



Treasury Metals
Revised EIS Report
Goliath Gold Project
August 2017



APPENDIX CC

MINING, DYNAMIC AND DEPENDABLE FOR ONTARIO'S FUTURE



NOTE TO READER APPENDIX CC

In April 2015, Treasury Metals submitted an Environmental Impact Statement (EIS) for the proposed Goliath Gold Project (the Project) to the Canadian Environmental Assessment Agency (the Agency) for consideration under the Canadian Environmental Assessment Act (CEAA), 2012. The Agency reviewed the submission and informed Treasury Metals that the requirements of the EIS Guidelines for the Project were met and that the Agency would begin its technical review of the submission. In June 2015, the Agency issued a series of information requests to Treasury Metals regarding the EIS and supporting appendices (referred to herein as the Round 1 information requests). The Round 1 information requests included questions from the Agency, other federal and provincial reviewers, First Nations and other Aboriginal peoples, as well as interested stakeholders. As part of the Round 1 information request process, the Agency requested that Treasury Metals consolidate the responses to the information requests into a revised EIS for the Project.

Appendix CC to the revised EIS (Mining, Dynamic And Dependable For Ontario's Future) presents a report examining the contribution of the Ontario mining industry to the provincial economy. No changes have been made to this appendix from the original EIS issued in April 2015.

As part of the process to revise the EIS, Treasury Metals has undertaken a review of the status for the various appendices. The status of each appendix to the revised EIS has been classified as one of the following:

- **Unchanged:** The appendix remains unchanged from the original EIS, and has been re-issued as part revised EIS.
- **Modified:** The appendix remains relatively unchanged from the original EIS, and has been re-issued with relevant clarification.
- **Re-written:** The appendix has been substantially changed from the original EIS. A re-written appendix has been issued as part of the revised EIS.
- **Discarded:** The appendix is no longer required to support the EIS. The information in the original appendix has been replaced by information provided in a new appendix prepared to support the revised EIS.
- **New:** This is a new appendix prepared to support the revised EIS.

The following table provides a listing of the appendices to the revised EIS, along with a listing of the status of each appendix and their description.



List of Appendices to the Revised EIS		
Appendix	Status	Description
Appendix A	Modified	Table of Concordance
Appendix B	Unchanged	Optimization Study
Appendix C	Unchanged	Mining Study
Appendix D	Re-written	Tailings Storage Facility
Appendix E	Unchanged	Traffic Study
Appendix F	Re-written	Water Management Plan
Appendix G	Discarded	Environmental Baseline
Appendix H	Unchanged	Acoustic Environment Study
Appendix I	Unchanged	Light Environment Study
Appendix J	Unchanged	Air Quality Study
Appendix K	Unchanged	Geochemistry
Appendix L	Discarded	Geochemical Modelling
Appendix M	Unchanged	Hydrogeology
Appendix N	Unchanged	Surface Hydrology
Appendix O	Discarded	Hydrologic Modeling
Appendix P	Unchanged	Aquatics DST
Appendix Q	Re-written	Fisheries and Habitat
Appendix R	Re-written	Terrestrial
Appendix S	Re-written	Wetlands
Appendix T	Unchanged	Socio-Economic
Appendix U	Unchanged	Heritage Resources
Appendix V	Unchanged	Public Engagement
Appendix W	Unchanged	Screening Level Risk Assessment
Appendix X	Re-written	Alternatives Assessment Matrix
Appendix Y	Unchanged	EIS Guidelines
Appendix Z	Unchanged	TML Corporate Policies
Appendix AA	Modified	List of Mineral Claims
Appendix BB	Unchanged	Preliminary Economic Assessment
Appendix CC	Unchanged	Mining, Dynamic And Dependable For Ontario's Future
Appendix DD	Re-written	Aboriginal Engagement Report
Appendix EE	Unchanged	Country Foods Assessment
Appendix FF	Unchanged	Photo Record Of The Goliath Gold Project
Appendix GG	Modified	TSF Failure Modelling
Appendix HH	Unchanged	Failure Modes And Effects Analysis
Appendix II	Unchanged	Draft Fisheries Compensation Strategy and Plans
Appendix JJ	New	Water Report



CC.1 UNIVERSITY OF TORONTO STUDY ROTMAN STUDY



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Final Report

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Mining: Dynamic and Dependable for Ontario's Future

by

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Submitted to:
Ontario Mining Association



Assistance from the Ontario Ministry of Northern Development and Mines is appreciated.

Table of Contents

Executive Summary	i
Introduction	1
Mineral Production	2
Mining Industry Employment and Wages	7
Comparing Employment in the Ontario Mining Industry to Other Industries	12
Distribution of Employment Compensation in the Ontario Mining Industry	16
Mining Safety Moves Towards “Zero Harm”	18
Commodity Prices	21
Location of Customers	25
International Trade in Minerals	26
Taxes Paid by the Mining Industry	29
Investing in the Future	31
Turning Exploration into Development	33
New Mines from Old Sites	35
Miner for the Future – Building on a Major Investment	36
The Ring of Fire – Opportunities and Challenges	37
Can the Industry Build on these Investments?	39
Mining Innovation and Patents	40
Environmental Sustainability	42
Mining’s Beneficial Impact on Other Sectors	44
Upstream Impacts from the Input-Output Analysis – Industry Results	47
Upstream Impacts from the Input-Output Analysis – Employment Results	48
Upstream Impacts from the Input-Output Analysis – Foreign Leakages	49
Including Induced Impacts from Ontario Mining using Input-Output Analysis	50
Trying to Get Some Regional Perspective on the Numbers	53
The Toronto Stock Exchange is a World Leader in Mining Listings and Financing	55
Mining’s Impact on the Broader Community	60
Appendix A: Map Used to Define Regions in Ontario Mining Association Survey	61
Appendix B: Detailed Input-Output Results	62
Appendix C: Ontario Location of CAMESE Members – By Industry Sub-Sector	69

List of Charts

Chart	Page
1 Value of Output in the Metal Mining, Non-Metal Mining and Total Ontario Mining Industry	5
2 Employment in the Ontario Mining Industry	8
3 Output per Worker in the Metal Mining and Total Ontario Mining Industry	8
4 Mining Employment in Ontario, by Job Category, 2011	9
5 Mining Employment in Ontario, by Region, 2011	9
6 % Share of Ontario Mining Industry Employment, By Age Category	10
7 % Share of Ontario Mining Industry Aboriginal Employment, 2010 and 2011	11
8 % Share of Ontario Mining Industry Employment, By Gender, 2010 and 2011	11
9 % Share of Ontario Mining Industry Employment, By Union Affiliation, 2010 and 2011	11
10 Employment in Ontario Mining-Related Industries	12
11 Employment in the Mining Industry Compared to Other Natural Resource Based Industries	13
12 2011 Ontario Real Value Added per Employee, by Industry, Relative to Mining	14
13a Average Weekly Wages, by Ontario Resource-Related Industry	14
13b Average Weekly Wages, by Ontario Industry	15
13c Average Weekly Wages, by Ontario Mining-Related Industry	15
14 Mining Wages & Salaries Paid in Ontario, by Job Category, 2011	16
15 Mining Wages & Salaries Paid in Ontario, by Region, 2011	17
16a Taxable Benefits Paid as a % of Mining Wages & Salaries Paid, by Ontario Region	17
16b Non-Taxable Benefits Paid as a % of Mining Wages & Salaries Paid, by Ontario Region	17
17 Lost-Time Injury Frequency in the Ontario Mining Industry	19
18 Total Medical Injury Frequency in the Ontario Mining Industry	19
19 Ontario Mining Industry, Training and Health & Safety Spending per Employee	20
20a London PM Gold Price per Ounce	21
20b London Metal Exchange Nickel Price per Pound	22
20c London Metal Exchange Copper Price per Pound	22
20d London PM Platinum Price per Ounce	23
20e London PM Palladium Price per Ounce	23
20f London Metal Exchange Zinc Price per Pound	24
20g London Silver Price per Ounce	24
21 Location of Mine Customers by % Share, 2010 and 2011	25
22 Ontario International Trade Balance	26
23 Employer Payroll Taxes paid by the Ontario Mining Industry	29
24 Estimates of the Fed'l and Prov'l Corporate Income Taxes Paid by the Ontario Mining Industry	30
25 Property Taxes paid by the Ontario Mining Industry, by Region	30
26 Ontario Mineral Exploration Spending	32
27 Capital Expenditures in the Ontario Mining Industry	33
28 Industrial Electricity Rates in Canada, 2002-2010	39
29 Ontario Mining Industry Research & Development Spending	41
30 Ontario Mining Industry Environmental Protection Spending	42
31 Daily Load Profile for the Ontario Metal Ore Mining Industry and Total Provincial Demand	43
32 Location of Mine Suppliers by % Share, 2010 and 2011	44
33 Share of \$1 Billion of OMA Mineral Production in Ontario	46
34 Share of Value of Global Mine Equity Financings, 2007-2011	55
35 Value of Shares Traded on the TSX, Mining and Other	56
36 Volume of Shares Traded on the TSX Venture, Mining and Other	56
37 Value of Shares Traded on the TSX Venture, Mining and Other	57
38 Volume of Shares Traded on the TSX, Mining and Other	57

List of Tables

Table	Page
1 Share of the Value of Mineral Production in Ontario, by Commodity, 2002-2011	5
2 Estimated 2011 Value of Minerals Produced in Ontario	6
3 Estimated 2011 Value of Metals Production by Province	6
4 Employment in the Ontario and Canadian Mining Industry	7
5 Employment in the Ontario Mining-Related Industries	12
6 Ontario International Trade	27
7 Canada International Trade	28
8 2011 Exploration and Deposit Appraisal Expenditures	31
9 Number of Exploration Companies Active in Ontario – By Location of Head Office	32
10 Capital Expenditures in the Ontario Mining Industry, By Type	33
11 Number of Patents in Ontario Mineral Related Industries – U.S. Patent & Trademark Office	40
12 Estimated Investment in R&D in the Higher Education Sector, by Province	41
13 Impacts on GDP and Components of \$1 Billion of OMA Mineral Production in Ontario	46
14 Impacts on GDP by Industry of \$1 Billion of OMA Mineral Production in Ontario	47
15 Impacts on Employment by Industry of \$1 Billion of OMA Mineral Production in Ontario	48
16 Impacts on International Imports into Ontario of \$1 Billion of OMA Mineral Production	49
17 Impacts (incl Induced) on GDP and Employment of \$1 Billion of OMA Mineral Production	50
18 Total Impacts on Employment by Industry of \$1 Billion of OMA Mineral Production	51
19 Total Impacts on GDP by Industry of \$1 Billion of OMA Mineral Production	51
20 Destination of Shipping, Cargo Tonnage Loaded, Great Lakes Region, tonnes, 2011	52
21 Rail Transportation, Commodity Movements from Ontario, by Destination, tonnes, 2010	52
22 Location in Ontario of CAMESE Member Firms, by City and Region	54
23a Value and Average Size on the TSX, by Sector, December 31, 2011	58
23a Value and Average Size on the TSXV, by Sector, December 31, 2011	58
24 Location of Head Office and Market Capitalization of Mineral Firms on the TSX and TSXV	59
B1a Direct and Indirect Impacts on GDP of \$1 Billion of Mineral Production in Ontario	63
B1b Direct and Indirect Impacts on Employment of \$1 Billion of Mineral Production	64
B1c Direct and Indirect Impacts on International Imports of \$1 Billion of Mineral Production	65
B2a Direct, Indirect & Induced Impacts on GDP of \$1 Billion of Mineral Production	66
B2b Direct, Indirect & Induced Impacts on Employment of \$1 Billion of Mineral Production	67
B2c Direct, Indirect & Induced Impacts on Internat'l Imports of \$1 Billion of Mineral Production	68
C1 Industry Sub-Sector Category of CAMESE Member Firms in Ontario, By City, By Region	70

List of Maps

Map	Page
1 Ontario Mining Operations	3
2 Ontario Mine Development Projects	34
3 Location of the Ring of Fire Belt	38
A Map Used to Define Regions in Ontario Mining Association Survey	61

Executive Summary

The Ontario Mining Association (OMA) has published several reports over the past two decades on the contribution of the Ontario mining industry to the provincial economy. This report extends and expands upon these past studies to develop an overview of mining's impact that is as up-to-date and comprehensive as possible.

The report examines many different aspects of the Ontario mining industry, including its importance to the provincial economy now and in the future, and the industry's efforts to make this contribution in an increasingly safe and sustainable way. The analysis is based on a wide variety of published data, a survey of OMA members and input-output calculations conducted by the authors.

Highlights of the report include:

- Mining in Ontario is very diverse, covering a wide range of mineral commodities, including gold, nickel, copper, salt, diamonds, and a number of structural building materials. By 2011, with non-metal mining at new highs and metal mining output climbing strongly, the total value of mineral production hit \$10.7 billion. This represented almost 25% of all Canadian nonfuel mineral production in 2011 and accounted directly for more than 1.6% of total Ontario GDP.
- Direct employment in mining in 2011 was more than 16,000 – over 28% of the Canadian total. There were another 7,851 workers employed in support activities to mining, which have become increasingly important in the province. Total employment in the industry has increased over the last 10 years. This performance is in sharp contrast with industries downstream from the mining industry itself, where employment is well off the levels of a decade ago.
- Worker productivity in mining is exceptionally high: the value of output per worker at metal mines in 2011 was almost \$740,000. Output per worker in all mining in 2011 is a still impressive \$680,000, roughly six times the provincial industrial average. Remuneration is in line with this exceptional productivity: the average weekly wage paid in the mining industry in 2011 was almost 60% more than the Ontario average industrial wage, while wages paid in the mining support sector were almost 95% higher.
- In 2011, according to the OMA survey, over 83% of employment took place at the mine site, with about 2% of mining employees involved in R&D activities, 7% in exploration, and 8% employed at mining head offices. This employment was spread across the province. In 2011, roughly 36% of mining employment took place in Sudbury. Employment in Northeastern Ontario accounted for over 30%, and that in Northwestern Ontario for 19%. Employment in the southern part of the province, which is home to a number of non-metal mines, as well as mining head offices in Toronto, had a share of 15% in 2011.
- Based on the OMA survey, First Nations employment accounted for 9.7% of total mining jobs in 2011.
- Worker safety in the mining industry continues to improve. Statistics from Workplace Safety North show that lost time injury rates have come down to 0.4 per 200,000 hours for the first nine months of 2012. This compares with lost time injury rates for mining of 6 per 200,000 in 1981, 3 in 1991, 1.3 in 2001 and 0.6 in 2011.
- The mining industry spent almost \$1,800 per employee in 2011 on training and health and safety initiatives.
- According to the OMA survey, roughly 60% of mineral production, by value, was shipped outside the country in 2011. The US was the biggest customer, but China is becoming increasingly important.

- Since 2002, the overall international goods trade deficit for Ontario has more than quadrupled. In contrast, the trade surplus for Ontario mineral products has strengthened to more than \$12 billion, remaining positive over the entire period.
- While some components of taxes paid by mining companies in Ontario are difficult to measure due to confidentiality issues, the report estimates that mining companies in Ontario paid the federal government between \$314 and \$413 million in various revenues in 2011, while the provincial government received between \$482 million and \$564 million. These figures do not include income and payroll taxes paid by mining employees, which would conservatively amount to over a half-billion dollars. Local taxes, while much smaller in total, are an important part of the tax base of northern communities.
- The mining industry is making exceptional investments in the future: exploration and deposit appraisal spending in Ontario for 2011 was more than \$1 billion – almost eight times the amount spent in 2002. New mines are being built and existing ones refurbished. Over the last 10 years, it is estimated that capital expenditures have increased from just over \$1 billion in 2002 to over \$4 billion in 2011. With rising commodity prices, especially the price of gold, a significant amount of recent investment has gone to the refurbishment, or reopening, of older mines.
- Recent years have seen the emergence of major opportunities in the “Ring of Fire” region in the Far North. A variety of mineral deposits have been found, including chromite, which is a critical ingredient in stainless steel and otherwise unobtainable in North America. Development of the “Ring of Fire” will depend critically on how the private and public sectors can share the development of large-scale infrastructure to open the area for development.
- The mining industry in recent years has made major strides in reducing its energy inputs and, especially, in moving its electricity needs to off-peak periods. The relative cost of electric power in Ontario versus adjacent jurisdictions remains, however, a major factor in decisions to invest in the development and downstream processing of Ontario mineral resources.
- The OMA survey reports that \$62 million was spent in 2011 on environmental protection, compared to \$43 million in 2010. The investments by the mining industry to improve its environmental footprint, which builds upon its investment on health and safety training of its employees, are not reflected in measured output or productivity for the industry. The societal benefits of this spending, however, can not be overlooked.
- Results from the OMA survey show the source of many of the inputs to the mining sector. From the survey, well over 70% of the value of mining supplies and services were provided from within the province, 31% locally and over 43% from the rest of Ontario. Suppliers in the rest of Canada accounted for 15% and imports from outside the country accounted for the other 11%.
- The Input-Output model of Statistics Canada was used to probe deeper into the indirect impacts of mining on the Ontario economy. (This was the same technique used in the OMA’s 2007 study of the economic impacts of a ‘Representative Mine’ in Ontario.) The impacts are calculated based on a \$1 billion of output reflecting the type of production in the Ontario mining sector, as constituted by the membership of the Ontario Mining Association in 2011.
- We estimate that the direct and upstream aggregate impacts of \$1 billion of Ontario mining production add \$858 million to Ontario GDP and \$900 million to the GDP of Canada. In terms of employment, this is 4,418 jobs in Ontario and 4,775 in Canada.

- The Input-Output results show that there are significant impacts on a wide variety of sectors including Professional, Scientific & Technical Services, Finance, Insurance & Leasing and Administration & Support.
- The results also show an \$86 million impact on international imports, which would appear to offer potential opportunities to domestic suppliers.
- When the Statistics Canada model is also used to estimate the ‘induced’ effects of Mining (that is, the spending of wages and salaries by those both in mining and its supplier sectors back along the production chain), then the impact of \$1 billion of mining output on Ontario GDP grows to \$1.04 billion (and 6,360 jobs) for Ontario and \$1.12 billion (and 7,104 jobs) for Canada, with significant impacts on sectors like Retail Trade and Accommodation and Food Services. There are also noticeable GDP and employment impacts on Quebec and Alberta from mining activity in Ontario.
- A tally of the number of firms in the Canadian Association of Mining Equipment and Services for Export (CAMESE) shows mining supply and service entities are located throughout the province, with particular concentrations around Toronto-Mississauga and Sudbury-North Bay.
- The transport sector in the province depends vitally on Ontario’s mining industry. This includes moving employees and contractors to remote mine sites and, in particular, the movement of mineral production to markets.
- In 2011, 90% of all global mining equity financings were done on the Toronto Stock Exchange and the TSX Venture Exchange, with \$12.5 billion raised, making up nearly 40% of the world’s new mining equity capital.
- The trading of mining company shares is crucial to the success of both the main Toronto Stock Exchange and the Venture Exchange. In 2011, the volume of mining shares traded on the main TSX totaled 45.6 billion, accounting for 44% of the total shares traded by the exchange. The total value of mining shares traded in 2011 was almost \$440 billion, roughly 30% of the TSX total for the year. The importance of mining companies to the TSX Venture exchange is even more dramatic.
- Responses to the OMA survey indicate charitable donations by mining companies approached \$10 million in each of 2010 and 2011. Mining companies have supported local communities and provincial well-being in a broad range of ways, from providing and maintaining community athletic facilities, to preserving endangered fish species, to supporting local food banks.

The Ontario economy continues its slow recovery from the biggest world economic downturn since the Great Depression. Ontario’s manufacturing sector is struggling to regain lost ground, beset by a strong Canadian dollar and a weak recovery in the United States. Governments are initiating cutbacks at all levels. But, with the natural resource commodities that the world wants, and if it maintains an atmosphere conducive to investment, Ontario will continue to be pulled ahead by a strong mining industry.

Our thanks to staff and members of the Board of the Ontario Mining Association for valuable comments and suggestions. As well, we appreciate the efforts of OMA member companies to complete the industry survey. Peter McBride of the OMA, in particular, has been indispensable in providing access to a wide variety of information and in improving the report.

Introduction

For the past two decades, the Ontario Mining Association has published several reports on the contribution of the Ontario mining industry to the provincial economy. This report extends and expands upon these past studies to develop an overview of mining's impact that is as up-to-date and as comprehensive as possible.

As the world recovers from the biggest economic downturn since the Great Depression, the demand for natural resource commodities, especially from developing countries like China, is expected to strengthen further. Ontario's manufacturing sector continues to struggle, beset by a strong Canadian dollar and a tepid recovery in the United States. But with the natural resource commodities that the world wants – including gold, nickel, copper and platinum group metals – Ontario, if it maintains an atmosphere conducive to investment, will continue to be pulled ahead by a strong mining industry.

This report covers many different aspects of the Ontario mining industry, including its importance to the province now and in the future, as well as the industry's efforts to make this contribution in an increasingly safe and sustainable way.

We begin by looking at what types of commodities are produced and how the relative values of this production have changed over the last 10 years. We also show the current importance of this production relative to other provinces in Canada.

The report then details the nature of employment in the Ontario mining industry. We present the number of people employed, the level of compensation paid and the productivity of employees relative to a number of other Ontario industries. Using data collected from an Ontario Mining Association survey covering 2010 and 2011, we are able to look at employment and labour compensation by both job category and region of the province, as well as facts about the makeup of the mining industry workforce. Finally, worker training and the employee health and safety record of the industry are examined.

The next section presents an overview of changes in the prices of a number of the mining commodities produced in Ontario, the location of the mining industry's customers in the world and the impact that the trade in mineral commodities has on Ontario's international trade balance. We also examine the industry's contribution to the tax base of the province.

We then present a section on investing in the future of the mining industry – including a look at exploration, the Ring of Fire, R&D and patents, the renewal of older mines, and the importance of providing infrastructure in the future development of mining in Ontario. We also look at efforts to operate mines in an environmentally sustainable way, including data on evolving energy use patterns and electricity prices.

The last part of the report is devoted to the industry's beneficial impact on other sectors in the economy. We use the Ontario Mining Association industry survey to try to capture from where mining companies source their supplies. A major compendium of suppliers also helps capture the diverse locations throughout the province of companies supplying the mining industry. Using Input-Output analysis based on highly detailed Statistics Canada data, we examine the impact that mining production in Ontario has on output and employment in a wide range of industries both in the province and across the country. The importance of the mining industry to the province's transportation sector and the Toronto Stock Exchange are also examined. Finally, we look at the impact of efforts by Ontario mining companies to give back to broader community in the province.

Mineral Production

Mining in Ontario is very diverse, covering a wide range of mineral commodities, including gold, nickel, copper, salt, diamonds and a number of structural building materials (see Map 1 with accompanying directory). There are more than 35 active mining operations in Ontario. Output from metal mines continues to account for the majority of the value of production in the province. Over the last 10 years, (see Chart 1) the value of total mineral production in the province climbed to a peak of almost \$10.9 billion in 2007, before falling to its lowest level since 2003 in 2009, due to the effects of world economic weakness, exacerbated by a sustained labour dispute in Sudbury. By 2011, with non-metal mining at new highs and metal mining output climbing strongly, the total value of mineral production hit \$10.7 billion.

The contributions of the different types of mineral commodities to the total value of mineral production in the province have changed considerably over the last 10 years. With the impacts of the opening of new mines, expanding or closing of existing ones, commodity price swings, as well as labour disputes in certain years, the importance of individual commodities has changed dramatically (see table 1). While the shares of the value of production of both gold and nickel in 2011 at over 20% are roughly where they were in 2002, their contribution in the intervening years has swung wildly. In 2007, the value of nickel production accounted for 42% of all mineral production in Ontario. By 2009, however, this share had fallen to only 11% as the share of gold production soared to almost 30%. Over the 10 year period, the share of the value of copper production climbed almost 10 percentage points. Over the last 10 years, the share of value of metal mines production climbed from 62% in 2002 to more than 70% in 2011, with its greatest share coming in 2007 at more than 76%.

With the start of the province's first diamond mine in 2008, the value of diamond production has climbed to over 4% of total mineral production, closing in on the level of the value of salt production. Overall, the share of non-metal mines production has climbed over the last 10 years, sitting at over 11% in 2011. The value of the production of structural materials such as clay, cement, lime, stone, sand and gravel has been quite steady over the last 10 years. Therefore, as the value of the output of many metal minerals has swung up and down, the share of structural materials has moved in the opposite direction. Over the last 10 years, the share of all of the structural materials components have fallen, such that by 2011 the total share of the value of this production was down to just over 18% from over 30% in 2002.

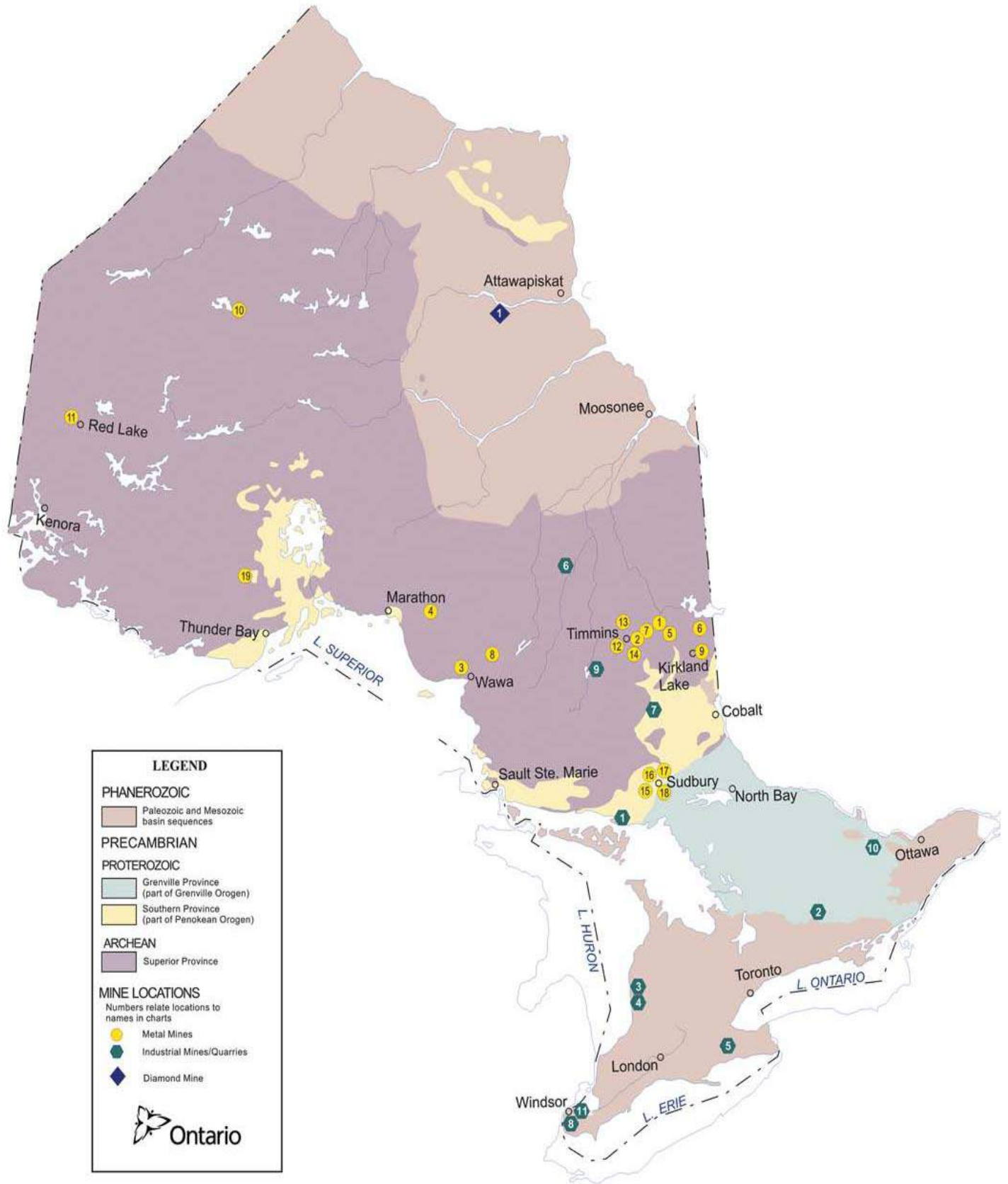
Table 2 shows the detailed output of the Ontario mining industry in 2011, highlighting the importance of Ontario production in the Canadian landscape. Ontario, at \$7.5 billion, is the largest producer of metal mineral commodities in the country in 2011, accounting for 30% of the country's production - well ahead of Quebec at 24% (see table 3). Ontario mining companies produced the most gold (52%), nickel (43%), copper (38%), platinum group metals (84%) and silver (28%) in the country, as well as the second most cobalt (36%).

Ontario is the biggest producer of salt in the country and second in the country (behind the Northwest Territories) in diamond production. Overall, Ontario non-metal mines produced \$1.2 billion of output in 2011 or almost 10% of national output, placing it behind only Saskatchewan (potash) and the Northwest Territories (diamonds) in its output ranking in the country.

Ontario is also the most important producer of structural materials in the country. The province mines the most stone (41%), lime & clay (53%), sand & gravel (31%), and produces the most cement (35%) of any province. At \$1.9 billion, the value of structural materials production in Ontario accounted for 37% of the Canadian total.

Ontario mined \$10.7 billion, or almost 25% of all Canadian non-fuel mineral production in 2011, accounting for more than 1.6% of the total value of GDP in Ontario.

Map 1: Ontario Mining Operations



Source: Ontario Mining and Exploration Directory 2012, Ontario Prospectors Association
 Mining: Dynamic and Dependable for Ontario's Future

Map 1 Directory: Location of Mining Operations in Ontario by Type of Mine

Gold Mines	
Name	Company
1 Black Fox Mine	Brigus Gold Corp
2 Dome Mine	Goldcorp Inc. - Porcupine Gold Mines
3 Eagle River Mine	Wesdome Gold Mines Ltd.
4 Hemlo Mine	Barrick Gold Corporation
5 Hislop Mine	St Andrew Goldfields Ltd
6 Holloway-Holt Mine	St Andrew Goldfields Ltd
7 Hoyle Pond Mine	Goldcorp Inc. – Porcupine Gold Mines
8 Island Gold Mine	Richmont Mines Inc.
9 Macassa Mine	Kirkland Lake Gold Inc
10 Musselwhite Mine	Goldcorp Inc.
11 Red Lake Gold Mines	Goldcorp Inc.
12 Timmins Mine	Lake Shore Gold Corp

Base Metal Mines	
Name	Company
13 Kidd Creek Mine	Xstrata plc
14 McWatters Mine	Liberty Mines Inc.
15 Shakespeare Mine	Ursa Major Minerals Incorporated
16 Sudbury Operations: Levack Mine McCreedy West Mine Podolsky Mine	Quadra FNX Mining Ltd.
17 Sudbury Operations: Copper Cliff North Creighton Garson McCreedy East/ Coleman Stobie	Vale S.A.
18 Sudbury Operations: Nickel Rim South Mine Fraser Mine	Xstrata plc

Platinum Group Metal Mines	
Name	Company
19 Lac des Iles Mine	North American Palladium Ltd.

Diamond Mines	
Name	Company
1 Victor Diamond Mine	De Beers Canada Inc

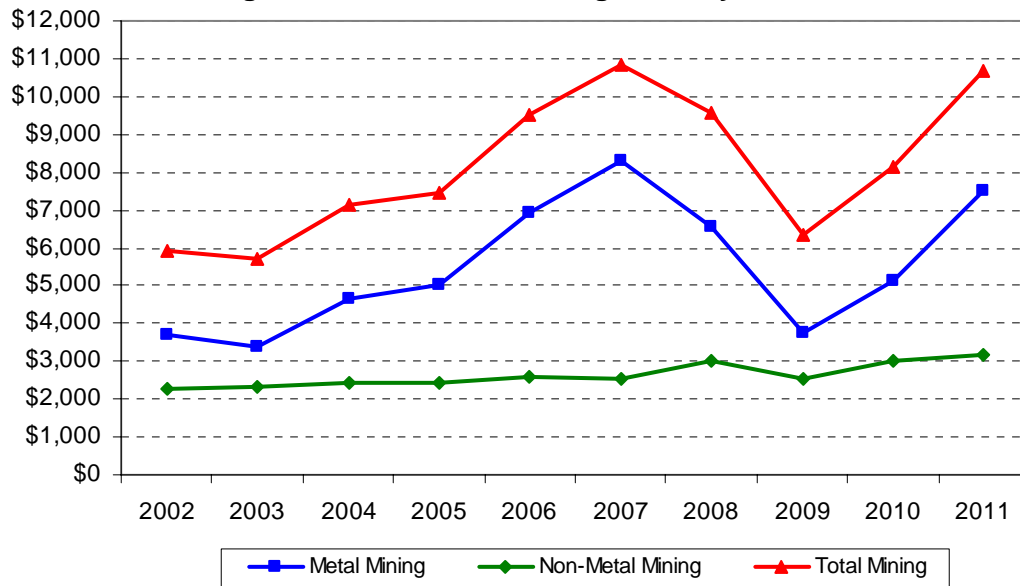
Major Industrial Mineral Operations	
Name	Company
1 Badgeley Island Quarry (silica)	Unimin Canada Ltd.
2 Blue Mountain Operations (nepheline syenite)	Unimin Canada Ltd.
3 Goderich Brine Field (salt)	Sifto Canada Inc.
4 Goderich Mine (salt)	Sifto Canada Inc.
5 Hagersville Mine (gypsum)	CGC Inc.
6 Kapuskasing Phosphate Operations (phosphate)	Agrium Inc.
7 North Williams Mine (barite)	Extender Minerals of Canada Ltd.
8 Ojibway Mine (salt)	The Canadian Salt Company Ltd
9 Penhorwood Mine (talc)	Imerys Talc
10 Tatlock Quarry (calcium carbonate)	OMYA (Canada) Inc.
11 Windsor Brine Field (salt)	The Canadian Salt Company Ltd.

Note: Base Metal Mine 16, Quadra FNX Mining is now KGHM International

Note: Gold Mine 4, the Barrick Hemlo Mine incorporates the Williams Mine and the David Bell Mine

Note: Not on the map is AuRico's Young-Davidson mine, located approximately 50 kilometres west of Kirkland Lake, which began operations in 2012

Chart 1: Value of Output in the Metal Mining, Non-Metal Mining and Total Ontario Mining Industry, \$Million



Source: Natural Resources Canada

Table 1: Share of the Value of Mineral Production in Ontario, by Commodity, 2002-2011 (%)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Mineral Production (\$Billion)	\$5.9	\$5.7	\$7.1	\$7.4	\$9.5	\$10.9	\$9.6	\$6.3	\$8.1	\$10.7
Metals										
Copper	7.9	7.0	9.1	11.3	15.0	12.8	14.5	10.8	14.7	17.7
Gold	20.9	21.9	17.3	16.7	13.3	12.3	15.6	29.8	27.3	22.9
Nickel	21.2	22.3	29.0	30.3	34.4	42.0	27.6	11.1	14.6	20.4
Platinum Group Metals	na	na	na	4.5	4.5	4.3	5.4	2.9	2.3	5.9
Other Metals	12.1	8.4	10.1	4.6	5.7	5.1	5.4	5.1	3.9	3.5
Total Metals	62.1	59.5	65.6	67.4	72.8	76.4	68.5	59.7	62.8	70.4
Non-Metals										
Salt	4.4	4.5	3.6	3.5	2.8	2.4	3.4	5.4	5.1	4.7
Diamonds	0.0	0.0	0.0	0.0	0.0	0.0	3.1	3.7	4.3	4.3
Other Non-Metals	2.9	3.1	2.6	2.6	2.1	1.8	2.7	3.0	2.7	2.5
Total Non-Metals	7.3	7.6	6.2	6.0	4.9	4.2	9.2	12.1	12.1	11.4
Structural Materials										
Cement	10.3	10.9	9.3	8.8	7.0	6.0	6.4	8.3	6.8	5.3
Sand and gravel	6.8	7.7	6.3	5.9	5.2	4.9	5.7	7.0	6.4	4.5
Stone	8.5	9.0	8.2	7.8	7.0	6.0	7.4	10.1	9.1	6.2
Lime & Clay Products	5.0	5.2	4.3	4.1	3.2	2.6	2.8	2.9	2.8	2.2
Total Structural Materials	30.6	32.9	28.2	26.5	22.3	19.4	22.2	28.2	25.1	18.2

Source: Natural Resources Canada and authors' estimates

Note: For 2002-2004, Platinum Group Metals are in Other Metals.

