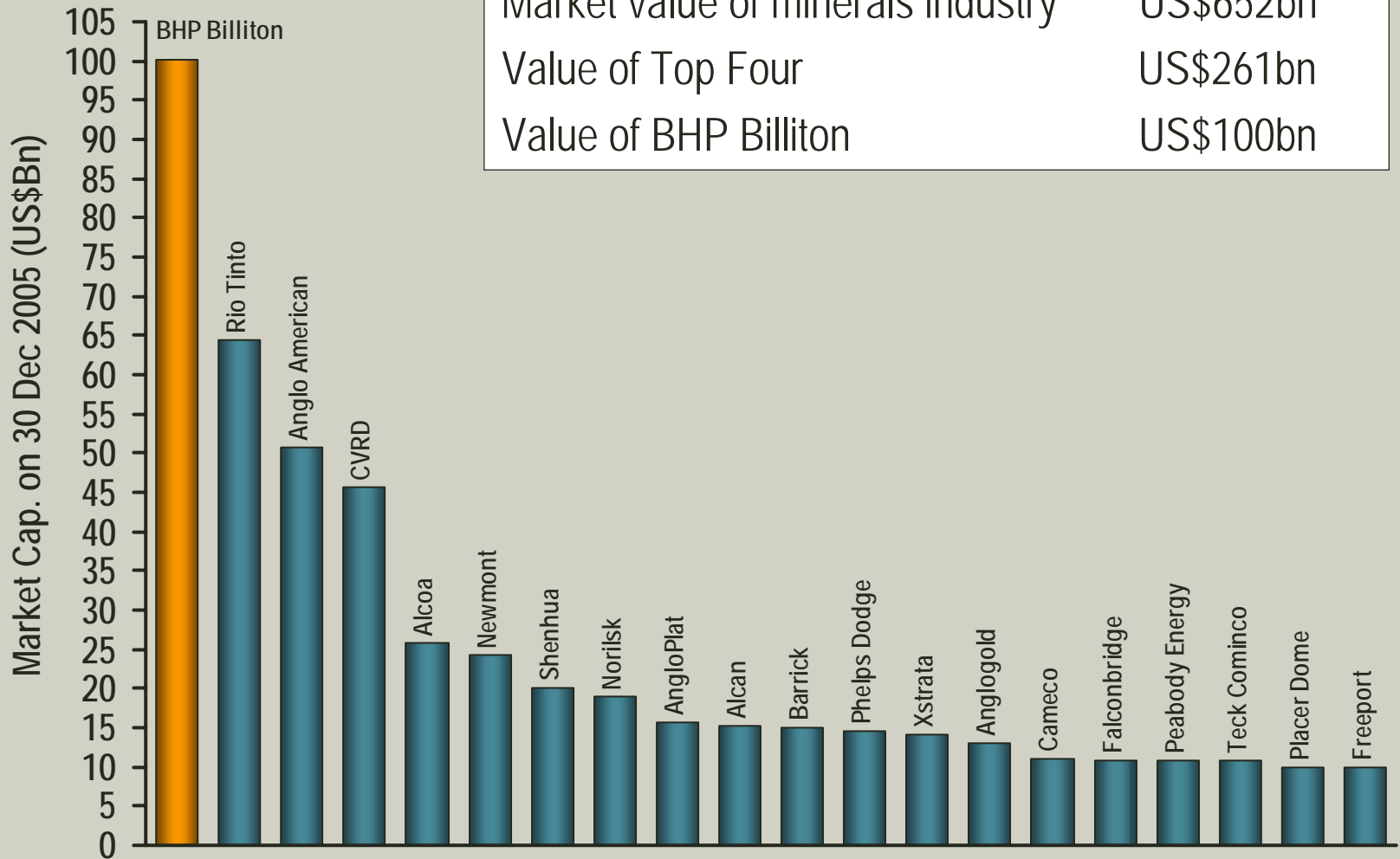
# The largest company in a consolidating sector

