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commerce

BENEATH the SURFACE

Uncovering the Economic Potential
of Ontario's Ring of Fire



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of Ontario's Ring of Fire**



The Ontario Chamber of Commerce (OCC) is an independent, non-partisan business network. Our mission is to support economic growth in Ontario by advocating for pro-business policies and defending business priorities at Queen's Park.

For more than a century, the OCC has been providing our members with practical supports, advantageous network opportunities, and access to innovative insight and analysis.

We represent local chambers of commerce and boards of trade from communities across Ontario. Through this network, we are the voice of 60,000 members that range from small businesses to major corporations and industry associations. Together, our members employ two million people and produce nearly 17 percent of Ontario's GDP.

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Contents

- A Message from the President & CEO of the Ontario Chamber of Commerce** i
- Executive Summary**..... 1
- 13 Step Action Plan for Developing the Ring of Fire**..... 2
- Introduction**..... 4
- The Economic Opportunity for Ontario**..... 8
 - Key Findings 8
- A Ring of Fire Action Plan**..... 18
 - Addressing the Physical Infrastructure Deficit 18
 - Capturing more Value-Added Processes in Ontario..... 20
 - Addressing Aboriginal Community Needs..... 21
 - Addressing Labour Market Shortages 23
 - Ensuring Smart Environmental Regulation..... 25
 - Making the Ring of Fire a National Priority 26
 - Creating Awareness and Tracking Progress..... 27
- Conclusion**..... 28
- Appendix 1: The Major Players in the Ring of Fire**..... 29
- Appendix 2: Ring of Fire Advisory Taskforce and Persons Consulted** 32
- Sources Cited** 34



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A Message from Allan O'Dette | President & CEO, Ontario Chamber of Commerce

Ontario's economy is at a historic crossroads. Its value proposition in the global economy has shifted dramatically. Ontario, now more than ever, must identify and champion opportunities where it can be a global leader. The Ring of Fire is such an opportunity. We believe that this globally significant deposit of minerals in Ontario's Far North is one of the province's greatest economic development opportunities in a generation.

Ontario already has critical mass in mining production, finance, technology, and sustainability. We believe that the development of the Ring of Fire will secure Ontario's position at the forefront of the global mining industry.

However, there are growing concerns within Ontario's business community about the glacial pace at which the Ring of Fire is undergoing development. Progress is slow and the realization of its potential seems no closer than it was several years ago.

Some will seek to pin this lack of progress to government; others will implicate business or First Nations. This kind of blame attribution is unproductive and gets us no closer to realizing the potential of the Ring of Fire.

Our economic analysis shows that the Ring of Fire will generate tens of billions of dollars in economic activity and create thousands of new jobs across the province: in the construction sector in Thunder Bay, in the mining supply and service sector in Sudbury, Mississauga, Ottawa, and Burlington; in the

financial services sector in Toronto; and in the manufacturing sector in London. The development will also catalyze economic opportunities for Aboriginal communities in Ontario's Far North.

Just as the benefits from the Ring of Fire will be broadly shared, so, too, must be the responsibility for developing it.

This report is the culmination of many efforts. We are thankful to our Ring of Fire Expert Advisory Taskforce members and the individuals that participated in our focus groups, one-on-one interviews, and surveys. We also owe a debt of gratitude to Leger Marketing, Ontario's Ministry of Northern Development and Mines and the Ring of Fire Secretariat for their valuable input into our research.

We hope this paper provokes an evidence-based discussion across the province about the Ring of Fire and, in doing so, helps move this important economic opportunity forward.

Sincerely,

EXECUTIVE SUMMARY

This paper presents an analysis of the economic potential of Ontario's Ring of Fire, the mineral resource-rich area of approximately 5,120 km² located in the James Bay Lowlands region of Northern Ontario (see map on page 5). Our analysis shows that the Ring of Fire is an unparalleled opportunity for the province to diversify its economy and solidify its place as a global leader in mining and mining technology.

Our analysis shows that within the first 10 years of its development, the Ring of Fire will make significant contributions to Ontario's economy, and will:

- generate up to \$9.4 billion in Gross Domestic Product (GDP);
- generate up to \$6.2 billion for Ontario's mining industry;
- sustain up to 5,500 jobs annually (full time equivalents); and
- generate nearly \$2 billion in government revenue, divided between the federal, provincial, and municipal governments.

We find that within the first 32 years of its development, the Ring of Fire will generate more than \$25 billion in economic activity across numerous sectors in Ontario, of which mining is just one. During this period, the Ring of Fire will generate:

- \$2.7 billion in revenues for the financial services sector;
- \$1.2 billion for the wholesale and retail trade sectors;
- \$600 million for the manufacturing sector; and
- \$500 million for utilities sector.

The Ring of Fire will also generate an estimated \$6.7 billion in government tax revenues over the first 32 years of its development, providing a compelling incentive for governments to invest in this economic opportunity.

Despite its far-reaching economic potential, however, the Ring of Fire does not yet resonate in the consciousness of the broader public. A recent survey we conducted in partnership with Leger Marketing shows that businesses in southern Ontario are unaware of the potential benefits from its development.

Throughout our consultations, this lack of awareness has been cited as a crucial variable slowing the development of the Ring of Fire. With that in mind, two related goals of this report are to provoke an evidence-based discussion across the province and to enhance public awareness of its economic potential.

We find there is much more work to be done before we can realize the full economic potential of the Ring of Fire: there is a significant infrastructure gap in the region, skilled labour is in short supply, partnerships with Aboriginal communities need to be finalized and implemented, and cutting-edge technologies will need to be deployed to minimize environmental impacts.

Based on extensive analysis and consultation, this paper outlines key challenges that stand in the way of the development of the Ring of Fire and a 13-step action plan to overcome these challenges.



“[The Ring of Fire] is the most promising mining opportunity in Canada in a century.”

David Onley, Lieutenant Governor of Ontario, Speech from the Throne, 2010

13 Step Action Plan for Developing the Ring of Fire

Challenge	Next Steps
<p>Addressing the physical infrastructure deficit: The lack of adequate transportation infrastructure in the Far North is a significant barrier to the development of the Ring of Fire.</p>	<p>1 Land the plan: Ontario should develop a long-term infrastructure plan for the Far North, based on input from northern and First Nation communities and the mining sector.</p>
	<p>2 The provincial and federal governments should commit funds dedicated to building transportation infrastructure.</p>
	<p>3 Equip the Ring of Fire Development Corporation with the tools and resources it needs to deliver on its mandate.</p>
	<p>4 In the near-term, the Government of Ontario and the private sector should consider alternative modes of transportation that facilitate year round access to the Ring of Fire.</p>
<p>Capturing more value-added processes in Ontario: Energy costs in Ontario deter firms from processing minerals within the province.</p>	<p>5 As an immediate next step, the Government of Ontario should conduct a rigorous cost-benefit analysis of a special electricity incentive to locate mineral processing plants in Ontario. This analysis should be made public.</p>
<p>Addressing aboriginal community needs: The development of the Ring of Fire can yield significant, long-term benefits for the Far North. Aboriginal communities are seeking to maximize the opportunity it presents.</p>	<p>6 The Government of Ontario, along with the Chiefs of the Matawa-member First Nations and their respective communities, should follow through on an agreement when it is reached.</p>
<p>Addressing labour market needs: Northern Ontario suffers from pronounced labour shortages: 46 percent of businesses in the northeast and 41 percent of businesses in the northwest note that they had trouble filling vacant positions because they could not find someone with the right qualifications.</p>	<p>7 Ontario's employers and postsecondary institutions need to expand training partnerships that seek to build skills in the Aboriginal labour force.</p>
	<p>8 The Government of Canada and First Nations groups should follow through on a new framework for First Nations education.</p>
	<p>9 Ontario should leverage its secondary and postsecondary systems to produce the next generation of mining experts. The major players should collaborate on a labour force strategy for the provincial mining sector.</p>

<p>Ensuring smart environmental and regulatory safeguards are in place: Mining exploration and development can produce stresses on the environment, impacting air, land, and water, as well as plant and animal life. Ontario is a world leader in both environmental regulation and the application of cutting edge environmental mitigation strategies.</p>	<p>10</p>	<p>The Government of Ontario, in partnership with the mining sector, Aboriginal groups, and key stakeholders, should undertake a comprehensive review of regulations that apply to mining. Unnecessary regulatory barriers that impede the development of the Ring of Fire should be removed to the greatest extent possible.</p>
<p>Making the Ring of Fire a national priority: While there is strong federal-provincial cooperation on the Ring of Fire at the bureaucratic level, there are some worrying indications that the federal government is distancing itself from the development of the Ring of Fire.</p>	<p>11</p>	<p>The federal government should take on a more active role in the development of the Ring of Fire. At a minimum, it should match any provincial investments in Ring of Fire infrastructure.</p>
<p>Creating awareness and tracking progress: Without greater public awareness and increased pressure on all levels of government, progress in the development of the Ring of Fire is likely to be slow.</p>	<p>12 13</p>	<p>Interested parties should pool their awareness efforts and undertake a coordinated campaign aimed at educating the broader public about the Ring of Fire and the far-reaching economic opportunities it offers.</p> <p>A third party should track progress on the Ring of Fire, issuing an annual report against necessary next steps.</p>

INTRODUCTION

This paper presents an analysis of the economic potential of Ontario's Ring of Fire, the mineral resource-rich area of approximately 5,120 km² located in the James Bay Lowlands region of Northern Ontario (see map on page 5). Our analysis shows that the Ring of Fire offers an unparalleled opportunity for the province to diversify its economy and solidify its place as a global leader in mining and mining technology.

In order to maximize the benefits—both social and economic—Ontarians require an evidence-based discussion on the potential of this project and mining more broadly. The Ring of Fire does not yet resonate in the consciousness of the broader public. Throughout our consultations, this lack of awareness has been cited as a crucial variable slowing its development.

