



## **Industry working group**

**Anglo American, BHP Billiton,  
Rio Tinto, Xstrata**

**Global Survey of Minerals  
Industry Universities**



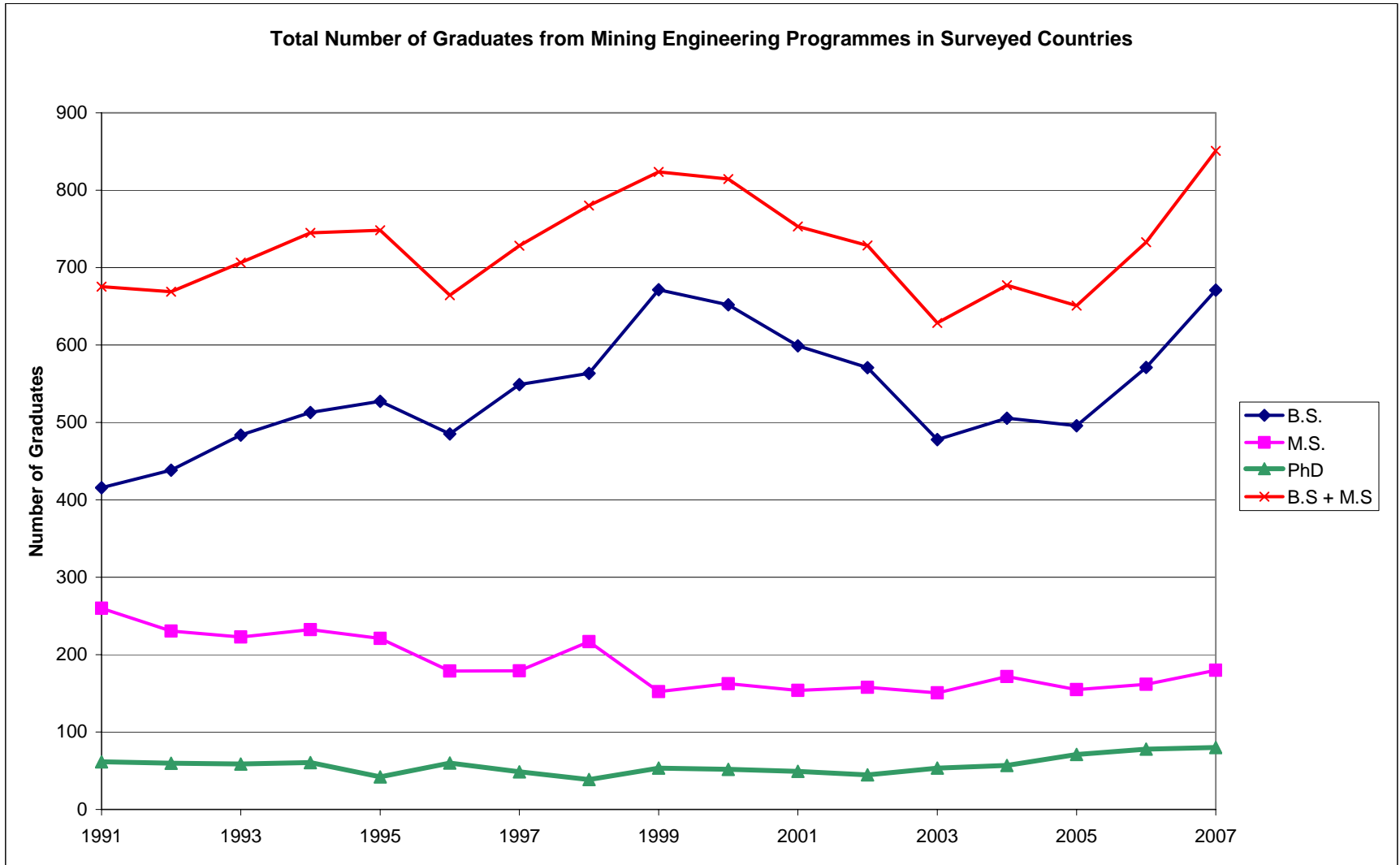
# Mining Engineering

# Major Findings

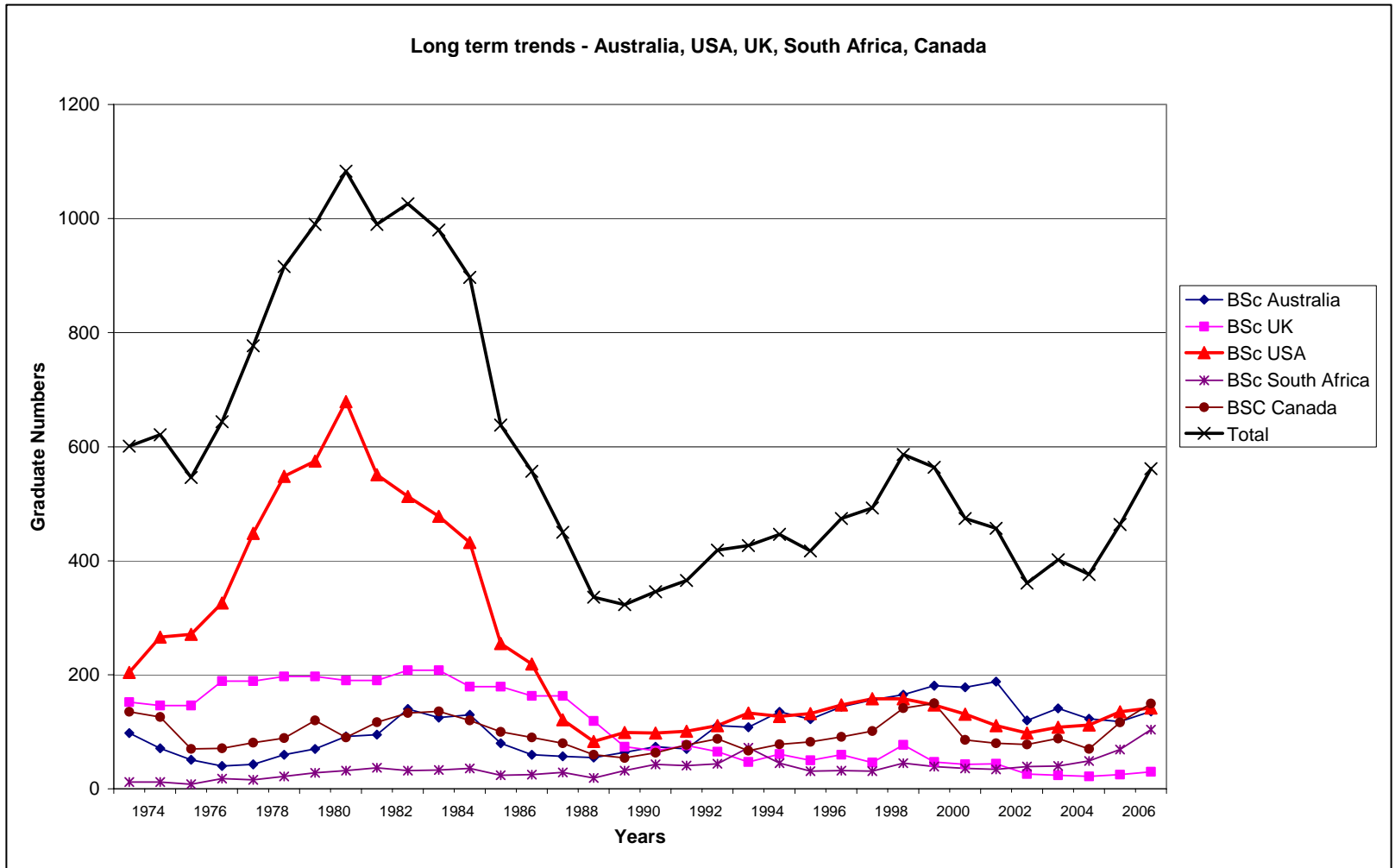
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- Surveyed universities in Australia, Canada, Chile, Europe, South Africa, UK and US
- Current low point in supply of mining engineers with 500 Bachelor and 150 Master graduates from surveyed universities.
- Of 53 mining schools, 6 are closing.
- Very small class sizes in some schools threatens viability
- Global demand for mining engineers 500-800 per year