Market Capitalisation as at 30 December 2005

Market value of minerals industry US\$652bn

Value of Top Four US\$261bn

Value of BHP Billiton US\$100bn



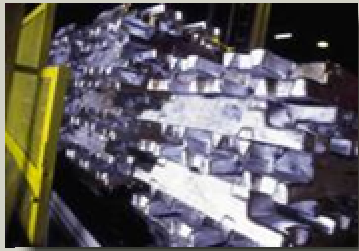
Source: Datastream

# The world's largest diversified resources company

**Petroleum**



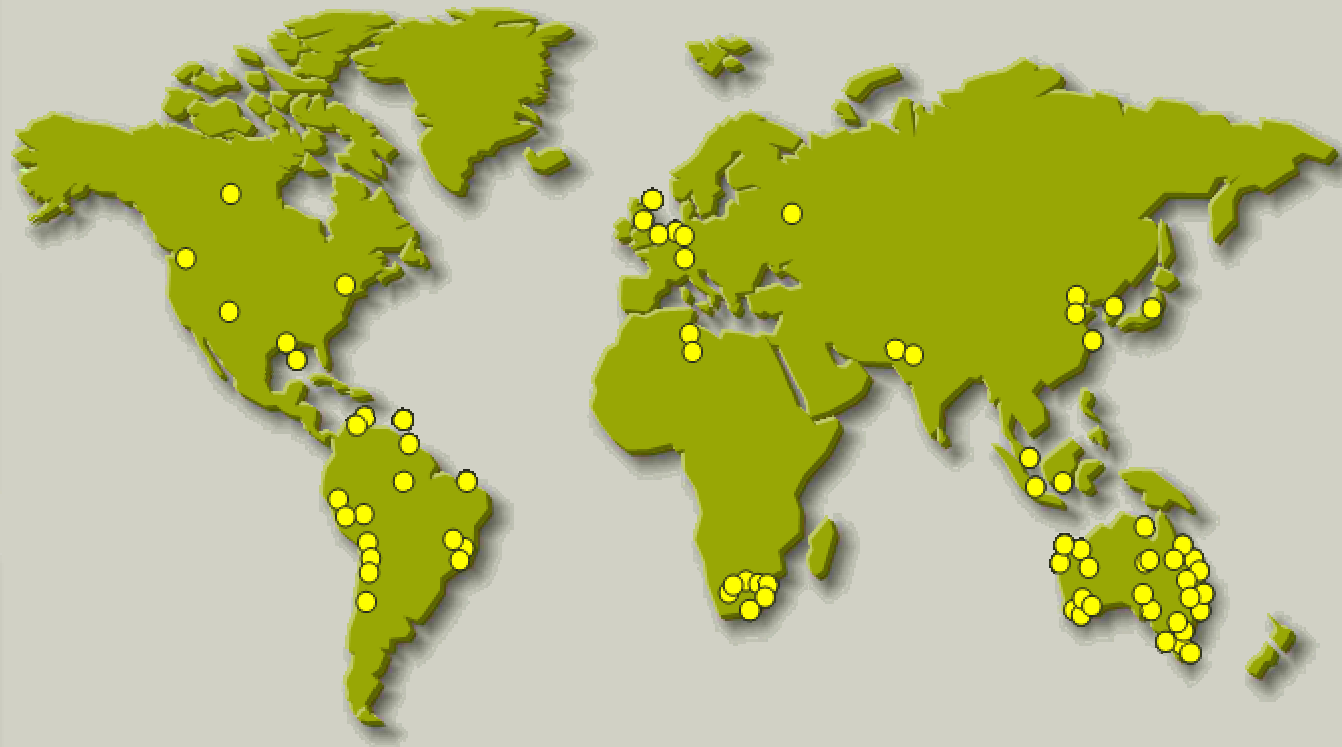
**Aluminium**



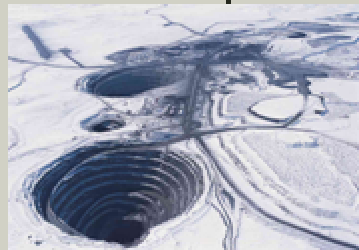
**Base Metals**



**Carbon Steel Materials**



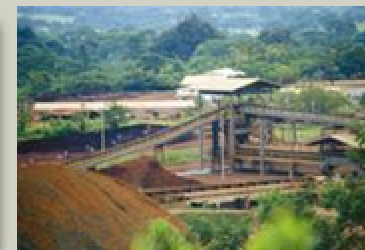
**Diamonds & Spec Prod**



**Energy Coal**



**Stainless Steel Materials**



# With outstanding assets in each CSG

**Energy Coal**  
Operations in Sth  
Africa, Australia,  
US, Colombia

**Petroleum**  
Oil  
Gas  
LNG

**CSM**  
Iron Ore, Coking  
Coal, Manganese

**Base Metals**  
Copper, Silver  
Lead, Uranium



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Operating Excellence  
and Technical  
Capability

