Ontario's Mineral Industry Cluster

An Economic Powerhouse

Ontario Mineral Industry Cluster

INTRODUCTION

clu•ster (noun) a concentration of inter-related industries and institutions that drive wealth creation, primarily through innovation and the export of goods and services. Clustered industries mutually reinforce and enhance each other's competitive advantage.

Ontario is a global leader in mining. Innovative companies have extracted a wealth of gold, silver, platinum, nickel, copper and industrial minerals from the rugged Ontario landscape for more than 100 years.

Tens of thousands of men and women work in an industry that stretches from the nickel mines in the Sudbury Basin to the gold deposits west of Thunder Bay and from the salt mines of Southern Ontario to the diamond deposits in the Hudson Bay Lowlands.

In addition to the major mining companies, there are exploration companies to find new mineral deposits, equipment companies to supply drill bits, educational institutions to instruct and train new miners, researchers to develop innovative technologies, investors to finance growth and many, many others.

Collectively, these companies and public-sector organizations make up Ontario's vibrant and dynamic mineral industry cluster. They reinforce each other's competitive position, making them more successful.

Ontario's mineral industry cluster is a province-wide engine of sustainable wealth creation with tremendous growth potential. The increasing worldwide demand for minerals, mining equipment, expertise and cutting-edge technologies associated with the extraction and downstream refining and processing of minerals is creating unprecedented opportunities for cluster growth.

Ontario's mineral industry has a rich history and an even brighter future. You can discover more about it by turning the page. . .

THE GROWING ROLE OF MINERALS

Mining is more important today than ever before.

The mining industry produces the minerals that are turned into the cars, steel construction beams, electrical cables and home appliances that are part of our everyday lives. Without metal there would be no equipment to produce plastics, ceramics, paper – or even a cup of coffee at your local donut shop.

A Wealth of Minerals on Our Doorstep

Ontario's geology offers one of the richest concentrations of mineral wealth on earth. If Ontario was a country, it would be among the top ten mineral producers worldwide.

Globally, Ontario ranks 3rd in platinum production, 5th in nickel, 9th in cobalt, 9th in gold, 16th in copper and 16th in silver.

During the past century, our mines have produced metals valued at an estimated $350 billion. Today, Ontario's total mineral production tops $7 billion annually.

The future is even brighter. Exploration activity is at record-breaking levels across the province.

The Sudbury Basin is one of the world's richest mineral deposits.

HOME TO WORLD-LEADING MINING AND MINERAL COMPANIES

Ontario's mining industry is an economic powerhouse that provides the lifeblood for communities across the province. It sustains 23,000 direct jobs, 75,000 indirect jobs and pays more than $1 billion in wages and salaries annually.

It's an economic and technological front-runner, investing billions in capital projects, leading the global mining industry in productivity growth and contributing millions annually to research and development. Ontario mining companies are global leaders, not just because of the province's rich mining history and diverse geology, but also because of the industry's strong investment in innovation and productivity.

The mining industry is also one of the most internationally active sectors in the province. Some 800 Canadian and international mining companies have operations in Ontario.

- Barrick Gold Corporation
- CRVD-Inco Ltd.
- First Nickel Inc.
- FNX Mining Company Inc.
- Goldcorp Inc.
- Kinross Gold Corporation
- North American Palladium Ltd.
- Teck Cominco Ltd.
- Xstrata Nickel

Industrial mineral companies operating here include:

- Hanson Brick Ltd.
- OMYA Canada Inc.
- Sifto Canada Inc.
- Unimin Canada Ltd.

In addition, hundreds of junior companies are part of the Ontario mining scene and work globally.

"Ontario is home to a first-class workforce and some of the world's most innovative technologies and it is led by a government that understands the need to keep our mining industry competitive in an increasingly global environment. We are proud of our history and look forward to continuing our success in Ontario over the next 100 years."

Mark Cutifani
Chief Operating Officer
CVRD--Inco Limited

GLOBAL LEADERSHIP IN MINE FINANCING

Mining is a capital-intensive industry. The Victor diamond mine in the James Bay Lowlands, for example, represents a capital investment of almost $1 billion by De Beers Canada.

Financing a project of that magnitude, especially given the long lifecycle of a typical mine requires highly specialized financial, legal, insurance and accounting expertise. Ontario's mineral industry cluster has more of that expertise than can be found anywhere else in the world.

Financial and legal institutions have emerged as key players in the globalization of the world's minerals and metals industries and Toronto is the mine financing capital of the world. The Toronto Stock Exchange (TSX) and the Toronto Venture Exchange are home to approximately 3,600 issuers with a market capitalization in excess of $1.5 trillion. Some 1,200 of the TSX issuers are mining/exploration companies, with almost 400 of them exploring in Ontario.

Toronto is also a major North American centre for business expertise. Canada's five largest banks have their head offices in Toronto, as do 13 of the top 20 Canadian law firms and the country's top six accounting firms.

