

ONTARIO MINING: A HIGH-TECH PRODUCTIVITY POWERHOUSE

ECONOMIC CONTRIBUTION STUDY

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Accounting Professional Corporation
Chartered Accountants 248 Withrow Ave
Toronto, Ontario
M4K 1E4

With the assistance and co-operation of the Ontario Ministry of Northern Development and Mines

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EXECUTIVE SUMMARY

This report discusses the contribution of the mining industry to the overall Ontario economy. It interprets statistics gathered from Ontario Mining Association (OMA) member companies for 2004 and 2005 as well as from the OMA 2004 report, *The Economic and Fiscal Contribution of the Mining Industry in Ontario*, and from other official sources such as Statistics Canada, Industry Canada and National Resources Canada, the Toronto Stock Exchange (TSX Group), the Mines and Aggregates Safety and Health Association (MASHA) and the Ontario Ministry of Finance.

The data tells a story. Mining is a relatively small industry in Canada, the smallest for which Statistics Canada keeps separate economic and employment data. But it ranks third nationally (behind just finance and utilities) in labour productivity (\$GDP per labour hour). In 2005, each employee in the Ontario mining industry produced, on average, more than \$500,000 of mineral output, up 66% since 1999 (an almost 9% compounded annual growth rate). Mining pays well: Its average weekly earnings are the highest in Canada, and also in Ontario, when mine services companies, to which many mining companies have turned for highly experienced and skilled contractors, are included.

Mining in Ontario has been highly profitable in the past two years, owing to generally higher commodity prices and the above-noted productivity improvements, in 2005 posting over \$1.2 billion in earnings before taxes (a 30% pre-tax return on equity). This has fueled a strong rally in the stock market, where the market capitalization of TSX mining issues has ballooned to \$245 billion (June 2006). The top 10 issuers have grown 273% since 2002, through a combination of higher profits and business acquisitions.

But mining is a cyclical industry. Ontario companies cannot dictate world commodity prices and therefore must be low-cost producers to survive. Furthermore, capital investment is very high and must be done up-front, before production revenues are available. Ontario mining companies invested \$1.7 billion in 2005 in research, exploration, mine construction and equipment, up 87% from 2002 levels (Table 2).

Ontario's mining industry is a productivity powerhouse. It is a modern, high-tech, solution-providing industry that delivers benefits to all parts of Ontario that far outweigh the size of the industry relative to many others. It is an industry that believes in itself and in Ontario.

INTRODUCTION

This study was commissioned by the Ontario Mining Association to provide interested parties with relevant and current economic information about the contribution of mining to the Ontario economy. Its aim is to provide answers, with the supporting numbers, to the “who, what, where, when, how and why” questions often asked about the industry.

Data was collected from many sources, including Statistics Canada, the Ontario Mines and Aggregates Safety and Health Association (MASHA), and from a confidential questionnaire completed by OMA member companies. Additional data was obtained from public company web sites, Industry Canada, Natural Resources Canada, and the TSX Group. Most data sources are current to 2005, although in some cases, 2005 information is estimated. All figures are in Canadian dollars (C\$), unless otherwise indicated.

The information was analyzed along three major themes, each of which is discussed in detail in the chapters that follow:

- General trends (What, when and where mining is carried out in Ontario)
- Employment & productivity (Who is involved in the industry)
- GDP & taxes (How the industry is performing and why it matters to Ontario)

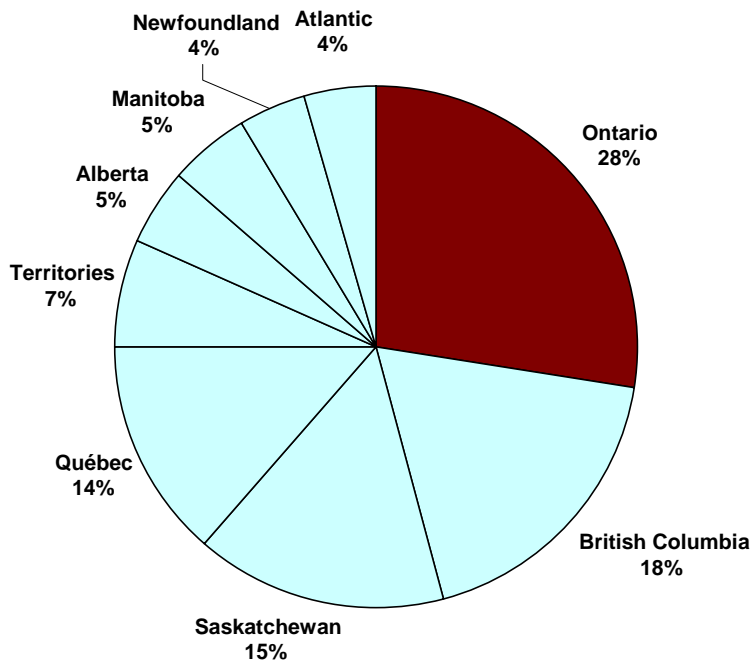
From this analysis can be seen the challenges faced by the industry and its outlook for the future in Ontario. These issues are discussed in the final chapter.

Chapter 1

What, When and Where – General Economic Trends in the Ontario Mining Industry

Mining has a long history in Ontario. Museum artifacts indicate that Aboriginals conducted mining activity in Ontario more than 11,000 years ago. Modern mining dates from the 1866 Madoc gold rush to the vast Sudbury Basin nickel deposits that were discovered during the building of the Canadian Pacific Railway in the 1880s. Soon, Ontario will also be a producer of gem quality diamonds near Attawapiskat. Ontario has a vast mineral endowment, embedded in the Canadian Shield and also in sedimentary deposits around the Great Lakes, including the world's largest underground salt mine. Today, as a province, Ontario is the largest single producer of most metallic and non-metallic minerals in the nation, producing almost 28% of Canada's total minerals by value in 2005 (Chart 1).

**Chart 1: Canadian Mineral Production
(2005 Share by Province)**



Source: NRCAN Statistics Online [http://mmsd1.mms.nrcan.gc.ca/mmsd/production/production_e.asp]

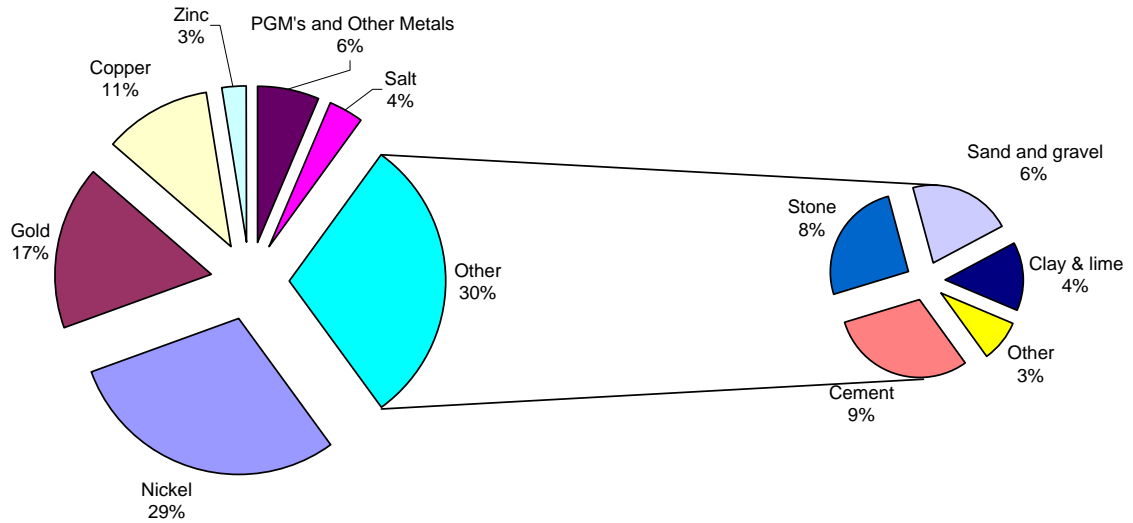
Almost two-thirds of this production value is in metals, principally nickel, gold, copper, platinum group metals and zinc (Table 1). But about 30% is quarried material used in construction, such as sand and gravel, cement, lime and clay products, as well as decorative stone (Chart 2).

Table 1: 2005 Value of Minerals Produced in Ontario

<i>(\$000s)</i>	2005	Canadian Total	% of Canadian Total	Canadian Ranking
Metals				
Nickel	2,116,342	3,302,465	64%	1
Gold	1,227,292	2,041,408	60%	1
Copper	797,484	2,454,802	32%	2
Platinum Group (PGM's) & other	358,802	420,060	85%	1
Zinc	182,875	998,208	18%	4
Cobalt	56,896	91,428	62%	1
Silver	52,460	299,269	18%	4
Iron Ore, Uranium & other o/s Ontario	0	3,700,979	0%	
Total Metals	4,792,151	13,308,619	36%	1
Salt				
	254,381	419,927	61%	1
Structural Materials				
Cement	658,822	1,691,025	39%	1
Sand and Gravel	463,376	1,165,047	40%	1
Stone	552,014	1,133,204	49%	1
Lime & Clay products	305,804	495,602	62%	1
Total Structural Materials	1,980,016	4,484,878	44%	1
Other Non-Metals				
Coal, Potash, Diamonds & other	188,591	8,143,561	2%	7
Total Minerals	7,215,139	26,356,985	28%	1

Source: NRCAN Statistics Online (http://mmsd1.mms.nrcan.gc.ca/mmsd/production/production_e.asp)

**Chart 2: What Gets Mined in Ontario
(2005 Estimated Production Value)**



Source: NRCAN Statistics Online (http://mmsd1.mms.nrcan.gc.ca/mmsd/production/production_e.asp)

Perhaps most importantly, this diversity of production is spread all over the province. Although the mines themselves are mostly in rural locations, many cities around the province host offices and technical service facilities, not to mention employee homes. By a variety of measures, approximately half the mining activity in Ontario occurs in the Sudbury Basin, with the remaining half spread more or less equally over the northeast, northwest and southern Ontario regions (Table 2 and Charts 3A, 3B & 3C). This trend has persisted for many years, however, the development of the Victor diamond mine near Attawapiskat (in northeastern Ontario) may soon alter this ratio.

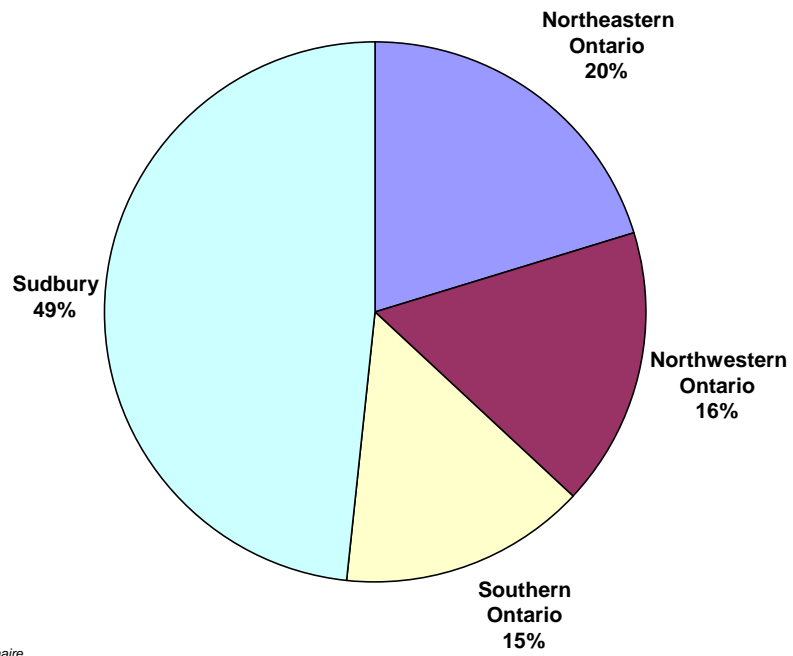
Table 2: Where the Ontario Mines Are

	# Employees	Payroll (\$ millions)	Property Taxes (\$ millions)
Northeastern Ontario	2,642	196	10
Northwestern Ontario	2,131	166	6
Southern Ontario ¹	1,916	262	3
Sudbury Basin	6,254	580	19
	12,943	1,204	38

Source: 2006 Industry Questionnaire (figures are 2004-2005 averages)

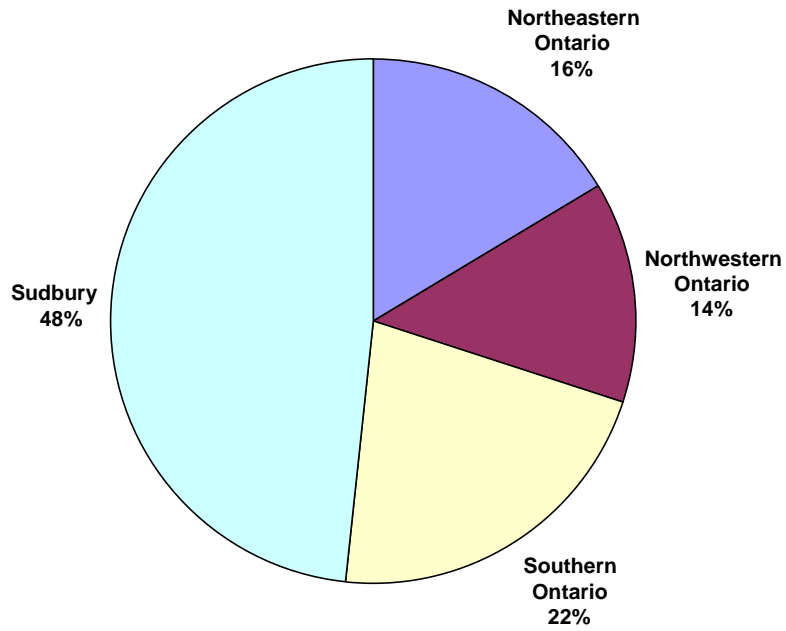
¹ The lower property tax percentage for southern Ontario reflects the fact that, included in this statistic are the corporate offices of many publicly traded mining companies, the property tax for which is generally buried in the rent they pay (and thus not counted in the statistics).