**Aluminium**  
Alumina  
Aluminium

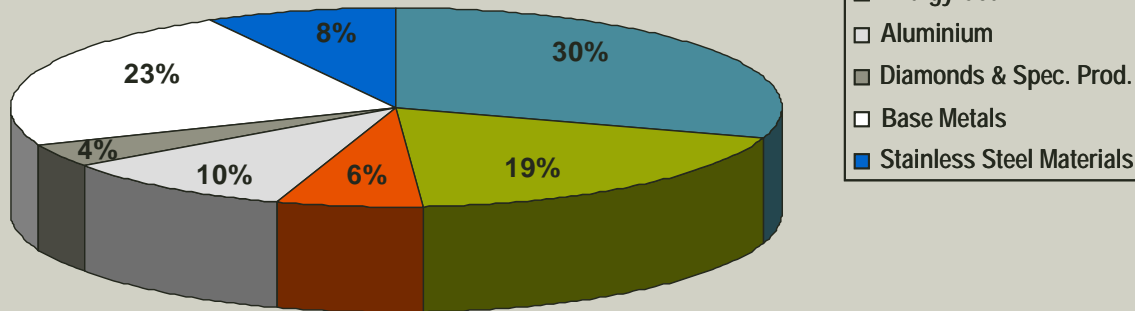
**SSM**  
Nickel

**D&SP**  
Diamonds  
RBM  
Fertilizers

# Diversified portfolio

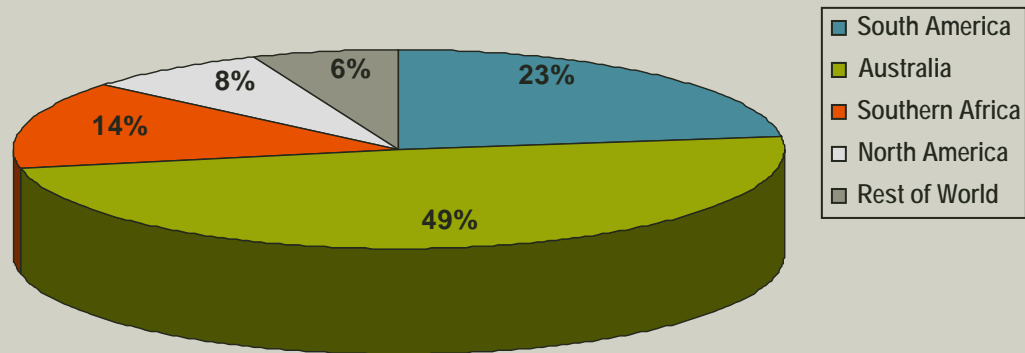
## By Commodity

Customer Sector Group EBIT:



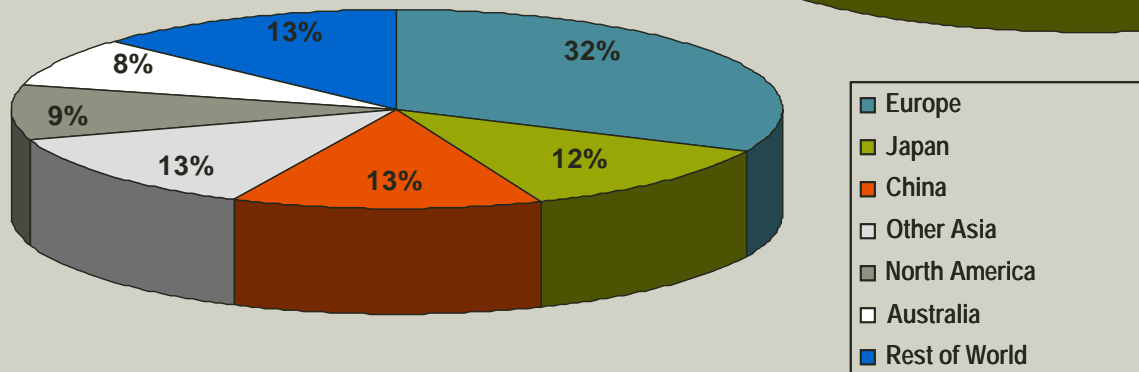
## By Geography

Net Operating Assets:



## By Market

Sales:



Data for the year ended  
30 June 2005

# Committed to responsible business practices

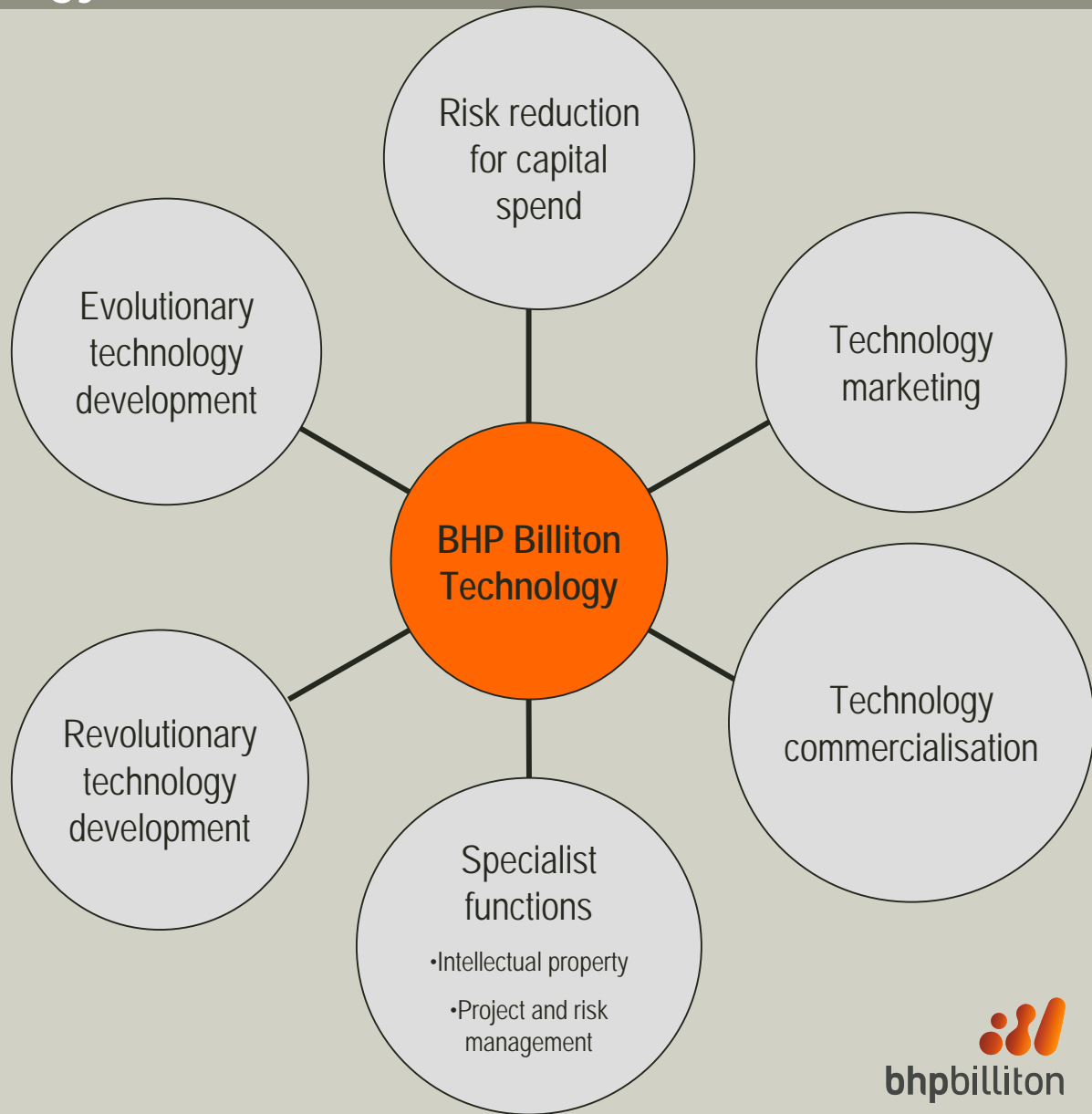
- Full recognition of our wider responsibilities to society, through:
  - Charter
  - Target of Zero Harm
  - Guide to Business Conduct
  - HSEC Management Standards
  - Transparent reporting
  - Local consultation and the Forum on Corporate Responsibility

# Cost savings and efficiencies through OE

- Operating Excellence (OE) is a business and process improvement initiative using and supported by:
  - Six Sigma improvement methodology
  - Site based coaches
  - Knowledge Sharing Networks and Communities
  - Online tools and services
  - Supported by Regionally deployed OE full time team

# BHP Billiton Technology

- Support the CSG business with technical innovation.
- Focussing on delivery of technology solutions that provide significant competitive advantage and growth opportunities for the business units.