Table 2: Estimated 2011 Value of Minerals Produced in Ontario

Metals	2011 (\$millions)	% of Canadian Total	Ranking Among Canadian Provinces
Gold	2,446	51.6	1
Nickel	2,172	42.7	1
Copper	1,887	37.6	1
Platinum Group Metals	624	84.2	1
Silver	168	27.5	1
Zinc	161	12.4	4
Cobalt	43	35.5	2
Other Metals	4	0.1	
Total Metals	7,505	29.7	1
Non-Metals			
Salt	498	71.1	1
Diamonds	453	18.0	2
Other Non-Metals	266	2.8	
Total Non-Metals	1,217	9.5	3
Structural Materials			
Stone	665	40.6	1
Cement	562	35.3	1
Sand and Gravel	483	30.7	1
Lime and Clay Products	231	52.8	1
Total Structural Materials	1,941	37.0	1
Total Non-Fuel Minerals	10,663	24.6	1

Source: Natural Resources Canada

Table 3: Estimated 2011 Value of Metals Production by Province

Province/Territory	2011 (\$millions)	% of total
Newfoundland & Labrador	5,112	20.2
New Brunswick	818	3.2
Quebec	6,052	24.0
Ontario	7,505	29.7
Manitoba	1,646	6.5
Saskatchewan	1,157	4.6
Alberta	1	0.0
British Columbia	2,096	8.3
Northwest Territories	64	0.3
Yukon Territory	395	1.6
Nunavut	414	1.6
Total	25,260	100.0

Source: Natural Resources Canada

Mining Industry Employment and Wages

As the world economy slowly recovered from the recent “great recession”, employment in the mining sector began to rebound in 2011. The number of workers directly employed by Ontario’s mining industry, at over 19,400, climbed to a 15 year high in 2008 (see table 4). By 2010, employment in the industry had fallen by over 25%, as the impacts of the recession and labour issues continued to be felt, before recovering to more than 16,000 in 2011. Metal mining remains the most important mining sector in Ontario with over 63 percent of all mining employees involved in metal ore mining in the province in 2011, although this is a much lower share than seen in the 1990s. Support activities to mining (which includes contract drilling, exploration, and other mine services) have become increasingly important in the province over the last several years (see chart 2 and table 5). In 2011, almost 8,000 workers were employed in this sector, the highest level ever recorded for the province by Statistics Canada and more than double the number employed 10 years earlier. Other than the recent peak in 2008, overall, employment in 2011 in the Ontario mining industry directly, together with services to the mining industry, is at its highest level in 20 years.

Ontario accounts for a large share of Canada’s mining employment, particularly in metal ore mining (see table 4). Of the total number of people employed in metals mining in Canada in 2011, Ontario accounted for almost 38 percent, somewhat below the average share seen over the last 10 years. For all types of mineral production, Ontario accounts for over 28% of the country’s employment, somewhat higher than 2010 but still at a level below that seen in recent years.

The recovery in employment is not reducing the output per worker in the industry (see chart 3) which is stellar. The value of output per worker employed at metal mines in the province hit a peak of almost \$900,000 in 2007 before dropping in the downturn. This measure has recovered in 2011 to almost \$740,000. Output per worker in all mining in 2011 is a still impressive \$680,000, roughly six times the provincial industrial average.

Using data collected from Ontario Mining Association members, one can look at the numbers of different types of jobs in the mining industry, as well as in what parts of the province this employment takes place and the nature of the mining labour force.¹ In 2011, over 83% of employment took place at the mine site (see chart 4), with 71% of total mining employment devoted to mine-site production and engineering activities and a further 12% providing administration support at the mine. According to the survey results, just under two percent of mining employees were involved in scientific/R&D activities, more than seven percent were involved in exploration, and eight percent were employed at mining head offices.

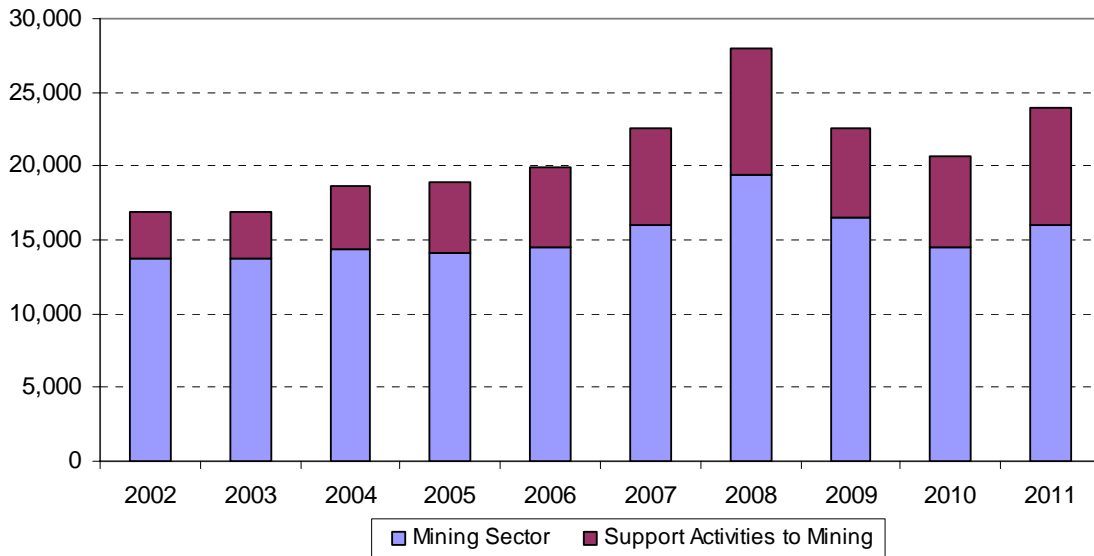
Table 4: Employment in the Ontario and Canadian Mining Industry

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Mining										
Canada	47,893	47,391	45,986	46,689	48,830	52,877	58,506	52,429	52,532	56,669
Ontario	13,679	13,700	14,429	14,110	14,433	16,036	19,409	16,534	14,492	16,067
Ontario Share	28.6%	28.9%	31.4%	30.2%	29.6%	30.3%	33.2%	31.5%	27.6%	28.4%
Metal Mining										
Canada	22,585	21,810	21,374	21,196	22,007	23,850	28,074	24,286	23,311	26,917
Ontario	8,471	8,362	8,859	8,723	8,456	9,329	12,782	10,423	8,580	10,160
Ontario Share	37.5%	38.3%	41.4%	41.2%	38.4%	39.1%	45.5%	42.9%	36.8%	37.8%

Source: Statistics Canada

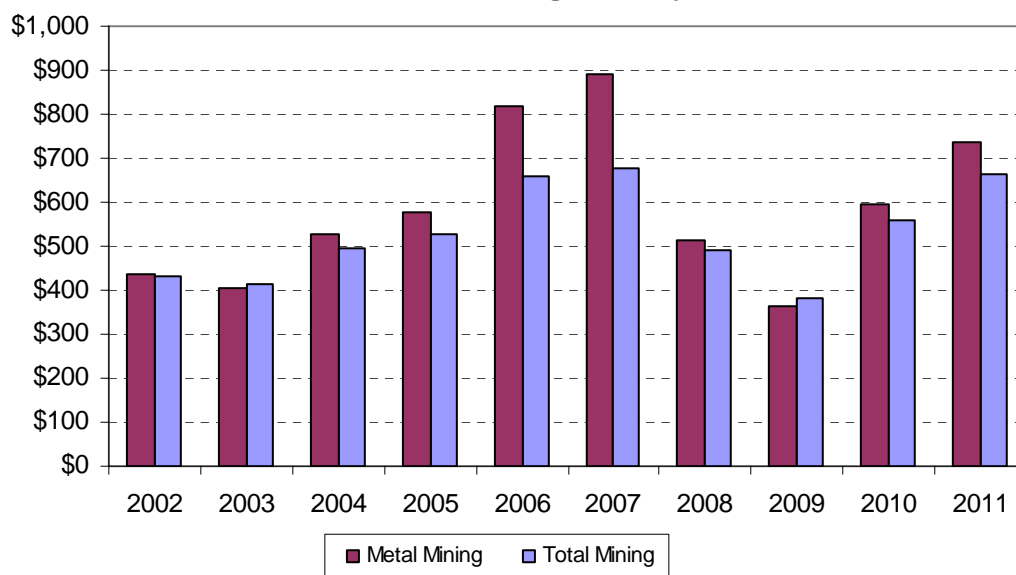
¹ The OMA membership includes metal and non-metal mines in the province, as well as most mine contractors. It, however, does not capture the aggregates or structural materials production in the province.

Chart 2: Employment in the Ontario Mining Industry



Source: Statistics Canada and authors' calculations

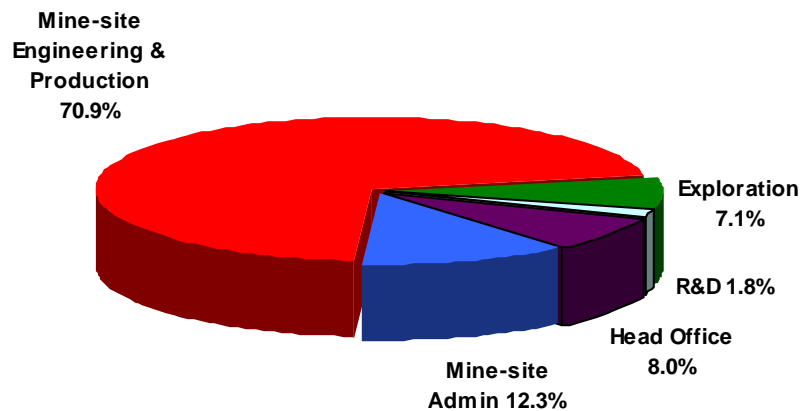
Chart 3: Output per Worker in the Metal Mining and Total Ontario Mining Industry, \$000



Source: Natural Resources Canada, Statistics Canada and authors' calculations

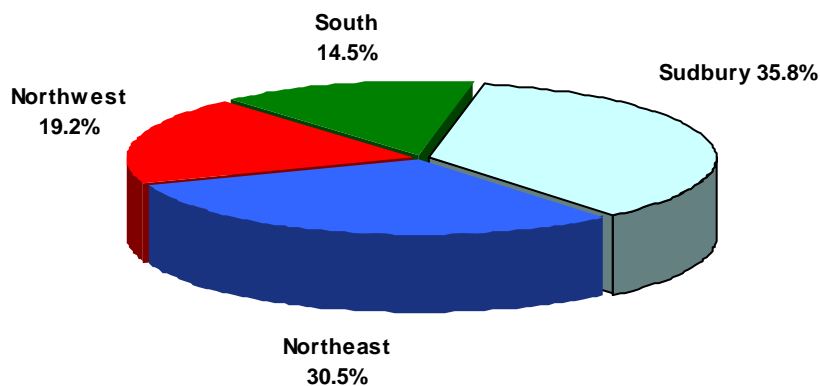
This employment was spread all over the province (see chart 5 and for the regional definitions the map in Appendix A). In 2011, results from the OMA survey indicate that roughly 36% of mining employment in the province took place in Sudbury, down from over 37% in 2010 and from the 50% share reported in a previous OMA survey for the average of years 2006 and 2007. Employment in Northeastern Ontario accounted for over 30% of the total in 2011, up from 28% in 2010 and 23% in 2006/2007. This reflects the opening of Ontario’s only diamond mine in 2008, as well as renewed interest in developing new, or reopening old, gold mines as the price of the commodity has climbed. The share of employment in Northwestern Ontario stood at 19.2% in 2011, down slightly from the 19.6% seen in 2010 but up from the 15% level of 2006/2007. Finally, the share of employment in the southern part of the province, which is home to salt, gypsum, talc, nepheline syenite and calcium carbonate mines, as well as mining head offices in Toronto, fell somewhat to 14.5% in 2011 from 15.3% in 2010, similar to the 14% seen in 2006/2007.

Chart 4: Mining Employment in Ontario, by Job Category, 2011



Source: OMA Industry Survey

Chart 5: Mining Employment in Ontario, by Region, 2011



Source: OMA Industry Survey

A number of interesting features of the nature of employment in the mining industry are available from the Ontario Mining Association survey. From the current and past OMA surveys a view of the age profile of those employed in the mining industry can be seen. For the years 2004, 2007, 2010 and 2011 it is interesting to note that the percentage share of employees over 55 years of age has remained fairly stable, ranging only from 14% in 2004 and 2010, to 17% in 2007 and 15% in 2011 (see chart 6). The shares of the other two age profiles have changed quite dramatically, however, over this period. Employees aged 35 and younger accounted for only 18% of employment in 2004 but reached 27% in 2011. Conversely, those aged 36-55 in 2004 accounted for 68% of employment, dropping to 58% in 2011.

Ensuring that aboriginals participate in the mining industry has become an increasing focus over the last number of years. As new mineral resources are discovered in increasingly northern and remote environments, agreements have been undertaken to make sure that, wherever possible, Aboriginal employment is encouraged. According to Natural Resource Canada and the Mining Association of Canada, based on Census figures, Aboriginal employment in Canada accounted for 7.5% of total Canadian mining employment in 2006, up from 5.1% in 2001 and 3.6% in 1996. Data from the new OMA survey suggest that Aboriginal employment accounted for 9.7% of mining employment in Ontario in 2011, up from 9.5% in 2010 (see chart 7). The increases reflect the impact of mines like the DeBeers Victor operation which opened in 2008 with a 40% Aboriginal employment share. With recent agreements signed with a number of mining companies, this figure is expected to increase in the future.

Two other interesting features of mining employment in the province are explored in Charts 8 and 9. Responses to the latest OMA survey suggest that the share of employment in the Ontario mining industry of females rose to 11.1% in 2011 from 10.5% in 2010 (chart 8). As seen in chart 9, it is apparent that mining operations in Ontario are becoming increasingly non-unionized. In 2011, 35.5% of employees in the Ontario mining industry were unionized, down from 37.6% in 2010.

The collection of this type of data in the OMA survey will provide important benchmarks for comparison in future years.

Chart 6: % Share of Ontario Mining Industry Employment, By Age Category, 2004, 2007, 2010, 2011

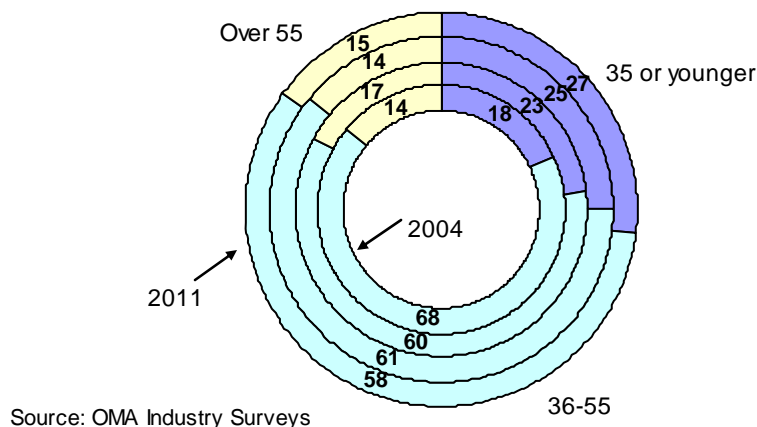
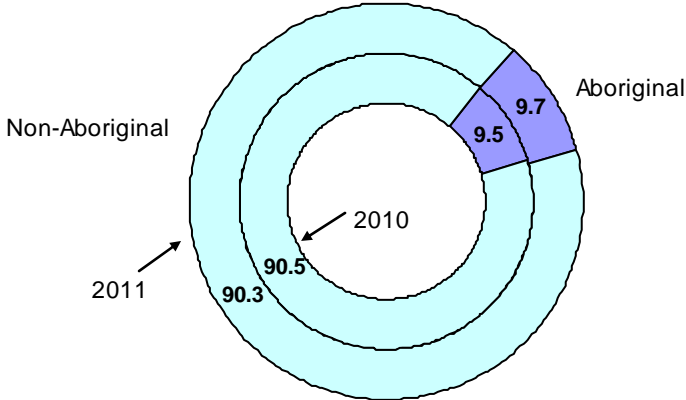
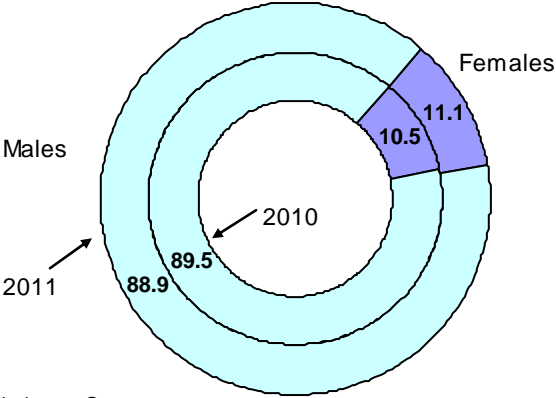


Chart 7: % Share of Ontario Mining Industry Aboriginal Employment, 2010 and 2011



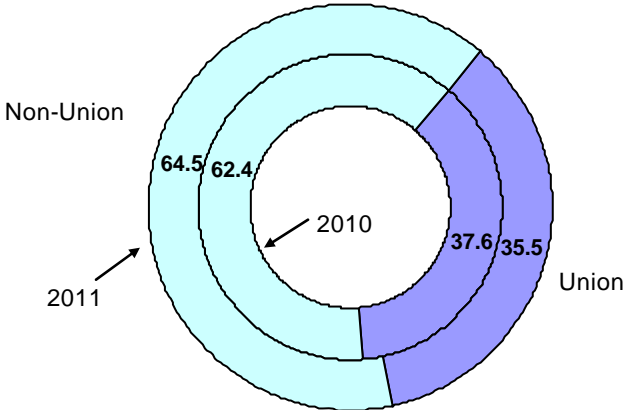
Source: OMA Industry Survey

Chart 8: % Share of Ontario Mining Industry Employment, By Gender, 2010 and 2011



Source: OMA Industry Survey

Chart 9: % Share of Ontario Mining Industry Employment, By Union Affiliation, 2010 and 2011



Source: OMA Industry Survey

Comparing Employment in the Ontario Mining Industry to Other Industries

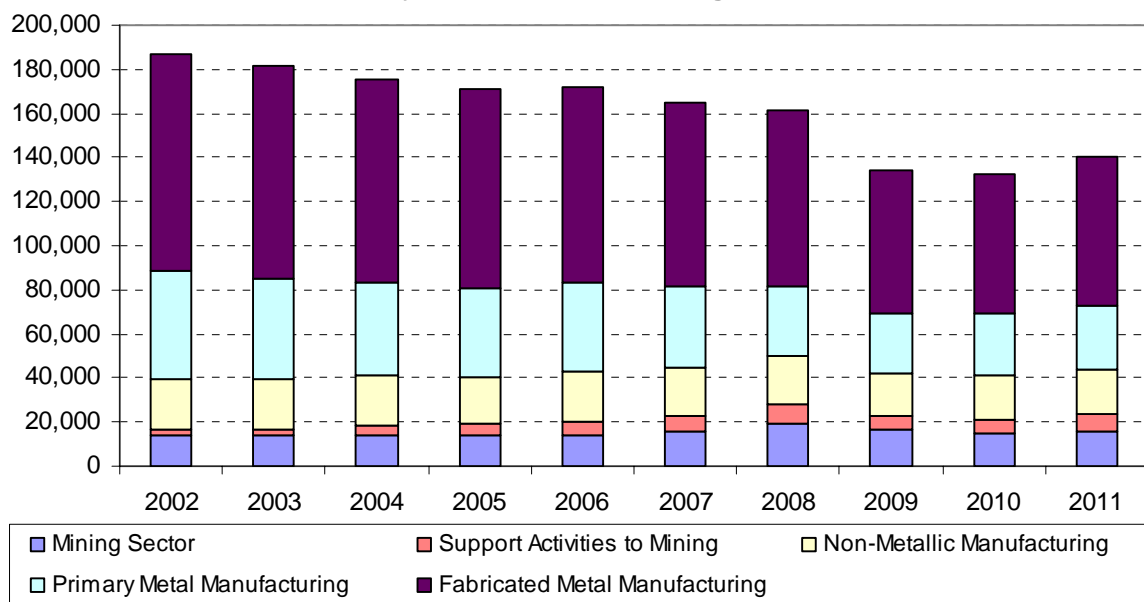
While employment in Ontario's mining and supporting industries has increased over the last 10 years, the same can not be said about the broader mineral based industries (see table 5 and chart 10). Employment in industries downstream from the mining industry itself, the industries that use the mined materials has dropped quite dramatically over the period. With the strength of the Canadian dollar impacting these industries' competitiveness, as well as the rise in a number of low cost manufacturing countries, Ontario primary metals and fabricated metal products industry employment has fallen by more than one-third over the last 10 years. Employment in non-metallic minerals manufacturing has fallen about 10%, compared to the 42% increase in mining and support activity employment.

Table 5: Employment in Ontario Mining-Related Industries

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Mining	13,679	13,700	14,429	14,110	14,433	16,036	19,409	16,534	14,492	16,067
Support Activities to Mining	3,158	3,215	4,168	4,774	5,428	6,525	8,531	6,045	6,223	7,851
Non-Metallic Minerals Manufacturing	22,503	22,301	22,476	21,578	23,016	22,048	22,062	19,844	20,169	20,212
Primary Metals Manufacturing	49,128	45,984	42,540	40,539	40,176	36,928	31,995	27,220	28,007	28,612
Fabricated Metal Products Manufacturing	98,159	96,763	91,657	89,813	89,068	83,524	78,995	64,708	63,937	67,657
Total	186,627	181,963	175,270	170,814	172,121	165,061	160,992	134,351	132,828	140,399

Source: Statistics Canada and authors' calculations

Chart 10: Employment in Ontario Mining-Related Industries



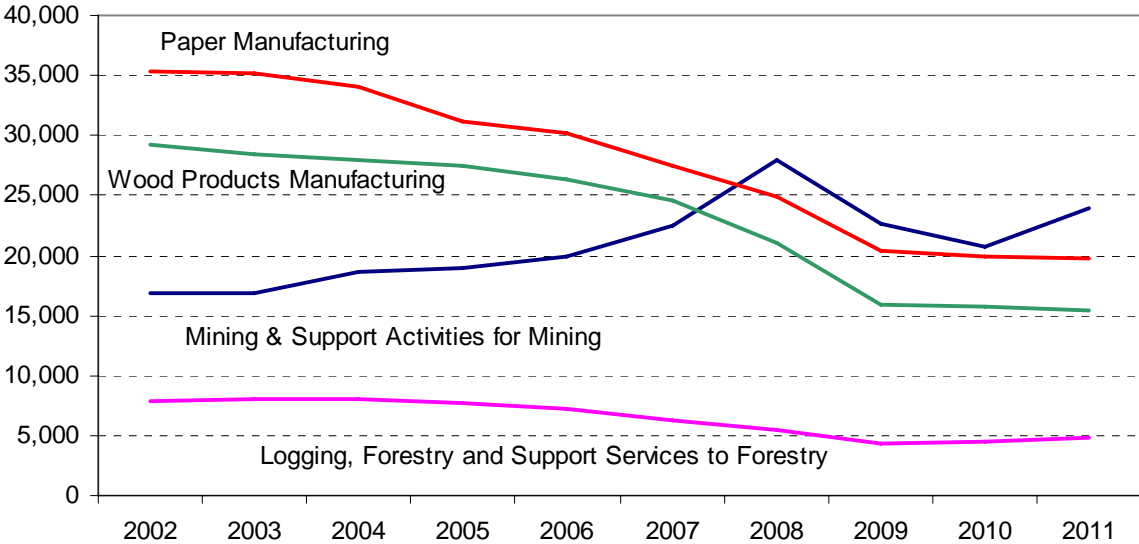
Source: Statistics Canada and authors' calculations

Employment in mining has also been solid when compared to other resource-based industries in Ontario (see chart 11). In 2002, employment in logging and forestry industries was roughly half that in mining and its support activities. The wood products manufacturing and paper manufacturing industries employed roughly 12,500 and 18,500 more workers, respectively, than the mining industry in 2002. By 2011, the situation had dramatically changed. It is now the case that employment in mining and its support activities is almost five times that in the logging and forestry sector. Employment in mining is greater than that in both wood products and paper manufacturing. As mining related employment recovers from the recent economic downturn, these other industries are at best treading water. The increases in employment in mining are important in offsetting the job losses as these sectors are particularly important to Northern Ontario.

The productivity of the workers in the Ontario mining sector is also impressive. Chart 12 shows real output per worker for a number of industries in Ontario relative to that in the mining sector in 2011. Workers in all industries in Ontario are roughly 62% as productive as those in the mining industry – with workers in goods producing industries 85% as productive and workers in service industries 58% as productive. Workers in the manufacturing sector in Ontario produce 82% as much real output as a mining industry worker. In other resource-based industries, forestry and logging workers are 89% as productive, while wood product manufacturing workers are 70% as productive.

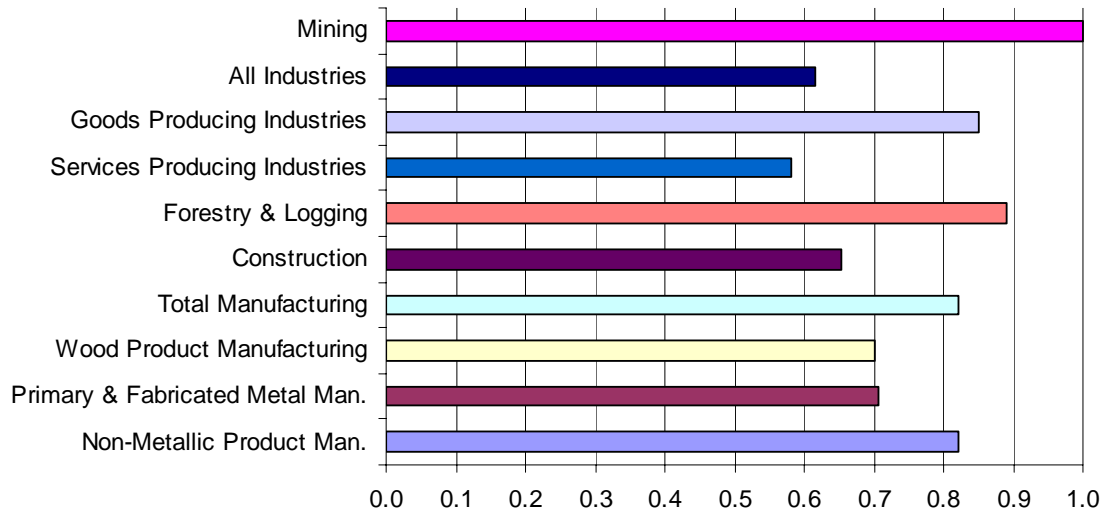
In other industries that rely on the mining industry, primary and fabricated metal manufacturing workers are 71% as productive in 2011 as workers employed in mining, while non-metallic manufacturing workers are 82% as productive. Clearly, workers in the mining sector are not only producing a high value product, but as employment has increased, are remaining very productive relative to other Ontario industries.

Chart 11: Employment in the Mining Industry Compared to Other Natural Resource Based Sectors in Ontario



Source: Statistics Canada and authors' calculations

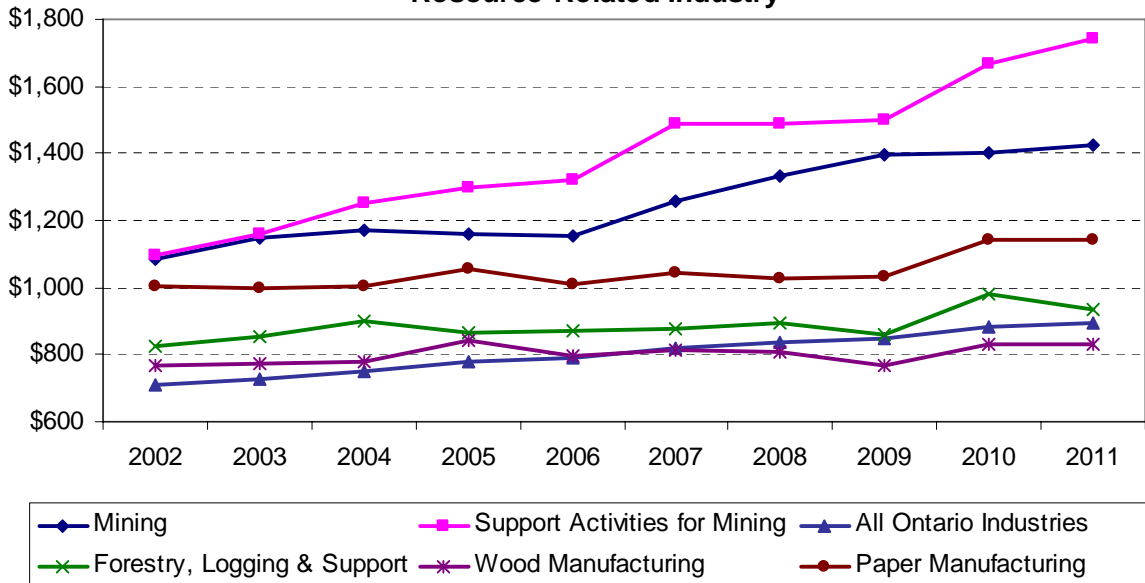
Chart 12: 2011 Ontario Real Value Added per Employee, by Industry, Relative to Mining



Source: Statistics Canada and authors' calculations

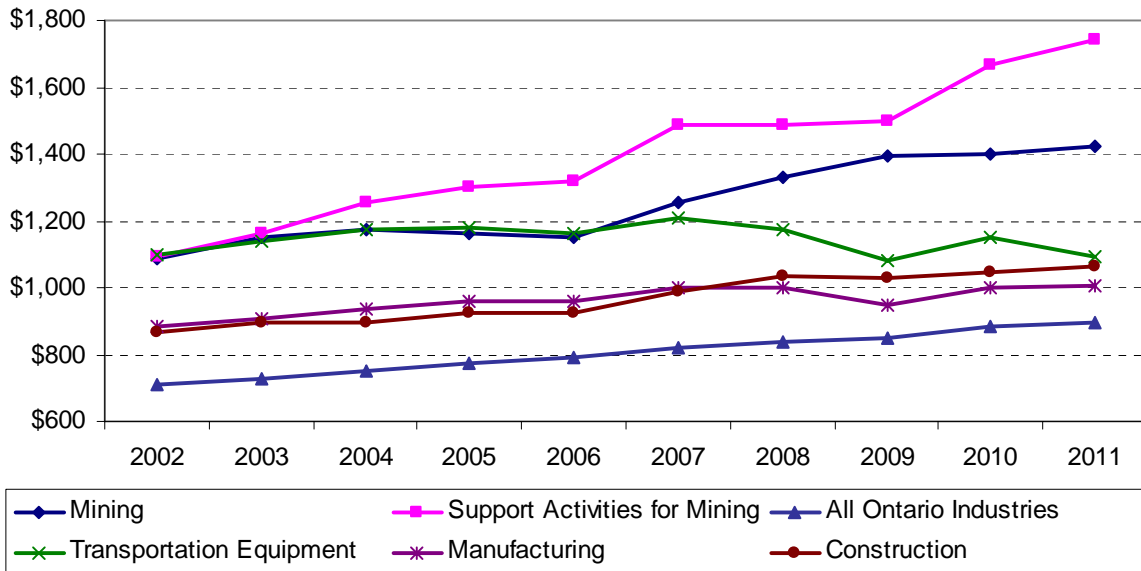
Not only is employment growing in the mining sector in Ontario but the jobs are very well paying (see Charts 13a, 13b and 13c). The average weekly wage paid in the mining industry was almost 60% more than the Ontario's average industrial wage, while wages paid in the mining support sector were almost 95% higher. Wages in the mining resource sector exceed those in other resource based industries in the province. As well, wages in the mining sector exceed those in a number of other industries that are considered vital to the Ontario economy, including manufacturing of transportation equipment and construction. The wages paid in the Ontario mining industry and its mining support sector also far outstrip those in industries that utilize mining output.

Chart 13a: Average Weekly Wages, by Ontario Resource-Related Industry



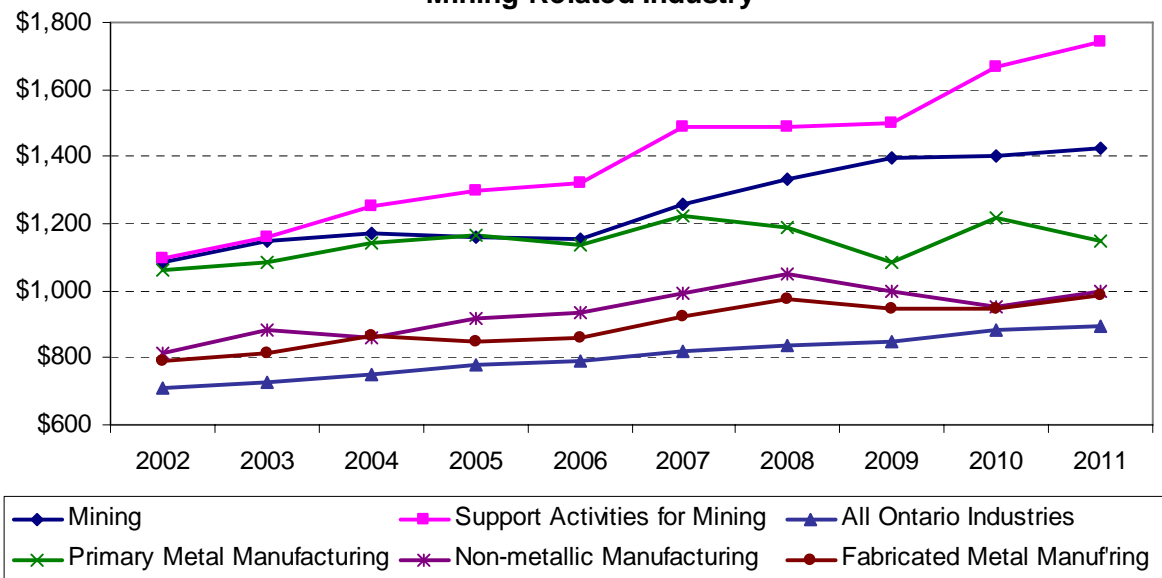
Source: Statistics Canada

Chart 13b: Average Weekly Wages, by Ontario Industry



Source: Statistics Canada

Chart 13c: Average Weekly Wages, by Ontario Mining-Related Industry



Source: Statistics Canada

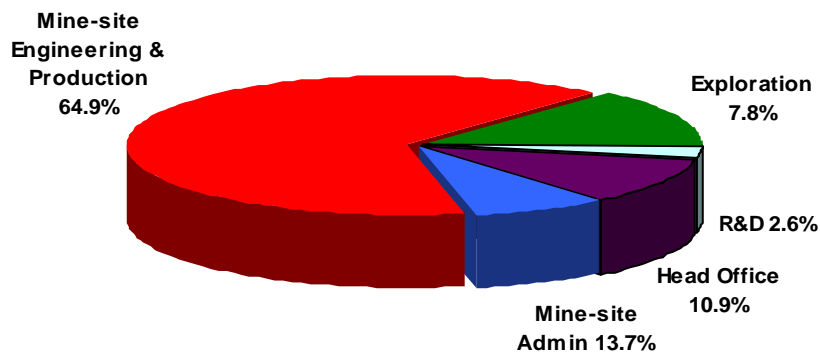
Distribution of Employment Compensation in the Ontario Mining Industry

From the OMA industry survey, how and where labour compensation is earned in the province can be examined. In 2011, almost 65% of total wages and salaries paid in the industry went to workers in mine-site engineering and production (see chart 14), up from 61.5% in 2010 (which was impacted by a nearly 12-month strike in Sudbury that lasted until the middle of that year). Mine-site administration workers accounted for almost 14% of wages and salaries paid in 2011, down from 16.2% in 2010. The share of head office wages and salaries is the next highest hitting almost 11% in 2011 (down from 12.7% in 2010), followed by wages and salaries in exploration, at 7.8% in 2011 (up from 7.1% in 2010) and finally employees involved in R&D accounting for under 3% of wages and salaries (roughly the same as 2010). The total wage bill for the industry in the province is estimated to be over \$1.7 billion in 2011, up sharply from \$1.4 billion in 2010.

