GLOBAL BUSINESS REPORTS

INDUSTRY EXPLORATIONS

ONTARIO MINING

2015

Economy | Gold | Ring of Fire | Base Minerals | Finance | Services | Equipment


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Dear Readers,

With 42 active mine sites generating over 200,000 jobs and $800 million annually for the province's coffers, Ontario is Canada's largest producer of commodities. The province's mineral production is now valued at $9.2 billion with more than $4 billion invested in exploration, R&D, equipment and construction.

Despite volatility in prices of the province's two main exports – gold and nickel – a number of new mines are set to open in the coming years, in addition to Vale's fully automated Totten mine that opened in February 2014. We have also witnessed a shift in the merger market in Ontario, where a number of major acquisitions have occurred in the gold sector since 2012, reinforcing the attractiveness of the province's assets.

Nonetheless, social acceptability and constrained access to high-potential sites remain hurdles for Ontario to overcome. In this context, the modernization of the Mining Act, as well as the further implementation of Northern Ontario's Growth Plan agenda, will play a crucial role in advancing the Ring of Fire, which represents a potential $25 billion for the province.

As the alpha of the world's mining sector, Ontario will set the pace for the mining industry in 2015. Through its unique and long-standing experience in financing, exploration, innovation, production and safety, both Toronto and Northern Ontario will help develop projects and optimize mining processes across the world.

Throughout our Industry Explorations, we will explore these issues in more detail by presenting you viewpoints of those on the ground, the movers and shakers of the industry with whom we met one-on-one in Toronto, Sudbury and Timmins. This book is the culmination of months of preparation, research and interviews with the sector's top executives and policymakers, who generously donated their time and insights. Such a report would not be possible without their input, and we sincerely thank them for their support.

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Global Business Reports

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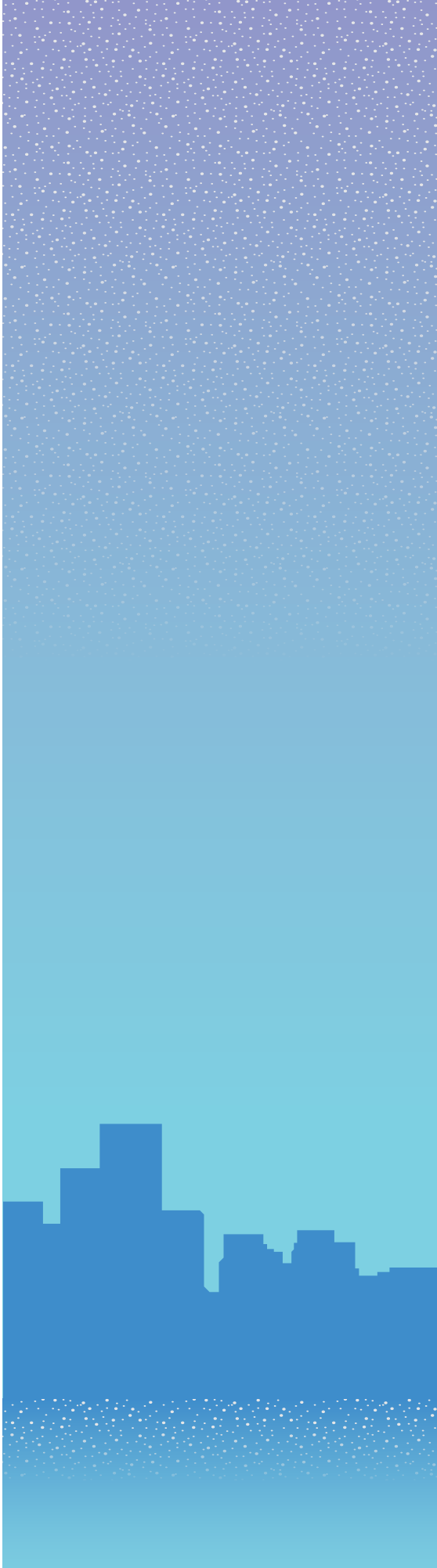


Exclusive Interviews

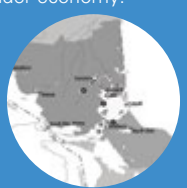
Leading figures in Ontario's mining industry from the governmental, non-government and private sector discuss their business and organizational strategies as well as the wider trends in the industry.

Editorial Analysis

There is no substitute for talking in person. Global Business Reports' on-the-ground journalists spend months surveying the industry and speaking to its leaders, gathering a deep and objective view of Ontario's mining sector.

Maps and Quantitative Data

Maps and quantitative data highlight and clarify the key trends and underlying economics of both the Ontario mining industry as well as the wider economy.



Expert Opinion

Company leaders write in-depth thought pieces on specific topics in the industry, ranging from new reporting standards to improve transparency to the obstacles to increasing infrastructure investment.

Final Thoughts

When the global mining industry rebounds, Ontario will be at the fore. Company executives provide additional color about the trends and new ideas that will shape the future of mining in Ontario.

A World Class Jurdisction: Ontario and its Mining Industry

"Corporate social responsibility, community involvement, and transparency will grow as areas of importance going forward. No mining company can afford to ignore any of those obligations and it is important to Canada to be seen as being responsible in that area."

- Dawn P Whittaker, Partner, Norton Rose Fulbright

Image: SRK Consulting

Introducing Ontario

A Brief Political and Economic Overview

ONTARIO AT A GLANCE

Source: Statistics Canada, BC Stats, Ontario Ministry of Finance

Population: 13,678,1700 (2014)
Capital: Toronto
Chief of State: Premier, Kathleen Wynne, Ontario Liberal Party
GDP, Expenditure-Based: $695.705 billion (2013)
GDP per Capita: $34,957 (2013)
Economic Sector Breakdown: Services 77.5%, Goods 22.5%
Exports to Other Countries: $ 353.289 billion (2013): motor vehicles & parts, precious metals & stones, mechanical equipment, electrical machinery, plastic products
Imports: $ 350,095 billion (2013): motor vehicles & parts, mechanical equipment, electrical machinery, precious metals & stones, plastic products

The Province of Ontario can rightly be called the heart of Canada and is home to the country's political and financial capitals in Ottawa and Toronto, respectively. Geography has always been a major reason for Ontario's growth and prosperity. Not only is it Canada's largest province by population but it is also its second largest by total land area, if the more northern and remote Northwest Territories and Nunavut are excluded. Proximity to the American market has generated trade and cross-pollination of technology and industry. The economic motors of neighboring Detroit and Cleveland have stalled relative to their heydays in the twentieth century but remain accessible trade markets. The system of canals through the United States to the Atlantic Ocean has long afforded Ontario routes to world markets. Ontario is renowned for its manufacturing and many of its exports head to the United States and to Detroit's automobile industry. However, Ontario now surpasses Detroit in car production and is strong in producing steel, iron, machinery, and chemicals as a result of the province's abundant natural resources. To the east, the province of Quebec offers another dynamic trading partner, along with the rest of Canada.

Another major advantage for Ontario is Canada's prodigious energy supplies, but the recent decline in oil prices since the summer of 2014 may mitigate it. Politicians initially brushed off concerns about the price decline but have acknowledged that the revenues will be impacted and the budget constrained. Delays in developing the Alberta oil sands add more dark news to the energy picture, but price levels may make delays for the better. Moreover, the U.S. government looks set to pass legislation for the Keystone XL pipeline – the new Republican-controlled Congress has proclaimed that it will be the first act of its majority session – bode will for the Alberta's long-term future. Despite the less than hoped for prospects for hydrocarbons, Ontario is blessed with a wide range of rivers that have afforded it clean, renewable hydroelectric energy. Niagara Falls alone provides a massive amount of hydropower. Finally, Ontario also has the world's largest nuclear power plant, the Bruce Nuclear Generating Station.

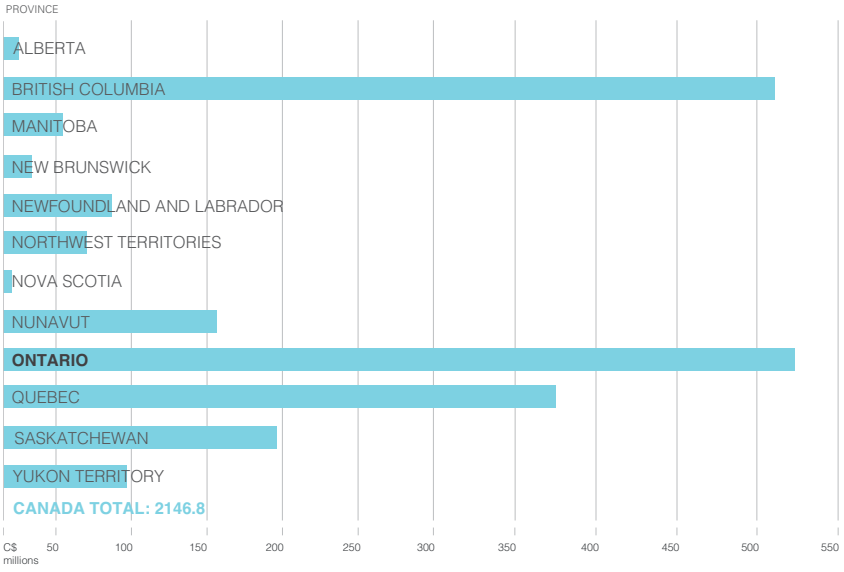
The political landscape in Ontario is varied, much like across Canada, but there are three main parties: the Ontario Liberal Party, the Progressive Conservative Party of Ontario, and the social-democratic Ontario New Democratic Party (NDP). The Liberal Party has been in power since 2003 and was reelected in both 2007 and 2011, but its margin has been slipping. In the 2011 general election, in which it won 53 seats, gave it a minority mandate, as the Progressive Conservative Party won 37 and the NDP 17. In the 2011 federal election, however, the Conservative Party of Canada won 73 ridings, the NDP 22, and the Liberals 11 in Ontario. The Liberal Party of Ontario shifted leadership in 2013 from Dalton McGuinty, which had led the party since 2003, to Kathleen Wynne in 2013 in a bid to rejuvenate the party's prospects.

Infrastructure is at the top of the agenda for the mining industry. Ontario is home to world-class mineral production that can help power the

world economy and technological innovations for decades to come, but due to a lack of investment in roads, mines remain remote and investors unwilling to take the plunge. On the other hand, investments in infrastructure are difficult for the government to justify without bankable projects already in place. Lobbying by the provincial government to his federal counterpart for investment will eventually yield results, but the question is how long will it wait. In the meantime, the mining industry continues to find value through greater efficiency and technology. This report outlines how miners as well as service and supply companies are using innovation, technology, and data in Ontario and in jurisdictions across the globe. The global mining industry may be in a lull, but when it turns around, Ontario will surely lead its resurgence. •

VALUE OF CANADA'S MINERAL EXPLORATION BY PROVINCE, 2014

Source: Natural Resources Canada



The Honorable Michael Gravelle

Minister
MINISTRY OF NORTHERN DEVELOPMENT AND MINES, ONTARIO

You previously held the position of Minister of Northern Development and Mines between 2007 and 2011, when crucial changes were introduced to the Mining Code. What was the impetus behind these changes?

When I was in the office between 2007 and 2011, one of the key priorities was to modernize the Mining Act to reflect current conditions in the industry. The Mining Act was written a hundred years ago and had never been significantly updated. It was essential to strike the right balance between protecting Ontario's attractive investment image and strengthening ties with the First Nations. Also, we were concerned about developing the economy, securing jobs and ensuring continuous investments. Investment into Ontario's mining sector continues to be strong. Even though it has dropped since the peak figure of $1 billion in 2012, there is still a significant amount of money spent on exploration.

Are you pleased by the federal budget's extended the mineral exploration tax credit for another year?

The economic climate is much more challenging for juniors now, and it was a priority for the Ministry to extend the 15% federal tax credit. The extension of the credit is positive but it should be made permanent. As with any industry, security and clarity of policy are two critical factors in making investment decisions.

Now that Cliffs Natural Resources has suspended its operations in the Ring of Fire (ROF), how do you foresee the region developing?

We were disappointed about Cliffs suspending its operations, but the company is still interested in the region and willing to work in conjunction with the ROF Development Corporation. While the decision from Cliffs has certainly affected the image around the ROF, we should not ignore other companies which have good deposits in the region, such as Noront and KWG. The ROF is a crucial region with serious infrastructure issues that need to be solved in cooperation with both levels of government and industry.

What is the concept behind the ROF Development Cooperation?

The formation of the Development Cooperation brings together partners who are interested and capable of improving infrastructure and financing for the ROF. The Ministry recently appointed Deloitte to act as a third party resource for key stakeholders including the government, First Nations groups, and industry. The Development Corporation is going to be the key in helping Ontario to make the ROF more accessible, and we are stressing the importance of the inclusion of First Nations in this cooperation. Securing financing is crucial: we are estimating it will involve between $2 to $3 billion to put appropriate infrastructure in place.

The federal government has stated that the ROF is a provincial matter, yet Ontario has stated that both levels of government need to be involved. How can Ontario overcome this impasse?

The new federal budget did not include anything on the ROF, which was certainly disappointing. The federal government frequently talks about the enormous economic potential of the ROF and yet there is no willingness to put their own resources into it. The province on the other hand is fully committed to move forward with the project, and we recently announced that we would invest $1 billion to fund infrastructure development in the region. However, it is clear that the federal government will still need to participate in this project. The ROF bears not just provincial but also federal importance, as it will help First Nations to improve the economic and social conditions in their communities.

What is the significance behind the appointment of Bob Rae and Frank Iacobucci to lead negotiations on behalf of the provincial government and the Matawa First Nations?

The Ministry of Northern Development and Mines is very encouraged by the way that discussions between First Nations and the province are unfolding. At PDAC 2013, Premier Kathleen Wynne, Minister of Aboriginal Affairs, David Zimmer, and myself met with the nine Matawa First Nation chiefs to discuss the ROF, which was a significant step forward in the engagement process. The interests of the province and the First Nations are quite similar in that we want to see appropriate benefits for First Nations communities and preserve the environment as development occurs. We were lucky enough to bring the former justice of the Supreme Court of Canada, Frank Iacobucci, on board as well, who has significant experience related to First Nations.

How important is it for Ontario to foster and support a healthy mining industry?

The mining industry is very significant to Ontario's economy. There are 42 operating mines, and more people employed in the sector than ten years ago. The mining service and supply sector is worth nearly $6 billion and employs 50,000 people. Moreover, Ontario continues to have the highest level of exploration expenditure in Canada: nearly 25% of Canadian exploration is done in Ontario. Regardless of the commodity price index, the industry will pick up again in the future. •

Forging a New Path

An Introduction to Mining in Ontario

There is no other mining jurisdiction in the world that is home to the level of mining expertise that is found in Ontario. That might seem like a grandiose statement, but there are numbers to support it: the province's mineral production is valued at $9.2 billion, with more than $4 billion annually invested in R&D, exploration, construction and equipment. The Toronto Stock Exchange is the pre-eminent center for global mining finance, accounting for the majority of the world's mine financing.

Hundreds of juniors exploring the globe for metals and minerals call Toronto home, and Ontario alone accommodates more than 1,000 mining supply and services companies. "It is important to understand the significance of the mining industry to Ontario's economy," said Hon. Michael Gravelle, Minister of Northern Development and Mines of Ontario. "There are 42 operating mines right now, and more people employed in the mining sector than there were 10 years ago. The mining supply and service sector employs 50,000 people. Nearly 25% of all exploration in Canada is done in Ontario."

Nevertheless, since 2012, exploration in the province has suffered. Ontario's two largest mineral exports – gold and nickel – endured some of the most volatile commodity prices in recent memory. The mineral-rich Ring of Fire was also dealt a substantial blow as major companies shelved projects because of a frustrating lack of infrastructure commitments from industry or government. On the other hand, a number of new mines set to open in the next two years, not including Vale's fully automated Totten nickel mine that opened in February 2014, will help to bolster faith in Ontario's mining potential.

The security that mining companies thought that they enjoyed with Ontario's regulatory framework was seriously questioned in 2012, when the Ministry of Northern Development and Mines introduced a number of changes to Ontario's Mining Act. The new scheme requires companies to file a plan with the government of Ontario prior to undertaking exploration work, as well as to consult with any potentially affected aboriginal communities in the area. While the changes sought to provide clarity with regards to a company's duty to consult, they have had the unintended effect of slowing the permitting process at a time when exploration expenditure in the province has dropped significantly.

According to Denis Frawley, a partner at Toronto-based law firm Ormston List Frawley LLP, some of his clients were frustrated with the lack of clarity with regards to the consultation process. "There was noticeable concern that the government did not have processes and staff in place to swiftly deal with consultation-related filings. But companies are adjusting to the new system, and First Nations are becoming more proactive," he said.

Others are less fortunate. Northern Superior Resources Inc., a Sudbury-based company, filed a $110-million lawsuit against the Ontario government after its talks with the Sachigo Lake First Nations communities broke down. Northern Superior claims that the Ontario government failed to meet its own duty to consult by not intervening in their discussions.

The longer-term effect of the modernized Mining Act will take time to manifest. "We do think that the changes related to consultations with First Nations are beneficial because they encourage and require those active in mineral resource exploration and extraction to initiate dialogue with communities that are directly affected by mining and mineral resource exploration from the onset of a project," said Frawley. "Hopefully, it will lead to more cooperation," he added.

Developing mining jurisdictions around the world look to Canada as a model of sustainable development, but even a province with as rich a mining history as Ontario it has its fair share of environmental and social challenges when it comes to mining. The Ring of Fire is a classic example of how development in a mineral-rich region can be hampered when it comes to obtaining the social license to operate.

The two biggest challenges to developing mines in northern Ontario are its remoteness and engaging with aboriginal groups. "Remoteness brings challenges in how you move forward and design the project as well as access; for example, more helicopter work, which requires different procedures and planning," said David Brown, principal and environmental geochemist at environmental consulting company Golder Associates. "The remoteness and the number of communities in the Ring of Fire have made engagement more complicated."

Companies that are able to engage with First Nations groups early on are the ones that have a high probability of success. The Morris Group of Companies, a Sudbury-based diversified services company, set up the Niska Career Academy in 2010, which was the first major aboriginal training college in Cochrane, Ontario. The college has achieved an 80% job placement rate. "We are doing our best to get the First Nations involved

in projects and to have them trained so that they are qualified for higher skilled jobs in the mining industry. Partnerships with First Nations include setting up joint ventures where they have decision making power, where they can deploy their members and exercise revenue sharing structures," said David Morris, the company's founder.

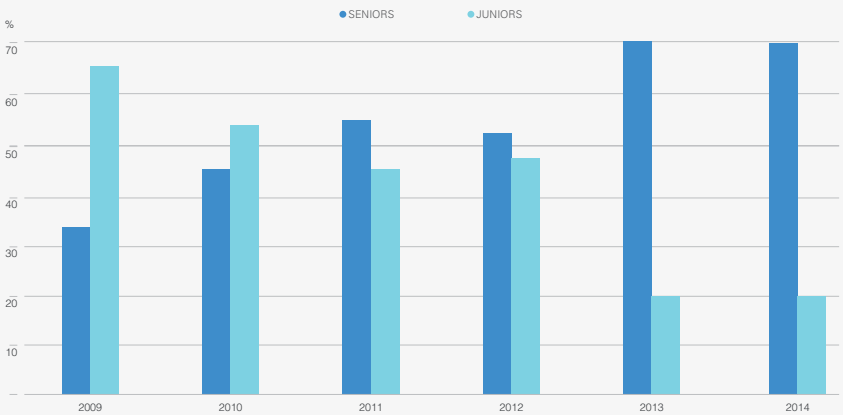
In Ontario, aboriginal employment accounted for 9.7% of total mining jobs in 2011. Mining is also the largest private sector employer of aboriginal peoples in Canada.

By mid-2014, the mining industry in Ontario seems to have collectively weathered the storm. Those who survived 2013 relatively intact seem determined to learn from the mistakes of their industry's past. Growth above all is no longer the operating mantra, replaced instead by a promise to make efficient use of shareholder funds. "There was certainly a rush into the junior sector when the commodity boom happened, as the returns were high and the sector was very vibrant," said Lee Hodgkinson, Natural Industry Leader at KPMG. "One could argue that too many companies were created without enough quality assets. There now needs to be some significant consolidation and reallocation of capital. There has been a paradigm shift at the top of the market. The overarching message now is value over volume and disciplined capital allocation. The companies have learned their lessons, but the way the market itself reacts is what will drive executive decisions," he said.

Ontario is forging its own path in the mining industry. Having grown through many different cycles, its industry stakeholders understand that the key to survival is to innovate and think differently. •

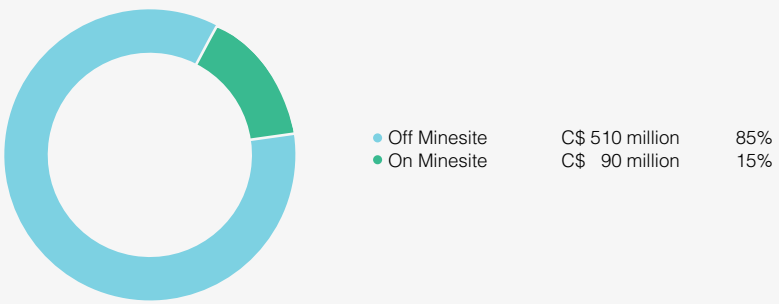
EXPLORATION AND DEPOSIT APPRAISAL EXPENDITURES IN ONTARIO, BY JUNIOR AND SENIOR COMPANIES, 2009-2014

Source: Natural Resources Canada



ONTARIO EXPLORATION SPENDING BY LOCATION, 2013

Source: Natural Resources Canada, MNDM



GOLD MINES

	NAME	COMPANY
1	Bell Creek Mine	Lake Shore Gold Corp.
2	Black Fox Mine	Brigus Gold Corp.
3	Detour Lake Gold Mine	Detour Gold Corp.
4	Dome Mine	Goldcorp Inc. - Porcupine Gold Mines
5	Eagle River Mine	Wesdome Gold Mines Ltd.
6	Hemlo Mine	Barrick Gold Corp.
7	Hislop Mine	St Andrew Goldfields Ltd.
8	Holloway - Holt Mine	St Andrew Goldfields Ltd.
9	Hoyle Pond Mine	Goldcorp Inc. – Porcupine Gold Mines
10	Island Gold Mine	Richmont Mines Inc.
11	Macassa Mine	Kirkland Lake Gold Inc.
12	Mishi Gold Mine	Wesdome Gold Mines Ltd.
13	Musselwhite Mine	Goldcorp Inc.
14	Red Lake Gold Mines	Goldcorp Inc.
15	Timmins West Mine	Lake Shore Gold Corp.
16	Young – Davidson Mine	AuRico Gold Inc.

BASE METAL MINES

17	Kidd Creek Mine	Glencore Xstrata Plc
18	Lockerby Mine	First Nickel Inc.
19	Sudbury Operations: Levack Mine McCreedy West Mine	KGHM International Ltd.
20	Sudbury Operations: Copper Cliff North Mine Creighton Mine Ellen Mine Garson Mine McCreedy East / Coleman Mine Stobie Mine Totten Mine	Vale S.A.
21	Sudbury Operations: Nickel Rim South Mine Fraser Mine	Glencore Xstrata Plc

IRON MINE

22	Tomclid Iron Mine	Ferromin Inc.

PLATINUM GROUP METAL MINE

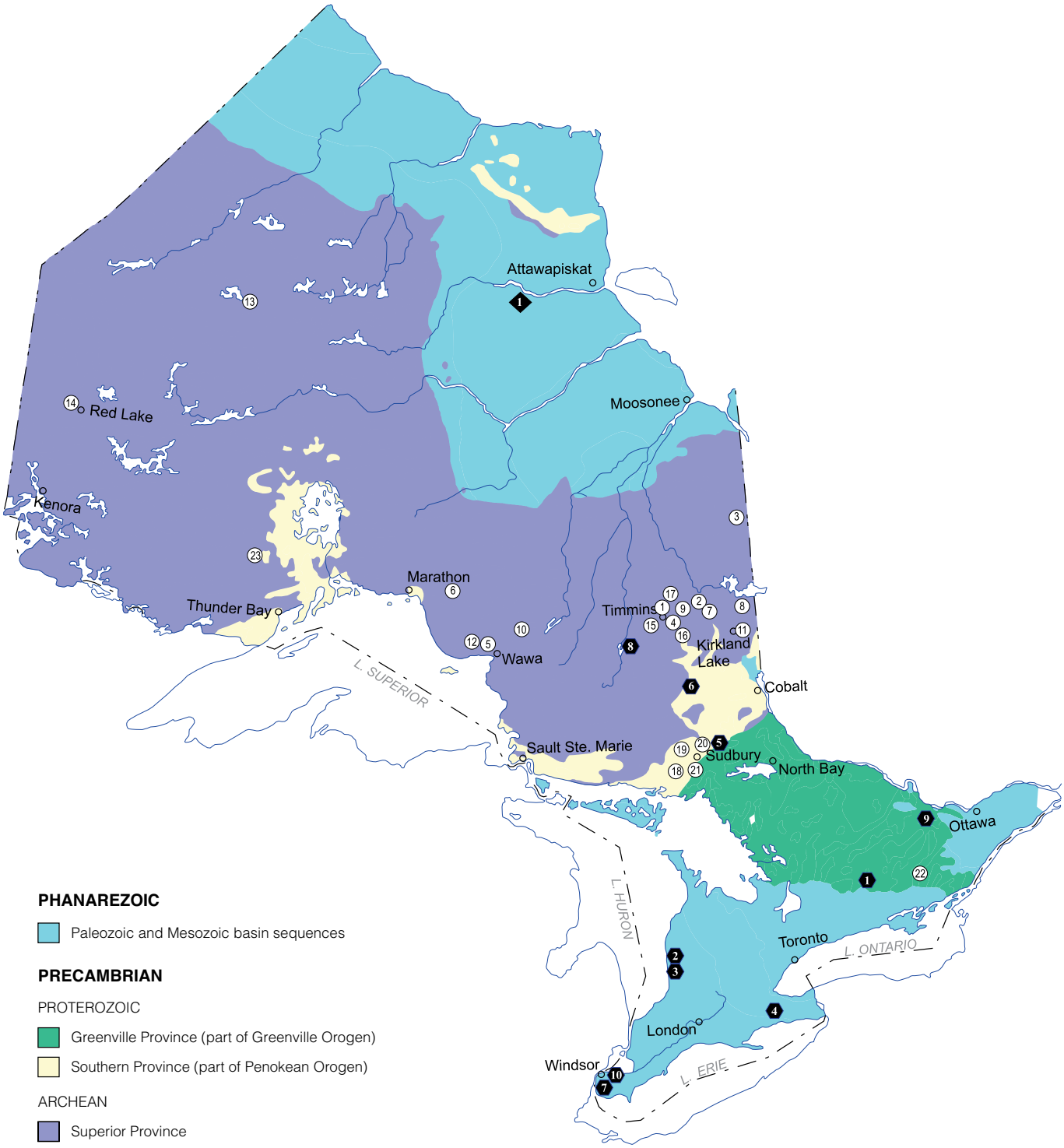
23	Lac des Iles Mine	North American Palladium Ltd.

DIAMOND MINE

1	Victor Diamond Mine	De Beers Canada Inc.

MAJOR INDUSTRIAL MINERAL OPERATIONS

1	Blue Mountain Operations (nepheline syenite)	Unimin Canada Ltd.
2	Goderich Brine Field (salt)	Sifto Canada Inc.
3	Goderich Mine (salt)	Sifto Canada Inc.
4	Hagersville Mine (gypsum)	CGC Inc.
5	Mohawk Garnet Mine (garnet abrasive)	Mohawk Garnet Inc.
6	North Williams Mine (barite)	Extender Minerals of Canada Ltd.
7	Ojibway Mine (salt)	The Canadian Salt Company Ltd.
8	Penhorwood Mine (talc)	Imerys Talc
9	Tatlock Quarry (calcium carbonate)	OMYA Canada Inc.
10	Windsor Brine Field (salt)	The Canadian Salt Company Ltd.


Attawapiskat
Moosonee
Red Lake
Kenora
Thunder Bay
Marathon
Wawa
Timmins
Kirkland Lake
Cobalt
Sault Ste. Marie
Sudbury
North Bay
Ottawa
Toronto
London
Windsor
L. SUPERIOR
L. HURON
L. ONTARIO
L. ERIE
PHANAREZOIC
Paleozoic and Mesozoic basin sequences
PRECAMBRIAN
PROTEROZOIC
Greenville Province (part of Greenville Orogen)
Southern Province (part of Penokean Orogen)
ARCHEAN
Superior Province
MINE LOCATIONS
Metal Mines
Industrial Mines/Quarries
Diamond Mine

Chris Hodgson

President
ONTARIO MINING ASSOCIATION

What are the key priorities on the Ontario Mining Association's agenda for 2014?

The Ontario Mining Association (OMA) is one of the longest-standing trade associations and its mandate has not changed significantly since its establishment. Our objective is to keep mining competitive in Ontario so that our members can be sustainable. This is evident by the key policy items that we are currently pursuing, which include ensuring that energy rates are competitive and maintaining a stable provincial regulatory system.

What are some of the highlights of Ontario's mining sector on a provincial and global level?

On a provincial level, mining is a major contributor to Ontario's economic health. Last year the sector as a whole contributed $9.2 billion to the province's economy; this has dropped by 20% since 2012, but considering the downturn in the global mining industry, this is not a significant decrease. Globally, Ontario's expertise is in hard rock, underground mining.

In terms of challenges, what are some of the frustrations you are hearing from your members?

We have no control over the commodity prices; one issue is naturally the cost of production. Labor and energy rates are particular areas of concern for our members. The latter in particular is an area that requires our attention in conjunction with the government to ensure a competitive energy price. One thing we are trying to achieve is making sure programs like the Northern Industrial Electricity Rate program applies to all mining companies in Ontario. We aim for predictability in the long-term price of energy. Ontario is currently the most expensive jurisdiction in North America.

Looking at the Ring of Fire development, whose responsibility do you think it is for supervising as well as financing this infrastructure?

The only way that the Ring of Fire can move forward is to have the provincial governments lead the development. Put simply, the Ring of Fire needs to happen: the sheer amount of benefits to the province is staggering, from economic growth to developing strong First Nations communities in the north.

What is the Ontario Mining Association's relationship to First Nations in the province?

Mining has helped to build Ontario and OMA members take a proactive and partnership approach with their local communities. First Nation community relationships come in many forms: Benefit Agreements, local purchasing arrangements, infrastructure investments and hiring - almost 9% of the mining industry's workforce is aboriginal, more than any other sector.

What are some of the goals and achievements of programs such as So You Think You Know Mining?