# BHP Billiton Technology Budget

- Annual budget of \$A55M
- 80% directly funded by CSG projects
- 20% opportunity projects
- Approx \$A3M (of the 20% OP) funding to external projects

JTC: Johannesburg



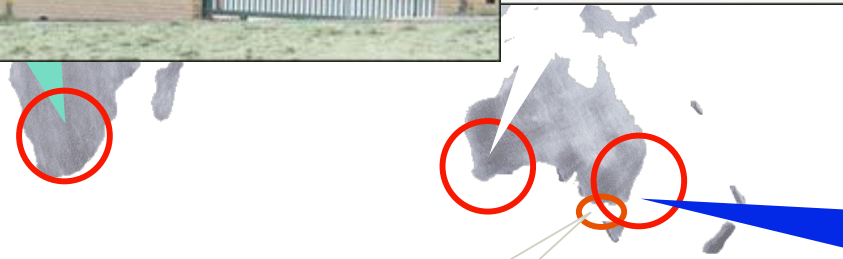
PTC: Perth



NTC: Newcastle



Melbourne

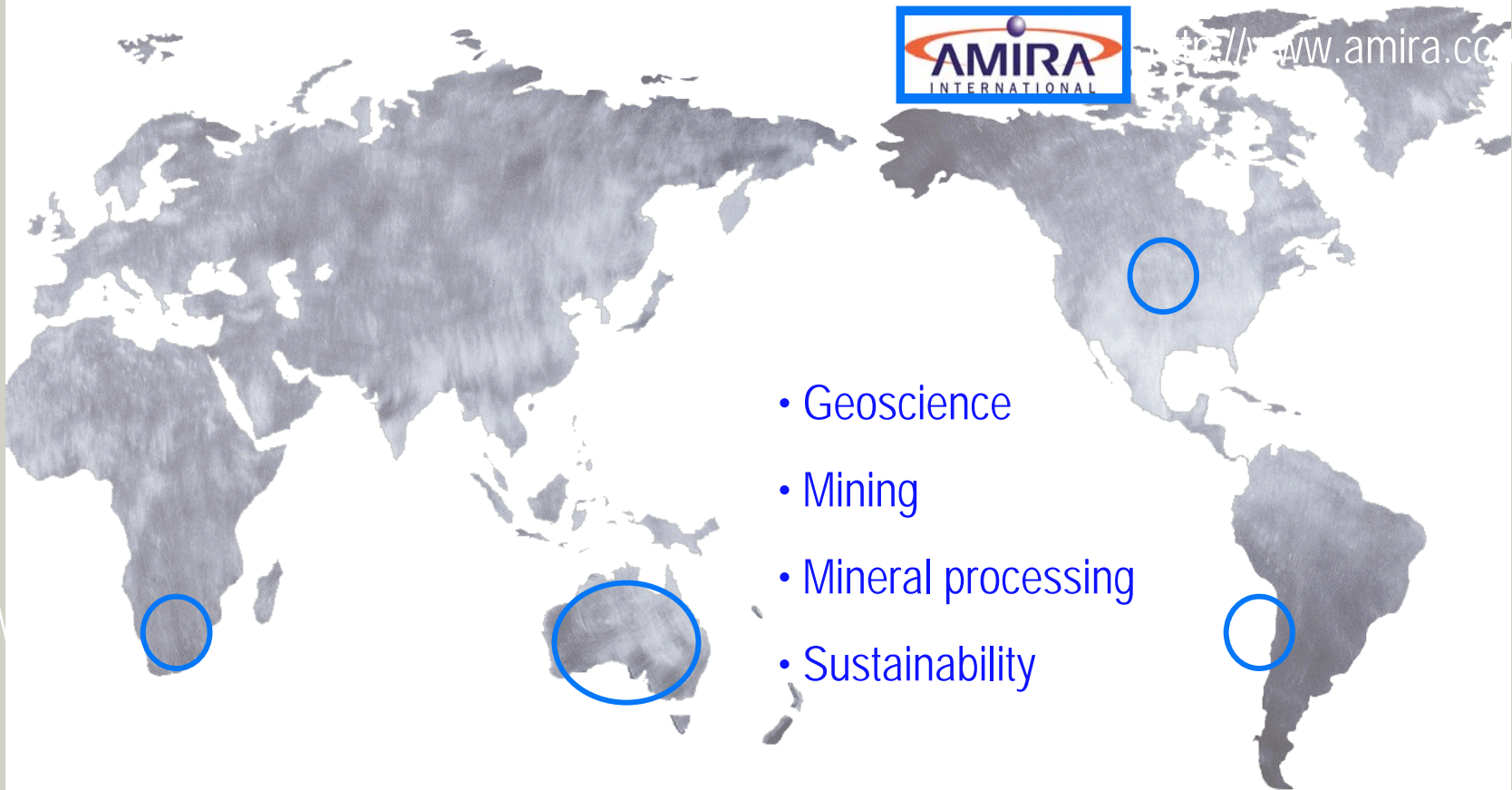


# Critical competency shortages

- Difficulty sourcing graduates in:
  - Mining disciplines
  - Physics
  - Mathematics
- Decline in students studying SET courses at high schools and universities
- Reduced pool of students for mining related disciplines, decline in SET teachers at high schools
- Decline in government funding for SET courses at universities – high cost / low throughput
- Relative decline in salaries for mining professionals in remote areas vs city locations and in other professions
- Rise in popularity of bio-sciences, environmental and financial courses