**Chart 3A: Where the Ontario Mines Are
(# Employees)**



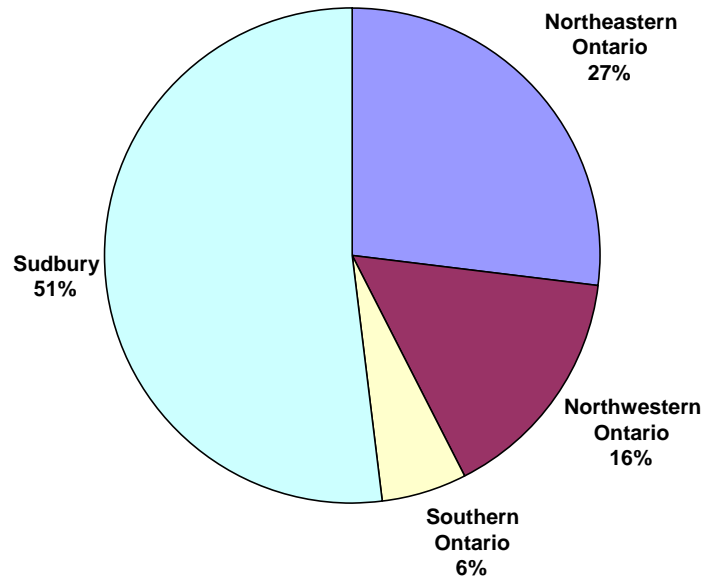
Source: 2006 Industry Questionnaire

**Chart 3B: Where the Ontario Mines Are
(\$ Payroll)**



Source: 2006 Industry Questionnaire

**Chart 3C: Where the Ontario Mines Are
(\$ Property Taxes)**



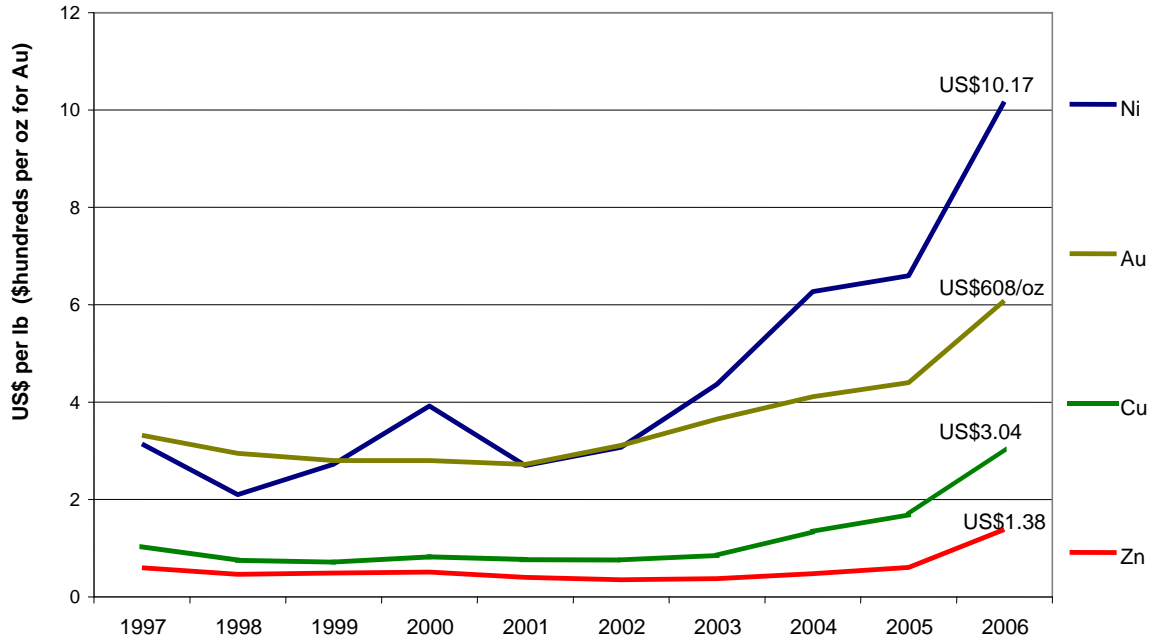
Source: 2006 Industry Questionnaire

Also noteworthy is the fact that the industry's aggregate payroll exceeds \$1.2 billion and that it pays over \$38 million per year in local property taxes to Ontario municipalities. However, these aspects are discussed in more detail in Chapters 2 and 3, respectively.

The mining industry has enjoyed rising prices for many of its commodities during the last five years (Chart 4A). This has coincided with a sustained decline in the value of the US dollar against most other currencies. Since most commodities are priced for the international market in US dollars, this inverse correlation is expected. However, the prices are also higher in Canadian dollars (Chart 4B).

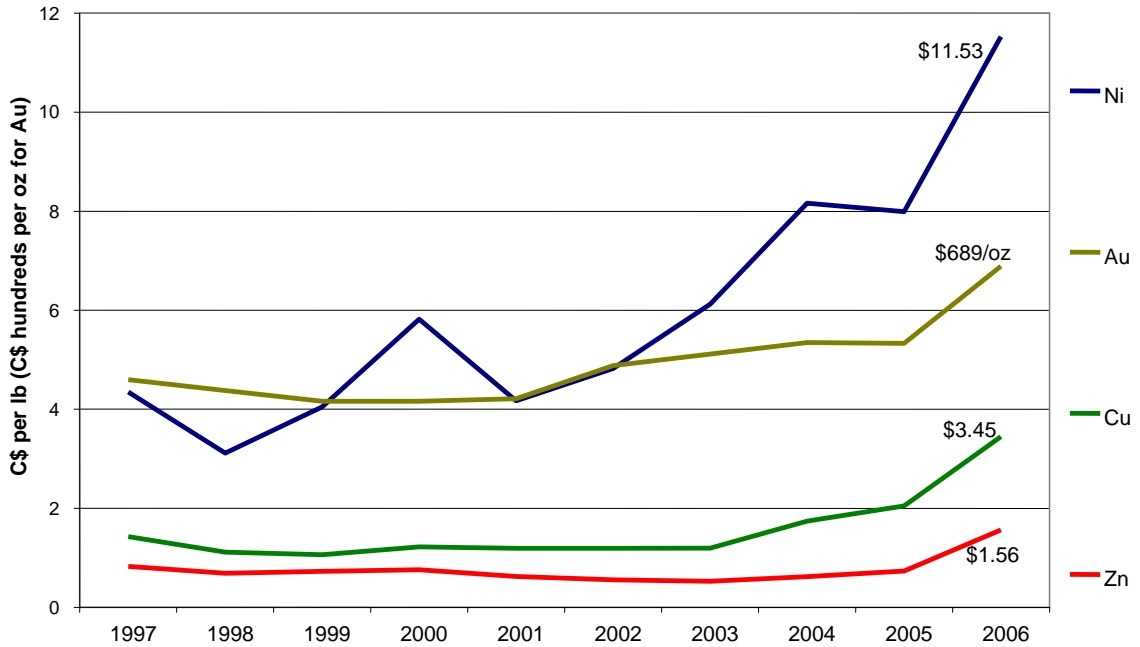
These cyclicalities are common in mining, which, like the oil and gas industry, is not able to set an independent "made in Canada" price for its output. Prices are set in an international market, reflecting global supply and demand. Selling price fluctuations are perhaps the single largest source of economic risk in the industry. This volatility is also reflected in the total value of Ontario mineral production over the past 30 years (Chart 5). Clearly, the recent upswing has come after 10 years of flat or declining production since the last peak (1989).

**Chart 4A: US Dollar Commodity Prices
For Ontario's Principal Metals**



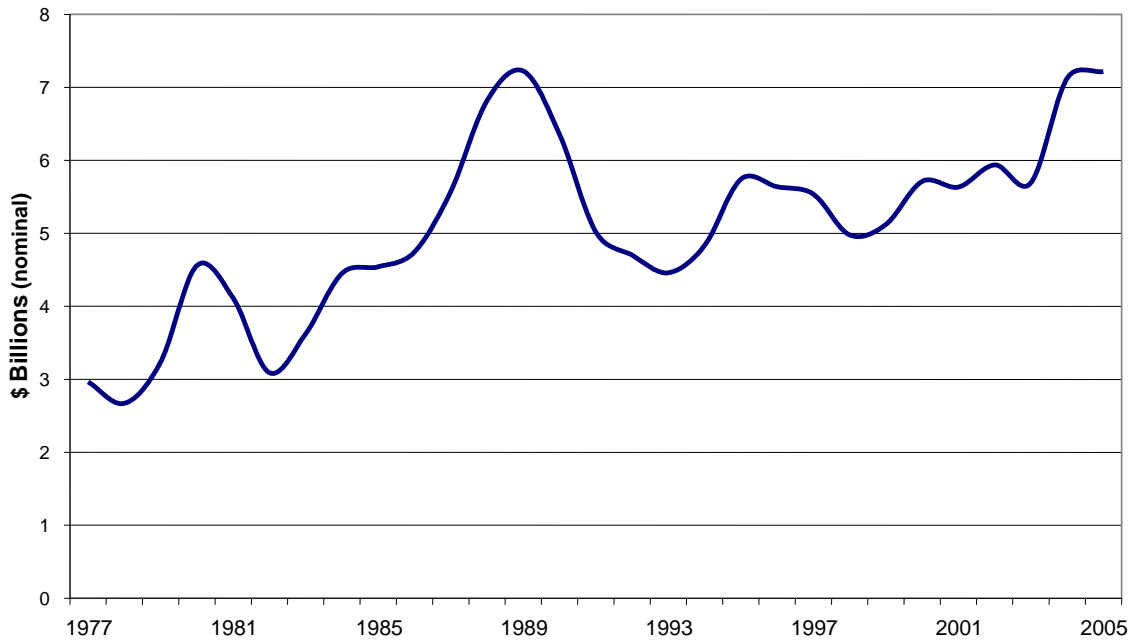
Sources: US Geological Service and London Metals Exchange

**Chart 4B: C\$ Commodity Price
For Ontario's Principal Metals**



Sources: US Geological Service, London Metals Exchange, and Bank of Canada

**Chart 5: Ontario Mineral Production
(30 Years)**



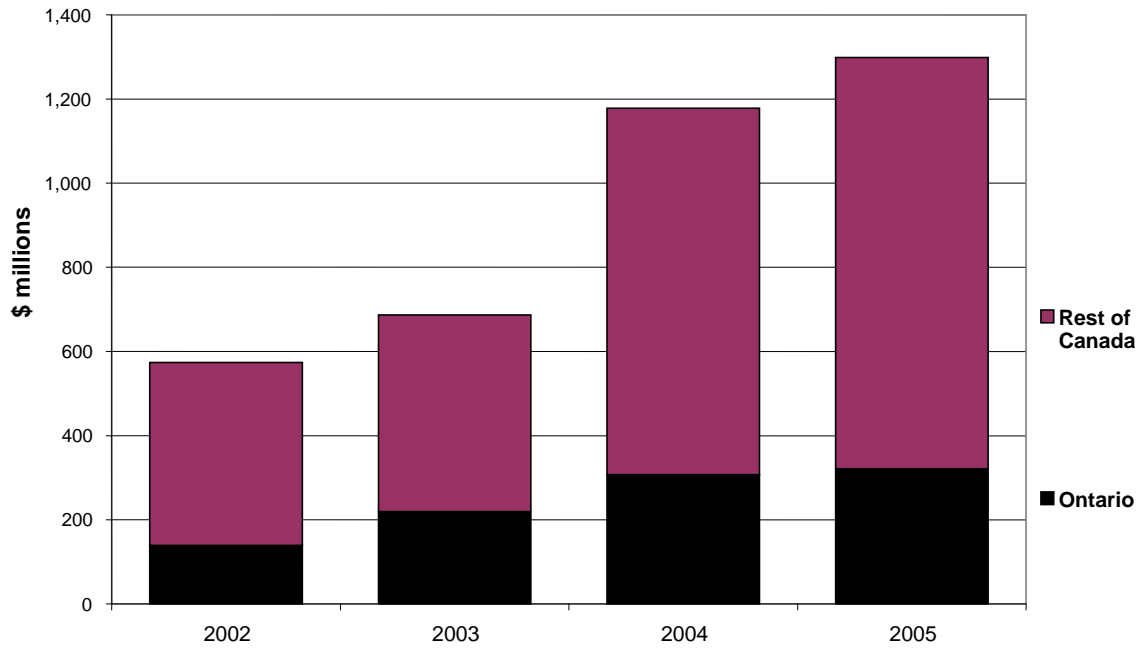
Source: http://mmsd1.mms.nrcan.gc.ca/mmsd/production/production_e.asp (2005 data is estimated)

Of course, no one knows where the prices will head next, but most analysts predict lower prices in the future. The recent high prices may have led to decisions to bring new mines into production around the world, providing a new source of supply that, in an efficient market like the mining industry, ought to bring prices down in the absence of stronger demand.

The recent higher price environment has also produced a surge in exploration activity in Ontario, which has more than doubled since 2002 (Chart 6A). As with mineral production, Ontario ranks first in Canada as a destination for mineral exploration, with a preliminary 2005 total of \$321 million (out of \$1.3 billion for all of Canada). The development of the Victor diamond mine has provided additional momentum and has led to an increase (to \$95 million) in the portion of exploration referred to as “deposit appraisal” (Chart 6B).²

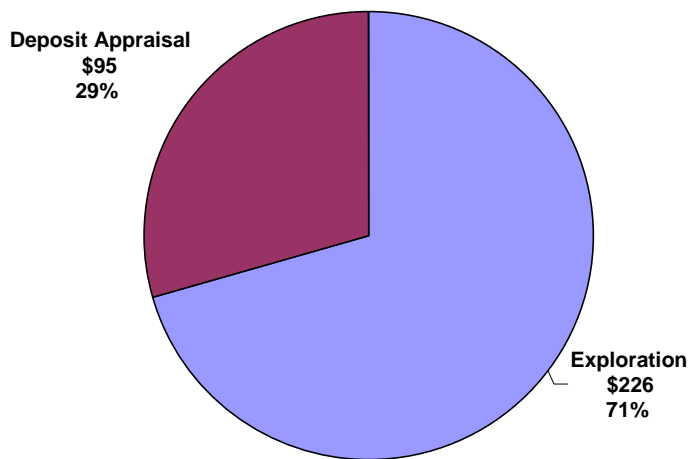
² Deposit appraisal is the “next step” once a mineral deposit has been discovered, and is perhaps a better indicator of geological promise. Ontario’s share of 2005 Canada-wide deposit appraisal spending was 38% (\$95 million out of \$250 million).

Chart 6A: Ontario Exploration Spending



Source: NRCAN http://mmsd1.mms.nrcan.gc.ca/mmsd/exploration/byprovx_e.htm

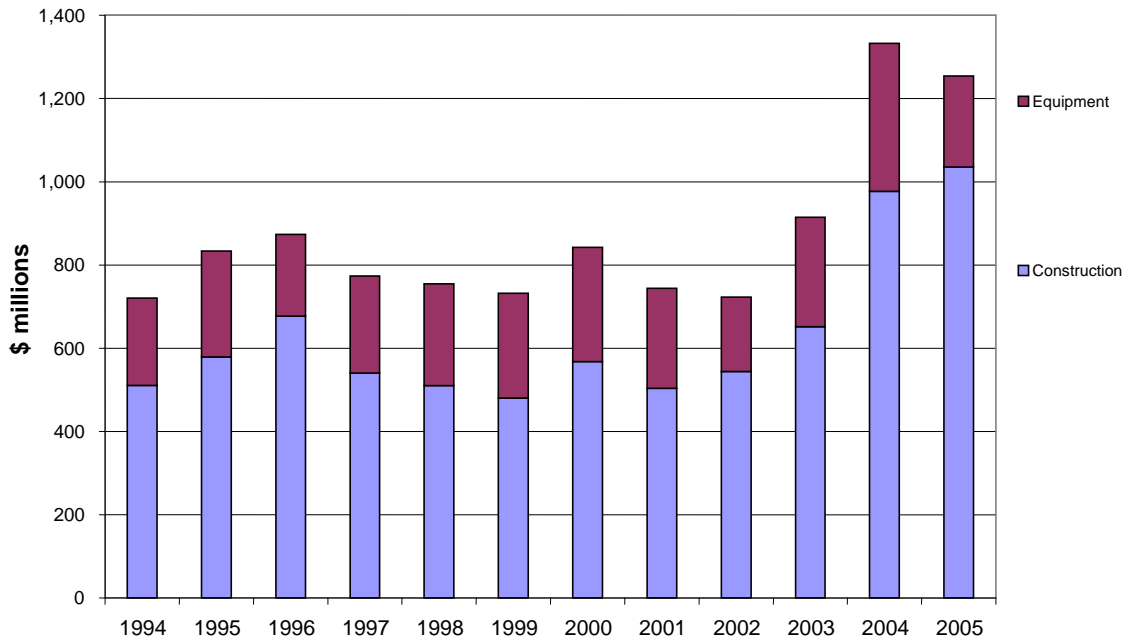
**Chart 6B: Ontario Exploration Breakdown
(\$ Millions/Year in 2005)**



Source: NRCAN http://mmsd1.mms.nrcan.gc.ca/mmsd/exploration/byprovx_e.htm

Another critical economic characteristic of mining is the need for up-front capital investment, typically in the absence of direct project revenues. Not only exploration, but also mine development, construction, plant and equipment costs must all be incurred before any substantive mineral output can be produced. After being relatively stable for a decade, the annual investment in mine construction and equipment in Ontario has almost doubled since 2002, from \$723 million to \$1,254 million in 2005 (Chart 7).³

Chart 7: Capital Expenditures - Mining (Ontario)



Source: Statistics Canada CANSIM #029-0005

Total capital investment in Ontario mining, including research, exploration, construction and equipment, was \$1,684 million in 2005 (Table 3) and has grown 87% since 2002 (Chart 8). To some extent, this reflects higher prices for these mine inputs, which are in high demand around the world and for which shortages have been reported. But in general, this increase reflects renewed interest in mining in Ontario, including the re-commissioning of old mines as well as new “green fields” projects.