The most important factor in programs like So You Think You Know Mining is to enable and engage with the opinion makers and workforce of tomorrow. We want to correct the outdated image some people have of mining and encourage students and teachers to learn about the industry as it is today. The So You Think You Know Mining initiative involves students telling the story of the benefits of mining as they see it in a 3-minute video. Another initiative is our mining tours, an increasingly popular one-week course in mining for dedicated teachers.

What would you like our readers to take from our interview?

Every jurisdiction may face challenges, but Ontario is blessed with good geology and good people, a combination that makes the future look bright. With a clear focus on the future, Ontario's dynamic mining industry is continually evolving to meet society's changing needs and expectations. •

Transparency in Canada's Extractive Sector: A Changing Landscape

Sarah Powell, Partner, and
Alexandria Pike, Partner,
Davies Ward Phillips & Vineberg LLP

In the face of global pressure for greater corporate transparency, the Government of Canada announced in 2013 that it would establish mandatory reporting standards for Canadian extractive companies (oil and gas and mining sectors) to improve transparency of the payments that they make to governments worldwide. Since that time, Natural Resources Canada ("NRCan") has consulted with various stakeholders and followed closely the transparency reporting initiatives of the European Union (the "EU Framework") and the United States (the "U.S. Framework"). In March 2014, NRCan published a draft mandatory reporting framework (the "Proposed Framework") that would require Canadian extractive companies to publish annual reports of payments of $100,000 and over, on a project-level basis to government, both domestically and abroad. A "project" would be defined as an operational activity performed by an extractive company. The scope of a project would be based on the business context and might consider licences or leases related to the operational activity.

Under the Proposed Framework, publicly-listed companies and medium and large private extractive companies would be required to report. A private company is considered "medium and large" if it meets or exceeds two of the following thresholds: (i) C$20 million in assets; (ii) C$40 million in net turnover; and (iii) 250 employees. Any domestic or foreign company headquartered or operating in Canada would be required to report if they have a controlling interest in any project in Canada or abroad. The Proposed Framework would adopt the definition of "control", "joint venture" and "joint operation" used in the International Financial Reporting Standards. The inclusion of private companies in the Proposed Framework is consistent with the approach taken in the EU Framework. The U.S. Framework, which is being implemented through the United States Securities Exchange Commission, will apply only to publicly-listed companies.

The Proposed Framework requires reporting of payments made by extractive companies to all levels of government, domestically and abroad. Consistent with the EU and U.S. frameworks, categories of reportable payments would include taxes, royalties, fees, production entitlements, bonuses, dividends and infrastructure payments. Penalties and fines as well as social payments for community centres, schools and training would not need to be reported. However, payments made to Canadian Aboriginal entities, and indigenous entities internationally, would need to be disclosed, including payments made under Aboriginal Impact Benefit Agreements ("IBAs").

The reporting will raise a number of issues. First and foremost, a new role is being proposed for provincial securities regulators as overseers of the reporting system, and it is not clear how requirements would be enforced against private companies. If provincial regulators accept the mandate, it may mean significant changes to securities regulation. While private companies must report under the EU Framework, it is the decision of each EU member state as to how they implement it, and rules are not yet in place to outline the mechanism for oversight. The U.S. Framework requires disclosure by only publicly-listed companies. While the public company requirement would likely cover most major mining companies in Canada, it may be necessary to include private companies to capture the majority of oil and gas companies and ensure fairness across sectors.

Second, the Proposed Framework deviates from both the EU and U.S. frameworks by expressly requiring Canadian extractive companies to disclose payments to Canadian Aboriginal entities (including payments under IBAs) and foreign indigenous entities. This requirement raises significant and complex issues. For instance, there is no universally accepted definition of "indigenous". As well, most IBAs contain confidentiality clauses that would prohibit disclosure of payment terms. It may also be difficult to distinguish payments to Canadian Aboriginal entities that are "social payments" and are, thereby, exempt from the reporting requirements. This aspect may result in prejudice to subject companies operating in jurisdictions other than Canada.

The Proposed Framework does not provide for any exemptions where a host country's laws prohibit disclosure. However, the U.S. Framework was recently vacated by the U.S. District Court for the District of Columbia due in part to the lack of exemptions to allow for compliance with law, and a revised rule has yet to be put in place.

With strong international support, Canada is not alone in establishing a reporting regime for extractive industries. Policies regarding transparency of payments are poised to change the relationship between extractive industries and governments and confer benefits on local communities, lenders and investors. If implemented at an international scale to ensure a level playing field, Canadian mining companies should also benefit from such reporting regimes.

While NRCan is still consulting with various stakeholders to refine the Proposed Framework, it is also encouraging provincial securities regulators to begin constructing equivalent reporting standards. If provincial regulators do not implement the Proposed Framework, federal legislation would be introduced in fall 2014. Given this timing, extractive companies, whether publicly listed in Canada or falling under the category of "large and medium" companies operating or headquartered in Canada, should prepare to report annually under the Proposed Framework.

Davies Ward Phillips & Vineberg LLP is an integrated firm of approximately 240 lawyers with offices in Toronto, Montréal and New York. The firm is focused on business law and is at the heart of the largest and most complex commercial and financial matters on behalf of its clients, regardless of borders. Davies has one of the leading environmental practices in Canada. Our environmental practitioners work closely with the firm's mining group and transaction teams, evaluating and addressing environmental liabilities at the permitting stage of mine development as well as during financings, public offerings, mergers and insolvencies. •

Lee Hodgkinson

Canadian Mining Practice Leader
KPMG

Can you give us a brief introduction to KPMG's presence in Ontario?
KPMG has a significant footprint here in Toronto on the auditing and tax side as well as more recently on the consultancy side of our business, covering approximately 30% of the top mining companies locally with a large focus on gold. We have 12 partners who service a cross-section of mining companies almost exclusively. More recently we have started hiring people with different backgrounds, such as engineers.

Which segment of your business are you seeing more demand for?
Audit and tax are the more mature parts of our business, however looking ahead there is more potential in the advisory space. Recently a few companies have declared bankruptcy and even more are struggling financially. Traditionally this is a sector that is constantly refreshed by new IPOs but this has dried up. Companies feel that they would be undervalued coming out in this climate.

How has KPMG adapted its strategies to suit the needs of the cash-strapped market in Ontario and globally?
We are still strong believers in the industry and see this as an opportunity to build long-term relationships. We are adapting in a number of ways, including hiring new talent that is being freed up from the mining industry. Our main area of experience is analyzing risk models and putting control structures in place to help mitigate those risks. Another big area of focus is capital costs, and whether companies have the right kind of controls in place to help them grow their business when the turnaround occurs.

Do you think the tide is turning in the M&A market? Can we expect to see more creative bids in the future?
There are many undervalued assets out there. This is why we are seeing an increase in private equity, thinking they can get 15-20% returns. Unfortunately the market has punished companies for growth, so they have been focusing on repairing their own balance sheet. If companies can avoid putting their balance sheets under duress and take advantage of an undervalued market, we are likely to see more activity.

Ontario has been a big player in the M&A market, particularly in gold. However, there has not been a lot of foreign investment into the province as there has been in the neighbouring Labrador Trough. Why do you think this is the case?
Ontario is a safe jurisdiction, and people are more confident operating in jurisdictions where they know they can reduce their timeline to get the mine into production. In other jurisdictions, mining companies face a high degree of political risk that can override the actual mineral potential of these regions. Ontario is a very gold-focused province, and gold alone does not appeal to foreign investors. Chromite in the Ring of Fire could potentially change that trend in the future.

Looking at other forms of financing, does KPMG play a part in helping junior to mid-tier mining companies gain access to private equity?
KPMG can play a key part in structuring those transactions. There has been quite the hype about private equity and so much opportunity with undervalued companies that it is surprising that we have not seen more deals. As momentum builds we will likely see a rush of private equity deals in the mining sector.

Estimates put the number of junior companies listed on the TSX-V with less than $200,000 in cash at around 850. With so many junior companies on the verge of bankruptcy, is this part of a larger change in the way that the junior mining market does business?
There was certainly a rush into the junior sector when the commodity boom happened, as the returns were high and the sector was very vibrant. One could argue that too many companies were created without enough quality assets. There now needs to be some significant consolidation and reallocation of capital. There has been a paradigm shift at the top of the market. The overarching message now is value over volume and disciplined capital allocation. The companies have learned their lessons, but the way the market itself reacts is what will drive executive decisions.

Where would you like to see the mining practice of KPMG through the next few years?
KPMG is very excited about Ontario with the recent wave of activity, but we are also looking to strategically place people into Latin America and gain work experience there. Toronto is still the mining finance capital of the world and a great place to do business. •

Geometallurgical Characterisation at XPS Consulting & Testwork Services

Dominic Fragomeni, P.Eng.
Director
XPS Consulting & Testwork Services

Geometallurgical studies define the range of mineralogical characteristics and metallurgical performance that ultimately increases the economic value of an orebody. Testing on this basis allows the geoscientist and metallurgical team to create a robust flowsheet able to treat the full range of variability in an orebody and to develop production strategies to maximize financial performance.

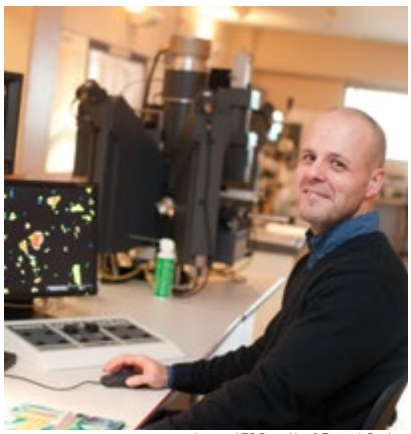
Geometallurgical units can be defined as an ore type or group of ore types that possess a unique set of minerals with textural and compositional properties from which it can be predicted to have similar metallurgical performance. The measurement of these textural and compositional properties can be performed cost effectively with modern tools such as Quantitative Evaluation of Materials by Scanning Electron Microscope (QEMSCAN), Electron Microprobe Analysis (EPMA) and X-ray Diffraction (XRD).

At XPS, geometallurgical programs begin with a review of geological and mineralogical data with project geologists to determine the potential features of interest and their geospatial distribution based upon the existing core logging database and ore model. Such a review, in conjunction with established metallurgical principals, provides the foundation to specifically select core to represent each potential geometallurgical type. Representative sampling is a key to ensuring that results of a geometallurgical study will reflect future performance once production of the orebody is underway. Construction of a non-random sample(s) that contains all features of interest in the correct proportion, including grade and grade distribution, while ensuring spatial representivity, forms the basis from which the testwork program is initiated. When ore is randomly sampled, blended and tested as one composite too early in a project, the variability within an orebody can be muted and create inaccurate estimates of concentrate grade and recovery over the life of mine.

Once the geometallurgical units are established, the samples undergo mineralogical characterization and metallurgical testing using concentration techniques such as lab scale and mini-pilot scale flotation testing and hardness/grindability testing. In addition to testing each unit using a representative composite, a variability program based on smaller samples from throughout a geometallurgical unit is recommended to define the range of performance that can be expected within the unit.

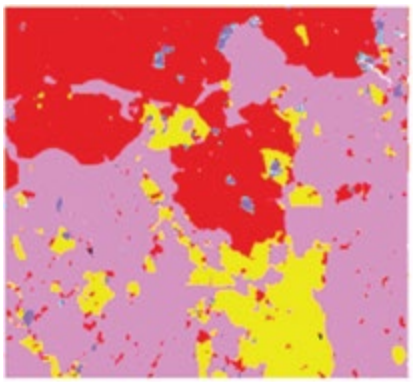
Sampling on the basis of geometallurgical units allow for mine design to be integrated into the economic model to maximize ROI and cash flow early in the project. This approach also provides accounting of variability, and establishes the grade/recovery profile and economics of future ores. It can ultimately lead to decisions on future process changes or blending strategies to maximize value.

For over 15 years, XPS Consulting & Testwork Services based in Sudbury, Ontario has practiced geometallurgical unit definition, measurement with QEMSCAN, EPMA and XRD technologies combined with metallurgical lab and mini-flotation pilot testing in flowsheet development and optimization. Come by the XPS Booth #615 on the tradeshow floor to discuss your project needs in ore characterization and flowsheet development. •



Images: XPS Consulting & Testwork Services

MASSIVE SULPHIDES



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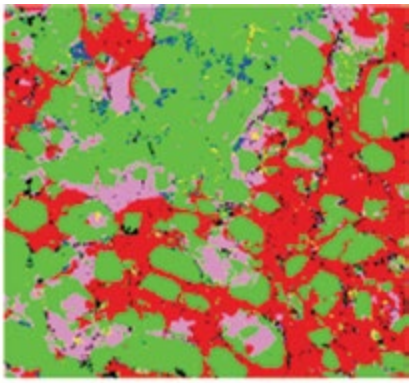

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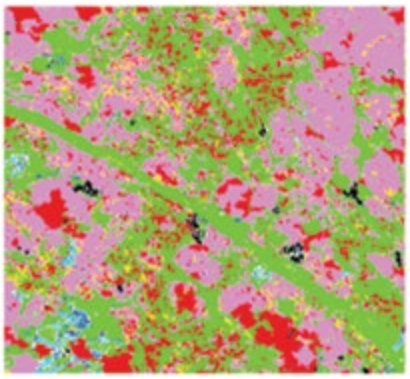

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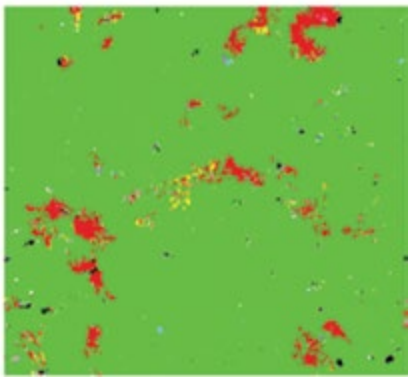


Golden Opportunities: Exploration and Production of Gold in Ontario

"Now we have science to find the location of the fault and the technology to drill through it. We are able to view areas that no one has ever really looked at, and with modern science and geochemistry we can find these. On a broader scale, Ontario has a lot of prospective geology, and old mining camps are being reexamined to uncover deposits greater than what was mined previously. It is a blank slate that provides so much opportunity to companies who want to explore, develop and produce."

- Duncan Middlemiss,
President and CEO,
St Andrews Goldfields Ltd.

Image: Goldcorp Inc.

New Gold Districts Offer Huge Potential

Ontario has been producing gold for over a century, since the first discovery in the Kirkland Lake area in 1903 led to subsequent high-grade deposits found in Timmins and Red Lake. Over the past few years, new areas of gold mineralization have been identified in previously overlooked areas, creating excitement that there is yet more of the precious metal to be found in the province.

The behemoth of Ontario's gold producers is Goldcorp's Red Lake mine in northwestern Ontario, one of the most profitable gold mines in the world. In 2013, the mine produced 493,000 ounces (oz) of over 20 grams per metric ton (g/mt) gold, yielding revenues north of $684 million. Yet industry-wide cost pressures forced Goldcorp to consider new ways to optimize production at the historic site. George Burns, executive vice president and COO of Goldcorp Inc., described the "cell mining" concept that divides the underground mine into different areas, with one team per cell who are responsible for equipment, planning, scheduling and execution. "Last year we increased our development vertically by 50% simply by empowering our workforce to deliver better results," he said.

At current reserve levels, Red Lake is expected to be operating for another 12 years. Goldcorp's future success in Ontario lies in its Cochenour project, which is scheduled to begin production in 2015. Located just 5 kilometers (km) west of Red Lake, Cochenour is forecast to produce between 225,000-250,000 ounces per year (oz/y) of gold. "We will be touching the ore body later in 2014. The shaft is nearly complete and we are currently working on connecting the shaft to the ore body," said Burns.

Image: Harte Gold Corp.

Just a few km north of the Red Lake mine is the Phoenix Gold project, which junior company Rubicon Minerals Corp. is planning to put into production in 2015. The project was initially discovered in 2008. "The deposit was formed by the same series of geological events responsible for the deposition of gold at Goldcorp's Red Lake mine. There are two major folding structures in the Red Lake district; one where the Goldcorp's Red Lake mines are located, and another one 7 km to the northwest, along the axis of which the Phoenix Gold project is located," said Michael Lalonde, a former director of underground operations at Goldcorp who is now president and CEO of Rubicon Minerals.

The Phoenix Gold project has a resource estimate of more than 3 million oz using a 4 g/mt cut-off, and is expected to produce more than 165,000 oz/y for 13 years. Rubicon has constructed an all-weather road, brought line power to the site, built a tailings management facility, a 200-person camp, a new headframe, and a modern hoisting plant. In addition, the company recently completed shaft sinking at 730 meters below the surface, and is now fully equipped and commissioned.

M&A hones in on Ontario

Gold companies on the hunt for developing assets are looking at projects in stable jurisdictions with known areas of mineralization to increase their reserve base.

Since 2012, there have been a number of major acquisitions in the gold sector in Ontario: IAMGOLD acquired Trelawney Mining and Exploration Inc., Osisko Mining Corp. acquired Queenston Mining Inc., Primero Mining Corp. acquired Brigus Gold Corp., and New Gold Inc. acquired Rainy River Resources.

New Gold's president, CEO and director, Robert Gallagher, explained why Rainy River represented a good platform for the company's first foray into Ontario. "Two years before we made the acquisition, the company was valued at over three times the final purchase price. The fall in the gold price made it very difficult for Rainy River to finance the construction of the project, which they had estimated to cost around $800 million. When Rainy River's market capitalization got to a price where our acquisition of it with a reasonable premium to the market was very positive on a per-share basis, we did the transaction," said Gallagher.

Yet there has been a seismic shift in the merger market since 2013, when New Gold acquired Rainy River Resources, according to Cameron Mingay, partner at Toronto-based law firm Cassels Brock and Blackwell LLP that acted for New Gold on the deal. "The fall in gold prices led to a decrease in the valuations of projects, and companies who are in the position to make acquisitions can offer lower premiums if they can manage to do so," he said.

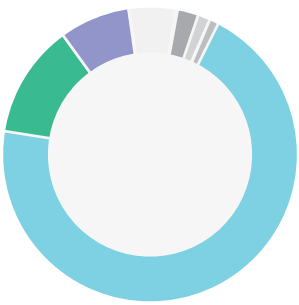
This point was driven home with the first major deal of 2014, when Goldcorp offered a 15% premium to purchase rival gold company Osisko. Comparatively, New Gold offered a 42% premium to acquire Rainy River just over six months prior. While Goldcorp eventually lost out on the Osisko deal to a creatively structured joint bid by Agnico Eagle and Yamana Gold Inc., who will jointly operate the company's projects in Quebec and Ontario, these actions prove that the acquisitions market is heating up after a lengthy period of inactivity.

New gold districts in Ontario

It is significant that the Rainy River, Trelawney and Queenston projects, the objects of these bids, are all outside of the traditional gold mining camps in Ontario. New gold districts in the province are emerging and Ontario companies with projects in underexplored areas are demonstrating how much more gold

ONTARIO EXPLORATION SPENDING BY MINERAL IN 2013, $ MILLION

Source: Ontario Mining Association



Gold	423
Base Metals	72
Chromit	45
Platinum Group Metals	33
Graphite	15
Other Minerals	7
Diamond	5

there is yet to be found. The difficulty in these areas lies in the geology: while the Timmins and Kirkland Lake gold deposits were largely discovered near surface, it is likely that many other deposits are going to be discovered under glacial cover and are therefore much harder to find. "The Rainy River deposit was discovered through integrating surficial geology and detailed till sampling and drilling," explained James Siddorn, vice president at SRK Consulting (Canada), part of a team that investigated the geological controls on gold mineralization at Rainy River. "This sub-surface discovery proves that, although deposits are undoubtedly harder to find these days, many more await discovery in Ontario. To locate them, we must also apply our geological knowledge combined with the use of geophysical data sets to understand the distribution of structures and their control on the distribution of mineralization."

One such company with a known asset outside of traditional mining camps is Treasury Metals, whose Goliath Gold project in northwestern Ontario is in close proximity to the Rainy River and Côté Lake projects. The project, which has a resource of 1.7 million oz and average grade of 2.87 g/mt, also hosts a significant upside potential. "The C Zone is a new shoot that Treasury identified in early 2013, and has great potential to contain another company-maker hole," said Martin Walter, president and CEO of Treasury Metals.

Also exploring in the area is Tamaka Gold, a private exploration company whose Goldlund property is situated on the same greenstone belt as the Rainy River project. "The property was an operating mine between 1982-1985, producing around 18,000 oz/y. Tamaka controls an 18-km mineralization strike between the towns of Sioux Lookout and Dryden," said Tamaka's president and CEO, Howard Katz. The project contains grades of around 1.3 g/mt, which is higher than most of the recently acquired projects in the region.

Exploring in the shadow of a headframe

While new gold districts are always exciting, exploration in these areas can bring more risks than even Canadian investors are willing to handle in current market conditions. Exploration companies with assets near known producing mines are at an advantage.

Harte Gold is an exploration company with an asset located 60 km west of Barrick's Hemlo mine, which produced more than 204,000 oz in 2013. The company is using its knowledge of the area to find a similar deposit at its Sugar Zone property. "The Sugar Zone deposit is a sheer zone hosted quartz vein with gold mineralization coming right to surface. At Hemlo, a similar environment existed," said Stephen Roman, chairman, president and CEO of Harte Gold. "On our property, regional prospecting uncovered what we call the "Peacock showing," named after our prospector, Mr. Terry Peacock, which assayed 87 g/mt, in a similar sericitic schist as Hemlo, where more than 20 million oz were found. We are currently focusing our work on starting the advanced exploration program and bulk sample on the Sugar Zone property."

Timmins: the historic producer

The Timmins gold camp in northern Ontario is one of the most productive gold mining camps in the world. With mines in operation since 1910, the area has produced more than 70 million oz of gold, yet companies continue to find new deposits in the Abitibi greenstone belt.

St. Andrew Goldfields currently produces nearly 100,000 oz/y of gold from its Holt, Holloway and Hislop mines just outside of Timmins. While their Holt mine, a former Barrick operation, has a good five years of reserves left, the company is also exploring its 120 km land base in one of the two major fault zones in the area; the Porcupine-Destor fault zone. "If you look at SAS's land package from Matheson east to the Quebec border, it is very underexplored due to the topography of the area: huge glacial deposits of overburden with sand and alluvial sitting on top. No one has ever really viewed the bedrock. Now we have science to find the location of the fault and the technology to drill through it," said the company's president and CEO, Duncan Middlemiss.

The other major fault zone in the area, Pipestone, runs parallel to the north of Porcupine-Destor. Compared to Porcupine-Destor, Pipestone is even less explored. Greg Romain, president and CEO of Gowest Gold, believes that the Porcupine zone represents a major area for potential discovery in the Timmins mining camp: "Our North Timmins Gold project covers a 109 square km land package and, beyond Gowest's flagship project, Bradshaw, we have intersected gold on a number of other parts of the project and identified numerous targets that deserve further exploration."

With new gold mines set to open and new areas of exploration proving fruitful for Ontario mining companies, the sector has done everything it can to weather the gold storm in 2013. Gold companies may have experienced the biggest drop in the price of the precious metal in recent memory, but there are signs that the market is beginning a bull run.

Both Rob McEwen and Eric Sprott have staked their careers in the gold sector. Rob McEwen, the founder of Goldcorp and now chairman and CEO of McEwen Mining, believes that gold prices could hit $5,000/oz over the next few years. "All of the reasons that gold was running before have not changed: debt levels are accumulating, and the cost of servicing that debt will become onerous," he explained. "Also, a number of major gold projects expected to come on-stream over the next few years have been delayed, potentially constraining supply."

Eric Sprott, CEO and CIO of Sprott Asset Management and a self-confessed gold bug, is slightly more conservative in his estimate. "If we look at the gold price trends since 2000, we can expect to see a $2,100/oz gold price by the end of 2014," he said. "There is huge demand for gold in China and India, central banks are buying gold again and mint sales are skyrocketing – yet there has been no increase in production." The funds Sprott runs that are invested in gold stocks were up 40% in the first seven weeks of 2014. •

Stephen G. Roman

Chairman, President, CEO and Director
HARTE GOLD CORP.

Can you give us a brief background on Harte Gold's operations since GBR last met with you in 2011?

The biggest development for Harte Gold was its acquisition of Corona Gold's 51% interest of the Sugar Zone property. We then raised capital and proceeded with exploration both on the Sugar Zone deposit as well as regionally on our claim block. We have an entire greenstone belt staked and are looking for a Hemlo-style deposit. The Sugar Zone deposit is a sheer zone hosted quartz vein with gold mineralization coming right to surface. At Hemlo, 60 kilometers (km) to the west, a similar environment existed. On our property, regional prospecting uncovered what we call the "Peacock showing," named after our prospector, Mr. Terry Peacock, which assayed 87 grams per metric ton (mt), in a similar sericitic schist as hosted the famous Hemlo deposit, where over 20 million ounces was found! We are currently focusing our work on starting the advanced exploration program and bulk sample on the Sugar Zone, as well as the hunt for another Hemlo style deposit.

Your former company, Gold Eagle Mines, was sold to Goldcorp in 2008 for $1.5 billion. Are there similarities between Harte Gold and Gold Eagle?

Gold Eagle was a different style of mineralization with different size characteristics. It was a large, bulk mineable deposit, whereas the Sugar Zone is a vein with outcrops on the surface. The Gold Eagle deposit was deep, required a shaft and much higher investment. A plus of Sugar Zone is that 85% of the gold can be recovered in a gravity circuit, which does not require cyanide. We can produce gold for $600 instead of $1000 per ounce, so our planned output of 70,000 ounces a year, will mean that the Sugar Zone Mine will be very profitable.

What kind of capital is required to move to the next stage of exploration and how receptive have the markets been?

The next phase in the projects development is the "Advanced Exploration and Bulk Sampling" program. Over the next year we will need capital to drive the ramp and access the target area underground. This will be done with a combination of equity and debt. In addition, we are doing our regional exploration. We have been accessing the flow-through market in the past year and may again later this year. Capital markets have been unreceptive to financing junior exploration in the last two years, but Harte Gold has been successful in attracting capital to our project. We have been in the mining business for a long time. We have a proven management team and we know how to spot good opportunities. We like to develop these opportunities to production. At the moment we will look to finance the development of the Sugar Zone property out of our own cash flow once the mine is operational and then look for opportunities to grow through further exploration and acquisitions.

What is the importance of having a higher-grade deposit when it comes to the viability of exploration-stage projects?

Grade is king! Today's average grade of gold deposits in the world is just over a gram. The higher grade, "low hanging fruit," has already been picked. The challenge in today's market is the huge investment that is required to tackle low-grade deposits. Harte Gold's deposit at 10 grams per mt is entirely different, with smaller capital required and higher profit margins. More small, high-grade deposits will make a resurgence. •

Michael Lalonde

President and CEO
RUBICON MINERALS CORP.

The Phoenix Gold Project is a high-grade, archean lode gold deposit in the Red Lake area of northwest Ontario. What similarities are present between Phoenix and its neighbours, and what is the timeline for the project?

The Phoenix Gold Project was initially discovered in 2008. The deposit was formed by the same series of geological events responsible for the deposition of gold at Goldcorp's Red Lake Gold Mines. There are two, major folding structures in the Red Lake District, one where the Red Lake Gold Mines are located, and another one 7 kilometers (km) to the northwest, along the axis of which the Phoenix Gold Project is located. Rubicon has constructed an all-weather road, brought line power to the site, built a tailings management facility, a 200-person camp, a new head frame, and a modern hoisting plant. In addition, we recently completed shaft sinking at 730 meters below surface, and is now fully equipped and commissioned. The remaining underground development is off the shaft. Two levels are substantially developed already, with three more in progress. On the surface site, the mill building has been completed and enclosed. All remaining mill construction will be completed indoors in a heated environment so that it will not be impacted by the extremely cold winter temperatures that are prevalent in the area. We anticipate potential production by mid-2015.

The Phoenix Gold deposit will mainly be mined using longhole stoping. What is the significance of applying this process as opposed to more traditional methods?

Longhole stoping is very productive and much less costly than traditional labor-intensive mining methods, such as cut-and-fill. We expect 90% of our potential production to come from the longhole stoping method. It is particularly applicable to our project because it has sufficient width (7.8 m average) to allow the use of wider machinery. In the narrower areas, we intend to use small holes, 2 ½ inches in diameter and, in wider areas, holes that are 4 ½-inches in diameter, which we believe will provide good economies of scale.

At a time when so few companies are able to access financing, Rubicon managed to raise approximately C$190 million. How were you able to achieve this?

We have a very attractive Project in a prolific high-grade gold mining district. We were able to negotiate a $75-million gold streaming deal with Royal Gold on very good terms. Having the backing of a major gold streaming and royalty company like Royal Gold gave the market much more confidence in the potential upside of the Phoenix Gold deposit, and in our Project and the project team. The streaming deal was well received by the markets, and the share price appreciated. Rubicon was then able to successfully launch a C$115 million bought deal on the back of the gold stream announcement.

How would you characterize Rubicon's relationship with the aboriginal groups in the Red Lake area?

Rubicon has very good relationships with the Lac Seul First Nation and Métis Nation groups in the Red Lake area. We made it a priority to involve many aboriginal-owned companies in Phoenix Gold Project's construction: the company that sank the shaft is owned by two Métis brothers from Sudbury. The road construction was done by a Lac Seul First Nations company, as well as some of the tailings management facility construction. Lac Seul First Nation also provides catering services to the project. Rubicon did have a lawsuit launched against the province of Ontario and Rubicon by the

Wabauskang First Nation in late 2012, which is without merit and which we will vigorously defend. We have all the permits that we require to the startup of projected production. The case is ongoing and has had no impact on the project.

On the corporate level, the transition from development to production can be difficult for junior companies. How are you handling this transition internally?

We have already transitioned from an exploration company to an operating company. Rubicon has put together a strong management team to construct the Phoenix Gold Project. Our senior managers have had very significant experience building and operating gold mines. Now that we have the necessary financing in place to complete the Project to potential production, we are recruiting the broader workforce that will be required in the development and operating stages of the Project.

What is your longer-term vision for Rubicon?

We have a high-grade project in a prolific, high-grade gold mining district. We have significantly de-risked the Project with the substantial construction that we have accomplished on site to-date. We also have the experienced team to take it into the production stage. Rubicon has several other promising exploration targets in the Red Lake District. Rubicon controls over one hundred square miles of land in the immediate area. East Bay is a gold project where we have seen some positive results. The Adams Lake project is located on the nose of one of the second-generation folds. We see the potential for a low-grade, bulk-tonnage copper gold deposit at Slate Bay. We also hold a very large land position in the Long Canyon Trend in Nevada and Utah. We will look to develop some of these projects once we can secure a steady cash flow from potential gold production at the Phoenix Gold Project, or earlier if the right opportunity presents itself. As we look to grow our company beyond 2015, we will focus on improving profitability. We will not grow the company solely in terms of number of ounces produced, but rather in terms of quality of the ounces. •

Robert Gallagher

President and CEO
NEW GOLD INC.