The shares of wage income by region of the province can be seen in chart 15. Sudbury accounts for more than 37% of the industry's wage bill in 2011, greater than its 35.8% share of employment. This wage share is greater than that seen in 2010 (33.4%, which, as noted earlier was impacted by a major strike) but far below the share of 60% for 2006/2007 reported in an earlier OMA survey. The Northeast's share of wage compensation, at 28.6% is somewhat lower than its employment share in the province (30.5%) but higher than the wage share of 2010 (27.7%) even with the recovery in Sudbury, and dramatically higher than the wage share seen in 2006/2007 (16%). Workers in the Northwest part of the province accounted for 17.3% of wages and salaries in 2011, less than its 19.2% employment share, but higher than the 14% wage share seen in 2006/2007. Finally, the wage share of the southern part of the province in 2011, at 16.9%, is greater than its employment share (14.5%), but lower than its share both in 2010 (20.5%) and 2006/2007 (22%).

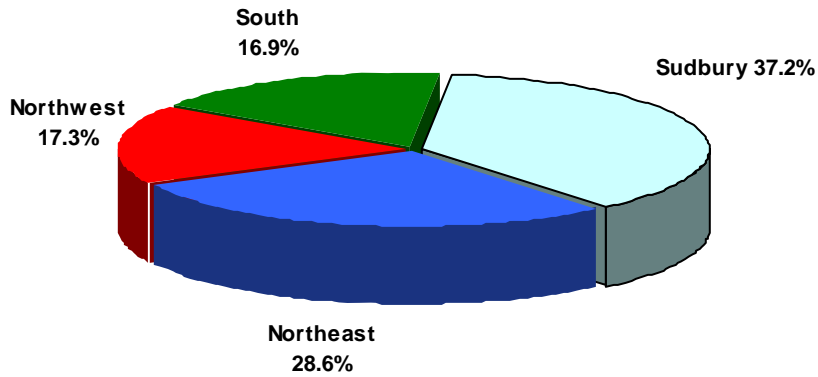
On top of wages and salaries paid to workers in the industry, companies also provide taxable benefits (which could include automobile benefits, meals, board and lodging, tool reimbursement or allowance among many others) and non-taxable benefits (which could include certain health plan premiums, remote worksite allowances, and private pension plan contributions). Charts 16a and 16b show the relative importance of these types of employee benefits by region of the province as reported by the OMA industry survey. Taxable benefits (Chart 16a) are seen to be a relatively small top-up to wages and salaries paid in all parts of the province. However, from chart 16b one can see the particular importance that non-taxable benefits have in Sudbury, which reflect the private pension plans currently in place in that part of the province.

**Chart 14: Mining Wages & Salaries Paid in Ontario,
by Job Category, 2011**



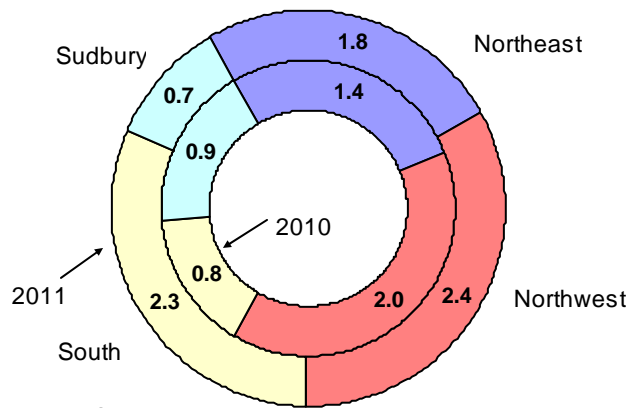
Source: OMA Industry Survey

Chart 15: Mining Wages & Salaries Paid in Ontario, by Region, 2011



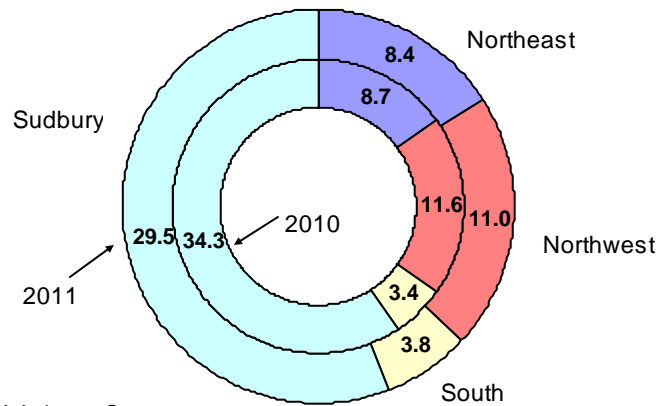
Source: OMA Industry Survey

Chart 16a: Taxable Benefits as a % Share of Mining Wages & Salaries Paid, By Ontario Region, 2010 and 2011



Source: OMA Industry Survey

Chart 16b: Non-Taxable Benefits as a % Share of Mining Wages & Salaries Paid, By Ontario Region, 2010 and 2011



Source: OMA Industry Survey

Mine Safety Moves Towards “Zero Harm”

Ontario’s mining industry is moving toward its goal of “zero harm in the workplace by 2015.” Over the past 30 years, the industry’s overall safety performance has improved dramatically and it continues to move in that positive direction.

According to statistics provided by Workplace Safety North, a provincial safety and accident prevention organization, the lost time injury rate for mining in the first nine months of 2012 was 0.4 per 200,000 hours (see chart 17). This has come down from rates of six per 200,000 hours in 1981, to three in 1991, to 1.3 in 2001 and to 0.6 in 2011. Similarly, total medical injury rates have come down to 5.4 per 200,000 hours for the first nine months of 2012 (see chart 18). The total medical injury rate for mining was 20 per 200,000 hours in the early 1980s, 17.7 in 1991, 9.5 in 2001 and six in 2011.

Evidence shows that Ontario is one of the safest mining jurisdictions in the world. A number of factors contribute to this improvement in safety performance. These include the development of health and safety committees where management and workers address safety issues and procedures to make the workplace safer and reduce risk.

Also, certified health and safety committee members audit, make recommendations, provide feedback to management and workers and ensure that legislated and company standards are maintained. Companies are building safety cultures. In addition, government chairs the tripartite Mining Legislative Rules Committee (MLRC) with management and labour. This group collaboratively sets standards, policies and procedures for safety and examines the impact of technological changes on risk management. A Common Core for industry-wide training programs have been developed which provides foundation orientation for safe mining workplaces across the province.

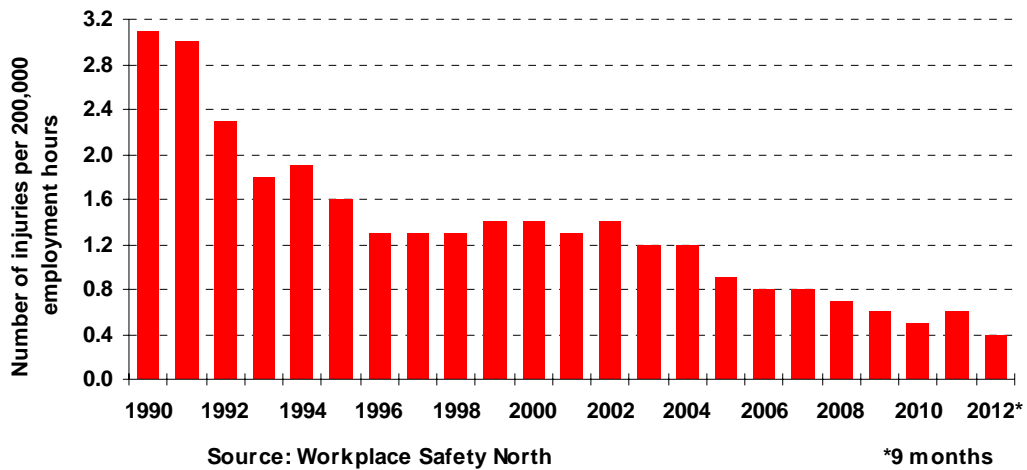
The Internal Responsibility System (IRS) has been the cornerstone of the Occupational Health and Safety Act in Ontario since 1978. It defines the responsibility for each person in the workplace and provides workers with three rights: the right to know, the right to refuse and the right to participate in the safe and orderly production of work. The system is now part of a formal audit process.

In 1997, 50 amendments to Ontario’s Regulations for Mines and Mining Plants were implemented. Key changes included new underground safety regulations, emergency braking systems on underground vehicles, improved inspection of equipment, a strengthening of the IRS and the streamlining of administrative procedures. These amendments were developed by the MLRC. The industry works closely with its accident prevention organization Workplace Safety North to improve training and enhance safety.

The OMA plays a number of roles in assisting mining companies with their safety programs. The OMA acts as a forum for the exchange of information and ideas related to improving safety performance and monitors safety statistics and trends. The OMA also interfaces with the Ministry of Labour, Workplace Safety North and the MLRC in the development of new safety policies, practices, rules and regulations.

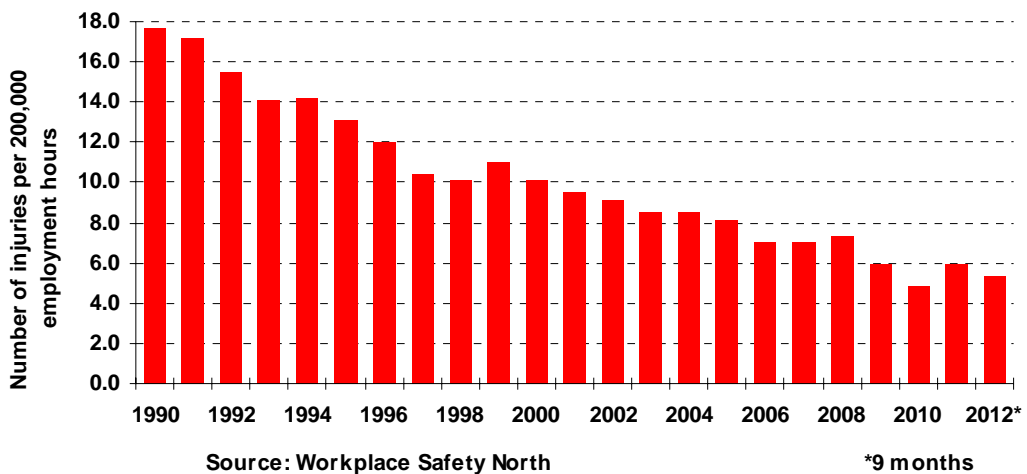
The OMA Occupational Health and Safety Commitment for members is a statement of the dedication and expectations of OMA members to achieve healthy work environments. The document is directed towards establishing workplace environments that promote zero harm and the physical and mental health of its employees. It embraces the OMA members’ use of an integrated approach to the management of health and safety with the economic, technical and social processes of their business.

Chart 17: Lost-Time Injury Frequency in the Ontario Mining Industry



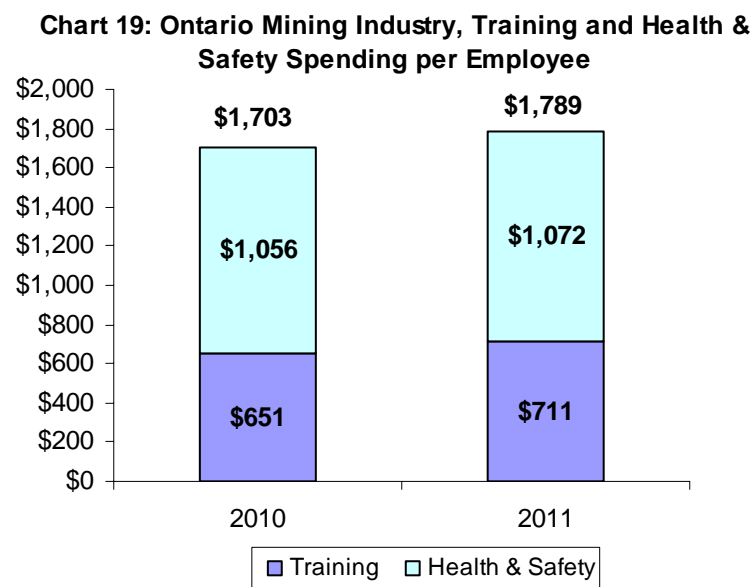
Note: A lost-time injury occurs when an employee is compensated for either a loss of wages following an accident, or for a permanent disability. The data covers gold, nickel, uranium, miscellaneous mining, mine contractors and contract diamond drill operators. Pits and quarries are not covered.

Chart 18: Total Medical Injury Frequency in the Ontario Mining Industry



To maintain high standards of safety, mining companies continue to emphasize training. As technology and equipment become more sophisticated, fewer people operate equipment and more people design, develop and maintain equipment. According to the results from the latest OMA industry survey, an average of \$711 per employee was spent on training in 2011, up from \$651 in 2010 (see chart 19). A further \$1,072 per employee was spent on health and safety initiatives in 2011, compared to \$1,056 in 2010. Together, the mining industry spent almost \$1,800 per employee in 2011 on training and health and safety initiatives. Remember that this is the average expenditure for all employees (production & engineering and administrative staff at mine-site, R&D workers, exploration employees and head office personnel), so this spending would be much higher in areas that warrant it.

The recent establishment of the Ontario Prevention Council, in which mining has a strong presence, will contribute to future improvements in mining safety in Ontario.



Overall, the evidence is clear. Employment in the Ontario mining industry is growing and these employees are safe, highly skilled, highly paid and highly productive.

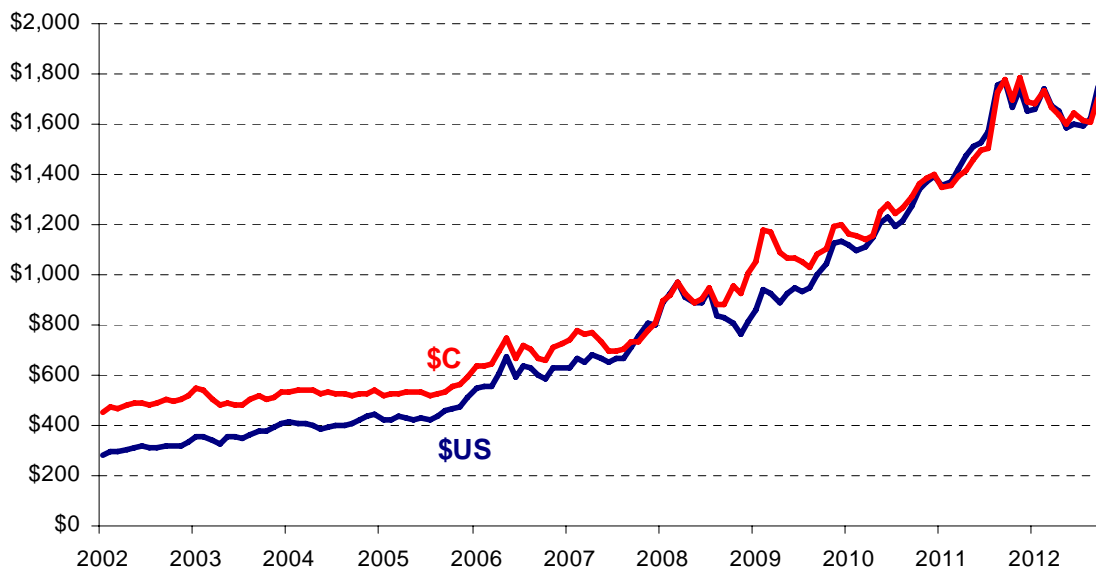
Commodity Prices

Clearly, a crucial factor in the value of mineral production and the interest in exploring for new sources of possible mineral production in the province is the value that is placed upon this production. International markets dictate prices for mineral commodities. Gold and silver prices have strengthened considerably over the last 10 years, while base metal and platinum group metal prices have fluctuated dramatically. Because commodities are priced in U.S. dollars, monetary exchange rates have historically had a significant impact on the Canadian dollar revenues generated by Ontario mining companies, which was particularly noticeable during the 2008-09 economic downturn when the exchange rate plummeted. Recently, however, with the Canadian dollar *vis-a-vis* its U.S. counterpart roughly at par, the impact is less obvious.

Since the beginning of 2006, the prices of gold and silver in \$C have increased by a factor of roughly three. Through the first nine months of 2012, the \$C price of gold averaged more than \$1,650 per ounce, over \$100 an ounce more than the 2011 average and \$400 an ounce greater than the 2010 annual average. Nickel and zinc prices, meanwhile, soared throughout 2006 and early 2007 before slumping over the next two years, then recovering somewhat in the subsequent period. After averaging \$10.25 a pound in 2010, the \$C price of nickel in the first nine months of 2012 has averaged just over \$8 a pound, the same as that seen in 2004 and 2005.

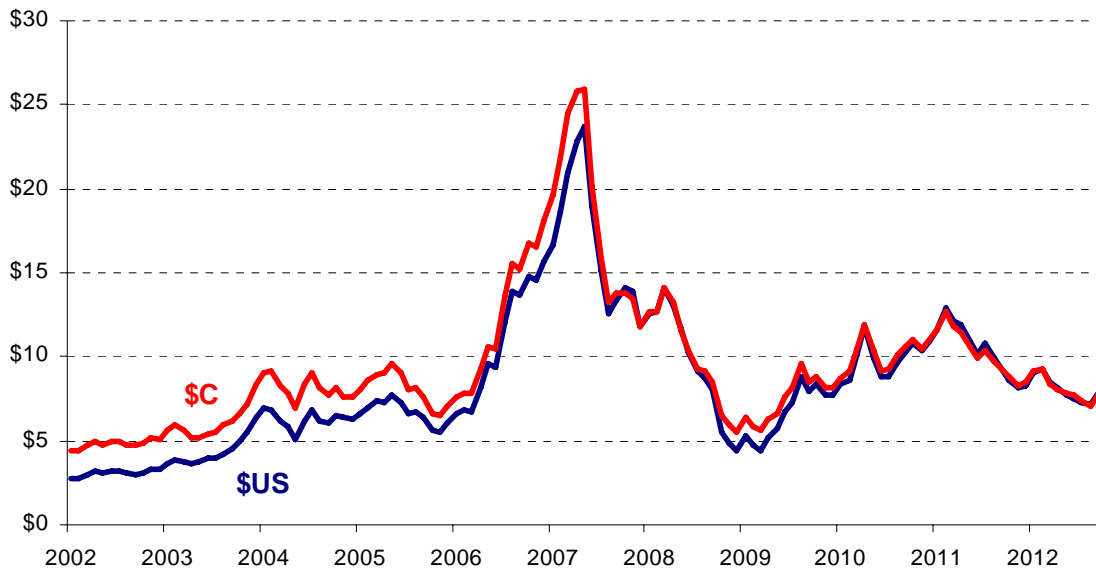
The price of copper has increased dramatically over the last 10 years, but there have been a number of peaks and valleys along the way. After a period of relative price stability in 2002 and most of 2003, the value of copper quadrupled by the beginning of 2006 to \$C4 per pound. The price bounced between \$C3 and \$C4 per pound over the next two years before falling to \$C1.75 by the end of 2008 as the world economic crisis took hold. Since then, the price for copper peaked at roughly \$C4.50 per pound in early 2011, averaging \$C3.95 for calendar year 2011 and \$3.62 through the first nine months of 2012.

Chart 20a: London PM Gold Price per Ounce



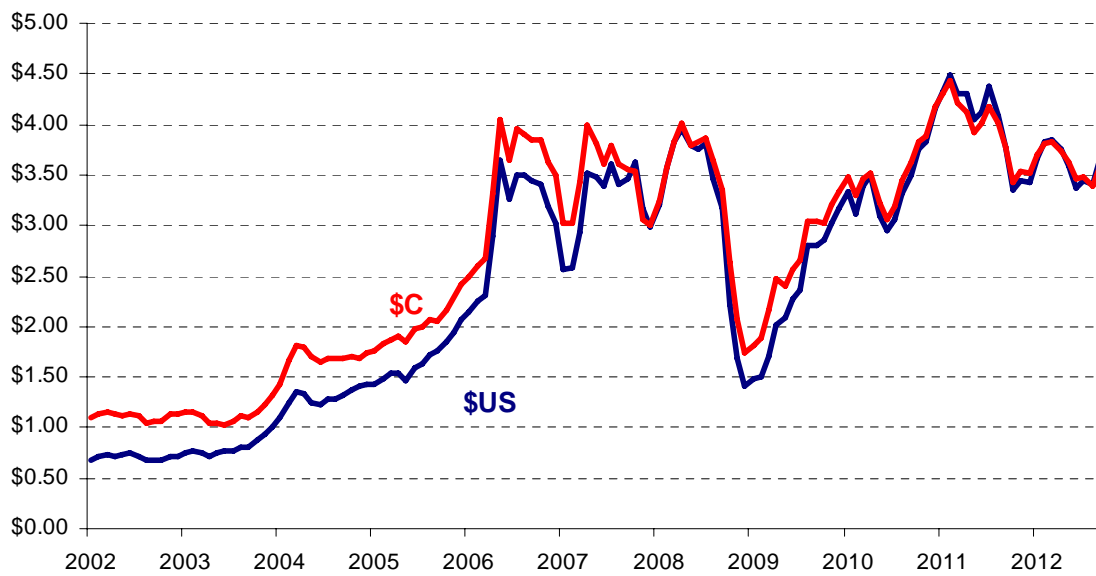
Source: Kitco

Chart 20b: London Metal Exchange Nickel Price per Pound



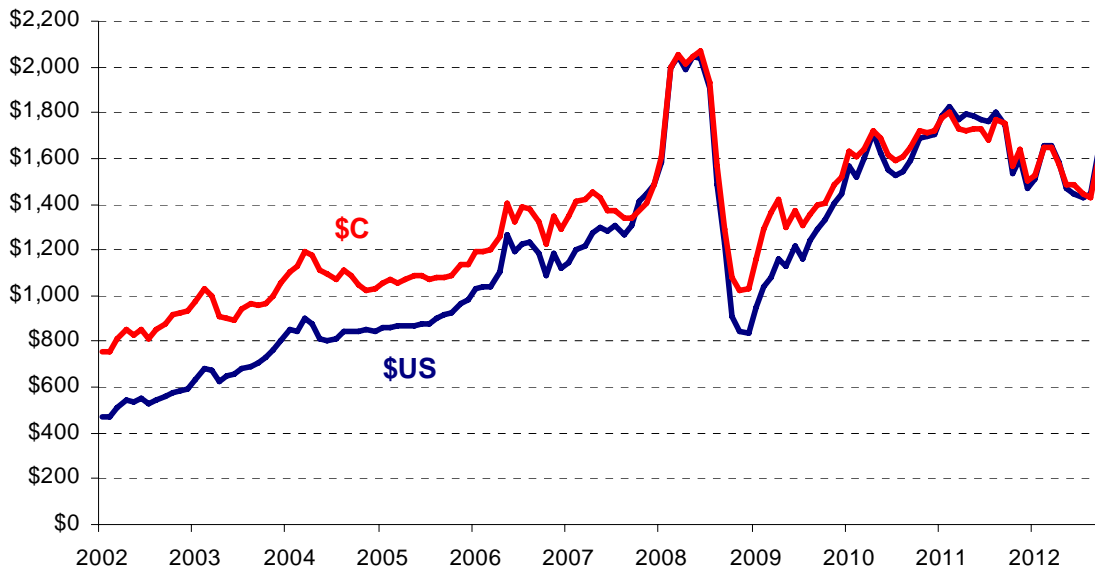
Source: London Metal Exchange

Chart 20c: London Metal Exchange Copper Price per Pound



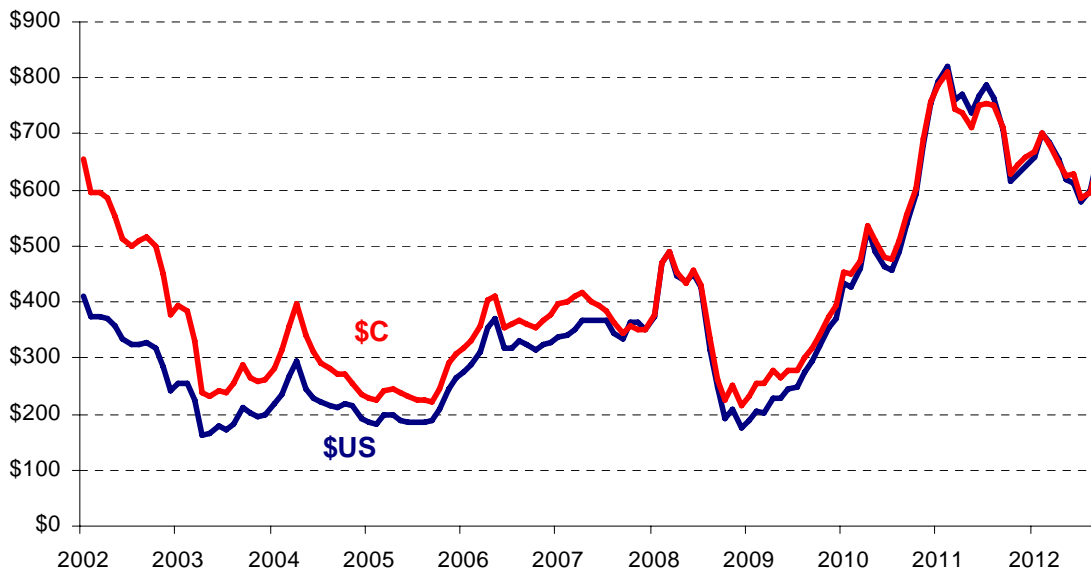
Source: London Metal Exchange

Chart 20d: London PM Platinum Price per Ounce



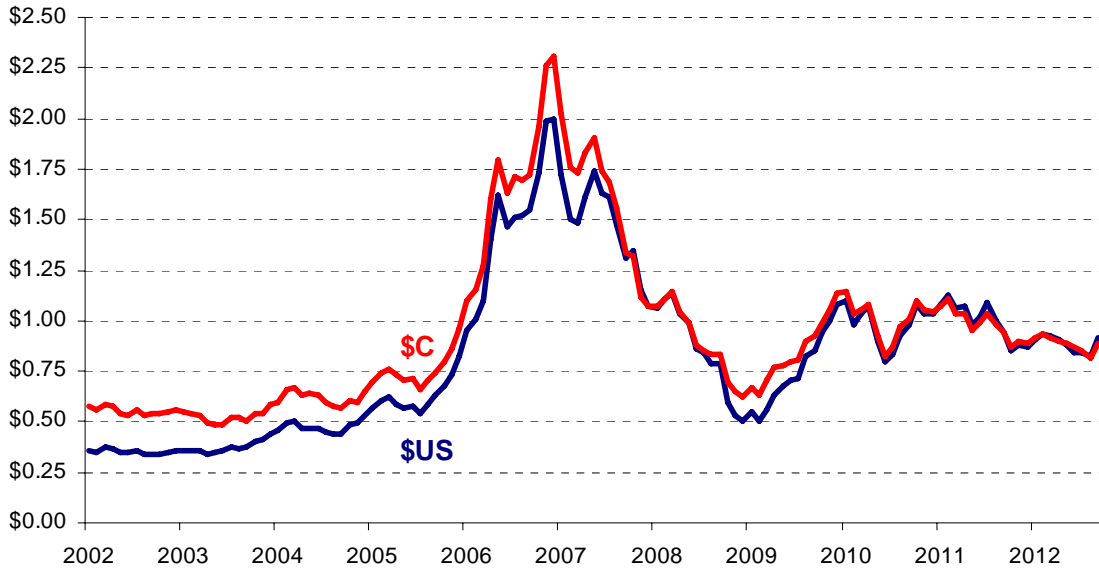
Source: Kitco

Chart 20e: London PM Palladium Price per Ounce



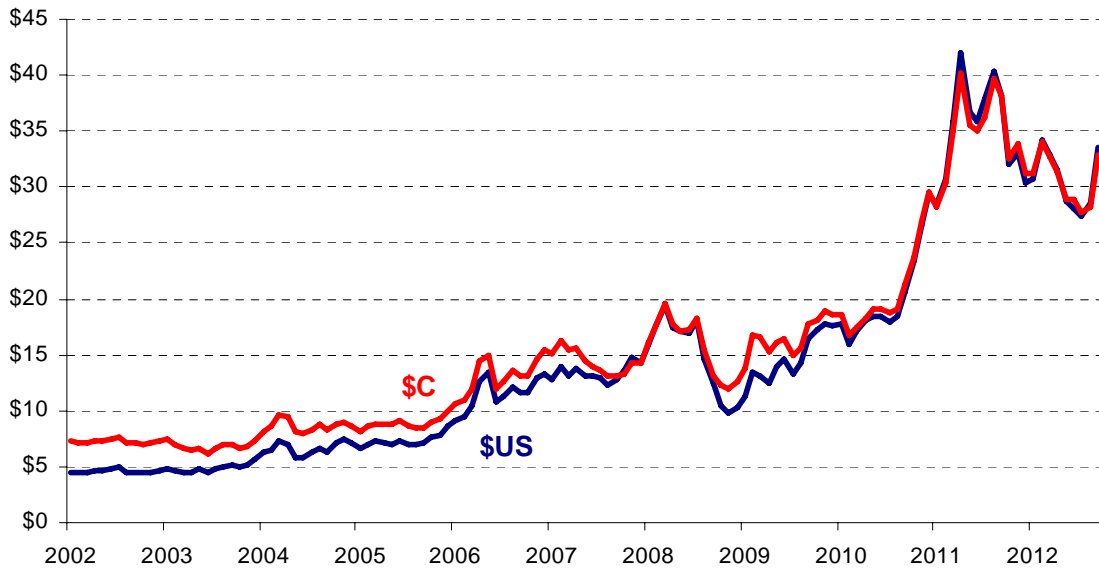
Source: Kitco

Chart 20f: London Metal Exchange Zinc Price per Pound



Source: London Metal Exchange

Chart 20g: London Silver Price per Ounce



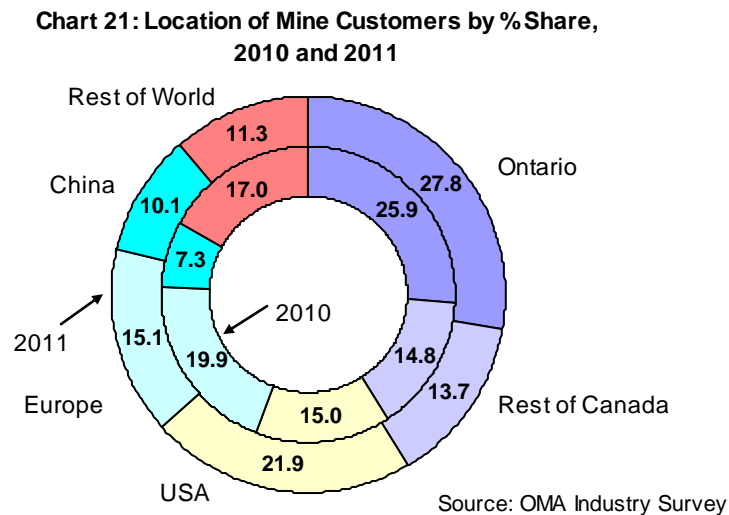
Source: Kitco

Location of Customers

Determining the location of mining company customers can be somewhat tricky because some companies do further refining of their production before they ship it to their ultimate customer, while others do not. The degree of this further local refining can be quite different depending on the type of mineral produced. According to company responses to the latest Ontario Mining Association survey, roughly 60% of OMA company mineral production, by value, was shipped outside Canada in both 2010 and 2011 (see chart 21), which is down from the 80% share reported in the 2007 OMA industry survey. It is certainly the case that the major strike in Sudbury, covering the first half of 2010, will have had an impact on the relative shares in that year, and consequently the change in shares in 2011 relative to 2010.

In 2011, exports to the US accounted for almost 22% of customer sales, up from 15% in 2010, but much lower than the 38% reported for 2006/2007. The share of sales to Europe, at just over 15% in 2011, was down from the 20% share seen in 2010 and the 26% share reported for 2006/2007. Sales to China climbed in 2011 to over 10% of the total, up from 7.3% in 2010 and only 3% in 2006/2007. Finally, international sales to the rest of the world accounted for over 11% of the total, down from 17% in 2010 and 13% in 2006/2007. As growth in the developed world is expected to be relatively tepid in the next few years, one would reasonably anticipate the share of sales to China and the rest of the world to grow.

Of the roughly 40% of sales that were not exported from the country, according to the results from the OMA survey, roughly two-thirds of these remained in Ontario in 2011.



As a large proportion of Ontario mineral production is exported abroad, it is important to understand what contribution mineral trade makes to the trade balance for the province and indeed the country.

International Trade in Minerals

Measuring international trade at the provincial level is somewhat tricky, as it can be sometimes difficult to determine the true source and destination of traded goods within the country. As well, it has become clear by analyzing the data that there are some industry definitional difficulties within the trade data, as well as significant re-exporting of reported imports that is sometimes problematic to measure.² We therefore concentrate on the commodities traded, rather than data defined by industry in the Trade Statistics Online database. Further, we think it is the trade balance that is the best measure on which to focus.

As Ontario's international trade balance has deteriorated over the last 10 years due to a combination of a strengthening currency and the weakness of its major trading partner, trade in mineral products has become increasingly important (see chart 22 and table 6). Since 2002, as the overall international goods trade *deficit* for the province more than quadrupled, the trade *surplus* for Ontario mineral products has strengthened to more than \$12 billion, remaining positive over the entire period. As well, as can be seen by comparing the Ontario numbers (table 6) to the Canadian ones (table 7), Ontario international mineral trade has accounted for over half of the surplus in the country's mineral trade over this period.