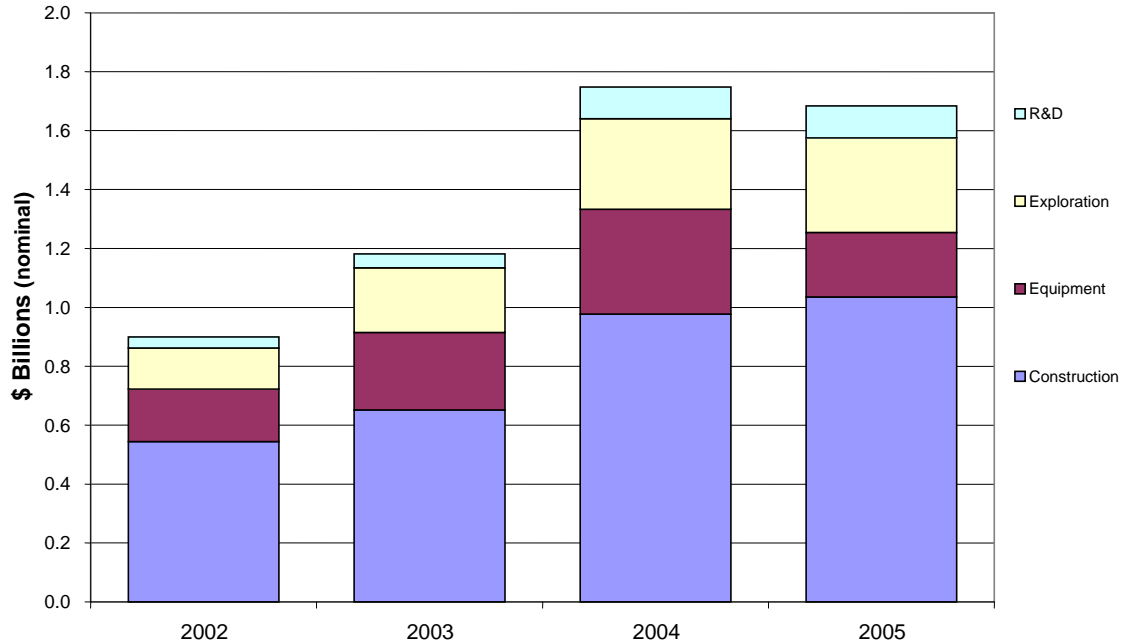
Table 3: Capital Investment by the Ontario Mining Industry

(\$ millions)	2002	2003	2004	2005
Construction	544	652	977	1,035
Equipment	179	262	356	219
Exploration	139	219	307	321
R&D	38	47	108	109
Total capital investment	900	1,180	1,748	1,684

Sources: see Chart 8

³ 2006 “spending intentions” are, in fact, more than double the 2002 figures.

**Chart 8: Total Capital Investment
(Ontario Mining Industry)**



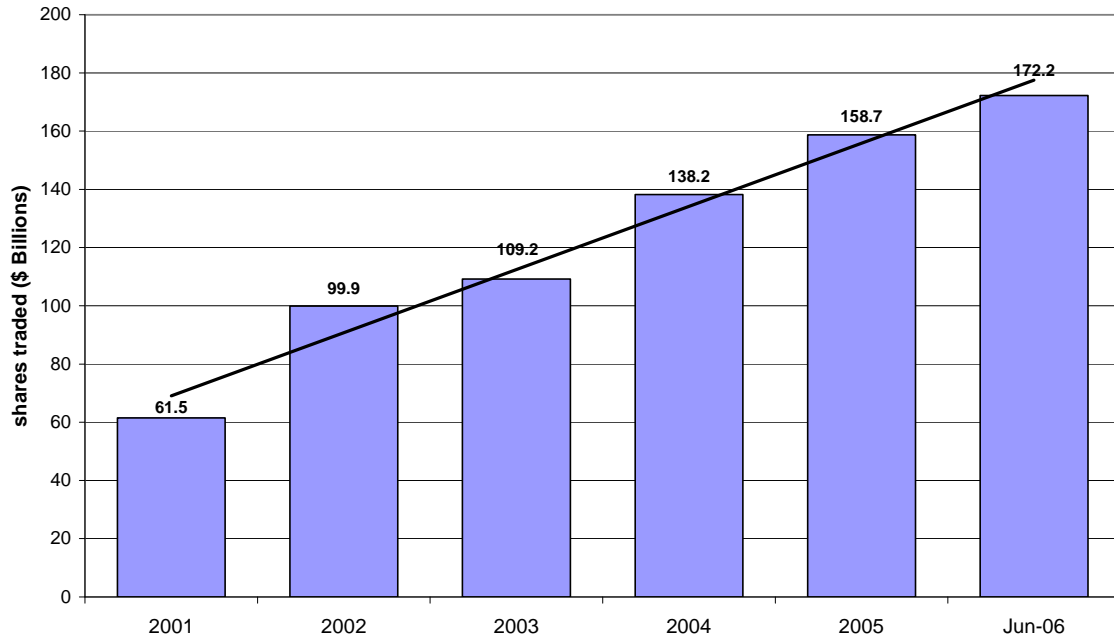
Sources: 2006 Industry Questionnaire, 2004 OMA report: "The Economic and Fiscal Contribution of the Mining Industry in Ontario", Statistics Canada CANSIM #029-0005 & NRCAN http://mmsd1.mms.nrcan.gc.ca/mmsd/exploration/byprovx_e.htm

Because of the afore-mentioned price risks and the up-front nature of the capital investment, most mining companies are not typically able to borrow the substantial sums necessary to finance new projects.⁴ This capital has to be raised in the equity markets. Toronto is the world's largest mining finance centre and most of the capital for new mining projects in Ontario is raised through equity offerings on the Toronto Stock Exchange (TSX). The trading volumes for TSX-listed mining stocks have shown a steady up-trend since 2001 (Chart 9) along with the market capitalization (Chart 10), which reached \$245 billion in June 2006 (Chart 11). A further \$26 billion in market capitalization trades on the TSX Venture Exchange, 90% of which are small exploration companies.⁵ Much of the money raised in Ontario is being invested in Ontario, so the Ontario economy benefits from the mining finance business as well as the mines themselves.

⁴ Companies with significant existing operations are able to use debt financing for a portion of their new projects. This results in the approximately 1:1 debt-equity ratio in the combined financial statements (Appendix 1). 90% of this debt arises from just 5 of the 23 questionnaire respondents.

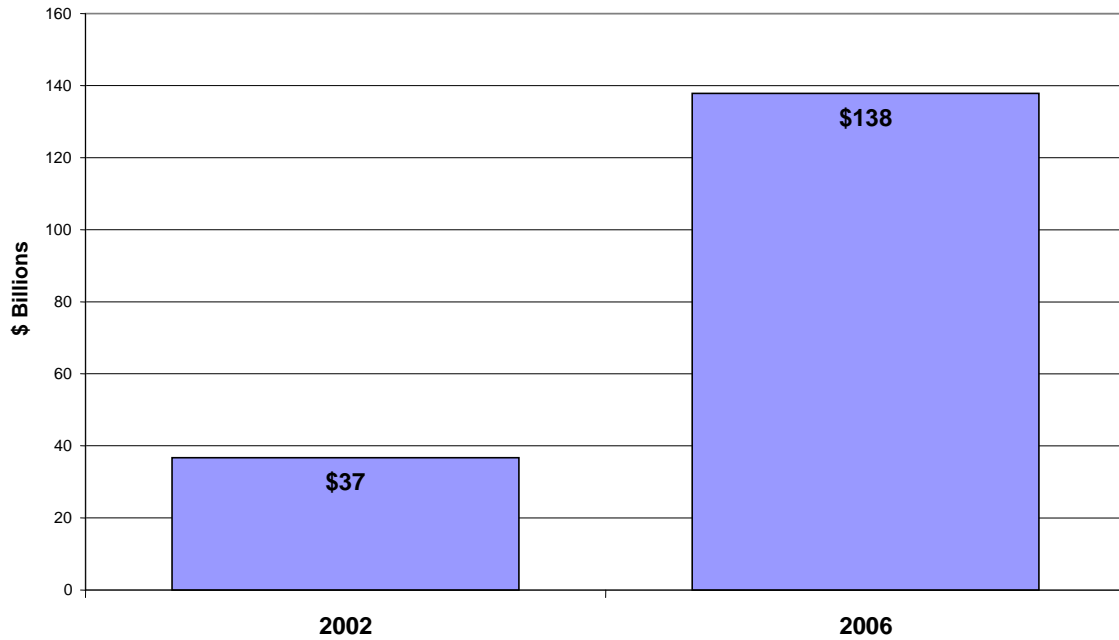
⁵ "Small" in this context means under \$50 million market capitalization.

**Chart 9: Trading Volume for Mining Issuers
TSX Listings**

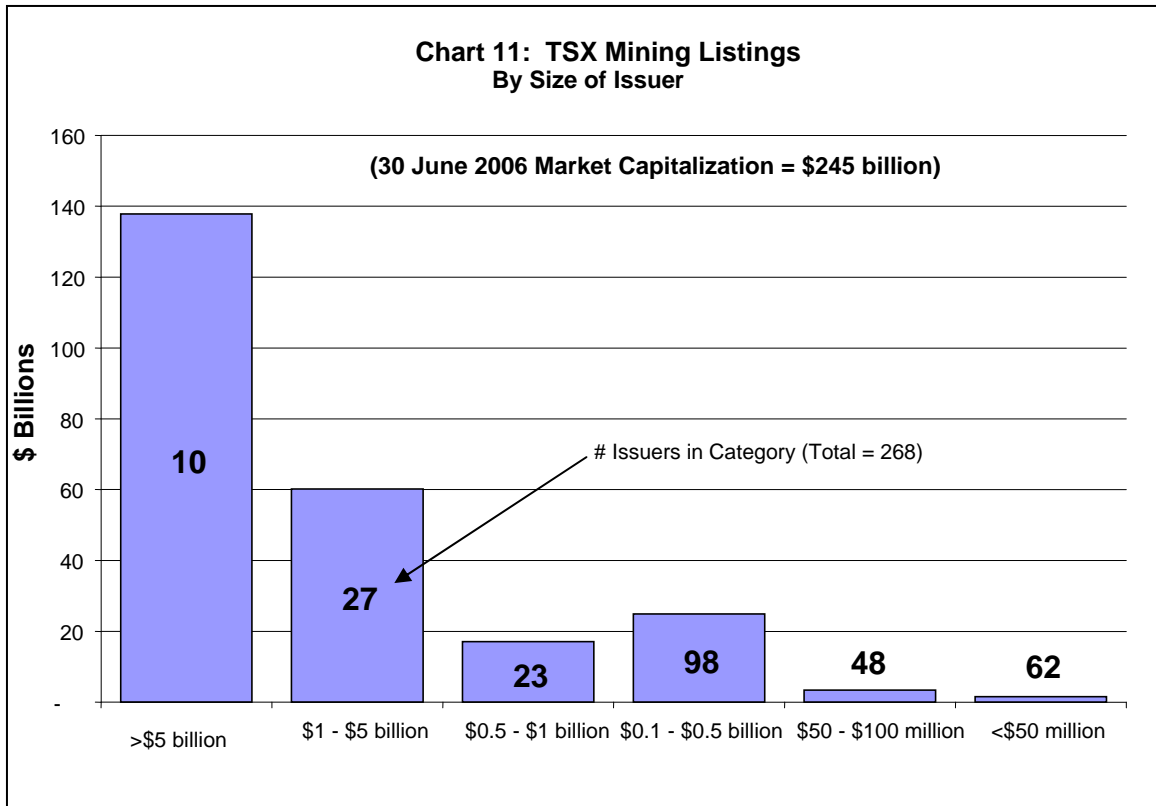


Source: TSX Group

**Chart 10: TSX Market Capitalization
Top 10 Mining Issuers**

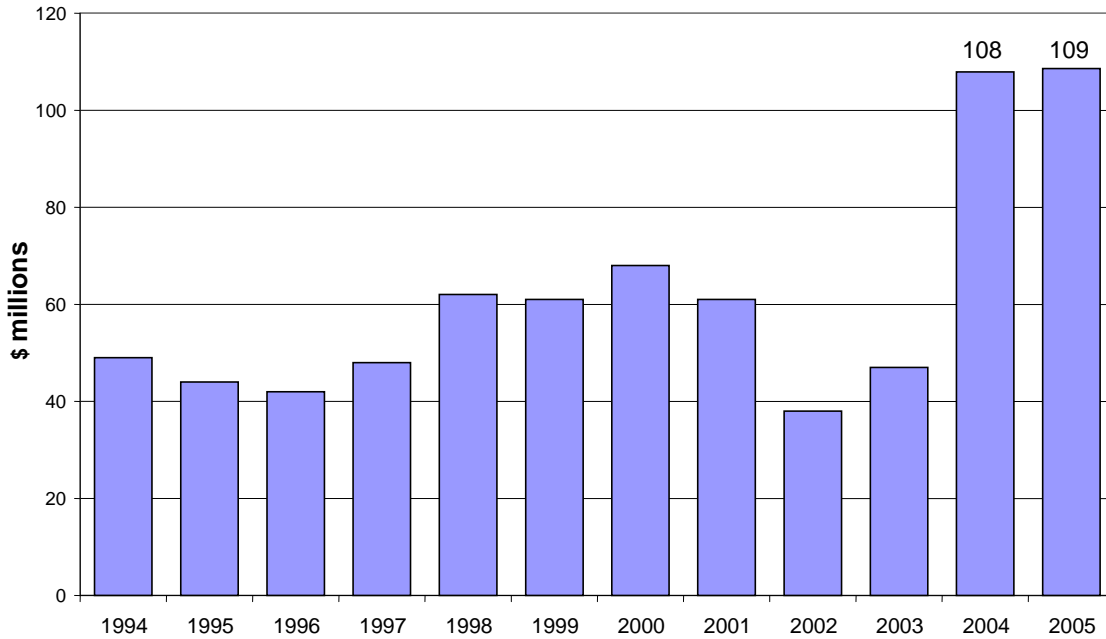


Sources: TSX Group & SEDAR.com



Since mineral producers cannot set their own prices, once in production the goal is to be the lowest cost producer, through high productivity and minimal overhead. During cyclical downturns in commodity prices, many producers are forced to make significant cost reductions, in order to keep the mines operating. Although this often involves job losses, another result is innovative new methods for production, and migration to new technologies that increase output per employee. Often, spending on research and development (R&D) increases during these downturns, as was evident in the period 1998 – 2000 (Chart 12). However, even with the recent higher prices, R&D spending has grown to record levels, indicating that the industry is continuing to strive for better ways to do its work, even in the absence of a price squeeze. As with mining finance, much of this technical research is done in southern Ontario, again illustrating that the mining industry is truly province-wide in its economic impact.