# Global supply – Mining Eng

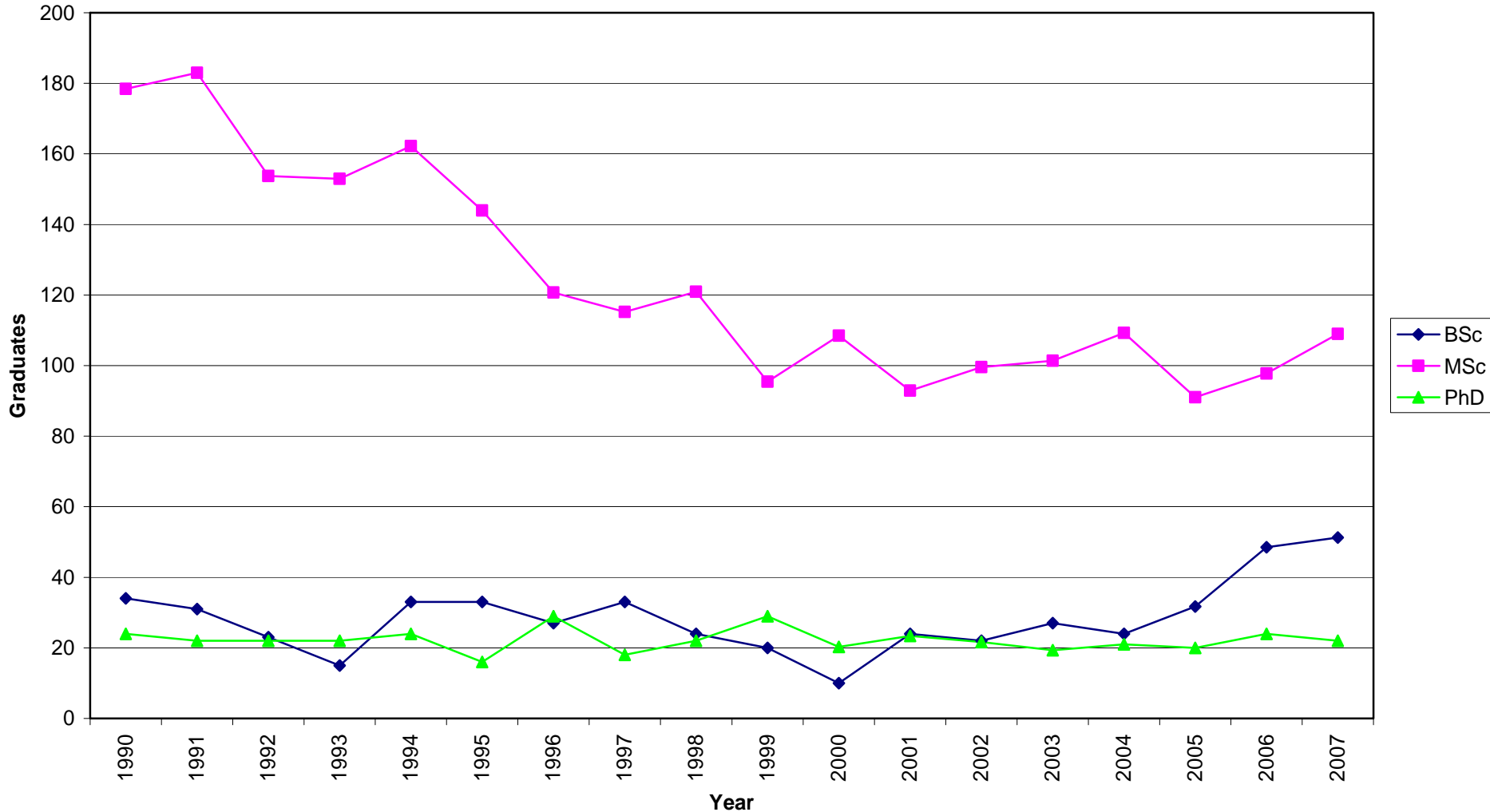


# Long term trends



# Mining engineering in Europe

Graduates from mining engineering programmes in Europe





# Further actions

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- Industrial training opportunities.
- Industry interaction with selected departments including teaching and research.
- Support in advertising departments to the various high schools from which they recruit.
- Development of a global master in mining engineering programme should be considered to provide alternative pathways into the industry



# Minerals Processing and Metallurgy



# Chemical Engineers or Mets/Min Procs?

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- Both used at working group operations.
- Pros and cons for both types of qualifications.
- Approximately 50% of metallurgy and minerals processing positions are filled by chemical engineers.
- Study assessed pure metallurgy and minerals processing graduates.