The Ontario international trade balances for both nickel and gold (with the measurement concerns noted) have remained strongly positive over the last 10 years. The opening of the diamond mine in the province in 2008 has also boosted the province's trade bottom line. It does appear that the closing of the Kidd Metallurgical site may have had an impact on the trade balance of copper for the province, as one might suspect.



Source: Trade Statistics Online, Industry Canada, Statistics Canada

² Two examples of these difficulties are (1) the trade in “gold in unwrought form” which in the trade data is counted as Ontario production but turns out to be gold bars that have been imported for further processing. This becomes obvious when one looks at the level of gold exports, which has far exceeded the actual value of Ontario gold production for many years; and (2) the trade data show no international exports for the salt industry in Ontario which we know can not be true given transportation and industry data.

Table 6: Ontario International Trade, \$ Millions

		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Nickel	Total Exports	1,713	1,670	3,073	3,032	4,014	7,518	5,218	2,245	3,330	4,807
	Total Imports	85	82	101	99	87	183	145	46	134	152
	Trade Balance	1,627	1,588	2,973	2,933	3,927	7,336	5,073	2,200	3,196	4,654
Copper	Total Exports	495	452	643	749	818	1,505	1,279	586	802	802
	Total Imports	163	156	203	235	411	500	554	462	614	847
	Trade Balance	333	296	440	515	406	1,005	725	124	188	-45
Zinc	Total Exports	179	119	174	187	444	500	285	225	172	66
	Total Imports	10	11	15	15	50	82	44	9	15	15
	Trade Balance	169	108	159	172	394	418	241	215	157	51
Gold (including scrap)	Total Exports	2,683	2,606	3,127	4,032	5,384	5,885	8,208	8,372	13,750	16,831
	Total Imports	859	779	1,162	2,332	2,851	3,079	4,527	6,019	8,024	11,088
	Trade Balance	1,824	1,827	1,965	1,700	2,533	2,806	3,681	2,352	5,726	5,743
Silver	Total Exports	154	118	173	175	309	459	459	389	822	2,108
	Total Imports	40	7	45	46	65	84	283	400	750	968
	Trade Balance	114	112	129	129	244	375	176	-11	72	1,140
Platinum Group Metals	Total Exports	36	26	29	49	77	65	79	49	169	103
	Total Imports	244	215	220	200	257	285	371	193	259	272
	Trade Balance	-208	-189	-190	-151	-180	-220	-292	-144	-89	-169
Diamonds, Unsorted	Total Exports	1	0	0	0	0	0	272	240	336	414
	Total Imports	15	0	0	0	0	0	0	0	0	0
	Trade Balance	-14	0	0	0	0	0	272	240	336	414
Other Diamonds	Total Exports	27	41	63	84	106	126	170	145	146	172
	Total Imports	284	261	317	366	502	452	487	282	363	330
	Trade Balance	-257	-220	-254	-282	-396	-325	-317	-137	-217	-158
Other Precious Metals & Stones	Total Exports	327	296	393	456	497	655	705	335	310	722
	Total Imports	179	117	80	85	108	111	284	218	162	229
	Trade Balance	148	180	313	371	389	544	421	117	148	493
Salt	Total Exports	85	112	63	55	57	49	68	91	66	84
	Total Imports	25	28	35	32	34	33	39	50	37	48
	Trade Balance	60	84	28	23	22	17	29	41	30	36
Cement	Total Exports	282	257	260	243	232	253	222	191	191	173
	Total Imports	32	29	28	23	21	28	30	30	36	47
	Trade Balance	250	228	232	220	211	225	192	161	155	126
Other Non-Metallic Materials	Total Exports	224	212	214	211	235	205	223	168	210	201
	Total Imports	275	244	241	244	234	216	207	179	183	179
	Trade Balance	-51	-32	-26	-32	1	-11	17	-11	28	21
Total Ontario Trade in Minerals	Total Exports	6,206	5,910	8,213	9,275	12,174	17,221	17,189	13,036	20,305	26,483
	Total Imports	2,211	1,930	2,445	3,677	4,621	5,052	6,971	7,888	10,576	14,176
	Trade Balance	3,995	3,980	5,768	5,598	7,552	12,168	10,218	5,148	9,730	12,307
Total Ontario Trade	Total Exports	206,496	189,113	199,007	200,821	198,768	202,477	188,706	147,766	168,585	181,214
	Total Imports	224,753	210,192	220,620	228,606	233,844	240,636	242,260	207,145	235,147	254,984
	Trade Balance	-18,257	-21,079	-21,613	-27,785	-35,076	-38,159	-53,554	-59,379	-66,562	-73,770

Source: Trade Data Online, Industry Canada and Statistics Canada

Table 7: Canada International Trade, \$ Millions

		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Nickel	Total Exports	2,336	2,482	4,316	4,210	6,018	10,972	7,409	3,398	5,013	6,731
	Total Imports	226	305	528	467	326	669	272	335	662	622
	Trade Balance	2,110	2,177	3,787	3,743	5,692	10,302	7,137	3,063	4,352	6,109
Copper	Total Exports	1,575	1,541	2,051	2,852	4,588	5,239	5,313	3,381	4,286	5,419
	Total Imports	599	657	1,197	1,519	2,215	1,656	1,704	1,148	1,227	1,076
	Trade Balance	976	884	854	1,333	2,372	3,583	3,610	2,233	3,059	4,343
Zinc	Total Exports	1,199	973	1,119	1,103	2,147	2,580	1,771	1,358	1,593	1,580
	Total Imports	170	249	272	265	720	901	408	259	341	405
	Trade Balance	1,029	724	847	838	1,427	1,679	1,363	1,099	1,252	1,175
Gold (including scrap)	Total Exports	2,689	2,673	3,414	4,133	5,432	5,938	8,247	8,469	14,006	17,044
	Total Imports	936	982	1,829	2,730	3,721	4,312	5,970	6,744	9,230	11,871
	Trade Balance	1,753	1,691	1,584	1,402	1,711	1,626	2,277	1,725	4,776	5,172
Silver	Total Exports	435	351	423	434	660	680	726	745	1,771	3,480
	Total Imports	53	28	165	104	172	200	370	680	1,400	2,858
	Trade Balance	382	324	258	329	488	480	356	65	370	622
Platinum Group Metals	Total Exports	70	54	77	87	196	125	183	110	310	249
	Total Imports	262	238	244	225	285	312	402	223	310	302
	Trade Balance	-192	-183	-167	-138	-90	-186	-219	-113	0	-53
Diamonds, Unsorted	Total Exports	861	1,396	1,567	1,263	1,032	1,215	1,879	1,248	1,910	1,928
	Total Imports	21	0	0	0	0	0	0	0	0	0
	Trade Balance	839	1,396	1,567	1,263	1,032	1,215	1,879	1,248	1,910	1,928
Other Diamonds	Total Exports	76	254	522	590	762	808	924	686	771	809
	Total Imports	345	330	400	463	602	559	654	417	532	510
	Trade Balance	-268	-76	122	128	160	248	270	269	239	299
Other Precious Metals & Stones	Total Exports	349	396	430	528	577	845	876	454	410	916
	Total Imports	308	240	230	204	299	433	646	589	514	914
	Trade Balance	41	156	200	324	277	412	230	-135	-104	2
Salt	Total Exports	97	126	84	80	86	89	122	157	129	157
	Total Imports	51	43	51	50	57	62	74	88	60	87
	Trade Balance	46	83	33	29	29	26	49	70	69	70
Cement	Total Exports	485	462	432	400	376	420	372	313	284	267
	Total Imports	79	78	75	76	68	94	104	105	137	156
	Trade Balance	405	384	357	324	309	326	269	209	147	111
Other Non-Metallic Materials	Total Exports	793	788	892	1,078	1,002	1,068	2,609	794	960	1,141
	Total Imports	627	611	619	599	577	566	583	456	489	524
	Trade Balance	166	177	273	480	425	503	2,025	338	471	616
Total Canada Trade in Minerals (as in Ontario)	Total Exports	10,964	11,496	15,326	16,758	22,873	29,978	30,432	21,113	31,444	39,720
	Total Imports	3,678	3,759	5,610	6,702	9,041	9,764	11,188	11,043	14,902	19,326
	Trade Balance	7,286	7,737	9,716	10,056	13,832	20,214	19,244	10,070	16,541	20,395
Total Canada Trade	Total Exports	396,382	381,172	412,290	436,351	440,365	450,321	483,488	359,754	399,300	447,501
	Total Imports	348,957	336,141	355,886	380,858	397,044	407,301	433,999	365,359	403,750	445,992
	Trade Balance	47,425	45,031	56,404	55,493	43,321	43,020	49,489	-5,605	-4,450	1,509

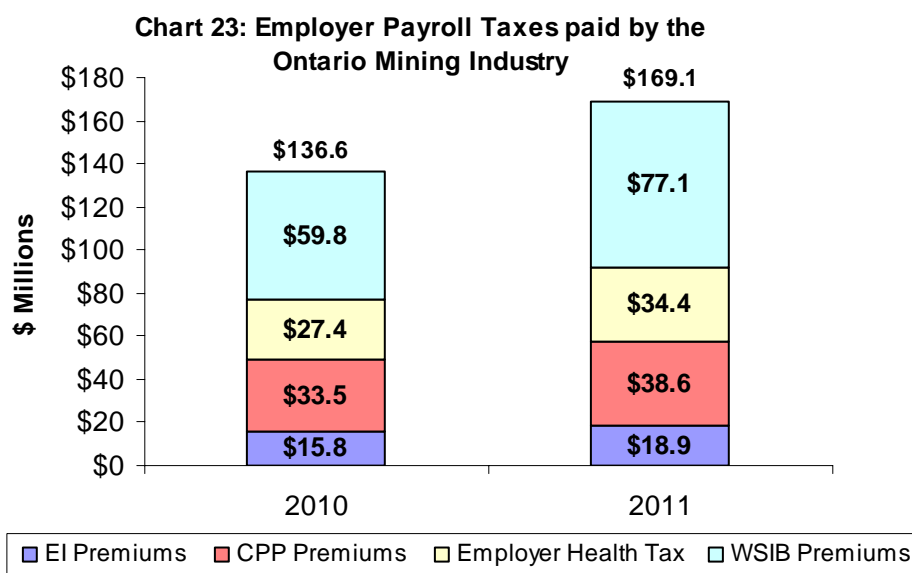
Source: Trade Data Online, Industry Canada and Statistics Canada

Taxes Paid by the Mining Industry

The industry does not only make a considerable contribution to the provincial international trade balance, it also pays a substantial amount in taxes to all levels of government. Data on all of the different taxes paid by companies in the mining industry in the province is difficult to come by, but we can get a good handle on a number of them. From Chart 23, based on responses to the OMA survey, employers in the Ontario mining industry paid \$170 million in payroll taxes in 2011, up from nearly \$140 million in 2010. The provincial government was the recipient of the bulk of these taxes, with revenues from the Employer Health Tax and WSIB premiums totaling over \$111 million in 2011, up from \$87 million in 2010.

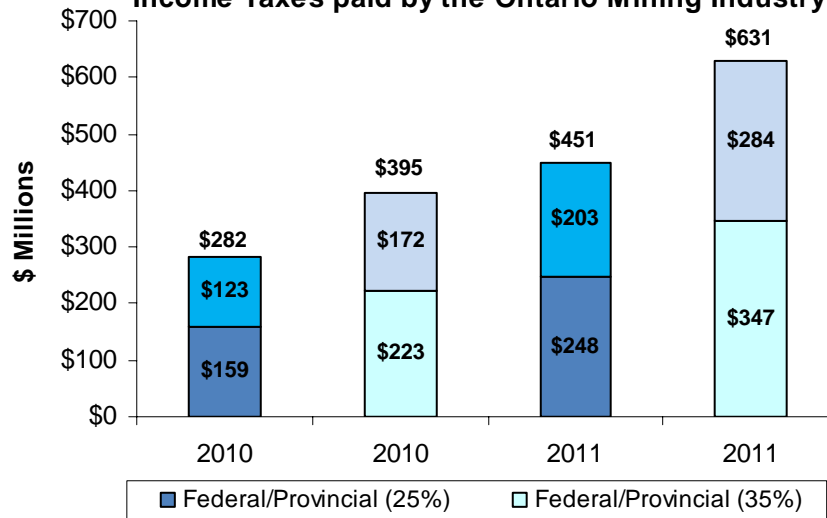
Corporate income tax data by industry at the provincial level are difficult to estimate, but using information from the ENTRANS Policy Research Group report, “Revenues to Governments from the Canadian Mineral Sector 2002-2011” prepared for the Mining Association of Canada, we can estimate a range of the tax take by level of government. In 2011 in Canada, ENTRANS estimates that the Mining industry paid \$992 million in federal corporate income tax and \$811 in total provincial corporate income tax. If we assume that Ontario accounted for 25% of this value in 2011, the federal income tax paid in the province would amount to almost \$250 million, while the provincial tax take is estimated to be \$203 million. If the share were 35%, the federal corporate tax take in the province is almost \$350 million, with the province taking in another \$284 million (see chart 24).

Adding the payroll taxes paid to the estimates for corporate taxes, together with estimates for the Ontario mining tax as well as other charges including permits and net HST payments, we get estimates for total payments from Ontario mining companies to the federal and provincial governments. In 2011, depending on the assumption for the Ontario share of Canadian mining firms’ corporate income tax, the amount paid in taxes (including CPP) to the federal government ranged from \$314 million to \$413 million, a big increase from the estimated \$215 million to \$278 million paid in 2010. Taxes collected by the Ontario provincial government were an estimated \$482 million to \$564 million in 2011, more than 70% higher than the estimated amounts in 2010 (\$280 million to \$329 million). Even using the lower estimate for corporate tax take, the mining industry paid an estimated \$800 million to these two levels of government in 2011. Remember that this does not include the income taxes or payroll taxes paid by industry employees on their wages and salaries, which given an estimated industry payroll in excess of \$1.7 billion, would conservatively amount to more than half a billion dollars.



Source: OMA Industry Survey

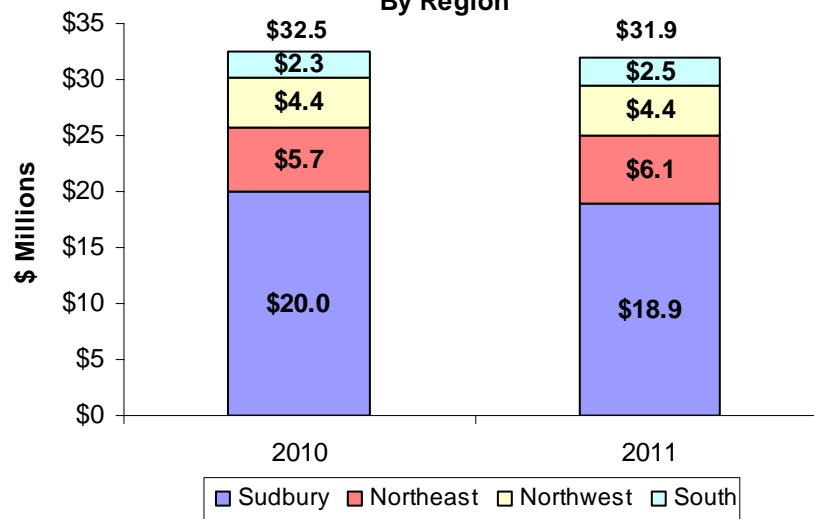
Chart 24: Estimates of Federal and Provincial Corporate Income Taxes paid by the Ontario Mining Industry



Source: Calculated as 25% and 35% of Canadian Mining Industry Corporate Taxes as reported by ENTRANS

Local taxes by mining companies are particularly important to the northern regions of the province. According to responses to the OMA industry survey,³ almost \$19 million in local property taxes were paid in the Sudbury region in 2011, down somewhat from the \$20 million paid in 2010. Clearly, this is a significant part of the local tax base in this region. Local taxes in the Northeast part of the province totaled over \$6 million in 2011, up from \$5.7 million the previous year. In the Northwest, property taxes totaled \$4.4 million in 2011, while in the south the number stood at \$2.5 million. Overall, roughly \$32 million were paid in property taxes across the province, providing important support for local services.

Chart 25: Property Taxes paid by the Ontario Mining Industry, By Region



Source: OMA Industry Survey

³ These numbers are lower than the actual taxes paid due to confidentiality concerns related to the OMA member survey. As well, property taxes in the south of the province are impacted by the fact that the property tax paid by company corporate offices typically is included in the rent they pay and therefore not reported.

Investing in the Future

On top of the usual type of investment in research and development, the mining industry has its own unique kind of research – mineral exploration. Exploration and deposit appraisal spending in Ontario for 2011 hit more than \$1 billion (see table 8 and chart 26), almost 20% higher than in 2010 (\$853 million), three times as great as the amount spent in the province in 2006 (\$347 million), and almost eight times the amount spent in 2002 (\$139 million). This is also the most ever spent in one year on mineral exploration in any Canadian jurisdiction. Ontario maintained its decade-long lead of all Canadian provinces and territories in exploration and deposit appraisal expenditures in 2011, with 26% of Canadian spending in the province, down from 31% in 2010. According to the Metals Economics Group, Canada in 2011 accounted for roughly 18% of total global exploration spending, the most for any country.

At \$833 million in 2011, exploration for precious metals continues to be the main commodity focus of exploration spending, with gold the most sought-after commodity in the province (and indeed Canada and globally). Spending on exploration for base metals (\$112 million) is targeted mostly in the Sudbury area, but other base metal projects are underway in the Ring of Fire area where exploration for chromite is estimated to have totaled \$30 million in 2011. Of the remaining \$47 million in exploration spending, platinum group metals, diamonds, lithium and rare earth elements are among the commodities that are being sought. Junior companies play a prominent role in exploration in Ontario, accounting for 46 percent of expenditures in 2011. There are currently more than 330 companies from across the country and the world actively exploring the province (see table 9).

General exploration accounted for \$845 million, or 83%, of exploration expenditures in 2011, with the remaining \$177 million devoted to on-mine-site spending. Over the previous five years the shares have averaged roughly 75% general exploration and 25% on-mine-site spending. As well, according to the Ministry of Northern Development and Mines, mining claim activity in Ontario remains well above historic levels, with the number of active mining claim units in good standing in Ontario at 326,000 in 2011 up 5% from the 312,000 in 2010. The value of assessment work in the province climbed 24% to \$185 million in 2011 from \$149 million in 2010. There are currently more than 600 active mineral exploration projects going on in Ontario.

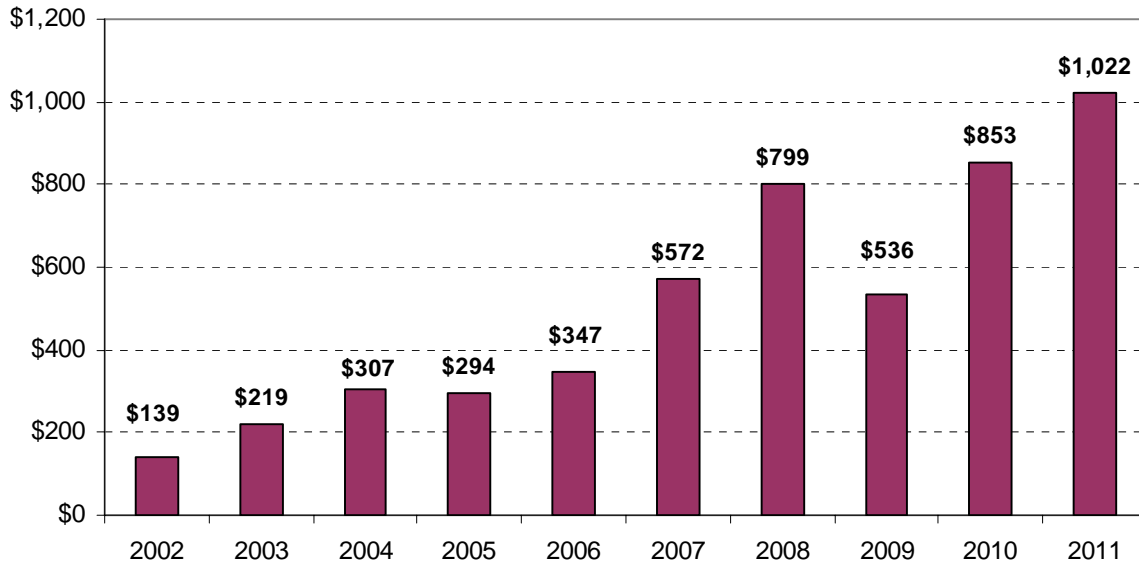
Table 8: 2011 Exploration and Deposit Appraisal Expenditures

Province/Territory	2011 (\$millions)	% of total
Newfoundland & Labrador	172.1	4.4
Nova Scotia	12.7	0.3
New Brunswick	25.2	0.6
Quebec	709.5	18.1
Ontario	1,021.9	26.0
Manitoba	110.5	2.8
Saskatchewan	349.7	8.9
Alberta	44.1	1.1
British Columbia	567.7	14.5
Northwest Territories	105.4	2.7
Yukon Territory	306.6	7.8
Nunavut	502.3	12.8
TOTAL	3,927.8	100.0

Source: Natural Resources Canada

Expenditures include on-mine-site and off-mine-site activities; field work, overhead costs, engineering, economic and pre- or production feasibility studies, environment and land access costs. Exploration and deposit appraisal activities include only the search for and appraisal of deposits and do not include work for extensions of known reserves.

Chart 26: Ontario Mineral Exploration Spending (\$ Millions)



Source: Natural Resources Canada

Table 9: Number of Exploration Companies Active in Ontario - By Location of Head Office

Yukon	1
BC	97
Alberta	8
Saskatchewan	2
Manitoba	7
Ontario	180
of which Greater Toronto Area	124
Quebec	19
New Brunswick	1
Nova Scotia	2
Newfoundland & Labrador	2
USA	5
United Kingdom	4
Australia	2
South Africa	1
Total	331

Source: Ontario Mining and Exploration Directory 2012,
Ontario Prospectors Association

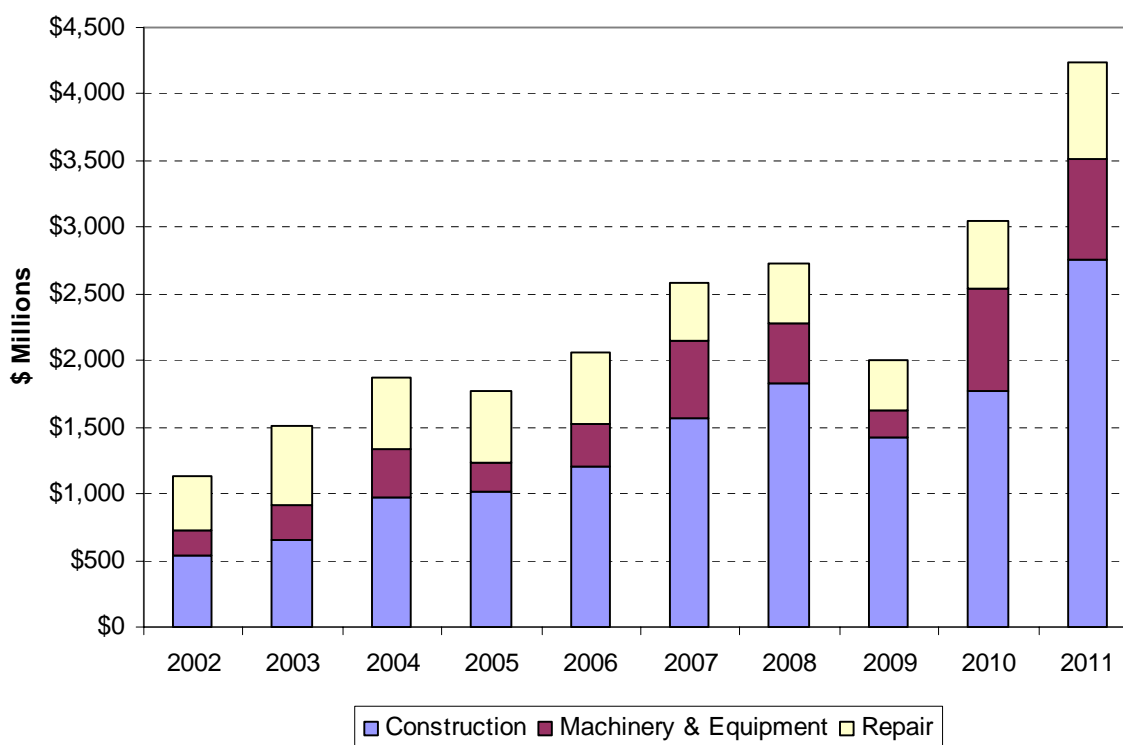
Turning Exploration into Development

Capital investment in Ontario's mining industry soared in 2011, as new mines were being built and existing ones refurbished. Statistics Canada's investment intentions survey indicates that 2012 is even stronger. Over the last 10 years, it is estimated that capital expenditures have increased almost fourfold, from just over \$1 billion in 2002 to well over \$4 billion in 2011 (see chart 27 and table 10). Current projects under development can be seen on map 2.

In 2011, according to current estimates, almost two-thirds of mining investment (\$2.8 billion) was spent on construction, while the rest was split between machinery & equipment (\$761 million) and repairs (\$720 million).

Over the last decade, the industry has invested, in total, close to \$23 billion, with almost \$14 billion of that spent on constructing new mines or expanding existing ones, \$4 billion on machinery and equipment to make them more productive and \$5 billion to update and repair existing structures.

Chart 27: Capital Expenditures in the Ontario Mining Industry



Source: Statistics Canada and authors' calculations

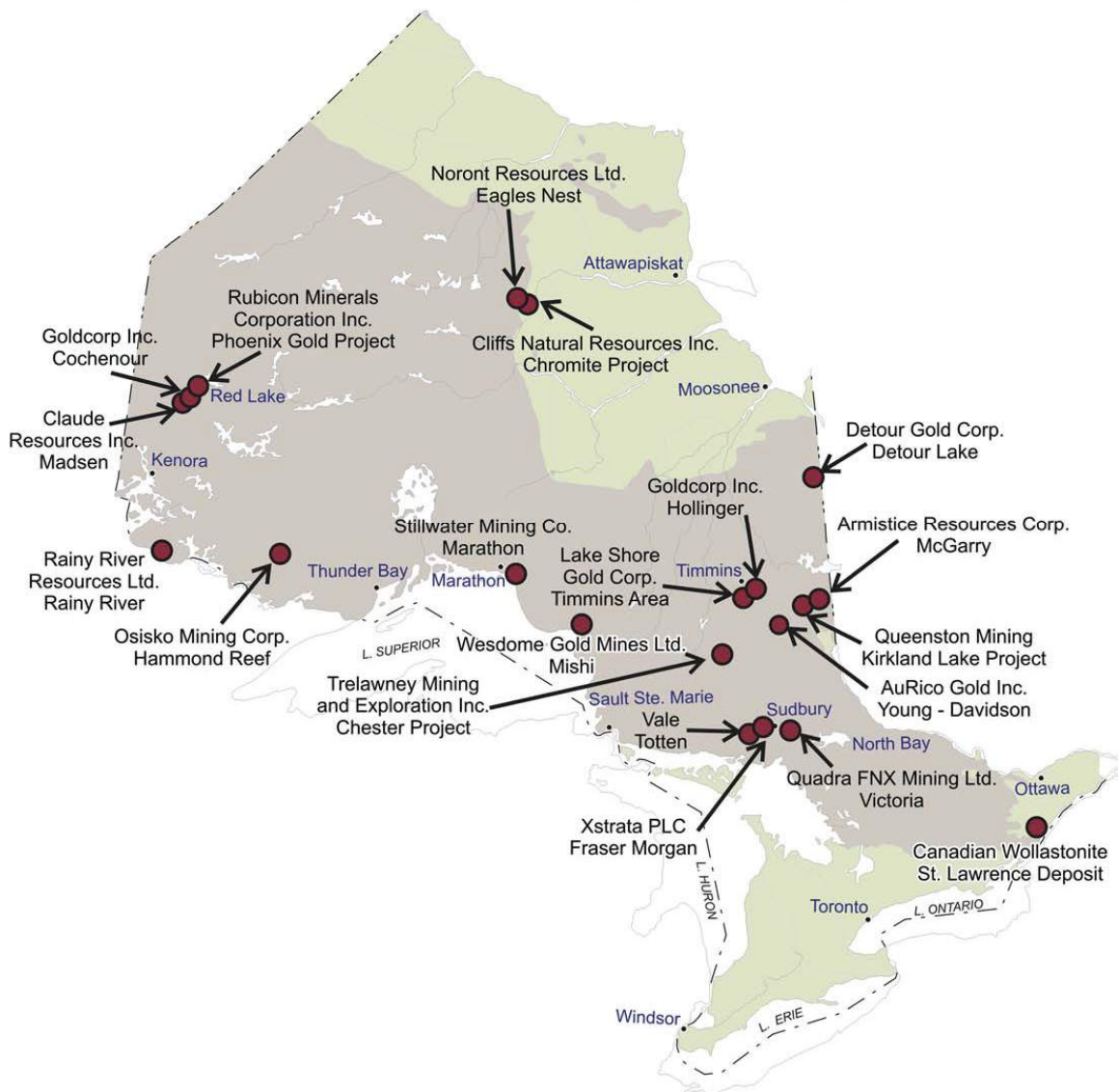
Table 10: Capital Expenditures in the Ontario Mining Industry, By Type, \$Millions

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Construction	544.2	652.2	976.8	1,013.5	1,200.2	1,560.9	1,828.0	1,416.0	1,765.6	2,754.7
M&E	178.7	262.4	356.0	217.5	323.4	584.3	448.4	211.8	768.2	760.9
Repair	410.4	594.3	546.8	542.4	534.7	443.1	451.3	376.9	509.2	720.1
Total	1,133.3	1,508.9	1,879.6	1,773.4	2,058.3	2,588.3	2,727.7	2,004.7	3,043.0	4,235.7

Source: Statistics Canada and authors' calculations

Map 2:

Ontario Mine Development Projects



Source: Ontario Mining and Exploration Directory 2012, Ontario Prospectors Association

Note: Quadra FNX Mining Ltd. is now KGHM International

Note: AuRico Gold's Young-Davidson mine in commercial production as of September 1, 2012

Note: Trelawney Mining and Exploration Inc. now part of IAMGOLD

New Mines from Old Sites

Technological advances and changing economics and markets can turn old mineral properties into new mines. This has certainly been the case in Ontario in the last few years. As the price of gold has climbed, a number of mines across the northern part of the province have been “reborn”.

Northgate Minerals, now owned by AuRico Gold, invested an estimated \$339 (U.S.) million to construct the Young-Davidson Gold Mine which began production in mid-2012. Young-Davidson is located near Matachewan in northeastern Ontario and is about 50 kilometres west of Kirkland Lake. The site covers the operations of two historic gold mines, which produced about one million ounces of the precious metal from the mid-1930s to mid-1950s. Northgate purchased the Young-Davidson property in 2005. The company has established a strong working relationship with the local Matachewan First Nation signing an impact and benefit agreement in 2009.

Kirkland Lake Gold from its South Mine Complex is building on the legacy of the ground mined by five of the seven former gold operations that made Kirkland Lake famous and produced more than 24 million ounces of gold. This is the first time properties in the Kirkland Lake area have been consolidated with a single owner. The new gold miner controls the five westernmost mine sites in the Kirkland Lake mile of gold. From west to east, the mines are Macassa, Kirkland Minerals, Tech-Hughes, Lake Shore and Wright-Hargreaves. The distance from Macassa to Wright-Hargreaves is about seven kilometres. The Sylvanite Mine, which operated from 1927 to 1961 and the Toburn Mine, which operated from 1913 to 1953, lay to the east of Kirkland Lake Gold’s consolidated property. The company restored gold production in Kirkland Lake in 2005 at the former Macassa property. New exploration projects led to the discovery of additional high grade gold mineralization to the south of the main strike zone. Kirkland Lake Gold acquired the Macassa Mine and mill and four former gold producing properties in 2001.

Claude Resources is making progress toward having its Madsen advanced exploration project contribute once again to the total of more than 26 million ounces of gold which have been produced in the Red Lake district. The Madsen Mine, which is located about 10 kilometres west of Red Lake, operated from 1938 to 1976 and produced more than 2.4 million ounces of gold during that period. Since taking over the Madsen property in 2008, Claude Resources has been refurbishing the hoist, shaft and headframe, preparing the mine and mill for future production and carrying out further exploration drilling to expand resources. Claude Resources has 13 employees at the Madsen site, all of whom are local, and about 15 contractors. Currently, two exploration drills are working from underground stations and one exploration drill is working from the surface. The second phase of this exploration program is to be completed by the end of 2012.

Also, Rubicon Minerals Corporation is developing a new mine at an old site at its Phoenix Gold Project, also near Red Lake. Rubicon acquired control of the property in 2002 and has a bullion production target of the first quarter of 2014. Rubicon inherited infrastructure from what was known as the old McFinley Mine site. Claims were first staked on this property in 1922 and initial underground exploration took place in 1956. From 1982 to 1989, further exploration was carried out, a shaft was built, three underground levels were developed in the mine, a 150-ton-per-day mill and tailings compound were built and bulk sampling was done on a satellite target, which lies approximately 500 metres away from the eventual discovery. The headframe has been extended by 50 feet in height, the shaft deepened to 430 metres, a production scale hoist has been installed, grid power connected on site and new drifts established. Capital expenditures on the property as outlined in the Preliminary Economic Assessment (PEA) are estimated at \$214 million. Current plans see the shaft extended to a depth of 610 metres and the delivery of milling equipment is expected in July of 2013. Exploration activity is expanding the mineral resources on site. Rubicon has an exploration agreement with the Lac Seul First Nation and is consulting with the Wabauskang First Nation and the Metis Nation of Ontario.

Miner for the Future – Building on a Major Investment

When quantifying the impact of the mining industry, figures that are used, as seen earlier in this report, are, for obvious reasons, those typically currently employed in the industry, usually mine site production and engineering workers and the spending on supplies and services for an operating mine. But as is seen in the December 2007 study, “Ontario Mining: A Partner in Prosperity Building - The Economic Impacts of a ‘Representative Mine’ in Ontario”, prepared for the Ontario Mining Association by Peter Dungan and Steve Murphy the impacts of the construction of a new mine can be considerable. The following is a real world example of the impacts of such a new mine development.

Detour Gold is involved in one of the most significant projects in the province, turning a former mine site into one of the largest gold mines in Canada. The mine is located 185 kilometres by road northeast of Cochrane, Ontario via Highway 652, about 10 kilometres west of the Quebec border. Detour Gold is investing roughly \$1.5 billion on the project, and with mill commissioning activities for the first production line underway, it is expected that the first ore will be fed through the mill circuit before year-end, with a first gold pour seen in January 2013. The Detour Lake open pit mine is expected to produce an average of 657,000 ounces of gold annually over a period of 21.5 years. From a historical perspective, the Detour Lake deposit was discovered in 1974 by Amoco Petroleum. The mine started production in 1983 with a small open pit from 1983 to 1987 and from underground until closing in 1999. Placer Dome produced 1.8 million ounces of gold over that period at the mine.