New Gold's acquisition of the Rainy River project represents the company's first foray into Ontario. What attracted you to the project?

Rainy River was a great acquisition for New Gold, particularly with the fall in development company values in 2013. Two years before we made the acquisition, the company was valued at over three times the final purchase price and in that two-year period they had significantly advanced the project. The fall in the gold price meant that it would be very difficult for Rainy River to finance the construction of the project, which they had esitmated to be around $800 million. The project had been on New Gold's radar for a while given its excellent strategic fit. In addition, Rainy River's CEO, Raymond Threlkeld, was a director of New Gold, and our board was very confident in his ability to identify great projects. When Rainy River's market capitalization got to a price where our acquisition of it with a reasonable premium to the market was very positive on a per-share basis, we did the transaction.

New Gold acquired Rainy River in June 2013. In 2014, there have been offers for Osisko at much lower premiums than what New Gold paid for Rainy River. What is your reaction to these bids?

The fact that Goldcorp and now Yamana-Agnico Eagle have all demonstrated appetites for bulk-tonnage, gold deposits in the Canadian shield really validates what New Gold stepped forward and did almost a year ago at Rainy River.

What is your proposed timeline at the Rainy River project, especially with another project in development at Blackwater?

New Gold announced in January 2014 that we would build Rainy River first and likely defer our Blackwater project until Rainy River was up and running. Rainy River's capital cost is under $900 million whereas Blackwater is closer to $1.8 billion. While the internal rate of return is similar in both projects, Rainy River is more manageable given the current market conditions. We can finance Rainy River with our existing cash flow.

Does your approach to First Nations consultations differ from province to province?

Whether we talk about First Nations in Canada or anywhere around the world, there are many similarities in what their needs are. The key for us at New Gold is to talk to them directly and as early as possible. Instead of just telling them what your company plans on achieving, we want to find out their concerns and aspirations in order to build a relationship. I personally speak with First Nations leaders on an individual level, rather than delegating the responsibility, because it is important for both of us to engage as leaders. A lot of times mining companies will send in consultants and the First Nations cannot even put a face to a name, which foregoes the chance to develop a relationship based on trust.

There has been very little M&A activity in the mining sector of late as companies face internal cost challenges. As one of the few low-cost gold producers who have made an acquisition, how are you able to grow a successful company in a fiscally challenged environment?

There have been a number of acquisitions and construction projects that have gone sour over the last few years. Again, it comes back to the orebody: make sure that it can be extracted profitably when including all the costs. You never want to overpay for an acquisition. When you start to build, you have to have realistic estimates of how long it will take and how much money is needed. Never assume that the way you built the last mine will be built the same way you approach the subsequent project; you need to be flexible and dynamic. If you look at New Gold's track record, we built New Afton on the timeline we said we would and only moderately over budget in what was probably the most capital intensive period in our industry's history. Before that, our teams also successfully developed two open pit mines, Mesquite and Cerro San Pedro. This is a great time to be building mines. People tend to build mines when the commodity price is high, and the competition for contractors and services is tough. We are building Rainy River at a time when most people in the industry have stopped building, so we can get the best rates and people. The other problem with building when the market is hot is that often you will finish building a mine and the price of the commodity falls. Once we get Rainy River up and running, we will be better positioned to see the upswing in the price cycle.

How confident are you that the upswing is coming?

We are very confident that we will see an increase in gold prices in the near term; however, Rainy River is a low-cost mine in any case. We certainly see the advantages of building now with the costs of materials and the qualities of services, and we are putting together a great team out in Ontario. •

George Burns

Executive Vice President and Chief Operating Officer
GOLDCORP INC.

Ontario has historically been the heart of Goldcorp's operations with Red Lake but the province has fallen in the Fraser Institute rankings and exploration spending has decreased. How important will the province be as a jurisdiction in the coming years?

Ontario represents a significant portion of our production profile now and into the future. Our first big investment project is at Cochenour, where we will be touching the orebody later in 2014. The shaft is nearly complete, and we are currently working on connecting the shaft to the orebody. We are now in a position to do detailed drilling to develop the mine plan. In Timmins, we are working on putting in a big winze that will enable us to move people and material more efficiently; this allows us to improve our production. In terms of jurisdictions, Ontario is still a great place to mine.

As a gold company, Goldcorp has not been immune to the drop in gold price. What optimizations and efficiency improvements has the company made in order to increase profitability?

With industry-wide cost pressures increasing and softer gold prices that cause cutoff grades to go up and mine plans to be adjusted, Goldcorp has embraced optimization initiatives and have become a stronger company as a result. We have a huge focus on our Operating for Excellence program. At Red Lake, we are using a "cell mining" concept that divides the underground mine into different areas with one team per cell who are responsible for equipment, planning, scheduling and execution. The key component in underground mining is the ability to develop down rapidly. Last year we increased our development vertically by 50% simply by empowering our workforce to deliver better results. We are taking that success and applying it to the entire mine using this cell mining concept.

Goldcorp recently signed agreements with the Mishkeegogamang and Lac Seul First Nations in Ontario. In light of the struggles some companies have had in Ontario in engaging with local communities, how does Goldcorp approach stakeholder engagement?

Goldcorp aspires to build a win-win partnership with local communities where all stakeholders can benefit from mining operations. Each mine is a bit different, but in the case of the Mishkeegogamang ("Mish") agreement, we are looking to build a power line that will benefit mining in the north as well as these communities. The Mish community has power, but the communities near the mine do not. We recently signed our first major agreement at Red Lake and are in active agreements at Porcupine in Timmins with four First Nations. Goldcorp's approach is simply to engage with these communities to pursue opportunities where we can help one another. The three mines that we have in Ontario are old, but our Eleonore project in Quebec is an example of where the company has been engaging with First Nations for many years despite not being in production.

What are some of the key strategic objectives for Goldcorp in Ontario?

Goldcorp's focus is on delivering growth projects. At Hoyle Pond we are finishing shaft sinking this year to get into construction shortly and are developing our mine plan at Cochenour with the goal of going into production by 2015. Hollinger is a historic mine where we will extract value from the open pit and then reclaim the area. The issue is how we deal with the reclamation and safety hazards that are a remnant of historic mining. By doing this open pit, we create value for our shareholders and put it in a nice reclamation when the mine is closed. The plan is to create a lake and a park on the former mine site that will be a win-win for the environment and the community.

Finally, Goldcorp has managed to weather the storm faced by your gold peers in recent months. How does the company manage to remain successful and even grow amidst challenging commodity markets?

Goldcorp has a very strong culture within the company. We are transparent: our employees have access to us, management gets out to mines to engage the workforce, which fits with our desire to avoid being overly bureaucratic. We remain entrepreneurial and embrace change. One of the fundamental things that helped us through the softer commodity prices of the last few years is avoiding debt and having a strong balance sheet. We have the ability to maneuver and are still executing our growth strategy: Eleonore and Cerro Negro will begin production in 2014 and Cochenour by 2015. We hit all of our targets last year and are still delivering growth. •

James Siddorn & Bob Kusins

JS: Vice President
BK: Principal Geologist
SRK CONSULTING (CANADA)

JS

What are some of the recent developments for SRK in Ontario?

JS: SRK in Ontario provides specialized services in structural geology, integrated with resource geology and underground and open pit mine engineering, to the mining and exploration industry. Over the last two years, we have worked on a variety of projects, including assisting major mining companies with advanced projects such as due diligence reviews and resource estimation. Although mostly involved in gold and silver projects, we have also worked on uranium and nickel in a wide range of geographical settings. Mining in Ontario remains fairly active; even though some major mining companies have restricted budgets, many smaller operators and junior explorers are advancing their projects.

Having worked on gold projects in northwestern Ontario, what can you tell us about the geology of the area as it compares to other gold districts in the province?

JS: A key difference is that there is hardly any rock exposure. Whereas the Timmins belt in Northeastern Ontario was fairly easy to find, the Rainy River deposit in the province's northwest was only discovered through thorough examinations of surficial geology and glacial trends, combined with detailed sampling and drilling. This sub-surface discovery proves that although deposits are undoubtedly harder to find these days, many more await discovery in Ontario. To locate them, we must apply our geological knowledge and use geophysical data sets to understand the distribution of structures and their control on the distribution of mineralization. By integrating this knowledge with surficial geological mapping and geochemical data (gained through till sampling), we will be able to define exploration targets.

Graphite is getting quite a bit of attention and Ontario companies have advanced projects. Is there anything that distinguishes these projects?

BK: There is potential for finding new deposits in Ontario, but graphite is a marketing play. Ontario's mining companies either have to generate a market or find their niche in the existing marketplace.

JS: Graphite is not mined as a bulk commodity, but is sold as such, which affects its value. There have been graphite plays in Ontario for some time, but they have only recently caught the market's attention.

In the Ring of Fire, some people argue that the deposit is not "world-class" enough to justify the funding requirements. Is there validity to this argument from a geological perspective?

JS: Chromite as a commodity is a niche market. Its profitability depends on a balance being struck between the quality and quantity of the mineralization and its location. In the case of the De Beers Victor Mine, which is located close to the Ring of Fire, the commodity—diamonds—can easily be transported by plane. With chromite and nickel, on the other hand, concentrates are produced and bulk tonnage movement is needed. The Ring of Fire's geographical location is therefore a critical factor, as well as the quality of the deposit.

What are some ways that operating companies can maximize their returns while dealing with lower-grade deposits?

BK: There has been a knee-jerk reaction in the industry to decreases in the gold price. Companies should reevaluate their plans and pursue high-grade areas, but not every operation has the flexibility to do this.

JS: It comes down to geological efficiency, understanding the deposit, and minimizing dilution or waste-to-ore ratios, whether for open pit or underground operations. This puts the emphasis on the practical geological tools that you can apply to understand your deposit. It also feeds into the resource-reserve estimation process, as well as mining method and ground support selection.

How does SRK respond to the Ontario Securities Commission's (OSC) June 2013 findings that a significant number of technical reports had major errors?

BK: SRK has taken note of the OSC's findings, which cited errors due more to omissions than to deficiencies in report content. Every report that we deliver to clients has always gone through a rigorous review process by multiple people familiar with the NI 43-101 requirements. Because we understand that a report can influence our clients' market value, we make sure that it is the most accurate and thorough document possible. Our clients are confident that our technical reports meet the highest standards.

JS: A large number of qualified geologists are preparing technical reports in Ontario, which results in reports of varying quality. It is important that guidelines, education, and regulation by bodies such as the OSC and APGO be improved in order to reduce omissions and deficiencies.

What are the upcoming milestones or growth opportunities for SRK in Ontario?

JS: This year, SRK is celebrating its 40th anniversary as a company and last year was our 35th anniversary in North America. We have seen significant growth in our Ontario offices, especially in Sudbury, and have maintained a balance of local and international projects. Going forward, we are looking at ways of leveraging our geo-environmental and water management expertise from Vancouver to tackle new initiatives in Ontario. •

David Rigg

Former* President and CEO
NORTHERN SUN MINING

*James Xiang is the Interim President and CEO of Northern Sun Mining Corp.

Can you give us a brief introduction to Northern Sun Mining and its history as Liberty Mining?

Liberty Mines was developed to advance various nickel properties located in the Shaw Dome, about 28 km southeast of Timmins. Liberty built a 1,500-metric ton per day (mt/d) mill at the Redstone Mine and processed nickel ores from the McWatters and Redstone Mines from 2005 to 2012. The Hart nickel deposit was also brought to feasibility during this period. Financial and operating difficulties hampered Liberty and its assets were reorganized in 2013 and debt put into a subsidiary company in coordination with a reverse split and name change to Northern Sun Mining (NSC) in order to pursue custom milling opportunities in the region. NSC will use profits to target gold exploration in Timmins and other Canadian jurisdictions. The Redstone Custom Mill was engineered with flexibility in mind, and has two potentially independent circuits, each of 750 mt/d.

What attracts you to gold in the Timmins area?

The Southern Abitibi belt of Quebec is a prolific area for gold and base metals, hosting eight major gold camps, which have now produced over 280 million ounces (oz). The Timmins camp stands out as the largest metal producing area for gold, and also for copper, zinc and silver. It has produced over 66 million oz. As they say, the best place to find a deposit is in the shadow of a head frame. The key is navigating the complex geology and the many types of deposits to find the next one! Northern Sun also has an option to purchase the Snow Lake Mine in Northern Manitoba, which has already produced over 1.4 million ounces gold. Working this property for QMX gold since 2010, we have increased resources to over 1 million oz. We expect the mine can be brought back into production in 18 months.

What kind of financing will you need to advance your plans at Snow Lake?

We are looking at a combination of equity and debt financing. Jien International Investments (JIIN) will maintain its current 60% equity position in Northern Sun. This then requires an additional C$8 million investor financing to raise C$20 million for the mine purchase. Funding for the feasibility assessed mine restart will be a combination of up to C$35 million debt financial and a further C$20 million equity financing. Snow Lake is offering the opportunity of using pre-existing infrastructure to develop a great mine from a production target of 80,000 oz/year.

How receptive are companies in the Timmins area to a toll milling agreement?

They are very receptive. Most advanced engineering studies put the cost of a new mill at C$70 to C$90 million. Using a custom mill can mean huge savings for a company with a deposit, which cannot support huge capital costs. Custom milling should allow many previously uneconomic deposits to be produced. The mill is permitted at 1,500 mt/d but has a design capacity of 2000 mt/d. The dual circuits allow the mill to separately process two different ores with no mixing.

Looking at Shaw Dome and rising nickel prices, how do those projects figure in your plans?

Metals do no rust in the ground and we can wait until long-term nickel prices are favorable. The nice thing about Timmins is the flexibility and variety in metals, including nickel, iron ore, gold, and silver, as well as industrial minerals. We will maximize the mill system, processing one or two types of ore at the same time, and reinvest profits into exploration. •

SPECIAL SECTION

Slow Burn: Ontario's Vaunted Ring of Fire

"The completion in December 2013 of a Federal/Provincial Environmental Impact Statement and Environmental Assessment Report (""EIS/EA"") for Noront's Eagle's Nest Project marks an important milestone…We intend to be the first mine in the Ring of Fire. Through our novel approach, our reduced environmental impact and by being sensitive to the needs of the First Nations, we are at the forefront of development in the Ring of Fire."

- Alan Coutts, President and CEO, Noront Resources

Image: Noront Resources

Progress Despite Setbacks in the Ring of Fire

Development of the Ring of Fire has experienced its share of setbacks recently. In November 2013, Cliffs Natural Resources decided to halt its Big Daddy chromite project, citing risks associated with developing infrastructure in the frontier area of northern Ontario. Companies in the mineral-rich area are dependent upon getting federal and provincial support to fund badly needed infrastructure to the region.

"Obviously, having an industry participant leave the region is never a positive development but we are hoping that there is a silver lining and this event will underline the need for more timely-decision making regarding key issues such as environmental permitting and infrastructure," said Alan Coutts, president and CEO of Noront Resources Ltd., whose Eagle's Nest project is the most advanced in the Ring of Fire.

A number of developments in early 2014 may be the starting point to solving the dilemmas that caused Cliffs to suspend its operations. First, the province of Ontario announced the formation of the Ring of Fire Development Corp. to assess various possibilities to fund infrastructure development and engage with First Nations communities affected by development in the region. The Liberal government went even further, announcing a C$1 billion investment to fund a transportation solution.

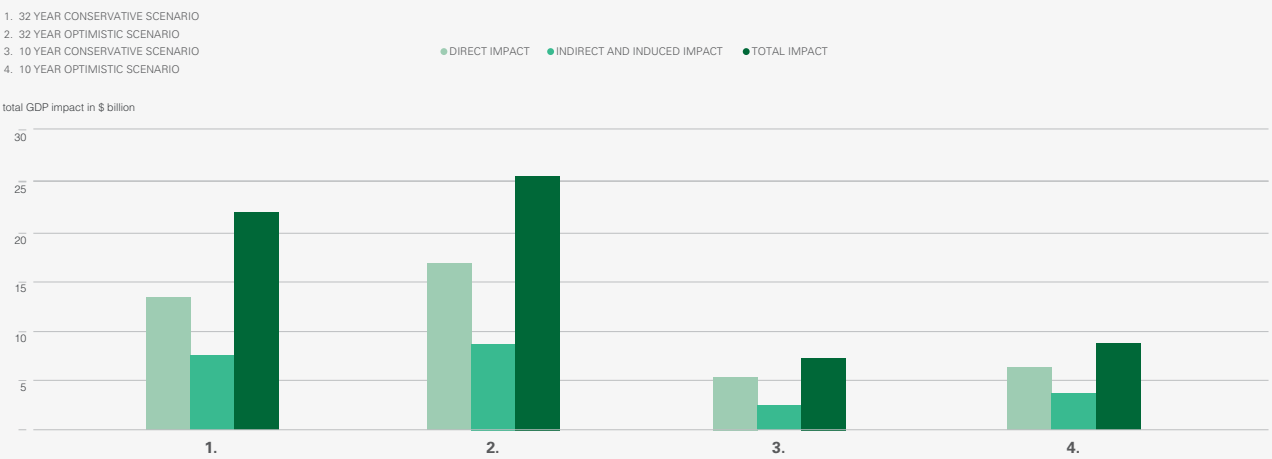
Furthermore, the Matawa First Nations signed a framework deal in March 2014 with the provincial government that allows the two sides to move forward in a community-based approach to resource development in the region.

These steps are critical to moving projects forward in the Ring of Fire, which potentially represents $25 billion in

Image: Hatch

ECONOMIC IMPACT OF RING OF FIRE DEVELOPMENT ON ONTARIO
32 YEAR PERIOD, ASSUMES 25% LEAKAGE

Source: Ontario Chamber of Commerce



new economic activity for the province. For stakeholders who are invested in the region, these announcements could not come soon enough.

Neil Novak, a former executive at Noront Resources, spent years exploring in the Ring of Fire before it was known as such. His former company, Spider Resources, was sold to Cliffs in 2010 after he uncovered mineralization that looked to be chromite. "Even though there is a lot of chromite found around the world, we need geographical diversification of chromite mines," said Michael White, president and CEO of IBK Capital, that has raised more than $140 million for companies active in the Ring of Fire. "At the moment, chromite production is concentrated in a few global clusters, and some are not doing so well in terms of guarantee of supply: South Africa, one of the largest global producers, has power issues that can affect deliverability. The industry would very much like to see chromite produced in Ontario, a stable jurisdiction where we have discovered a 100-year plus supply."

Richard Nemis was the CEO of Noront at the time of the company's discovery and gave the region its name as a tribute to his favorite singer, Johnny Cash. His new company, Bold Ventures Inc., is exploring at a number of sites in the Ring of Fire, most notably the Black Horse chromite deposit in conjunction with KWG Resources Inc. Although he was a key player in the initial Noront discovery, Bold Ventures is more interested in what else there is to find in the Ring of Fire. "We are more interested in base or precious metals; our focus is on extending the Ring westward between the subprovinces," he explained.

MacDonald Mines Exploration Ltd. is using down-hole geophysics to explore their properties, which include the Butler VMS project. According to Richard Schler, CEO of MacDonald Mines, the Butler project has a similar mineralization to Glencore Xstrata's world-class Kidd Creek base metals mine in Timmins. "We got Dr. Jim Franklin, a respected geoscientist, to take a look at it and he feels like the geology lends itself to a Kidd Creek-type of deposit. We have gotten some good copper grades in the feeder zone, and we hope the grade will improve. The size of the heat engine to produce this alteration zone is big, so the potential in this could be anywhere from 50-100 million mt."

Image: SRK Consulting

Solving the Infrastructure Puzzle

The debate surrounding infrastructure development in the region is currently centered upon transportation solutions to access the area. However, there is the additional challenge of building once you get there: the Ring of Fire is essentially marshland, which means that traditional methods of building mines on solid ground would not work.

Global engineering firm Hatch sees the Ring of Fire as one of the most exciting areas of opportunity for the company in Ontario. "There are many challenges presented by the geography, lack of infrastructure and social licensing which require new ways of thinking, and that makes it so exciting," explained Jan Kwak, Hatch's managing director of mining and minerals processing. "For instance, a construction strategy would probably require starting in the winter when the ground is frozen and it is easier to transport materials to the site. During the winter, we would need to create an island of solid ground where we can set up camp, store material and equipment and use as a base to expand from when the ground thaws in summer."

Complicating matters, many people in Ontario and across Canada wonder if the value of the chromite in the ground is enough to justify the level of infrastructure spending in the region. According to James Siddorn, vice president at SRK Consulting (Canada), logistics and location are decisive factors for any project in Canada's North. "When producing chromite and nickel, bulk tonnage movement is needed. Therefore, Ring of Fire's geographical location, as well as the quality of the deposit are critical issues," he said.

Sudbury-based XPS Consulting and Testwork Services, a Glencore company, worked with KWG Resources on their Black Horse deposit to convert the chromite into a metalized chrome and iron alloy. "Processing facilities have used the conventional route, which is an electric-furnace approach where the raw ore is smelted at 1,700 °C with a high energy input of 60 to 80 MW of power," said Dominic Fragomeni, director at XPS Consulting & Testwork Services. "In our work with KWG we were asked to think outside the box and consider alternatives to a conventional ferrochrome smelter, which is what drove us to look at direct reduction technologies. This technology is not new, however we have added a twist to take advantage of the lower cost natural gas available in Ontario. We are currently developing technologies to increase the rate of reaction and reduce the temperature of the direct reduction process, as well as considering downstream processing options."

Whether or not it is a road that runs east to west, as favored by Noront, or a railway, which KWG Resources advocates, infrastructure development in the Ring of Fire is critical to the success of these projects and the province of Ontario as a whole. •

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Jan Kwak

Managing Director,
Mining and Mineral Processing
HATCH

Can you give us a brief introduction to Hatch's role within Ontario's mining industry?

The mining and mineral processing group at Hatch is a global business unit. Many of our clients earn revenues from selling ores and concentrates, so we understand that end of the business well, from mining to logistics to marketing, in addition to the technical and project delivery expertise that is the cornerstone of our company.

In Ontario, gold, nickel and base metal mines are the primary drivers of our business, but we work with many of the Toronto-based mining clients who have projects around the world. Since the downturn, we have done less major project work and more operational improvement work. For example, Hatch has worked extensively on optimizing Chilean copper mines where we have been able to find zero-capital ways to improve throughput and reduce operating costs by incorporating small yet significant changes in process. In Ontario, Hatch continues to cover the major mining companies in Sudbury, Thunder Bay, and Northern Ontario, and globally through our headquarters in Toronto.

Many newer mines in Ontario are bulk tonnage with lower-grade deposits. What sort of engineering challenges do these types of projects present?

High-tonnage, low-grade, remote deposits put more pressure on companies to find cheaper ways to build infrastructure. These types of projects can be economic if they can take advantage of common infrastructure like roads and power. The next step is to devise a smarter mining plan using more innovative methods. It comes down to the machinery and the degree of automation present. Continuous mining machines are important, as is the ability to do more processing in the pit or underground to avoid moving so much rock to the surface. There are even possibilities for underground leaching or mineral processing. When working with the low grades, more innovative methods are needed to extract extra value.

What opportunities are presented by development in the Ring of Fire, seeing as the area is essentially greenfield?

The Ring of Fire is one of the most exciting areas of opportunity, as there is huge upside potential. There are many challenges presented by the geography, lack of infrastructure and a required social license to operate, which require new and exciting ways of thinking. For instance, a construction strategy would probably require starting in the winter when the ground is frozen and it is easier to transport materials to the site. During the winter, we would need to create an island of solid ground where we can set up camp, store material and equipment and use as a base to expand from when the ground thaws in summer. There is a possibility to dig into the ore body and use the overburden or waste rock, but even this has its challenges. There has never been a project quite like this attempted anywhere in the world.

The biggest barrier to development in the Ring of Fire is the lack of infrastructure. Is it economically feasible to advance projects at this point?

The capital necessary for projects in the Ring of Fire for infrastructure is greater than that required for mining equipment and processing plants. If the provincial or federal government was able to fund the construction of a road, it would reduce the required capital for existing projects and make other projects in the region much more attractive. Hatch has done some internal analysis on each of the projects in the Ring of Fire and found that at least one third of them would be economic if a road and electrical grid connection were in place.

There have been a number of projects recently that have experienced cost overruns and construction delays. How can expectations be aligned with the realities of building projects?

Mining companies are looking for more predictability, and large divergences from original plans for cost and schedule are not acceptable. We provide more surety and predictability by placing more effort into project planning and scoping to make sure that we understand precisely what we want to build and how we will build it. On a project level, we look at the factors that influence payback: capital costs, operating costs, time to first production and ramp up. We focus on guaranteeing the fastest path to full production, such as excellent engineering, world-class technology, high quality construction and a fast ramp up, all of which also drive down operating costs.

Where would you like to see Hatch positioned in the mining industry?

Hatch is committed to projects in the Ring of Fire and is involved with every stakeholder group to generate ideas on how to help these projects. Outside of the Ring of Fire, we look to provide leadership in underground mining in Ontario, and specifically at the forefront of the technology required for safe and efficient underground mining. Hatch will continue to work closely with First Nations: we currently sponsor scholarships at Lakehead University and Laurier University to encourage more First Nations students to graduate from mining programs. •

Richard Schler

CEO
MACDONALD MINES

Can you give us a brief introduction to MacDonald Mine and the Butler property?

Since 2003, MacDonald Mines has drilled in excess of 150 holes on the Butler property. We thought that we had figured out the geology but Mother Nature decided to throw a few more curve balls at us, so we contacted Dr. Jim Franklin, a respected geoscientist to review our data and asserted that the geology lends itself to a Kidd Creek-type deposit. We have seen some good copper grades in the feeder zones, and the grade will likely improve as we move towards the volcanogenic massive sulfide (VMS) source. The size of the VMS alteration systems is larger than can be explained by the sulphides discovered to date. The geological data indicates there is the potential for a much larger VMS deposit than has been identified to-date so the "blue-sky" mineralization in this area could be anywhere from 50 to 100 million metric tons (mt); in comparison, Kidd Creek is around 150 million mt. Geological formations and identified mineral elements at the Butler 3 Target are similar to those seen in the geology at the Flin-Flon VMS deposits in Manitoba. The Butler 3 Target alteration also has tin ("Sn") enhancements similar to Kidd Creek pointing to a very large hot VMS system which is certainly capable of forming such a deposit.

How are you defining your 2014 drill program?

MacDonald has certainly had "technical" drilling success at Butler 3 and 4 in that it has intersected mineralization, but it is still in the feeder zones. It is quite difficult to assess the geology in the Ring of Fire because there is very little outcrop and the James Bay Lowlands topography, so the targeting must be done utilizing geo-physical techniques, which is expensive. Therefore, we are moving ahead carefully to maximize the information gained from each drill hole. Raising exploration dollars in the present environment is challenging, especially if the share price is less than $0.05, which is the minimum financing strike price allowed under current TSX-V rules. For reference, running an effective and efficient drill program consisting of at least 20 to 25 holes would cost about $3 to $4 million.

MacDonald Mines has historically been vocal about the struggles that the junior mining companies face. Why is this important to the company?

As an industry, we tend to get lax in good times and not maximize our exploration dollars. We have to work harder at being explorers as opposed to chasing a story, and look for opportunities that have both the potential grade and size to be economic. We also have to learn to walk away from properties that have little chance of being economic. There are other ways to help juniors, such as improving tax incentives for investors who put money into high-risk opportunities. The government also needs to take steps to streamline the permitting process.

Where would you like to see MacDonald Mines in the future?

MacDonald Mines has excellent properties in the Ring of Fire and its team of geo–scientists and consultants is some of the best in the world at sorting out VMS type deposits. MacDonald will push ahead to raise exploration funds to begin drilling. We are working with the MNDM to resolve permitting issues and satisfy our consultation obligations with identified First Nations. The Butler property has huge potential, and our drilling program will give us enough information either to confirm our optimism or lead us towards the next phase of discovery. •

Alan Coutts

President and CEO
NORONT RESOURCES

What has changed for Noront Resources since Cliffs Natural Resources' announcement that it will suspend its Black Thor chromite project in the Ring of Fire (ROF)?

From Noront Resources' perspective, not much has changed since Cliffs Natural Resources' announcement. Our Eagle's Nest project is fundamentally different from what Cliffs had envisaged for their open-pit, bulk-transportation model Black Thor Project: Noront is focusing on a high-grade nickel-copper-platinum group underground mine – from a logistics point of view, this means small volumes of high-grade concentrate. Consequently, our project economics and infrastructure needs are completely different than those of Cliffs. Furthermore, during our permitting process, we developed our environmental assessment not only for the mine site itself, but also for our transportation corridor and we continue to believe that an East-West route is more appropriate for our needs at this time.

What is Noront Resources' current focus in the ROF?

Noront Resources' focus at the moment is on advancing its Eagle's Nest project, for which we published a NI 43-101 in September 2012. We are looking at a mine life of 11 years at roughly 1 million metric tons (mt) per year of throughput, which would consequently produce 150,000 mt per annum of high-grade nickel-platinum concentrate. We have proven and probable reserves of 11 million mt but resources below 1,000 meters would add another 10 years of mine life at the same rate. Overall, our operation will have a total mine life of somewhere between 11 and 20 years. In terms of economic feasibility, typically, developments in remote areas deal with gold and diamonds, which do not require heavy infrastructure to be transported out of the mine site. Eagle's Nest is different. Its main advantages are its high-grade reserve and the fact that it will have by-products. This mine will produce within the first quartile of global nickel operations.

How was Eagle's Nest designed in a way to limit its environmental impact?

We have designed an underground mine that has a small surface footprint. We will also recycle virtually all of the water so the only discharge will come from camp activities. Our processing water will leave the project in the form of concentrate or will go down the hole as moisture for our paste. Most operations have a tailings pond on the surface but all of our tailings will go underground due to the extra volume of our underground aggregate producing quarry. These aspects have helped Eagle's Nest attract permitting very quickly.

Infrastructure development is key for the ROF. What are the advantages of the East-West corridor?

The North-South corridor is, without a doubt, the quickest way to markets but does not tie in a lot of the local communities to all season roads. Additionally, it has three major river crosses that are costly and somewhat sensitive from an environmental and First Nations' point of view. The East-West corridor, on the other hand, comes off an existing winter road infrastructure, north of Pickle Lake, and ties in more communities. It does not have any river crossing so it is cheaper and more environmentally friendly. The secret with the infrastructure situation is to meet the needs of many and provide development opportunities for the First Nations as well; it cannot be an exclusive resource-road that takes simply takes minerals to market.

The year 2013 brought forth several governmental initiatives for the ROF, among which the appointment of Frank Iacobucci as lead negotiator on behalf of the Ontario government in discussions with the Matawa Tribe Council, and the creation of the ROF's Development Corporation. How do you assess these developments?