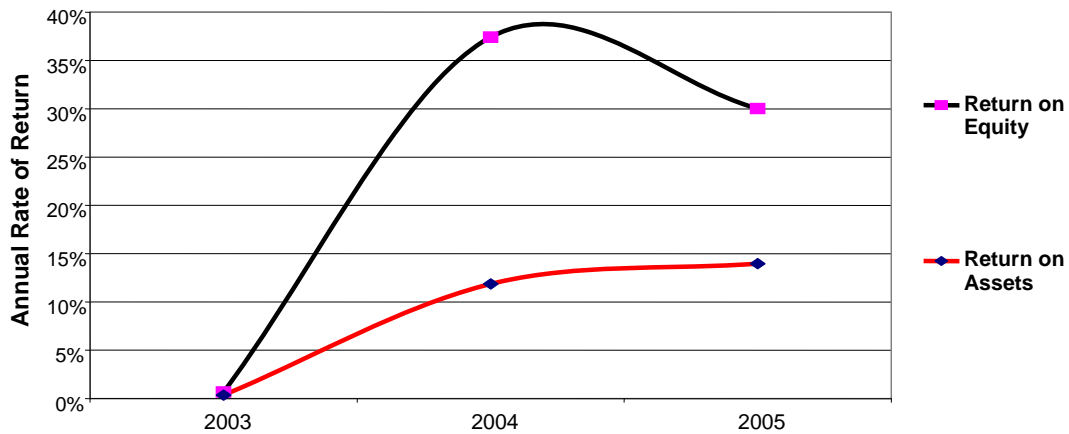
Chart 12: R&D Spending by the Ontario Mining Industry



Sources: 2006 Industry Questionnaire and 2004 OMA report: "The Economic and Fiscal Contribution of the Mining Industry in Ontario"

The current financial position of the Ontario mining industry is presented in the combined financial statements (Appendix 1) compiled from the confidential members' questionnaire. Noteworthy is the net increase in total assets of almost \$2 billion in 2005 and the high return on investment for both 2004 and 2005 (Chart 13). The industry has gone from a break-even position in 2003 to record pre-tax income in both 2004 and 2005. Income tax expense was not included in the income statement since questionnaire responses in most cases did not include corporate-level costs such as income taxes.⁶

Chart 13: Financial Performance (Ontario Mines)



Sources: 2006 Industry Questionnaire and 2004 OMA report: "The Economic and Fiscal Contribution of the Mining Industry in Ontario" (Figures are pre-tax, see also Appendix 1)

⁶ Balance sheet deferred taxes as shown may also be incomplete.

Chapter 2

Who is Involved in Mining – Employment & Productivity Trends

Mining in Ontario employs over 14,000 individuals directly, and mine service companies employ a further 5,000. However, mining is the smallest industry for which employment statistics are kept at the national level and its employment levels have only recently increased after years of decline. As discussed in Chapter 1, the cyclical nature of mining often leads to layoffs during periods of low commodity prices. However, Ontario has maintained its share of Canada-wide mining employment (30%) throughout the period 1994 – 2005 (Table 4). In particular, Ontario's share of metals miners (42%) ranks first in Canada, and has been increasing since 2000.

Table 4: Employment in the Mining Industry

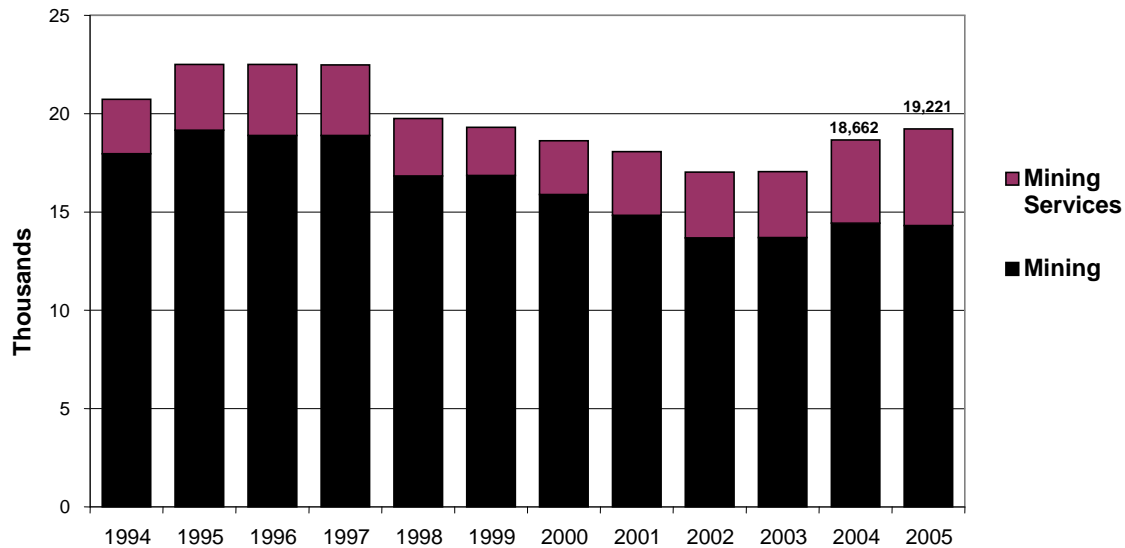
Number of Employees	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Mining												
Canada	61,160	62,536	60,764	64,337	60,090	57,353	56,698	51,213	48,172	47,928	47,706	47,394
Ontario	17,960	19,157	18,890	18,893	16,833	16,859	15,887	14,834	13,679	13,700	14,429	14,305
Ontario's share	29.4%	30.6%	31.1%	29.4%	28.0%	29.4%	28.0%	29.0%	28.4%	28.6%	30.2%	30.2%
Metals Ore Mining												
Canada	31,901	32,830	32,904	35,511	32,354	29,555	29,468	25,633	22,995	22,496	22,091	21,021
Ontario	13,603	13,865	14,132	14,196	12,271	11,987	10,881	9,789	8,471	8,362	8,859	8,918
Ontario's share	42.6%	42.2%	42.9%	40.0%	37.9%	40.6%	36.9%	38.2%	36.8%	37.2%	40.1%	42.4%

Source: Statistics Canada CANSIM #281-0024

A noteworthy trend is the increase in mine services employment (Chart 14).⁷ This includes contract miners as well as drilling companies and other consultants not directly employed by mineral producers. Their numbers have almost doubled since 1999, indicating the outsourcing of specialized mining jobs. Employers across Canada have seen efficiencies from outsourcing certain skilled positions and this national trend has clearly been embraced by the mining industry.

⁷ Mine services employment includes oil & gas industry services. However, the oil & gas component in Ontario is not statistically significant.

Chart 14: Employment in the Ontario Mining Industry



Source: Statistics Canada CANSIM#281-0024

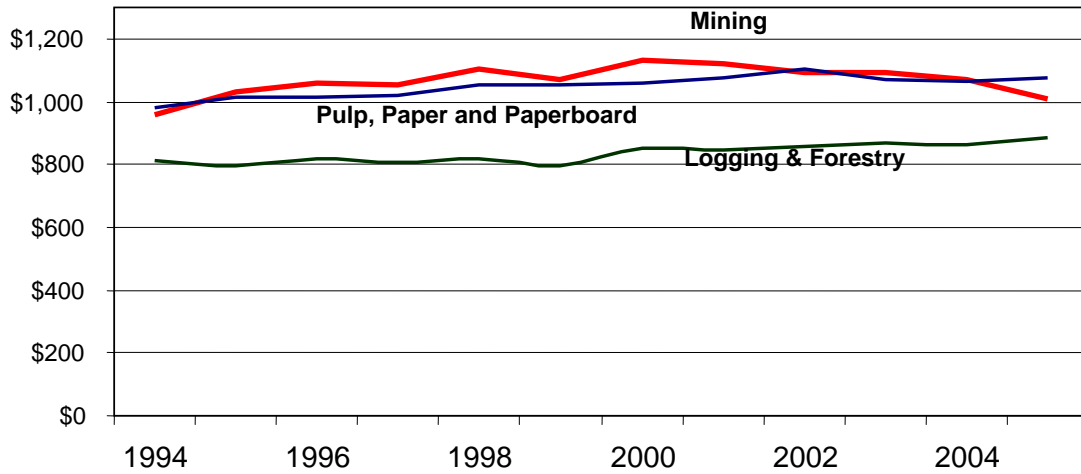
Table 5: 2005 Average Weekly Earnings for Selected Ontario Industries

Sector	Average Weekly Earnings
Services Incidental to Mining and Oil & Gas	\$1,360
Pulp, Paper and Paperboard	\$1,074
Mining	\$1,008
Manufacturing	\$956
Construction	\$927
Logging and Forestry	\$887
All Industries	\$769

Source: Statistics Canada CANSIM#281-0027

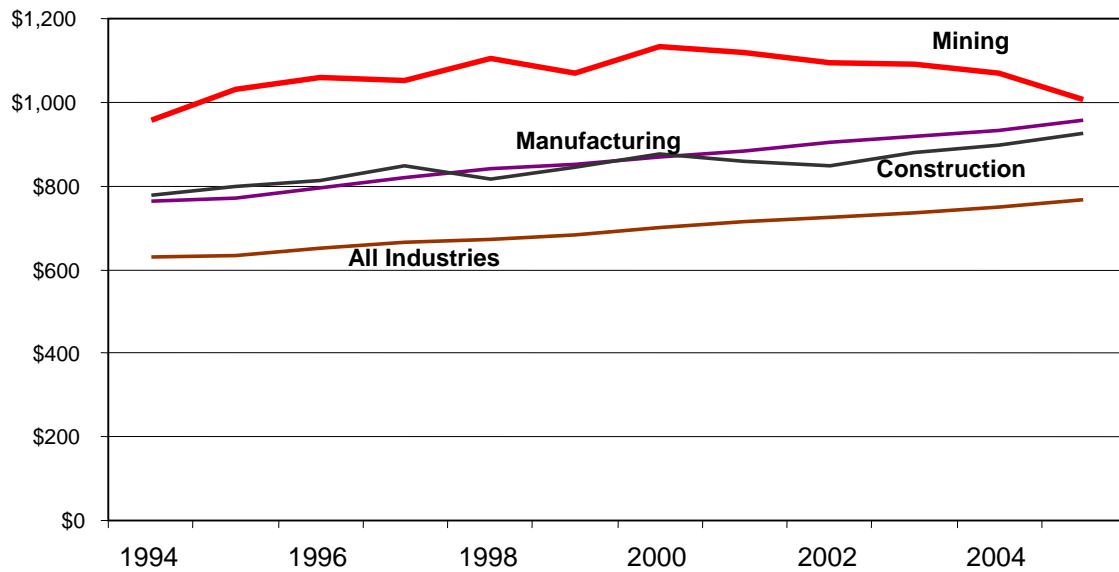
Jobs in the mining industry have been, and continue to be, among the highest paid of all industries in Ontario (Table 5), approximately 50% above the industry-wide average. This is especially true of the mine services jobs, reflecting the specialization and training required of such positions. As more of these highly skilled jobs are outsourced, the average wage of “mining” positions naturally drops. Hence the convergence of wage levels for mining and other resource-based sectors (Chart 15) as well as other major Ontario sectors (Chart 16). Nevertheless, when mine services wages are included in the analysis, the historical premium paid to miners persists both in Ontario (Chart 17) and Canada-wide (Chart 18).

**Chart 15: Average Weekly Earnings (Ontario)
Mining vs. Other Resources-Based Industries**



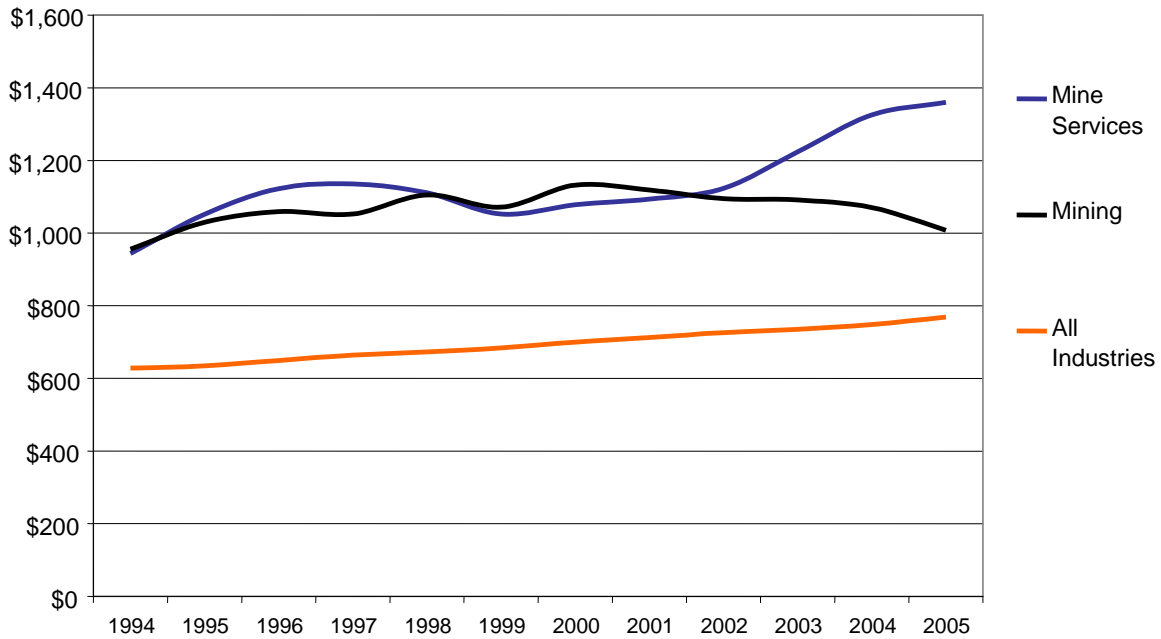
Source: Statistics Canada CANSIM #281-0027