<http://www.amira.com.au>

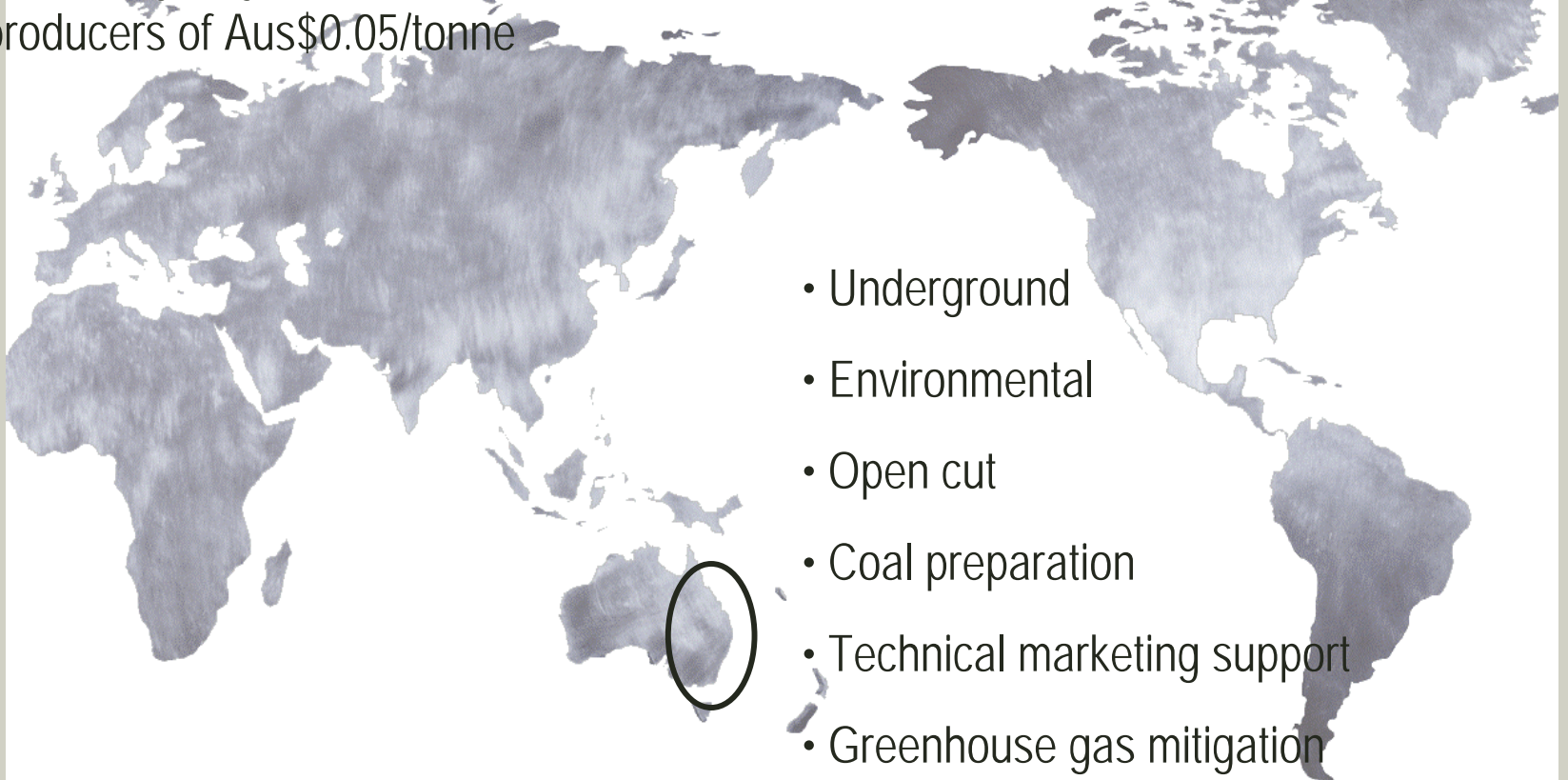


- Geoscience
- Mining
- Mineral processing
- Sustainability

NOTE: Funding for AMIRA projects must come from CSGs / Operations, not Technology ... deliberate approach to enhance best scoping and implementation of outcomes