We have seen progress since this new negotiation framework was implemented, but, as always, we would like to see it happen more quickly. Nonetheless, there are nine communities spread across a wide region with distinct ideas on how things should progress. The best solution is to have communities speak with one unified voice: this will accelerate the negotiations and hopefully, there will be a good distribution of the benefits among them. The concept behind the Development Corporation is good but it is unclear who is going to be represented and how decisions will be made. Development corporations have managed assets before, but this group has also been tasked with the design of the infrastructure plan, which is a more complex role.

What are the dynamics of nickel?

Demand for nickel in the following years will stay at a CAGR of 4% to 5% but the problem is oversupply. Market discipline is lacking, and there have not been as many closures as we would have expected. If the price goes down to $6 per pound, the supply side of the market will be affected. There will likely be a deficit starting in 2017, at which time we will be running at full capacity at Eagle's Nest. Again however, we have the tremendous advantage of being shielded by our platinum/palladium by-products, which are independent of nickel dynamics. •

Richard Nemis

President and CEO
BOLD VENTURES INC.

You have been involved with the Ring of Fire (ROF) since the very beginning, when you founded Noront Resources and made the area's first major nickel and chromite discoveries. Can you introduce us to the work that you are doing today with Bold Ventures in the ROF?

Bold Ventures is a team of explorers. Our focus is to develop and outline ore bodies and pass them on to mining companies. When we put together Bold Ventures, we brought over key talent from Noront to continue exploration in the ROF. We are firmly convinced that this area is going to be one of the biggest developments in mining in the coming years. We have many claims, have identified numerous drilling targets, and continue to acquire ground.

Currently Bold is going to the market to raise more funds for drilling. The challenge with the area is that it is remote and has no infrastructure. The cost of drilling is $800/month to $1000/month, making it very expensive to do pure exploration work. Bold has a very unique philosophy that takes geophysics to its extreme. We fly an area and then take a geophysical target and go directly to drilling. In the past, exploration companies were doing a lot of costly pre-drilling work like trenching, sampling and line cutting. Through our partnership with Geotech, we stake only after flying the geophysics survey.

Bold Ventures has optioned the Black Horse project to KWG Resources from the Quebec-based company Fancamp Exploration. What is the strategy behind this plan and what are the next steps?

We optioned Black Horse from Fancamp because we saw the project had a lot of potential due to its proximity to the nickel-copper discovery of Noront and the Cliffs Natural Resources' chromite deposits.. Bold took on the property with the right to earn up to 100%; however we are not overly interested in chromite, so we took the property to KWG. We concluded a deal with KWG where they could earn up to 80% on the project and we would retain a 20% interest in any of the chromite found. For any other metal found on the property, this 80-20 split would be reversed. The agreement calls for expenditures up to $8 million by KWG to earn its interest in the project from Bold. It is ongoing and KWG is working on developing what is looking to be the biggest ore body in the ROF area. It is a deeper deposit than those of Cliffs, and potentially richer. Depending on Noront, there could be a lot of synergies.

Bold is interested in the Black Horse project only on the nickel-copper side. Does that focus go for most of your properties in Northern Ontario?

We are not interested in chromite, although we did make the original discovery in the area. We are more interested in base or precious metals. Our focus is on extending the ROF westward by using geophysics, as there is very little outcrop in the area. We are getting a better handle on the area's geology and developing relationships with the First Nations communities as we advance our projects.

Funding is another hurdle for ROF projects, given the area's lack of infrastructure. Do you think the province's $1-billion commitment towards infrastructure funding is a positive sign?

This ROF discovery is so important for the province and country that it has to be developed. It is world-class but must be developed correctly, as it will be here for generations. For that reason, someone has to step up to the trough and fund getting into the area.

It has been questioned whether the nickel project's value can justify a $3-billion to $5-billion infrastructure investment. Do you think this skepticism is justified?

Time will tell how people will view this high expenditure. The deposits in the ROF can provide the world with chromite, without which we could not produce stainless steel. The ore body of Noront, which is very big and rich, will pay for a good portion of what has to be spent up there. Over a short period of time we have found seven or eight VMS deposits with copper-zinc potential. These small but rich deposits indicate there will be another blockbuster deposit. The ROF is developing into a mining camp for not only chromite, but also nickel, copper, platinum and zinc.

What can we expect to see from Bold Ventures over the next year?

Bold Ventures is planning to undertake significant drill programs in the ROF in 2014. We have Dundee Capital as a partner on some of our projects, which we plan to expand on. They like our approach to exploring areas that are hard to develop. With Black Horse, we intend to proceed further for either a summer or winter program. Keep your eye on the Ring of Fire. It is a big, developing story that has a lot of depth to it and will be exciting for years to come. •

Best of the Rest: Ontario's Other Minerals

"We can not rely on China for a long-term, high-quality supply of graphite. Therefore, savvy downstream companies are looking into other jurisdictions to secure, and Canada is an excellent choice to fill the supply gap. On demand side, we are seeing excellent indicators for growth. The demand for lithium ion batteries will be taking off with the expansion of electric vehicles. Another application is energy storage like fuel cells for solar and wind energy, which is receiving a lot of attention on the research and development side. Storage batteries cannot be made without graphite. Moreover, graphite can be used in nuclear reactors."

- Aubrey Eveleigh, President and CEO, Zenyatta Ventures Ltd.

Image: Ontario Graphite

Unlocking Value in Ontario's Diverse Commodities

With the eyes of the world fixated on Ontario's gold sector and the potential in the Ring of Fire, it is the overlooked commodities in the province that hold the promise of high returns for investors.

The Sudbury Basin hosts some of the most prolific nickel deposits in the world. Vale's Creighton mine has been in operation since 1901; while Glencore Xstrata's Nickel Rim South mine is currently Sudbury's largest mining operation. In February of 2014, Vale opened the long-awaited Totten mine, the company's first new mine in the Sudbury Basin in more than 40 years. Totten was a former producing mine that laid dormant for decades until Vale spent $760 million to make Totten a fully state-of-the-art, automated mine. As the mine ramps up to full production in 2016, it will add eventually 2,200 metric tons (mt) per day of ore containing copper, nickel and precious metals to Vale's production profile for 20 years.

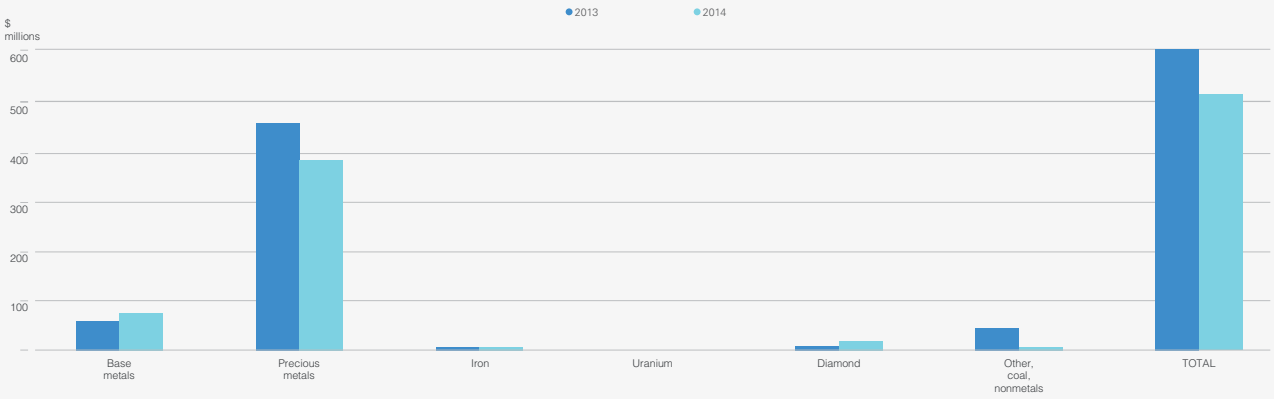
Although Vale and Glencore Xstrata dominate nickel production in Ontario, there is room for smaller players. Toronto-based First Nickel Inc. owns and operates the Lockerby nickel mine in Sudbury. Like Totten, Lockerby was a 30-year-old mine when First Nickel acquired the project in 2005. "It is one of the deeper mines in Sudbury at a mile underground and has some of the higher-grade material in the region, which makes it feasible to mine it at such depths," said Thomas Boehlert, president and CEO of First Nickel.

In 2014, First Nickel plans to increase output by roughly 10% to 15%. This production increase comes at a good time for nickel prices in the global mar-

Image: Transition Metals

ONTARIO'S EXPLORATION AND DEPOSIT APPRAISAL EXPENDITURES BY COMMODITY

Source: Natural Resources Canada



ket. A number of interesting geopolitical developments have caused nickel prices to rise in 2014, such as Russia's political action in Ukraine and Indonesia's ban on unprocessed ore. Last year's worst performer on the London Metal Exchange might be poised to enter a bull market in 2014.

It is an exciting time for Ontario's nickel industry, with KGHM International also advancing work on their Victoria nickel project near Sudbury, and Noront Resources is just beginning to uncover new areas of nickel mineralization in the Ring of Fire. There could be a potentially new nickel belt opening up in Ontario in the future.

The Great Graphite Race

Graphite is experiencing resurgence in the global marketplace as demand is expected to increase: Tesla, the high-end electric vehicle manufacturer, announced plans to build a factory in North America that could require up to 126,000 mt per year (mt/y) of flake graphite. In Ontario, three companies are swiftly advancing graphite projects in order to meet rising global demand. The most advanced project is Ontario Graphite Ltd.'s Kearney mine, a former graphite producer currently on track to restart production in early 2015. "At its peak the Kearney mine was producing around 10,000 mt/y, but shut down when the price of graphite dropped significantly," said Tom Burkett, CEO and member of the board of directors of Ontario Graphite. The company has invested about $50 million to bring the mine to the point of production. Kearney has a very high quality of coarse flake graphite, whereas the other Ontario graphite plays are of a finer quality. "We also have the advantage of understanding the previous challenges faced by our predecessors. For example, we are developing an aggregate market to deal with non-graphite bearing rock we have at the mine with a view towards environmental sustainability and efficiency," said Jerry Janik, vice president of operations and general manager mining of Ontario Graphite.

Junior company Zenyatta Ventures was the top-performing mining company on the TSX Venture Exchange in 2012 and 2013 after discovering the Albany deposit in northern Ontario. The Albany project is a unique hydrothermal style deposit, currently one of the only vein-type graphite deposits in the world – one of the most valuable forms of graphite. "We have an extremely

Image: First Nickel

high-purity and high crystalline volcanic graphite deposit with low contaminants as opposed to sedimentary flake type graphite deposits," explained Aubrey Eveleigh, CEO, president and secretary of Zenyatta Ventures.

The ability to value-add is critical to the price of graphite in the marketplace. Northern Graphite Corp., whose large-flake Bissett Creek project in Ontario contains an overall resource of more than 93 million mt of graphite, is working on a purification technology that yields over 99.9% purity levels. "Our research was designed using a low-temperature thermal approach, where we performed scaling testing in conjunction with a metallurgical company to prove that it is scalable," said Gregory Bowes, CEO of Northern Graphite."

According to Ellerton Castor, CFO of Ontario Graphite, there is a degree of opaqueness surrounding how graphite is priced and the value-added nature of the mineral is critical to understanding the commodity. "There is a learning curve associated with graphite, but given the declaration by both the United States and the European Union that graphite is a strategic mineral, we have seen a significant number of investors taking time to get to know the graphite space," he said.

More to Find

In 2008, De Beers Canada Inc. opened the province's first diamond mine, the Victor mine in the James Bay Lowlands, which highlighted the diversity of commodities to be found in Ontario. The province also holds significant copper deposits outside of Timmins, Ontario, where Glencore Xstrata operates the Kidd Creek copper zinc mine. The company recently announced that it would extend operations at Kidd Creek into 2021. In addition to diamonds and copper, there is ongoing exploration around the Red Lake mining district of northwestern Ontario for iron ore, where past-producing mines hold promise for junior companies. The province also produces industrial minerals such as salt, gypsum, talc and calcium carbonate.

Black Widow Resources Inc. recently hit zinc mineralization in its exploration campaign on the Shunsby project in the Porcupine mining district of Ontario. The property was historically considered an iron or copper play, but exploration work uncovered interesting zinc mineralization. "Black Widow compiled all of the historical data on the property and soon realized it was more of a zinc play, in that most of the 214 historical drill holes reported impressive zinc mineralization," said Neil Novak, president and CEO of Black Widow.

There is also a large potential to find new sources of platinum group metals (PGM) in Ontario. Current PGM production is limited to KGHM's McCreedy West mine in Sudbury, but that is set to change in 2014. Wallbridge Mining Co. Ltd. is constructing its Broken Hammer open pit project in Sudbury that contains a significant amount of highly valuable PGM resources. Transition Metals Corp., a junior project generator in Sudbury, recently discovered an exciting new area of PGMs through its partnership with Impala Platinum. Located 25 km from Thunder Bay in northwestern Ontario, Sunday Lake represents an emerging new PGM district in the province. •

Neil Novak

President and CEO
BLACK WIDOW RESOURCES INC.

Prior to Black Widow Resources, you helped make the Eagle's Nest discovery that opened up the Ring of Fire. Can you give us a bit of background to that discovery?

Spider Resources had discovered the original base metals discoveries at McFaulds Lake in a joint venture (JV) with KWG Resources and DeBeers Canada. In 2002, one of the JV drill holes returned results of eight meters (m) of 4% copper and about 7% zinc but DeBeers was not interested in base metals and withdrew. Spider arranged the staking of 25 square miles around the discovery and Noront, Freewest, MacDonald Mines, Fancamp Exploration and Probe Mines staked claims as well. Exploration commenced in 2003 and continued for several years. Spider was looking for massive sulphides and identified ten different occurrences, others were not lucky and interest faded. In early 2006, we drilled one of the anomalies (in a JV with Freewest and KWG) and hit two chromite layers of about 1.5 m thick. At the time, very few Canadian geologists knew anything about chromite. Concurrently, Norm Brewster and I were running a consulting company and doing contract work for many junior companies, one of which was Condor Diamonds. After survey work, it was apparent after that its kimberlite/diamond anomaly was conductive and likely not a kimberlite but resembled the nearby massive sulphide of Spider and KWG at McFaulds Lake. I was also on the Board of Directors of Noront and convinced Dick Nemis at Noront, who held property contiguous to the Condor claim, to drill two holes in August 2007, which became the Eagle's Nest discovery.

At what point did you realize its significance?

I knew as soon as I saw it: the first intersection was cumulate net textured sulphides with large crystals of pentlandite (an ore mineral of nickel) surrounded by chalcopyrite (an ore mineral of copper). We only had a couple m of net textured mineralization in the first hole so we did an undercut hole at 60 degrees that intersected about 8 m of very similar rock with bigger crystals, so we concluded we were in for a big system. After the discovery in August 2007, I become vice president of exploration, and we continued exploring for other Eagle like deposits. We drilled through a nearby massive sulphide zone (Eagle 2) and continued through to the surrounding rock to get a better feel for the geology and encountered several tens of meters of massive chromite. Spider along with KWG continued to explore in joint venture with Freewest Resources. The discovery of massive chromite that Noront had encountered gave our JV encouragement to look once again at the two layers of chromite that we had found in 2006. This delineated what became known as the Big Daddy Chromite Deposit, which extends north into the Freewest 100%-owned property, where Freewest found Black Thor and Black Label. Collectively, the three deposits were in the order of 80 million metric tons (mt) in various resource categories and attracted Cleveland-based Cliffs Natural Resources.

How are you leveraging your experience with Spider Resources and Noront into your current work at Black Widow?

In August 2010 Cliffs Natural Resources acquired Spider Resources, and I stayed on as president until the end of that year. There was a legacy project at Spider that I was interested in, which was the Gremlin project just north of the Ring of Fire. Through a private company called Black Widow Resources (a more aggressive arachnid), I acquired Spider's (now Cliffs) interest in Gremlin project in exchange for equity in Black Widow, by issuing shares to Cliffs. Now, most of my attention is on the Shunsby project, a VMS-deposit in the Porcupine Mining District of Ontario. Historically it was looked at for its iron potential then eventually copper potential: exploration work in the feeder zones returned results of 6% copper over 10 m, but there were only little (25,000 to 50,000 mt) pods of mineralization that seemed to have limited size potential for a large company. We compiled the historical data and realized that it was more of a zinc play. We are now putting together a small drilling program to twin some of the holes and hopefully reproduce some earlier results. Other companies in the vicinity are showing exciting results, attesting to the validity of this area as a zinc-rich VMS area.

What is your vision for the future of Black Widow Resources?

One of the reasons for creating Black Widow was to be a consolidator of projects in the Ring of Fire area, and my dream is to go back into the Ring of Fire and find more viable mineral deposits. There are so many areas that are unexplored, and some really neat anomalies. Once the infrastructure is in place, Black Widow will be poised to explore projects in the region. The Ring of Fire is world-class. Being one of the founders, I look forward to being invited to the first mine opening there. It is a multi-generational project that will benefit all of Northern Ontarians as well as the area's First Nations. •

Thomas Boehlert

President and CEO
FIRST NICKEL INC.

First Nickel is Canada's only publicly listed, nickel-producing junior company. Having taken over the CEO role in September 2011, what was your mandate and what milestones have you achieved?

Our mandate at First Nickel was to put the Lockerby mine back into production from care and maintenance and to grow the company through additional acquisitions in the base metal space in the Americas. Having an operating mine is key to our second objective of acquiring additional assets. Lockerby demonstrates to the market and our investors that First Nickel can build and run a mine, which is fairly rare in the junior space.

Sudbury, where Lockerby is located, is host to world-class nickel deposits. Where does Lockerby fit in among the mines in the area?

Lockerby was a 30-year-old mine when First Nickel took it over. It is one of the deeper mines in Sudbury at a mile underground and has some of the higher-grade material in the region, which makes it feasible to mine at such depth. In 2014, First Nickel plans to increase output by roughly 10% to 15%. Our success last year came from using all of the options at our disposal. As prices fell throughout the year, we hit our production numbers significantly beat our cost guidance. We also renegotiated our offtake agreement with Glencore, which gave them more flexibility in how and when they process our ore and gave First Nickel more visibility into the timing of cash receipts from Glencore, while also increasing our proceeds.

In contrast to last year, 2014 has generated more optimism in the nickel market. How do you plan to turn higher nickel prices into growth for not only the Lockerby mine, but also for your exploration projects?

Higher nickel prices and controlling costs generate cash flow with which we can invest in the mine life and increase the value of the operation. We are looking at developing several zones at the Lockerby mine and going deeper. Our other development projects are on hold until we see how the market develops, while on the acquisition side we are whittling down a small group of potential targets. Although the meltdown in the junior space has made it possible to buy assets very cheaply, as it turns out there are not many quality opportunities available.

What type of project profiles is First Nickel considering for acquisitions?

The size of transaction that we are focused on is in the $50-million to $250-million range, which for a company with a $30 million market cap would be a sizeable step. First Nickel's objective is to become a mid-tier mining company, with somewhere in the range of 100 million pounds of copper equivalent produced annually and 2.5 billion pounds of resource in the ground. Ideally we are looking for operating assets and relatively late-stage projects. While a lot of what we look at is in Canada, we are also considering projects in the United States as well as mining jurisdictions in South America, such as Peru, Chile and Brazil.

Considering the geopolitical risks affecting the nickel market, such as Indonesia's ban on nickel exports, what opportunities do these dynamics create for First Nickel and its peers in Ontario?

Depending on how long this continues and how comfortable people become with the fact that there is a supply component that needs to be filled, this opens up many opportunities in Sudbury. First Nickel has the potential to make Lockerby larger and extend its mine life, while also getting involved in new opportunities. We see an opportunity to develop assets that would be non-core for majors, supplying incremental feedstock for their mills.

The industry is attracting increasing interest from private equity funds, but few companies have benefited from such investments thus far. How has First Nickel, which has Resource Capital Funds as a 33% shareholder of the company, benefited from this long-term strategic investor to your portfolio?

Resource Capital Funds (RCF) is different from other private equity firms in that it has long-term experience in the mining industry and has made good returns for shareholders in up and down markets, which has enabled them to continue to raise additional funds. Many private equity firms see potential opportunity in the next cycle in metal prices; however, the general private equity model does not work for mining because metal price volatility can easily outstrip any operating efficiencies that are put in place. Also, the mining business does not lend itself to high levels of debt, which the private equity model generally relies on.

What is your vision for First Nickel in the coming three to four years?

First Nickel will be well positioned to take advantage of the next cycle in metal prices with multiple operations in various metals in the Americas. The crash in the junior sector and the discipline imposed on the mid-tiers and majors will exacerbate the next cycle, so we are getting positioned ahead of the market with a mid-tier portfolio. •

Tom Burkett, Ellerton Castor & Jerry Janik

TB: CEO
EC: CFO & Chief Administrative Officer
JJ: General Manager
ONTARIO GRAPHITE


TB


EC


JJ

The Kearney graphite mine is a past producer in Ontario. How close is the mine to production?

TB: The Kearney mine was previously in operation from 1990 to 1994. At its peak it was producing around 10,000 metric tons per year (mt/y), but shut down when the price of graphite dropped significantly. It was on care and maintenance until 2005, when Ontario Graphite's current investors took over. Since then, the company has invested about $50 million to bring the mine to a point where we are poised to restart production. The final step is to raise another $36 million. Once we raise the capital, production will begin in eight months. Ontario Graphite is going through a reverse takeover process in order to list the company on the TSX-V by Q3 2014. We have all of the regulatory permits in place already. The market is excited to have another graphite mine in production and we are the closest of our competitors to reaching this milestone.

With a few different graphite projects advancing in Ontario, what is unique about Kearney?

JJ: Kearney has a high quality of coarse flake graphite, whereas the other Ontario graphite plays are of a finer quality. The new 43-101 resource indicates that we will have a mine life of 100 years, but the deposit is still not fully defined. We also have the advantage of understanding the previous challenges faced by our predecessors. For example, we are developing an aggregate market to deal with the non-graphite bearing rock that we have at the mine with a view towards environmental sustainability and efficiency. We are also recycling 85 per cent of the water used in the milling stage, reducing the need for water from surrounding lakes.

EC: Ontario Graphite is $36 million away from being in production. Every other publicly traded graphite play as of May 2014 must raise anywhere from $100 million to $160 million.

What is Ontario Graphite's plan to add value at Kearney?

TB: We are working on a low cost purification technology that will allow us to produce a high-quality product. We have also developed a micronization technology that will allow us to produce finer crystalized graphite for battery applications in the LED industry.

How confident can investors be that graphite is not the same story as rare earths a few years ago?

TB: There are many emerging applications for graphite. LED light bulbs will soon become standard, and the only way they can work is with a thermal heat sink that uses graphite. People carry graphite around every day in their smart phones. Graphite may be an old material, but it is new to many of today's applications.

EC: Ironically, the rare earths crash is helpful because it has demonstrated to customers the risks of relying on Chinese-sourced material. We are in the unique position of having clients eagerly awaiting a non-Chinese source of graphite.

Have you encountered misunderstanding of graphite, which is often not well understood, in your fundraising efforts?

EC: Graphite is a non-traded industrial mineral, so there is not the same level of understanding as with gold or copper. There is some opaqueness about how graphite is priced and the value-added nature of the mineral. However, after the declaration by both the United States and the European Union that graphite is a strategic mineral, many investors have learned about graphite and are now quite informed after its uses and pricing. •

Gregory Bowes

CEO
NORTHERN GRAPHITE CORP.

GBR last spoke to Northern Graphite in 2011. Can you update us on the company's progress at the Bissett Creek graphite project in the interim?
Northern Graphite is the only graphite company in Ontario with a bankable feasibility study and an environmental permit. Bissett Creek is a large flake deposit; 90% of our production will be large and extra large flake graphite, while most other deposits are from 30% to 50% range. The project's location in Ontario is located very near to existing infrastructure, and our initial capital expenditure and unit operating costs are among the lowest in the industry. We are currently working on acquiring a strategic partner and securing financing. Our goal is to be in construction by the end of 2014 in order to begin production by the end of 2015.

What distinguishes Bissett Creek from other graphite deposits in Ontario?
We see growth in lithium-ion batteries, and we are the only company in the Ontario graphite market that has produced spherical graphite from the concentrate and tested it successfully in batteries; we are now providing samples to manufacturers. Also, it appears that batteries made using our flakes have bigger capacity, and are easier to purify. We expect this to be our greatest competitive advantage.

What is the significance of Bissett Creek being a large flake deposit?
In precious and base metal markets everybody gets the same price for their metal. In industrial minerals the opposite is true and prices range according to their quality. The large flake market has held the market prices better and the extra large market has even better indicators. Extra large flake prices are around $2000/ton, whereas small and medium flake are under $1000/ton. The percentage of large flake has a big effect on the economics of the project. The amorphous market for graphite is lower-priced and is more difficult to sell.

Northern Graphite has tested a proprietary purification technology that achieved purity levels of over 99%. Is the technology scalable to support anticipated levels of production at Bissett Creek?
Our research was designed using a low-temperature thermal approach, where we performed scaling testing in conjunction with a metallurgical company to prove that it is scalable. We are looking at production of 20,000 tons a year and do not intend on purifying all of it but expanding as the market grows. The price of this purified graphite will fetch over $3,000/ton, which gives us an additional profit margin.

Graphite prices have suffered of late. How to the wider economics of the graphite market affect the investment proposition at Bissett Creek?
The current graphite price is near the bottom, because Chinese flake production has gone down 20% to 30%, and mines are closing due to depressed prices. Our economics at the current prices are very good. The average price we receive on current market is $1800/ton, while most of our competitors will receive $1000/ton because of the lower flake content. We have a pre-tax rate of return of 20% at current prices. Our cash operating cost is $750/ton, meaning that we still have a good margin even at the bottom of the market.

Given that graphite is relatively unknown among Toronto's financial community, what level of enthusiasm do you see among potential investors regarding Bissett Creek?
The investment community has a good idea about graphite, and the economics of the mineral are very attractive. The commodity is less known amongst lenders, since there is no hedging and spot price trading, so raising debt is challenging. Lastly, we still do not have an off-take agreement, which we are still working on acquiring, either with a manufacturer or with a lithium-ion battery manufacturer.

What is going to drive the demand for graphite in the near future?
Steel and automotive industries are still a big part of graphite demand in the future. New uses for graphite are not big enough yet to offset a decline in supply. When economy turns around, and steel production picks up again, the graphite price will increase. Lithium-ion batteries have gone from using almost no graphite to 100 tons of graphite a year going into that market, and the market is growing at a rate of 20% per year. We anticipate that lithium-ion batteries and fuel cells will drive the graphite market over time.

What would you like our readers to know about graphite as an investment proposition?
At the moment, the price of graphite is near the bottom, but there are good companies out there and a very good supply-demand picture emerging. If you have the patience, there is a potential to do very well in this market. •

Scott McLean

CEO
TRANSITION METALS

What was the rationale behind the HTX Minerals acquisition in 2013?

The merger of HTX Minerals and Transition Metals resulted in a larger, more diverse company of comparable size to our peer set of project generators. Collectively the group now boasts a strong technical team of 8 geoscientists and more that 25 projects across the country. Notably the transaction enabled Transition shareholders access key nickel, copper PGM asset and HTX's strategic alliance with the Nunavut Resources Corporation while the HTX shareholders gained exposure to Transition's Janice Lake base metals project in Saskatchewan and a cache of high quality gold projects including its new Haultain discovery.

What is the significance of the Sunday Lake platinum discovery?

Sunday Lake was the result of a five-year partnership with Impala Platinum. We developed a solid exploration concept and through excellent science and persistence, we have been rewarded with a new platinum discovery in what might be an emerging new PGM district. In addition, there will be significant supply constraints for platinum going forward and demand should increase, which will only improve platinum pricing and by extension the value of platinum projects. Having an alliance partner in Impala was key in keeping the project moving at a time when it has been difficult to finance projects. The partnership remains strong, as we look to further understand the mineralization and geology that has been intersected.

Transition recently spun out Sudbury Platinum. How does this fit within your strategy?

One of Transition's projects is called Aer-Kidd, which is sandwiched between Vale's Totten mine and KGHM's Victoria development project. Transition is the only junior in that area which makes Sudbury Platinum an attractive investment. Under the Transition Metals project generation business model we were looking for partners to fund our exploration work in order to minimize shareholder dilution. In the case of the Aer-Kidd project we were not able to find a partner. As a result a decision was made to transfer the project outside of Transition Metals into a private company in exchange for shares. By doing so we were able to keep our shareholders exposed to the project without diluting the principal company. Sudbury Platinum recently raised $1.5 million in private placements, and we will be drilling this summer.

How are you able to find and identify greenfields targets when the market is turning away from high-risk exploration?

Transition's forte is concept generation. We start with large data sets and build custom compilations to identify districts that are prospective for discovery. Our area of expertise is nickel-copper-PGEs, base metals and gold exploration and we have a proven track record that demonstrates we can be successful. We draw on our team's knowledge of existing areas, as well as it world-class technical expertise. There are high risks in greenfields exploration, but they also produce some of the highest returns for shareholders. The project generator business model mitigates some of the risk and retains exposure to the potential high rewards.

Why are we not seeing more project generators?

Project generators are dealing with early-stage exploration that comes in and out of favor with investors. In a soft market like today, larger companies are looking for projects that are more de-risked, and it becomes more difficult to find partners for earlier stage projects. However, as long as we maintain our property positions we can put projects on hold until the market becomes better and we can once again attract new partners. At this time, Transition is well positioned with three joint venture partners, which are spending money on projects and generating funds for new projects in Nunavut. Project generators need to assess how far to take a project and how much money to spend to make it marketable to a partner.

What interests you in greenfields exploration in Ontario?

Transition is focused in three areas in Ontario. The first is the emerging platinum district near Thunder Bay, where we are focusing our exploration on targets similar to Lundin's Eagle deposit in Michigan, Rio Tinto's Tamarack deposit in Minnesota and Panoramic's Thunder Bay North project. We might have tiger by the tail in the area at Sunday Lake and are hopeful that additional drill results will garnish attention in the market. We have always been bullish on Sudbury, where we have set up our new subsidiary, Sudbury Platinum Corp to focus on discovery of high-grade nickel, copper, PGM deposits. The third area is the Abitibi, a district that produces around 80% of Canada's gold. Transition is focused on the Rideout structure, where we have a recent discovery at our Haultain property.

Where would you like to see Transition Metals in the future?

Transition will continue to grow as a project generator. Our business plan affords us to be involved with many high-quality exploration projects that will reward our shareholders, employees and partners with exposure to new mines. We will continue to look for partners for our other projects and already have interest in Haultain and West Matachewan in the Abitibi region and Janice Lake in Saskatchewan. •

Global Reach: Exporting Mining Expertise and Finance

"It is quite evident that projects take more time to move through the environmental review and permitting process in the United States than in Canada. Every jurisdiction, including Canada, is different, and the common objective in all jurisdictions in the world is to manage that process as efficiently as possible. Duluth has taken a comprehensive approach in Minnesota to involve ourselves with various levels of government, both at the political and the agency level, which is important when you get into the formal permitting process. You have to be far more detailed in your environmental baseline studies and the EIS than in Ontario."