To that end, an important goal of this paper is to fill the information vacuum. It begins with an overview of the Ring of Fire. The paper then presents a quantitative analysis of the potential impacts that the development will have in Ontario in terms of GDP, job creation, and government revenue. It then outlines key challenges that stand in the way of development and the 13 crucial next steps that should be taken to overcome these challenges.

Much work remains: there is a significant infrastructure gap in the region, skilled labour is in short supply, partnerships with Aboriginal communities are still pending, and cutting-edge technologies will need to be deployed to minimize environmental impacts.

What We Did: Our Research Methodology

Through an economic multiplier analysis, we have identified the impact that the development of the Ring of Fire will have on Ontario's GDP, job growth, and government revenue. The results of the multiplier analysis can be found on pages 10-15.

In order to substantiate economic multiplier analysis, we undertook a comprehensive consultation process that involved interviews with over 50 businesses, government, postsecondary, and First Nations experts from Ontario and abroad. Many of the persons we consulted are listed on page 32-33 of this report.

In addition, we held four member consultations across Ontario in fall 2013. These consultations took place in Thunder Bay, Sudbury, Timmins, and at the 2013 Ontario Economic Summit in Niagara-on-the-Lake.

We also surveyed approximately 1,200 businesses across Ontario, with the help of our research partner, Leger Marketing.

Finally, our research has been guided and vetted by the OCC's Ring of Fire Expert Advisory Taskforce. The names of Taskforce members are listed on page 32 of this paper.

The Ring of Fire action plan we outline in this paper is based on our consultations and reflects the areas where there was broad consensus.

What is the Ring of Fire?

The Ring of Fire is a large, mineral resource-rich area of approximately 5,120 km² located in the James Bay Lowlands region of Northern Ontario. It is located about 540 km northeast of Thunder Bay, and is roughly 330 km from the nearest road or rail line in Nakina (approximately 250 km from Thunder Bay). There are a number of first nations communities in close proximity to the Ring of Fire (see map).

Since the early 2000s, significant deposits of copper, zinc, nickel, platinum, vanadium, and gold have been found in the region. The most promising discovery is the first commercial

quantities of chromite in North America. Based on current projections, the deposit is significant enough to sustain activity for a century.

The Ring of Fire has been described as one of the most promising mineral development opportunities in Ontario in almost a century (Onley, 2010).

Ontario's Ring of Fire



What is Chromite?

Chromite is the key mined material in the production of stainless steel. It is converted into ferrochrome using an energy-intensive smelting process. The produced ferrochrome is subsequently used in steel making.

It is estimated that the Ring of Fire holds at least 220 million tonnes of chromite (Cliffs Natural Resources, 2013).

Since no metal exchange exists for chromite, it is difficult to predict the value of the chromite deposits in the Ring of Fire. However, experts note that the quality of the Ring of Fire's chromite deposits is high relative to other commercial deposits, which could lower the cost of processing.

Approximately 22 million tonnes of chromite is mined per year around the globe. The majority of chromite production is limited to a handful of countries: South Africa accounts for 45 percent of global production, with large production also occurring in India, Kazakhstan, Russia, and Turkey.

While estimates vary, there are roughly 9 billion tonnes of global reserves of chromite (Pariser, 2013). The discovery of the Ring of Fire propels Canada into fourth place in the world in terms of chromite deposits (see map on page 7).

The discovery of chromite in Ontario is significant, given the growing market for stainless steel, particularly in China (see below). As a global leader in the production of stainless steel, China is the biggest importer of chromite, accounting for 85

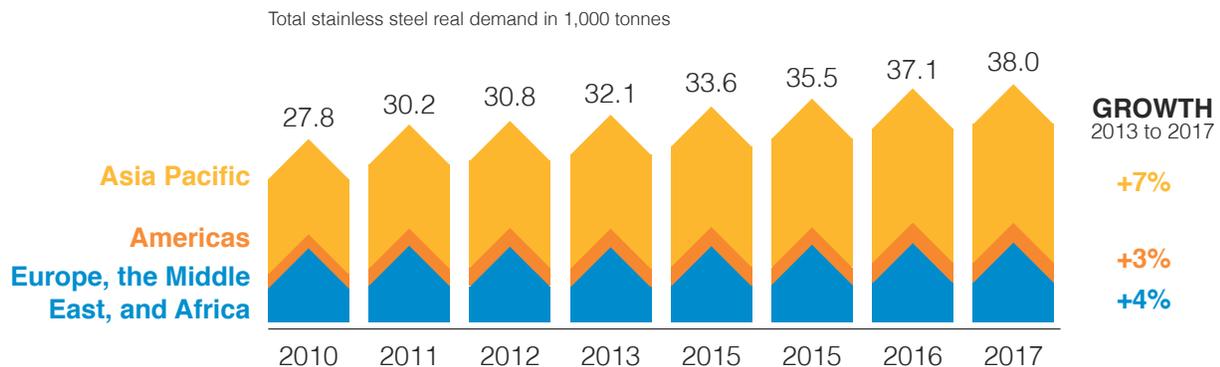
percent of global demand. Growing markets for stainless steel in China and other Asia-Pacific countries is expected to increase demand for chromite in the years to come.

The diversification of Ontario's exports is a shared goal of government and businesses in the province. Only one percent of Ontario's exports are destined for China. Ontario's aggregate exports to China would rise significantly were it to produce ferrochrome or export raw chromite.

“[The Ring of Fire] chromite discoveries collectively form the most significant chromite discovery made in North America.”

KWG Resources, 2012

Stainless Steel Consumption

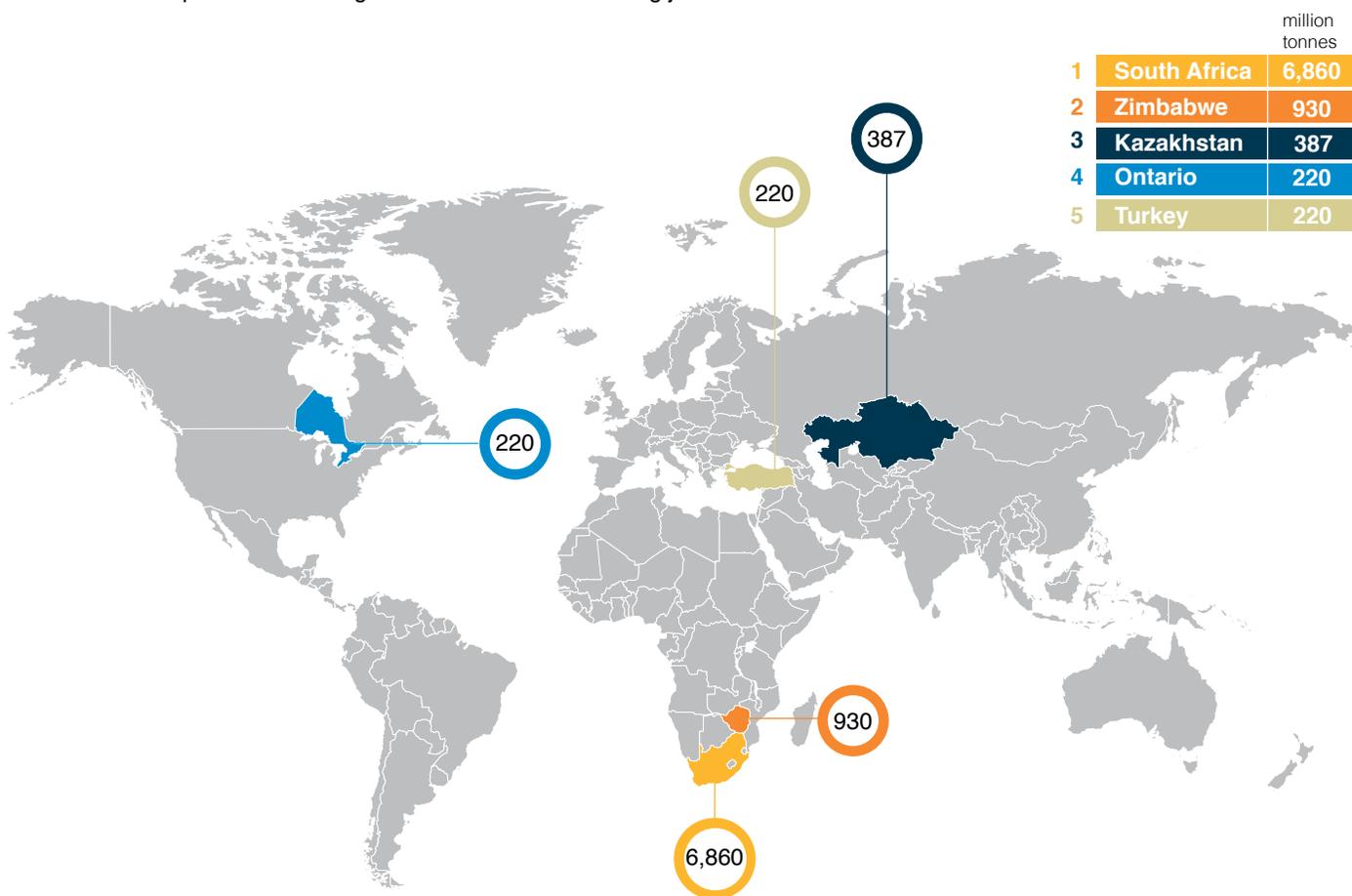


Source | Outokumpu, Interim Report Q1, 2013

World Chromite Ore Reserves

There are an estimated 9.2 billion tonnes of chromite reserves around the globe. South Africa has 6.9 billion tonnes, accounting for approximately 75 percent of global reserves. Large reserves are also located in Zimbabwe, Kazakhstan, and Turkey.