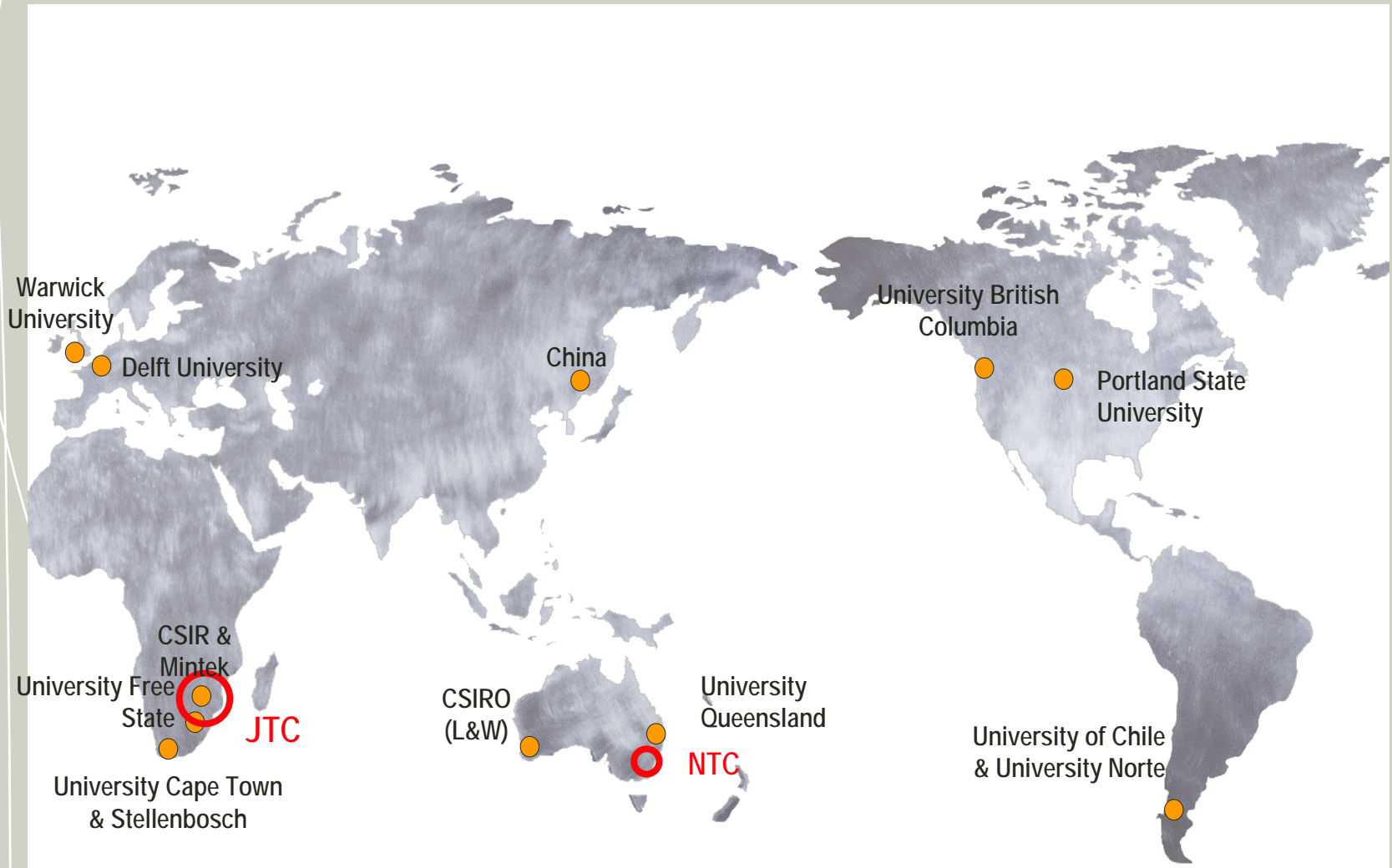
Funded by levy on Australian coal producers of Aus\$0.05/tonne

**ACARP** <http://www.acarp.com.au>



- Underground
- Environmental
- Open cut
- Coal preparation
- Technical marketing support
- Greenhouse gas mitigation

# Copper Leach – an example of networked R&D



# R&D and education

## ● Education and Students:

- MCA – MTEC programs
- High school mathematics
- BHPB Science Awards
- ASMV
- Bursary Fund for up to 3 students (USD 50K)
- 1 year practical training provided for 3 Technikon students at JTC
- University of Sydney placement scheme (MIPPS) – 3 students spend 1 semester at NTC
- University of Newcastle Industry Scholarship Scheme – NTC accommodated 2 students
- China – Support of students through CAS
- Industry experience – 5 students from Moscow State University to JTC and MTC