- Christopher Dundas,
Director and Executive Chairman,
Duluth Metals Ltd.

Image: Dundee Precious Metals

Broadening Horizons

Ontario's Miners in South America, Europe, Asia, and the United States

South America is the traditional backyard for Toronto-based mining companies with operations overseas, but many juniors are pushing new mining frontiers in less-known destinations of Eastern Europe and Asia. Of the nearly 9,000 projects held by TSX- and TSX-V-listed companies, nearly 50% are outside of Canada.

Canadian mining companies have a long history of operations in South America. Barrick Gold, Yamana Gold, Goldcorp, Teck Resources and Kinross Gold Corp. are just a selection of major companies that operate mines in the region, accruing revenues of nearly $20 billion.

Unsurprisingly, a number of Toronto-based juniors are hoping to replicate the success of these major companies in proven mining camps. Mexico has always been a preferred mining jurisdiction, with world-class deposits of precious metals and strong community support for the industry. Recently, however, the Mexican government instituted a 7.5% mining tax as part of a series of reforms to the country's fiscal regime.

Excellon Resources has been active in Mexico since 1996. Its project, the La Platosa mine in Durango, is Mexico's highest-grade silver mine, producing more than 1.4 million ounces per year (oz/y) at a grade of 718 grams per metric ton (g/mt) in 2013. The company's focus is to increase high-grade production in 2014. "We increased production from 5,000 mt in July 2013 to 7,000 mt in September and October 2013; although we may only produce 200 mt/day, each of our tons carries up to 30 oz of silver – our average ton is worth $500 to $600 at current silver prices," said Brendan Cahill, president, CEO and director of Excellon Resources.

Aura Minerals Inc. operates the Aranzazu mine in Mexico that produced 13.6 million lb/y of copper in 2013. The company is looking to increase its production capacity at Aranzazu by over 70% by 2016. "In the current economic environment, this would more than double our profits," said Jim Bannantine, president CEO of Aura Minerals. "Once we reach the 30 to 35 million pounds per year (lb/y) milestone in 2016, simple economies of scale mean that the cash cost will come down to approximately $1.35/lb."

More Potential in Latin America

The majority of Canadian mining investments into Latin America are dedicated to Mexico, Peru, Chile, Argentina and Brazil. However, Toronto juniors are steadily advancing projects outside of the "Big 5."

In Guyana, Sandspring Resources Ltd. is looking to bring its 4.1 million oz Toroparu gold project into production in 2017. The project received a major boost earlier this year when Sandspring signed a $150-million streaming deal with Silver Wheaton Corp. The international mining community is watching this first large project in Guyana according to Rich Munson, Sandspring's CEO. "Guyana Goldfield's Aurora project will help to de-risk the perception of the country. If the International Financial Corp., one of the main financing companies for Guyana Goldfields, is comfortable with the situation, it will also give the green light to the industry."

Latin American Minerals is hoping to advance its camp-scale Paso Yorbai gold project in Paraguay.

The advantage for juniors located in a historic mining jurisdiction such as Ontario is being able to export mining expertise to developing countries that are less familiar with mining. GoldQuest Mining Corp.'s president, CEO and director, Julio Espaillat, organized a delegation from the San Juan province in Dominican Republic to visit the underground mines in northern Ontario in order for policymakers to understand the impact of underground mining operations. "They are of course encouraged to form their own opinions about underground mining, but this way they will

Image: Aura Minerals

become more familiar with the process and its impact on the environment," said Espaillat.

Moving to the Eastern Hemisphere

With so much success in South America, a number of Toronto-based companies are hoping to apply their expertise to less traditional mining jurisdictions. Dundee Precious Metals Inc. owns and operates the Chelopech gold mine in Bulgaria and the Kapan gold project in Armenia, and is developing the Krumvograd gold mine, also in Bulgaria. Since acquiring the Chelopech mine in 2004, Dundee Precious Metals has quadrupled its overall production to 130,000 oz/y of gold and 45 million lb/y of copper. "Eastern Europe has a long history of mining," explained Rick Howes, the company's president and CEO. "Our model of building these businesses is to avoid over-staffing with ex-patriots and employ local nationals. After the introduction and training of new methods and technology over an eight-year period at our producing Chelopech mine, a local management team is in full control." The company's other producing asset is the Kapan gold mine in Armenia. "Kapan was a relatively small underground-mine that Dundee acquired in 2008. Five years' drilling culminated in a new resource estimate of a large deposit, to be expanded underground rather than open-pit. The mine is producing 30,000 oz/y gold, and is a polymetallic deposit of gold, copper, silver and zinc; 50% of the value is in the gold and based on the inferred and indicated resource there is the potential to double current production," said Howes.

"The exploration potential of Chile outweighs what you find in Canada… Recently, grassroots discoveries have been harder and more expensive to find Canada due to the mature state of the Canadian exploration industry. In Chile, you still have the opportunity to find new deposits – Cerro Maricunga was a grassroots discovery outcropping on surface.

- Carl Hansen, President, Director and CEO, Atacama Pacific Gold Corp.

Foth is working on the Victory Nickel project in Manitoba, which owned by Victory Nickel Inc.…We are engaged with a number of clients with interests between Minnesota and Ontario, where there are similar geologies.

- Steve Donohue, Director, Foth Infrastructure & Environment

Mexico is the best silver jurisdiction in the world… permitting is straightforward and transparent and, until recently, the country had a favorable tax regime with a corporate rate of 30%, although new royalties and recent tax reforms have cast a shadow on tax competitiveness.

- Brendan Cahill, President and CEO, Excellon Resources Inc.

Paraguay is one of the easier countries in which to work in Latin America. It has potential for gold, diamonds, titanium, uranium and rare earths and is under-explored...

- Miles Rideout, President and CEO, Latin American Minerals Inc."

DIRECT INVESTMENT STOCKS

Source: Statistics Canada, CANSIM Table 376-0052.

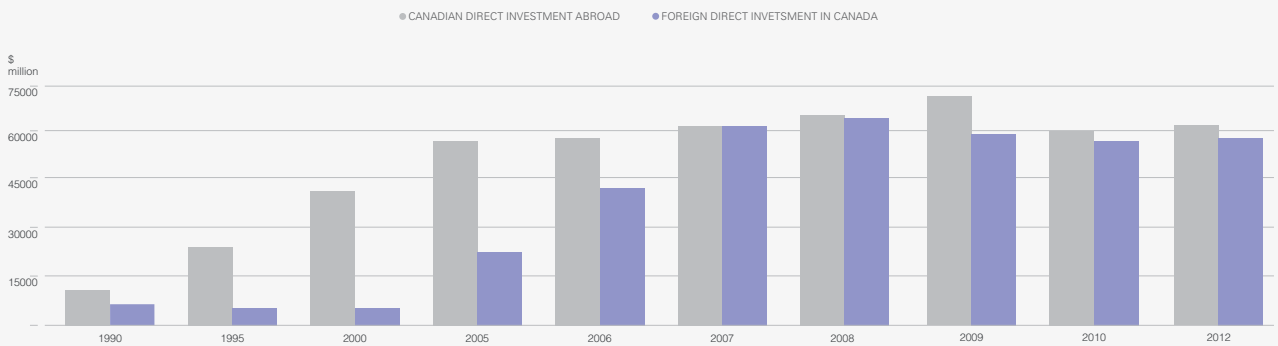


Image: Orvana Minerals Corp.

Eastern Europe's Communist history meant that for a number of years, mining operations were taking place unbeknownst to the global industry. Once the Iron Curtain fell, the mineral potential of former Soviet Bloc countries created excitement. Black Iron, a Toronto-based exploration company with 100% ownership of the Shymanivske iron project, thinks there is huge potential in Ukraine. "Historically, Ukraine has produced about 140 million mt/y of iron ore, now production is down to 90 million mt/y. It is slightly more than Canada, but minuscule compared to Australia's production," said Black Iron's president and CEO, Matthew Simpson. The current political situation involving Ukraine and Russia is however weighing heavily on the minds of the mining industry.

Silver Bear Resources Inc. is developing a high-grade silver project in the eastern region of Russia. The Mangazeisky project has a measured and indicated resource of 17.9 million oz of silver at 518 g/mt and inferred resources of 43.9 million oz of silver at 282 g/mt. Despite these grades, Silver Bear is one of very few foreign companies developing a silver project in Russia. "Silver is considered a non-strategic metal within Russia, meaning it did not receive a lot of resources for development from Soviet authorities," said Mark Trevisiol, Silver Bear's president and CEO. "A lot of the former Soviet Union's silver production come as a byproduct of mining base metals (lead and zinc) hence exploiting silver-based deposits was not warranted."

Stans Energy Corp. is working to advance their Kutessay II rare earths project in Kyrgyzstan. "Kutessay II was the only hard rock, heavy rare earth deposit that was ever in production outside China and supplied 80% of the Soviet Union's rare earths for 30 years until ceasing operations in the early nineties," said David Vinokurov, vice president of corporate development at Stans Energy. "The demand for rare earths has only surged since, and they are now used in virtually every type of electronic application."

While there are larger deposits worldwide, the challenge is finding a project with the right mix of the critical rare earth elements, with a low amount of capital expenditure required. With Kutessay II, Stans believes, they have found that essential mix. "What makes Kutessay II stand out is that it contains nearly 50% heavy rare earths, and with a projected output of 1,500 mt/y of oxides, the projected capex is in the right range," said Vinokurov.

Outside of the former Soviet bloc of countries, Europe holds significant potential for Canadian juniors. Orvana Minerals Corp. owns and operates the El Valle-Boinas/Carled (EVBC) underground gold copper mine in Spain and the Don Mario mine in Bolivia. The company exceeded its production estimates from EVBC in 2013 and has increased the capacity of its milling facility to 2,200 mt/d. "In comparison with some of the large gold deposits in Ontario, the grade at EVBC is lower. However, the advantage we have is that there is copper and silver as by-products," said Michael Winship, president and CEO of Orvana Minerals.

Closer to Home: the United States

Sometimes, the best areas to explore are south of the border, where rule of law is secure and the regulatory regime is similar to that of Canada. Duluth Metals Ltd. owns the massive Twin Metals deposit in Minnesota, which houses 27 billion lb copper, 8.9 billion lb nickel and 35.6 million oz of palladium-platinum-gold. "Compared to similar deposits of this type, from a contained metal point of view, this is probably the second-largest contained metal reserves next to Norilsk," said Christopher Dundas, chairman, CEO and director of Duluth Metals.

Romarco Minerals Inc is working on developing the Haile gold project, a former producer that houses a measured and indicated gold resource of 71.2 million mt at 1.77 g/mt for 4.0 million oz. "The Slate Belt of the East Coast was where gold production in the United States started, long before the California Gold Rush. Today gold prices are materially different and the technology has changed significantly," said Romarco's president and CEO, Diane Garrett.

The population density of the United States has an impact on the permitting process, which is the main challenge to mining operations in the country. As Steve Donohue, director of mining sector services at Foth Infrastructure and Environment, explained: "While there is significant local support from the mining world, permits are more challenging to obtain due to non-governmental organizations and other environmental groups, leading to a longer review process to obtain permits. In Canada, because many of the mining projects are located in remote areas away from communities, the permitting process is less intense." •

Michael Winship

President and CEO
ORVANA MINERALS CORP.

Could you provide us with an introduction to Orvana Minerals and its assets in Spain and Bolivia?
Orvana Minerals is a mining company with a strong international focus. Our flagship projects are the El Valle-Boinas/Carled (EVBC) underground, gold and copper mine in Spain and the Don Mario mine in Bolivia.

In 2013 Orvana Minerals exceeded estimated production targets at both EVBC and Don Mario. What measures are being implemented in 2014 to support higher production targets?
Orvana Minerals has exceeded expectations for production in 2013 and consequently adjusted 2014 production guidelines for gold and copper. We implemented a number of measures at our flagship projects. For example, at EVBC, we increased the capacity of our milling facility from the nominal amount of 2000 metric tons per day (mt/d) to 2200 mt/d and are targeting 2400 mt/d in the near future. These results are being achieved thanks in part to a new hoisting facility, which has been rebuilt after an accident in June 2013. We upgraded safety standards and the increased capacity of the system allowing us to deliver higher production already by the end of Q12014.
At Don Mario, we shut down the LPF oxide circuit - a high-cost circuit with limited throughput and focused on optimizing sulphide floatation. Over the past few quarters, we got higher throughput and reduced operating costs. There is also an organic growth opportunity. We have included exploration expenditures for both Spain and Bolivia. We will spend over $1 million in Bolivia.

How does EVBC gold mine compare to existing gold mines in Ontario in terms of grade and operational capacity?
In comparison with some of the large gold deposits in Ontario, the grade at EVBC is lower. However, its advantage is that there are copper and silver by-products. The other benefit is labor stability, due to a high level of unemployment in Spain. Labor costs remain reasonable, which helps to run our operations smoothly.

One of your flagship projects is located in Bolivia. How would you characterize operating there?
Orvana has been operating in Bolivia for a decade and feels relatively comfortable. Don Mario is located in Santa Cruz area, which is called the 'breadbasket' of the country. It is an economically driven region, and having our office there helps us easily access contractors and qualified staff. There are some political challenges associated with working in Bolivia, and at the moment we are one of the four remaining mining companies in the region. We are aware of the nationalization risk, but given our track record in the country, we are confident about its future and will continue to invest in the region and advance our project.

What are your near-term objectives and where would you like to lead the company?
We will maintain a strong safety and environmental record, as well as continue improving our performance in that area. We intend to exceed our 2013 results and achieve production of 100,000 ounces per year. Orvana Minerals is an exciting company that distinguishes itself through its international focus and possibility to expand its production capacity. •

Rick Howes

President and CEO
DUNDEE PRECIOUS METALS

Why did Dundee Precious Metals decide to enter the Bulgarian and Armenian mining jurisdictions?

Eastern Europe has a long history of mining. Dundee Precious Metals has been established since 1983, originally formed as a closed-end investment fund, essentially a precious metal fund investing in global mining projects. Through the process of investing in projects, Ned Goodman, our CEO at the time, was familiar with assets in Bulgaria, and in 2003, he became aware that the company owning these assets was going bankrupt. On acquiring the Bulgarian assets, Ned Goodman closed the fund and in 2004 launched Dundee Precious Metals as an operating mining company.

What is the current position of your modernization process and ramp-up at the Chelopech mine?

In 2009, a capital project for Chelopech of $175 million was approved to modernize and expand ore production from 1 million (metric tons) mt to 2 million mt; this was achieved at the end of 2012, doubling the previous production to 130,000 ounces (oz) of gold and 45 million pounds (lb) of copper. Since acquiring the mine in 2004, we have quadrupled its overall production. We run a very efficient operation, which is a combination of technology and management practices. Our costs are based on using best-practice technologies for how material is moved, processed, and distributed. From a cost basis Chelopech is in the lower 10% of our producing assets.

Could you provide us with an update on the Pyrite recovery project at the Chelopech mine?

Dundee has always had gold that it has not recovered from the Chelopech material, producing only a copper concentrate. Copper contained about 55% of the total gold content, therefore the gold accompanied the recovered copper; the other 45% of gold was locked in the mineral com pyrite, essentially an iron sulphide, not a valuable mineral per se but one that does contain some gold. A project to produce pyrite concentrate containing gold is under construction to be completed by year-end 2013. It will release 400,000 mt pyrite mineral containing somewhere between 70,000 oz of gold and 80,000 oz of gold in addition to the 130,000 oz of gold that is already being recovered. Over the next two to three years we have a contract with the Chinese to sell mineral concentrate. A feasibility study has been completed for another method to recover the gold from the pyrite and build a facility on site at Chelopech. It is major capital investment but is on-hold due to current gold prices.

Your other Bulgarian asset, Krumovgrad, has seen good development with the Environmental Impact Assessment (EIA) receiving positive feedback from the Bulgarian authorities. How did you overcome the environmental concerns of the public?

Krumovgrad commenced in 2005 with Dundee submitting an EIA application for an open-pit gold project. We went through public hearings in a process to secure environmental permits: public concerns were expressed over the use of cyanide technology as part of the process to recover the gold and the near-town location of the wet tailings facility. In 2008, based on the feedback, we decided not to proceed with the project. Dundee then re-packaged its proposal taking out the cyanide technology, which meant an economic trade-off, but still producing a good metal recovery making the project viable. The footprint of the project was reduced by 50%, the area for the wet tailings facility was removed, and the method of semi-dry tailings disposal adopted. The Krumovgrad proposal was resubmitted and more readily accepted. Environmental permits have been secured plus a concession agreement with the government; currently, the project is now at the stage of local municipal permits in readiness for construction. The local community is now predominantly supportive of the project.

What has been the impact that the 2013 Bulgarian elections have had on Dundee Precious Metals?

Currently, the political environment in Bulgaria is not stable. The stability under the previous government was unusual. The May elections produced a very weak minority government of the Bul-

garian Socialist and ethnic Turkish party with 50% of the seats making it difficult to secure changes in legislation. Arguably, there will be an election before any major changes are made on energy and mining. The minority government has not adversely affected Dundee at Chelopech, but at Krumovgrad there has been a small issue i.e. the slowing down of the permitting process by the local municipal, a political supporter of the ethnic Turkish party.

What is the relative importance of your Kapan project in Armenia and how much is the mine producing?

Kapan was a relatively small, underground mine that Dundee acquired in 2008; our buying strategy was based on old Soviet drill-hole data, which showed that the asset had the potential to become a large open-pit mine. Five years of drilling culminated in a new resource estimate of a large deposit, to be expanded underground rather than open-pit. The mine is producing 30,000 oz of gold annually, a polymetallic deposit of gold, copper, silver and zinc; 50% of the value is in the gold and based on the inferred and indicated resource there is the potential to double current production. During its life-span the resource should produce 2 million gold equivalent ounces. Investment requirements have still to be calculated.

To complete the overview of your assets, could we now look at your Namibian concentrate processing facility?

Dundee acquired the Tsumeb smelter facility in 2010. Our rationale was to ensure the treatment of our Chelopech's high arsenic copper concentrate, as there are few locations globally that can treat this type of material. The Tsumeb facility is unique; it had previously been treating material from the Tsumeb copper mine, 100% the type of material we have at Chelopech. The owner of the smelter was not willing to invest the capex to modernize the plant to international standards, so Dundee bought it and modernized it, one aspect being to reduce emissions from the smelter by capturing the sulfur dioxide emissions from the stack converting it to sulfuric acid. The plant is also being expanded to take more material from Chelopech and third party producers with the same kind of concentrate. Tsumeb will be the single largest smelter in the world treating unique complex concentrates. Similar plants in Peru, Mexico and Korea that have not invested in modernization have closed due to environmental issues.

What are your main developments planned for 2014?

Dundee's developments for 2014 will be to commence production at the Krumovgrad gold project in southern Bulgaria, complete its Tsumeb smelter acid plant project (expand its smelter and increase production throughput), and begin to sell acid to the uranium markets in Namibia. Additionally, we are also looking forward to completing our pyrite project. Dundee Precious Metals is built on three streams: copper, gold and treatment of copper concentrate; from a pricing viewpoint, all these streams are independent of each other. Dundee Precious Metals is poised to progress by maintaining its low-cost high-return policy. •

Mark Trevisol

Former* President and CEO
SILVER BEAR RESOURCES

* Graham Hill is the new CEO of Silver Bear Resources.

Silver Bear's Mangazeisky project in Russia has a measured and indicated resource of 17.9 million ounces (oz) of silver at 518 grams per metric ton (g/mt) and inferred resources of 43.9 million oz of silver at 282 g/mt. Can you put these numbers into perspective?

The extraction value of the Mangazeisky project is very high. In our latest preliminary economic assessment we are targeting the near surface high-grade zones that have ore values of up to $1000/mt. Grades are what make the project. We are 400 kilometers (km) north of a major city with winter road access. The mining plan focuses on our near surface high grade resources in the first five years of mining, with a total mine life of 19 years. This provides a quick payback on the project (less than two years) and generates cash to further explore other high-grade areas on the property. Over the next 12 to 18 months, we will move the project into full feasibility. The economics are very attractive using the current Preliminary Economic Assessment (PEA), with a 63% internal rate of return, $130 million net present value (at 5% discount) and $39 million in capital outlay. Not included in these estimates are any by product credits that we may receive from gold, lead or zinc that exist on our property.

Despite the high-grade silver deposits found in Russia, Silver Bear is one of the few companies developing a project. Why is this?

There is another significant deposit that has been developed called Dukat that is operated by Polymetal, a Russian-based company. Another resource to the east of Mangazeisky has upwards of 200 million oz at similar grades. The lack of silver development has to do with Russia's history: most production in the Soviet Union was for internal consumption. Furthermore, silver is considered a non-strategic metal in Russia and therefore did not receive significant development resources from Soviet authorities. Finally, the former Soviet Union's silver production largely come as a byproduct of mining base metals (lead and zinc); hence, exploiting silver-based deposits was not warranted.

You mentioned that Mangazeisky is 400 km north of a major city. What are the infrastructure requirements?

Because our plant is small, the infrastructure demands are minimal and the requirement for logistical support is significantly reduced. We are mining small volumes of ore (300 mt per day), which means that we will not need a lot of consumables such as fuel, blasting media and reagents and production of electrical energy. In fact, we are looking at renewable energy sources such as wind and hydroelectric to decrease further our dependency on outside supplies. The plant itself can be built using modular construction. We have an access road for around 5 months of the year (during winter months). The larger volumes of consumables will be taken to site while the winter road is available. During summer months we can use either fixed or rotary wing aircraft to get people and supplies to site.

What are the requirements for Russian ownership of assets?

Silver is not a strategic metal, so it was not required for us to have a minimum investment from Russian-based shareholders. Russia generally follows an auction process for mineral properties. The regional government puts out tenders to potential companies, and there is access to bid via web-based systems. In Silver Bear's case, three Russian entrepreneurs were successful bidders on the Mangazeisky property in 2004. The property had been known in Russia for decades and to those in the silver business outside of Russia. Investors in Toronto formed Silver Bear Resources (as private company then) to place Mangazeisky into a Canadian entity. Some prominent mining executives were part of the original team, like Randall Oliphant and Steve Shefsky.

Silver Bear has been successful at attracting financing for Mangazeisky, having recently announced a private placement for $11 million, but other companies say that Russia is considered an unsafe destination for foreign capital. What has been your experience?

The quality of the asset is the driver. There are risks associated with running projects in other jurisdictions, each of them having different challenges. To succeed in Russia, you have to be prepared to put the time in with regional and federal governments and to spend effort adhering to licensing processes and government mining regulations and regulators.

How do you approach the challenge of working in a culturally different environment?

When I go to Yakutia I get the same feeling as I did working at a small mining town in Canada. The people in Yakutia are very easy to get along with, they welcome foreign investment and we have had very strong relations with the regional government. The president of Yakutia (President Borisov) is very supportive of the project and has written statements to the federal authorities about the positive impact that Mangazeisky is having on the region. Local communities judge your commitment by your continued development of the project and face-to-face discussions with their key stakeholders. •

David Vinokurov

Vice President Corporate Development
STANS ENERGY CORP.

Since GBR last spoke to Stans Energy in 2011, the company has been involved in various lawsuits in Kyrgyzstan regarding its mining license at its Kutessay II rare earth project. However, Stans received a favorable ruling in international arbitration. How will the company proceed?

Within the next few months the Arbitration Court at the Moscow Chamber of Commerce and Industry will respond to our claims point by point and issue a judgment that will include a damage amount. The Company submitted a claim for $117 million. As a Canadian-based company we adhere to the highest ethical and legal standards internationally and this ruling supports our established business practices.

There is still much potential in Kutessay II, and we will continue to negotiate with the Kyrgyz government to resolve our issues. The site contains nearly 50% heavy rare earths, with a projected output of 1500 metric tons per year (mt/y) of oxides, and the projected capex is in the right range. Furthermore, our management team has extensive experience in the former Soviet Union.

What makes you fight with such determination for Kutessay II?

Kutessay II was the only hard rock, heavy rare earth deposit that was ever in production outside of China and supplied 80% of the Soviet Union's rare earths for 30 years, until ceasing operations in the early nineties. The demand for rare earths has only surged since, and they are now used in virtually every type of electronic application. In addition, since acquiring our license in 2009, time, money, and effort have been invested, and it would be a shame to simply walk away. It is management's responsibility to ensure that our shareholders' interests are protected and represented.

How have you been advancing Kutessay II despite prosecution from the government?

Stans Energy acquired the Kashka Rare Earth Processing Plant, which can process over 120 different rare earth oxides, metals, and alloys and since then the Company has been working on improving the historical production processes. We have upgraded the electrical system and undergone operational testing to make it almost fully operational. We have developed a cracking process to remove all the radioactive by-products in a more environmentally sustainable way. We are also still working on the final report on metal separation techniques. This forms the outline of our feasibility study, and we are testing the economics of these processes to demonstrate to the global investment community the case for Kutessay II.

Could you talk a bit about Kyrgyzstan as a mining jurisdiction?

Kyrgyzstan is a relatively new democracy and there is still huge mistrust about what the government did prior to 2010. The country is mineral rich, but poor. The mining legislation is fair, but implementation is more problematic. There is also a large degree of uninformed skepticism among local communities. Companies have been spending large amounts on sustainability initiatives, but must do more to earn the respect of local communities. •

Matthew Simpson

President and CEO
BLACK IRON INC.

Can you introduce us to Black Iron and the Shymanivske project in Ukraine?

Black Iron was founded in 2010 after we acquired two properties in Ukraine from a company called EastOne Group who in turn purchased them from Ukraine's government. We have access to the key components that make an iron ore project success - infrastructure and skilled labour. Our property is located within two kilometers of the government-owned railway, where we have already secured 20 million metric tons (mt) capacity. We can access five different ports with this rail with our preferred port being Yuzhny about 400 kilometers (km) south, and which also has confirmed capacity for our project. There are multiple options to access high voltage electricity, water, natural gas and sewer with letters of intent being signed with the various utility providers to secure access. An industrial city with 750,000 residents is located only 30 km away from our property, where most of our employees come from. Due to the close proximity, there is no need for a fly-in-fly-out roster. Further, because of the region's substantial experience with mining, most of the people have worked at iron ore mines before, and there is no need to invest millions in training programs.

How does the Krivoy Rog basin and particularly Black Iron's deposit compare to the geology in British Colombia, Labrador trough or Western Australia?

In terms of resource size, Ukraine has the fourth largest resource base in the world, but only 1/10 is in production right now, so there is a great potential. Historically, Ukraine has produced about 140 million mt per year, now production is down to 90 million mt. It is significantly more than Canada, but minuscule compared to Australia's production. In terms of the type of ore, it is mostly banded ore formation, often found in Canada and in the United States.

Black Iron is on its way to production in 2017. What needs to happen to achieve this?

First, we will finalize the off-take agreement to sell our 9.9 million mt of iron ore a year in exchange for project construction financing; we are looking to raise between $200 and $300 million. The other step is to acquire additional land from Ukraine's government, where our tailings, waste rock and concentrator will be located. We are mostly looking at local markets in Europe, Turkey and Middle East because of our major shipping advantage. However, we cannot disregard the growth of India and China. By the end of the first quarter of 2014, we will have this agreement in place. Finally, political stability in Ukraine is critical, and, with recent democratic presidential elections, this is a major step forward to peace.

What are the economics of this project and how do fluctuations in iron ore price affect it?

We believe that the long-term price for iron ore will be around $95 per mt. Our break-even for this project is $53 per mt. Unlevered return on our deposit is 48% IRR and pay back of 2.0 years. This is a very robust project and we are confident we will be able to deliver profit in the long-term.

How did you Black Iron attract Metinvest and what are some of the terms of the deal?

We approached Metinvest, as we were looking for a strong in-country partner. As the largest employer in Ukraine and with profits of $12.8 billion in 2013, Metinvest is also the ninth largest iron ore producer in the world. For Black Iron, this partnership is ideal because Metinvest brings considerable local experience and expertise about local service providers and construction contractors. Also they will fund half of the equity needed to construct the mine, without requiring off-take as there steel mills are fully self sufficient with iron ore mines already owned and operating by Metinvest. Metinvest owns 49% of this project and the returns that it is going to generate are very lucrative. There has not been a new iron ore mine constructed in Ukraine in over 40 years, and Metinvest is interested in seeing world-class project management and new technology coming into the country.

You secured a private placement with Dundee Securities earlier this year, how challenging was this process given that you are a Toronto-based company operating in Ukraine?

The biggest challenge is getting people to understand Ukraine; although it is a developing nation, it has a tremendous potential due to the exceptional infrastructure access, highly educated relatively low cost workforce and geographical location close to many customers. There are a lot of people who believe in the economics of our project, but are concerned about the jurisdiction. Securing Metinvest as our partner, did help us to attract Dundee Securities and other banks, but more work needs to be done to educate investors. We are also looking to do a dual listing in London, as there is a better understanding of Ukraine as a mining destination and investors are comfortable about investing there. •

Towering Toronto

Financial and Human Capital in Ontario Mining

Toronto may be the global epicenter of mining finance, but even Canadian investors – long lauded for their knowledge of the risks associated with the mining industry – have grown wary of investing in the sector. Mining companies have been amongst the worst performers on the Toronto Stock Exchange and the Toronto Venture Exchange. For the first time in many years, the first quarter of 2013 did not feature a single mining IPO.

With fewer listings and less capital raises, the TMX Group, owner of the TSX and TSX-V, decided to utilize its global reach to access investors outside of Toronto. The Group recently signed an agreement with the Santiago Stock Exchange to create a new venture exchange in Chile that allows TSX-V listed companies to list on its Latin American counterpart and tap into the investor base in South America. "Our unique two-tier exchange system is at the core of our value proposition and differentiates us from other markets. In Santiago's case, both the government and the exchange really liked the two-tier model. Many of our Canadian issuers are doing business in Latin America and it seemed like a natural extension of our capabilities for us to be involved," explained Kevan Cowan, president, TSX Markets and group head of equities.

Closer to home, the TSX eased its rules to allow companies to raise capital at less than $0.05 a share, while the federal government extended mineral exploration tax credit for another year. However, according to Denis Frawley, partner at Ormston List Frawley LLP, these measures are not enough to tackle the funding issue. "The industry expected the tax credit to be extended due to the current financial situations, and the pricing policy has not led to a strong influx of capital on the TSX," he said.

The lack of traditional forms of capital has led mining companies to look at other forms of financing for their projects. Royalty deals have become more attractive to near-production companies looking to raise money to fund construction. Sandspring Resources and Rubicon Minerals Corp. both landed multi-million dollar deals with streaming companies Silver Wheaton and Royal Gold Inc., respectively.