The major mining players interviewed for this study suggest that Ontario's relative economic, regulatory, and political stability provides the province with a substantial comparative advantage over other chromite mining jurisdictions.



Measurement in millions of tonnes.

Source | Heinz H. Pariser Alloy Metals & Steel Market Research, 2013

THE ECONOMIC OPPORTUNITY

Economic Multiplier Analysis Methodology

Through an economic multiplier analysis, we estimate the impact that the development of the Ring of Fire will have on GDP, job growth, and government revenue.

The economic multiplier analysis also estimates the direct, indirect, and induced economic benefits to Ontario. We rely on two methodologies for our analysis.

First, our report adopts the income-expenditure approach used in Advantage Northwest's *Mining Readiness Strategy* (2013), written jointly by the City of Thunder Bay, Fort William First Nation, and the Thunder Bay Community Economic Development Commission. An income-expenditure approach estimates economic impact by multiplying expenditures by several standard multipliers for the mining industry.

Second, our report utilizes the multiplier assumptions (i.e. medium multiplier of 1.5 for the mining sector) and their ratios for federal, provincial, and municipal tax revenues used in *Mining: Dynamic and Dependable for Ontario's Future* (2012), written by Peter Dungan and Steve Murphy. The Ring of Fire's impact on employment (i.e. how many jobs it will create) is calculated using the standard method of attaching a GDP value to one full time job. In calculating these estimates, one person working full-time for one year is considered a full time equivalent (FTE).

Key Findings

Ontario's economy stands to benefit enormously from the development of the Ring of Fire. In the short-term (first 10 years), the Ring of Fire will:

- generate up to \$9.4 billion in GDP;
- generate up to \$6.2 billion for Ontario's mining industry;
- sustain up to 5,500 jobs annually (full time equivalents); and
- generate nearly \$2 billion in government revenue, divided between the federal, provincial, and municipal governments.

In the long-term (32 years), the Ring of Fire will generate province-wide:

- over \$25 billion in GDP;
- up to \$16.7 billion for Ontario's mining industry;
- \$6.7 billion in government revenue divided between the federal, provincial, and municipal governments; and
- \$2.7 billion for the financial services sector, \$1.2 billion for the wholesale and retail trade sectors, \$600 million for the manufacturing sector, and \$500 million for the utilities sector.

Two Scenarios

Our analysis examines two potential Ring of Fire development scenarios: one *conservative* and one *optimistic*.

The conservative scenario analysis includes the two largest projects in the Ring of Fire: Cliffs Natural Resources' Chromite Project and Noront Resources' Eagle's Nest. The conservative scenario analysis includes projected initial capital investments, operational expenses, and direct employment through the pre-construction, construction, and operational phases of these projects.

While Cliffs Natural Resources have indefinitely suspended their Chromite Project in Northern Ontario, they have retained their assets in the region. Experts are generally confident that Cliffs will either reengage in activities or sell its assets to another company who will commence development.

The optimistic scenario accounts for the following projects: the Black Creek Chromite project, the Big Daddy Chromite project, and the McFaulds project. The optimistic scenario analysis factors in preliminary economic assessments, estimated capital investments, defined exploration expenses, and publicly available engineering estimates from the relevant corporations. By factoring in the three additional projects, *the forecasted impact increases by more than 20 percent*.

Several experts note that even the optimistic scenarios could underestimate the eventual benefits of the Ring of Fire. The conservative and optimistic calculations are based on known deposits. More are likely to be discovered.

Several mining experts estimate the true value of future mineral deposits in the Ring of Fire and the surrounding northwest region may double or even triple from current projections over the next 100 years of development (Sudol, 2013).

Definitions

Economic Multiplier Effect

The *economic multiplier effect* refers to the direct, indirect, and induced impact that all Ring of Fire-related spending and investment (e.g. capital expenditures, government spending) will have on the provincial economy.

We tested various multipliers (1.25, 1.5, and 1.75) in our analysis. A 'representative mine' study conducted for the Ontario Mining Association by Dungan and Murphy (2007) applied a multiplier of 1.5 for a producing mine. We have used a 1.5 multiplier in our final calculations.

Leakage

Leakage refers to the proportion of the direct and indirect expenditures that will be spent outside of Ontario. According to Dungan and Murphy (2012), well over 70 percent of mining supplies and services to a typical Ontario mine are sourced from within the province. Other experts we consulted said that a typical Ontario mining operation experiences a 20 percent leakage rate. We have tested for leakage rates of 50, 25, and 20 percent.

Direct, Indirect, and Induced Impacts

Our analysis estimates the economic impact that the Ring of Fire will have on the mining sector, those sectors that support mining, and the overall provincial economy.

Direct impacts are contributions to Ontario's GDP that flow through the mining sector as a result of initial project-related capital expenditures.

Indirect impacts include the impact on GDP resulting from the purchases made by mining companies during the course of operations (e.g. replacing equipment, manufactured supplies and materials, provision of professional services) that flow through sectors of the economy other than mining.

Induced impacts refer to the contribution to Ontario's GDP resulting from employee spending on consumer goods and services.

Conservative Scenario

Our conservative scenario analysis estimates the impact that two projects—Cliffs Natural Resources’ Chromite Project and Noront Resources’ Eagle’s Nest—would have on GDP and employment in Ontario. Our analysis is based on the proposed private sector investments that these companies have made public.

Our analysis captures the GDP and employment impact that both projects would have in their pre-construction, construction, and operational phase. Among our key findings in the conservative scenarios:

The short-term (10 year) total GDP benefits will range between \$5.1 and \$8.2 billion, \$3.4 to \$5.5 billion of which would occur directly within the mining sector (see Table 1).

The long-term GDP impact (32 years) is forecasted to range between \$14.4 and \$23 billion (see Table 2).

Employment projections in the conservative scenario range between 3,000 and 4,900 annual full time equivalents (see Table 1).

Table 1: Economic Impact of Ring of Fire Development on Ontario: Conservative Scenario (10 Year Period)

Conservative Scenario	Leakage (%)	Total GDP Impact (in \$ billions)		Average Annual FTEs (in thousands)
Total Impact	20	8.2		4.9
	25	7.7	Pre-Construction Phase	0.1
			Construction Phase	1.7
			Operations Phase	6
50	5.1		3.0	
Direct Impact	20	5.5		3.2
	25	5.1		3.0
	50	3.4		2.0
Indirect and Induced Impact	20	2.8		1.6
	25	2.6		1.5
	50	1.7		1.0

Table 2: Economic Impact of Ring of Fire Development on Ontario: Conservative Scenario (32 Year Period)

Conservative Scenario	Leakage (%)	Total GDP Impact (in \$ billions)
Total Impact	20	23
	25	21.6
	50	14.4
Direct Impact	20	15.3
	25	14.3
	50	9.5
Indirect and Induced Impact	20	7.7
	25	7.2
	50	4.8

Optimistic Scenario

Our optimistic scenario analysis expands on the conservative scenario by adding the following projects: the Black Creek Chromite project, the Big Daddy Chromite Project, and the McFaulds project.

Our analysis captures the GDP and employment impact that these projects would have in their pre-construction, construction, and operational phases. Among our key findings in the optimistic scenario:

The short-term (10 year) total GDP impact will range between \$6.3 and \$10 billion, \$4.2 to \$6.7 billion of which will occur within the mining sector (see Table 3).

Long-term direct benefits to Ontario's GDP (32 years) have been forecasted to range between \$16.8 and \$27 billion (see Table 4).

Employment projections range between 3,700 and 6,000 thousand annual full time equivalents (see Table 3).

Table 3: Economic Impact of Ring of Fire Development on Ontario: Optimistic Scenario (10 Year Period)

Optimistic Scenario	Leakage (%)	Total GDP Impact (in \$ billions)		Average Annual FTEs (in thousands)
Total Impact	20	10.0		6
	25	9.4	Pre-Construction Phase	0.25
			Construction Phase	2.7
			Operations Phase	6.5
50	6.3		3.7	
Direct Impact	20	6.7		3.9
	25	6.2		3.7
	50	4.2		2.5
Indirect and Induced Impact	20	3.4		2
	25	3.2		1.9
	50	2.1		1.2

Table 4: Economic Impact of Ring of Fire Development on Ontario: Optimistic Scenario (32 Year Period)

Optimistic Scenario	Leakage (%)	Total GDP Impact (in \$ billions)
Total Impact	20	27
	25	25.2
	50	16.8
Direct Impact	20	17.8
	25	16.7
	50	11.2
Indirect and Induced Impact	20	9
	25	8.5
	50	5.6