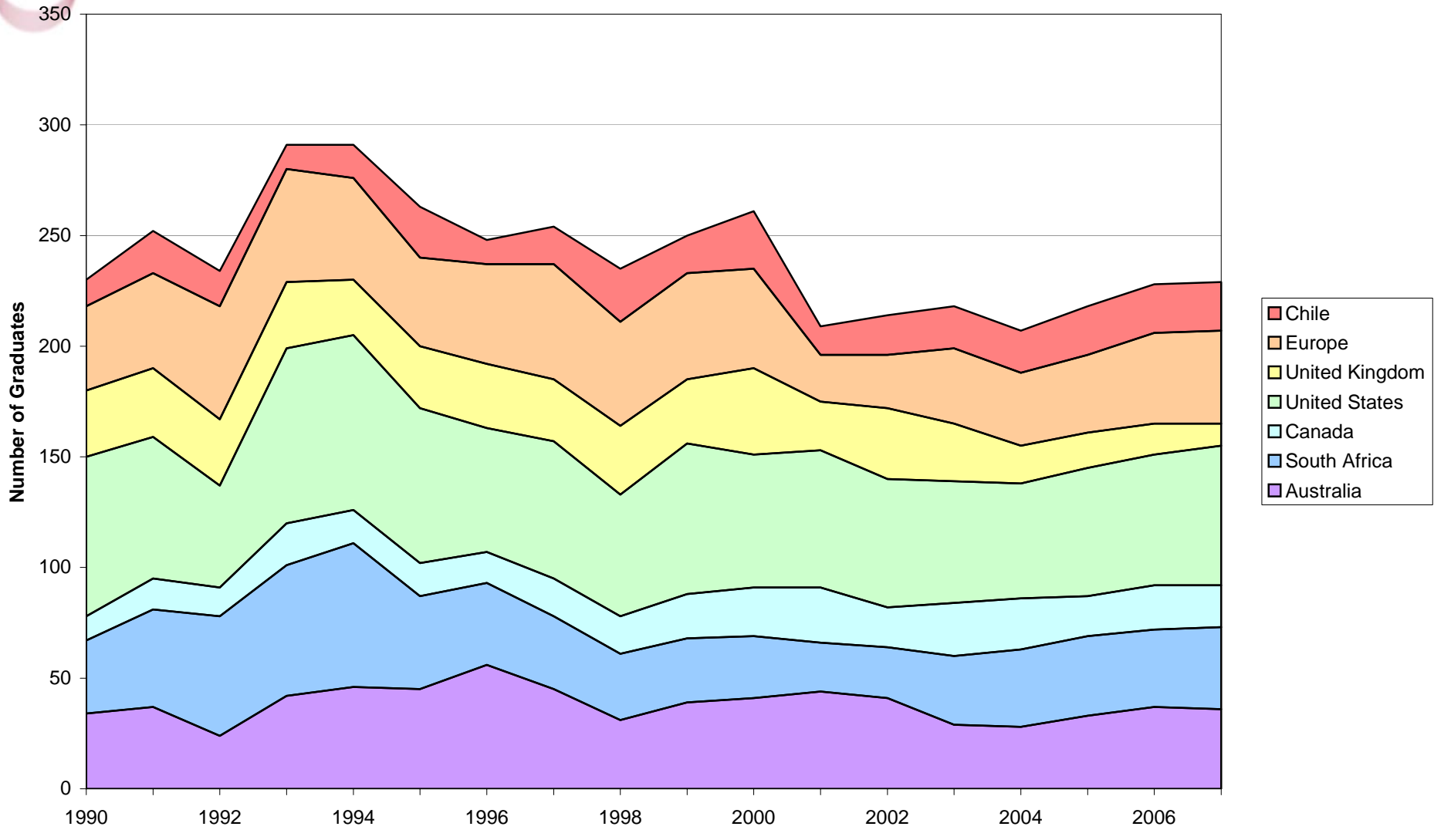


# Supply of graduates

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- Survey sent to universities in Australia, South Africa, Canada, USA, UK, Chile and Europe.
- Responses received from 26 universities.
- From the respondent universities, graduate supply currently around 220 per year.

# Supply of graduates



# Demand for graduates

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- Information from the working group shows 94 graduates employed each year in metallurgy/minerals processing roles.
- Extrapolating demand to the whole industry based on market capitalisation and employee numbers gives an approximate demand of 340 graduates per year.
- Assuming 50% will be chemical engineers, 170 pure metallurgy and mineral processing graduates are required.

# Conclusions

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- Approximately 70% of university graduates enter the workforce directly into the mining industry.
- This leaves a global shortfall of approximately 16 positions per year (10%).
- Possible options to address shortfall:
  1. Increase graduate numbers from existing programs.
  2. Employ graduates from other geographic regions.
  3. Increase the number of chemical engineers employed.



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# Mineral Industry Working Group Education Project (MIEP)

- Working Group of Anglo American, BHP Billiton, Rio Tinto and Xstrata
- The principal MIEP objective is to ensure the future supply of adequately qualified staff entering mining industry careers
- Review of global supply and demand – already done
- Review findings and initiate actions – in progress
- Setting up MIEP project managed by MIRO - pending
- Interaction proposed
  - Interactive Website with materials, course and career guidance
  - Industry direct contact universities, schools