Rubicon Minerals evaluated several options, including equity and debt financing, for their Phoenix Gold project. When they were unable to find a suitable offer, the company turned to a $75 million royalty deal with Royal Gold. "Having the backing of a major royalty company like Royal Gold gives us additional security. The streaming deal was well received by the markets, and the share price appreciated once more investors became interested in the company," said Rubicon's CEO, Michael Lalonde.

The streaming deal subsequently led to a $100 million bought deal financing. While royalty companies are in a good position to capitalize on the lack of traditional forms of available capital, even Franco-Nevada Corp.'s president and CEO David Harquail acknowledges that mining companies would prefer to raise money in the traditional manner. "We represent the area of growth now for the gold industry – there is no question about that," he said. "Companies such as Franco-Nevada are the go-to

Image: Shutterstock

space right now for gold miners; most probably, mining companies would prefer to raise money in the traditional way, through equity-bought deals, but it is a tough financing environment for them out there at the moment."

Shares of metal streaming and royalty companies are up well above those of producers, who have sold their profit margins. However, there are strong feelings in Toronto's mining community against selling a royalty at the bottom end of a market. "Streaming and royalties are permanent and an enormously expensive way of financing," said Rob McEwen, CEO of McEwen Mining. Eric Sprott is even firmer in his take on royalty deals. "The most opportunistic deal a company can do at the low end of the gold market is a royalty deal. Sprott (the company) offered a line of credit to a gold-producing company who instead signed a royalty deal, so there are indeed other forms of financing available besides royalties."

Private Equity in a Canadian Mining Context

A combination of undervalued assets and the promise of high returns means that private equity firms are taking a closer look at the mining industry. In 2013, the estimated amount of private capital raised was over $10 billion to be directed at the mining sector, yet few deals of significance occurred.

While private equity firms are slowly learning about the risks and rewards of the mining industry, mining companies often perceive private equity funds as debt providers, according to David Thomas, managing director of mining-focused private equity firm Resource Capital Funds (RCF). Another misconception is that private equity funds are vulture funds. "In reality, we are looking for good assets managed by talented teams that have the ability to shepherd projects through the various stages of development," said Thomas.

Targeting the Youth

Recruitment in Ontario's Mining Industry

The mining industry is facing a major skills shortage worldwide. In Canada, however, there is talk of a lost generation of miners as young people turn to what they consider higher-skilled employment. This is a huge problem for Canada's mining industry: according to the Mining Industry Human Resources Council, nearly 146,000 workers will be needed over the next decade to replace retiring mining workers.

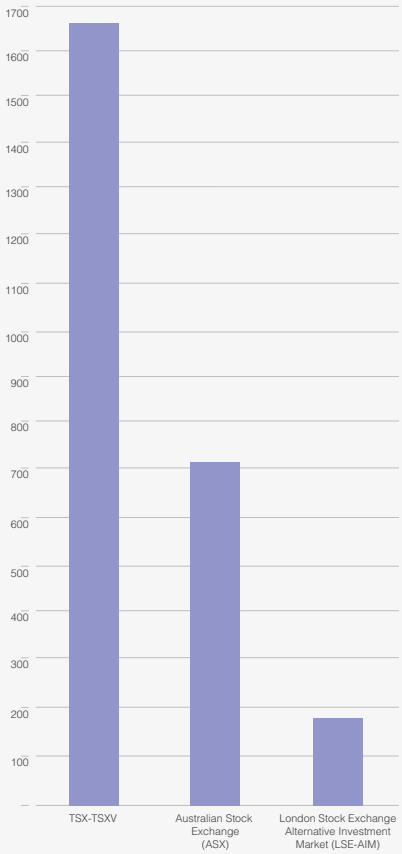
The most in-demand role in the mining industry is that of a mine engineer. Chris Stafford, president of Toronto-based mining recruitment firm C.J. Stafford & Associates, believes that young mining engineers have suffered from the current market downturn. "Roughly five years ago, the mining industry was so busy that engineering consulting companies were overwhelmed with the demand for their services. To overcome this, they hired graduates fresh out of university with little, or no, field experience. This went against all the norms that had governed the industry for decades as traditionally it was expected that a 'consultant role' would require 15-20 years of on-the-ground experience. Sadly, as mining activity continued to decline, these newly-hired, young consultants were the first to be laid off at a time when prospects of new jobs were slim at best. Certainly, in this current job market, a graduate would be well advised to look for employment in the north, as generally speaking opportunities are more likely the farther north you go, where often the pay is better and responsibilities greater."

With the impending retirement of the boomers and anticipated shortage of upcoming talent, those companies who better understand the needs of millennials will lead the industry in the war for the best talent, according to Stafford. However, it is not up to the mining industry itself to recruit new talent. Another challenge to recruiting young workers to the mining industry is overcoming their prejudices. "Most students, even in engineering, do not realize the potential of a mining career; it is not like it was in the nineteenth century," said Mary Murray, principal at Mine Staffing International. "A lot of this stems from the fact that mainstream media does not like to cover mining stories unless it is negative coverage. We are not reading stories in traditional media about the successes of mining and all of the progress that has occurred." •

> "Mining companies were much less open to the idea of contract workers in the past. They preferred permanent professionals that they could hire and develop internally...In a down cycle, companies are not required to pay severances to workers if they have to lay them off. There can also be a trial period with contractors before going permanent, so the client can test their skills before deciding to extend the contract period. Contract length can vary anywhere from three months to a few years.
>
> - Mauricio Montano,
> Senior Account Manager,
> Brunel"

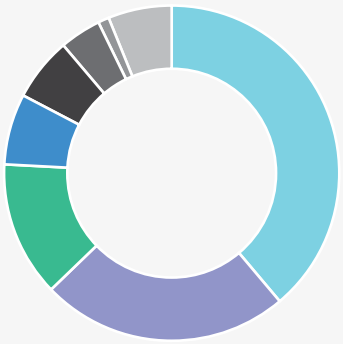
LISTING OF MINING COMPANIES ON INTERNATIONAL EXCHANGE

Source: Ontario Chamber of Commerce



DISTRIBUTION OF $184 BILLION IN MINING EQUITY FINANCING, 2008-2012

Source: Ontario Chamber of Commerce



TSX-TSXV	39%
LSE-AIM	24%
ASX	13%
NYSE/NYSEMKT	7%
BM&F Bovespa	6%
HKEx	4%
Shanghai	1%
Other	6%

“

The international mining community is waiting for a large project to get constructed and begin production in Guyana. The first will likely be Guyana Goldfield’s Aurora project, which will help to de-risk the perception of the country. If the International Financial Corporation, one of the main financing companies for Guyana Goldfields, is comfortable with the situation, it will also give the green light to the industry…The majority of our investors come from Canada and the United States. Many shareholders are involved in other mining projects in the country as well.

- Rich Munson, CEO, Sandspring Resources Ltd.

”

RCF has made investments in Noront Resources and First Nickel in Ontario, and David Thomas sits on Noront’s board of directors. This type of hands-on involvement on a management level is characteristic of private equity investments. Waterton Global Resource Management, a Toronto-based private equity firm, dedicates a significant amount of time and capital to developing a mining asset.

The company recently raised $1 billion for a fund designed to invest in precious metals. “When we set out in June 2013 to establish the fund, our target was $750 million; however we quickly saw that high quality investors from around the world were coming to us as the mining space continued to worsen, making the opportunity set larger,” said Isser Elishis, managing partner and CIO of Waterton.

With a $1-billion fund in hand, the industry may expect to see a number of investments, but Isser Elishis countered the idea that there are currently a lot of quality assets available at distressed prices. “When it comes to booms and busts for commodity prices, many companies end up cutting back on development and high grading their assets,” said Elishis. “When we look at what has happened over the last two years in the market, the valuation of a company relative to where it sits today is not distressed.”

Private equity may eventually become an important element in financing mining projects in Ontario, but there are some improvements that need to take place in the regulatory framework and on the infrastructure side to unlock the true value of some of the deposits, according to Ben Gibbons, vice president, corporate finance at accounting firm Collins Barrow Toronto LLP. “While there are a number of significant assets, what is lacking are the infrastructure solutions that enable companies to leverage them economically. Once these problems are solved, private equity participants will gain interest in the market.”

Michael White, president of Toronto-based financial house IBK Capital, believes the province has allowed its collective passion for producing metals to wane over the last hundred years, especially in Ontario. “The province was a frontier for metals and mine development – we wrote the book on many different mining techniques and have built up service industries around that, all the way up to our capital markets, which were founded on mining,” he said. “Many Ontarians do not understand the significance of this.” •

What First: Infrastructure or "Bankability"?

Ben Gibbons,
Vice President, Corporate Finance
Collins Barrow Toronto Infrastructure Advisory (CBTIA)

One of the significant challenges prevalent in the majority of resource plays is the absence of necessary offsite enabling infrastructure to support new developments. This infrastructure is often in the form of rail or port infrastructure and in certain cases the requirements of the project cover multiple infrastructure types across multiple supply chains. The cost of developing infrastructure can impede a mining project from being "bankable."

The challenge is the "Chicken & Egg" nature of infrastructure: A mining project is not "bankable" without economic infrastructure, but how can funding be secured for infrastructure before proving the project is "bankable"? There is no single or easy answer, but collaboration and coordination for multi-user developments can be a starting point. In most scenarios there are multiple developers requiring access to key infrastructure. This provides developers the opportunity to share the costs of developing the infrastructure reducing the cost burden and improving its attractiveness to potential investors. Additionally, if developers align themselves at the beginning, they can start afresh as opposed to 'patching' legacy systems that are intrinsically faulty through leveraging collective experience in design, delivery and operation.

Collaboration is, however, not a solution in and of itself. The challenge is how to fund these multi-billion dollar projects. There are several funding models. Specifically, this can include a government (provincial or federal level) funding model, third-party/investor funding, and/or a user based funding model. In all likelihood, the development of the infrastructure is not going to rely solely on funding and development through just one of these channels. It is unlikely that government or a third party will solely fund the development and assume all the risk, or that users are going to be able to provide all funding for a project. It is likely that a consortium-based approach including developers, investors and government is required, which in turn demands a high level of cooperation among parties and may also involve negotiation and agreement with existing infrastructure owners and operators.

So how is the melting pot of different projects, financial requirements and conflicting agendas best managed? From the outset what is required is an overall strategy for the consortium that takes into consideration the technical, legal, commercial and financial aspects of the project. This includes identifying the project's participants and stakeholders and establishing an initial project governance structure to serve as a roadmap to guide all parties through the process. It also includes the development of roles and responsibilities; identifying parameters for confidentiality and information sharing; identification of project dependencies; implementation of project controls; financial and risk allocation; initial funding requirements; establishment of legal relationship; development of project timelines and the identification and formation of required work groups from technical, financial, legal and commercial streams.

This has been shown to be a successful model in the development of recent infrastructure projects to support resource plays. One key example of this is the Wiggins Island Coal Export Terminal (WICET) and associated Wiggins Island Rail Project (WIRP) located in the vicinity of Gladstone, Queensland off the east coast of Australia. WICET is an industry-owned model servicing eight coal producers. Once fully operational, it will have a capacity of 27 metric tons per annum (mtpa). It consists of AUD$2.5 billion of private funding with a total $4 billion external funding envelope supported by an additional $1 billion rail upgrade. This project had multiple challenges including: a mix of existing miners – some requiring expansion tonnage, numerous junior and mid-tier explorers seeking capacity; a constrained existing rail network requiring significant upgrades; multiple infrastructure owners and operators and an existing port at full capacity. In addition, there was a complex regulatory framework and the government decided not to provide any funding support.

These challenges were overcome through the implementation of a multi-user, open-access facility owned and funded by terminal users. This model facilitated efficient infrastructure development as it was: industry-owned and largely privately funded; commercially sound with an open, equitable and transparent access regime agreed with government, the port corporation and industry; and port charges were limited to cost recovery only. WICET and the associated WIRP project is now over 80% complete, and is one of the best examples of infrastructure development in the 'new world' regime post mining boom and limitless financing options. •

Collins Barrow Toronto Infrastructure Advisory (CBTIA) is a professional infrastructure advisory firm providing specialist support and leadership, primarily with regard to infrastructure transactions for the resources sector. CBTIA specializes in amalgamating strategic, commercial, technical, operational and regulatory advice to ensure clients make informed infrastructure decisions throughout the development of their respective projects. CBTIA has played leading roles in shaping rail and port decisions throughout several bulk commodity supply chains – influencing regulation and policy, introducing competition for rail haulage services, guiding infrastructure expansion decisions, facilitating operational and commercial reforms and optimization and driving competitive infrastructure financing solutions. Members of the team have been directly responsible for developing and executing strategies for securing in excess of 250 mtpa of rail access arrangements, across over 40 resource projects and for over 30 producers - and similarly with bulk product port arrangements. In addition, broad international reach and networks, including as a member firm of Baker Tilly International, giving access to resources through its 161 member firms in 137 countries worldwide.

Chris Stafford

President
C.J. STAFFORD & ASSOCIATES

How has C.J. Stafford & Associates evolved in the mining sector over the past two years?

Unprecedented growth within the mining sector during the past ten years made talent scarce, as mining companies competed to recruit and retain the best employees. This came to a halt 18 months ago, causing major cutbacks, stalled projects and inevitable layoffs. The "super cycle" was over and the impact felt industry wide, particularly with service providers, including the recruiting business. However, C.J. Stafford & Associates has experienced these cycles during the past 30 years and remains committed to the mining industry. Our expectations are not what they were, but we remain active.

C.J. Stafford & Associates is active in mining across the globe. Which jurisdictions have been the most affected by the crisis?

From an HR perspective, Australia has probably been the worst hit jurisdiction: its large, low-grade open-pit operations made it vulnerable to commodity prices and the swings caused by such a downturn. On the other hand, operations in Alberta and Saskatchewan have not been as affected and have functioning, large-scale projects. Ironically, despite a much larger supply of labor on the market, finding the right talent is still proving difficult because we need to find candidates who not only have the right skill set, but also the right family situation that will allow them to move to a new mining locations like Fort McMurrray, Yellowknife or Saskatchewan.

Given the current oversupply of talent, what are the prospects for young people to get hired?

In the current job market, a graduate would be well advised to look for employment in the "North," as generally speaking opportunities are more likely the farther north you go, where often the pay is better and responsibilities greater.

How would you characterize the recent evolution of the role that women play in the mining industry?

The Canadian mining industry has some fine examples showing "diversity" in the work place, both with the growing number of women and the integration of First Nations people. The industry has made a successful transition to where there are many women in the industry holding prominent positions. The new focus should be on engaging more people, providing equality for all, no matter their cultural background, gender, nationality or sexuality: when the industry recovers, it will need more talent and resources than will be available.

What is your final message?

The Canadian mining industry should strive to improve how it can do better at attracting, training and developing its workforce. We should not be considering offshore applications for semi-skilled and skilled jobs before we have fully exploited the training and development of unemployed Canadians. To do this, industry, education and government must be more creative in engaging applicants. With the impending retirement of the "boomers" and anticipated shortage of talent, those companies that best understand the needs and wants of the millennials will lead the industry in the war for the best talent! •

David Thomas

Managing Director
RESOURCE CAPITAL FUNDS (RCF)

Can you provide us with a brief introduction to RCF?
RCF was founded in 1998 as one of the first mining-focused private equity funds. Since 1998, we have raised six funds, with the current fund being a $2 billion fund. RCF has offices in Denver, Perth, Toronto, and Long Island, New York. We also have a London-based representative and we are currently opening a Santiago office.

What is RCF's strategy with regards to choosing new projects?
RCF does not limit itself to a particular mineral. We tend to be opportunity-driven and consider projects with different commodities and jurisdictions. Since 1998, we have invested in over 35 different commodities, 140 different mining companies and in nearly 40 different countries.
Our portfolio is divided into core and strategic investments. Most of the core investments do not include exploration companies, because of the size of the investment that they require. Our strategic investments can be much smaller, and do not demand as much of our time in terms of management and are often exploration focused. Ideally, we want our strategic investments to turn into core investments. We pay close attention to corporate and social responsibility, ensuring that companies are managed ethically.

What is RCF's exit strategy in this scenario and what constitutes a success?
Our investment exits are typically achieved through trade sales or via trades in the public markets. For RCF, an investment success is one in which an adequate return for our investors has been achieved over the life of the investment, which is typically 3 to 5 years. We are driven more by absolute return, rather than internal rate of return.

Does RCF have any Canadian investors?
Over the years we have spoken to several of the Canadian pension funds that invest in private equity. However, none are currently investors. We have a strong established base of U.S. institutional investors, some of whom have been with us since our inception.

RCF has invested in Ontario projects through Noront and First Nickel. What is the nature of your involvement in these companies?
The quality of the asset is the most important investment criteria for RCF. Noront's nickel-copper-PGM project in the Ring of Fire (Eagle's Nest) fits well with our criteria. We believed in the success of the project and remained open-minded about infrastructure challenges. Noront is a classic RCF development-stage project in a stable jurisdiction and we think that with the government support it is going to be a significant new mine in Ontario's north. RCF considered the First Nickel deposit as a springboard to build a strong base metals company. While low nickel prices have proven challenging for the operation, the management team has done an excellent job under the circumstances and is capable of operating additional assets.

What are the advantages for mining companies who choose to work with a private equity fund such as RCF?
First of all, RCF has patience to wait to receive a return and we historically have supported companies financially through some challenging times. Secondly, RCF can provide in-house technical expertise, which often is only available to small mining companies through external consultants. Lastly, we have a large network of seasoned industry professionals who have relevant skills and experience to move projects forward.

Is there a level of resistance on the part of mining companies with regards to private equity?
Mining companies often perceive private equity funds as debt providers. In fact, RCF can be creative and flexible in developing suitable financing solutions. Another misconception is that private equity funds are vulture funds. In reality, we are looking for good assets managed by talented teams that have the ability to shepherd projects through the various stages of development.

Will private equity remain a viable source of funding for miners, when the market picks up again?
I cannot speak for our competitors, but RCF has been investing in mining for more than 15 years, through good times and through bad. This is all that we do. We are a group of mining professionals who are in this for the long run. While putting capital to work is more challenging for us when the public markets are open for raising capital, the opportunity set is broad and deep and there are always great projects to invest in, regardless of where we are in the cycle.

What does your presence in Toronto say about RCF's long term commitment to Ontario's mining industry?
RCF recognizes Toronto as a global financial hub for the mining industry and understands the importance of having a physical presence here, especially given the number of mining companies in Toronto. RCF is here for the long haul, and we will keep working with companies that have great assets and strong management teams to maximize the value of those assets for all stakeholders. •

Michael White

President and CEO
IBK CAPITAL

IBK Capital has done a number of transactions for companies with assets outside of Canada. Is this part of a wider trend in the industry?

IBK Capital is opportunistic in its approach to investing. We fund experienced management teams with attractive projects. Investors are interested in returns and are looking for absolute transparency and clarity as to the plan going forward. This is just as important as the economics itself.

Can you give us a brief summary of IBK's role within Ontario's mining finance industry?

There are a number of issues in Ontario. Looking inwardly, we have let our collective passion for producing metals wane over the last hundred years. The majority of the population is in the south, while metals mining and processing are in the north. Funding for many projects comes from Bay Street but money will not do it alone. This money needs firm, reasonable commitments from stakeholders in the province to be deployed. If it cannot have this, the money will go elsewhere. On a company level, IBK likes to fund programs that put the emphasis back on mining in Ontario. One such program is Mining Matters, which promotes mining to students in elementary and secondary schools.

How would you characterize investor interest in the Ring of Fire (ROF), especially now that Cliffs Natural Resources has suspended their operations?

IBK Capital has raised about $140 million for companies active in the ROF. The government needs to clarify the infrastructure issue and commit to building a road. Put it on a map and commit to it. Be the clear leader. Cliffs pulled out because it could not get any type of commitment from any of the major stakeholders in the region. The market values of companies in the Ring of Fire have been crushed, but this is an opportunity for buyers to take large stakes at very low prices. There is interest, but we need leadership and commitment from the government.

Is Ontario positioned to meet global demand for chromite?

The vast majority of chromite production is for stainless steel. There is a lot of chromite in the world, but geographic diversification of chromite mines is needed. Chromite production is concentrated in a few global clusters, and some are not doing so well in terms of guaranteeing supply: for instance, South Africa, one of the largest global producers, has power issues that can affect deliverability. The industry would like to see chromite produced in Ontario, a stable jurisdiction where we have discovered a one hundred year-plus supply. This is a fantastic opportunity presented by the ROF. We would not be opening a mine that will produce wealth and value just for ten or twenty years. This deposit will last over a hundred years. Imagine the industry and communities that will build up around that, as more metal is found. It would be great to see a fully integrated stainless steel industry here in Ontario. If that is a bit too ambitious for some stakeholders, there are numerous nickel deposits that can be mined. Ontario has produced nickel for decades. We have the technology just south of the Ring of Fire to monetize these nickel deposits. Perhaps it makes sense to start there and advance the chromite projects later. •

Isser Elishis

Managing Partner,
Chief Investment Officer
WATERTON GLOBAL RESOURCE MGMT.

Waterton Global Resource Management, which announced in April the closing of its new $1 billion fund for precious metals investment, is one of the few private equity firms exclusively dedicated to the mining sector. Can you introduce us to the firm?

Waterton is not only one of the few mining-focused private equity firms but are also one of the largest firms that focus on late-stage production assets in politically stable jurisdictions, with 85% of our investments situated in North America. The global economy is getting larger and natural resources are scarce, making the mining space a key opportunity. Because of the industry's complexity, a successful mining-focused private equity firm needs a strong evaluation team with many decades of experience in order to understand a project's risks. Our technical expertise allows us to match the term of the challenge with the term of the capital, without the constraint of the purview of public shareholders. Our private equity approach can dedicate the sufficient amount of time and capital to developing a mining asset.

What is the significance of Waterton's owner-operator model to a mining company in which you would be investing?

The owner-operator model means that we have infrastructure, human resources, technology and offices where we need to be. Unlike other firms, we are not dependent on consultants and third parties. We are forming joint ventures with public and private mining companies to add material value, whether by providing technical expertise to small- and medium-sized projects or by structuring deals. We can also add value when it is a secondary project for a company. In this case, Waterton can advance the project while the company continues to focus on its main asset.

When setting out to develop Waterton's new $1 billion fund, what investor profiles where you looking for?

When we set out in June 2013 to establish the fund, our target was $750 million; however, we quickly saw that high quality investors approached us as the mining space worsened, making the opportunity set larger. We settled with a maximum capital of $1 billion. Our investors are few and from large endowments, public pensions and sovereign wealth funds from North America, Europe and Asia. We deemed it appropriate to have a geographically diversified spread given that the commodity business is global.

Which asset profiles are you targeting for investment with the new fund?

We are focusing primarily on gold, copper and silver for our intended deals. At Waterton we nominally divide our portfolio into four buckets of capital. One is our financing bucket for high quality projects, while on the opposite end of the spectrum we have our bread and butter, which is either assets that are in production that we can make more efficient or assets we can put into production within 12 to 24 months. The other two buckets are more challenging. You are either starting from scratch or taking a project over to finish permitting and continue development. Our financing bucket targets investments of about $20 million, while our optimization bucket targets investments in the $50 million range. The investment size for our last two buckets depends on projects' risk profiles.

How have the recent market devaluations of mining firms impacted Waterton's analysis of investment opportunities?

There are not a lot of quality assets that you can buy at distressed prices. When it comes to booms and busts for commodity prices, it is not easy to change your mining plan so many companies end up cutting back on development and high grading their assets. These valuations are based on higher commodity prices. When we look at what has happened over the last two years, the valuation of a company relative to where it sits today is not distressed.

In spite of high projections of private equity deals in mining, why has deal flow been lower than expected?

The estimates of the capital raised in private equity are incorrect. A few firms have large funds but are looking only to buy big assets with heavy cash flow in good jurisdictions, which are very rare assets. At the opposite extreme, there are very small buckets of capital with only $100 to $300 million to be spent judiciously over time. Deal flow has been low because the vast majority of the market does not have any realistic sense of its value.

Waterton has been very successful in raising money in a down market. When the public markets pick up again, how will this affect private equity?

Private equity is about adding technical expertise and building assets outside of the purview of the public market. We expect that generalist firms that switch among commodities will leave the sector, and we will remain a small group of private equity firms aiming to develop assets to the point that the public markets can take them on. We want a strong public market so that we can do our work and then give it to the public markets. •

Denis Frawley

Partner
ORMSTON LIST FRAWLEY LLP

Can you introduce us to Ormston List Frawley LLP and the services that you offer to the mining industry?

Ormston List Frawley LLP is a boutique law firm with expertise in corporate and securities law and litigation that works closely with mineral exploration and mining companies. The firm was formed in 2006 by lawyers from larger firms with the idea to provide legal services at a cost appropriate for mid-sized and smaller companies. Many of our clients are junior resource companies managed from Toronto. Some have exploration projects in Ontario, while others have them elsewhere in Canada or internationally. One of our main areas has been helping clients with financing, but now we devote a lot of time to financing transactions that are more creative, or certainly more unusual.

What is the role of capital pool companies (CPCs) in helping juniors to raise capital?

I am not aware of a deliberate policy by the TSX-V to discourage the formation of CPCs, but we do not see many new CPCs being established. (As of May 28, 2014, only four new CPCs have been listed, which is less than half the rate for the same period in 2013 and one quarter the rate for 2012.) At the moment, there are more than 50 CPCs that have not acquired projects to complete their qualifying transactions and become active. A number of these have little capital remaining.

CPCs have been mainly developed for the mining industry and can continue to play an important role. However, those that continue to have capital remain skittish in selecting projects and completing qualifying transactions, because of a fear of deploying their cash on projects that may not then garner positive interest from financial markets. When the market recovers, the CPCs with capital remaining will quickly commit to projects and complete qualifying transactions.

How has the global slowdown in financings affected the types of deals that Ormston List Frawley LLP is doing?

We have seen a dramatic decrease in the number of investments made by retail investors. Exploration companies have had to find alternative methods, such as debt financings, shedding non-core assets, selling interests in core assets and, particularly in recent months, selling royalties.

What measures can be taken to address the real funding of smaller exploration companies?

Concrete steps in the areas of infrastructure improvement and investment, especially in northern regions, could help to de-risk projects and improve the prospects of the industry. Long-term measures are needed to ensure that the fundamentals are in place for mineral resource exploration and extraction to be conducted profitably. We need roads, low-cost electricity and established frameworks with First Nations so as to reduce the extent to which those issues translate into risks or challenges to the success of exploration and mining activities. If we wait for the markets to recover before resolving infrastructure and First Nations issues, we could miss the next funding window because those issues will remain. •

Service and Supply in Sudbury: Ontario's Home for Mining's Ancillary Services

"Regionally, South America is the largest export market for Canadian mining equipment. The United States is also a significant market. There is also a lot of potential in Africa, and Australia has been a historical market for Canadian suppliers. More difficult but noteworthy markets are China and Russia, which have stronger domestic services but rely on Canadian expertise."

- Jon Baird,
Outgoing Managing Director, Canadian Association of Mining Equipment and Services for Export (CAMESE)

Image: Cementation Canada Inc.

Expanding Expertise

Haulage, Surveying, and Safety Services

If Toronto is considered the mining finance capital of the world, the small northern Ontario town of Sudbury is its service and supply counterpart. Sudbury and its surrounds are home to more than 1,000 mining supply and service companies worth an estimated $5.6 billion to Ontario's economy. The sector employs over 25,000 people. These numbers may be surprising given Sudbury's relative insulation from the global stage. The service and supply sector has long benefitted from the presence of major nickel and base metal mines in the region, and most of their business is done with Vale and Glencore Xstrata. Yet recent volatility in nickel prices has demonstrated the need to export their services and expertise.

Sudbury-based Rematech Industries designs and maintains conveyor belts for underground mines. The company worked on the Nickel Rim conveyor system, where they helped to design a 1,700-foot flex belt that lasted the life of mine and was since adopted by Vale and Glencore Xstrata. "On a cost per ton basis, there is nothing that beats a conveyor belt," said Rematech's vice president, Ivo Beljo. "It can move more than any other equipment and it is a one time capital cost. Our customers are starting to look at new types of conveyors, for instance more vertical ones, so we are noticing evolution in the equipment and increased demand."

While conveyor belts are the standard form of material haulage, Sudbury's Rail-Veyor Technologies Global Inc. believes it has developed a superior system that runs 24/7 based on rail technology. The Rail-Veyor system only uses power when the train is inside or in the vicinity of a drive station along the route. "We believe Rail-Veyor is more than 50% more efficient than a heavy haul truck system in terms of energy usage and maintenance and 20% more efficient than a conveyor system," said Ronald Russ, Rail-Veyor's president, CEO, CFO and treasurer.

While propulsion systems are present in most underground and open pit operations, trucks are still needed to move people and materials. Underground mining operations are closed environments with dark, wet and abrasive conditions that can impact the life span of a tire. "Over the years bias ply tires have dominated the market, because of their characteristics that withstand the abrasive conditions underground," explained Gary Foley, director, corporate sales at Fountain Tire. "The downside with bias ply tires is heat generation, which is an enemy to any tire whether it is open pit or underground."

Penguin Automated Systems Inc. was founded by Dr. Greg Baiden, who was formerly responsible for corporate mining research at Inco, now Vale. His work at Penguin ASI involves developing remote-controlled technology to access areas that are unsafe for humans. Penguin recently received a CAD$1 million grant from the federal government to develop a new robotic system that will be able to enter confined spaces to load explosives for remote detonation.

Minewise Technology Ltd. has developed a progressive scanning technique that allows for detailed surveys of vertical raises or shafts up to 1,250 m. The device captures 360 degree radial scans every 8 cm and utilizes an integrated fiber optic gyro to preserve the azimuth of the scanner at all times. The data can be directly imported into the mine's 3D coordinates. "This 'scanning during decent' approach eliminates the shadowing of data typical of stationary scanning technologies," said Everett Henderson, Minewise Technology's technical manager. Using a pan-tilt-zoom high-resolution color camera, companies can inspect inaccessible bore holes, raises, ore passes or cage compartments.

A number of companies in northern Ontario are looking at ways to improve air quality in underground mines through systems that monitor dust loading, airflow temperature and relative humidity for worker heat stress. Maestro Mine Ventilation developed a system called Vigilante AQS™ (or Air Quality System) that measures different parameters such as dust loading on haulage ramps and gas detection technology. Mine managers are then able to access that data in real time.

"There has been a lot of attention recently on diesel particulate matter (DPM), which has been deemed as a carcinogenic by the World Health Organization, and silicosis that is prevalent in coal mining and many drill and blast mines," said Michael Gribbons, vice president, sales and marketing at Maestro Mine Ventilation.

The tightening of ventilation regulations is encouraging companies to make their underground systems more efficient. Schauenburg Industries Ltd. is a North Bay-based manufacturer of ventilation ducting systems. Its managing director, Don Croteau, has noticed a trend over the past few years of min-

ing companies taking an increased interest in their ventilation costs. "They have started to realize that it is not just blowing the air, but the power around the fan, the cost of the fans, and the cost of the ducting, especially with the prices of energy increasing," said Croteau.