**Chart 16: Average Weekly Earnings (Ontario)
Mining vs. Major Ontario Employers**



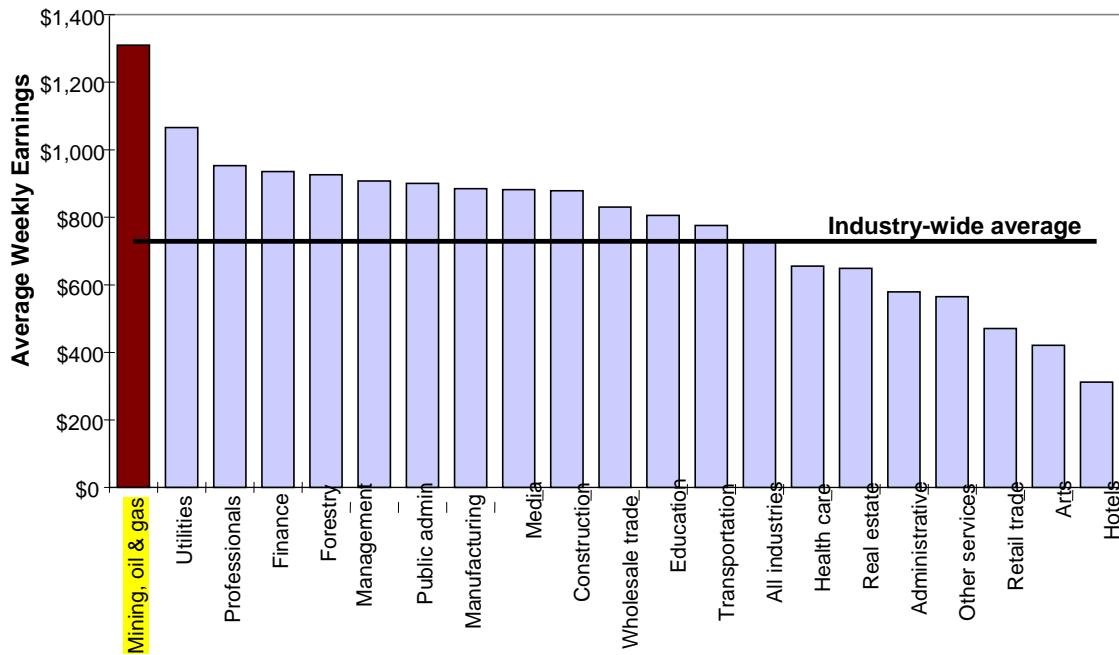
Source: Statistics Canada CANSIM #281-0027

Chart 17: Average Weekly Earnings 1994 - 2005 (Ontario)



Source: Statistics Canada CANSIM#281-0027

Chart 18: Which Industry Pays the Most (2005 Canada-Wide)

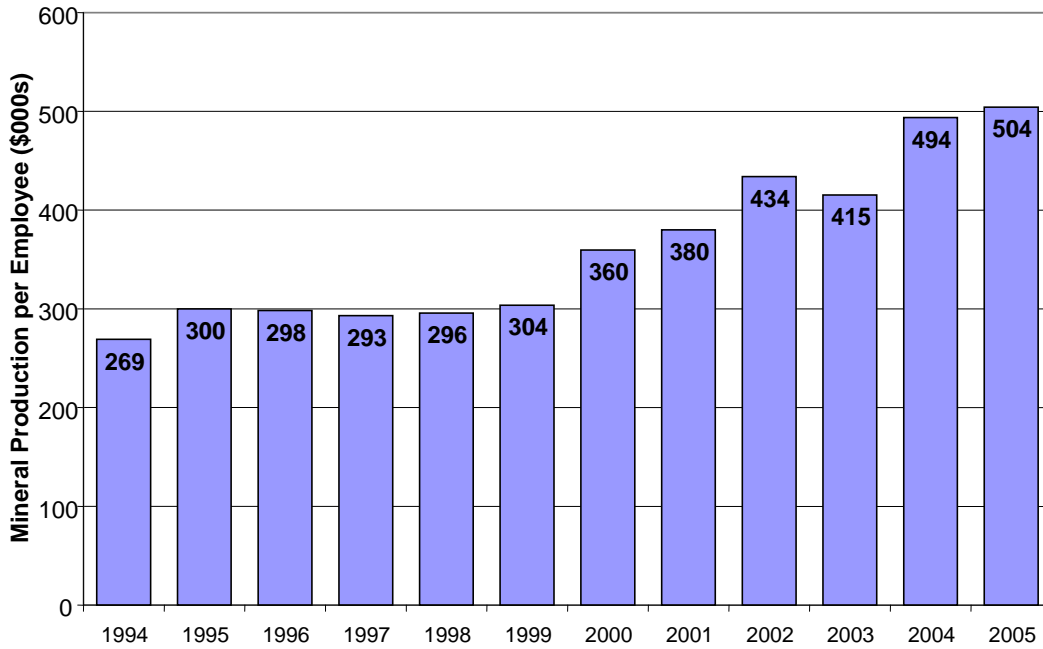


Source: Statistics Canada Online Tables [<http://www40.statcan.ca/0101/cst01/labr73a.htm>]

In other words, although total employment in the industry has been flat or declining over the past decade, the value placed on these employees has continued to rise. This high value has also

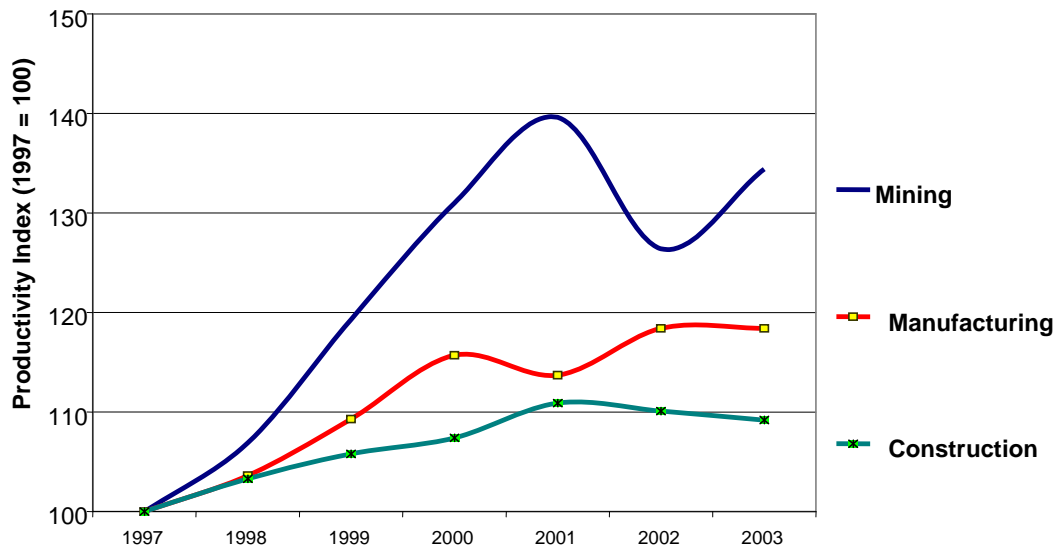
translated into significant productivity improvements in recent years. The value of mineral production per employee has increased, on average, by 7% each year since 1994 (Chart 19). Since 1999, productivity is up 66%, an almost 9% compounded annual growth rate. This growth rate is higher than both manufacturing and construction (Chart 20), which are much larger employers in the Ontario economy. Because of these recent improvements, mining now ranks third Canada-wide in hourly productivity (Chart 21).

Chart 19: MINING PRODUCTIVITY
Output per Employee



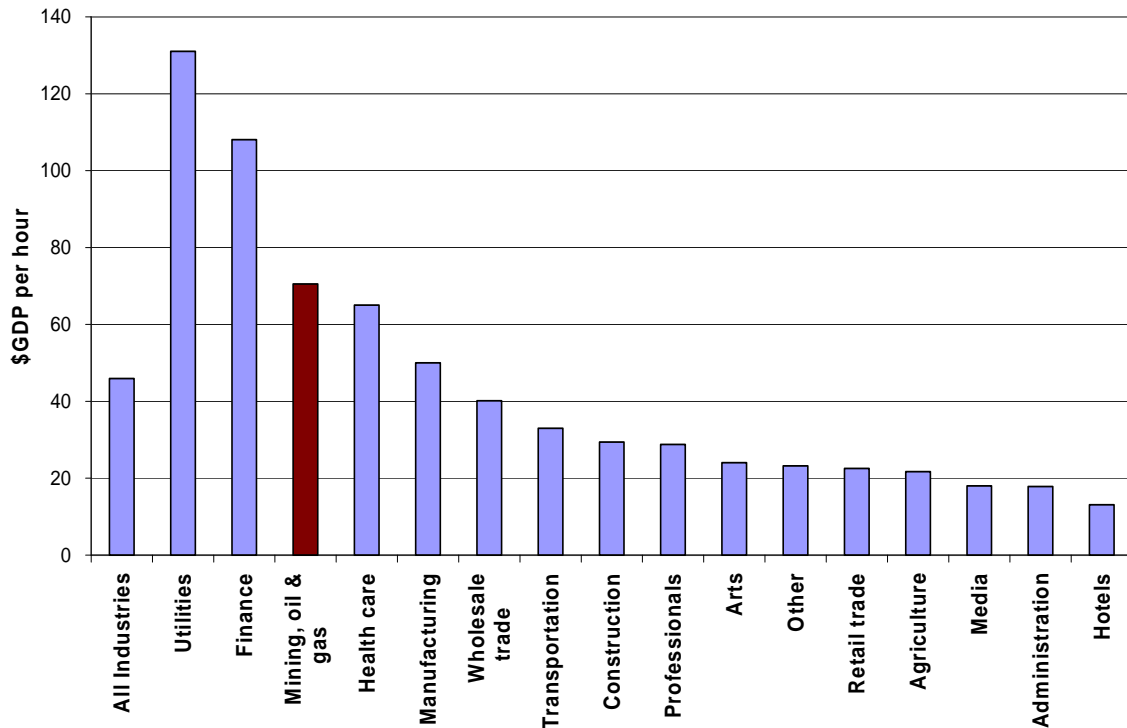
Source: NRCAN Statistics Online [http://mmsd1.mms.nrcan.gc.ca/mmsd/production/production_e.asp] & Chart 3

Chart 20: Productivity Growth
Selected Industries (Canada-Wide)



Source: Statistics Canada CANSIM #383-0013

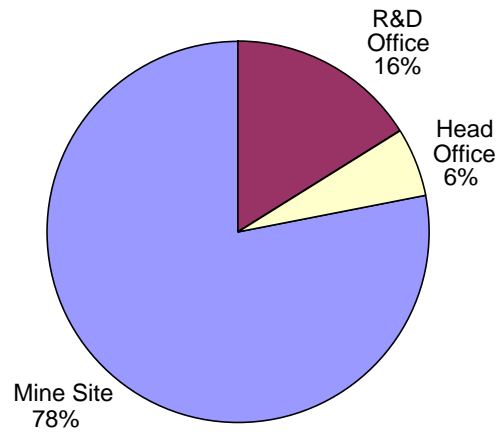
**Chart 21: Productivity by Industry
(Canada-Wide)**



Source: Statistics Canada CANSIM #383-0010 & 379-0025

Mining (and oil & gas) workers generate over \$70.50 per hour in GDP (2004-2005 average), more than 50% above the all-industry average of \$46 (Chart 21). Since 2002, higher commodity prices have helped, but mining industry productivity has been increasing steadily since 1994, a period which includes many years of declining prices. Thus, higher prices alone do not explain the improvements in productivity. In fact, the industry's productivity improvements have come about through investments in research and development of new equipment and processes that allow workers to produce more per hour than ever before. Although the vast majority of mining employees work at the mine site, a significant number are also employed in research labs (Chart 22).

Chart 22: What Types of Jobs are in the Ontario Mining Industry

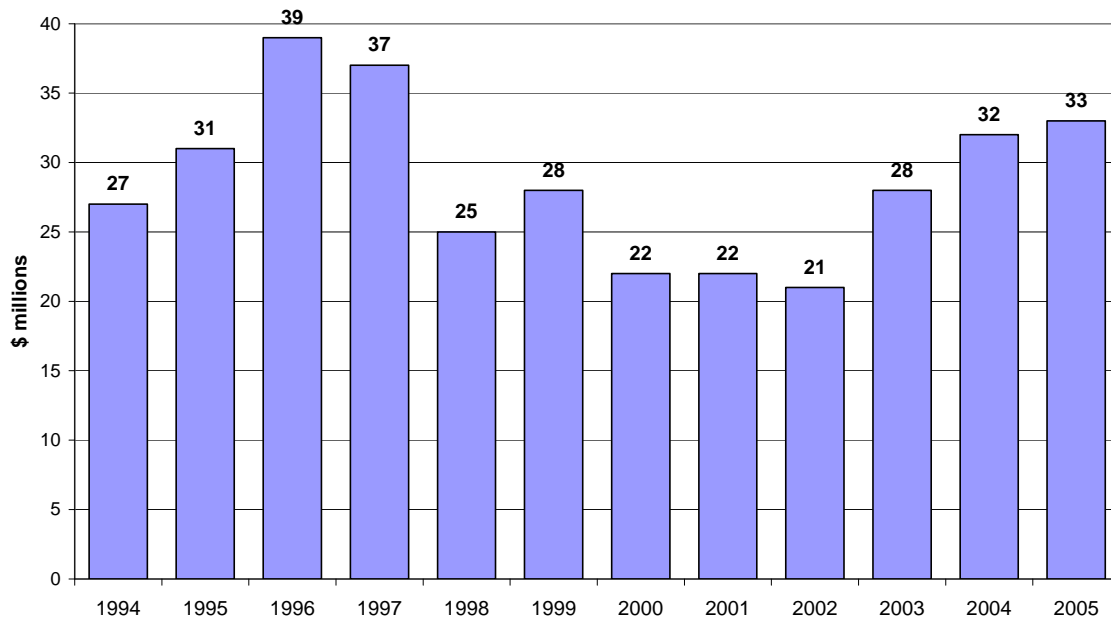


Source: 2006 Industry Questionnaire

Workers are also trained better, both before they start working and throughout their careers (Charts 23 & 24). This has led to fewer accidents and lost-time injuries over the past 12 years (Charts 25 & 26). Both these trends help productivity for the industry and show that investments in training pay off for both employers and employees.