Construction of the mining facilities started in November 2010, with more than 1,500 construction and other contract workers, as well close to 300 Detour Gold employees involved in this phase of the operation by mid-2012. In July, 2012, the major milestone of connecting the 230 kW electrical power transmission line to the Ontario power grid was accomplished. With this power supplied to the site, the full commissioning of the grinding mills moved forward so that the January 2013 operation date is indeed on target. From the acquisition of the property in 2006, it will have taken just six years for the new mine to become a reality. The company has signed agreements with local Aboriginal communities including the Wahgoshig First Nation, Taykwa Tagamou Nation, Moose Cree First Nation and the Métis Nation of Ontario.

Once operational, the mine is expected to employ from 400 to 500 people with new modern camp facilities with 400 en-suite rooms. The Detour Lake mine is designed as a year-round open pit operation. The mine facilities have been designed to minimize the footprint using state-of-the-art technology to protect the environment and animal species of the area. Detour Gold has committed to develop and operate Detour Lake to the highest environmental standards and bring long-lasting benefits to the communities in the region and to its partnerships with the local Aboriginal communities. To this end, employee hiring for the site to date has been primarily from Northern Ontario, with a focus on the Cochrane area. As well, roughly a quarter of front line employees hired to date are from First Nations communities in the general vicinity of the mine.

It is interesting to note that existing infrastructure appears to have played a role in the company being interested in the old mine site that has turned into such a key investment for the province. The close proximity to the property of an existing provincial highway made access to the property feasible. The company may not have taken a closer look at the old Detour Lake property if this basic but critical transportation corridor were not already in place. Also, while the company incurred considerable expense to build a power line to tie into the existing grid, if the tie-in to the power grid were not possible, would the project itself have been attractive?

These are interesting factors that will be top of mind in the development of the Ring of Fire: to what extent does the access to basic infrastructure, in itself, spur further development and investment?

The Ring Of Fire – Opportunities and Challenges

According to the Ontario Ministry of Northern Development and Mines, the Ring of Fire, located about 540 kilometres northeast of Thunder Bay and covering about 5,000 square kilometres (see Map 3), represents “one of the most significant mineral deposits discovered in Ontario in over a century with multi-generational mineral production opportunities”. Exploration companies to date have uncovered chromite, nickel, gold, iron and platinum group elements in the area. It is expected that the area could potentially yield North America’s first large-scale chromite mining operation. Chromite is a key ingredient in the production of stainless steel.

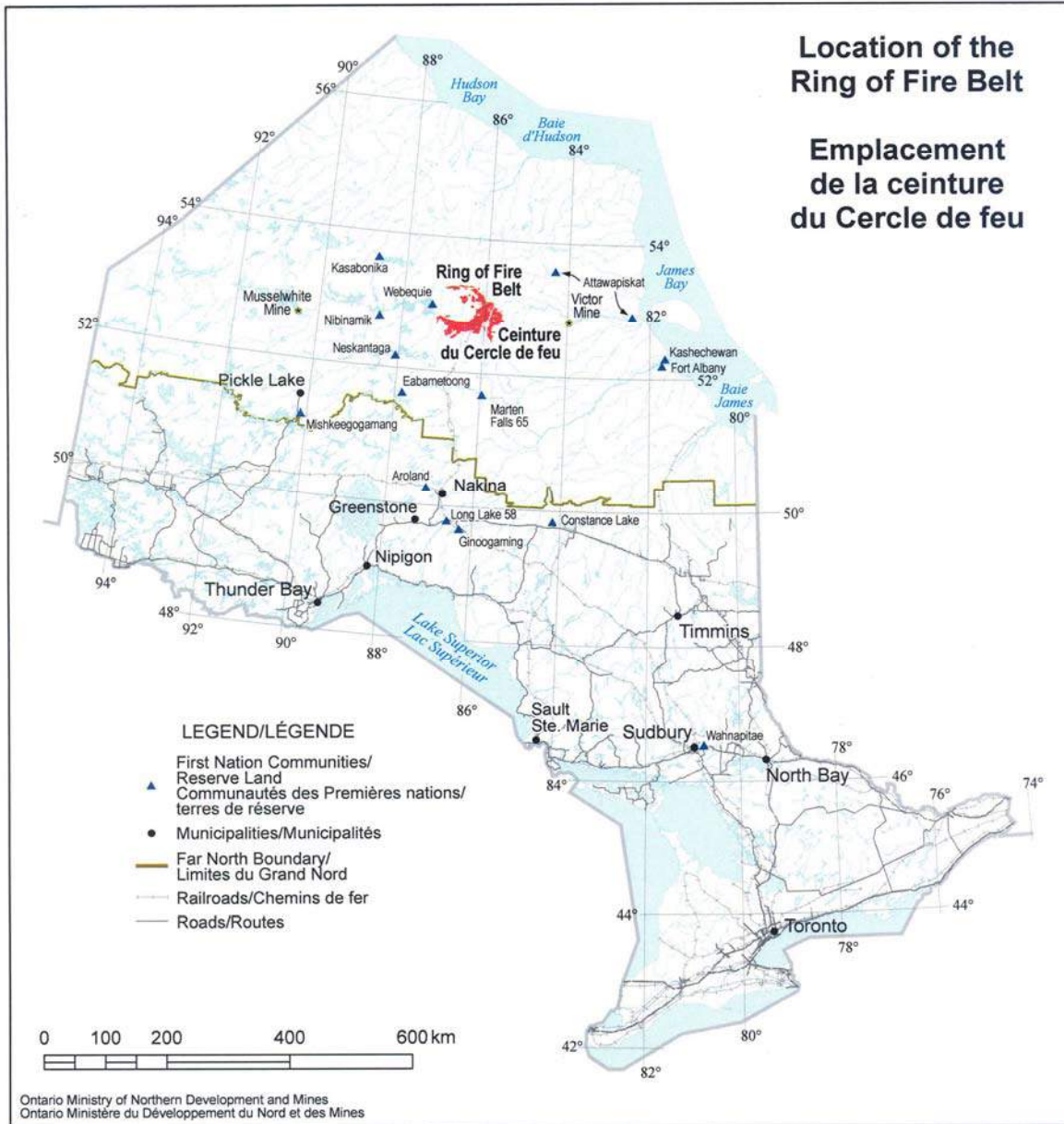
Recognizing the unique opportunity the region affords, as well as the challenges that such a remote location presents (roughly 300 kilometres from the nearest road or rail line) and the number of companies involved in the area, the provincial government has named a Ring of Fire Secretariat to help move the various mining and related infrastructure projects forward. As coordinator, the Secretariat’s role is to work with other provincial ministries, the federal government, local communities including First Nations, the mining industry and other stakeholders to facilitate the development of the Ring of Fire’s massive potential.

There are a number of very important policy issues related to the Ring of Fire region’s resources that will not only impact the area’s development but also define how the province is viewed as a location for future investment. Not only will environmental and Aboriginal agreements be front and centre, but decisions will need to be made in the coming years as to what provision of basic infrastructure is provided by governments, in conjunction with the mining companies, to facilitate the development of the resources in a way that is sustainable and provides maximum benefits to all involved parties. These decisions include by what means the area will be supplied and production transported. As well, given the size of the expected developments in the region and their energy requirements, questions arise as to how and in what fashion the area can be connected to the province’s power grid. Negotiations will determine who should pay what as the infrastructure improvements will not only enable the companies involved to develop their mine-sites, but also benefit Aboriginal communities in the region.

At present, there are two major projects moving to development stage. Cliffs Natural Resources has announced it is committing \$3.3 billion to develop its Black Thor chromite project encompassing the mine, a road to ship the ore for processing and a smelter to be built in the Sudbury area. The company estimates a total of 1,200 direct jobs will be created. At its Eagle’s Nest project, Noront Resources intends to develop nickel as well as copper and platinum reserves in a distinctive fashion. To minimize the environmental impact, it is proposing an underground mine, mill and tailings storage facility. On the surface, the only visible signs of the Eagle’s Nest project will be a year-round airstrip, a base camp, and a number of support and storage buildings, all of which will occupy less than 50 hectares. It will have one of the smallest environmental footprints of any underground mine in the world. Noront plans to recycle its entire volume of tailings underground removing the need for a surface tailings impoundment area and establishing a model mine for the future. Noront estimates their project will entail a capital investment of roughly \$609 million, generating 700 construction jobs and 300 ongoing jobs.

The estimates for the types and extent of the commodities that exist in the Ring of Fire mean these projects will be just two of many, if all sectors cooperate to make it happen.

Map 3:



Can the Industry Build on these Investments?

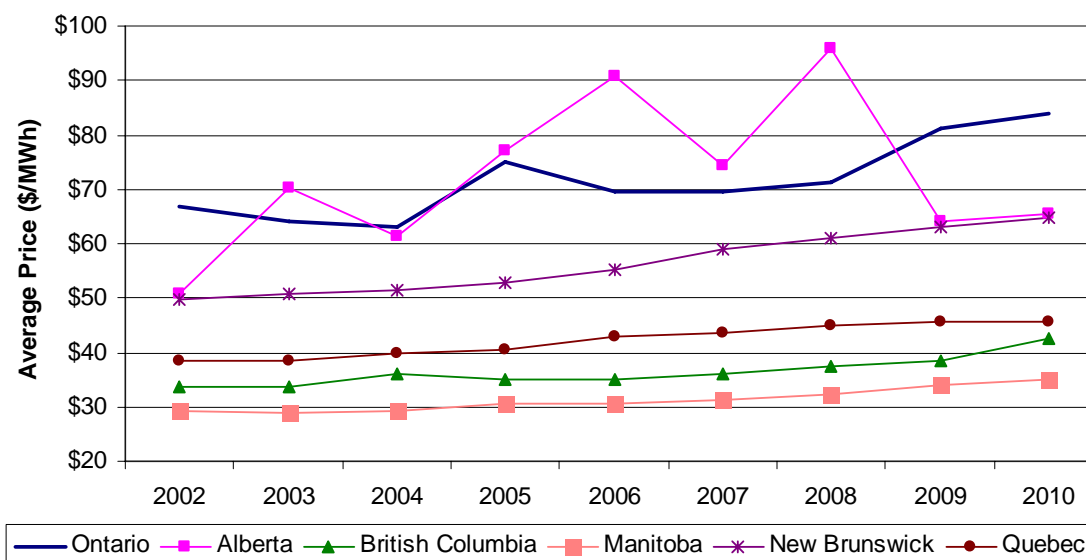
Given the recent record on exploration and the resulting number of projects under development, the future of the industry does indeed look very bright. However, to build upon this impressive record of investment, it is important that the cost structure for major inputs is competitive so that economic activity that depends on the mining of these minerals can flourish. This is true for the mining activity itself but also, in particular, given the significant competition not only internationally, but also across Canadian provinces, for the siting of smelters to process this production.

One significant cost disadvantage for the province's mining and mineral processing industries has been the price of industrial electricity rates. Using rates compiled by the Association of Major Power Consumers of Ontario (AMPCO) through 2010 (comparable rates for 2011 are not yet available), it is clear that the price of electricity paid by Ontario's mining companies has been much higher than that in nearby provinces (see chart 28). The average price per megawatt hour in Ontario in 2010 for industrial users was more than 80% higher than that in Quebec and over two times the price in Manitoba.

Recent changes to the Global Adjustment (GA) component in the price of delivered electricity, as well as the introduction of the Northern Industrial Electricity Rate (NIER) program, have reduced rates somewhat and assisted mineral producers in their efforts to manage energy expenditures. The NIER program recognizes the structural differences associated with remote operations. Given its design, however, many mining companies are ineligible, or have reached the program cap, and therefore its impact on decisions regarding future expansions may be muted. As well, the current NIER program is set to expire on March 31, 2013. The GA changes do provide a basis for a longer term price solution but some mining companies are also currently ineligible for these price adjustments. As a result of the economic downturn, Ontario has experienced intermittent periods of surplus power generation. The provincial government has proposed an Industrial Electricity Incentive program whereby eligible companies could qualify for a reduced electricity rate in exchange for creating new jobs and bringing new investment to the province. The program is scheduled to be in place in January 2013, although final rules are still in development.

The challenges of making decisions on siting future expansions or new smelters in Ontario remain, given the availability of cheaper energy supplies right outside the provincial border. Moving forward, a long-term clear, comprehensive and competitive provincial industrial electricity pricing plan will provide the impetus for sustained future investment in the entire mineral industry production process.

Chart 28: Industrial Electricity Rates in Canada, 2002-2010



Source: Association of Major Power Consumers in Ontario (AMPCO)

Mining Innovation and Patents

The Institute for Competitiveness and Prosperity at the University of Toronto believes that U.S. patents are a good indicator of innovative capacity of an industry. Patents are sought first and foremost in the U.S. where the standards for patentability are more stringent. U.S. patent data compiled by the Institute show that the overall number of patents gained by firms related to the Ontario mineral industry increased in 2010 relative to recent years (see table 11).

Ontario mining companies obtained 13 U.S. patents in 2010, with firms primarily involved in metal mining getting the bulk of the patents. Companies providing services incidental to mining in Ontario have averaged roughly two U.S. patents a year for the last five years. Primary metal manufacturers obtained over 16 U.S. patents in 2010, up sharply from the numbers seen in the previous four years. Non-metallic mineral product manufacturers also obtained a higher number of U.S. patents in 2010 than in recent years. Ontario firms in scientific and technical services, which include land geophysical surveying, assaying laboratories and geological consulting services have averaged somewhat under two U.S. patents per year over the last five years.

Table 11: Number of Patents in Ontario Mineral Related Industries – U.S. Patent and Trademark Office

Ontario Industry	2006	2007	2008	2009	2010
Metal Mines	16.04	6.62	7.49	12.40	9.70
Non-Metal Mines	3.86	2.25	2.50	2.96	2.64
Quarries	0.81	0.24	0.62	0.78	0.49
Contract Drilling (excluding Oil & Gas)	0.54	0.68	0.44	0.69	0.59
Other Services Incidental to Mining	1.02	1.26	0.83	1.26	1.11
Primary Metals Manufacturing	10.21	4.39	8.35	9.35	16.42
Non-Metallic Mineral Products Manufacturing	3.00	3.77	2.70	3.10	4.45
Metal Services Centres – Wholesalers	0.34	0.26	0.26	0.29	0.37
Scientific and Technical Services related to Mining	1.51	1.92	1.23	1.93	1.66
Total Number of U.S. Patents	37.33	21.39	24.42	32.77	37.44

Source: Institute for Competitiveness and Prosperity, University of Toronto

Note: Fractional patents are the result of concording the data from the U.S to Canadian industry definitions.

A critical part of the symbiotic nature of the industry and education is the incidence of universities and colleges that serve both as a source of future workers in the mineral industry but also as a hotbed of research and development. In Ontario for the 2009-2010 fiscal year, total investment in R&D on natural sciences (excluding health sciences) and engineering in universities and colleges totaled over \$1.6 billion, roughly the same as the previous year (see table 12).

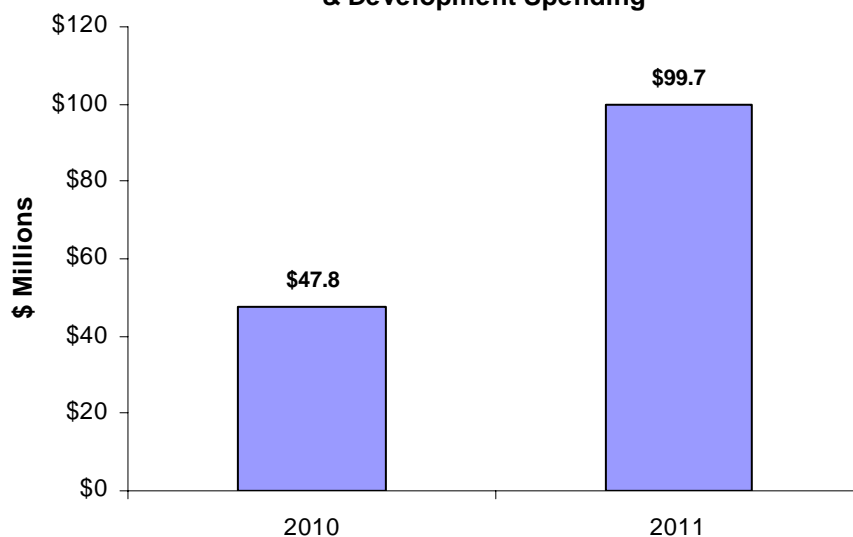
Given the high-tech nature of mining, mineral companies themselves, of course, undertake R&D to strive to improve efficiency and safety in their operations. According to the results from the OMA survey (see chart 29), mining companies in Ontario spent almost \$100 million on R&D in 2011, more than double that seen in 2010.

Table 12: Estimated Investment in R&D in the Higher Education Sector – on Natural Sciences (excluding Health Sciences) and Engineering, by Province, 2003-2004 to 2009-2010 (millions of dollars)

Province	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010
Newf. & Lab	48.9	49.6	62.1	56.2	60.9	60.2	64.7
PEI	14.9	13.7	15.3	17.5	21.2	20.7	23.6
Nova Scotia	93.9	99.4	113.9	119.5	125.9	128.5	127.4
New Brunswick	69.0	64.5	73.5	77.5	84.3	86.0	90.6
Quebec	1,014.2	1,060.3	1,095.2	1,075.2	1,088.4	1,113.1	1,100.7
Ontario	1,269.4	1,446.8	1,478.8	1,552.7	1,585.3	1,647.6	1,637.0
Manitoba	101.5	109.2	121.5	120.4	129.8	125.5	130.5
Saskatchewan	131.5	133.8	112.5	113.2	125.4	166.7	167.6
Alberta	353.6	378.1	398.8	382.0	427.8	479.4	510.4
BC	360.8	339.6	388.1	421.0	462.5	509.2	517.3
Canada	3,457.7	3,695.1	3,859.7	3,933.3	4,111.5	4,337.0	4,369.8

Source: Statistics Canada Catalogue #88-001 and authors' calculations

Chart 29: Ontario Mining Industry Research & Development Spending



Source: OMA Industry Survey

Environmental Sustainability

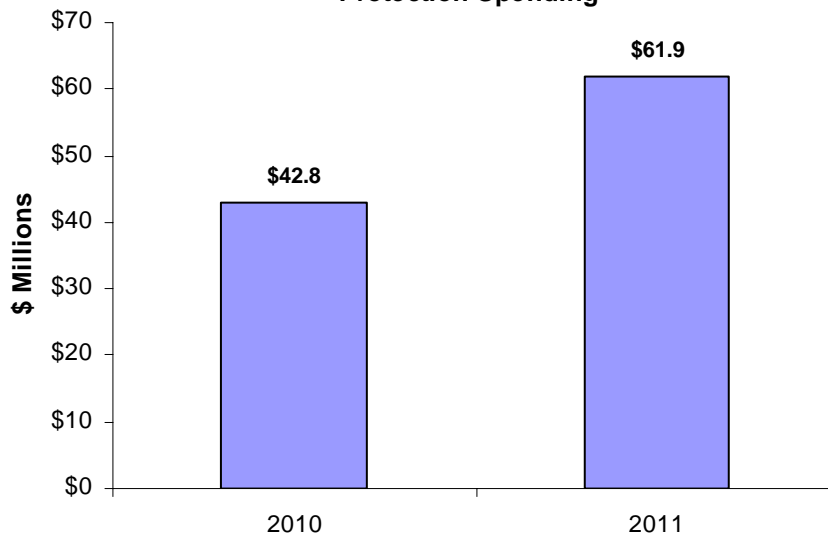
As the Ontario Mining Association itself notes, mining is not a benign activity. It is impossible to remove minerals from the earth and process them without impacting in varying degrees the air, land, water, as well as plant and animal life. However, the goal and commitment of modern mining companies is to minimize the temporary disruption of the environment during exploration and production and to maximize the restoration of ecosystems at the end of the mine life.

The Ontario mining industry is a world leader in environmental protection. The industry devotes millions of dollars annually to environmental protection, environmental improvement and pollution prevention. According to the latest OMA industry survey, the industry spent almost \$62 million in 2011 on environmental protection spending, up from \$43 million in 2010 (see chart 30).

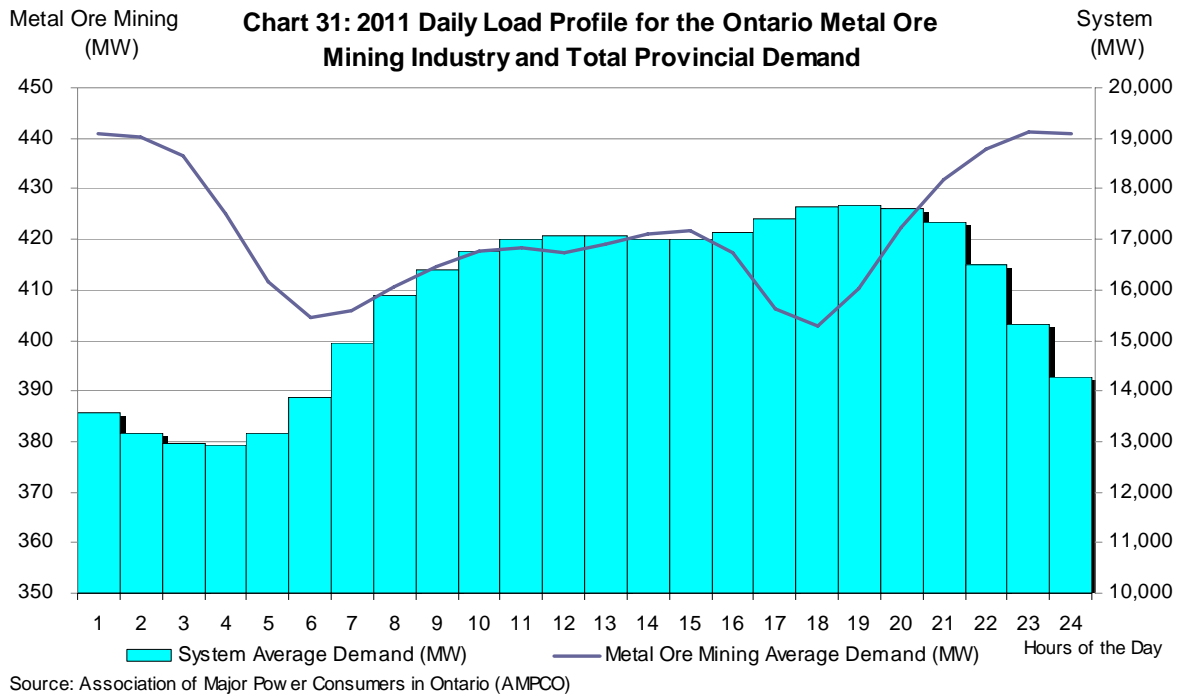
In June, 2012 OMA member company Vale broke ground on its \$2-billion “Clean AER Project”, one of the largest single environmental investments in Ontario’s history. The clean AER (‘Atmospheric Emissions Reduction’) Project will see sulphur dioxide emissions at Vale’s smelter in Sudbury reduced by an estimated 70% from current levels, as well as dust and metals emissions reduced by an estimated 35 to 40%. In addition to the environmental benefits, the Clean AER Project will result in significant economic benefits to the community. Vale estimates that the project will require about 8-million person-hours of additional labour, with 1,300 additional workers needed on-site during the peak construction period.

But there are other ways that the industry has made a contribution, not only to the environmental sustainability of the industry itself, but to the province as a whole. One important example is the daily pattern of electricity use by the metal ore mining industry in the province (see chart 31). Production schedules have been designed so that the maximum demand by the industry is at the time of day when the overall system demand is at its lowest, and the lowest demand by the industry is a time when the overall system demand is at its highest. Responding to the government’s need to reduce peak power demand in Ontario, the mining industry was able to move 150 megawatts of electricity consumption away from each of the five coincident peak (5CP) periods last year. That is enough power to meet the average peak needs for the City of Greater Sudbury.

Chart 30: Ontario Mining Industry Environmental Protection Spending



Source: OMA Industry Survey



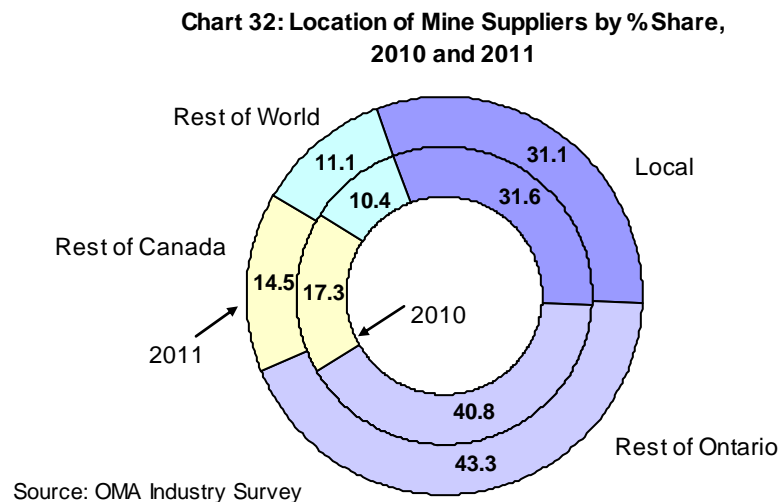
The investments by the mining industry to improve its environmental footprint, which builds upon its investment on health and safety training of its employees, are not reflected in measured output or productivity for the industry. The societal benefits of this spending, however, can not be overlooked.

Mining's Beneficial Impact on Other Sectors

Earlier in this report we noted on where the mining industry's customers are located. What is also important for the province is where the industry's suppliers are located. The greater the share of provincially sourced mining supply and services, the greater the positive impact on the province as a whole. As well, for many, it is also important to try to measure the impact on a sub-provincial basis to see what a mine does for a community.

These types of impacts can be difficult to measure using only one method, so we have used a number of different ways to try to capture the impacts of the Ontario mining industry on other sectors in the province.

First, to try to get a flavour of from where mining supplies are sourced, we look at information from the latest Ontario Mining Association survey. According to the survey results (see Chart 32), in 2011, well over 70% of the value of mining supplies and services were provided from within the province – 31% locally (within 100 kilometres of the mine-site) and over 43% from the rest of Ontario (up from under 41% in 2010). Suppliers in the rest of Canada accounted for close to 15% (down from over 17% in 2010) and imports from outside the country accounted for the other 11%.



While the results of the survey are indeed informative, by providing information on the split across suppliers both inside and outside the province and country, it is not clear that it is capturing the true extent of the supply chain. For instance, a machine, or part, that is bought locally may indeed be produced outside the province or the country.

To try to capture the far-ranging impacts of the purchases by mining companies we turn to another method.

In order to estimate and analyze these upstream linkages, we have used survey data and information from the various mining supply industry associations. But the impacts are broad and may not always be fully captured by these techniques, so to shed further light on these important linkages we have also employed an additional method, termed ‘input-output’ analysis, based on most up-to-date version of the Input-Output (I-O) data system and models maintained by Statistics Canada. This technique comprised part of the tool kit used in the Peter Dungan and Steve Murphy 2007 study for the OMA of the economic impact of a ‘representative’ mine in Ontario “Ontario Mining: A Partner in Prosperity Building – The Economic Impacts of a ‘Representative Mine’ in Ontario” and earlier in the 1997 Peter Dungan book, *Rock Solid: The Impact of the Mining and Primary Metals Industries on the Canadian Economy*.

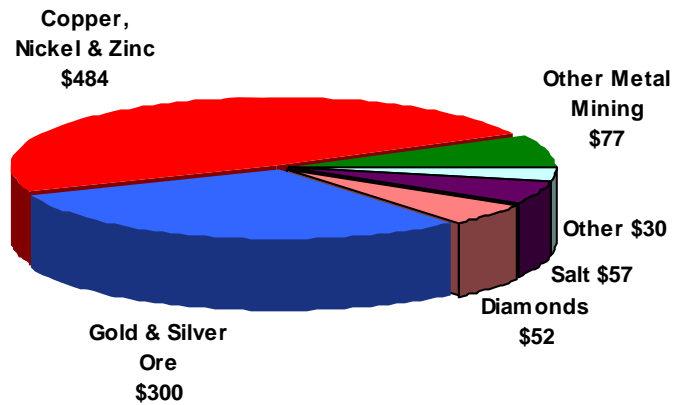
An extremely important and widespread route by which mining in Ontario adds to the provincial economy is through upstream or backward linkages. Upstream or backward linkages are all the various input requirements for mining production, and the inputs required to produce these inputs, and so on back up the production chain. At each stage, economic activity is generated, persons are employed and taxes are paid that are all directly related to mining operations, even if they seem to be considerably removed from the mine (and mining-type activity) itself. For example, operating a mine requires fuel and power of various sorts, which must be produced and transported to the mine. Mining operation requires continual upkeep and repair that needs various manufactured goods to be produced and transported. A major industry such as mining requires a host of business, scientific and professional services – many of which will be provided by business enterprises well away from the mine site.

While the results from the I-O system are in many ways more comprehensive and complete than survey results, there is a drawback. Only province wide results are possible; we cannot examine upstream linkages in various regions of the province. As a partial offset, however, the I-O system automatically yields upstream linkages for other provinces and the nation as a whole when calculating Ontario linkages.

Because of how Statistics Canada defines industries and economic activity in the I-O system, we limit our analysis to looking at the impacts of the production activities of Ontario mining only – not mineral exploration, mine opening or development, or the processing of mineral products. While we recognize that this does not capture some of the important “downstream” impacts of the mining industry, it is the most sensible I-O run to try to capture the impacts of the Ontario mining industry on its wide range of suppliers.

The impacts are calculated based on a \$1 billion of output reflecting the type of production in the Ontario mining sector as constituted by the membership of the Ontario Mining Association in 2011. Using this level of output makes the results easily ‘scalable’ – if one wants to look at the impact of \$5 billion of production, then the results from this study can be multiplied by five. From Chart 33, one can see that just over 48% of the production is from copper, nickel, and zinc mining, with another 30% from gold and silver ore production, and a further 8% from other metallic minerals. The production of salt accounts for almost 6% of production, with diamonds at just over 5% and other non-metallic minerals at 3%.

Chart 33: Share of \$1 Billion of OMA Mineral Production in Ontario, 2011 (\$Million)



Source: Natural Resources Canada

We look first at the aggregate impacts of this mineral production on the Ontario and Canadian economies. As shown in Table 13, the direct and upstream aggregate impacts of \$1 billion of Ontario mining output add \$858 million to Ontario Gross Domestic Product (GDP) – and \$900 million to the GDP of Canada. Some of the production “leaks” out through international imports in the upstream linkages - \$86 million from Ontario and \$97 million from Canada as a whole. A further \$59 million is imported to Ontario from the rest of Canada, offset by just over \$4 million of exports from Ontario to other provinces.

Table 13: Aggregate Direct and Upstream Impacts on GDP and Components of \$1 Billion of OMA Mineral Production in Ontario (\$ Million)

	Ontario	Canada
Mineral Production	\$1,000	\$1,000
International Imports	-\$86	-\$97
Interprovincial Imports	-\$59	-\$68
Interprovincial Exports	\$4	\$68
Changes in Inventories	-\$1	-\$3
GDP at Market Prices	\$858	\$900

Upstream Impacts from the Input-Output Analysis – Industry Results

We move from the aggregate impacts to look at what types of industries within the province, and around the country, are suppliers to the Ontario mining industry. Table 14 presents upstream industry results for Ontario, Quebec and Alberta (the two largest provinces affected outside Ontario) and Canada as a whole. Of the \$858 million of GDP generated in Ontario, and \$900 million for Canada as a whole, almost \$700 million is generated directly by the Ontario mining industry itself.

The remaining impact - the indirect, backward linkage effect of \$1 billion of OMA mineral production in Ontario - is approximately \$209 million, with roughly 80% (\$167 million) impacting Ontario and 20% (\$42 million) in the rest of Canada. (More detailed industry results are presented in Appendix B.)

The supplier industry with the largest single impact is ‘Finance, Insurance, Real Estate and Renting and Leasing’ with an increase of \$36 million in Ontario. This is largely made up of services like banking, insurance, real estate, automotive and other equipment leasing, and Management of Companies and Enterprises. Professional, Scientific and Technical Services is the next largest contributor, at \$26 million.

The next largest groups, at about \$16 million impact each in Ontario, are Utilities (largely Electric Power), Manufacturing (of which the largest sub-component is ‘Mining and Oil and Gas Field Machinery Manufacturing’) and Wholesale Trade. The indirect impacts on Mining and Services Incidental to Mining hit \$13 million.

Table 14: Impacts on GDP by Industry of \$1 Billion of OMA Mineral Production in Ontario (\$ Million)

	Ontario	Quebec	Alberta	Canada
Total	\$858	\$13	\$15	\$900
Mining – Direct	\$691			\$691
Total Indirect	\$167	\$13	\$15	\$209
Mining – Indirect	\$13	\$1	<\$1	\$15
Finance, Insurance & Leasing	\$36	\$2	\$1	\$40
Professional, Scientific & Tech Services	\$26	\$1	\$1	\$29
Manufacturing	\$16	\$3	\$1	\$23
Utilities	\$16	\$1	<\$1	\$17
Wholesale Trade	\$15	\$1	\$1	\$18
Transportation & Warehousing	\$8	\$1	\$1	\$11
Admin & Support, Waste & Remediation	\$8	\$1	<\$1	\$10
Construction	\$8	<\$1	<\$1	\$8
Oil & Gas	<\$1	<\$1	\$9	\$13
Other Industries (including Government)	\$22	\$2	\$1	\$27

Upstream Impacts from the Input-Output Analysis – Employment Results

This mineral production, of course, also has important impacts on employment in the province and the country. The I-O analysis indicates that \$1 billion of OMA mining output in Ontario generates 4,418 jobs directly and in upstream production in the province, and 4,775 in Canada as a whole.

Table 15 presents aggregated upstream employment results for Ontario, the two largest provinces affected outside Ontario, and Canada as a whole. What is clear from the table is that the mining sector has important linkages to all sectors of the Ontario, and indeed Canadian economy, with important contributions from the service sector.

The direct employment impact in Ontario of \$1 billion of this mining output is 2,421 jobs with another 2,000 created indirectly. For the country as a whole more than 2,350 jobs result upstream from this level of mining output in Ontario. The largest single impact is for the Professional, Scientific and Technical Services sector with 367 jobs in Ontario and 409 for Canada. The next biggest supplier sector is the ‘Finance, Insurance, Real Estate and Renting and Leasing’ where for every \$1 billion in OMA mineral production in Ontario, almost 300 jobs in Ontario and another 33 in the rest of Canada are created. (Employment impacts for more industries are reported in Appendix B.)

There are also important employment impacts in both Ontario, and the country as a whole, in ‘Administrative Support, Waste Management and Remediation Services’ (215 jobs in Ontario, 36 in the rest of Canada), Wholesale Trade, Manufacturing (of which the largest sub-component is ‘Mining and Oil and Gas Field Machinery Manufacturing’), Services Incidental to Mining, Construction, Transportation and Warehousing and Utilities (largely Electric Power).