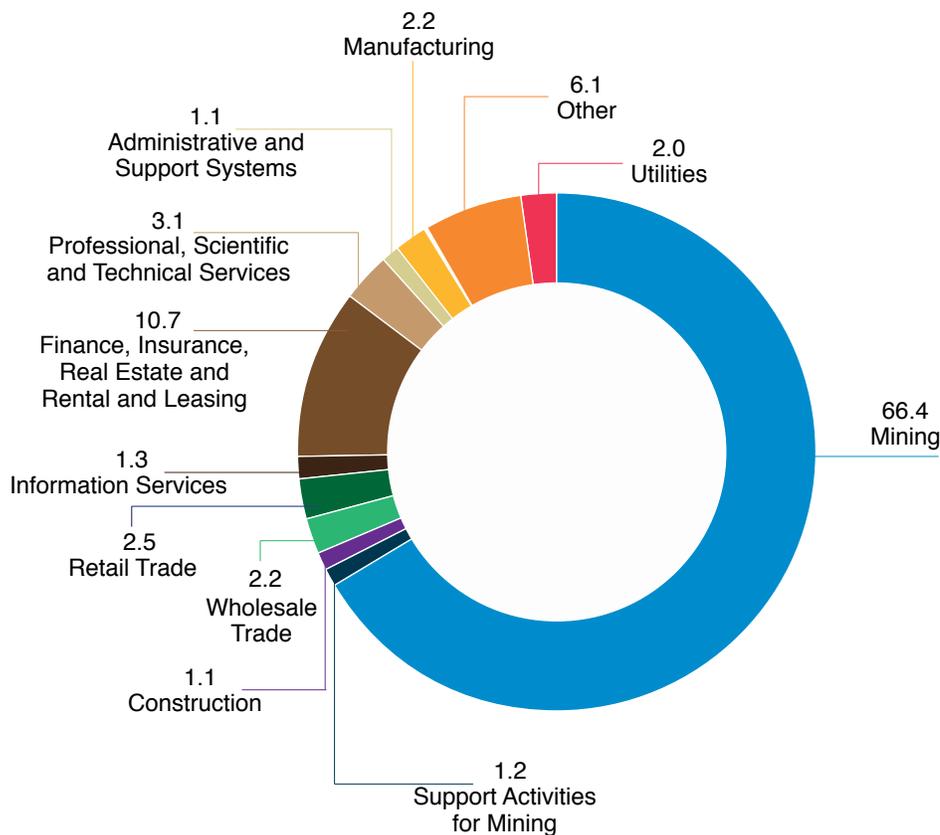
Sector-Specific Benefits

The distribution of indirect and induced impacts among specific sectors was calculated using ratios in the Input-Output Tables maintained by Statistics Canada (2013). The calculation for the total impact on sector GDP was made using the income-expenditure approach outlined in Advantage Northwest's *Mining Readiness Strategy* (2013).

The Graph below and Tables 5 through 8 disaggregate the short-term sector impacts of the development of the Ring of Fire in our conservative and optimistic scenarios. As the Graph below shows, economic output from the development will be dispersed across the mining, financial services, wholesale and retail trade, professional, scientific and technical services, manufacturing, and utilities sectors.

As Table 8 shows, in our 32 year optimistic scenario, \$16.7 billion of GDP will flow through the mining sector, \$2.7 billion through the financial services sector, \$1.2 billion through the wholesale and retail trade sectors, \$800 million through the professional, scientific and technical services sector, \$600 million through the manufacturing sector, and \$500 million through the utilities sector.

Sectors that Stand to Benefit Most from the Development of the Ring of Fire



Measurements in percentage of total economic output.

Table 5: Economic Impact of Ring of Fire Development on Ontario, by Sector – 10 Year Period, Conservative Scenario (in \$ billions)

Direct Impact	Mining (Direct Impacts)	5.12
Indirect and Induced Impacts	Support Activities to Mining	0.09
	Construction	0.09
	Wholesale Trade	0.17
	Retail Trade	0.19
	Publishing, Broadcasting, Telecom, and Other Information Services	0.10
	Finance, Insurance, Real Estate, and Rental and Leasing	0.83
	Professional, Scientific, and Technical Services	0.24
	Administrative and Support Services	0.09
	Manufacturing	0.17
	Other	0.47
	Utilities	0.15
	All Sectors (Direct, Indirect, Induced)	7.72
	Indirect and Induced	2.59

Table 6: Economic Impact of Ring of Fire Development on Ontario, by Sector – 10 Year Period, Optimistic Scenario (in \$ billions)

Direct Impact	Mining	6.24
Indirect and Induced Impacts	Support Activities to Mining	0.11
	Construction	0.10
	Wholesale Trade	0.21
	Retail Trade	0.24
	Publishing, Broadcasting, Telecom, and Other Information Services	0.12
	Finance, Insurance, Real Estate, and Rental and Leasing	1.00
	Professional, Scientific, and Technical Services	0.29
	Administrative and Support Services	0.10
	Manufacturing	0.21
	Other	0.57
	Utilities	0.19
	All Sectors (Direct, Indirect, Induced)	9.39
	Indirect and Induced	3.16

Table 7: Economic Impact of Ring of Fire Development on Ontario, by Sector – 32 Year Period, Conservative Scenario (in \$ billions)

Direct Impact	Mining (Direct Impacts)	14.32
Indirect and Induced Impacts	Support Activities to Mining	0.26
	Construction	0.24
	Wholesale Trade	0.48
	Retail Trade	0.54
	Publishing, Broadcasting, Telecom, and Other Information Services	0.28
	Finance, Insurance, Real Estate, and Rental and Leasing	2.31
	Professional, Scientific, and Technical Services	0.67
	Administrative and Support Services	0.24
	Manufacturing	0.47
	Other	1.32
	Utilities	0.43
	All Sectors (Direct, Indirect, Induced)	21.56
	Indirect and Induced	7.24

Table 8: Economic Impact of Ring of Fire Development on Ontario, by Sector – 32 Year Period, Optimistic Scenario (in \$ billions)

Direct Impact	Mining	16.72
Indirect and Induced Impacts	Support Activities to Mining	0.30
	Construction	0.28
	Wholesale Trade	0.55
	Retail Trade	0.63
	Publishing, Broadcasting, Telecom, and Other Information Services	0.33
	Finance, Insurance, Real Estate, and Rental and Leasing	2.70
	Professional, Scientific, and Technical Services	0.78
	Administrative and Support Services	0.28
	Manufacturing	0.55
	Other	1.54
	Utilities	0.50
	All Sectors (Direct, Indirect, Induced)	25.19
	Indirect and Induced	8.46

Projected Government Revenue from the Development of the Ring of Fire

The Ring of Fire is projected to significantly increase revenue for all three levels of government. As Tables 9 and 10 show, under our optimistic scenario, governments stand to increase their tax revenues by nearly \$2 billion over the course of the first 10 years of the development of the Ring of Fire and nearly \$7 billion over the course of the first 32 years.

Table 9: Tax Revenues (First 10 Years of Ring of Fire Development; in \$ billions)

	Conservative Scenario	Optimistic Scenario
Federal Tax Revenue	0.87	0.94
Provincial Tax Revenue	0.70	0.76
Municipal Tax Revenue	0.23	0.25
Total Tax Revenue	1.80	1.95

Table 10: Tax Revenues (First 32 Years of Ring of Fire Development; in \$ billions)

	Conservative Scenario	Optimistic Scenario
Federal Tax Revenue	2.89	3.25
Provincial Tax Revenue	2.34	2.63
Municipal Tax Revenue	0.75	0.85
Total Tax Revenue	5.98	6.72

Projected Social Benefits

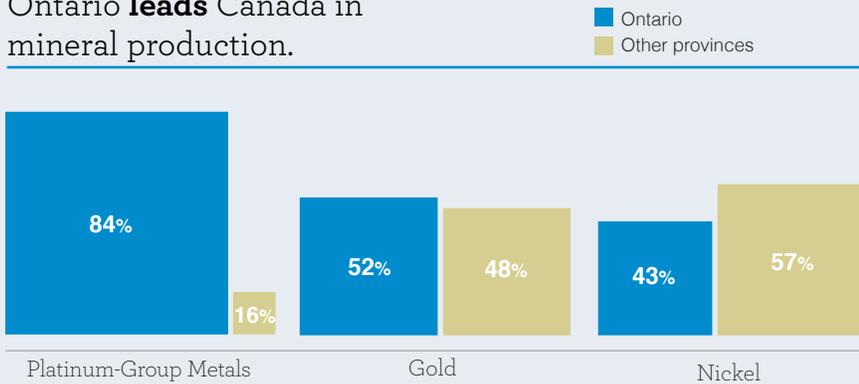
In addition to the positive economic benefits, the Ring of Fire also offers the opportunity to generate substantial social benefits. These include employment and economic development opportunities for Aboriginal and surrounding communities, provided that appropriate partnerships are in place (see page 21).

Further, the Ring of Fire can generate substantial physical infrastructure, such as all season roads and energy transmission lines to hitherto remote communities. These investments can facilitate the transition from inefficient diesel generation of electricity and the integration of these communities into the broader economy.

Enhancing Ontario's Mining Cluster

The mining industry is a significant driver of Ontario's economy. The development of the Ring of Fire will provide additional critical mass to Ontario's mining cluster.

Ontario **leads** Canada in mineral production.



Source | Dungan and Murphy, 2012.

The Mining industry is a **leading employer** in Ontario.



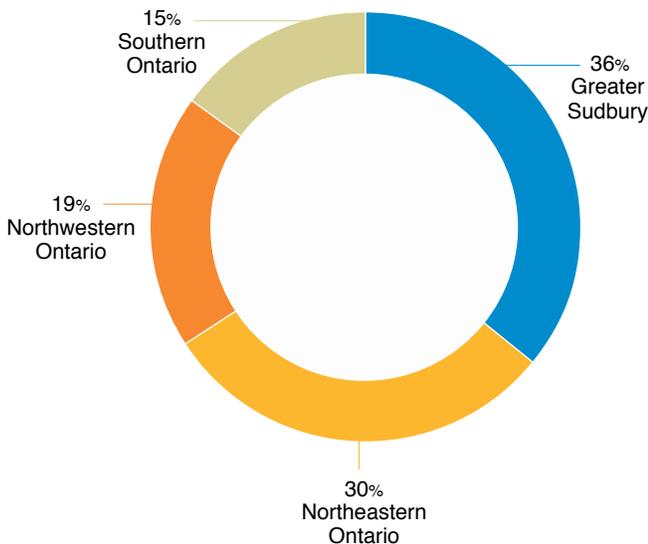
Source | MNMD, 2012.

The value of mineral production in Ontario was **\$9.2 billion** in 2012.

Source | OMA, 2014.