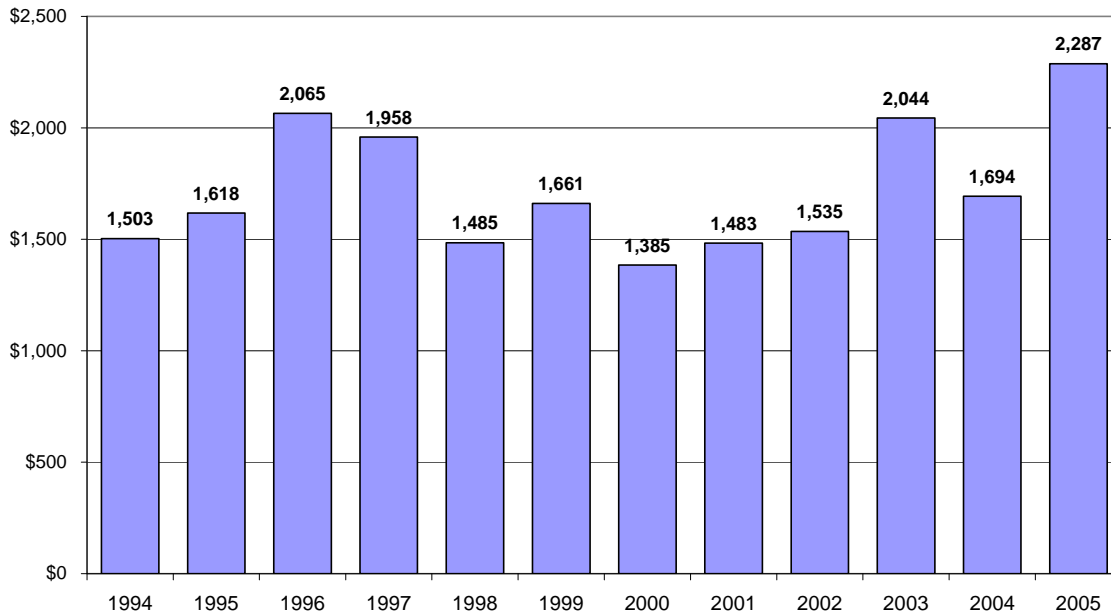
Overall, employees in the Ontario mining industry are safe, highly skilled, highly paid and highly productive.

Chart 23: Safety Training Expenditures by the Ontario Mining Industry



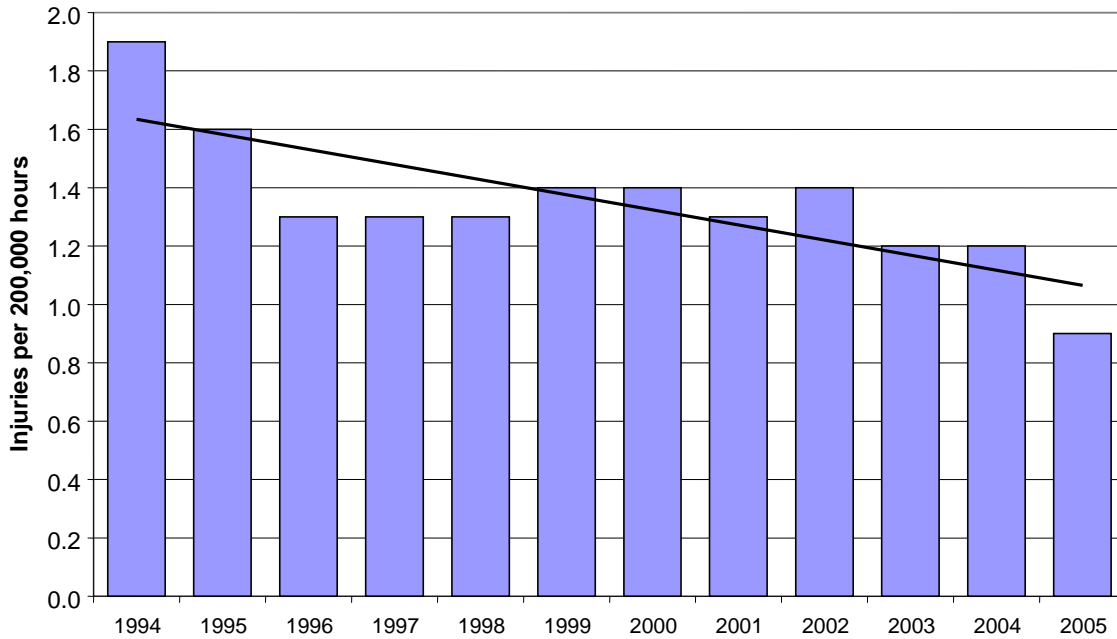
Sources: 2006 Industry Questionnaire and 2004 OMA Report: "The Economic and Fiscal Contribution of the Ontario Mining Industry in Ontario"

Chart 24: Safety Training Expenditures by the Ontario Mining Industry (per Employee)



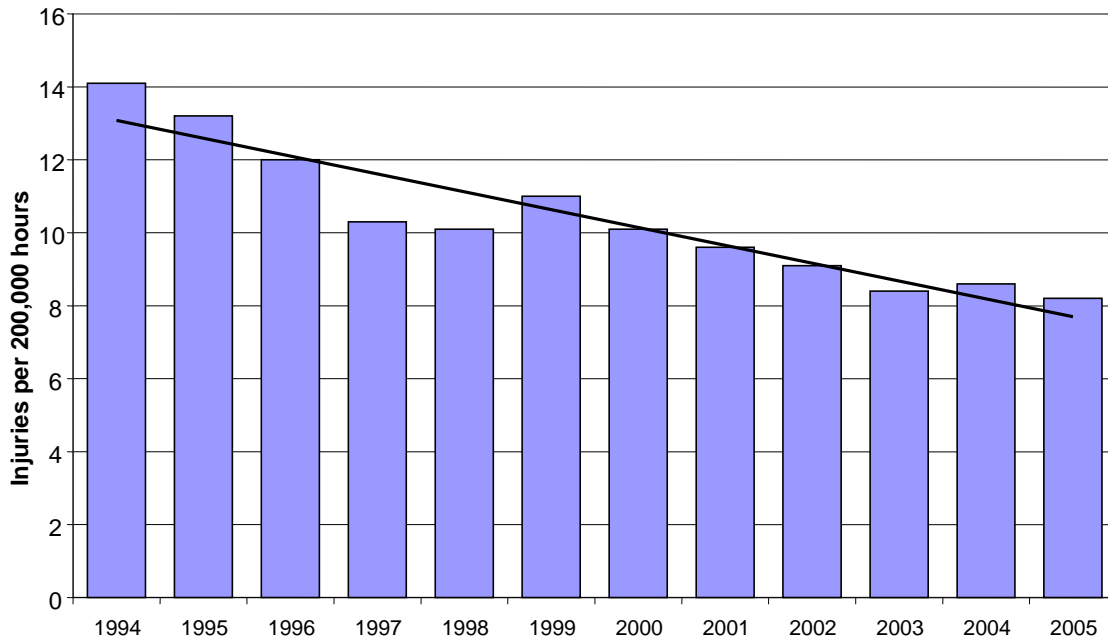
Sources: 2006 Industry Questionnaire and 2004 OMA Report: "The Economic and Fiscal Contribution of the Ontario Mining Industry in Ontario"

Chart 25: Lost-Time Injuries at Ontario Mines



Source: MASHA Database

Chart 26: Total Medical Injuries at Ontario Mines



Source: MASHA Database

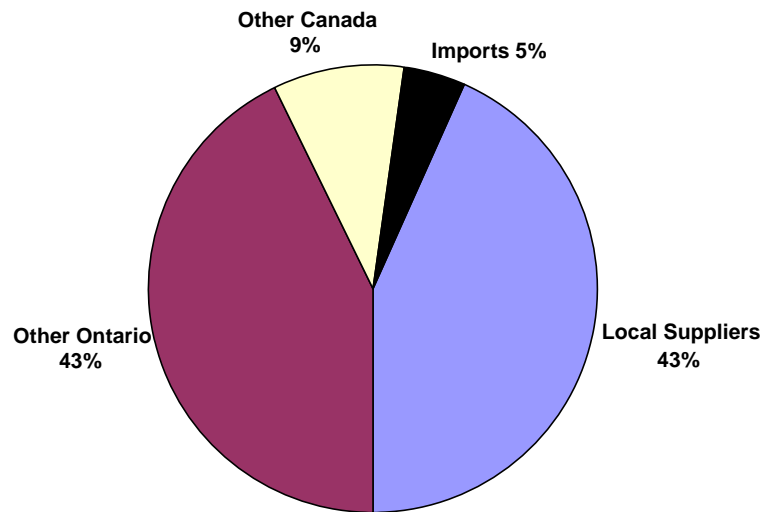
Safety training has helped reduce both serious (lost-time) and total medical injuries in the mining industry to 0.9 and 8.2 per 200,000 hours, respectively, in 2005. This continues the steady downward trend in these accident rates over the past 12 years.

Chapter 3

How and Why Mining Matters to Ontario – GDP & Tax Impacts

As noted earlier, mining takes place all over the province of Ontario (Charts 3A, 3B & 3C on pages 10-11), and it especially affects local communities that are near the mine sites. This makes the decision to develop a new mine a major event for any nearby city. The recent decision by DeBeers Canada to develop the Victor diamond mine near Attawapiskat on James Bay has made Timmins a major procurement centre for the almost \$1 billion capital project.⁸ Many of the economic effects of mining are felt locally. Procurement in general is estimated to be sourced over 40% from local suppliers (Chart 27), and the total value of goods and services procured within 80 kilometres of mine sites in Ontario has more than doubled since 2001 (Chart 28).

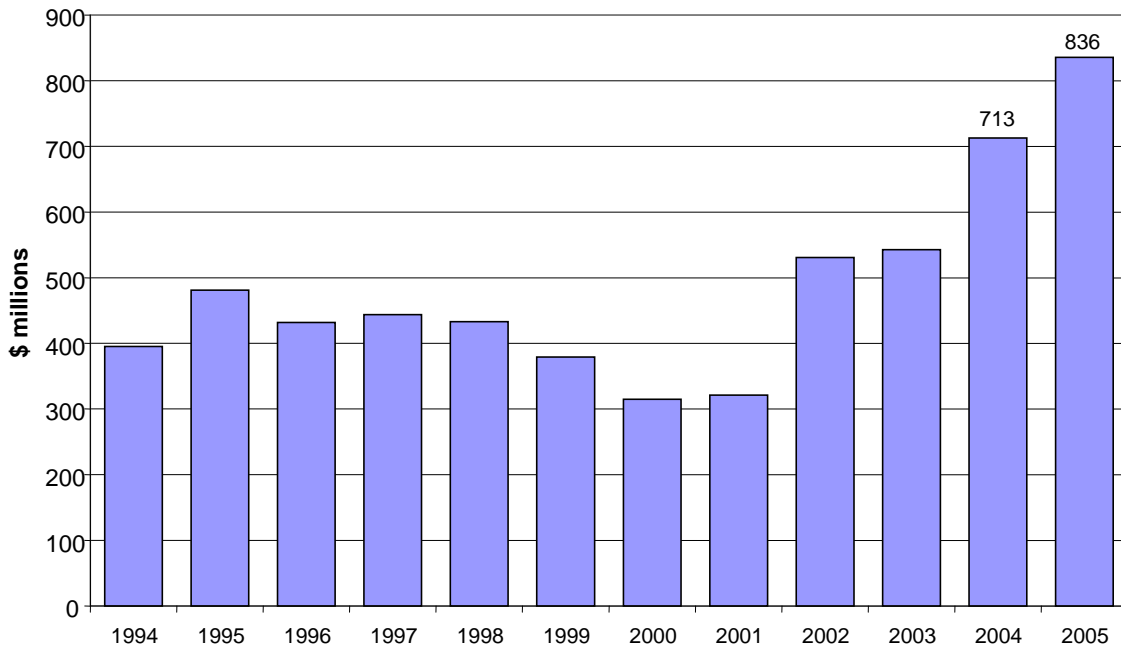
Chart 27: Where Ontario Mines Buy Their Supplies



Source: 2006 Industry Questionnaire

⁸ *Impact of Victor Mine Starts to Trickle Down* (Northern Ontario Business, June 2006).

**Chart 28: Mine Site Procurement from Local Suppliers
(within 80 km of mine site)**

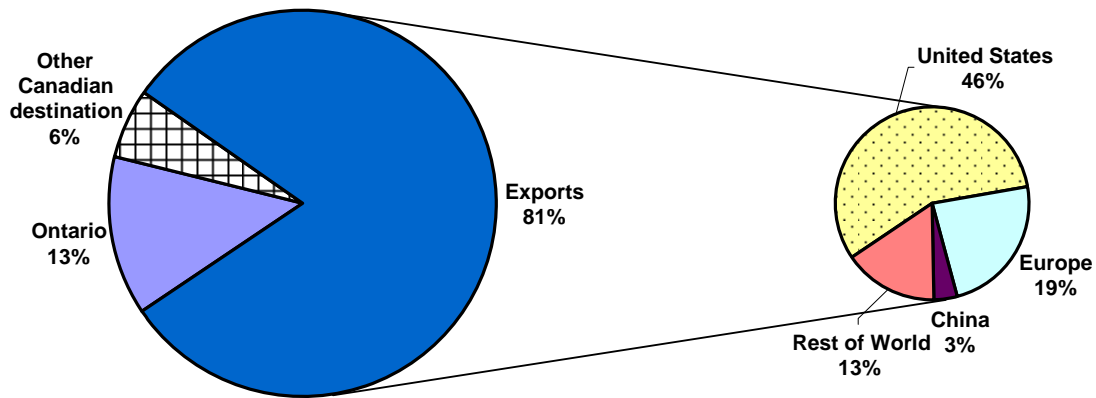


Sources: 2006 Industry Questionnaire and 2004 OMA Report: "The Economic and Fiscal Contribution of the Ontario Mining Industry in Ontario"

A further 43% of supplies are sourced elsewhere in Ontario, and 9% elsewhere in Canada, so import "leakage" is just 5% for the Ontario mining industry. Essentially, 95% of the operational inputs to the Ontario mining process are Canadian.⁹ When this is combined with the fact that over 80% of mineral output is exported to markets in the United States, Europe and the Far East (Chart 29), the Ontario mining industry contributes immensely to improving Ontario's international balance of trade.

⁹ 86% are sourced within Ontario (Chart 27).

Chart 29: Where Ontario Mines Sell Their Products



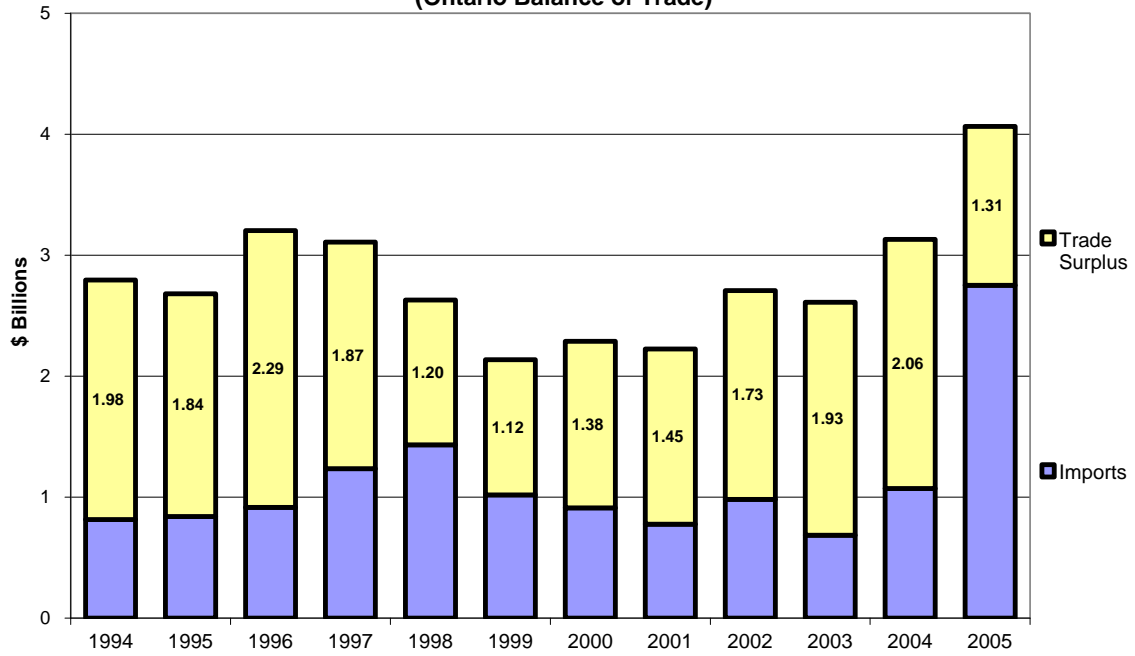
Source: 2006 Industry Questionnaire

Even when financial capital imports are considered,¹⁰ the Ontario mining industry enjoys a strong trade surplus (\$1.7 billion average for 2004-2005), almost entirely related to metals mining (Charts 30 & 31). The non-metals market is much more local: although non-metals (e.g. salt, sand & gravel) comprise 34% of Ontario mine production (Chart 2), they account for less than 6% of mineral exports. Nevertheless, Ontario also enjoys a trade surplus in non-metallic minerals (Chart 32). The \$1.7 billion net trade surplus in minerals of all types reduces, by over 3%, Ontario's overall trade deficit.¹¹

¹⁰ Chart 30 shows unusually high imports for 2005 which conflict with the industry questionnaire data and with prior year Industry Canada data that both indicate very low import levels for the Ontario mining industry. This anomaly has been ascribed to foreign capital investment in new Ontario mining projects.