Table 15: Direct and Indirect Impacts on Employment by Industry of \$1 Billion of OMA Mineral Production in Ontario

	Ontario	Quebec	Alberta	Canada
Total	4,418	176	68	4,775
Mining – Direct	2,421			2,421
Total Indirect	1,997	176	68	2,354
Mining – Indirect	139	11	<1	152
Professional, Scientific & Tech Services	367	22	8	409
Finance, Insurance & Leasing	299	16	7	332
Admin & Support, Waste & Remediation	215	22	6	251
Wholesale Trade	165	19	5	200
Manufacturing	158	35	8	220
Construction	119	1	1	123
Transportation & Warehousing	101	15	7	141
Utilities	58	3	<1	62
Oil & Gas	1	<1	9	11
Other Industries (including Government)	376	33	18	453

Upstream Impacts from the Input-Output Analysis – Foreign Leakages

As indicated earlier, some of the suppliers to the mining industry are, not surprisingly, from outside the country. Details on international “leakages” that occur from mining production in Ontario are shown in Table 16. The table shows that to produce \$1 billion in Ontario mining output, \$15 million in machinery & equipment is imported from abroad. Chemicals and Chemical Products imports amount to \$12 million, while Business and Computer Services come to \$7 million. There are smaller but still important leakages from mineral fuels, electrical products, as well as a host of other products. (A more detailed table is provided in Appendix B.)

Some of these leakages offer potential opportunities to domestic suppliers in supplanting imports with more locally-responsive inputs.

Table 16: Impacts on International Imports into Ontario of \$1 Billion of OMA Mineral Production in Ontario (\$ Million)

	Imports
Total	\$86
Machinery & Equipment	\$15
Chemicals & Chemical Products	\$12
Business & Computer Services	\$7
Mineral Fuels	\$7
Electrical, Electronic & Communication Products	\$5
Motor Vehicle & Transportation Equipment	\$5
Other Finance, Insurance & Leasing	\$5
Primary Metal Products	\$4
Leather, Rubber & Plastic Products	\$3
Transport & Storage	\$3
Accommodation Services & Meals	\$3
Petroleum & Coal Products	\$2
Services Incidental to Mining	\$2
Other	\$13

Including Induced Impacts from Ontario Mining using Input-Output Analysis

Statistics Canada, in its Input-Output analysis, also calculates the ‘induced’ effects of the Ontario Mining industry. The induced effects capture the impact of the spending of the wages and salaries of those employed not only in the mining industry itself but by the suppliers up the production chain.

Table 17 shows the total impact on the Ontario and Canadian economies, as calculated by Statistics Canada of \$1 billion of mineral production in Ontario. Total demand for goods and services increases by almost \$1.3 billion in both Ontario and Canada. Some of this Ontario demand is supplied by international imports (\$141 million) and some by production in the rest of Canada (\$86 million) yielding an overall increase in Ontario GDP of \$1.04 billion, an increase of \$182.6 million over the impact of including just the direct and indirect effects. Total employment in the province increases by 6,360 jobs, 1,942 of which result from the spending of the wages and salaries paid directly to employees in the mining industry and those up the supply chain.

Table 17: Aggregate Direct, Upstream and Induced Impacts on GDP (\$ Million) and Employment of \$1 Billion of OMA Mineral Production in Ontario

	Ontario	Canada
Total Impact on Demand	\$1,263	\$1,284
International Imports	-\$141	-\$162
Interprovincial Imports	-\$86	-\$103
Interprovincial Exports	\$8	\$103
Changes in Inventories	-\$3	-\$4
GDP at Market Prices	\$1,040	\$1,118
Employment	6,360	7,104

Tables 18 and 19 show the effects of the induced impacts on particular industries in terms of both employment and output. It is interesting to note that most of the impacts are in the service sector, much of which would be expected to be ‘local’ employment near where the mines are located. Also, because wages and salaries in the mining sector are high relative to the rest of the economy, the employment impacts from the induced spending are high. In Ontario, a further \$22 million in output and 453 jobs are generated in the retail trade industry through the induced impacts of a \$1 billion of mineral production. Finance, insurance and leasing increases by \$76 million and 193 jobs in the province – on top of the \$36 million and 299 jobs generated from the upstream impacts. (More detailed tables for both output and employment as well as a table on imports are reported in Appendix B.)

Table 18: Total Impacts on Employment by Industry of \$1 Billion of OMA Mineral Production in Ontario

	Ontario	Quebec	Alberta	Canada
Total	6,360	354	135	7,104
Total Direct	2,421			2,421
Total Indirect	1,997	176	68	2,354
Total Induced	1,942	178	67	2,329
Retail Trade	453	27	11	517
Accommodation and Food Services	210	17	7	253
Finance, Insurance & Leasing	193	16	6	228
Other Services (excluding Public Admin)	170	11	5	192
Non-Profit Institutions serving Households	151	6	2	164
Health Care and Social Assistance	99	4	1	107
Admin & Support, Waste & Remediation	88	14	4	113
Professional, Scientific & Tech Services	82	10	3	102
Wholesale Trade	78	12	3	101
Manufacturing	71	24	5	112
Government Sector	69	4	2	78
Transportation & Warehousing	65	10	5	90
Arts, Entertainment & Recreation	54	6	2	66
Information & Cultural Industries	54	7	2	68
Construction	52	2	1	56
Other Industries	53	8	8	82

Table 19: Total Impacts on GDP by Industry of \$1 Billion of OMA Mineral Production in Ontario (\$ Million)

	Ontario	Quebec	Alberta	Canada
Total	\$1,040	\$27	\$24	\$1,118
Mining – Direct	\$691			\$691
Total Indirect	\$167	\$13	\$15	\$209
Total Induced	\$183	\$13	\$9	\$218
Finance, Insurance & Leasing	\$76	\$3	\$2	\$83
Retail Trade	\$22	\$1	\$1	\$24
Manufacturing	\$8	\$2	\$1	\$13
Wholesale Trade	\$8	\$1	<\$1	\$10
Information and Cultural Industries	\$8	\$1	<\$1	\$10
Non-Profit Institutions serving Households	\$8	<\$1	<\$1	\$8
Professional, Scientific & Tech Services	\$6	\$1	<\$1	\$8
Accommodation and Food Services	\$6	<\$1	<\$1	\$7
Health Care and Social Assistance	\$6	<\$1	<\$1	\$6
Government Sector	\$6	<\$1	<\$1	\$7
Transportation & Warehousing	\$5	\$1	\$1	\$8
Utilities	\$5	\$1	<\$1	\$6
Other Industries	\$19	\$1	\$3	\$28

One sector of the economy that depends vitally on mineral production in the province is the transport sector. This includes moving employees and contractors to remote mine sites and, in particular, the movement of mineral production to markets.

According to data available from Statistics Canada (see table 20), minerals and mineral products (including cement) accounted for the majority of tonnage shipped from Great Lakes ports in Ontario in 2011. The bulk of shipping volumes within Ontario involve minerals and mineral products. Of the cargo destined for international ports from Great Lakes Ontario ports, over half (measured by weight) were minerals, with a further 18% involving cement and metallic waste and scrap. Salt accounted for roughly 59% of the minerals shipped internationally, with stone, sand, gravel and crushed stone accounting for another 34%.

Table 20: Destination of Shipping, Cargo tonnage loaded, Great Lakes Region, tonnes, 2011

Commodity	Within Ontario	Rest of Canada	International	Total
Minerals	4,946,100	1,116,700	7,270,500	13,333,300
Primary and fabricated metal products	5,500	0	293,800	299,300
Agriculture and food products	1,067,900	5,272,700	1,862,600	8,203,200
Coal	402,400	0	408,900	811,300
Fuels and basic chemicals	1,260,600	1,252,300	1,354,600	3,867,500
Machinery & transportation equipment	0	1,800	1,200	3,000
Other products (including cement)	929,100	301,100	2,403,200	3,633,400
Total tonnage of all commodities	8,611,600	7,944,600	13,594,800	30,151,000

Source: Statistics Canada Catalogue 54-205

Mineral and mineral product shipments also comprise an important share of rail transport both within the province, to the rest of Canada and to the U.S and Mexico. According to the latest available data from Statistics Canada (see table 21), in 2010 mineral related products accounted for over one-third of total identifiable shipments by weight.

Table 21: Rail transportation, Commodity Movements from Ontario, by Destination, tonnes, 2010

Commodity	Within Ontario	To Rest of Canada	To U.S. and Mexico	All Destinations
Metallic ores and concentrates	596,495	115,168	20	711,683
Non-metallic minerals	6,794	1,104,542	571,349	1,682,685
Non-metallic mineral products	944	203,127	394,565	598,636
Primary or semi-finished metal products	437,093	953,211	1,463,678	2,853,982
Articles of base metal	8,330	278,634	139,969	426,933
Sulphuric Acid	108,561	153,718	681,260	943,539
Metallic waste and scrap	29,327	104,339	751,848	885,514
Non-metallic waste and scrap	193	21,247	46,391	67,831
Total Mineral Related Products	1,187,737	2,933,986	4,049,080	8,170,803
Motor Vehicles and Parts	2,348	389,289	1,956,610	2,348,247
Agricultural and Food Products	311,608	2,928,227	705,726	3,945,561
Refined Petroleum and Coal Products	651,887	776,460	1,233,932	2,662,279
Chemicals, Plastic and Rubber Products	200,643	538,360	1,272,472	2,011,475
Wood and Paper Products	302,415	642,228	1,574,219	2,518,862
Mixed loads and unidentified freight	41	4,986,548	175,334	5,161,923
All Other Commodities	10,901	539,338	47,238	597,477
Total tonnage of all rail commodities	2,667,580	13,734,436	11,014,611	27,416,627
Tonnage of rail commodities excluding mixed loads and unidentified freight	2,667,539	8,747,888	10,839,277	22,254,704

Source: Statistics Canada Catalogue 52-216

Trying to Get Some Regional Perspective on the Numbers

The Input-Output analysis clearly shows the breadth of the impact of the mineral industry in Ontario. It has also indicated possible areas for further growth where domestic Ontario industries can replace the supply of imports into the industry. This in turn may well lead to further export possibilities.

As mentioned above however, the results are only for the province as a whole and do not measure any regional concentration in the numbers. Clearly the direct activity will take place at the mines located throughout the province. But where are the upstream firms located in the province?

A number of cities and regions, including North Bay and Sudbury (through the Sudbury Area Mining Supply and Service Association (SAMSSA)), and the northern region of Ontario (prepared by Doyletech for the Ontario North Economic Development Corporation) have undertaken studies to show the importance of mining service and supply companies to their area of the province. While these types of studies, if done properly, are an important source of information on the scope and contribution of the mining supply and services sector, if only a select number of cities or areas are undertaking the research then the view of the sector may be skewed. The solution to this of course, is to do a uniform, comprehensive survey of the entire province, instead of having each locale provide estimates for their own area.

It is our understanding that the Canadian Association of Mining Equipment and Services for Export (CAMESE) is currently undertaking such a survey with the results expected in 2013. On a smaller scale, we have made an attempt to put some further perspective on the regional nature and scope of the mining service and supply sector. Using membership data for CAMESE, we have compiled a tally of the number of Ontario firms in CAMESE by city.⁴ We chose CAMESE as a source for the computation because it is an association, by its nature, that covers the entire province, and is geared toward growing the mineral service and supply sector through competing on the world stage. It is important, in our view, to see where the firms that want to compete internationally are located. The results, obviously, do not represent the entire supply sector but they do present a view on where supply firms are located (not just around where the mines are) in the province and the type of services they are providing.

As table 22 shows, mining supply and service related entities are located throughout the province, with particular clusters in the Toronto-Mississauga hub and around Sudbury-North Bay. One may not think of Mississauga as a key player in the mineral industry. A significant amount of research and development, as well as engineering services and machinery & equipment production takes place there. The city is located near major Ontario universities, and has access via the nearby major airport to provincial, national and international mine sites. Indeed the results from this analysis indicate that there is a significant amount of activity in the mining supply and services sector taking place in the southern part of the province. While the relative size of this sector to the overall economy is far greater in the northern part of the province than in the south, the absolute level of activity is clearly significant throughout the province. The numbers also show that the number of Ontario CAMESE members grew by more than 7% in the latest year, another indication of the growing strength of the mining industry in the province. We have included in Appendix C examples of the types of supplies and services appendices provided in each location.

⁴ The location is the main contact provided by the CAMESE Compendium. It is indeed the case that a number of these companies have offices throughout the province, particularly in the North.

Table 22: Location in Ontario of CAMESE Member Firms, By City and Region

City	Number of Companies		City	Number of Companies	
	2011/2012	2012/2013		2011/2012	2012/2013
Mississauga	29	30	Elliot Lake	1	1
Toronto	28	30	Elora	1	1
Greater Sudbury	24	26	Georgetown	1	1
Ottawa	8	9	Goodwood	1	1
Burlington	7	7	Guelph	1	1
Markham	7	7	Halton Hills	1	1
North Bay	6	7	Hawkestone	1	1
Oakville	4	5	Hensall	1	1
Concord	4	4	Kingston	1	1
Brampton	3	4	Kirkland Lake	1	1
Barrie	3	3	Larder Lake	1	1
Milton	3	3	Lindsay	1	1
Sault Ste. Marie	3	3	Lucknow	1	1
Cambridge	2	3	Orangeville	1	1
Collingwood	2	2	Orillia	1	1
Greater Hamilton	2	2	Parry Sound	1	1
Kitchener-Waterloo	2	2	Peterborough	1	1
New Liskeard	2	2	Rockwood	1	1
Richmond Hill	2	2	St. Catharines	1	1
Timmins	2	2	St. George/Brant	1	1
Whitby	2	2	St. Thomas	1	1
London	1	2	Thunder Bay	1	1
Oshawa	1	2	Tilbury	0	1
Alliston	1	1	Trenton	1	1
Cobourg	1	1	Vaughan	1	1
Coldwater	1	1	Woodbridge	1	1
Earlton	1	1			
			Total	176	189

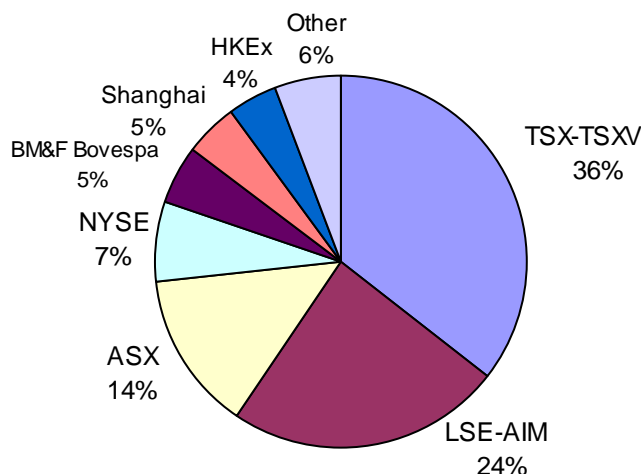
Region	Number of Companies	
	2011/2012	2012/2013
South	134	144
Northeast	17	18
Greater Sudbury	24	26
Northwest	1	1
Total	176	189

The Toronto Stock Exchange is a World Leader in Mining Listings and Financing

The mining industry is critically important to the Toronto Stock Exchange (TSX) and the TSX Venture Exchange (TSXV). These two exchanges are home to 58% of the world's public mining companies and provide the best access to capital in the world for junior exploration companies. At the end of 2011, the TSX housed more than 370 mining companies, while the TSXV listed another 1,274, with the capitalization of all these companies combined valued at \$426.8 billion. For the year 2011 alone, there were 49 new mine listings on the TSX and 152 on the TSXV.

In 2011, 90% of all global mining equity financings were done on the TSX and TSXV, with \$12.5 billion raised, making up nearly 40% of the world's new mining equity capital. Indeed, over the five years between 2007 and 2011, the TSX-TSXV accounted for 36% of the \$220 billion in global equity financings, far outpacing its closest competitor, the London Stock Exchange-Alternative Investment Market (see chart 34). This is an important source of financing for mining firms providing them with the capital to invest in R&D, as well as finance exploration and develop mines.

Chart 34: Share of Value of Global Mine Equity Financings, 2007-2011

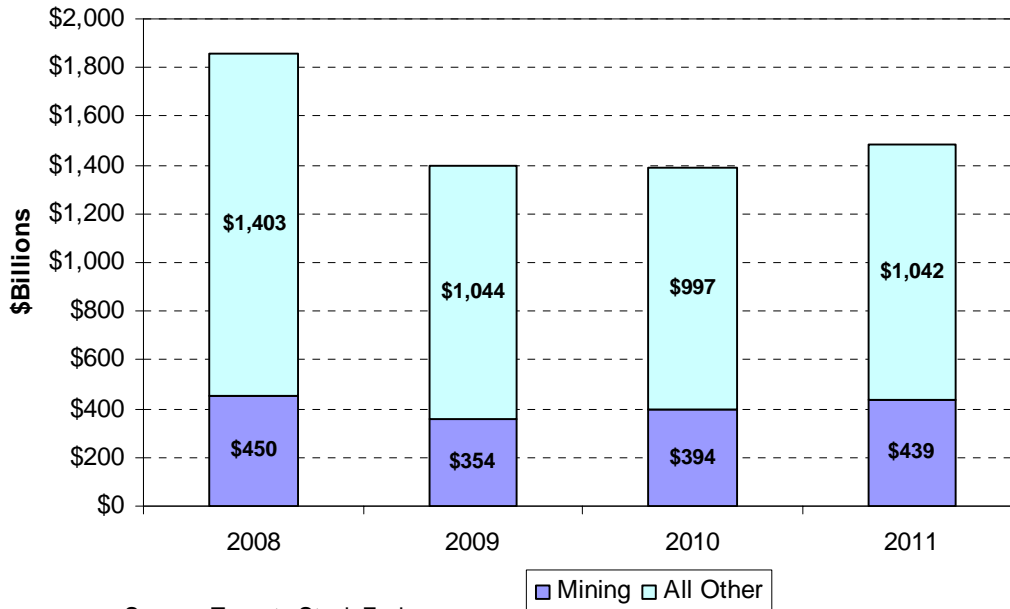


Source: Toronto Stock Exchange

The trading of mining company shares is crucial to the success of both the main Toronto Stock Exchange and the Venture Exchange (see charts 35 to 38). In 2011, the volume of mining shares traded on the main TSX totaled 45.6 billion, accounting for 44% of the total shares traded by the exchange, up from 37.3% in 2008. The total value of mining shares traded in 2011 was almost \$440 billion, roughly 30% of the TSX total for the year, up sharply from 24% in 2008. At the end of December 2011, the market capitalization of mining firms on the TSX was almost \$400 billion, accounting for 20% of the total market capitalization of firms on the exchange (see table 23a).

The importance of mining companies to the TSX Venture exchange is even more dramatic. The 40.6 billion mining shares traded for a value of \$25.8 billion in 2011, accounting for 63% of the total volume traded and 61% of the value. At the end of December 2011, the market capitalization of mining firms on the TSXV was almost over \$28 billion, accounting for almost 60% of the total market capitalization of firms on the venture exchange (see table 23b).

**Chart 35: Value of Shares Traded on the TSX,
Mining and Other**



**Chart 36: Volume of Shares Traded on the TSX,
Mining and Other**

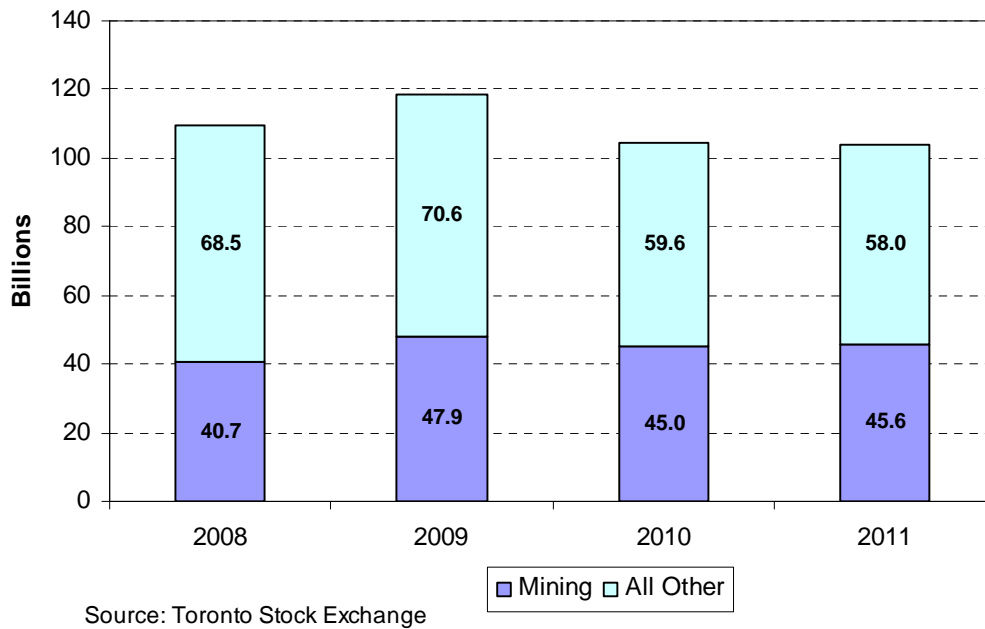


Chart 37: Value of Shares Traded on the TSX Venture, Mining and Other

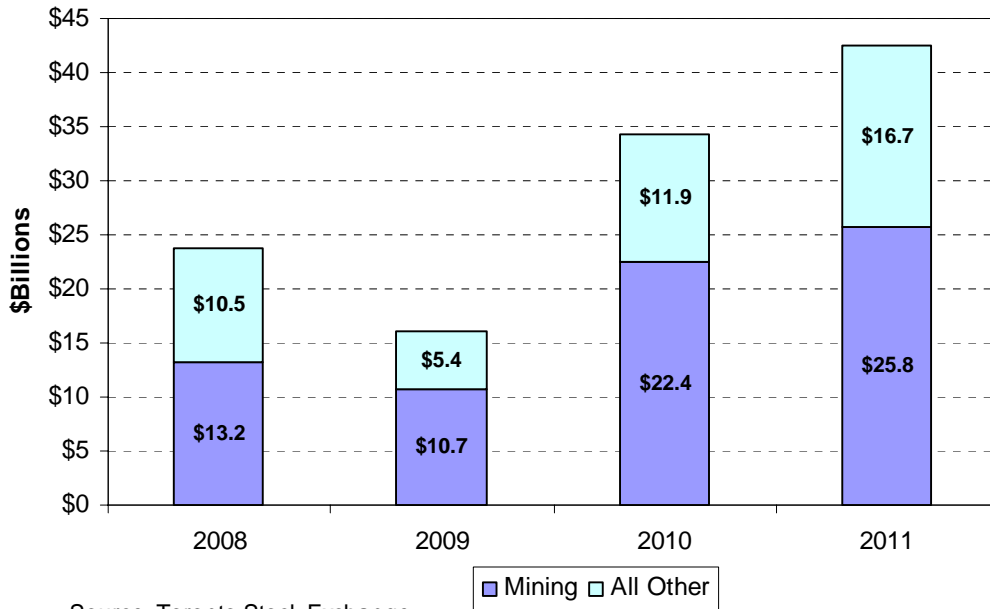


Chart 38: Volume of Shares Traded on the TSX Venture, Mining and Other

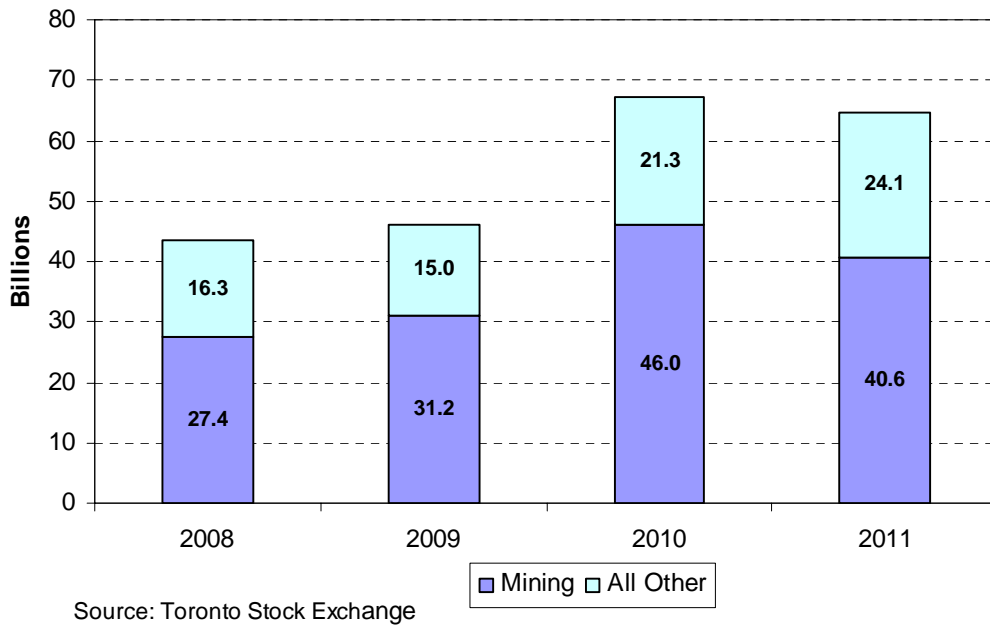


Table 23a
Value and Average Size (\$Millions) on the TSX, by Sector, December 31, 2011

Sector	Number of Firms	Market Capitalization	Average Size	% of Value	% of Firms
Clean Technology	49	\$15,513.9	\$316.6	0.8	3.1
Communication & Media	33	\$128,084.0	\$3,881.3	6.4	2.1
Diversified Industries	260	\$313,131.6	\$1,204.4	15.6	16.4
Exchange Traded Products	242	\$52,205.0	\$215.7	2.6	15.2
Financial Services	80	\$455,061.4	\$5,688.3	22.7	5.0
Forest Products	20	\$13,631.4	\$681.6	0.7	1.3
Life Sciences	51	\$20,592.2	\$403.8	1.0	3.2
Mining	371	\$398,449.4	\$1,074.0	19.9	23.4
Oil & Gas	125	\$367,296.9	\$2,938.4	18.3	7.9
Real Estate	46	\$60,656.8	\$1,318.6	3.0	2.9
Structured Products	223	\$28,249.4	\$126.7	1.4	14.0
Technology	64	\$32,798.1	\$512.5	1.6	4.0
Utilities & Pipelines	24	\$116,435.2	\$4,851.5	5.8	1.5
Total	1,588	\$2,002,105.4	\$1,260.8	100.0	100.0

Table 23b
Value and Average Size (\$Millions) on the TSX Venture, by Sector, December 31, 2011

Sector	Number of Firms	Market Capitalization	Average Size	% of Value	% of Firms
Clean Technology	82	\$1,288.9	\$15.7	2.6	3.7
Communication & Media	11	\$668.2	\$60.7	1.4	0.5
Capital Pool Company	152	\$83.8	\$0.6	0.2	6.8
Diversified Industries	165	\$1,908.9	\$11.6	3.9	7.4
Financial Services	46	\$1,711.7	\$37.2	3.5	2.1
Forest Products	5	\$187.3	\$37.5	0.4	0.2
Life Sciences	68	\$845.2	\$12.4	1.7	3.1
Mining	1274	\$28,344.8	\$22.2	58.3	57.2
Oil & Gas	276	\$11,297.1	\$40.9	23.2	12.4
Real Estate	33	\$954.3	\$28.9	2.0	1.5
Technology	112	\$1,333.5	\$11.9	2.7	5.0
Utilities & Pipelines	3	\$21.4	\$7.1	0.0	0.1
Total	2,227	\$48,645.2	\$21.8	100.0	100.0

As noted earlier, the TSX estimates that 58% of the world's mining companies are listed on the Toronto Stock Exchange, with most of these on the Venture exchange.

At the end of 2011, of the 256 firms with mineral related activity listed on the TSX exchange, 111 had their head office based in Ontario, with 114 in B.C. and 14 in Quebec. The average market capitalization of firms with head offices in Ontario was \$1.15 billion, compared to \$1.22 billion for B.C. based firms and \$530 million for firms based in Quebec. With the recent emergence in the importance of potash, Saskatchewan headquartered firms, while few, had the highest average capitalization. Forty of the 131 TSX listed firms with foreign head offices were located in the U.S., with another 33 in Australia. Foreign based firms had an average market capitalization of \$561 million at the end of 2011, with a number of very small firms offset by one larger Swedish one.

More than 800 of the 1,274 active firms at the end of 2011 on the TSX Venture exchange had their head offices in British Columbia. Ontario based firms tallied 212, while Quebec and Alberta followed with 87 and 76 firms respectively. Only 49 of the firms listed on the TSX Venture exchange had foreign head offices but their average market capitalization was more than \$24 million, slightly higher than Ontario headquartered firms.

TSX and TSX Venture Exchange listed companies finance projects around the world. With this financing comes the enhanced possibility that Canadian expertise and equipment will be used in these projects.

Table 24: Location of Head Office and Market Capitalization (\$ Millions) of Mineral Firms Listed on the TSX and TSX Venture Exchange, December 2011

	TSX			TSX Venture Exchange		
	Number of Firms	Market Capitalization (\$ Million)	Average Size (\$ Mill)	Number of Firms	Market Capitalization (\$ Million)	Average Size (\$ Mill)
Canada:	256	\$333,902.6	\$1,304.3	1,225	\$27,158.8	\$22.2
B.C	114	\$139,473.0	\$1,223.4	817	\$17,592.3	\$21.5
Alberta	5	\$12,025.8	\$2,405.2	76	\$1,847.7	\$24.3
Saskatchewan	4	\$43,752.5	\$10,938.1	9	\$302.4	\$33.6
Manitoba	1	\$591.0	\$591.0	6	\$100.9	\$16.8
Ontario	111	\$127,685.0	\$1,150.3	212	\$4,934.0	\$23.3
Quebec	14	\$7,422.8	\$530.2	87	\$2,150.8	\$24.7
New Brunswick	0	\$0.0	\$0.0	1	\$13.1	\$13.1
Nova Scotia	6	\$2,640.6	\$440.1	12	\$188.5	\$15.7
Newf. & Labrador	1	\$311.9	\$311.9	4	\$27.1	\$6.8
Yukon	0	\$0.0	\$0.0	1	\$2.1	\$2.1
Foreign:	115	\$64,546.9	\$561.3	49	\$1,186.0	\$24.2
U.S.	40	\$26,917.6	\$672.9	26	\$440.4	\$16.9
Australia	33	\$15,632.9	\$473.7	5	\$124.6	\$24.9
United Kingdom	11	\$8,458.0	\$768.9	6	\$391.3	\$65.2
Sweden	2	\$4,574.8	\$2,287.4	0	\$0.0	\$0.0
South Africa	9	\$3,598.0	\$399.8	0	\$0.0	\$0.0
China	4	\$2,269.6	\$567.4	5	\$149.7	\$29.9
Other	16	\$3,096.0	\$193.5	7	\$80.1	\$11.4
TOTAL	371	\$398,449.4	\$1,074.0	1,274	\$28,344.8	\$24.2

Mining's Impact on the Broader Community

Ontario miners take corporate social responsibility seriously. Mining companies in the province strive to be responsible partners in improving the community in which they operate. Responses to the OMA survey indicate that company charitable donations have approached \$10 million in each of 2010 and 2011. Certainly not exhaustive, the following are just a few examples of community support provided through mining companies:

Goldcorp supports a wide range of health related, educational and cultural activities in Red Lake. It also operates the local recreation centre, which includes a curling rink, indoor swimming pool, gymnasium, bowling alley, baseball diamonds and facility rooms. As well, in November 2012 the Goldcorp Mining Innovation Suite opened at the University of Toronto, providing students studying mineral and civil engineering 100 workstations for use in their engineering design projects.

Xstrata Copper Canada, Kidd Operations (Xstrata) through its financial and in-kind support of the Mattagami Sturgeon Restoration Project is giving new life to a fish species designated as of "special concern" by the province. Indications are that Xstrata, in partnership with the Ministry of Natural Resources, Ontario Power Generation, Timmins Fur Council and Club Navigateur, is experiencing success in re-establishing the lake sturgeon population in a section of the Mattagami River watershed. With the support of a \$2 million contribution from Xstrata Nickel, Cambrian College in Sudbury has opened the doors of its new energy research facility. The Xstrata Nickel Sustainable Energy Centre is home to cutting-edge applied research and education programs for sustainable energy.

Vale, after a successful pilot project, will soon be producing fish near its underground greenhouse at the Creighton Mine in Sudbury. When they resurface, the subterranean grown fish will be released for restocking Sudbury area lakes and rivers. The Vale Concert Series in Sudbury, with free admission to all concerts, showcased a variety of Canadian musical talent, and welcomed donations to the Sudbury Food Bank. In 2011, Vale made a \$500,000 donation to the Sudbury Food Bank capital campaign. Vale has also donated more than \$500,000 to support enhancing Aboriginal awareness of career opportunities in the mining industry and \$150,000 to support Sudbury's Human League's Positive Leisure Activities for Youth Program over the next three years. The Human League's PLAY program removes financial barriers to extracurricular activities for children by covering registration and equipment costs.

BESTECH has donated \$3,500 to support a CPR training program for students in Sudbury. The contribution from BESTECH will cover the cost of training mannequins, teacher training, materials and a defibrillator in one local high school.

Barrick Gold and the Family of the late Greg Wilkins, former company president, have donated \$5.5 million to advance global health. Toronto General and Western Hospital Foundation will be using this gift to combat brain diseases and improve medical training for surgeons and nurses in developing countries around the world. Also, Barrick Gold's gift of \$150,000 to Lakehead University in Thunder Bay and the Northern Ontario School of Medicine (NOSM) will enhance health care services in Northwestern Ontario.

Since 2003, De Beers Canada has initiated its Books in Homes program, distributing books to students in communities near our mine sites. About 2,000 children take part each year in northern Ontario along the James Bay Coast. In the past two years, almost \$150,000 was spent on the program. In 2009, approximately 100 persons were displaced in the Attawapiskat First Nation. De Beers mobilized teams, project managers and other resources to redesign, install and furnish mobile construction dorms into temporary accommodations for those displaced residents.

Through its operations, its suppliers and its other endeavors, the mining industry has a significant impact across many communities in the province, both near to and far beyond its mine-sites.

