

ATTACHMENT II

STATE DEVELOPMENT INDUSTRY BRIEF MINERALS PROCESSING



Minerals Processing

Last update: 22 June 1999

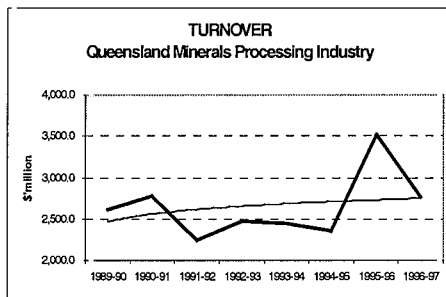
DEFINITION OF THE INDUSTRY

This industry (ANZSIC 272) includes the refining of bauxite to form alumina, aluminium smelting, copper, silver, lead and zinc refining and smelting and other processing of minerals, such as secondary smelting and refining of other non-ferrous metals and the recovery of such metals from drosses, ashes, scrap and other waste materials.

INDUSTRY PERFORMANCE

The minerals processing machinery manufacturing industry is generally considered to be a mature industry. Queensland holds a clear comparative advantage in terms of mining minerals, upon which this industry is based. However, it is also one of Queensland's most capital intensive industries. Consequently, the efficiency with which that capital is employed is a key factor determining competitiveness. In this light, performance has slipped over the latter half of the 1990s as productivity slides despite job losses.

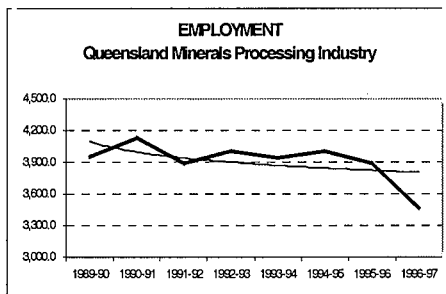
Turnover



Queensland Trend: rising steadily.

Queensland turnover for this industry has grown at an annual average rate of 2.9% from \$2,614.9 million in 1989-90 to \$2,758.6 million in 1996-97. This compares with an Australian average annual growth rate of 1.3%, from around \$9,829.9 million to \$10,310.9 million over the same period. Turnover tends to fluctuate due to the instability of commodity prices. The Queensland industry accounts for 29% of total Australian turnover.

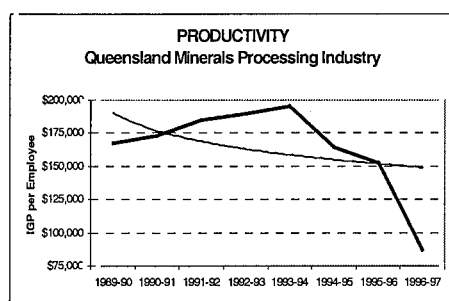
Employment



Queensland Trend: declining.

Employment in Queensland stood at 3,468 in 1996-97 compared with 15,609 for Australia as a whole. Employment in Queensland has been falling steadily during the 1990s, achieving an average annual growth rate of -1.7%, compared with an average annual fall in Australian employment for this industry of 2.9% over the same period. Queensland accounts for nearly 22% of total Australian employment in this industry.

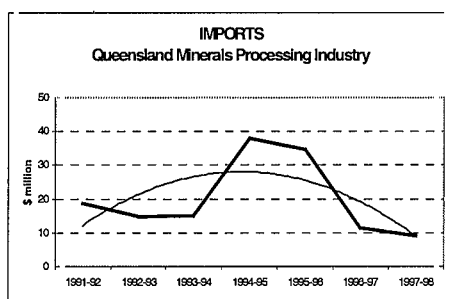
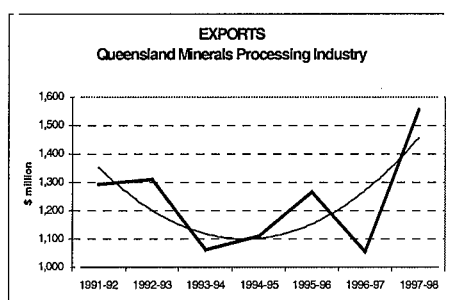
Productivity



Queensland Trend: falling.

Productivity has decreased at an average annual rate of 15.8% during the 1990s compared with a marginal average annual rise in productivity of 0.5% for Australia over the same period. Furthermore, productivity levels for Queensland are only around 60% of Australian levels. The major difference between Queensland's performance and the other States is efficiency of capital use, scale of plant and relative power costs.

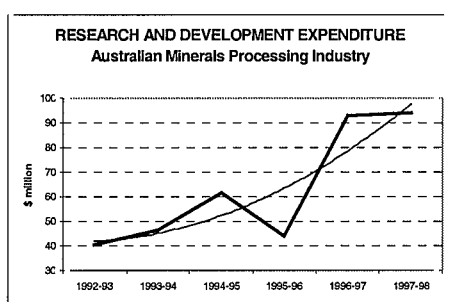
Trade



Queensland Trend: exports rising, imports falling.

Export growth has been volatile throughout the course of the 1990s. In 1997-98, Queensland's non-ferrous metal exports stood at \$1,556.7 million, accounting for 11.8% of Australian exports. Exports have declined at an average annual rate of -3.1% from \$1,292.1 million in 1989-90 to \$1,556.7 million in 1997-98. This compares with an Australian growth rate of 4.1% over the same period, from \$9,409.3 million in 1989-90 to \$13,213.2 million in 1997-98. Queensland's imports have grown at an average annual rate of 11.7%, from \$18.6 million to a peak of \$38.1 million before receding to \$9.1 million in 1997-98. This reflects both fluctuations in international price and slow improvements in international competitiveness and is unlikely to change until productivity growth accelerates. Nonetheless, imports are virtually insignificant in Queensland and Australia.