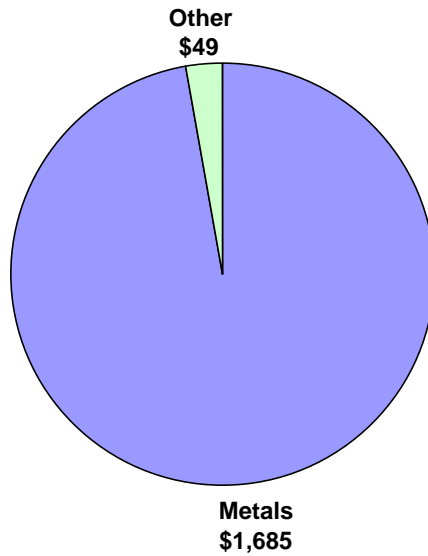
¹¹ Ontario had a trade deficit for the 2005-06 fiscal year of \$48.4 billion (Ministry of Finance 2006 Economic Outlook and Fiscal Review, Table 18, p.154).

**Chart 30: Metals Mining Exports
(Ontario Balance of Trade)**



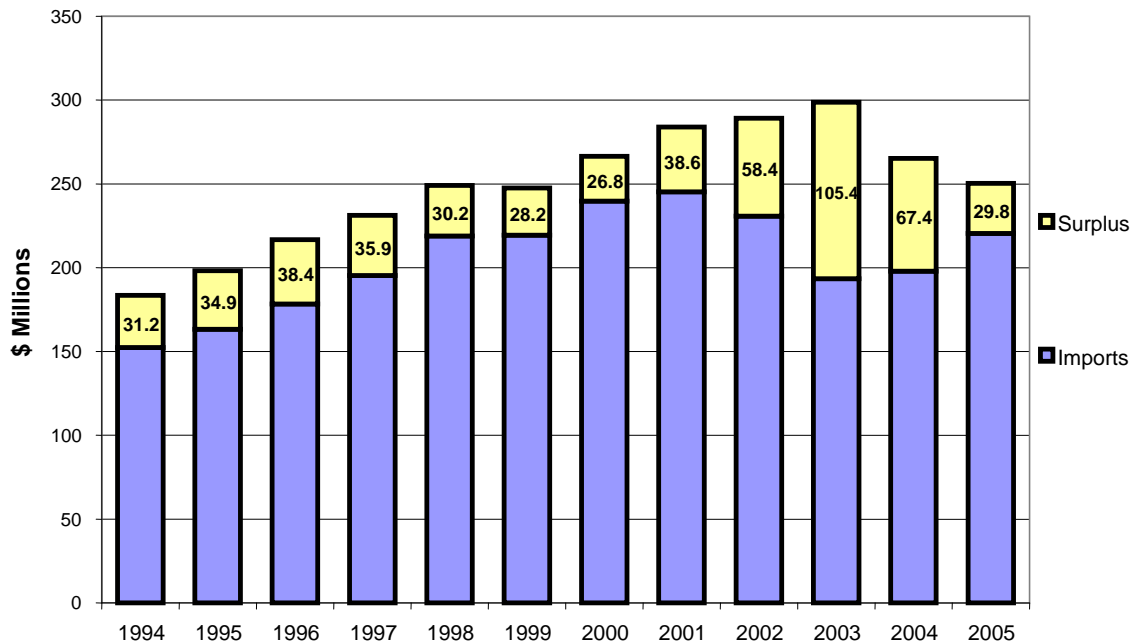
Source: Industry Canada Trade Data Online [http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html]

**Chart 31: Trade Surplus from Ontario Mines
(2004-2005 Average, in \$ millions)**



Source: Derived from Charts 30 & 32

**Chart 32: Non-Metals Exports
(Ontario Balance of Trade)**



Source: Industry Canada Trade Data Online (http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html)

The total value of mineral production was \$7.2 billion in 2005 (Chart 5 on page 13). This represents approximately 1.3% of Ontario's 2006 GDP.¹² Government revenues from Ontario mines are also rising with higher profitability and production values. Over \$400 million was paid in taxes to all levels of government in both 2004 and 2005 (Table 6), over 50% higher than the previous ten-year average. This includes property, income, capital and payroll taxes, as well as WSIB premiums. Particularly noteworthy is the fact that over 50% of the tax revenues are local or Ontario taxes, rather than federal taxes (Chart 33).¹³ Tax payments to Ontario amounted to approximately 0.8% of total Ontario business tax revenues,¹⁴ which is in line with the industry's GDP share (1.3%).¹⁵

Table 6: Government Revenues from the Ontario Mining Industry

	2004	2005
Federal	226	209
Ontario	192	179
Municipalities	37	38
Total	455	426

Source: 2006 Industry Questionnaire

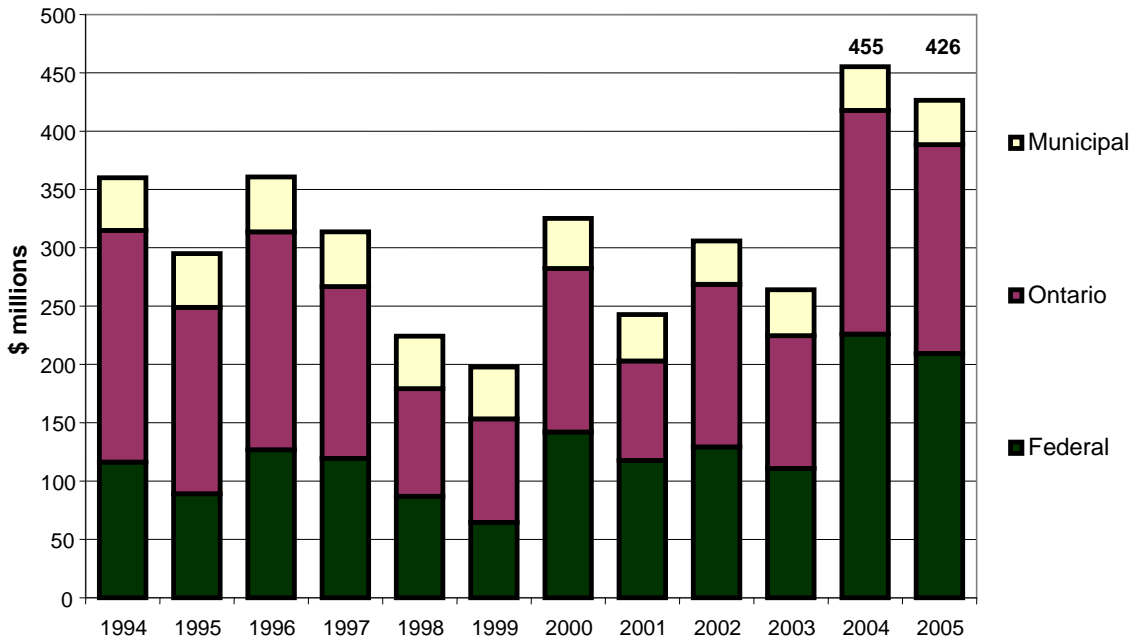
¹² Ontario GDP at market values for the 2005-06 fiscal year was \$538.4 billion (Ministry of Finance 2006 Economic Outlook and Fiscal Review, p.123).

¹³ However, many survey respondents did not include income taxes in their responses, which may have a larger federal component.

¹⁴ That is, total Ontario tax revenues excluding personal income taxes and retail sales tax.

¹⁵ As noted above, many respondents did not include income taxes in their responses, understating the industry's total tax contribution.

Chart 33: Payments to Government by the Ontario Mining Industry



Sources: 2006 Industry Questionnaire and 2004 OMA Report: "The Economic and Fiscal Contribution of the Ontario Mining Industry in Ontario"

Table 6 shows the details for the \$455 and \$426 million paid in government taxes and levies for 2004 and 2005 respectively. The upward trend (Chart 33) reflects the increased profitability as well as higher capital investment and employment levels for the Ontario mining industry in recent years.

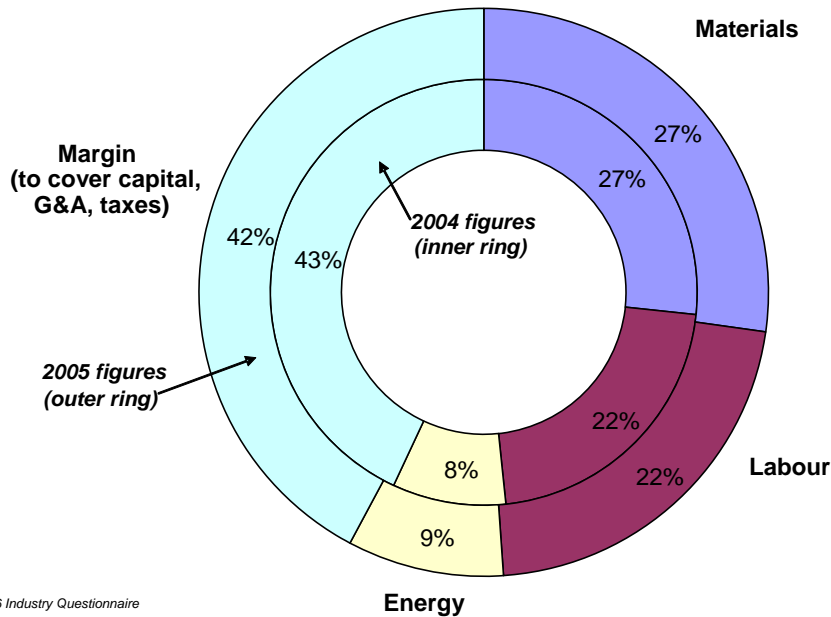
Overall, the Ontario mining industry matters to Ontario for its direct \$7 billion in mineral production and related tax revenues, and the jobs this production sustains, but also for the fact that it is largely a "made in Ontario" industry that contributes disproportionately to reduce the province's international trade deficit.

Chapter 4

The Road Ahead – Challenges Facing the Ontario Mining Industry

The mining industry faces many risks, including, as noted in Chapter 1, volatile prices for its products. Accordingly, producing mines strive to be the lowest cost producer, and require a high gross margin in order to cover the up-front and sustaining capital expenditures, as well as taxes and other indirect costs. Currently, Ontario mines on average are enjoying strong margins (Chart 34). But challenges remain.

**Chart 34: Composition of a Mineral's Selling Price
2004 vs. 2005**



Source: 2006 Industry Questionnaire

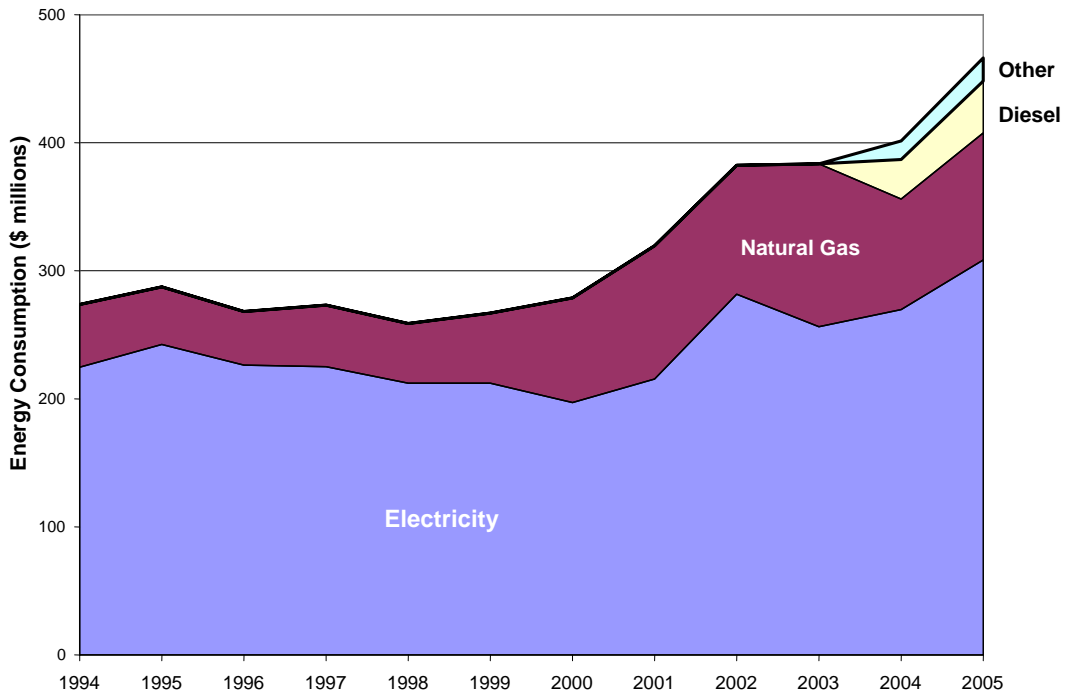
(i) *Energy*

In 2005, energy prices increased more than mineral prices, with the result that margins got squeezed by 1% from this factor alone (Chart 34).¹⁶ Mines are powered primarily by electricity (Chart 35). Since 2000, Ontario residents (both businesses and individuals) have seen electric power prices rise far higher than the Canadian average, to the point that Ontarians now pay about 40% more per kilowatt hour for electricity than other Canadians (Chart 36).

Some substitution may be occurring (Chart 37), but mines are also now paying higher prices for other energy sources such as natural gas and diesel fuel. Overall, energy costs represent a significant and growing concern for mining operations in Ontario.