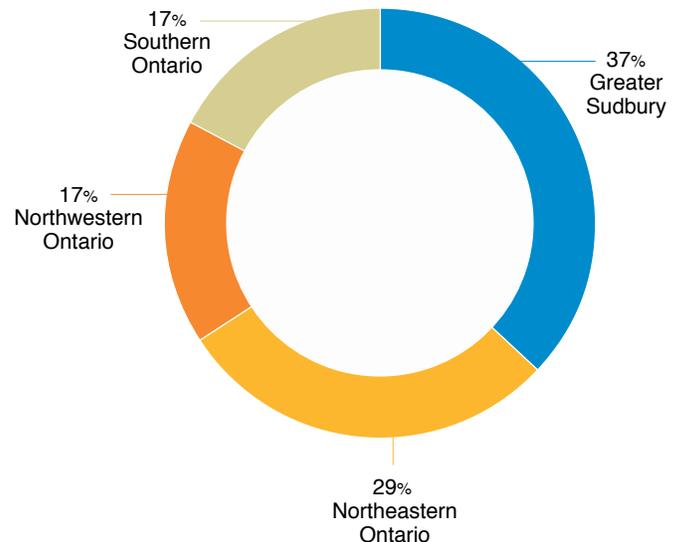
Benefits of the development of the Ring of Fire will be **broadly dispersed** across the province.

Current Mining Employment, by Region



Source | Dungan and Murphy, 2012.

Current Salaries from Mining, by Region



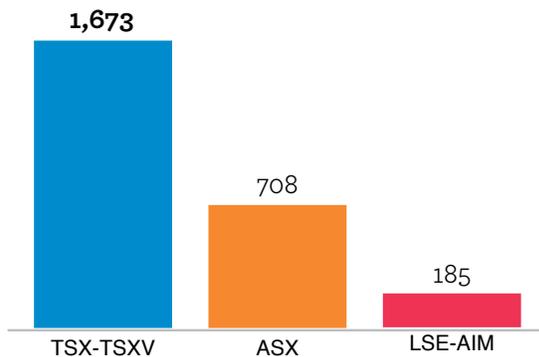
Mining supply and service related entities are located throughout the province.



Source | Dungan and Murphy 2012, based on an analysis of the Canadian Association of Mining Equipment and Services for Export's (CAMESE) members.

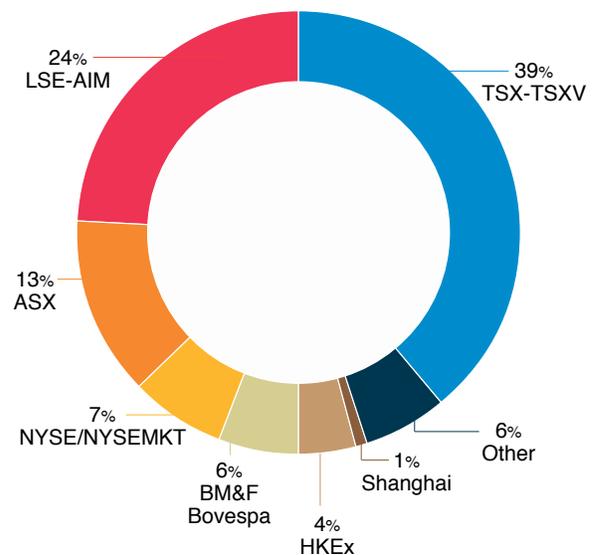
Toronto is the world's mining finance capital.

TSX and TSXV list the most mining companies in the world



Source | TMX, 2013.

Distribution of \$184 billion in Equity Financing (2008-2012)



A RING OF FIRE ACTION PLAN

Based on extensive consultations with 150 mining stakeholders, we have identified the seven priority areas where progress is necessary in order to develop the Ring of Fire. They are:

- addressing the physical infrastructure deficit;
- capturing more value-added processes in Ontario;
- addressing Aboriginal community needs;
- addressing labour market needs;
- ensuring smart environmental and regulatory safeguards are in place;
- making the Ring of Fire a national priority; and
- creating awareness and tracking progress.

Across each priority, we identify the challenges, the progress to date, and necessary next steps.

Addressing the Physical Infrastructure Deficit

Challenges

The lack of adequate infrastructure in the North is one of the biggest obstacles to mining development. Dadgostar *et al.* (2012) estimate that \$1.74 billion will need to be spent on roads, rail, and power line transmission to service Ring of Fire mines.

This figure is driven by three primary costs. First, the Far North's rugged environment is characterized by wide swaths of muskeg lands (more commonly known as boglands or low-lying marshes), which are impassable when not frozen. Second, the Ring of Fire is 330 km from the nearest highway, making construction a costly proposition. Third, many stakeholders agree that mining development in the Ring of Fire can—and should—be used to spur broader infrastructure investment across the region. While this third factor increases costs, it also complicates how the costs are distributed.

Although, there is no consensus on where and what type of infrastructure should be built to service the region, there are several options on the table. Cliffs Natural Resources has proposed an all-season north-south road between the Ring of Fire and Nakina (330 km to the south), which could provide access to an existing east-west rail line. The estimated construction cost for this road is \$500 million (Benoit, 2012).

KWG Resources has proposed an alternative north-south railway to Nakina, along its 340 km claim-staked rail-bed, which is seen as a more affordable long-term option (Kuyek, 2011; Benoit, 2012; Vala, 2013). Finally, Noront Resources has proposed an east-west all-weather corridor from the Eagle's Nest mine site to Pickle Lake (Benoit, 2012).

There are currently two proposed electricity infrastructure corridors to service the Ring of Fire: a north-south route from Nakina and an east-west route from Pickle Lake. Both of these areas are currently served by radial lines that lack the capacity to service mining projects in the Ring of Fire (Northwestern Ontario Joint Task Force, 2012).

The infrastructure challenge is a significant barrier to the region's development. However, our multiplier analysis demonstrates that both the government and the private sector will recoup the costs of their investment in a relatively short time. See Tables 5-10 on pages 13-15.

Progress

Both government and the private sector have acknowledged that they will need to come to the table with money for transportation infrastructure. However, there is no consensus on how to best share the associated costs. To date, neither the federal government, the provincial government, or the private sector have committed substantial funds to the development of infrastructure.

The Government of Ontario has taken a promising first step by creating a Ring of Fire Development Corporation to support infrastructure development. The Development Corporation will be mandated to "develop, construct, finance, operate and maintain infrastructure supporting access to strategic resources in the Ring of Fire" (MDNM, 2013).

Necessary Next Steps

1. Land the plan: Ontario should develop a long-term infrastructure plan for the Far North, based on input from northern and First Nation communities and the mining sector.

As a first step, governments need to convene relevant stakeholders to identify a long-term infrastructure plan for the development of the Ring of Fire. The plan must be costed and it must include all elements, including transportation and electricity transmission. It must also factor in planned developments, such as *Energy East*.

The plan must also acknowledge the fact that the provincial and federal governments have a responsibility to ensure Ring of Fire development has a direct, positive impact on First Nations communities.

As such, both the federal and provincial governments have a responsibility to gain a full understanding of the particular infrastructure needs (transportation, electricity, and communications, among others) of the First Nations communities that live within proximity to the Ring of Fire.

2. The provincial and federal governments should commit funds dedicated to building transportation infrastructure.

Canada has a long tradition of supporting large and transformative industrial projects with great economic potential, such as the oil sands, St. Lawrence Seaway, and Confederation Bridge. As many stakeholders were eager to point out, this same type of public investment in the Ring of Fire is absent to date.

3. Equip the Ring of Fire Development Corporation with the tools and resources it needs to deliver on its mandate.

A properly equipped Ring of Fire Development Corporation would include sector players from the Ring of Fire in its governance structure; utilize the expertise of Infrastructure Ontario;¹ and have the ability to issue bonds, similar to the Green Bonds now being issued to finance environmentally-friendly infrastructure projects across Ontario.

Ring of Fire bonds would capitalize on the Province's ability to raise funds at low interest rates and would offer an innovative way to raise part of the nearly \$2 billion needed for infrastructure.

¹ | Infrastructure Ontario is the province's Crown Corporation that specializes in P3 project delivery.

4. In the near-term, the Government of Ontario and the private sector should consider alternative modes of transportation that facilitate year round access to the Ring of Fire.

One alternative mode of transportation that should be considered is to combine roadways with hoverbarges, the latter of which could transport infrastructure material to communities and mine sites in the short-term to accelerate development while permanent transportation routes are being constructed. Ontario's world leading mining innovation groups are already developing solutions to accelerate the development of transportation infrastructure.²

“How do you split the cost of a road or rail between government and private sector? Why not have the government fund everything to within 100 km of the mining site, leaving the rest to the private sector? It's not perfect, but I haven't heard a single other concrete proposal on how to split the cost.”

Engineering Sector Representative, Thunder Bay Roundtable Consultation, 2013.

² | Hovercraft were used to service the Snip gold mine in northern British Columbia, allowing the mine to open ahead of schedule and resulting in substantial savings in transportation costs (Dickins Engineering & Environmental Research, 2013). Hoverbarges and hovercraft were also used in the construction of the Trans Alaska pipeline in the 1970s. In that instance, the hoverbarges worked non-stop to supply pipeline construction and also to supply fuel and food for the team of 5,000-8,000 personnel working north of the Yukon River.

Capturing more Value-Added Processes in Ontario

Challenges

Electricity costs in Ontario are higher than those in Quebec, which has plentiful and inexpensive electricity. These high costs hurt the competitiveness of the Ontario mining sector and raise questions about the province's ability to keep mineral processing in-province. While Cliffs had previously included a ferrochrome processing plant in its development plans, experts we spoke to indicated that the company may have been expecting an electricity discount or subsidy as a condition for the investment.

While experts from nearly every sector, industry, and region of the province agree that Ontario's electricity costs are a disincentive to locate electricity-intensive processes in the province, they are divided on whether the Province should incent companies to locate their smelters and processing plants in Ontario through special electricity pricing rates. However, all agree that without government intervention, there is no business case to locate a chromite smelter in Ontario.