Appendix A. Map Used to Define Regions in Ontario Mining Association Survey



Appendix B: Detailed Input-Output Results

Table B1a. Direct and Indirect Impacts on GDP of \$1 Billion in OMA Mineral Production in Ontario

Table B1b. Direct and Indirect Impacts on Employment of \$1 Billion in OMA Mineral Production in Ontario

Table B1c. Direct and Indirect Impacts on International Imports of \$1 Billion in OMA Mineral Production in Ontario

Table B2a. Direct, Indirect & Induced Impacts on GDP of \$1 Billion in OMA Mineral Production in Ontario

Table B2b. Direct, Indirect & Induced Impacts on Employment of \$1 Billion in OMA Mineral Production in Ontario

Table B2c. Direct, Indirect & Induced Impacts on International Imports of \$1 Billion in OMA Mineral Production in Ontario

Table B1a. Direct and Indirect Impacts on GDP of \$1 Billion in OMA Mineral Production in Ontario (Thousands of Dollars)

	Newfoundland and Labrador	PEI	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Territories	Canada
Crop and Animal Production	1	1	2	2	58	157	44	44	32	5	0	346
Forestry and Logging	2	0	2	6	39	55	1	0	4	28	0	136
Fishing, Hunting and Trapping	1	0	1	0	0	0	0	0	0	0	0	3
Support Activities for Agriculture and Forestry	0	0	1	1	7	25	4	5	9	9	0	61
Oil and Gas Extraction	887	0	36	1	0	82	249	1,664	8,479	637	329	12,365
Support Activities for Oil and Gas Extraction	12	0	0	0	0	2	1	59	347	19	12	452
Mining	158	0	57	18	165	691,008	19	251	198	164	0	692,036
Support Activities for Mining	2	0	1	2	846	12,946	0	9	8	5	0	13,818
Electric Power Generation, Transmission and Distribution	8	0	16	8	1,015	14,904	145	39	108	59	1	16,304
Natural Gas Distribution, Water, Sewage and Other Systems	0	0	1	1	26	641	1	1	27	17	0	716
Construction	1	0	5	5	79	7,815	33	24	86	47	2	8,096
Food Manufacturing	2	1	5	6	83	522	19	10	25	18	0	691
Beverage and Tobacco Product Manufacturing	1	0	1	4	29	214	2	0	4	6	0	262
Textile and Textile Product Mills	0	0	1	0	14	72	1	1	2	1	0	93
Clothing Manufacturing	0	0	0	0	12	28	2	0	0	1	0	44
Leather and Allied Product Manufacturing	1	0	0	0	2	3	0	0	0	0	0	6
Wood Product Manufacturing	0	0	3	4	63	146	4	1	15	27	0	265
Paper Manufacturing	2	1	22	20	204	701	9	1	7	15	0	982
Printing and Related Support Activities	0	0	3	1	130	849	28	2	28	15	0	1,056
Petroleum and Coal Products Manufacturing	1	0	47	11	97	597	0	158	142	32	0	1,085
Chemical Manufacturing	1	0	1	2	636	1,570	103	55	121	23	0	2,513
Plastics and Rubber Products Manufacturing	2	0	19	4	225	1,115	21	3	57	21	0	1,466
Non-Metallic Mineral Product Manufacturing	0	0	0	4	137	1,282	4	1	20	12	0	1,460
Primary Metal Manufacturing	0	0	0	1	367	993	24	12	21	1,042	0	2,460
Fabricated Metal Products Manufacturing	1	0	3	14	544	2,012	18	15	162	54	0	2,824
Machinery Manufacturing	0	0	5	7	299	4,522	48	117	515	141	0	5,655
Computer and Electronic Product Manufacturing	0	0	2	1	35	236	0	1	7	4	0	286
Electrical Equipment, Appliance and Component Manufacturing	0	0	0	1	69	242	16	4	7	8	0	347
Transportation Equipment Manufacturing	0	1	4	0	74	675	11	1	5	7	0	779
Furniture and Related Product Manufacturing	0	0	0	0	6	79	1	0	1	1	0	89
Miscellaneous Manufacturing	0	0	1	4	29	246	26	3	8	16	0	333
Wholesale Trade	14	8	69	19	1,485	14,574	229	187	509	517	3	17,614
Retail Trade	6	2	13	12	236	3,943	41	22	169	94	4	4,541
Truck Transportation	7	2	22	46	383	2,143	109	36	226	117	9	3,102
Transit and Ground Passenger Transportation	4	0	6	2	57	394	8	3	25	25	0	525
Pipeline Transportation	0	0	0	0	19	420	94	200	250	38	21	1,042
Other Transportation	34	2	46	31	456	2,933	169	94	312	464	17	4,557
Postal Service and Couriers and Messengers	2	0	4	3	75	1,406	16	4	31	24	1	1,567
Warehousing and Storage	1	1	3	4	47	339	15	8	31	41	1	491
Motion Picture and Sound Recording Industries	0	0	2	0	36	262	1	1	2	14	0	318
Publishing, Broadcasting, Telecom, and Oth Information Servs	22	4	46	26	558	6,143	89	42	298	252	6	7,485
Finance, Insurance, Real Estate and Rental and Leasing	35	11	109	65	1,580	35,835	197	113	954	639	14	39,553
Professional, Scientific and Technical Services	28	4	85	43	1,362	25,822	71	50	646	484	5	28,599
Administrative and Support Services	13	2	25	28	899	8,003	61	21	325	193	2	9,572
Waste Management and Remediation Services	0	0	2	1	38	272	5	2	19	9	0	349
Educational Services	0	0	1	0	11	148	1	1	5	3	0	171
Health Care and Social Assistance	0	0	2	1	37	829	2	1	7	6	0	885
Arts, Entertainment and Recreation	1	1	2	2	78	572	4	2	12	14	0	687
Accommodation and Food Services	19	8	37	20	205	2,047	44	21	146	112	3	2,662
Repair and Maintenance	3	1	7	3	147	1,695	12	13	500	40	0	2,420
Grant-Making, Civic, and Professional and Similar Orgs	1	1	4	3	88	741	4	1	11	12	0	867
Personal and Laundry Services and Private Households	0	0	1	1	35	411	4	2	9	8	0	471
Non-Profit Institutions Serving Households (Excl Education)	0	0	0	0	3	78	1	0	1	1	0	85
Non-Profit Education Institutions	0	0	0	0	1	5	0	0	0	0	0	6
Hospitals and Residential Care Facilities	2	0	4	3	31	335	2	1	7	5	0	391
Universities and Government Education Services	1	0	4	1	29	337	3	3	12	9	0	400
Other Municipal Government Services	1	0	2	2	56	1,576	9	7	35	25	1	1,714
Other Provincial and Territorial Government Services	1	0	2	1	61	841	4	4	8	8	1	931
Other Federal Government Services	2	0	7	3	91	1,853	7	3	12	13	2	1,992
Total	1,284	56	745	448	13,394	857,697	2,037	3,322	15,010	5,598	435	900,026

Table B1b. Direct and Indirect Impacts on Employment of \$1 Billion in OMA Mineral Production in Ontario

	Newfoundland and Labrador	PEI	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Territories	Canada
Crop and Animal Production	0	0	0	0	1	3	0	0	1	0	0	6
Forestry and Logging	0	0	0	0	0	1	0	0	0	0	0	1
Fishing, Hunting and Trapping	0	0	0	0	0	0	0	0	0	0	0	0
Support Activities for Agriculture and Forestry	0	0	0	0	0	0	0	0	0	0	0	1
Oil and Gas Extraction	0	0	0	0	0	1	0	1	6	0	0	8
Support Activities for Oil and Gas Extraction	0	0	0	0	0	0	0	1	3	0	0	4
Mining	0	0	0	0	1	2,421	0	1	0	0	0	2,423
Support Activities for Mining	0	0	0	0	10	139	0	0	0	0	0	149
Electric Power Generation, Transmission and Distribution	0	0	0	0	2	55	1	0	0	0	0	59
Natural Gas Distribution, Water, Sewage and Other Systems	0	0	0	0	0	3	0	0	0	0	0	3
Construction	0	0	0	0	1	119	0	0	1	1	0	123
Food Manufacturing	0	0	0	0	1	4	0	0	0	0	0	6
Beverage and Tobacco Product Manufacturing	0	0	0	0	0	1	0	0	0	0	0	1
Textile and Textile Product Mills	0	0	0	0	0	1	0	0	0	0	0	2
Clothing Manufacturing	0	0	0	0	0	1	0	0	0	0	0	1
Leather and Allied Product Manufacturing	0	0	0	0	0	0	0	0	0	0	0	0
Wood Product Manufacturing	0	0	0	0	1	2	0	0	0	0	0	4
Paper Manufacturing	0	0	0	0	2	7	0	0	0	0	0	10
Printing and Related Support Activities	0	0	0	0	2	10	0	0	0	0	0	13
Petroleum and Coal Products Manufacturing	0	0	0	0	1	7	0	0	0	0	0	9
Chemical Manufacturing	0	0	0	0	6	13	1	0	0	0	0	21
Plastics and Rubber Products Manufacturing	0	0	1	0	3	13	0	0	1	0	0	18
Non-Metallic Mineral Product Manufacturing	0	0	0	0	1	11	0	0	0	0	0	12
Primary Metal Manufacturing	0	0	0	0	4	7	0	0	0	7	0	18
Fabricated Metal Products Manufacturing	0	0	0	0	9	29	0	0	2	1	0	41
Machinery Manufacturing	0	0	0	0	3	35	0	1	3	1	0	44
Computer and Electronic Product Manufacturing	0	0	0	0	0	3	0	0	0	0	0	3
Electrical Equipment, Appliance and Component Manufacturing	0	0	0	0	1	3	0	0	0	0	0	4
Transportation Equipment Manufacturing	0	0	0	0	1	7	0	0	0	0	0	8
Furniture and Related Product Manufacturing	0	0	0	0	0	1	0	0	0	0	0	1
Miscellaneous Manufacturing	0	0	0	0	1	3	0	0	0	0	0	4
Wholesale Trade	0	0	1	0	19	165	2	1	5	7	0	200
Retail Trade	0	0	0	0	6	93	1	1	3	2	0	108
Truck Transportation	0	0	0	1	7	33	2	1	2	2	0	48
Transit and Ground Passenger Transportation	0	0	0	0	1	13	0	0	1	1	0	16
Pipeline Transportation	0	0	0	0	0	0	0	0	0	0	0	1
Other Transportation	0	0	1	0	5	24	2	1	3	4	0	40
Postal Service and Couriers and Messengers	0	0	0	0	2	25	0	0	1	1	0	28
Warehousing and Storage	0	0	0	0	1	6	0	0	1	1	0	8
Motion Picture and Sound Recording Industries	0	0	0	0	0	3	0	0	0	0	0	4
Publishing, Broadcasting, Telecom, and Oth Information Servs	0	0	0	0	5	47	1	0	2	2	0	59
Finance, Insurance, Real Estate and Rental and Leasing	0	0	1	1	16	299	2	1	7	5	0	332
Professional, Scientific and Technical Services	0	0	2	1	22	367	1	1	8	8	0	409
Administrative and Support Services	0	0	1	1	22	213	2	1	6	5	0	249
Waste Management and Remediation Services	0	0	0	0	0	2	0	0	0	0	0	3
Educational Services	0	0	0	0	0	5	0	0	0	0	0	6
Health Care and Social Assistance	0	0	0	0	0	11	0	0	0	0	0	12
Arts, Entertainment and Recreation	0	0	0	0	2	18	0	0	0	0	0	22
Accommodation and Food Services	1	0	1	1	7	77	2	1	3	3	0	95
Repair and Maintenance	0	0	0	0	3	39	0	0	7	1	0	51
Grant-Making, Civic, and Professional and Similar Orgs	0	0	0	0	2	11	0	0	0	0	0	14
Personal and Laundry Services and Private Households	0	0	0	0	1	10	0	0	0	0	0	12
Non-Profit Institutions Serving Households (Excl Education)	0	0	0	0	0	1	0	0	0	0	0	2
Non-Profit Education Institutions	0	0	0	0	0	0	0	0	0	0	0	0
Hospitals and Residential Care Facilities	0	0	0	0	0	5	0	0	0	0	0	6
Universities and Government Education Services	0	0	0	0	0	5	0	0	0	0	0	5
Other Municipal Government Services	0	0	0	0	1	19	0	0	0	0	0	20
Other Provincial and Territorial Government Services	0	0	0	0	1	10	0	0	0	0	0	11
Other Federal Government Services	0	0	0	0	1	18	0	0	0	0	0	19
Total	4	1	10	7	176	4,418	21	13	68	56	1	4,775

Table B1c. Direct and Indirect Impacts on International Imports of \$1 Billion in OMA Mineral Production in Ontario (Thousands of Dollars)

	Newfoundland and Labrador	PEI	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Territories	Canada
Grains	0	0	0	0	2	54	4	0	0	1	0	62
Other agricultural products	0	0	0	1	3	84	1	0	2	3	0	94
Forestry products	0	0	0	0	6	4	0	0	0	0	0	11
Fish, seafood and trapping products	0	0	0	0	0	4	0	0	0	0	0	5
Metal ores & concentrates	0	0	0	1	148	189	0	0	2	43	0	383
Mineral fuels	29	0	317	129	4,514	7,246	1	0	73	0	0	12,311
Non-metallic minerals	0	0	3	3	22	1,060	0	0	3	4	0	1,095
Services incidental to mining	0	0	0	0	0	1,516	0	0	2	0	0	1,519
Meat, fish, and dairy products	0	0	1	1	6	168	2	2	1	5	0	185
Fruit, veg. and other food products, feeds	1	0	2	1	20	149	4	2	8	7	0	193
Soft drinks and alcoholic beverages	1	0	1	0	10	196	2	1	4	3	0	218
Tobacco and tobacco products	0	0	0	0	0	1	0	0	0	0	0	1
Leather, rubber, and plastic products	2	0	3	3	79	3,401	15	11	37	27	0	3,577
Textile products	0	0	5	0	31	638	3	1	6	5	0	689
Hosiery, clothing and accessories	0	0	0	0	5	203	1	1	5	2	0	218
Lumber and wood products	0	0	0	0	8	102	1	0	2	2	0	116
Furniture and fixtures	0	0	0	0	0	8	0	0	0	0	0	8
Wood pulp, paper and paper products	1	0	2	7	101	1,403	13	5	24	17	0	1,572
Printing and publishing	1	0	2	1	15	570	5	4	22	9	0	629
Primary metal products	2	0	3	8	452	3,803	38	62	213	580	0	5,161
Other metal products	2	0	8	2	73	1,622	7	11	54	24	2	1,805
Machinery and equipment	9	0	8	7	222	15,184	16	52	236	56	2	15,793
Motor veh., other transport equipment and parts	4	1	5	3	104	5,345	16	9	49	36	1	5,573
Electrical, electronic and communications products	6	0	10	5	178	4,509	9	23	80	40	1	4,862
Non-metallic mineral products	0	0	1	1	23	589	2	2	7	5	0	629
Petroleum and coal products	9	0	3	5	200	2,465	27	12	82	158	7	2,969
Chemicals, pharmaceuticals & chemical products	5	1	27	10	677	11,507	41	39	121	57	0	12,485
Other manufactured products	1	0	4	2	58	1,481	13	5	20	16	0	1,600
Transportation and storage	2	1	7	5	106	3,313	14	6	47	39	1	3,542
Communications services	1	0	2	1	28	571	4	2	10	8	0	626
Other utilities	0	0	0	0	4	914	3	3	7	14	0	945
Wholesaling margins	0	0	0	0	6	224	0	0	2	2	0	235
Other finance, insurance, and real estate services	4	1	9	4	186	5,233	25	26	63	40	1	5,591
Business and computer services	4	0	9	5	167	7,469	21	36	112	42	2	7,868
Private education services	0	0	0	0	2	19	0	0	1	0	0	22
Health and social services	0	0	0	0	0	19	0	0	0	0	0	20
Accommodation services and meals	1	0	2	1	51	3,113	7	4	19	20	0	3,219
Other services	1	0	3	2	46	1,609	6	5	25	17	1	1,713
Non-competing imports	0	0	12	0	13	62	0	0	1	2	0	90
Sales of other government services	0	0	0	0	1	56	0	0	0	0	0	57
Import Duties	0	0	0	0	-10	-264	-1	-1	-5	-2	0	-284
TOTAL	87	7	449	210	7,556	85,840	300	325	1,335	1,283	19	97,411

Table B2a. Direct, Indirect and Induced Impacts on GDP of \$1 Billion in OMA Mineral Production in Ontario (Thousands of Dollars)

	Newfoundland and Labrador	PEI	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Territories	Canada
Crop and Animal Production	6	16	16	23	472	975	169	218	215	58	0	2,168
Forestry and Logging	5	0	4	9	69	164	2	0	7	48	0	309
Fishing, Hunting and Trapping	8	5	13	1	5	6	1	0	0	4	0	42
Support Activities for Agriculture and Forestry	1	1	2	2	23	75	9	8	20	17	1	159
Oil and Gas Extraction	1,299	0	55	2	0	128	372	2,526	11,744	1,079	487	17,691
Support Activities for Oil and Gas Extraction	18	0	1	0	0	2	1	79	476	29	18	626
Mining	170	0	59	21	180	691,155	21	301	237	194	0	692,336
Support Activities for Mining	2	0	1	2	847	12,956	0	9	10	5	0	14,459
Electric Power Generation, Transmission and Distribution	23	2	34	25	1,606	19,282	208	69	218	135	4	21,607
Natural Gas Distribution, Water, Sewage and Other Systems	0	0	2	2	51	1,544	7	3	71	36	0	1,717
Construction	4	2	16	12	227	11,617	59	42	169	106	3	12,256
Food Manufacturing	22	19	58	70	899	3,811	154	82	276	168	0	5,560
Beverage and Tobacco Product Manufacturing	6	1	15	40	358	1,366	27	1	53	83	0	1,951
Textile and Textile Product Mills	0	0	4	1	48	117	1	3	4	5	0	184
Clothing Manufacturing	1	0	1	0	87	125	6	0	2	6	0	229
Leather and Allied Product Manufacturing	5	0	1	0	12	9	0	0	1	0	0	29
Wood Product Manufacturing	1	0	4	7	99	205	7	2	25	47	0	396
Paper Manufacturing	4	2	33	38	386	1,008	17	2	15	40	0	1,545
Printing and Related Support Activities	1	0	5	1	255	1,538	55	4	52	33	0	1,944
Petroleum and Coal Products Manufacturing	4	0	62	21	133	877	0	215	184	52	0	1,548
Chemical Manufacturing	1	1	2	2	750	1,908	112	68	167	39	0	3,051
Plastics and Rubber Products Manufacturing	2	0	24	8	323	1,405	28	5	81	34	0	1,909
Non-Metallic Mineral Product Manufacturing	0	0	0	7	171	1,447	5	1	29	17	0	1,678
Primary Metal Manufacturing	0	0	0	2	413	1,105	26	14	24	1,048	0	2,633
Fabricated Metal Products Manufacturing	1	1	4	17	612	2,331	35	20	197	71	0	3,289
Machinery Manufacturing	0	0	6	8	325	4,717	52	120	537	147	0	5,914
Computer and Electronic Product Manufacturing	1	0	3	1	58	346	1	1	11	8	0	430
Electrical Equipment, Appliance and Component Manufacturing	0	0	1	1	118	361	19	5	9	12	0	526
Transportation Equipment Manufacturing	1	3	8	1	179	1,046	20	4	11	27	0	1,299
Furniture and Related Product Manufacturing	0	0	1	0	33	260	5	0	22	5	0	327
Miscellaneous Manufacturing	0	0	2	8	120	517	34	4	19	34	0	738
Wholesale Trade	26	14	126	38	2,529	22,395	394	308	868	846	6	27,550
Retail Trade	38	11	82	61	1,313	25,631	299	116	751	645	33	28,980
Truck Transportation	11	4	36	72	579	2,972	167	58	365	184	14	4,460
Transit and Ground Passenger Transportation	7	1	10	3	194	2,159	17	6	59	65	1	2,522
Pipeline Transportation	0	0	0	0	28	751	152	322	365	61	31	1,711
Other Transportation	54	3	73	49	708	4,080	251	120	472	687	26	6,523
Postal Service and Couriers and Messengers	4	1	8	7	158	2,610	34	9	63	54	1	2,948
Warehousing and Storage	2	1	6	7	85	564	26	13	55	75	1	836
Motion Picture and Sound Recording Industries	0	0	4	1	85	816	3	2	9	32	0	952
Publishing, Broadcasting, Telecom, and Oth Information Servs	51	10	109	60	1,355	13,868	201	92	675	571	13	17,005
Finance, Insurance, Real Estate and Rental and Leasing	110	37	334	203	4,546	111,381	676	367	2,692	2,259	42	122,646
Professional, Scientific and Technical Services	41	9	122	67	1,984	32,300	124	81	943	761	7	36,440
Administrative and Support Services	21	4	44	51	1,473	11,649	108	38	535	348	3	14,274
Waste Management and Remediation Services	1	1	5	2	68	892	11	4	43	22	0	1,049
Educational Services	1	0	2	2	36	633	4	2	20	19	0	721
Health Care and Social Assistance	4	2	15	9	265	6,601	24	13	83	82	1	7,099
Arts, Entertainment and Recreation	4	4	17	11	314	2,870	28	14	67	85	1	3,414
Accommodation and Food Services	47	18	95	54	657	7,858	120	70	412	353	9	9,693
Repair and Maintenance	6	2	14	9	318	3,444	33	26	680	107	1	4,641
Grant-Making, Civic, and Professional and Similar Orgs	2	1	7	5	138	1,113	7	3	21	25	0	1,322
Personal and Laundry Services and Private Households	4	1	10	8	181	4,142	26	13	77	68	1	4,530
Non-Profit Institutions Serving Households (Excl Education)	5	2	14	9	221	7,320	43	25	95	102	5	7,840
Non-Profit Education Institutions	0	0	0	0	33	755	4	1	10	12	0	817
Hospitals and Residential Care Facilities	4	1	10	7	87	1,336	10	6	26	20	1	1,508
Universities and Government Education Services	4	2	20	11	106	2,941	18	11	65	63	1	3,241
Other Municipal Government Services	2	1	6	6	129	3,421	24	14	92	71	1	3,767
Other Provincial and Territorial Government Services	2	1	5	3	106	1,028	8	9	20	22	2	1,208
Other Federal Government Services	4	1	11	6	151	2,407	13	5	24	27	3	2,653
Total	2,041	187	1,626	1,093	26,707	1,040,341	4,276	5,552	24,472	11,258	720	1,118,274

Table B2b. Direct, Indirect and Induced Impacts on Employment of \$1 Billion in OMA Mineral Production in Ontario

	Newfoundland and Labrador	PEI	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Territories	Canada
Crop and Animal Production	0	0	0	0	7	22	2	3	4	2	0	41
Forestry and Logging	0	0	0	0	1	2	0	0	0	0	0	3
Fishing, Hunting and Trapping	0	0	0	0	0	0	0	0	0	0	0	0
Support Activities for Agriculture and Forestry	0	0	0	0	1	1	0	0	0	0	0	3
Oil and Gas Extraction	0	0	0	0	0	1	0	1	8	0	0	11
Support Activities for Oil and Gas Extraction	0	0	0	0	0	0	0	1	4	0	0	5
Mining	0	0	0	0	1	2,421	0	1	1	0	0	2,425
Support Activities for Mining	0	0	0	0	10	139	0	0	0	0	0	149
Electric Power Generation, Transmission and Distribution	0	0	0	0	4	70	1	0	0	0	0	76
Natural Gas Distribution, Water, Sewage and Other Systems	0	0	0	0	0	6	0	0	0	0	0	6
Construction	0	0	0	0	3	171	1	0	2	2	0	179
Food Manufacturing	0	0	1	1	9	31	1	1	3	2	0	50
Beverage and Tobacco Product Manufacturing	0	0	0	0	2	4	0	0	0	1	0	8
Textile and Textile Product Mills	0	0	0	0	1	2	0	0	0	0	0	3
Clothing Manufacturing	0	0	0	0	2	3	0	0	0	0	0	5
Leather and Allied Product Manufacturing	0	0	0	0	0	0	0	0	0	0	0	1
Wood Product Manufacturing	0	0	0	0	1	3	0	0	0	0	0	5
Paper Manufacturing	0	0	0	0	4	9	0	0	0	0	0	15
Printing and Related Support Activities	0	0	0	0	4	17	1	0	1	1	0	23
Petroleum and Coal Products Manufacturing	0	0	0	0	2	10	0	0	0	0	0	12
Chemical Manufacturing	0	0	0	0	7	16	1	0	1	0	0	25
Plastics and Rubber Products Manufacturing	0	0	1	0	4	16	1	0	1	0	0	23
Non-Metallic Mineral Product Manufacturing	0	0	0	0	1	12	0	0	0	0	0	14
Primary Metal Manufacturing	0	0	0	0	4	8	0	0	0	7	0	19
Fabricated Metal Products Manufacturing	0	0	0	0	10	33	0	0	2	1	0	47
Machinery Manufacturing	0	0	0	0	3	36	0	1	3	1	0	46
Computer and Electronic Product Manufacturing	0	0	0	0	0	4	0	0	0	0	0	5
Electrical Equipment, Appliance and Component Manufacturing	0	0	0	0	1	4	0	0	0	0	0	6
Transportation Equipment Manufacturing	0	0	0	0	2	11	0	0	0	0	0	13
Furniture and Related Product Manufacturing	0	0	0	0	1	3	0	0	0	0	0	4
Miscellaneous Manufacturing	0	0	0	0	2	6	0	0	0	1	0	9
Wholesale Trade	0	0	2	0	31	244	3	2	8	11	0	302
Retail Trade	1	0	2	2	33	546	7	3	15	15	1	625
Truck Transportation	0	0	1	1	10	45	3	1	4	3	0	67
Transit and Ground Passenger Transportation	0	0	0	0	3	35	0	0	1	1	0	42
Pipeline Transportation	0	0	0	0	0	0	0	0	1	0	0	1
Other Transportation	1	0	1	1	7	33	3	1	4	6	0	57
Postal Service and Couriers and Messengers	0	0	0	0	3	43	1	0	1	1	0	50
Warehousing and Storage	0	0	0	0	1	9	0	0	1	1	0	14
Motion Picture and Sound Recording Industries	0	0	0	0	1	12	0	0	0	0	0	14
Publishing, Broadcasting, Telecom, and Oth Information Servs	1	0	1	0	12	93	1	1	4	4	0	117
Finance, Insurance, Real Estate and Rental and Leasing	1	0	2	1	32	493	4	2	13	11	0	559
Professional, Scientific and Technical Services	1	0	2	1	31	449	2	1	11	12	0	510
Administrative and Support Services	0	0	1	2	35	297	3	1	9	9	0	357
Waste Management and Remediation Services	0	0	0	0	1	6	0	0	0	0	0	7
Educational Services	0	0	0	0	1	19	0	0	1	1	0	21
Health Care and Social Assistance	0	0	0	0	5	110	0	0	1	2	0	119
Arts, Entertainment and Recreation	0	0	1	0	8	72	1	0	2	2	0	87
Accommodation and Food Services	2	1	4	2	24	287	5	3	11	12	0	348
Repair and Maintenance	0	0	0	0	7	74	1	0	9	2	0	95
Grant-Making, Civic, and Professional and Similar Orgs	0	0	0	0	3	16	0	0	0	1	0	20
Personal and Laundry Services and Private Households	0	0	0	0	8	140	1	0	2	2	0	154
Non-Profit Institutions Serving Households (Excl Education)	0	0	0	0	5	141	1	1	2	2	0	154
Non-Profit Education Institutions	0	0	0	0	1	11	0	0	0	0	0	12
Hospitals and Residential Care Facilities	0	0	0	0	1	17	0	0	0	0	0	20
Universities and Government Education Services	0	0	0	0	1	35	0	0	1	1	0	39
Other Municipal Government Services	0	0	0	0	1	38	0	0	1	1	0	42
Other Provincial and Territorial Government Services	0	0	0	0	1	12	0	0	0	0	0	14
Other Federal Government Services	0	0	0	0	1	22	0	0	0	0	0	25
Total	9	3	23	16	354	6,360	50	28	135	123	2	7,104

Table B2c. Direct, Indirect and Induced Impacts on International Imports of \$1 Billion in OMA Mineral Production in Ontario (Thousands of Dollars)

	Newfoundland and Labrador	PEI	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Territories	Canada
Grains	0	0	0	0	7	114	5	0	2	4	0	133
Other agricultural products	0	0	0	5	45	1,481	8	2	19	37	0	1,598
Forestry products	0	0	0	0	9	9	0	0	1	1	0	21
Fish, seafood and trapping products	2	0	0	2	5	126	0	0	1	6	0	142
Metal ores & concentrates	0	0	0	1	168	261	2	0	3	46	0	482
Mineral fuels	76	0	421	236	6,081	10,864	1	1	125	1	0	17,807
Non-metallic minerals	0	0	4	6	27	1,119	0	0	6	6	0	1,168
Services incidental to mining	0	0	0	0	0	1,517	0	0	2	0	0	1,520
Meat, fish, and dairy products	1	0	7	4	60	1,808	9	10	11	36	0	1,946
Fruit, veg. and other food products, feeds	5	2	18	11	225	2,467	39	19	98	83	1	2,968
Soft drinks and alcoholic beverages	2	1	4	3	81	1,350	10	5	31	23	0	1,510
Tobacco and tobacco products	0	0	0	1	22	423	1	1	1	2	0	451
Leather, rubber, and plastic products	6	1	8	8	204	5,121	38	24	89	70	0	5,568
Textile products	2	0	8	2	128	1,420	8	5	25	24	0	1,622
Hosiery, clothing and accessories	3	1	6	4	110	2,926	14	9	70	37	1	3,181
Lumber and wood products	0	0	1	0	14	181	2	1	4	5	0	208
Furniture and fixtures	0	0	1	1	30	1,027	5	3	17	13	0	1,096
Wood pulp, paper and paper products	2	1	5	15	213	2,610	32	14	56	55	0	3,004
Printing and publishing	2	0	5	3	36	1,215	15	8	46	27	0	1,356
Primary metal products	3	0	3	10	522	4,157	44	70	241	601	0	5,652
Other metal products	4	1	14	5	128	2,243	17	18	84	46	3	2,564
Machinery and equipment	14	1	15	13	307	16,241	30	79	315	94	3	17,111
Motor veh., other transport equipment and parts	16	4	27	19	575	13,938	67	45	283	162	4	15,140
Electrical, electronic and communications products	14	2	27	17	403	8,400	34	47	195	114	3	9,256
Non-metallic mineral products	1	0	2	2	51	986	4	4	18	14	0	1,083
Petroleum and coal products	13	1	7	11	283	4,804	53	24	149	257	11	5,613
Chemicals, pharmaceuticals & chemical products	11	3	43	28	1,038	15,910	79	82	230	124	1	17,549
Other manufactured products	5	1	12	8	221	5,036	36	18	101	73	1	5,514
Transportation and storage	4	2	12	8	193	5,013	28	11	86	82	1	5,442
Communications services	1	1	4	4	66	1,124	9	5	25	20	1	1,259
Other utilities	0	0	0	0	8	1,109	6	6	14	30	0	1,172
Wholesaling margins	1	0	0	0	14	338	1	0	3	4	0	361
Other finance, insurance, and real estate services	8	2	20	10	410	9,268	57	48	132	108	2	10,065
Business and computer services	8	1	17	11	318	8,948	42	60	186	84	3	9,677
Private education services	0	0	1	1	13	341	2	1	4	3	0	367
Health and social services	0	0	0	0	2	108	0	0	0	0	0	111
Accommodation services and meals	2	1	5	4	123	4,930	19	9	45	56	1	5,194
Other services	3	1	6	4	109	2,895	15	10	55	44	1	3,142
Non-competing imports	0	0	15	1	70	513	2	1	7	18	0	626
Sales of other government services	0	0	0	0	1	65	0	0	0	0	0	66
Import Duties	-1	0	-2	-2	-47	-1,050	-5	-4	-23	-14	0	-1,149
TOTAL	209	27	718	456	12,272	141,354	730	635	2,759	2,394	40	161,595

Appendix C: Ontario Location of CAMESE Members – By Industry Sub-Sector

Table C1. Industry Sub-Sector Category of CAMESE Member Firms in Ontario,
By City, By Region, 2012-2013

**Table C1:
Industry Sub-Sector Category of CAMESE Member Firms in Ontario,
By City, By Region, 2012-2013**

City	Industry Sub-Sector	Region
Alliston	Camera Systems, Mobile	South
Barrie	Doors Drilling Equipment and Supplies Hoisting Equipment and Accessories	South
Brampton	Electric Power Equipment Environmental Equipment and Services Geophysical Instrumentation Surface Mobile Equipment and Components Mine Maintenance, Repair & Operation – Tools, Supplies	South
Burlington	Drilling Equipment and Supplies Environmental Equipment and Services Equipment Maintenance and Repair Management Consulting Services Mineral Processing Equipment and Supplies Mining Instrumentation	South
Cambridge	Automation and Communications Bulk Material Handling Equipment, Systems and Engineering Services Surface Mobile Equipment and Components	South
Coldwater	Buildings, Portable Camp Management Services and Supplies	South
Collingwood	Bulk Material Handling Equipment, Systems and Engineering Services Government Relations/International Development Underground Vehicles, Equipment and Components	South
Concord	Ground Control Equipment and Supplies Mineral Processing Equipment and Supplies Packaging Services Underground Vehicles, Equipment and Components	South
Earlton	Bulk Material Handling Equipment, Systems and Engineering Services	Northeast
Elliot Lake	Asset Liquidation Consultants	Northeast

City	Industry Sub-Sector	Region
Elora	Mineral Processing Equipment and Supplies	South
Georgetown	Mining Instrumentation	South
Goodwood	Automation and Communications Radio Frequency Identification Underground Vehicles, Equipment and Components	South
Guelph	Mine Site Construction	South
Halton Hills	Mineral Processing Equipment and Supplies	South
Greater Hamilton	Analytical Laboratories and Supplies Ventilation Equipment and Components	South
Hawkestone	Surface Mobile Equipment and Components	South
Hensall	Electric Power Equipment	South
Kingston	Blasting Equipment and Services	South
Kirkland Lake	Mineral Processing Equipment and Supplies Smelting and Refining Equipment and Services	Northeast
Kitchener-Waterloo	Equipment Maintenance and Repair Surface Mobile Equipment and Components	South
Larder Lake	Consulting Geologists and Engineers	Northeast
Lindsay	Bulk Material Handling Equipment, Systems and Engineering Services	South
London	Analytical Laboratories and Supplies Mine Maintenance, Repair & Operation – Tools, Supplies	South
Lucknow	Buildings, Portable	South
Markham	Associations Buildings, Portable Geophysical Instrumentation Geophysical Surveys and Consulting Government Relations/International Development Information and Marketing Services Management Consulting Services Safety and Health Trade Consultants	South

City	Industry Sub-Sector	Region
Milton	Electric Power Equipment Environmental Equipment and Services Process Chemicals and Minerals	South
Mississauga	Automation and Communications Buildings, Portable Bulk Material Handling Equipment, Systems and Engineering Services Doors Drilling Equipment and Supplies Electric Power Equipment Engineering Contractors Geophysical Instrumentation Geophysical Surveys and Consulting Ground Control Equipment and Supplies Hydraulic Components and Accessories Mineral Processing Equipment and Supplies Mineral Processing - Pumps, Pipes and Valves Mining Engineering and Contracting Packaging Services Surface Mobile Equipment and Components Trade Consultants Translation and Interpretation Services Transportation and Logistics Service Providers Underground Vehicles, Equipment and Components	South
New Liskeard	Drilling Equipment and Supplies Underground Vehicles, Equipment and Components	Northeast
North Bay	Associations Drilling Equipment and Supplies Lubricants Mineral Processing Equipment and Supplies Underground Vehicles, Equipment and Components	Northeast
Oakville	Automation and Communications Blasting Equipment and Services Equipment Maintenance and Repair Smelting and Refining Equipment and Services	South
Orangeville	Environmental Equipment and Services Water Treatment Equipment and Services	South
Orillia	Mineral Processing Equipment and Supplies	South
Oshawa	Mineral Processing Equipment and Supplies Mineral Processing Services Mining Instrumentation	South