In an underground setting, the ability to communicate between mine workers both below and above ground is essential to ensuring the health and safety of employees. Becker Varis is a company that provides voice, video and data communication systems to underground mines using a mine's leaky feeder system. "A leaky feeder system acts as a communication medium; we can put Ethernet points anywhere along the mine," said Albert Bower, managing director at Becker Varis. "Leaky feeder systems became the primary media of communication when mining at large saw a boom and required reliable and cost effective communication underground."

Sudbury's equipment manufacturers are also innovating in the types of materials used in an underground setting. Rezplast Manufacturing Ltd., a manufacturer of safety showers and toilets for underground mines, uses fire resistant resin instead of plastic, which can be extremely flammable.

A significant portion of Sudbury service and supply companies still relies on Vale and Glencore Xstrata for their revenue. A company in Sudbury only dealing with Sudbury clients is dependent on the price of nickel, as Jon Baird, managing director of the Canadian Association of Mining Equipment and Services for Export stated. "Even those companies that work with gold companies in Timmins make a huge difference to their revenue base – diversification is the key to success," he said.

The lack of customer diversification is a significant barrier to the industry's growth. Organizations like the Sudbury Area Mining Supply and Service Association are making it a priority to help its members increase their global presence. "SAMSSA's role is to stick to its mandate of helping business become intelligent: our job is to tell people that there are new opportunities available," said Dick DeStefano, SAMSSA's executive director.

According to a recent report by Export Development Canada, Ontario's export sector is expected to grow thanks to a weaker Canadian dollar and rising demand from the United States. The industrial machinery market is also expected to see strong growth of 7% this year and 13% next year. Regionally, South America is the largest export market for Canadian mining equipment, followed by the United States. "There is also a lot of potential in Africa, and Australia has been a historical market for Canadian suppliers," said Baird. "More difficult but noteworthy markets are China and Russia, which have stronger domestic services but rely on Canadian expertise." Rematech's vice president Ivo Beljo agrees that the sector needs to start looking at exporting its products to diversify its revenue base. "Many companies here were family run businesses and felt no need to talk about their work or expand outside of the local spectrum. Times are changing now, though, and many of us are able to spread our wings beyond Sudbury's borders," he said. •

> "There is a lot of interest coming from North America, South America, South Africa, and Australia...We want to continue to deploy our technology in material transport. There are surface applications in mining, aggregates, port terminals, agriculture and other sectors that can feed into or be fed by the larger rail systems."
>
> - Ronald Russ, President, CEO, CFO and Treasurer, Rail-Veyor® Technologies Global Inc.

> "The safety in the industry has improved greatly over the years. At Nickel Rim for example, Cementation completed two shafts with no lost time injuries. In the shaft sinking industry, there was a philosophy of "go fever" for many years that meant you needed to take the first blast on the date you said you would. What we do now is a pre-sinking audit where both the owner and the contractor will commit to starting only when we are sure it is safe. We look at success as an injury-free project."
>
> - Roy Slack, President, Cementation Canada Inc.

Minewise Technology Ltd.

Image: Minewise Technology Ltd.

Minewise Technology Ltd. has developed a proven progressive scanning technique that allows for detailed surveys of vertical raises or shafts up to 1250 meters. The device captures 360-degree radial scans every 5 centimeters and utilizes an integrated fiber optic gyro (FOG) to preserve the azimuth of the scanner at all times. The data can be directly imported into the mines 3D co-ordinates. This "scanning during decent" approach eliminates the shadowing of data typical of stationary scanning technologies.

A fully controlled pan/tilt/zoom video image is relayed to the operator at the top of the raise allowing for monitoring the survey process as well as providing a "depth overlaid" video recording of the overall raise condition. Ample lighting is included to enhance the video quality and wall definition. The combination of the two datasets provide for a comprehensive analysis of raise/shaft condition etc. and provides a base line of "as built" or "as is" status never before achievable.

The skid mounted long-range winch module is easily deployable to the site and includes a precision speed controller to facilitate smooth decent. The unit is completely self-contained and has ample battery power for trouble free operation. •

Albert Bower

Managing Director
BECKER VARIS

Can you give us a brief introduction to Becker Varis and its role in the mining industry?
Becker Varis' niche has always been reliability in communications. The Varis Company was founded in 1997 in Sudbury. In 2006, Varis was bought by Becker Mining Systems out of Germany and renamed Becker Varis. The company's roots stem from the coal mining industry but most of our business is in hard rock mining. Its mandate is to acquire new technologies to complement its existing product line. For example, our surface collision avoidance products came from Australia. At the moment, at least one Becker product can be found in every mining sector in the world, and Becker's objective is to have all its products found in every mine worldwide.

What are some of the advantages of using a Leaky Feeder system in an underground setting?
At the moment, the possibilities of industrial Wi-Fi are still limited. A leaky feeder system acts as a communication medium; we can put ethernet points anywhere along the mine. The Becker Varis Leaky Feeder is unique because it offers voice, data, and ethernet, as well as other complementary technologies.

How is a Becker Varis communications system priced in relation to its competitors?
The pricing range of a Becker Varis system is cheaper on a per-kilometer basis because it uses fewer active components. We space our amplifiers 500 meters (m) apart, whereas our competitors do 350 m.

What is the added value of Becker Varis' products with regard to safety, productivity and efficiency?
Becker Varis stands out with regards to safety, productivity and engineering principles. For instance, our system has the widest bandwidth, which results in less equipment required underground compared to competing systems. Fewer active components on the ground reduce the likelihood of a problem or damage. Customers need to receive information, but not excessive information. The main challenge is to manage it so that customers can make the best decisions with it.

What is the geographic reach of Becker Varis' products?
Becker Varis systems are present in most mines in Ontario and internationally. We work with both Vale and GlencoreXstrata locally and internationally. We initially partnered with distributors, but with growth our focus shifted to more direct relations with customers who want to source products in the local marketplace. According to global trends, South America could grow threefold this year, while North America will remain stable.

A 2009 study from the CANMET Mining and Mineral Sciences Laboratories found that the industry is reluctant to adopt new technologies. Is this assessment still true?
Senior mine personnel can be reluctant to adopt new technologies; however, as a younger generation of engineers and managers move into the industry, we will see more willingness to explore and implement innovation. Becker Varis' strategic partners, for instance, test our products in real world conditions, so that we can evaluate them outside the lab.

What is your vision for Becker Varis?
Becker Varis' focus is on customizing its products and integrating them into its existing product line and to become a more open-ended source provider of communications. We also aim to be a turnkey solution provider and to take responsibility for solving problems on site. •

Daryl Rautiainen, Keith King & Marcel Demers

DR: Vice President
KK: General Manager
MD: Sales Manager
INDUSTRIAL FABRICATION INC. RESOURCE MGMT.

DR

Can you give us a brief introduction to Industrial Fabrication Inc. and its role in Sudbury's mining industry?

DR: Industrial Fabrication Inc. was founded at the end of 1999 as a single-product company. We started with the Mine Mule, which was a small, cageable utility vehicle. In 2002 we acquired Northern Consolidated Equipment and its Minecat product line. The Minecat started in the early 1980s as a modified tractor vehicle for use in mines. Industrial Fabrication decided to re-engineer the product as a purpose-built vehicle for mining applications. Whereas the frame used to be one component, now Minecat has a purpose-designed frame where the components are modular that can be removed easier for serviceability. We can also add components to the front and back of the vehicle: there are around 50 different configurations available for the Minecat. The rolling chassis of the machine is standard, but we add components when the machine is sold based on the customer's unique order.

How have you used that knowledge to build your current product line?

DR: We used the Minecat MC100 as the basis for the NV100, which is suited for narrow-vein operations because it is 10 inches more narrow than the MC100. We also have a truck line called the UT99 that has gained traction over the years. The truck market is highly competitive but our direction was to build a purpose-built truck designed specifically for the mines with heavy-duty components that were previously used in off-highway vehicles. We are also releasing a new line of Minecat forklifts in 2014.

MD: In 2013 we delivered an MC100 with a center mount aerial boom that had a protective canopy for the operator, which means that whenever he is at the face, he is working under a protective canopy. Today's mining companies are always looking at ways to make it as safe as possible for the operators, so we work closely with our clients to design units that fit their requirements.

Sudbury mining suppliers have traditionally grown through their work with two major mining companies. How have you been able to diversify your client base?

DR: In the beginning around 80% of our sales came from Falconbridge and Inco, but now they represent less than 25% of our business. Our top ten customers are around 65% of our business, and Vale and Glencore Xstrata are still in our top ten. We have worked very hard to set up our dealer network and additional sales get outside of Sudbury.

MD: Our local customers really support us so that when we do come up with new products, they are the first people who are interested. For us, that is very important: we want to prove it and test it in Ontario and then expand.

As the mining industry struggles with cost control, how can you as a manufacturer help in this regard?

KK: We offer exchange programs on our components, which means that our customers do not always have to pay for new parts. Our service department will also audit machines to find potential problem and identify where we can help. Our orders were down last year about 10% but that is not unique to Industrial Fabrication, but we have not had any layoffs. We have expanded our customer base and have sold a few fleet orders to new customers.

What are some of the upcoming objectives for Industrial Fabrication?

DR: The last 12 to 24 months has been a whirlwind for Industrial Fabrication: we just moved into a new, larger facility in Sudbury. We are growing in new markets, including the United States, and increasing our customer base globally.

Can you give us details of Minecat's new battery-powered utility vehicle?

DR: The Minecat UT150-eMV, Electric Mining Vehicle is the safest underground utility vehicle in the industry. The running gear is the same as its diesel MInecat UT 99 counterpart: industrial proven axles with enclosed fail safe wet disc brakes, suspension featuring gas shocks and heavy duty springs, providing the operator and passengers with a smooth ride in the roughest of conditions. The Minecat EDS (Electric Drive System) consists of a PMAC brushless traction motor for superior efficiency. Motors and controller are sealed to an IP67 rating allowing the UT150-eMV to safely operate in the mines most severe conditions. The battery pack uses environmentally friendly Lithium Ion Phosphate cells, which are 100% recyclable. The battery assembly resides under the hood in place of the diesel engine and the onboard charger in place of the fuel tank. The diesel UT 99 and electric UT150-eMV weigh the same and have the same available rear cargo space allowing for many configurations of the vehicle. The main difference being the electric drivetrain produces ZERO emissions for a cleaner healthier workplace in comparison to its diesel counterpart. Industrial Fabrication is working upon making available EMV solutions to all its equipment line. •

Ivo Beljo

Vice President
REMATECH INDUSTRIES

Can you give us a brief introduction to Rematech and its history in northern Ontario?

Rematech was founded in 1964. We brought cold vulcanizing technology from Germany and expanded in this area by splicing and installing conveyor belts and the whole conveyor system. We also do rubber lining for engineering and mining companies that we ship globally. Approximately 20 years ago, we started working in compression molding. Our primary focus, however, is conveyor belt sales and service, and we provide solutions to any kind of challenges in the rubber-based domain. Our main clients are Vale, GlencoreXstrata, Goldcorp, Barrick Gold, and most of the major Ontario-based mining and EPCM companies. Engineering firms often ship our products globally. We recently completed a project in British Columbia that required about 20,000 feet of belt, which required a safe plan to carefully splice and install.

What are your manufacturing capabilities?

We have approximately 50 full time employees and around 30 part time employees who are highly specialized. We do our own in-house training, about 120 hours a year for each employee. Costs are higher than overseas, but clients who have tried cheaper alternatives have returned to us because they prefer value quality and durability.

What are some of the advantages of rubber as opposed to alternative materials?

In certain situations rubber can outperform other materials, but the key to every abrasion and corrosion resistant product is using the one best suited to the particular application. For example in flotation cells, urethane would completely dissolve the steel inside, whereas the rubber sticks perfectly onto the metal. Urethane is very strong on its own but when it is adhered it becomes less tough. In some cases the rebound of rubber is worth more than the cut and gauge resistance of urethane.

Can you talk to us about the work that you did on Nickel Rim South during insulation?

For Nickel Rim, we worked together with engineering companies and used the same conveyor system at the Thayer-Lindsley Mine years ago. Our recommended belt lasted the life of the mine and was exceptionally resilient. This was an obvious choice as everyone shared the history of the mine and the product. The 1,700-foot Nickel Rim belt was the first Usflex belt that we sold in the area, and Vale and GlencoreXstrata later adopted it.

How do conveyor belts compare to other forms of bulk material haulage?

On a cost per ton basis, nothing beats a conveyor belt. It can move more than any other equipment and is a one-time capital cost. Our customers are starting to look at new types of conveyors, for instance more vertical ones, so there is some evolution there.

In Sudbury two major mines dominate the industry, but the most successful service companies have diversified their business internationally. How was Rematech able to achieve this?

The mining world is fairly small and our reputation has been spread primarily through word of mouth. The advantages of working with two major clients is getting to know them well and receiving abundant direct feedback. Roughly 80% of local companies rely on Sudbury for their client base, which can be a pitfall. Many felt no need to talk about their work or expand internationally. Times are changing, though, and thanks to organizations like the Sudbury Area Mining Supply and Service Association, many are moving beyond Sudbury. •

Meeting Growing Challenges

Heavy Equipment, Drilling, and Shaft Sinking

Ontario manufacturers and distributors of heavy equipment are facing major challenges in the mining sector, not the least of which is increased competition for customers. Manufacturing of any sort in Ontario comes with high costs for labor and energy, putting pressure on internal profit margins. For companies to prosper, they must figure out a way to design equipment to suit the evolving trends of the mining industry.

Safety is the most integral component in the design process of heavy mining equipment. In Ontario, where underground mines run over 2 km deep, this is even more prevalent. MacLean Engineering's Series 900 Scissor Bolter was designed with this in mind. "Due to the fact that the ore bodies in the Canadian Shield are some of the deepest in the world and are mined with bigger openings headings at depth, safety was our primary concern when designing the unit," said Don MacLean, founder and chairman of MacLean Engineering. In 2011, the company delivered its 300th unit to Goldcorp's Musselwhite mine in Ontario.

MacLean sees equipment becoming bigger and more powerful as underground mines must become more productive. "Whereas 15-ton trucks used to be the norm, now we are seeing 60 tonners as the norm," he said. "At the same time, speed is of the essence as the distances from the shaft or surface to the workplace are getting longer. We adjust our product development based on the needs of our customers, who are now telling us that they want to increase the amount of mt moved per shift and in doing so will need our utility vehicles to service larger openings."

B&D Manufacturing Inc. out of Sudbury focuses on truck and shovel maintenance. "B&D Manufacturing was founded in 1980 by two young entrepreneurs who invented a portable align boring machine," said Andre Ruest, general manager of B&D Manufacturing. "Before then, underground mining equipment had to be disassembled, brought to surface and transported to an outside machine shop for repairs. With our flagship Portable Align Boring Machine, technicians do maintenance work right on-site, reducing downtime and associated costs, and eliminating safety concerns."

Another trend that is appearing in equipment manufacturing is energy efficiency, specifically as a result of higher fuel costs and the need to reduce emissions at site.

An Ontario-based manufacturer, Industrial Fabrication Inc., just released its Minecat UT150-eMV, the industry's first purpose-built electric vehicle for hard rock mining. "The Minecat EDS (Electric Drive System) consists of a PMAC brushless traction motor for superior efficiency," said Daryl Rautiainen, Industrial Fabrication's vice president. The battery pack uses environmentally friendly Lithium Ion Phosphate cells that are 100% recyclable.

For Strongco Corp., a Toronto-based distributor of surface mining equipment, telematics, or the ability to track the equipment in real time, is the biggest trend right now in the heavy equipment sector. The company is the largest Volvo equipment dealer in North America. "Every Volvo machine we buy now comes with a CareTrack system that can feed maintenance and product information to us," said Bob Dryburgh, Strongco's president and CEO. "Strongco can utilize

Image: MacLean Engineering

this information to be able to inform our customers how the machine is running and when it might need maintenance."

"Even though Ontario has high-quality manufacturing, the industry needs to work on promoting our products to compete internationally," said Ricky Lemieux, president of Sudbury-based Rock-Tech Ltd., a manufacturer of equipment for underground mining applications.

Few would disagree that the companies worst hit by the commodity price downturn are drilling contractors. With exploration having declined considerably in Ontario since 2012, very few rigs are turning and the competition for new contracts is fierce. If and when drilling activity picks up, drilling contractors have had to slash their prices so low that it will be a long time before profits return to healthy levels.

Drillers have to remain focused on what they can control. For Orbit Garant Drilling Inc., this means investing in new computerized drilling technology that could save junior companies hundreds of thousands of dollars once exploration activity rebounds.

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Telematics, or the ability to track the equipment in real time, is the biggest trend in the heavy equipment sector. Every Volvo machine we buy now comes with a CareTrack system that can feed maintenance and product information to us. Strongco can utilize this information to be able to inform our customers how the machine is running and when it might need maintenance. The next step will be to combine SAP with the CareTrack system to better manage this data.

- Robert Dryburgh, President and CEO, Strongco Corp.

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The technology has achieved more than 30% greater productivity compared to conventional drilling and has reduced the duration of some customers' drilling programs by up to 50%, according to Alain Laplante, CFO of Orbit Garant. "In turn, this increased efficiency means that far fewer consumables are being used and rig components are lasting longer. Another benefit is that our customers can monitor our progress, view core samples, and access detailed performance reports on demand, all via the internet."

Shaft sinking is the most technically challenging aspects of underground mine development, and Ontario is home to two of the deepest mines in the world: Glencore Xstrata's Kidd Creek and Vale's Creighton. Building a shaft at such depths which guaranties the safety of workers requires a creative approach. DMC Mining Services, a contractor based in Toronto, has been tasked with sinking the shaft at KGHM's Victoria nickel mine in Sudbury. At its deepest point, the Victoria project ore body is located nearly 2,600 m underground. The depth and nature of the rock stressing presents a significant challenge. "DMC will sink one exploration shaft to 1,000 m to better understand the grades and concentration of minerals," said Bill Shaver, president and CEO of DMC. "From there, the mine will be developed at 1,200 mt/day. The long-term expectation is that the second shaft will be sunk relatively adjacent and it will go down to 2,200 m."

Unsurprisingly, Ontario contractors have developed a number of innovative technologies that have been exported to other parts of the world. "DMC is the first contractor to use our patented Long Round Jumbo technology in shaft sinking where we were blasting rounds up to 5 m long; it was employed at Falconbridge's Craig mine in the 1990s," said DMC's Shaver. "Today, we are sinking two shafts in Saskatchewan for BHP Billiton using shaft boring roadheader (SBR) for the first time anywhere in the world."

DMC is hoping that this SBR technology will be able to go nearly twice as fast as actual technology. "Shafts are usually sunk at the rate of 3 m/day. This would be a tremendous leap in shaft sinking, because the speed of sinking has not changed significantly in the past thirty years," said Shaver.

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The difference is that other companies integrate analogue components and PLC's in conjunction with a software package whereas Maestro is a manufacturer of the complete air quality station that can be integrated into any system due to its open communications protocols. We work with other ventilation companies but 95% of our business is directly with mining companies. In reality, ventilation-on-demand is stalled, because the price of the package…has not caught up to the reality of the cost constraints facing the mining industry.

- Michael Gribbons, Vice President, Sales and Marketing, Maestro Mine Ventilation

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Challenges in Ontario are not always related to the depth of the ore body. In reviving the former Totten Nickel mine, Cementation Canada Inc. was faced with the task of dewatering the historical shaft. The company was contracted to determine whether to build a new access point or use the existing one. "Vale chose to upgrade the existing access, which required less capital but was more risky," said Roy Slack, president of Cementation Canada. "The original approach was to look at dewatering pumps within the shaft, but we were able to use a vent raise to dewater it that allowed us to do work in the shaft itself."

Ultimately, safety is the key concern for shaft sinkers. "The safety has improved dramatically over the years, and we are now sinking shafts with barely any accidents and zero fatalities," said DMC's Shaver. •

Andrew Boushy

Vice President and General Manager, Minerals & Metals
AUSENCO

This is the first time GBR has met Ausenco in Ontario. Can you give us a brief background on your strategy within the province?

Ausenco has been present in Ontario for many years, but in 2010 we introduced our expertise in minerals and metals to the Ontario based mining market. During that time, we began working with Royal Nickel Corporation on their Dumont Project and using that experience decided to set up a permanent presence in Toronto at the end of 2011. Our presence in Ontario took another jump when we started to support Hudbay's Constancia project (in Peru) in conjunction with Ausenco's other offices in Vancouver, Brisbane and Lima. For this project, we focused on process plant design, which can be upward of 40% to 50% of the initial project capital.

Where did you feel you could add value to the Ontario marketplace?

The traditional EPCM-client model was starting to become fractured. There were no "one-stop shops" anymore including separation from the procurement and construction. Engineering was becoming a commodity in the minds of many clients. Understandably, owners felt they could manage costs better by doing the project management themselves. Ausenco's vision with the Ontario office was to reestablish the EPCM model as an engineer-constructor, not an engineer consultant. As a company with Australian roots, we tend to be less risk-averse than our North American peers. We are focused on building solutions whereas many companies can be overly concerned with selling services. When major projects go over budget and suffer cost overruns, it affects the entire industry. Everybody from investors to engineers to operators needs to be committed to a successful mining operation rather than their specific expertise within the process.

This sentiment is in line with the trend we are seeing on major projects with capital cost overruns and delayed timelines. In this scenario, how do we measure accountability?

Ausenco's preference is to become involved and committed to the project early in the study phase. This allows us to best influence project costs as the figures in the bankable feasibility study are typically what the investors have locked on to for financial success. We also offer clients an EPCM-EPC contract conversion option where we work to establish the maximum number they can expect upfront – a worst-case scenario – and then collectively work to establish a low cost fit for purpose design during the subsequent design stages. When everyone is satisfied with the final design and approach, we convert the balance of project spend to a lump sum (EPC) number to provide the client cost, scope and schedule certainty. An example of a successful implementation of this model is Ausenco's work at Barrick's Lumwana project in Zambia. It is considered one of the lowest-cost mines in the world.

Given the downturn in mineral commodities, how has Ausenco's exposure to the industry been affected?

Ausenco weathered the worst of 2013 due to its collaboration with its global offices. Strategically, 2013 was a stabilizing year, rather than a time to actively chase growth, which meant more study work as opposed to major projects. Instead of walking away from projects outside of our capabilities, we partner with other consultants and create project synergies within our offerings and for our clients. The "reimbursable" business of consulting lends itself to "an hour worked, an hour paid." However, our clients' view is that is a competing incentive because it does not tie anyone to the outcome. We need to break that cycle so that engineering work is not viewed as just a commodity.

What are the main opportunities that you envision for Ausenco in Ontario?

Ausenco has not yet been involved in a big mining project in Ontario. Most of our major projects in Canada have been in British Columbia or handled by our Vancouver office. We are the new kid on the block and are trying to leverage our global mining expertise in Eastern Canada in conjunction with our Burlington and Montreal offices. There are a few potential projects in Ontario, but most of our business is driven from Toronto-based mining companies. Most of our Ontario-based operational work is technical support, but Toronto's primary value proposition is to champion our global capability and technical expertise.

Where are you seeing the most growth for Ausenco's services on a global level?

There is a lot of work happening in northern Africa, which is handled by our Montreal, Perth and Johannesburg offices. We are actively engaged in Turkey and Eastern European regions like Bulgaria and Serbia. We are also working to establish a regional presence in Mexico. We are already well positioned in Chile, Peru and Brazil, which have tremendous potential for growth.

How would you like to position Ausenco's Ontario office in the future?

We strive to have open doors and be as close to the initial plan as early as possible, in order to influence cost, schedule and construction. Ausenco's Toronto office has a big role to play in our global operation. •

Don MacLean & Alicia Woods

DM: Chairman
AW: Director of Sales, North America
MACLEAN ENGINEERING

Can you give us a brief introduction to MacLean Engineering and its relationship to the mining industry?

AW: MacLean Engineering is a family-owned company that has been in the equipment business for over 40 years. The company provides equipment for a wide range of mining applications. We provide service and support equipment to mining operations, such as scissor lifts, boom trucks, anfo loaders, emulsion loaders and water trucks. On the support side, we manufacture shotcrete sprayers, transmixers, and vehicles for ore flow facilitation. MacLean's equipment can be found in operation across the globe. Sudbury is the base for sales and support with primary engineering and assembly located in Collingwood and Owen Sound, ON. Recently an 84,000-square foot distribution facility was established in Barrie dedicated to the aftermarket support of our global customers. The company has branches located in regions such as Peru, Mexico, Australia and South Africa, and sales and service dealers handling other strategic mining areas.

In 2011, MacLean delivered its 300th production Series 900 Scissor Bolter to Goldcorp's Musselwhite mine. What is the significance of the Scissor Bolter to MacLean's product line?

DM: The Series 900 Scissor Bolter is celebrating its 30th anniversary and is the best of MacLean's paradigm changing products. The Scissor Bolter is the only product that offers semi-mechanized ground support with the ability to change the type of rock bolt by the operator changing the dolly. The Bolter was first developed for International Nickel Company (Inco, now Vale) with input from their management, ground support department, mines research, line supervision, mechanical and operations people.

What trends are appearing in the industry that might affect MacLean's product development?

DM: Equipment is becoming bigger and more powerful as underground mines must become more productive. Whereas fifteen-ton trucks used to be the norm, now we are seeing 60-tonners as the norm. At the same time, speed is of the essence, as the distances from the shaft or surface to the workplace are getting longer. So, we are developing our utility vehicles to service larger opening and increase the amount of tons moved per shift.

AW: One trend is more customers asking us to design products with ergonomics in mind. The increased focus on worker health and safety extends to operator comfort, and MacLean is now designing products with this in mind.

What are the main strategic objectives for MacLean going forward?

AW: MacLean aims to expand its business in North America by opening branches in underserviced areas in Western Canada and the United States. We already have pieces of equipment operating and contractors using our equipment in the United States. For example, in Alaska, MacLean partnered with CMI to work as our distributor. In certain areas, it makes sense to partner with a company that is local, who understands the customers and are more familiar with the market dynamics in the region. •

Éric Alexandre & Alain Laplante

EA: President and CEO
AL: Vice-President and CFO
ORBIT GARANT DRILLING

AL

How has Orbit Garant Drilling (Orbit Garant) been affected by the global slowdown in mining activity?

EA: Over the past five quarters, our financial results have been negatively impacted by the slowdown. It has affected the entire drilling services industry. The amount of drilling activity has been substantially reduced, drill utilization rates are down and service providers are experiencing pricing pressure. Though, we have experienced weak market conditions in the past and we know that conditions can change rapidly. We remain focused on what we can control, including disciplined expense management, retaining skilled employees and maintaining our focus on driller productivity, health and safety, innovation and market opportunities.

How is Orbit Garant positioned to take the advantage of increased demand for drilling services when the market picks up again?

AL: The mining industry is cyclical. We are managing inventory levels and cash expenses and preparing for the next upswing. Our vertically integrated manufacturing operations enable us to manufacture our own custom drill rigs to meet specific customer requirements, which allows us to deploy quickly and cost-effectively. We can control quality and manufacture a custom drill rig in three to four weeks at a fraction of the cost that the large manufacturers charge.

Can you give us an example of a project where the competitive advantage of your vertical integration paid off?

AL: We designed and built a number of custom drill rigs for projects in Ontario's Ring of Fire, where due to the lack of roads, the rigs had to fit in a certain type of aircraft. We adapted the size of the rigs and their suitability for the terrain. Because everything was designed and built in-house, we had a very quick turnaround. Another example is a bid that Orbit Garant participated in for a project in Nunavut. According to the tender, we had to build and ship eight drill rigs from the port of Montreal to Nunavut within two months and we were able to meet this requirement. We needed to reduce the water consumption of our drill rigs from 25 cubic meters per day down to eight, due to water-use regulations in the area. So, we designed a custom water recirculation and filtering system that reduced our water consumption down to three cubic meters per day. Our custom system has the added benefit of reducing energy consumption, as the recirculated water does not have to be heated as much prior to being re-used in the drill hole, following filtration. Thus, we were able to recycle water and save more money for our client.

What was the reason behind developing your own computerized drilling technology?

AL: In 2009 there was a lack of experienced drillers and we saw an opportunity to develop a technology that would enable us to train our junior drillers more rapidly, while maintaining our high productivity levels. We therefore developed our own computerized control and monitoring technology. In utilizing this new technology, we achieve improved accuracy and consistency of results, enabling our experienced drillers to increase productivity, while less experienced drillers can move up the learning curve faster compared to conventional rigs. We have achieved more than 30 percent greater productivity compared to conventional drilling and reduced the duration of some customers' drilling programs by up to 50 percent. In turn, this increased efficiency means that far fewer consumables are being used and rig components are lasting longer. Our customers can also monitor our progress, view core samples, and access detailed performance reports on demand via the internet. Further, the new technology improves worker safety.

What markets outside of Canada represent the greatest growth opportunity for Orbit Garant?

AL: Over the past five years, more than 85% of our revenue was generated from projects in Canada. We knew that we would have to diversify geographically to keep growing. While we have had international market exposure in Mexico, Guyana and the United States, we have identified two new key international markets for our near term expansion – West Africa and Chile.

EA: We made a strategic acquisition of Lantech Drilling Services at the end of 2010 to establish ourselves in West Africa and recently opened a new office in Chile and shipped two drill rigs down there. We also decided to diversify in terms of the minerals that we are active drilling for. Being based in Val-d'Or, and with offices and facilities in Sudbury, we have always been very active in gold. Chile allows us to diversify into base metals while the Lantech acquisition provides expertise in iron ore drilling and in the Labrador Trough right here in Canada.

Where would you like to see the company positioned in the next 12 to 24 months?

EA: We would like to see sustained demand for drilling services pick up in Canada and abroad. As market conditions improve both domestically and internationally, we would like to move towards a revenue mix of approximately 75% from Canada and 25% from international projects. •

Andre Ruest

General Manager
B&D MANUFACTURING

Can you give us a brief introduction to B&D Manufacturing?

B&D Manufacturing was founded in 1980 by two young entrepreneurs who invented a portable align boring machine. Before then, underground mining equipment had to be disassembled and transported to an outside machine shop for repairs. With our flagship Portable Align Boring Machine, technicians do maintenance work right on customer site, reducing downtime and associated costs, and eliminating safety concerns. In 2001, the company acquired a fabrication shop, and our range of offerings began to diversify and focus more on surface mining equipment. By 2011, 80 percent of revenues were generated in Canada. Today, it is closer to 50-50 and growing globally in South America, Africa, and in our newest territory, Australia. Our sales have doubled every five years.

Could you describe B&D's key products and services?