“Ontario has become an island of high-priced electricity in a North American sea of surpluses and falling rates.”

Barrie McKenna, *Globe and Mail*, 2013

Progress

Ontario's Long-Term Energy plan commits the Government of Ontario to meeting the long-term potential for demand at the Ring of Fire. However, the plan is mute on the impact that energy costs will have on firms' decisions to locate mineral processing plants in the province.

Necessary Next Steps

5. As an immediate next step, the Government of Ontario should conduct a rigorous cost-benefit analysis of a special electricity incentive to locate mineral processing plants in Ontario. This analysis should be made public.

If Ontario aims to keep or attract value-added mineral processing plants in the province, it needs to create the economic conditions that are conducive to this type of investment.

A public conversation about Ontario's future in mineral processing is necessary. This conversation must be informed by an understanding that processing in Ontario would reduce the leakage of economic benefits (see page 9).

“If our collective goal is to maximize the benefits that the Ring of Fire will bring to Ontario, then we need to capture as much of the value-added process as possible. Put simply... we need to process the minerals right here in Ontario”.

Postsecondary Sector Representative, Timmins Roundtable, 2013.

Addressing Aboriginal Community Needs

Challenges

Ontario's Far North accounts for 40 percent of the province's Aboriginal population and 106 of Ontario's 133 First Nations. The majority of the reserves in the Far North of Ontario are dependent on external sources of revenue. This dependency and the effects of inter-generational trauma contribute to a cycle of poverty, high rates of drug and alcohol abuse, family violence, delinquency, and crime. The Ring of Fire presents Ontario's Far North First Nations communities with an opportunity to improve on-reserve quality of life.

Consultations with Aboriginal communities are vital to the success of the Ring of Fire. Rulings from the Supreme Court of Canada have articulated the Crown's legal duty to consult Aboriginal communities when decisions may infringe upon their rights (Benoit, 2012; Rhéaume and Caron-Vuotari, 2013). The Crown also has a legal duty, where appropriate, to accommodate Aboriginal peoples where the interests of the latter may be affected by a Crown action or decision. However, confusion remains regarding the roles and responsibilities of business and government in the consultation process.

Businesses are asking for more clarity. Many are calling on federal and provincial governments to lead and land an overarching framework for the Ring of Fire, under which businesses can then enter into Impact Benefit Agreements and other forms of partnerships (including joint ventures) with First Nations. See page 22 for an example of a successful Impact Benefit Agreement.

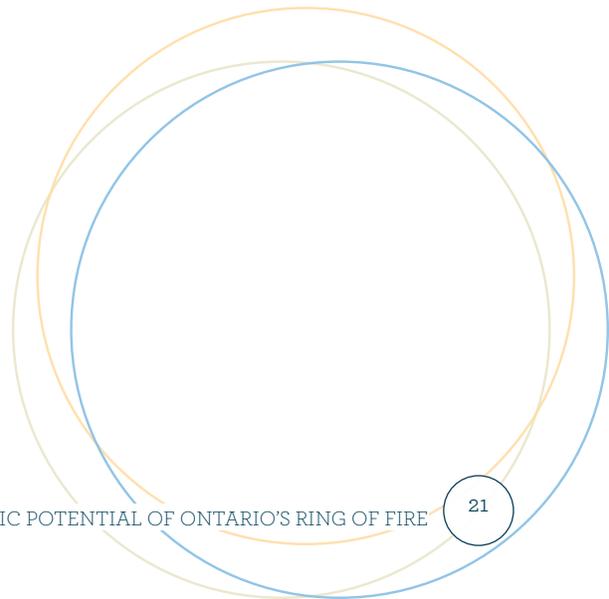
Progress

The Government of Ontario has appointed former Supreme Court of Canada Justice Frank Iacobucci as lead negotiator on its behalf in discussions with the Chiefs of the Matawa Tribal Council on resource development in the Ring of Fire. For their part, the Chiefs of the Matawa Tribal Council have appointed former Premier Bob Rae as their lead negotiator. Indications suggest that an agreement is possible in the near to medium term.

Necessary Next Steps

6. The Government of Ontario, along with the Chiefs of the Matawa-member First Nations and their respective communities, should follow through on an agreement when it is reached.

Agreements reached between Matawa-member First Nations communities, private firms, and the government should respond to the long-term needs of those communities they are designed to support. Any agreements should address infrastructure needs, training for meaningful employment, and long-term environmental impacts.



Impact and Benefit Agreements: A Success Story

Raglan Mine, Quebec

Raglan Mine, a nickel and copper mine owned and operated by Falconbridge (now Glencore), is located on the Ungava Peninsula on traditional lands of the Inuit (Hipwell et al., 2002). After significant up-front consultation, the initial 1995 Raglan Agreement included: priority employment for Inuit; priority employment of competitive Inuit businesses for work required during mining operations; compensation and profit-sharing to signatories of the agreement; and the establishment of the Raglan Committee to act as a company-community liaison (ICME, 1999).

Despite the original 1995 agreement, Inuit employment at the mine was lower than expected, and turnover rates were high. As a result, in 2008, Raglan Mine and its partners initiated the Tamatumani Project as a new Inuit employment and training strategy. The plan, with strong support from senior leadership at the mine, incorporated intercultural training, language training, trades training, and essential skills training, as well as individual development plans for Inuit employees (Nixon, 2013).

In addition, supports were strengthened for Inuit workers in the form of a few employment and training coordinators and counsellors, two adult educators and several Technical trainers, as well as the development of an employee and family assistance program. By 2012, as a result of these initiatives, the Inuit employment rate increased by 100 percent, and the retention rate was 70 percent, a 100 percent increase in retention since 2005 (Nixon, 2013).



Addressing Labour Market Shortages

Challenges

Ontario faces a labour market paradox—employers are clamouring for workers, yet there are pockets of high unemployment and underemployment. This paradox is particularly pronounced in Northern Ontario and in the mining sector. A survey conducted by the OCC and Leger Marketing reveals that businesses in Northern Ontario experience the most difficulty finding workers with the right qualifications for the job.

Over the next 10 years, Ontario's mining industry will require 59,000 new workers (MiHR, 2013). Much of the hiring needs will be driven by replacement demands; tens of thousands in the Ontario mining sector will retire over the next decade. Meeting these needs will be challenging for several reasons.

First, many of those exiting are in leadership positions—worryingly, there are few workers with enough experience to replace them (Dadgostar *et al.*, 2012).

Second, Canada's postsecondary system is not producing enough graduates with the skills needed for employment in the mining industry (MiHR, 2013). Part of the reason may be that young people are unaware of the opportunities in the sector.

Third, the mining labour force is highly mobile. Mining companies compete for skilled labour globally (Dadgostar *et al.*, 2012). Industry observers note that competition for skilled labour has intensified over the past few years.

Fourth, the weather, high cost of living, and relative isolation make mining in remote regions an unattractive career option for many workers. Limited housing options can also deter potential employees.

In a previous section of this paper, we noted concerns about the leakage of the benefits from the development of the Ring of Fire. Ensuring that we draw as much as possible from the domestic labour force is key to retaining a higher portion of the gains in Ontario and Canada. Ontario requires deliberate and coordinated action across governments, the mining sector, the postsecondary education sector, and the affected communities aimed at cultivating more local talent.

An obvious solution resides within the existing pool of labour in northern communities, particularly in the surrounding First Nations communities. However, there is a significant gap in educational achievement between Aboriginal and non-Aboriginal populations in Ontario. According to census data, 38 percent of Aboriginal peoples have not finished high school. Aboriginal peoples are also three times less likely than non-Aboriginal people to obtain a university degree (Statistics Canada Census, 2006).



“What I’m most worried about is filling those leadership positions in my organization. Where’s the talent going to come from?”

Mining Sector Representative, Sudbury Roundtable, 2013.

The Aboriginal funding gap compounds this education gap. Although estimates of the shortfall vary, it is generally accepted that federal funding for Aboriginal education falls significantly short of parity with provincial education spending on a per-student basis (Commission on the Reform of Ontario's Public Services, 2012). According to one estimate, a federal injection of \$100 million a year is required to close the gap for Ontario's on-reserve students (Sniderman, 2012).

Rapid action is required to address the labour shortages in the sector and to leverage the untapped labour potential of Aboriginal communities. Stakeholders have stressed the fundamental importance of 'starting early' in both skills development and capacity building in First Nations communities. As one expert noted, “building a workforce is an incredibly long process.”

Progress

In Ontario, Aboriginal employment accounted for nearly 10 percent of total mining jobs in 2011 (Dungan and Murphy, 2012). Mining development has also created a number of opportunities for Aboriginal people through ancillary and supply services.