City	Industry Sub-Sector	Region
Ottawa	Associations Analytical Laboratories and Supplies Blasting Equipment and Services Corporate Social Responsibility Finance Consultants and Services Geophysical Surveys and Consulting Software Water Treatment Equipment and Services	South
Parry Sound	Bulk Material Handling Equipment, Systems and Engineering Services	South
Peterborough	Mineral Processing Equipment and Supplies	South
Richmond Hill	Geophysical Surveys and Consulting Mining Engineering and Contracting	South
Rockwood	Ground Control Equipment and Supplies	South
Sault Ste. Marie	Environmental Equipment and Services Equipment Maintenance and Repair Hydraulic Components and Accessories Mineral Processing Equipment and Supplies Trade Consultants	Northeast
St. Catharines	Mineral Processing Equipment and Supplies	South
St. George/Brant	Bulk Material Handling Equipment, Systems and Engineering Services Environmental Equipment and Services Surface Mobile Equipment and Components Underground Vehicles, Equipment and Components	South
St. Thomas	Underground Vehicles, Equipment and Components	South
Greater Sudbury	Associations Automation and Communications Consulting Geologists and Engineers Drilling Equipment and Supplies Engineering Contractors Ground Control Equipment and Supplies Hoisting Equipment and Accessories Information and Marketing Services Management Consulting Services Mineral Processing Equipment and Supplies Mineral Processing - Pumps, Pipes and Valves Radio Frequency Identification Smelting & Refining Equipment and Services	Sudbury

City	Industry Sub-Sector	Region
Sudbury (cont'd)	Surface Mobile Equipment and Components Underground Vehicles, Equipment and Components Ventilation Equipment and Components	Sudbury
Thunder Bay	Water Treatment Equipment and Services	Northwest
Tilbury	Hydraulic Components and Accessories	South
Timmins	Underground Vehicles, Equipment and Components	Northeast
Toronto	Associations Automation and Communications Bulk Material Handling Equipment, Systems and Engineering Services Consulting Geologists and Engineers Corporate Social Responsibility Diesel Engines and Accessories Electric Power Equipment Engineering Contractors Environmental Equipment and Services Equipment Maintenance and Repair Finance Consultants and Services Geophysical Instrumentation Geophysical Surveys and Consulting Hoisting Equipment and Accessories Information and Marketing Services Insurance Consultants and Services Legal Consultants and Services Management Consulting Services Mineral Processing Equipment and Supplies Mineral Processing Services Mine Site Construction Safety and Health Software Translation and Interpretation Services Transportation and Logistics Service Providers	South
Trenton	Consulting Geologists and Engineers	South
Vaughan	Mining Instrumentation	South
Whitby	Bulk Material Handling Equipment, Systems and Engineering Services Mineral Processing Equipment and Supplies	South
Woodbridge	Finance Consultants and Services	South

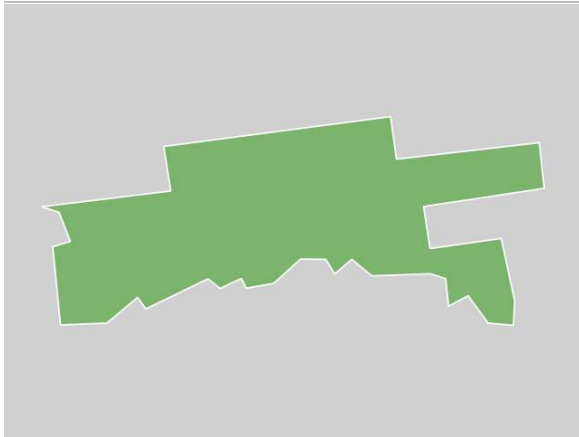
Economy Overview

City of Dryden

Report Info

Dataset Version	2014.1
Class of Worker Categories	Employees
Timeframe	2001 - 2014
Region Name	City of Dryden
Census Subdivisions	
Dryden (3560027)	

City of Dryden



Population (2013)	N/A for Census Subdivision & Census Metropolitan Aggregate Regions
Jobs (2013)	4,704
Average Earnings (2013)	\$41,388
Completions (2011)	0

City of Dryden | Jobs by Industry

4,704
Total Jobs (2013)

NAICS	Industry	2013 Jobs
11	Agriculture, forestry, fishing and hunting	114
21	Mining, quarrying, and oil and gas extraction	6
22	Utilities	28
23	Construction	304
31-33	Manufacturing	366
41	Wholesale trade	81
44-45	Retail trade	727
48-49	Transportation and warehousing	220
51	Information and cultural industries	34
52	Finance and insurance	131
53	Real estate and rental and leasing	39
54	Professional, scientific and technical services	92
55	Management of companies and enterprises	0
56	Administrative and support, waste management and remediation services	39
61	Educational services	365
62	Health care and social assistance	885
71	Arts, entertainment and recreation	23
72	Accommodation and food services	456
81	Other services (except public administration)	186
91	Public administration	479
X0	Unclassified	129

City of Dryden | Average Earnings by Industry

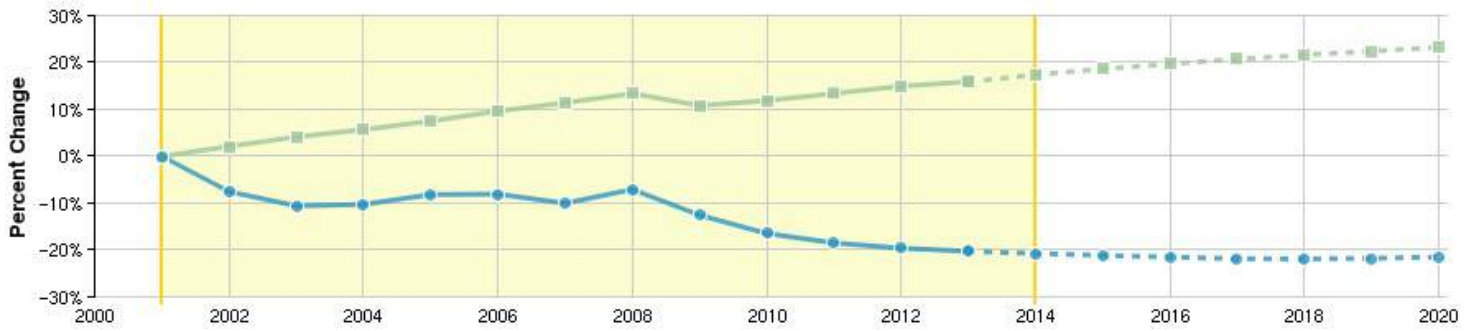
\$41,388

Avg. Earnings (2013)

88% of Nation Avg.

NAICS	Industry	Avg. Earnings (2013)	
X0	Unclassified	\$48,025	
11	Agriculture, forestry, fishing and hunting	\$50,493	
21	Mining, quarrying, and oil and gas extraction	\$58,770	
22	Utilities	\$76,953	
23	Construction	\$35,974	
31-33	Manufacturing	\$75,299	
41	Wholesale trade	\$44,488	
44-45	Retail trade	\$28,603	
48-49	Transportation and warehousing	\$45,193	
51	Information and cultural industries	\$53,355	
52	Finance and insurance	\$35,879	
53	Real estate and rental and leasing	\$23,923	
54	Professional, scientific and technical services	\$43,336	
55	Management of companies and enterprises		
56	Administrative and support, waste management and remediation services	\$21,943	
61	Educational services	\$46,450	
62	Health care and social assistance	\$43,084	
71	Arts, entertainment and recreation	\$30,237	
72	Accommodation and food services	\$13,380	
81	Other services (except public administration)	\$38,014	
91	Public administration	\$54,609	

Regional Trends



Region	2001 Jobs	2014 Jobs	% Change
● City of Dryden	5,899	4,676	-20.7%
■ ontario	5,162,343	6,059,359	17.4%

Location Size Distribution

December 2013 Overview

■ Small (1-49)
 ■ Medium (50-199)
 ■ Large (200+)
 ■ Indeterminate



Category	June 2010 Locations	June 2011 Locations	December 2012 Locations	December 2013 Locations
Total	681	667	665	691
1-4 Employees	190	189	173	191
5-9 Employees	109	101	98	87
10-19 Employees	58	61	58	66
20-49 Employees	42	40	44	44
50-99 Employees	14	12	8	10
100-199 Employees	3	4	4	5
200-499 Employees	3	3	2	3
500+ Employees	1	1	1	0
Indeterminate	261	256	277	285

Data Source: Canadian Business Patterns December 2013

Labour Flows (based upon 2011 Census data)

NAICS Code	Description	Employed in Region	Resident in Region	Net Import
44-45	Retail trade	750	495	255
62	Health care and social assistance	750	605	145
31-33	Manufacturing	490	280	210
91	Public administration	425	430	-5
61	Educational services	410	400	10
72	Accommodation and food services	400	290	110
81	Other services (except public administration)	240	160	80
48-49	Transportation and warehousing	180	230	-50
52	Finance and insurance	160	105	55
23	Construction	155	225	-70

Source: Census 2011

Growing/Declining Occupations

Occupation	Change in Jobs (2001-2014)
Nurse aides, orderlies and patient service associates (D312)	120
Unclassified (X000)	89
Ambulance attendants and other paramedical occupations (D234)	42
Labourers in wood, pulp and paper processing (J314)	-112
Papermaking and finishing machine operators (J143)	-144
Pulp mill machine operators (J142)	-239

Growing/Declining Industries

Industry	Change in Jobs (2001- 2014)
Grocery stores (4451)	114
Community care facilities for the elderly (6233)	101
Unclassified (X000)	89
Logging (1133)	-171
Sawmills and wood preservation (3211)	-173
Pulp, paper and paperboard mills (3221)	-889

Data Sources and Calculations

Industry Data

In order to capture a complete picture of industry employment, EMSI combines employment data from Survey of Employment, Payrolls and Hours (SEPH) with data from the Labour Force Survey (LFS), Census, and Canadian Business Patterns (CBP) to form detailed geographic estimates of employment. Projections are based on the latest available EMSI industry data, 10-year past local trends in each industry and growth rates from national industry projections from the Canadian Occupational Projection System (COPS) produced by Human Resources and Skills Development Canada.

Occupation Data

Organizing regional employment information by occupation provides a workforce-oriented view of the regional economy. EMSI's occupation data are based on EMSI's industry data, regional occupation data from the Labour Force Survey (LFS), and regional staffing patterns taken from the Census.



CC.2.2 Local Employment Shift

CC.2.2.1.1 Labor Flows

NAICS Code	Description	Employed in Region	Resident in Region	Net Import
11	Agriculture, forestry, fishing and hunting	120	100	20
21	Mining, quarrying, and oil and gas extraction	0	35	-35
22	Utilities	25	35	-10
23	Construction	155	225	-70
31-33	Manufacturing	490	280	210
41	Wholesale trade	75	30	45
44-45	Retail trade	750	495	255
48-49	Transportation and warehousing	180	230	-50
51	Information and cultural industries	45	30	15
52	Finance and insurance	160	105	55
53	Real estate and rental and leasing	40	30	10
54	Professional, scientific and technical services	115	95	20
55	Management of companies and enterprises	0	0	0
56	Administrative and support, waste management and remediation services	30	45	-15
61	Educational services	410	400	10
62	Health care and social assistance	750	605	145
71	Arts, entertainment and recreation	30	0	30
72	Accommodation and food services	400	290	110
81	Other services (except public administration)	240	160	80
91	Public administration	425	430	-5

Source: Census 2011



CC.2.2.1.2 Occupations

NOC-S	Description	2001 Jobs	2014 Jobs	Change	% Change	2013 Median Hourly Earnings
A0	Senior management occupations	13	<10	--	--	--
A1	Specialist managers	59	70	11	19%	\$38.52
A2	Managers in retail trade, food and accommodation services	53	57	4	8%	\$21.41
A3	Other managers, n.e.c.	102	123	21	21%	\$40.76
B0	Professional occupations in business and finance	74	82	8	11%	\$31.38
B1	Finance and insurance administration occupations	48	43	-5	-10%	\$20.88
B2	Secretaries	97	100	3	3%	\$19.87
B3	Administrative and regulatory occupations	85	92	7	8%	\$22.95
B4	Clerical supervisors	42	33	-9	-21%	\$22.41
B5	Clerical occupations	460	371	-89	-19%	\$18.42
C0	Professional occupations in natural and applied sciences	85	72	-13	-15%	\$35.57
C1	Technical occupations related to natural and applied sciences	164	128	-36	-22%	\$29.55
D0	Professional occupations in health	26	18	-8	-31%	\$31.23
D1	Nurse supervisors and registered nurses	109	137	28	26%	\$36.26
D2	Technical and related occupations in health	63	142	79	125%	\$29.94
D3	Assisting occupations in support of health services	90	209	119	132%	\$18.81
E0	Judges, lawyers, psychologists, social workers, ministers of religion, and policy and program officers	90	120	30	33%	\$32.06
E1	Teachers and professors	250	222	-28	-11%	\$37.77
E2	Paralegals, social services workers and occupations in education and religion, n.e.c.	108	135	27	25%	\$20.40
F0	Professional occupations in art and culture	22	20	-2	-9%	\$26.75
F1	Technical occupations in art, culture, recreation and sport	41	33	-8	-20%	\$19.34
G0	Sales and service supervisors	102	84	-18	-18%	\$15.04
G1	Wholesale, technical, insurance, real estate sales specialists, and retail, wholesale and grain buyers	58	52	-6	-10%	\$23.04



NOC-S	Description	2001 Jobs	2014 Jobs	Change	% Change	2013 Median Hourly Earnings
G2	Retail salespersons and sales clerks	263	158	-105	-40%	\$11.32
G3	Cashiers	210	154	-56	-27%	\$10.25
G4	Chefs and cooks	110	89	-21	-19%	\$11.57
G5	Occupations in food and beverage service	127	120	-7	-6%	\$12.19
G6	Occupations in protective services	106	120	14	13%	\$31.81
G7	Occupations in travel and accommodation, including attendants in recreation and sport	29	33	4	14%	\$14.08
G8	Child care and home support workers	73	65	-8	-11%	\$18.18
G9	Sales and service occupations, n.e.c.	502	423	-79	-16%	\$11.86
H0	Contractors and supervisors in trades and transportation	49	43	-6	-12%	\$27.51
H1	Construction trades	112	104	-8	-7%	\$23.56
H2	Stationary engineers, power station operators and electrical trades and telecommunications occupations	213	52	-161	-76%	\$28.15
H3	Machinists, metal forming, shaping and erecting occupations	135	42	-93	-69%	\$25.57
H4	Mechanics	285	187	-98	-34%	\$23.77
H5	Other trades, n.e.c.	53	49	-4	-8%	\$17.83
H6	Heavy equipment and crane operators, including drillers	79	38	-41	-52%	\$23.64
H7	Transportation equipment operators and related workers, excluding labourers	222	180	-42	-19%	\$18.27
H8	Trades helpers, construction and transportation labourers and related occupations	108	108	0	0%	\$18.02
I0	Occupations unique to agriculture, excluding labourers	31	16	-15	-48%	\$13.48
I1	Occupations unique to forestry operations, mining, oil and gas extraction and fishing, excluding labourers	103	23	-80	-78%	\$22.94
I2	Primary production labourers	29	18	-11	-38%	\$15.31
J0	Supervisors in manufacturing	52	78	26	50%	\$26.72
J1	Machine operators in manufacturing	563	41	-522	-93%	\$23.10
J2	Assemblers in manufacturing	13	20	7	54%	\$19.11
J3	Labourers in processing, manufacturing and utilities	154	39	-115	-75%	\$12.98
X0	Unclassified	39	128	89	228%	\$0.00



NOC-S	Description	2001 Jobs	2014 Jobs	Change	% Change	2013 Median Hourly Earnings
	Total	5,899	4,676	-1,223	-21%	\$21.74

Source: Employees - EMSI 2014.1

CC.2.2.1.3 Industries

NAICS Code	Description	2001 Jobs	2014 Jobs	Change	% Change	2013 Avg. Earnings Per Job
11	Agriculture, forestry, fishing and hunting	319	110	-209	-66%	\$50,493
21	Mining, quarrying, and oil and gas extraction	<10	<10	--	--	--
22	Utilities	45	27	-18	-40%	\$76,953
23	Construction	339	312	-27	-8%	\$35,974
31-33	Manufacturing	1,495	343	-1,152	-77%	\$75,299
41	Wholesale trade	162	80	-82	-51%	\$44,488
44-45	Retail trade	776	715	-61	-8%	\$28,603
48-49	Transportation and warehousing	141	213	72	51%	\$45,193
51	Information and cultural industries	51	33	-18	-35%	\$53,355
52	Finance and insurance	115	131	16	14%	\$35,879
53	Real estate and rental and leasing	28	38	10	36%	\$23,923
54	Professional, scientific and technical services	62	93	31	50%	\$43,336
55	Management of companies and enterprises	0	0	0	0%	\$0
56	Administrative and support, waste management and remediation services	108	38	-70	-65%	\$21,943
61	Educational services	359	362	3	1%	\$46,450
62	Health care and social assistance	682	905	223	33%	\$43,084
71	Arts, entertainment and recreation	36	22	-14	-39%	\$30,237
72	Accommodation and food services	505	456	-49	-10%	\$13,380
81	Other services (except public administration)	174	187	13	7%	\$38,014
91	Public administration	458	478	20	4%	\$54,609



NAICS Code	Description	2001 Jobs	2014 Jobs	Change	% Change	2013 Avg. Earnings Per Job
X0	Unclassified	39	128	89	228%	\$48,025
	Total	5,899	4,676	-1,223	-21%	\$41,388

Source: Employees - EMSI 2014.1

CC.2.2.1.4 Industry Size

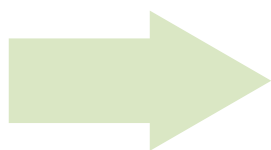
NAICS Code	Description	Total	1-4 Employees	5-9 Employees	10-19 Employees	20-49 Employees	50-99 Employees	100-199 Employees	200-499 Employees	500+ Employees	Indeterminate
11	Agriculture, forestry, fishing and hunting	38	13	1	1	3	1	0	0	0	19
21	Mining, quarrying, and oil and gas extraction	2	0	0	0	0	0	1	0	0	1
22	Utilities	2	1	0	0	0	0	0	0	0	1
23	Construction	77	28	8	7	3	0	0	0	0	31
31-33	Manufacturing	12	4	1	1	2	0	0	1	0	3
41	Wholesale trade	30	9	3	7	2	0	0	0	0	9
44-45	Retail trade	99	22	14	14	8	3	1	1	0	36
48-49	Transportation and warehousing	46	10	5	7	4	0	0	0	0	20
51	Information and cultural industries	6	0	0	2	1	0	0	0	0	3
52	Finance and insurance	29	6	1	3	3	1	0	0	0	15
53	Real estate and rental and leasing	66	12	3	0	1	0	0	0	0	50
54	Professional, scientific and technical services	49	15	5	2	0	0	0	0	0	27
55	Management of companies and enterprises	12	1	0	0	0	0	0	0	0	11
56	Administrative and support, waste management and remediation services	17	5	2	4	0	0	0	0	0	6
61	Educational services	8	2	2	0	0	1	0	0	0	3
62	Health care and social assistance	51	17	12	4	5	2	0	1	0	10
71	Arts, entertainment and recreation	8	1	2	1	1	0	0	0	0	3
72	Accommodation and food services	56	7	14	12	9	2	0	0	0	12



NAICS Code	Description	Total	1-4 Employees	5-9 Employees	10-19 Employees	20-49 Employees	50-99 Employees	100-199 Employees	200-499 Employees	500+ Employees	Indeterminate
81	Other services (except public administration)	81	38	14	1	1	0	2	0	0	25
91	Public administration	2	0	0	0	1	0	1	0	0	0
	Total	691	191	87	66	44	10	5	3	0	285

Data Source: Canadian Business Patterns December 2013

GOLIATH GOLD PROJECT



A LONG TERM JOB CREATOR

PERIOD	ACTIVITIES	# OF PEOPLE EMPLOYED		
		DIRECT	INDIRECT	TOTAL
2008 - 2014	EXPLORATION & DRILLING, ENVIRONMENTAL & ECONOMIC STUDIES	20	60	80/YR
	DRILLING CONTRACTOR	11		11
2015	EXPLORATION & DRILLING, ENVIRONMENTAL & ECONOMIC STUDIES	20	60	80
	DRILLING CONTRACTOR	11		11
	PROJECT "GO" DECISION SOME HIRING OF STAFF, TRADES, OPERATORS - START TRAINING	90	270	360
	CONSTRUCTION JOBS	100	25	125
2016	FULL STAFFING OF MINE INCLUDING EXPLORATION & DRILLING	150	450	600
	CONSTRUCTION JOBS	200	50	250
2017	OPEN PIT MINING	150	450	600
	CONSTRUCTION JOBS	50	10	60
2018	OPEN PIT MINING	150	450	600
2019	START U/G MINING, CONTINUE OPEN PIT MINING	190	570	760
2020	UG MINING STARTS, PLUS OPEN PIT	190	570	760
2021	UG MINING, FINISH OPEN PIT	180	540	720
2022 - 2027	PIT RECLAMATION STARTS (6 YEARS)	150	450	600
2028 - 2030	SITE CLOSURE & RECLAMATION, EXPLORATION WITH 12 YEAR MINE LIFE, HIGH POTENTIAL MINE LIFE WILL BE EXTENDED BEYOND 2028 (3 YEARS)	50	150	150
2031+	CONTINUED EXPLORATION AND DRILLING	10	30	40
	DRILLING CONTRACTOR (2 DRILLS)	11		11

EMPLOYMENT IMPACT

GOLIATH GOLD PROJECT

ACTUAL AND FORCAST
EMPLOYMENT IMPACT: 2008 - 2031

SOURCE OF EMPLOYMENT	PERSON YEARS OF EMPLOYMENT
TREASURY METALS <ul style="list-style-type: none">- EXPLORATION AND DRILLING- MINE DEVELOPMENT- MINE OPERATION & RECLAMATION	2,235
CONTRACTORS <ul style="list-style-type: none">- CONSTRUCTION- EXPLORATION AND DRILLING	534
INDIRECT JOBS	7,045
GRAND TOTAL	9,814 PERSON YEARS

NOTE:

- MINE LIFE BEYOND THE CURRENT BASE CASE OF 10 - 12 YEARS WOULD SIGNIFICANTLY INCREASE EMPLOYMENT OPPORTUNITIES

- DISCOVERY OF ADDITIONAL MINABLE RESOURCES AT THE GOLIATH OR GOLDCLIFF SITES WOULD GENERATE FURTHER OPPORTUNITIES.





CC.5 GOLIATH GOLD PROJECT VENDOR LISTS 2012 – 2013

CC.5.1.1 Local Vendors

#	Local Vendor	Location	#	Local Vendor	Location
1	2050206 Ontario	Dryden	1	A&W	Dryden
2	7-Eleven	Dryden	2	Acklands-Grainger Inc.	Dryden
3	A&W	Dryden	3	All Seasons Travel	Dryden
4	Acklands-Grainger Inc.	Dryden	4	Anderson's Crystal Clear Bottled Water	Dryden
5	Alex Wilson Coldstream Ltd.	Dryden	5	Aaron Provincial Park	Dryden
6	All Seasons Travel	Dryden	6	AWCL Printing	Dryden
7	Anderson's Crystal Clear Bottled Water	Dryden	7	B&B Roadhouse	Dryden
8	Apple Autoglass	Dryden	8	B&M Delivery Service Ltd.	Dryden
9	AWCL Printing	Dryden	9	Bearskin Air	Dryden
10	B&B Roadhouse	Dryden	10	Bell Canada / 807-938-6961 (610)	Dryden
11	B&M Delivery Service Ltd.	Dryden	11	Bell Mobility Inc.	Dryden
12	Balla Bros. Rentals	Dryden	12	Best Western	Dryden
13	Baywash	Dryden	13	Boffo Bag Co.	Dryden
14	Bearskin Air	Dryden	14	Bri-Mar Courier Plus	Dryden
15	Bell Canada / 807-938-6961 (610)	Dryden	15	Buster's BBQ	Dryden
16	Bell Mobility Inc.	Dryden	16	Canada Post	Dryden
17	Bert's Auto Wrecking	Dryden	17	Canadian Tire	Dryden
18	Best Western	Dryden	18	Caren Clearing & Spraying	Dryden
19	Buster's BBQ	Dryden	19	City of Dryden	Dryden
20	Cal's Lawn Care	Dryden	20	City Of Dryden - Dryden Waterworks	Dryden
21	Canadian Red Cross Society	Dryden	21	CKDR Dryden	Dryden
22	Canada Post	Dryden	22	Clean More Service	Dryden
23	Canadian Tire	Dryden	23	Cleanrite	Dryden
24	City of Dryden	Dryden	24	Cornerstore, The	Dryden
25	City Of Dryden - Dryden Waterworks	Dryden	25	Courtesy Freight Systems Ltd.	Dryden
26	City of Dryden - Phone	Dryden	26	D & D Contracting	Dryden
27	City of Dryden - Recreation Complex	Dryden	27	Daignault, Karen (Cleaning)	Dryden
28	CKDR Dryden	Dryden	28	Distinctive Drilling Services Inc.	Dryden
29	Clean More Service	Dryden	29	DMTS	Dryden
30	Cory Henderson Contracting	Dryden	30	Domino's Pizza	Dryden
31	Courtesy Freight Systems Ltd.	Dryden	31	Dryden District Chamber of Commerce	Dryden
32	D & D Contracting	Dryden	32	Dryden High School	Dryden
33	D. McDonald Carpentry	Dryden	33	Dryden IGA	Dryden
34	Daignault, Karen (Cleaning)	Dryden	34	Enterprise Car Rentals	Dryden
35	Distinctive Drilling Services Inc.	Dryden	35	Extra Foods	Dryden
36	DMTS	Dryden	36	Fediuk's Plumbing & Heating	Dryden



#	Local Vendor	Location	#	Local Vendor	Location
37	Domino's Pizza	Dryden	37	Fire-Alert Balmertown	Dryden
38	Dryden District Chamber of Commerce	Dryden	38	Fort William First Nation	Dryden
39	Dryden High School	Dryden	39	Gardewine North	Dryden
40	Dryden Ice Dogs Junior "A" Hockey Club	Dryden	40	George Solomon & Sons Ltd.	Dryden
41	Dryden IGA	Dryden	41	Green Achers	Dryden
42	Dryden Regional Health Services Foundatio	Dryden	42	Handee-Man	Dryden
43	Dryden Skating Club	Dryden	43	Home Hardware	Dryden
44	Enterprise Car Rentals	Dryden	44	Husky	Dryden
45	Extra Foods	Dryden	45	IGA	Dryden
46	Fediuk's Plumbing & Heating	Dryden	46	J.N. Webb & Sons	Dryden
47	Fire-Alert Balmertown	Dryden	47	J & R's Pumps & Electric Motor Repair	Dryden
48	Gardewine North	Dryden	48	Just for You Catering by Ross	Dryden
49	George Solomon & Sons Ltd.	Dryden	49	KFC	Dryden
50	Grace Haven Festival of Trees	Dryden	50	K.K. Penner & Sons	Dryden
51	Green Achers	Dryden	51	Kokom's Bannock Shack	Dryden
52	Handee-Man	Dryden	52	Kupper's Bakery	Dryden
53	Home Hardware	Dryden	53	Lac Seul First Nation	Dryden
54	Husky	Dryden	54	Lakeside Inn	Dryden
55	IGA	Dryden	55	Lock & Key Service	Dryden
56	Keith Kakapetum	Dryden	56	Lynch, Barry	Dryden
57	KA Sports	Dryden	57	M&M Meatshops	Dryden
58	KPDSB (The Centre auditorium rental)	Dryden	58	Mac Print	Dryden
59	KFC	Dryden	59	Manitoulin Transport	Dryden
60	Kupper's Bakery	Dryden	60	McAuley & Partners	Dryden
61	Lac Seul First Nation	Dryden	61	McDonald's	Dryden
62	Local Services Board of Wabigoon	Dryden	62	Migisi Sahgaigan - Catering	Dryden
63	Lock & Key Service	Dryden	63	Metis Nation of Ontario	Dryden
64	Lynch, Barry	Dryden	64	Mohawk - Car Wash	Dryden
65	Mac Print	Dryden	65	Morgan Fuels	Dryden
66	Marks Workwear	Dryden	66	Northland Septic Service	Dryden
67	M&M Meatshops	Dryden	67	Northwest Metis Council	Dryden
68	Manitoulin Transport	Dryden	68	Patricia Inn	Dryden
69	Masala	Dryden	69	Red River Cooperative Ltd.	Dryden
70	McAuley & Partners	Dryden	70	REZ Electric General Contracting	Dryden
71	McDonald's	Dryden	71	Ristorante Pizzeria	Dryden
72	Morgan Fuels	Dryden	72	Riverview Lodge	Dryden
73	Northern Renegades Hockey Club	Dryden	73	RWDI Air Inc.	Dryden
74	Northwestern Auto Sales	Dryden	74	Safeway	Dryden
75	Oshtugon Computers	Dryden	75	Sa's Electric	Dryden
76	Patrcia Inn	Dryden	76	7-Eleven	Dryden



#	Local Vendor	Location	#	Local Vendor	Location
77	Petro Canada	Dryden	77	Shaw Walleye Masters	Dryden
78	Pizza Hut	Dryden	78	Short Stop	Dryden
79	Precision Motors	Dryden	79	SPI Health & Safety Inc.	Dryden
80	Railside Sports & Marine	Dryden	80	St. Aubin Saw Shop	Dryden
81	Red River Cooperative Ltd.	Dryden	81	Subway	Dryden
82	RES Equipment Sales	Dryden	82	Sunset Country Realty Inc.	Dryden
83	REZ Electric General Contracting	Dryden	83	SUNTRAC Contracting & Rentals Inc.	Dryden
84	Ristorante Pizzeria	Dryden	84	The \$ Store Plus	Dryden
85	Riverview Lodge	Dryden	85	TimberMax	Dryden
86	Roach's Taxi	Dryden	86	TLC Automotive	Dryden
87	Rock House Tap & Grill	Dryden	87	Tom Thompson Photography	Dryden
88	Safeway	Dryden	88	Trans Canada Motel	Dryden
89	Sa's Electric	Dryden	89	Twin Towers	Dryden
90	Shaw Walleye Masters	Dryden	90	UAP NAPA	Dryden
91	Shoppers Drug Mart	Dryden	91	United Rentals of Canada Inc.	Dryden
92	Short Stop	Dryden	92	Vermeer and VanWalleghem	Dryden
93	Sioux Lookout Area	Dryden	93	Wabigoon Lake Community Store	Dinorwic
94	Skene Transfer	Oxdrift	94	Wabigoon Memorial Hall	Dryden
95	SPI Health & Safety Inc.	Dryden	95	Wal-Mart	Dryden
96	St. Aubin Saw Shop	Dryden	96	Wesawkwete Zone One Community Group	Dryden
97	Subway	Dryden	97	Wilson's Business Solutions	Dryden
98	Sunset Country Realty Inc.	Dryden			
99	SUNTRAC Contracting & Rentals Inc.	Dryden			
100	Superior Safety Inc.	Dryden			
101	The Camera Corner	Dryden			
102	Tim Hortons	Dryden			
103	TimberMax	Dryden			
104	TLC Automotive	Dryden			
105	Tony's Bait and Tackle	Dryden			
106	Trans Canada Motel	Dryden			
107	Twin Towers	Dryden			
108	United Rentals of Canada Inc.	Dryden			
109	Vermeer and VanWalleghem	Dryden			
110	Wabigoon Lake Community Store	Dinorwic			
111	Wal-Mart	Dryden			
112	Wilson's Business Solutions	Dryden			

CC.5.1.2 Northwest Ontario Vendors

#	N.W.Ontario Vendor	Location	#	N.W.Ontario Businesses Vendor	Location
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#	N.W.Ontario Vendor	Location	#	N.W.Ontario Businesses Vendor	Location
1	ALS Canada Ltd.	Thunder Bay	1	ALS Canada Ltd.	Thunder Bay
2	Bayview Toyota	Kenora	2	Avis Rent a Car	Sioux Lookout
3	Boreal Heritage Consulting	Thunder Bay	3	Bayview Toyota	Kenora
4	DP Diamond Blades	Thunder Bay	4	Boreal Heritage Consulting	Thunder Bay
5	DST Consulting Engineers Inc.	Thunder Bay	5	DP Diamond Blades	Thunder Bay
6	Minister of Finance (Prov Taxes)	Thunder Bay	6	Esso	Sioux Lookout
7	Ministry of Finance (Land Taxes)	Thunder Bay	7	Johnny's Fresh Market	Sioux Lookout
8	Naicatchewenin Development Corporation	Fort Frances	8	Minister of Finance (Prov Taxes)	Thunder Bay
9	Northshore Environmental	Thunder Bay	9	Ministry of Finance (Land Taxes)	Thunder Bay
10	Pleason, Alex*	Thunder Bay	10	Nordmin Engineering Ltd.	Thunder Bay
11	Sioux Lookout Abiriginal Management Board	Sioux Lookout	11	N.W.O. Mines and Minerals	Thunder Bay
12	TBT Engineering Consulting Group	Thunder Bay	12	Pleason, Alex*	Thunder Bay
13	TBaytel	Thunder Bay	13	Sling-Choker Mfg. (Thunder Bay) Ltd.	Thunder Bay
14	The Drafting Clinic	Mississauga	14	TBT Engineering Consulting Group	Thunder Bay
15	Tom Thompson Photography	Kenora	15	TBaytel	Thunder Bay
16	Valhalla Inn	Thunder Bay	16	Thunder Bay International Airport	Thunder Bay
			17	Tom Thompson Photography	Kenora
			18	Valhalla Inn	Thunder Bay

CC.5.1.3 Ontario Vendors

#	Ontario Vendor	Location	#	Ontario Vendor	Location
1	A C A Howe International Limited	Toronto	1	Accurassay Laboratories	London
2	Accurassay Laboratories	London	2	AGAT Laboratories	Mississauga
3	AMEC Environment & Infrastructure	Toronto	3	AMEC Environment & Infrastructure	Toronto
4	CAE Mining Canada Inc.	Sudbury	4	CAE Mining Canada Inc.	Sudbury
5	Cansel Survey Equipment Ltd.	Toronto	5	EcoMetrix Incorporated	Mississauga
6	EcoMetrix Incorporated	Mississauga	6	ESRI Canada	Toronto
7	ESRI Canada	Toronto	7	Hydro One (5)	Toronto
8	Hydro One (4)	Toronto	8	Mine Design Engineering Inc.	Kingston
9	Pine Environmental Services Inc.	Mississauga	9	Pine Environmental Services Inc.	Mississauga
10	Service Ontario - Publications		10	Porter Air	Toronto
11	Union Gas Limited	Toronto	11	Tetra Tech WEI Inc.	Mississauga
12	Wurth Canada	Mississauga	12	Union Gas Limited	Toronto
			13	Wurth Canada	Mississauga

CC.5.1.4 Out of Province Vendors

#	Out of Province Vendor	Location	#	Out of Province Vendor	Location
1	Bell Mobility		1	CDN Resource Laboratories Ltd.	Langley



#	Out of Province Vendor	Location		#	Out of Province Vendor	Location
2	Campbell Scientific (Canada) Corp.	Edmonton		2	John Chulick USD	Chile
3	CDN Resource Laboratories Ltd.	Langley		3	Ellis Geophysical Consulting Inc. USD	Reno
4	John Chulick USD	Chile		4	Gekko Systems	Vancouver
5	Ellis Geophysical Consulting Inc. USD	Reno		5	Great Slave Helicopters	Calgary
6	Exploration Services	Sudbury		6	North Shore Environmental Services	Regina
7	Gekko Systems	Vancouver		7	Pioneer Groundwater Monitoring Products	Calgary
8	Klohn Crippen Berger Ltd.	Vancouver		8	SHAW Cable	Calgary
9	North Shore Environmental Services	Regina		9	Wells, John A.	Vancouver
10	SHAW Cable	Calgary				
11	Wells, John A.	Vancouver				