We focus on truck and shovel maintenance for surface mining applications but also support heavy equipment operating underground. Much of what B&D develops is unique. The Tire Handler Station safely handles and manipulates haul truck tires within limited shop space. The Super Jack impacted workplace safety by being capable of lifting and securely balancing haulage trucks. This is the only existing certified two-point lift Jacking System for 300 to 400 ton trucks. Our remote-controlled Wheeled Multi Handler with its several attachments is specially designed and manufactured to improve safety and reduce turnaround time on haul truck wheel motors and other component repairs. And, our Swing Shaft Changer is an easy, fast and safe way to replace and service the swing shafts on P&H 2300, 2800 and 4100 shovels. These shovels can load up a haulage truck every 90 seconds, decreasing downtime from 12 hours to one, and result in huge savings.

What is B&D's approach to developing new products?

B&D Manufacturing traditionally invests about $2 million annually on new product development. Our R&D team has formed strategic alliances with major industry players. We design, test and manufacture "assembly tooling" for sale to Komatsu mining distributors and customers. B&D recently signed a licensing agreement with Komatsu America relative to certain intellectual property for that specific purpose.

How have you increased your focus on the safety and environmental aspects of heavy equipment?

Zero harm is our number one priority in developing new equipment or in field services. We thoroughly test and engineer-certify our products in response to industry's growing demand for improved safety, efficiencies and productivity. Our workshop recently achieved a milestone – one million man-hours worked with no lost time. Our facilities include solar walls, recycling water and utilizing high-efficiency lighting.

Will B&D be able to continue its aggressive grow?

Our sales model is a unique combination of sales professionals and distributors, who have a good handle on the pulse of industry, and is conducive to growth. Next year, we anticipate an 18 to 20 percent increase in global sales and will expand and invest in additional human resources and R&D. •

William (Bill) Shaver

President and CEO
DMC MINING SERVICES

Can you give us a brief introduction to DMC Mining Services?

DMC is a mining contracting business that was founded in 1980 under its original name Dynatec Corporation. We provide services to the mining industry primarily in the field of construction of new or existing mines. DMC also acts as an operator at various projects and has been equity owners as well. Since 2012, DMC Mining Services has been wholly owned by KGHM International. DMC is just starting KGHM's Victoria nickel project in Sudbury, preparing to sink an exploration shaft.

DMC Mining Services has developed expertise in shaft sinking. How has the company cultivated this particular niche?

DMC has a long history of sinking shafts that includes the Macassa mine, which was the deepest single-lift mineshaft in the Western Hemisphere when we completed it in 1986. While the business has been cyclical, it picked up significantly in the late 2000s. By 2013 we were working on nine shafts and in 2014 on six shafts. Shaft sinking is technically challenging and it takes a good hard-working team to perform this task. It can also be a hazardous job. Safety has improved dramatically over the years, and we are now sinking shafts with barely any accidents and zero fatalities. Training and technology have evolved dramatically and continues to do so drawing on employing new advancements and research.

Given Ontario's long history in hard rock underground mining, what has been your experience in the province and are you able to use this experience in other parts of the world?

There is a lot of technology that we have developed in Canada over the years and exported to other parts of the world. DMC is the first contractor to use our patented Long Round Jumbo technology in shaft sinking where we were blasting rounds up to 5 m long; it was employed at Falconbridge's Craig mine in Ontario in the 1990s. Today, we are sinking two shafts in Saskatchewan for BHP Billiton using Shaft Boring Roadheaders (SBR) for the first time anywhere in the world. There are no people at the bottom of the shaft during excavation, which is significant because workers are not exposed to the risk of serious accidents from the proximity of heavy equipment. We are using a combination of roadheader and tunnel boring technology to do the work in a totally different way.

How will the implementation of SBR technology improve the efficiency of shaft sinking?

One of the challenges of being an innovator is that we are still at the early stages of understanding the cost impact of our technology. We are hoping that this technology will be able to go nearly twice as fast as the technology that has been used up to now. Shafts are usually sunk at the rate of three meters per day. This would be a tremendous leap in shaft sinking, because the speed of sinking has not changed significantly in the past thirty years.

What role is DMC playing at KGHM's Victoria nickel project in Sudbury?

The Victoria project is an orebody with about 15,000 million metric tons of ore, and the top of the ore is located 3,000 feet underground with the deepest points at around 8,500 feet. The depth and nature of the rock stressing presents a significant challenge. DMC will sink one exploration shaft to 1,000 meters (m) to better understand the grades and concentration of minerals. From there, the mine will be developed at 1,200 mt per day (mt/d). The long-term expectation is that the second shaft will be sunk relatively adjacent and it will go down to 2,200 m, and the mine will be developed to its full scale at 3,500 mt/d.

How challenging is it for DMC to recruit and retain a skilled workforce, especially with the highly technical nature of your work?

We look for young engineers and technical graduates, involving them in our daily operations and teaching them what we know. We have been doing a better job in attracting young men and women over the past couple of years. Young people today are very well trained; we see a positive trend in hiring new talent. These young people have the opportunity to learn from our seasoned veterans. The main challenge is still to attract people to work in remote areas.

What are the advantages of staying with contract miners as opposed to an owner-operator model?

In addition to the specialized expertise and experience of contractors, one of the advantages of having a contractor as the operator is that they are bound by the proposed budgets and schedule and can be held accountable if they fail to stick to the original plan. One of the problems that mining companies encounter, especially if they have very rich bodies, is that they find operational costs increase from year to year, whereas a contractor is obliged to stick to the price and the plan.

What are some of the main areas of growth for DMC over the near-term?

The focus for DMC over the years has been in North America. Previously, we were strictly a contractor, but we transitioned into a mining company as well as a contractor, which is where our future lies. We want to move back to the equity side of the business. In this type of cooperation we would assume part of the project risk. We had a significant share in a project in Madagascar and understand the risks associated with building mines. •

The Added Edge

Consulting and Technology

A hot topic at 2014's Prospectors and Developers Association of Canada conference in Toronto was how difficult it had become to build a mine on time and on budget. Mining analyst Christopher Haubrich presented research showing that capital cost overruns in the sector have averaged between 20% and 60% since 1965. What is surprising, however, is that in his analysis of 50 mines built between 2005-2013, only two of the commonly cited reasons for capital cost overruns – commodity market "heat" and project quality – were statistically significant. Most of the reasons cited by mining companies for cost overruns had nothing to do with whether a mine would be built on time and on budget.

This leaves a grey area between EPCM companies and their clients as to who is responsible for project delays and budget blowouts. "When major projects are going over budget it affects the entire industry," said Andrew Boushy, vice president and general manager, minerals and metals at Ausenco Engineering Canada Inc.

According to Jan Kwak, managing director, mining and mineral processing at Hatch Ltd., mining companies are looking for more predictability in outcomes, and large divergences from the original plan for cost and schedule are not acceptable. "We believe the best way to have more surety and predictability in a project is by doing a better job in scoping the project. In the rush to get projects built during the boom years, many companies skipped these steps, which resulted in cost overruns. Our approach is to place more effort into project planning and scoping to make sure we understand precisely what we want to build and how we will build it; it may be basic but it is profound," he said.

Image: Emerson Canada

Making mines more efficient: a productivity analysis

Globally, mining companies are bringing new mines into production that are low-grade and high-tonnage, putting increased strain on profitability. Ontario's producers are also dealing with high energy costs in comparison to the rest of Canada. There is a need for technologies that can assist with energy reduction across the entire mining value chain.

Emerson, a diversified global manufacturing and technology company, is devoting its resources to help Ontario's miners tackle the challenge of energy efficiency. Through its product umbrella of over 70 brands, the company offers products that control energy usage and monitor equipment. "In the shaft of the mine, industrial LED lighting emits less heat than a conventional incandescent lighting system and is much more energy-efficient. On a SAG mill, companies use Emerson Process Management's CSI Technology – 'machinery health monitoring systems' – as a predictive diagnostic tool for machinery management," said Thomas Cleland, manager, business development at Emerson Canada. In Canada, Emerson's turnover is close to $1 billion annually. Emerson also provides products for conveyor belts such as rollway bearings and sealmaster bearings. "Our Control Techniques variable speed drives can be used in a re-generative configuration, such as a dynamic brake for an inclined rock conveyor. The braking drive can generate as much as 50% of the energy required to run another same-sized drive connected on the same DC buss circuit," he said. The company is also working on wireless control products.

Implementing IT in the quest for profitability

In the midst of a commodities downturn, mining companies are looking to big data to help them increase profitability. While a recent Accenture survey of mining executives showed that 25% of them had at least doubled their overall digital investment, there is still a degree of uncertainty about what these software tools can do.

Centric Mining Systems is a Sudbury-based company that developed software designed to collect metrics related to the extraction, conveyance and processing of ore. These metrics are then transformed into Key Performance Indicators (KPI's) and delivered to decision makers. "We see that there are three kinds of KPIs: one you cannot see because you are unable to compile the data efficiently and effectively, one that is incorrect but accepted because we have nothing better, and one that you do trust and accept despite a lack of accountability in the data," said Chris Novak, Centric's CEO. "This would be unacceptable in any other business. Our approach brings opportunity with accountability, and brings forth KPI's that as an industry; we could not produce in a timely enough manner to be useful."

Part of the problem, according to Novak, is that each part of the mining enterprise sees itself as unique and isolated, and so they develop information management solutions independently. "For us the goal is tearing down the silo walls, so that knowledge is shared and delivers the maximum ROI," he said.

Another company bringing Enterprise Resource Planning solutions to the mining industry is Illumiti, an SAP systems integration and management consulting company based in Toronto. The company has worked with Strongco and St Andrew Goldfields to implement SAP into their operations. "Their exposure to what is happening internally will keep improving as they gain a better understanding of reporting and information analysis," said Rory Friedman, vice-president operations. Software giant IBM is also investing in mining with a number of enterprise resource planning products designed for the industry. •

> "Globalstar's technology is called CDMA technology, which was the original cell phone technology. We are also in the upgrade phase for our on-ground systems, and within the next two years we are putting in 3G cell phone style infrastructure that will allow us to bring in new products such as touch display phones and smaller devices that allow easy network access. We will also be providing data speeds for our satellite network that are comparable to cell phone networks."
>
> - Jim Mandala, Vice President and General Manager, Globalstar Canada Satellite Co.

Thomas W. Cleland

Manager, Business Development
EMERSON CANADA

Emerson is a $25-billion, Fortune 500 company. Can you give us a brief introduction to its relationship to the mining industry?

Emerson is a 124-year-old global company with diversified capabilities in manufacturing and technology. We have been in the mining industry globally for nearly 80 years but because of our distribution model, our name often goes unrecognized in the sector. In Canada, Emerson's turnover is close to $1 billion annually, which puts us in the top 50 largest companies in Canada. We have five business platforms: Process Management, Industrial Automation, Network Power, Climate Technologies, and Commercial & Residential Solutions, all of which contribute to our mining industry capabilities with thousands of products, technologies and services.

In January 2014, Emerson acquired full ownership of Appleton Electric, which was part of a joint venture with another company for several years. Appleton manufactures explosion-proof electrical enclosures and connectors, which are particularly suited to the mining industry. While it is important for our customers to remain familiar with the brands that they work with, such as Appleton, it is also important for them to understand that these brands are part of Emerson, a respected global company that provides our businesses with financial stability and strong management. One of the financing challenges that mining companies face when designing their operations is whether their supply chain for products, engineering services and customer support will be secure for the life of mine.

Ontario is known for hard rock, underground mines. What are some of Emerson's products in this context?

An example of a product for use in the shaft of a mine is Appleton's industrial LED lighting, which emits less heat than a conventional incandescent lighting system and is more energy-efficient. Appleton's industrial LED light puts less heat into the mine that has to be removed by energy-intensive air conditioning systems. On a SAG mill, companies use Emerson Process Management's CSI Technology – "machinery health monitoring systems" – as a predictive diagnostic tool for machinery management. Emerson also provides products for conveyor systems, such as belts, transmissions and reducers from Browning, bearings by Rollway and Sealmaster, and the large Kop-Flex motor couplings.

Our Control Techniques variable speed drives can be used in a re-generative configuration, such as a dynamic brake for an inclined rock conveyor. The braking drive can generate as much as 50 percent of the energy required to run a similarly sized drive connected to the same direct current buss circuit. In contrast to conventional friction brakes that waste the heat energy generated from friction, the variable speed drive uses it to conserve energy and move product.

We also have and are working on more wireless control and monitoring products. In an underground setting, wireless is safer and more efficient, but technology can be limited in a shaft by virtual line-of-sight communication. In the open pit or the plant, it's a no-brainer.

What trends is Emerson following that might influence its product development initiatives?

One of the trends that Emerson is following is modularity of equipment delivery. We are already delivering modular motor control (MCC) and modular data centers that are manufactured by Emerson offsite. Since many mines are located in remote areas, the ability to assemble the equipment in a populated area in a controlled environment means that skilled labor is easier to find and less expensive, and the final on-site assembly is easy, quick, and of course cheaper. We can also monitor the miners' ventilation and milling equipment, including the data center and MCC, remotely through our telemetry monitoring services. Modularity also helps to lower the mine's cost and the time necessary for construction. In Canada, depending on the latitude, the construction season can be short, and it can be difficult to work year-round.

Another interesting trend is that energy efficiency, automation, and uptime are becoming viewed as pathways to greater job security for the miners. If the mine operates more efficiently, and stays in operation, the cost of operation decreases and the drastic fluctuations in commodity prices may not affect the profit margins as severely, forcing closures and layoffs.

In Ontario, Vale spent $760 million to automate its Totten mine. How do the economics of automation justify the expenditure?

There are a number of ways to justify mine automation. For example, Emerson technologies allow mining companies to monitor the performance of brand-new or existing machines. This baseline of proper operation can then be used to monitor the machine and to predict, with a reasonable degree of certainty, whether a certain component or entire machine will need to be repaired or changed before standard maintenance procedures dictate.

Where would you like to see Emerson in Canada?

One of Emerson's objectives in Canada is to continue to solidify our reputation in the mining industry. Customers are already using many Emerson technologies, and we would like to break down the barriers to using the additional technologies from our other business platforms. Internally, we want to create additional synergies within our five business platforms. •

Dominic Fragomeni

Director
XPS CONSULTING & TESTWORK SERVICES (A GLENCORE COMPANY)

XPS Consulting & Testwork Services was founded as a part of Xstrata. How was Xstrata's merger with Glencore last year affected your business model?

XPS's model has remained the same. We are an autonomous business within Glencore that delivers value in metallurgical engineering and testing to our internal and external clients. We get no corporate funding. To grow our internal business and keep our external market share, we have diversified into gold and done quite a bit of work in rare earths, primarily on the mineralogy and mineral processing side.

XPS has five distinct and complementary business lines: process control, process mineralogy, extractive metallurgy, materials technology and plant support. The plant support group is new, and the majority of our work has been in start-ups for gold projects in northern Ontario. We would like to see a 50-50 mix between internal and external work. Through Glencore, we are doing more international work in jurisdictions such as the Congo, Zambia, Kazakhstan and Mount Isa in Australia. South America and Africa are potential markets.

Through XPS's test work for KWG Resources in the Ring of Fire (ROF), you came to the conclusion that Black Horse's ore smelts readily and produces a high-grade alloy with low chromium in slag. What is the significance of these findings and what does it mean for the potential of the region?

The ROF is a boon to the area, but it is somewhat isolated with no infrastructure. The processing facilities initially used the conventional route, which is an electric-furnace approach where the raw ore is smelted at 1700 °C with a high-energy input. KWG supported us to consider alternatives, and, together with KWG's metallurgists, we looked at direct reduction technologies. This technology is not new, but we have together added a twist to take advantage of the lower cost natural gas available in Ontario. We are currently developing technologies to increase the rate of reaction and reduce the temperature of the direct reduction process, as well as considering downstream processing options. This is expected to reduce the cost of producing ferrochrome which will help in the development of the ROF projects.

What trends are driving innovation within the consulting and test-work space?

In our process control group, we have been focusing on metallurgical accounting, using technologies like the CiDRA SONARtrac® meter to accomplish this. On the mining side, we have worked the company Symboticware to put its technology on the mobile equipment in the Nickel Rim South mine to assess motor and equipment health.

XPS also offers a product called XPS Float, which is installed in flotation plants to measure the level of the cells. It has an ultrasonic head that determines the height of the target and the interface between the froth and the slurry in the flotation tank. This measurement is interfaced with a series of valves that control the inflow and outflow and maintain the level of the cell, which is critically important for maintaining recovery and the grade of product. The float section is used to determine the interface between the froth layer and the slurry layer.

In extractive metallurgy, modeling such as Metsim and Factsage shorten our test programs, and we are using equipment such as the thermo-gravimetric analyser as well as our new QEMSCANs.

What is next for XPS?

XPS plans to diversify further into gold, particularly in the refractory gold area. XPS's multidiscipline team has the capability to offer the complete suite of services in this area. We also plan to get more into lithium and rare earths and be the "go to" group for Ni, Cu, Pb, Zn and PGMs, which are our real strengths. •

Jean Behara

Vice President, Business Development
COWAN DYNAMICS

Could you give us a brief description of Cowan Dynamics' presence in Ontario?
The Ontario office was opened in 2004. Cowan Dynamics had a small presence in the market, but has grown. We now have 45 employees in Montreal and four in Ontario. We are a solutions provider and provide actuators and controls for various processes. Cowan Dynamics' core product is linear actuation. We provide specialty actuation both linear and quarter turn, specialty valves and controls for the entire process. About 10% of our clients are based in Ontario province.

What type of growth did Cowan experience in recent years, with the global mining industry going through such serious cutbacks?
In the last five years, Cowan Dynamics has tripled its sales, which was primarily the result of the success stories in the industry. We did a copper mine project with Rio Tinto in the United States, where we developed and customized a solution specifically for the client's needs. After implementation, Rio Tinto was able to increase its yield by $33 million a year, which is a significant improvement. The product in question was our AT series, was developed in-house and is designed for modulating control applications. The previous product that Rio Tinto was using was failing every three months, while our AT series product has been in service for three years now.

Can you tell us more about your new spring return pneumatic valve actuators, which has been launched in October 2013 and the advantages it offers to the mining industry?
In the past, when a mining company needed a spring return actuator, they had to approach a manufacturer and request a specific actuator, which would then have to be built specifically for this company. This was a guessing game from the customer's perspective and very costly for us. We have been producing spring return actuators for the past 50 years and have developed an extensive library of configurations
With the AS Series, Cowan Dynamics has developed a standardized, catalogue-based spring return actuation solution. Customers can now simply refer to a dimension table and order their product according to the required dimensional size and thrust. This speeds up the throughput for engineers. The other advantage of the AS is that we have taken the spring out of the cylinder and put it in the factory-sealed canister. The safety issues related to having the spring inside the cylinder are resolved.

Is this product similar to other products we might see on the market?
There are other products that are similar to ours, but they are not catalogued. There is a complex process behind reaching out and getting a quote from a manufacturer. Our customers have access to an online portal, where they can instantaneously configure an actuator to suit their requirements. Our portal provides an orderable part number, pricing, and drawings with a few simple clicks.

What kind of new products or product line is Cowan Dynamics currently working on?
We are investing in research and development (R&D) and continuously refining our existing product lines. One of them is our booster series, which we are revamping and updating to improve delivery and reduce cost. There are certain applications for which the AS is not suitable because of the size and weight of spring return cylinders, in which case we do air fail safe systems with integrated booster.

Ontario is known for hard rock underground mines. Is it necessary to adapt Cowan's products to fit the needs of local customers?
Our products and systems are suitable for a wide range of minerals and are primarily used in the processing phase. We are known for providing solutions that are tailored to specific applications and environments.
What are the concerns regarding upfront costs related to automation?
The costs depend on the size of the operation and the application we are targeting. It is the change from having somebody on-site physically turning "handwheels" to investing thousands dollars into automation. It is a significant investment but increases yields down the line and improves productivity levels. In a time when grades are decreasing, it is essential to be able to extract as much as possible from the rock.

What is the advantage for international mining companies to choose a Canadian-manufactured product?
We have long-standing experience in mining and an understanding of our clients' needs. We are aware of the strenuous conditions in which actuators have to operate. Having access to plants and being able to translate the information from the site into specific recommendations for the clients makes us a unique supplier.

What are Cowan's strategic objectives for the coming two to three years in terms of geographic expansion?
We are looking to expand further into South America and Africa. We are exploring different alternatives to work with different partners. We have a number of partners through OEM associations and will be looking to expand this network further. •

Chris Novak

CEO
CENTRIC MINING SYSTEMS (FORMERLY NCS TECHNOLOGY INC.)

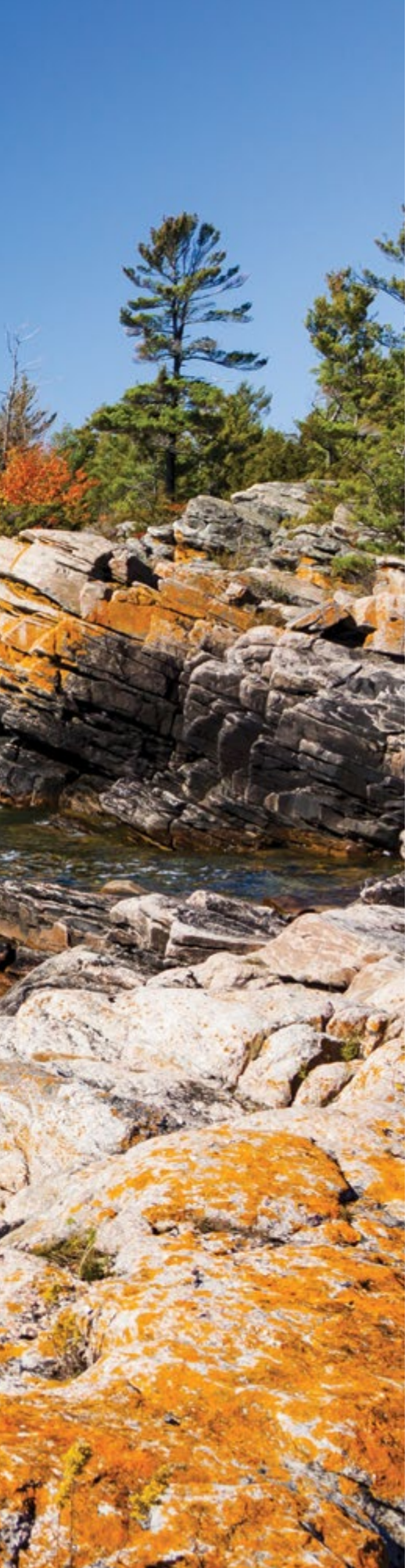
Can you give us an overview of NCS Technology?
NCS Technology began in Sudbury in 2000 with the mandate to improve accessibly to accountable operational knowledge in the mining industry. NCS was established initially as a consultancy with the goal of highlighting the fundamental wrongs in the industry and suggest solutions. One of the intrinsic issues was the "siloing" of data, making it inefficient to transfer knowledge from the workplace to the boardroom. The industry was complacent and unable to mitigate the problem. We therefore developed our own technology, Centric, which came out seven years ago and was deployed to mining in Western Australia.

What does Centric measure?
Centric is designed to collect metrics related to the extraction, conveyance and processing of ore. These metrics are then transformed into Key Performance Indicators (KPIs) and delivered to decision makers. Our approach brings opportunity with accountability and brings forth KPIs that as an industry we were not able to produce quickly enough to be useful.

NCS has a strong relationship with First Quantum Minerals, a Vancouver-based company. How does this reflect your target customers?
Sudbury is a hub for the Ontario mining industry and services, but our target market has always been international. We export our technology either to small to medium-size companies or large companies with decentralized management structures like FQ. It is easier to move a disruptive technology into an arena with fewer decision makers and to diversify across a range of commodities to ensure stability and growth. We have a broad spectrum of clients such as Goldcorp in Timmins and Detour Gold in Cochrane, as well as Toronto-based companies, such as Alamos Gold and Teranga Gold, and, finally, Australian companies such as the large iron ore producer, Fortescue Metals (FMG).

Is the mining industry receptive to what is potentially a disruptive technology?
The industry sees itself as unique, but at its core, regardless of commodity, location or mining method, the principles are the same. Our technology is adaptable and flexible to the procedural differences of each business while providing the fundamentals of ore tracking and KPI analysis. Our experience adds value. When we sit in front of a CEO or COO, we demonstrate knowledge of their business requirements and propose direct solutions. We tell them what they need to hear, not what they want to hear.

Why is the company is fundraising to build a school in Malawi?
Philanthropy is one of our company attributes. NCS has been donating anonymously to local charities for many years and it has become part of our culture. However, we wanted to do something bigger and better in light of our recent success, a large part of which was in Africa. Education is the key to sustainable success for Africa, and we want to part of that effort. •



Into the Future: Final Thoughts and Company Index

"We worked for a number of juniors in the chromite and nickel-copper areas in the Ring of Fire. There is potential for many other minerals and metals to be found, but at the moment, companies and are waiting to see if the government will assist in developing this area. Aside from this project, there is still a lot of interest in the gold sector, but with the decrease in the metal price, this sector is also relatively quiet."

- Richard Gowans, President, Micon International

Image: Shutterstock

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On a global basis, Ontario is regarded as one of the securest jurisdictions in the world as we have relatively few issues with land tenure, providing confidence to our shareholders. Northeastern Ontario is is extremely rich in gold, with Timmins itself being Canada's largest gold camp. Operating in this historic mining rich region is cost effective at all exploration and mining stages resulting in shorter time frames for companies to achieve pre-production and development targets as compared to other jurisdictions.

- Ian Campbell, President and CEO,
Temex Resources Corp.

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Chinese investors are very interested in Canada's mineral resources, especially the Ring of Fire; however, the lack of infrastructure in northern Ontario and elsewhere in Canada is hindering their willingness to invest. They cannot justify a significant investment in remote regions where there are no plans to build roads, rail or ports.

- Cameron A. Mingay, Partner,
Cassels Brock & Blackwell LLP

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From the safety side, the biggest concern when operating in extremely cold conditions is protecting employees in case of an emergency. Chemical spills can happen and they can harm people, to minimize risks of chemical burns safety showers must be reliable and accessible at all times. We built a thicker insulated shell inside the shower booth, so that the water inside is kept warm at all times. We also added control systems to allow mine operators to know that everything is working properly, and installed larger capacity tanks to ensure availability of water at all times.

- Sandro Spadafora, Vice President Operations,
Rezplast Manufacturing Ltd.

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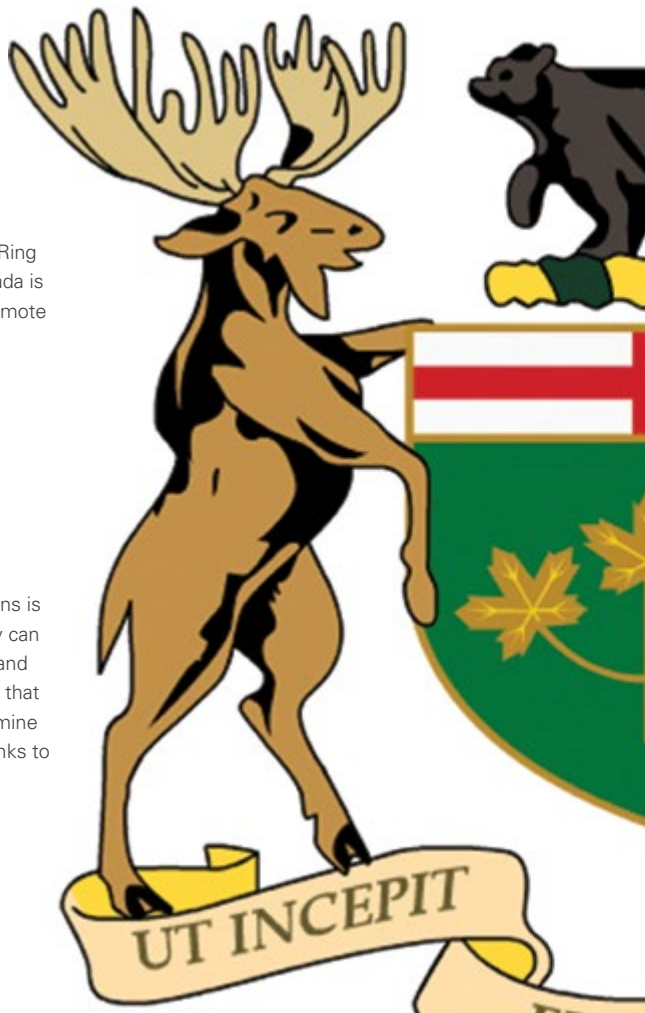
The main application of flexible ducting systems is to bring air from the main airway into the working headings underground. By attaching a fan at the corner, the air flows from the main travel ways and run it into smaller crosscuts or stopes. They hang a fan, put the ventilation ducting under it, and it blows the air through vent ducting, close to the face where the people and the equipment are working. It is a PVC material, which we call Layflat. It folds, so when the fan blows, it will open up and the air goes through.

- Don Croteau, Managing Director,
Schauenburg Industries Ltd.



The one structural change that will come out of this downturn is the demand from investors for prudence. It does not make sense to do a $200 million capital expenditure program when the company's valuation is exponentially lower than that – where will the money come from? Investors are taking a big risk in the mining industry and the management teams of these companies have to understand that they need to be more realistic with their spending and expectations.

- Eric Sprott, CEO, Chief Investment Officer,
Sprott Asset Management LP

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Based on the recent M&A activity, it is safe to say that majors are more interested in investing in 'safe' jurisdictions. Companies are looking to de-risk their investments as much as possible and operate within a 'comfortable' destination. Tamaka fits this model perfectly and presents a very good target for majors to consider.

- Howard Katz, President & CEO,
Tamaka Gold

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GoldQuest is planning to link our preliminary economic assessment (PEA) with the initiation of our prefeasibility and fast-track the permitting process in the Dominican Republic. The support of the central and local government is essential for us because the government believes that mining will become a pillar of the economy in the country's future. We are working very closely with the local communities to integrate them into Romero's development; it is easier to do this with a smaller project, and our management is easily accessible to address any questions the communities may have regarding its' development.

- Julio Espaillat, President and CEO,
GoldQuest Mining Corp.

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Investors are becoming more at ease with Argentina and recognizing the country's exciting prospects for uranium development…We have built up a strong pipeline of uranium targets that could add to the initial uranium resource defined at Laguna Salada. The new discovery at La Rosada is one such target where we have encountered the highest grades to date in the region.

- Richard Spencer, President and CEO,
U3O8 Corp.

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THANK YOU

GBR would like to thank

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PROSPECTORS & DEVELOPERS ASSOCIATION OF CANADA (PDAC)
www.pdac.ca

SUDBURY AREA MINING SUPPLY & SERVICE ASSOCIATION (SAMSSA)
ww.samssa.ca

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www.tmx.com

We would also like to sincerely thank all the companies that took the time to give their insights into the market and share their experience and knowledge.

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