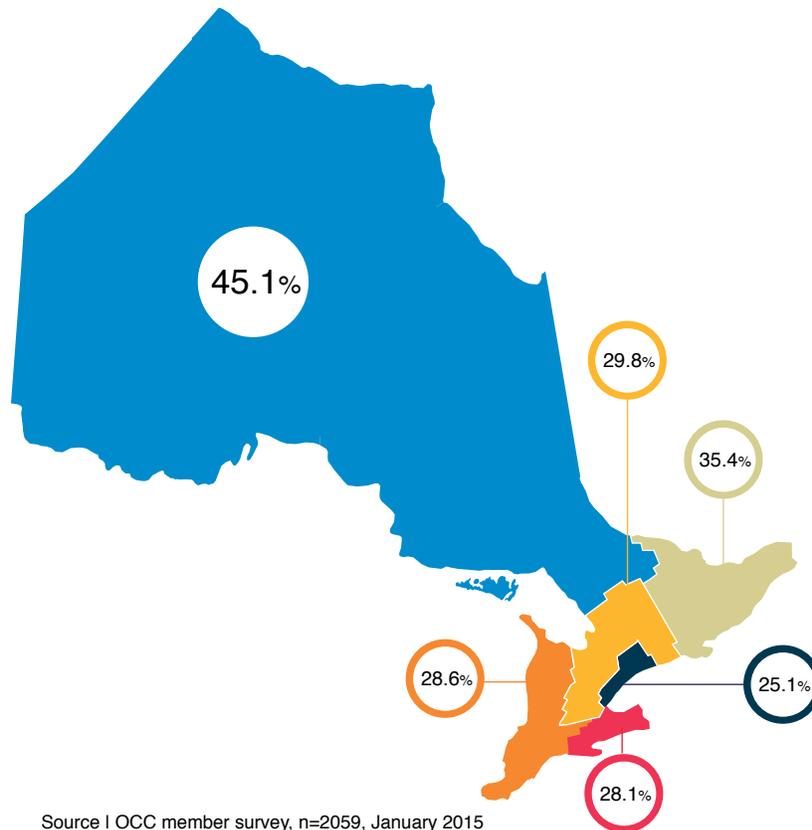
There are several government and private sector training and social programs in place that are building skills and capacity in First Nations communities in the Far North. For example, Noront Resources, Kiikenomaga Kikenjigewen Employment and Training Services (KKETS), and Confederation College

have partnered to create the Ring of Fire Aboriginal Training Alliance (ROFATA). The ROFATA is expected to develop a highly skilled Aboriginal workforce for Noront's Eagle's Nest mining project.

The Government of Canada and First Nations groups have agreed to a new legislative framework for First Nations education to support improved quality of education and better results for First Nations on-reserve students.

Northern Ontario is Most Affected by the Skills Gap

Percentage of employers who have had difficulty hiring someone with the right qualifications*



Source | OCC member survey, n=2059, January 2015
Question asked: Has your business had difficulty filling a job opening over the past 12 - 18 months because you couldn't find someone with the right qualifications?

Necessary Next Steps

7. Ontario’s employers and postsecondary institutions need to expand training partnerships that seek to build skills in the Aboriginal labour force.

Ontario colleges and universities should partner with the mining and mining supply sector to expand the reach of their First Nations training programs. The Noront Resources, Confederation College, and KKETS partnership is a good start and should be monitored closely.

8. The Government of Canada and First Nations groups should follow through on a new framework for First Nations education.

9. Ontario should leverage its secondary and postsecondary systems to produce the next generation of mining experts. The major players should collaborate on a labour force strategy for the provincial mining sector.

Developing the Ring of Fire will create employment opportunities for generations to come. This is why Ontario should leverage its world-class high school, college, and university systems to produce successive generations of mining experts. The Ontario Mining Association’s *Teachers Mining Tour* (now in its fourth year) and *So You Think You Know Mining*³ are promising initiatives, as is the Prospectors and Developers Association of Canada’s (PDAC) *Mining Matters*.⁴ However, more penetration into the school system is needed to drive additional interest in careers in mining.

3 | *So You Think You Know Mining* (SYTYKM) is a video contest for Ontario high school students. Students are asked to create a 2-3 minute video on the benefits of mining or a 30 second ‘commercial’ showing the value of mining in Ontario. Videos are judged by an expert panel and substantial cash prizes are awarded to the winning videos in a variety of categories, including Best Original Score, Best Directing, and Best Original Screenplay. SYTYKM is funded and operated by the Ontario Mining Association.

4 | *Mining Matters* is a charitable organization dedicated to bringing knowledge and awareness about Canada’s geological and mineral resources to students, educators and the general public. The organization provides current information about rocks, minerals, metals, mining and the diverse career opportunities available in the minerals industry. The organization offers educational resources that meet provincial curriculum expectations, created by educators and Earth science experts. Mining Matters has reached over 550,000 teachers, students and members of the general public since inception in 1994. Mining Matters is supported by government, foundation grants, and donations from corporations and individuals.

“[The Ring of Fire’s potential] is right in line with the oil sands... It has the potential to transform what was hitherto a very poor, underdeveloped area of Ontario and give people who live there, particularly First Nations people, a chance for a decent life.”

Tony Clement, President of the Treasury Board, 2013, comments to a Huffington Post Editorial Board

Ensuring Smart Environmental and Regulatory Safeguards are in Place

Challenges

Mining exploration and development can produce stresses on the environment, impacting air, land and water, as well as plant and animal life. Mineral extraction can result in tailings, which may pose a risk to wildlife, vegetation, and water supplies if not properly contained. Demonstrating commitment to minimizing and mitigating environmental impacts is key to obtaining public support for a proposed development.

The Ring of Fire is located in one of the world's largest wetlands, and so water management will be a significant focus of environmental mitigation strategies. Experts predict that it will be particularly challenging to manage tailings and waste rock in a saturated environment (Kuyek, 2011).

Environmental experts also note that permanent transportation infrastructure leading to the Ring of Fire will likely have adverse effects on the habitat and migration patterns of the threatened woodland caribou.

With respect to environmental regulation, firms accept the need for high regulatory standards. Many mining companies report that Ontario's high standards enhance their firm's competitive advantage internationally, as other jurisdictions catch up to Canada's standards.

However, many participants in the consultations noted that unnecessary regulatory barriers hinder their ability to invest and operate in the region. The most commonly cited regulatory barriers were associated with the *Far North Act*, which many argue fails to strike the appropriate balance between environmental protection and development.

Despite broad consensus that regulatory barriers are an obstacle to the development of the Ring of Fire, there was little agreement on how best to move forward.

Progress

Ontario has an international reputation as a leader in environmental protection. According to Dungan and Murphy (2012), "the Ontario mining industry devotes millions of dollars annually to environmental protection, environmental improvement and pollution prevention." In 2011, the industry

spent nearly \$62 million on environmental protection, up \$43million from the previous year (Dungan and Murphy, 2012).

Further, the Canadian mining industry has developed the International Guidelines on Tailings and Waste Management. Canada's own PDAC is a global leader in developing environmental guidelines for exploration companies.

Ontario companies are also quick to adopt cutting-edge environmental mitigation strategies. Noront Resources, for example, plans to exceed regulatory and minimum environmental standards for its underground mine at the Eagle Nest mine site.

The Ring of Fire should be viewed as an anchor project that can spur environmental innovation. All actors should collaborate and develop strategies that will spur world-leading innovation in environmental practices and technologies.

Necessary Next Steps

10. The Government of Ontario, in partnership with the mining sector, Aboriginal groups, and key stakeholders, should undertake a comprehensive review of regulations that apply to mining. Unnecessary regulatory barriers that impede the development of the Ring of Fire should be removed to the greatest extent possible.

As the OCC's five-year economic agenda for Ontario, *Emerging Stronger 2014*, points out, the regulatory burden in the province must be reduced. Many of the regulations that made sense 20 years ago are no longer relevant, and inhibit investments in productivity-enhancing processes and technologies.

The Province is reconsidering its *Open for Business* strategy for reducing the regulatory burden in Ontario. Business is looking for a regulatory environment that encourages innovation and is outcome rather than process-focused.

Making the Ring of Fire a National Priority

Challenges

The development of the Ring of Fire will require massive investments in infrastructure and the skills of Ontario's Aboriginal communities.

In recent months, the federal government has signaled to Ring of Fire stakeholders that it is taking a more passive role in the development, with the Prime Minister stating that the Ring of Fire is a project that "is primarily under provincial jurisdiction" and that "ultimately...resource development is a provincial responsibility" (CBC News, 2013).

Our projections show that the federal government stands to be the primary benefactor of tax revenues from the Ring of Fire (see Tables 9-10). If for no other reason, the federal government has a strong financial incentive to be a much more active player in the development of the Ring of Fire.

Progress

Despite signaling a more passive role in the Ring of Fire, the federal government has kept a close eye on its development. It has designated the Federal Economic Development Agency for Northern Ontario (FedNor) as the lead federal organization dedicated to its development. FedNor invests in projects that "support community economic development, business growth and competitiveness, and innovation in the region" (FedNor, 2013).

According to senior government officials, there has been a high level of cooperation between federal and provincial bureaucrats. For example, intergovernmental cooperation has led to the harmonized environmental assessment process whereby a joint application group reviews all new Ring of Fire project applications. This has simplified the regulatory environment for businesses.

Necessary Next Steps

11. The federal government should take on a more active role in the development of the Ring of Fire. At a minimum, it should match any provincial investments in Ring of Fire infrastructure.

As the President of the Treasury Board, Tony Clement notes, the Ring of Fire is "right in line with the oil sands" (Huffington Post, 2013). As such, the federal government should make the same types of investments in Ontario's Far North as it made to help foster the development of the oil sands in Alberta.

Creating Awareness and Tracking Progress

Challenges

Few businesses in Ontario appreciate the economic potential of the Ring of Fire. Our survey results show that only 12 percent of businesses in Southern Ontario believe they stand to benefit, even indirectly, from the development of the Ring of Fire (OCC, 2013). Experts that we consulted believe these results underscore a fundamental lack of awareness of the Ring of Fire's potential indirect benefits.

Furthermore, individuals consulted for this project are frustrated by the lack of progress. Throughout our consultations, the lack of awareness has been cited as a crucial variable slowing the development of the Ring of Fire. Without greater public awareness and increased pressure on government, progress is likely to remain elusive.

Government, business, advocacy groups, and all interested parties have a shared responsibility to bring greater awareness to the Ring of Fire and its potential impacts on Ontario.

Progress

This paper is an important first step in raising awareness. Other organizations, including the Ontario Mining Association, PDAC, and the Ontario Economic Summit, have also taken steps to highlight the importance of the Ring of Fire to a broad range of stakeholders.

Necessary Next Steps

12. Interested parties should pool their awareness efforts and undertake a coordinated campaign aimed at educating the broader public about the Ring of Fire and the far-reaching economic opportunities it offers.