## ● Working with other Research Organisations:

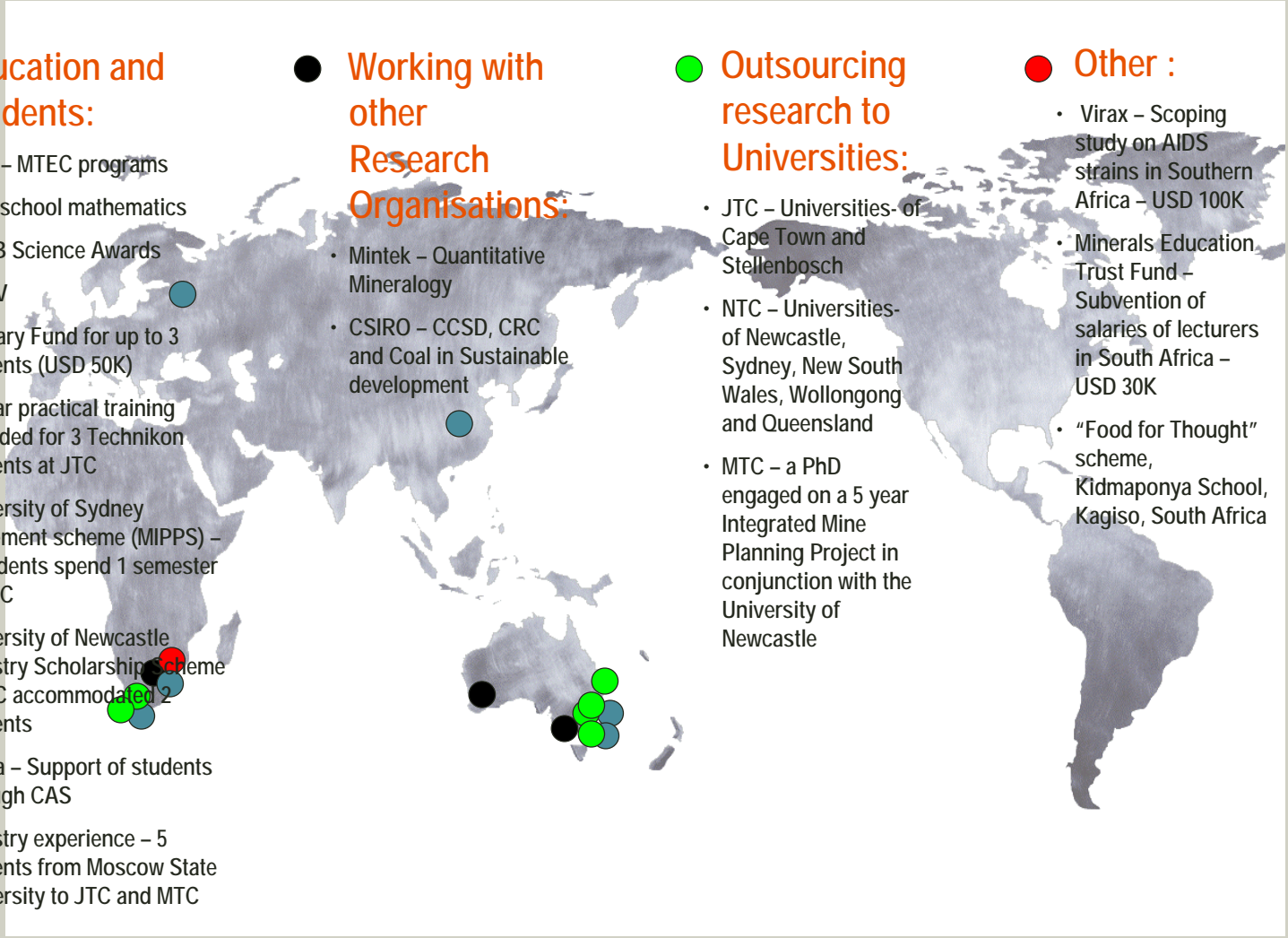
- Mintek – Quantitative Mineralogy
- CSIRO – CCSO, CRC and Coal in Sustainable development

## ● Outsourcing research to Universities:

- JTC – Universities of Cape Town and Stellenbosch
- NTC – Universities of Newcastle, Sydney, New South Wales, Wollongong and Queensland
- MTC – a PhD engaged on a 5 year Integrated Mine Planning Project in conjunction with the University of Newcastle

## ● Other :

- Virax – Scoping study on AIDS strains in Southern Africa – USD 100K
- Minerals Education Trust Fund – Subvention of salaries of lecturers in South Africa – USD 30K
- “Food for Thought” scheme, Kidmaponya School, Kagiso, South Africa





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