Research and Development



Australian Trend: rising.

Research and development (R&D) expenditure has been rising during the 1990s. Queensland's level of R&D expenditure of \$62.3 in 1997-98 accounts for 66.2% of the Australian total of \$94.1 million. Over the five years to 1997-98, total Australian R&D for minerals processing increased by 32.4% per year, attributable largely to the massive one-off increase in 1995-96. The figures for Queensland are incomplete due to commercial confidentiality.

RELATED INDUSTRIES AND FLOW-ON BENEFITS

Approximately 90.5% of inputs for the Queensland minerals processing industry are domestically supplied with the other 9.5% supplied by imports.

DOMESTIC INDUSTRY VALUE CHAIN			
Queensland industries supplying inputs to this industry	% of Total Inputs	Queensland industries buying from this industry as inputs	% of Total Sales
Agriculture	0.1%	Agriculture	0.3%
Mining	72.1%	Mining	0.6%
- Non-ferrous metal ores	72.1%	Manufacturing	55.5%
- Other mining	0.0%	- Basic non-ferrous metal products	19.3%
Manufacturing	8.3%	- Iron and steel	7.1%
- Basic non-ferrous metals	6.4%	- Structural metal products	5.2%
- Petroleum and coal products	1.1%	- Sheet metal products	5.0%
- Basic chemicals	0.3%	- Fabricated metal products	3.9%
- Other manufacturing	0.5%	- Electrical/electronic equipment	3.5%
Services	10.1%	- Transport equipment & machinery	1.8%
- Property and business services	3.2%	- Other machinery and equipment	1.7%
- Electricity supply	2.4%	- Plastic products	1.6%
- Transport and storage	1.6%	- Other manufacturing	6.4%
- Wholesale trade	1.2%	Services	5.5%
- Other services	1.7%	- Construction	4.0%
		- Other Services	1.5%
% OF TOTAL INPUTS	90.5%	% OF TOTAL INPUT SALES	61.9%
INTERNATIONAL INDUSTRY VALUE CHAIN			
Interstate and foreign industries supplying inputs to this industry	% of Total Inputs	Interstate and foreign industries buying from this industry as inputs	% of Total Sales
Agriculture	0.0%	Agriculture	0.2%
Mining	0.7%	Mining	0.4%
- Non-ferrous metal ores	0.7%	Manufacturing	34.1%
Manufacturing	6.0%	- Basic non-ferrous metal products	11.9%
- Basic non-ferrous metals	3.9%	- Iron and steel	4.4%
- Petroleum and coal products	1.1%	- Structural metal products	3.2%
- Other manufacturing	1.0%	- Sheet metal products	3.0%
Services	2.8%	- Fabricated metal products	2.4%
- Water transport	2.1%	- Electrical/electronic equipment	2.1%
- Other services	0.7%	- Transport equipment & machinery	1.0%
		- Other manufacturing	6.1%
		Services	3.4%
		- Construction	2.5%
		- Other Services	0.9%
% OF TOTAL INPUTS	9.5%	% OF TOTAL INPUT SALES	38.1%

Adapted from QGSO, Input-Output Tables 1992-93; totals may not equal 100% due to rounding errors.

Based on employment multipliers for 1992-93, the minerals processing industry creates around 11 jobs in the Queensland economy for every extra million dollars of production. This compares with 18 jobs created by manufacturing as a whole from an extra \$1 million of production, 19 jobs for service industries and 13 jobs for mining.

KEY INDUSTRY ISSUES

- Minerals processing is a high energy intensive industry, requiring access to large amounts of relatively cheap electricity (electricity accounts for around 40% of operating costs in certain electrolytic minerals processing industries such as light metals manufacturing). Queensland presently ranks around the middle level among the States in terms of industrial electricity tariffs.

- Excess production in most classes of mineral commodities combined with slower industrial production growth caused by substantial over-capacity worldwide is likely to keep mineral prices depressed. International competition in minerals processing is fierce and likely to keep growth prospects in this sector subdued for the next five to ten years. This creates a difficult environment for Queensland's mineral processors, who are already facing significant declines in earnings.

INDUSTRY OUTLOOK

Minerals prices are expected to recover in the long-term once Asian industrial production slowly takes off again after the financial collapse in 1997/98. However, the prospects for slightly slower world economic growth combined with the impact of over-capacity in the minerals processing industry may dampen the recovery in minerals prices.

KEY FIRMS IN QUEENSLAND

Provided here is a list of major firms engaged in minerals processing in Queensland.

Firm	Employment	Turnover	Main Products	Export Markets
Mount Isa Mines Limited	5,000	Over \$100M	Refined copper, zinc concentrate, crude lead.	Europe, Asia, Japan, UK.
Queensland Nickel Pty Ltd	401	Over \$100M	Nickel metals, oxides, and compacts, nickel oxide granules and powder, chemical grade cobalt.	Asia, Europe and the UK.
Comalco Limited	3,800	Over \$100M	Calcinated bauxite, aluminium smelting (billets and ingots), smelter grade alumina, paper coating kaolin.	USA, Japan, Europe, Korea, South East Asia, China, New Zealand.
Queensland Alumina Limited	1,060	Over \$100M	Alumina.	USA, New Zealand.
Queensland Metals Corp Limited	161	n.a.	Deadburned, electrofused and calcinated magnesia.	European Union, USA, New Zealand.

Source: QINDIS database (, DSD)

Information provided on these firms is current as at mid to late 1998

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