Many businesses and organizations are working to bring greater awareness to the potential of the Ring of Fire. However, they often work in isolation. A more coordinated effort is likelier to generate greater results. The OCC is offering to lead a joint effort aimed at guiding the Ring of Fire into the public imagination.

13. A third party should track progress on the Ring of Fire, issuing an annual report against necessary next steps.

What gets measured gets done. The OCC commits to this role, and will release a 'Progress Report' in early 2015 that tracks progress against the action plan outlined in this paper.

CONCLUSION

Ontario is at an economic crossroads. The decisions and actions we take today will resonate for a century. The Ring of Fire represents a generation-defining opportunity. Government, Aboriginal communities, business and others need to collaborate to ensure that we leverage this opportunity for the greater good of all Ontarians.

There are many obstacles. Transportation networks need to be planned and built. Agreements with First Nations need to be reached and implemented. Both orders of government need to invest. Further, Ontarians need a clear understanding of the potential the development brings. All of these obstacles are surmountable.

The OCC is committed to playing its part in pushing forward the development of the Ring of Fire. We have identified next steps. And, we will report progress against them. We will also take every opportunity to trumpet the potential of this mining development. We hope that you will join us. By working together, we can make sure that this opportunity does not pass us by.

APPENDIX 1: THE MAJOR PLAYERS IN THE RING OF FIRE

Government Players

Ontario

At the provincial level, the development of the Ring of Fire falls under the jurisdiction of the Ministry of Northern Development and Mines. The Ministry has created a designated Ring of Fire Secretariat, which seeks “to encourage sustainable and responsible development in the region” (MNDM, 2013).

The mandate of the Ring of Fire Secretariat is to work and consult with Aboriginal peoples, northern Ontarians and the mining industry to encourage responsible and sustainable economic development in the region. The Secretariat has offices in Toronto, Sudbury, and Thunder Bay.

In 2013, Premier Wynne, Minister Gravelle and Minister Zimmer met with the Chiefs of the Matawa Tribal Council to learn about their proposed regional negotiation process for the Ring of Fire. In response to that proposal, Ontario appointed former Supreme Court of Canada Justice Frank Iacobucci to work with the Matawa negotiator, Bob Rae.

Since summer of 2013 Mr. Iacobucci has engaged in discussions on community-based regional considerations with the Chiefs of the Matawa Tribal Council and their lead negotiator, Bob Rae.

In November of 2013, the Government of Ontario announced the creation of a Development Corporation for Ring of Fire infrastructure. The corporation would develop, construct, finance, operate and maintain infrastructure that supports access to the Ring of Fire. The province plans to work with partners, including the federal government, on the development corporation to determine its scope and a suitable governance model.

The creation of the Development Corporation is widely regarded as a step in the right direction by the key players in the Ring of Fire. Cliffs Natural Resources notes that despite the indefinite suspension of their operations in Northern Ontario, they are supportive of the Development Corporation creation and intend to participate in future discussions on its structure (Cliffs Natural Resources, 2013).

Canada

At the federal level, the government has dedicated the Federal Economic Development Agency for Northern Ontario (FedNor) as the lead organization dedicated to economic development in Northern Ontario. Encouragingly, since 2006 FedNor has approved more than \$263 million for 1,322 projects in support of these priorities (FedNor, 2013).

The federal government has taken what they refer to as a ‘whole of government’ approach to the Ring of Fire, and have established a Federal Steering Committee to lead all Ring of Fire initiatives. Roughly 15 ministries and agencies form part of the Steering Committee, which principally looks at five key areas: labour market needs, business opportunities for First Nations, community health and wellbeing, infrastructure, and environmental considerations.

Private Sector Players

There are over 12,000 claim units staked (MNDM, 2013) in the Ring of Fire, for a total of approximately 192,500 total hectares of staked land. As of 2013, spending on exploration to date exceeds \$278 million (MNDM, 2013). Some of the major private sector players involved in the Ring of Fire are listed below.

Noront Resources

Noront Resources is an active prospector in the Ring of Fire, with claims on more than 1,100 km², or 30 percent of the region. Noront has claims over the Blackbird Deposit, a high-grade chromite deposit, and the Thunderbird Occurrence, a vanadium, titanium, and iron-mineralized deposit. Noront is still in active exploration at the site of their Eagle Two project, where they have found copper, nickel, platinum, and palladium.

However, the deposit with the highest potential is Noront's Eagle's Nest Project. Eagle's Nest contains a high-grade nickel, copper, palladium, platinum and gold deposit, combining for an estimated 11 million tonnes of mineral reserves. The expected life of the Eagle Nest mining project is 11 years, with the potential for an additional 9 years of production (Noront Resources, 2013).

On November 20, 2013, in light of Cliffs Natural Resources' decision to halt operations in Ontario, Noront released a statement reaffirming their plans for development of its Eagle's Nest project.

Cliffs Natural Resources

Cliffs Natural Resources is an iron ore and coal mining company. In November 2013, Cliffs announced that they are indefinitely suspending their project in the Ring of Fire. The company cited concerns over uncertain timelines and risks associated with the development of necessary infrastructure to bring this project online.

Cliffs had proposed a \$3.5 billion chromite mining project, consisting of an open pit mine that was expected to produce 3.7 million tonnes of crude ore per year, with a lifetime of 30 years (Cliffs Natural Resources, 2013). Cliffs had also planned to construct a processing facility, an integrated transportation system including a permanent all-season road,

and a ferrochrome facility located in Capreol (just north of Sudbury), to produce 560,000 tonnes of ferrochrome per year (Cliffs Natural Resources, 2013).

Cliffs owns a 100 percent interest in each of the Black Thor and Black Label chromite deposits and a 70 percent interest in the Big Daddy chromite deposit. The total mineral reserves for those three projects is estimated at 145 million tonnes, with Black Thor alone holding 112 million tonnes of chromite (Cliffs Natural Resources Annual Report, 2012). According to Cliffs, their Black Thor deposit is 'potentially world class' (Cliffs Natural Resources, 2013).

KWG Resources

KWG Resources is an "exploration stage company that is participating in the discovery, delineation, and development of chromite deposits in the James Bay Lowlands" (KWG Resources, 2013). KWG has two significant claims in the region. It owns approximately 30 percent of the Big Daddy chromite deposit, or roughly 29-30 million tonnes of chromite (Cliffs Natural Resources Annual Report, 2012, KWG Resources, 2013). KWG has claims staked for a potential 340 km north-south rail line between Nakina and the Ring of Fire (KWG Resources, 2013).

KWG is also exploring the Black Horse chromite discovery made in 2010. Black Horse contains nearly 44 million tonnes of chromite. KWG has an option on an 80 percent joint venture interest in Black Horse, and any new chromite discoveries made on these claims (KWG Resources, 2013).

Macdonald Mines

MacDonald Mines, based in Ontario, is a mineral exploration company with seven exploration properties in the Ring of Fire. Commodities that the company is targeting include copper, zinc, VMS, nickel, chromite and vanadium. The company has exploration experience in the James Bay Lowlands and had positive results from their spring drilling program on their Butler project. The company has indicated their work continues and that further drilling is planned.

Bold Ventures

Bold Ventures is a mineral exploration company in Ontario focused on the acquisition and development of highly prospective projects within Canada. The company's main emphasis is on chromite and nickel-copper-platinum elements on their Koper Lake Black Horse discovery in the Ring of Fire (chromite deposit, joint venture with KWG Resources). The company has other properties located in and around the Ring of Fire and James Bay Lowlands area.

First Nations Communities in the Far North

The Far North of Ontario is home to the largest population of Aboriginal peoples in the province. The Nishnawbe Aski Nation is a political territorial organization that represents 49 First Nation communities, encompassing James Bay Treaty No. 9 and Ontario's portion of Treaty No. 5 (Nishnawbe Aski Nation, 2013). The communities are grouped by Tribal Council according to region.

The Matawa Chiefs Council has been heavily involved in the development of the Ring of Fire to date. The Council is composed of the Chiefs of several First Nations located in Nishnawbe Aski Nation that will be closely affected by development in the region: Aroland First Nations, Constance Lake First Nations, Eabametoong First Nation, Ginoogaming First Nation, Marten Falls First Nation, Neskantaga First Nation, Nibinamik First Nation, Long Lake #58 First Nation, and Webequie First Nation.

Members of the Council have stated that they are not against development, as long as they are involved in the process. According to Neskantaga First Nation Chief Peter Moonias, "First Nation rights and inherent responsibilities to the land demand that we are full partners in discussions about exploration, ownership, participation in production and long-term sustainability of our environment, our communities and our futures" (Bell, 2013).

In 2013, the Council appointed Bob Rae, former leader of the federal Liberal Party, to be the First Nations' negotiator during regional strategy negotiations with the Province of Ontario. Former Supreme Court Justice Frank Iacobucci has been appointed as the Province's chief negotiator. Mr. Rae has stated publicly that the Ring of Fire negotiations are progressing well, and that the negotiations presented a chance to "do development differently" (CBC, 2013).

APPENDIX 2: RING OF FIRE ADVISORY TASKFORCE AND PERSONS CONSULTED

The OCC owes a debt of gratitude to the members of its Ring of Fire Expert Advisory Taskforce for helping guide the research process, reviewing drafts, and providing constructive criticism along the way. This paper would not have been possible without their feedback.

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- Chris Hodgson, Ontario Mining Association
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- Charla Robinson, Thunder Bay Chamber of Commerce
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- Nick Stewart, Timmins Chamber of Commerce
- Ian McCormack, Tetra Tech WEI

The following persons were among the over 150 consulted during the preparation of this report. The OCC thanks them for sharing their time and expertise with us. Please note that the individuals listed here do not necessarily endorse the contents of this report.

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