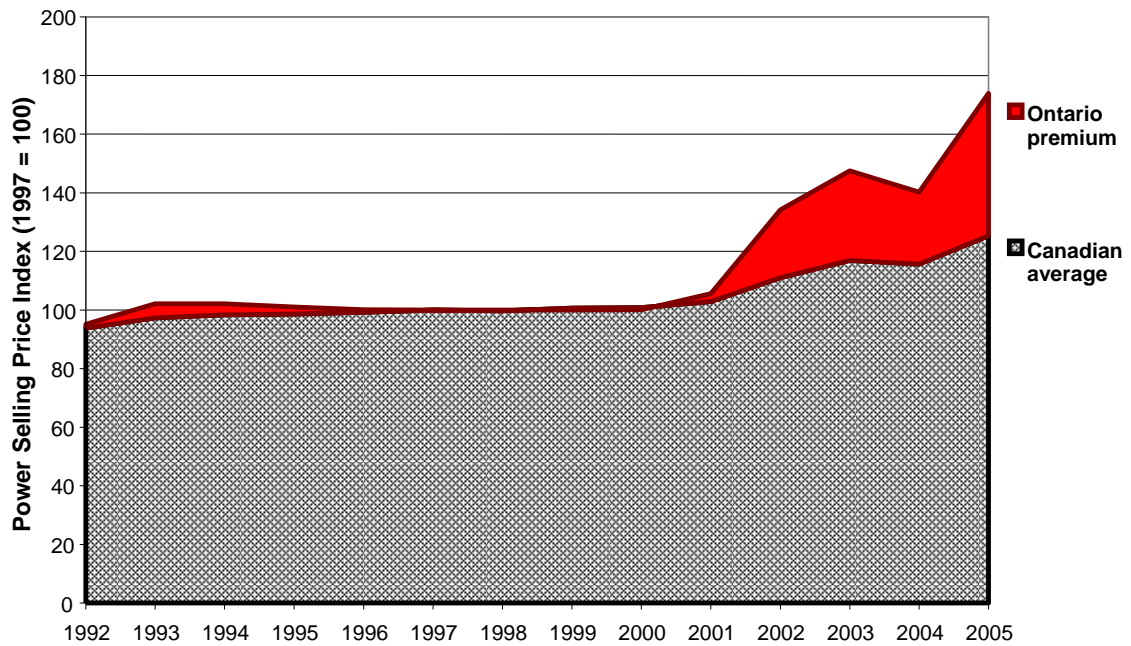
¹⁶ Materials costs also increased, but less than 0.5%.

Chart 35: How Mining is Powered



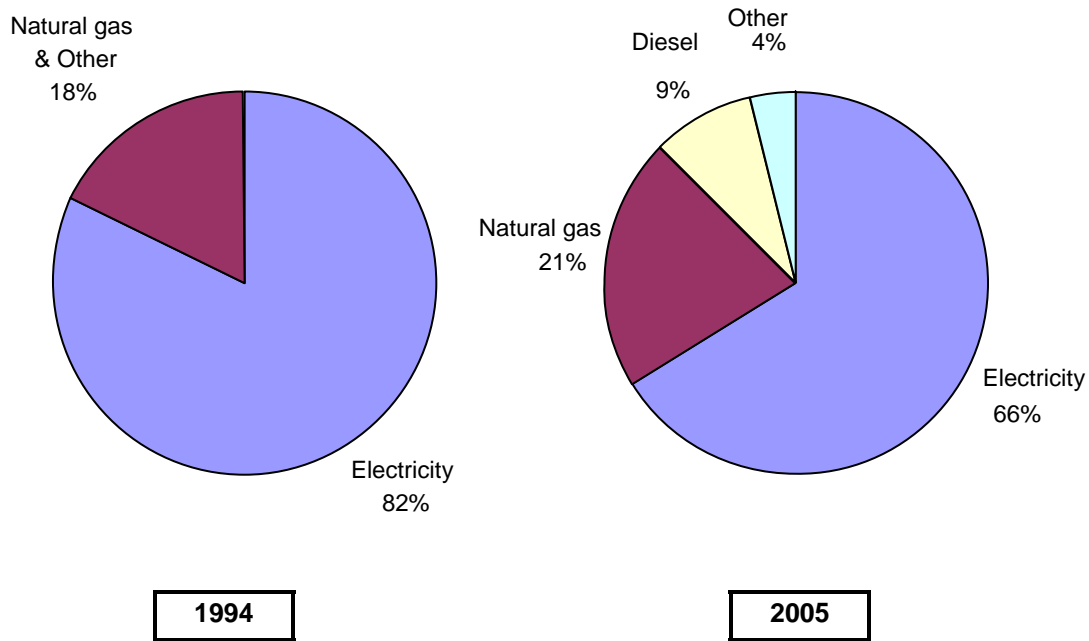
Sources: 2006 Industry Questionnaire and 2004 OMA Report: "The Economic and Fiscal Contribution of the Ontario Mining Industry in Ontario" pre-2004 data groups diesel and other with natural gas

**Chart 36: Electricity Prices
A Made in Ontario Price Gap**



Source: Statistics Canada CANSIM#329-0050

Chart 37: Energy Substitution
Energy Sources (\$) 1994 vs. 2005



Sources: 2006 Industry Questionnaire and 2004 OMA Report: "The Economic and Fiscal Contribution of the Ontario Mining Industry in Ontario"

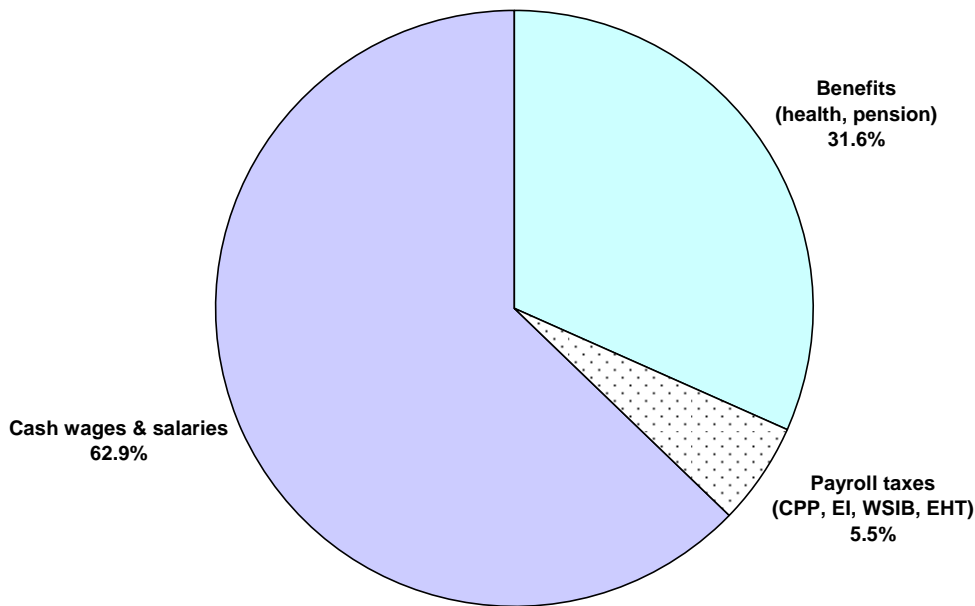
(ii) *Labour*

Production labour constitutes the largest single cost of mineral production for Ontario mines and 22% of the value of production (Chart 34). As noted earlier, miners are among the highest paid employees in Ontario, and have become highly productive through investments in technology and other productivity enhancing tools. However, the industry now faces a shortage of new entrants to the labour force, as many graduates look to other industries for work. This is also true for the skilled trades positions (e.g. mechanics and electricians), which have become more difficult to fill.

Mining companies typically provide generous retirement plans and an increasing number of workers choose early retirement (age 55 or younger) at the point in their career where they have the most experience to offer their employers.

This two-pronged squeeze has not yet affected margins but presents a significant challenge for the future. The "fully loaded" cost of an employee in the Ontario mining industry currently averages \$135,000 but only 63% is current service wages and salaries. The remaining 37% is benefits (primarily pension and other retirement benefits) and payroll taxes (Chart 38). Both of these latter components are essentially fixed costs that do not go down with a smaller work force. In fact, retirement payments are expected to rise both in absolute dollars and as a percentage of total labour costs, even though the number of mine employees may remain fixed or actually decrease.

**Chart 38: Breakdown of Total Payroll
(2004-2005)**



Source: 2006 Industry Questionnaire

(iii) Payroll taxes

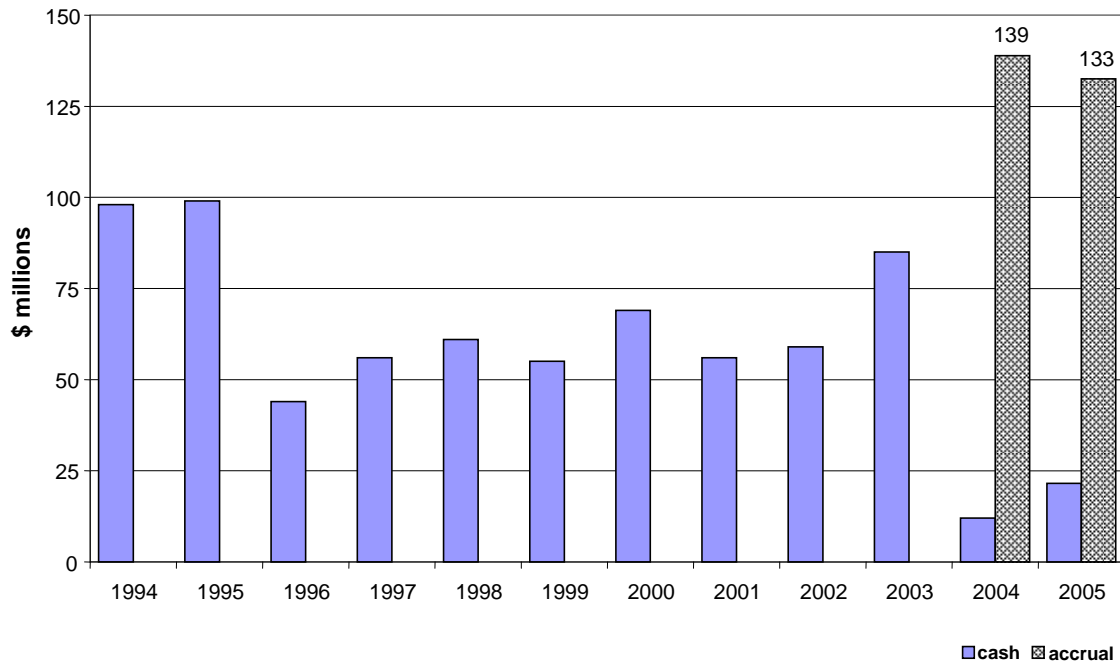
Chart 38 shows how the per-employee average cost of \$135,000 for wages and benefits is comprised: almost 32%, or \$42,500 per employee is for company-sponsored benefits. Payroll taxes now amount to 5.5% of total compensation costs, approximately \$7,500 per employee and almost \$100 million in aggregate for questionnaire respondents. They have risen 5.8% from 2004 to 2005, consistent with the increase in employment (up 4.9%). WSIB premiums represent approximately \$40 million per year alone and are by far the largest single component of this figure, which also includes EHT, and the employer portion of CPP and EI premiums.

(iv) Environmental reclamation

New accounting rules have increased the attention mining companies pay toward environmental obligations. Companies must now accrue their commitments for reclamation as balance sheet liabilities, discounted to present value and amortized into earnings each year. The accruals for 2004 and 2005 far exceed the cash spending on reclamation in those years (Chart 39). In fact, cash spending is significantly down from previous years. Of course, most mine reclamation work can only be carried out after production stops (or at least winds down), so this mismatch may simply indicate that the industry is a long way from closure. Nevertheless, reclamation obligations are a significant and growing future obligation that needs funding, and the industry has started to recognize this more prominently in their financial reports.¹⁷

¹⁷ See Appendix 1: Combined Financial Statements showing \$367 million in “asset retirement” obligations for 2005.

Chart 39: Environmental Spending by the Ontario Mining Industry



Sources: 2006 Industry Questionnaire and 2004 OMA Report: "The Economic and Fiscal Contribution of the Ontario Mining Industry in Ontario"

(v) *Community relations*

Mines have long been the main employer for many Ontario communities. The relationship between the industry and local residents is therefore crucial to efficient operations. Across Ontario, new mining projects undertake extensive community consultations in advance of field development to ensure residents are well informed about potential economic, environmental or social impacts associated with mining. This improved communication also occurs in established mining areas such as Sudbury or Red Lake. Ensuring local communities are well informed about the mining industry is an ongoing challenge: This and similar studies hopefully will help.

APPENDIX 1: COMBINED FINANCIAL STATEMENTS

The following financial statements represent the aggregated balance sheet and income statement for all 23 respondents to the 2006 OMA members' questionnaire, as well as publicly available information from other operating mines in Ontario. The statements are unaudited and have been prepared for general information purposes only. No eliminations for inter-company transactions or investments have been made. Figures are rounded to millions of Canadian dollars. The 2003 income statement data is taken from the 2004 OMA Report, *The Economic and Fiscal Contribution of the Mining Industry in Ontario*.

ONTARIO MINING INDUSTRY AGGREGATE BALANCE SHEET

(Unaudited)

(\$ Millions)

	31 DECEMBER	
	2005	2004
ASSETS		
CURRENT		
Cash	\$ 565	\$ 182
Accounts receivable	1,430	1,028
Inventories	939	989
Other current assets	49	33
	<u>2,983</u>	<u>2,232</u>
LONG-TERM		
Property, plant & equipment	3,776	3,197
Deferred development costs	1,625	1,373
Long-term investments and other	812	432
	<u>6,213</u>	<u>5,002</u>
	\$ 9,196	\$ 7,234
LIABILITIES		
CURRENT		
Account payable	\$ 886	\$ 1,029
LONG-TERM		
Long-term debt	2,715	2,350
Asset retirement	367	363
Employee Retirement	318	472
Deferred taxes	442	533
Other	188	193
	<u>4,030</u>	<u>3,911</u>
	<u>4,916</u>	<u>4,940</u>
SHAREHOLDERS' EQUITY	<u>4,280</u>	<u>2,294</u>
	\$ 9,196	\$ 7,234

ONTARIO MINING INDUSTRY AGGREGATE INCOME STATEMENT

(Unaudited)

(\$ Millions)

	31 DECEMBER		
	2005	2004	2003
REVENUES			
Mining	\$ 5,879	\$ 5,307	\$ 4,082
Other	178	231	338
	<u>6,057</u>	<u>5,538</u>	<u>4,420</u>
EXPENSES			
Production costs	3,554	3,295	2,195
Depreciation, depletion and amortization	638	513	563
Interest	127	81	143
Exploration	148	140	173
General & administrative	256	244	436
Reclamation	44	26	21
Other	48	25	741
	<u>4,815</u>	<u>4,324</u>	<u>4,272</u>
Earnings before taxes	\$ 1,242	\$ 1,214	\$ 148

APPENDIX 2: GLOSSARY OF ACRONYMS

Au	Gold
CPP	Canada Pension Plan
Cu	Copper
EHT	Employer Health Tax
EI	Employment Insurance
G&A	General and Administrative (expenses)
GDP	Gross Domestic Product
MASHA	Mines and Aggregates Safety and Health Association (Ontario)
Ni	Nickel
NRCAN	Natural Resources Canada (a federal government department)
OMA	Ontario Mining Association
PGM	Platinum group metals (primarily platinum & palladium)
R&D	Research and development (costs)
Statscan	Statistics Canada (a federal government department)
TSX	Toronto Stock Exchange
WSIB	Workplace Safety Insurance Board
Zn	Zinc

Principal Mining Areas of Ontario