"The Toronto Stock Exchange and TSX Venture Exchange provide the access to capital essential for growth-oriented mining companies anywhere in the world. Sixty per cent of the world's public mining companies – from world-class producers to early-stage explorers – are listed on a TSX Group exchange, including 270 based in Ontario. This global mining franchise promotes economic development in Ontario and supports a wide range of highly skilled, high-paying jobs."

Richard Nesbitt
CEO
TSX Group

Did You Know . . .

That Toronto Hosts One of the Largest Mining Conventions in the World

Annual Event Brings World's Mining Community to Ontario

Toronto, the finance capital of Canada and a key economic feature of the Ontario's mineral industry cluster, has been home to the Prospectors and Developers Association of Canada (PDAC) annual convention for 75 years. The PDAC International Convention, Trade Show and Investors Exchange draws thousands of mining industry leaders from around the world and attracts astute investors, equipment supply and service companies and technology leaders.

- over 15,000 attend each year
- over 300 exhibitions

For more information visit www.pdac.ca

MINING EQUIPMENT AND SERVICE SUPPLIERS CREATE A WORLD OF OPPORTUNITY

A wide range of companies provide the specialized equipment and services the industry needs to maintain its competitive edge.

Ontario firms have developed international reputations for providing top-ranked mining equipment and services that meet the most demanding standards across the globe in exploration research, mine planning, automation, communications, environmental disciplines, deep mining and other areas.

The sector includes both highly successful home-grown companies and internationally recognized leaders. The mining equipment and service suppliers are thriving by serving the growing needs of mines in Canada, the U.S., Latin America, Asia, Africa, Australia, Eastern Europe and the Middle East.

"Ontario's rich history in mining makes it the obvious choice for companies driven by innovation, and staffed by mining professionals. Unwavering government support for R&D, backed by industry-focused education, has given HLS the edge required to compete and lead in today's global market."

Walter Siggelkow
President
HLS HARD-LINE Solutions Inc.

"Through interaction, commitment, innovation and community development we believe Northern Ontario is the place to do business. Northern Ontario offers a unique balance for business opportunities and growth and a great quality of life."

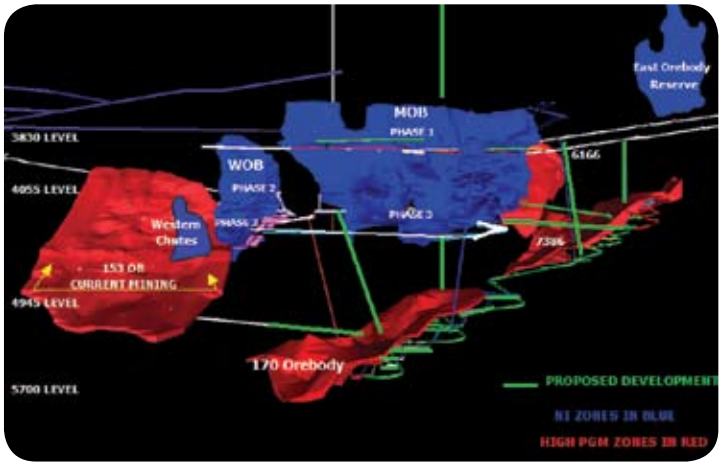
Paul Healy
President
Atlas Copco Construction and Mining Canada

AN INTERNATIONAL HUB FOR MINING INNOVATION, AND RESEARCH & DEVELOPMENT

Influential Mining Innovations

Ontario is the birthplace for a long list of innovations with worldwide impact, from heart pacemakers to BlackBerry wireless devices and Academy award winning 3-D animation software.

These mining innovations have made the mining industry more modern, productive, and efficient in health and safety. In addition, application of research and development in the mining sector has influenced innovation across industry sectors.



3D Image of an Ore body

- New technologies for processing nickel and copper ores and minerals
- Lowering SO_2 emissions
- Lowering engine emissions and energy consumption
- Robotic and remote mining technology
- Mining automation/equipment automation
- 3D visualization and computer process modeling
- Advanced geomechanics design and optimized mine planning
- Laser surveying technology
- GPS applications to mining equipment and open-pit mines
- Battery products for hybrid electric vehicles
- Landsat images for exploration
- Innovative ground control measures and paste back-fill technology

Leading Ontario research organizations work closely with mining and exploration companies to develop new services and breakthrough technologies by investing millions per year in innovation:

- Canadian Mining Industry Research Organization (CAMIRO)
- Canadian Shield Research Institute, University of Ottawa
- Lakehead University Mineralogical and Experimental Laboratory (LUMINX)
- Lassonde Institute for Engineering Geoscience, University of Toronto
- Laurentian University Cooperative Freshwater Ecology Unit (CFEU), Mining Innovation, Rehabilitation and Applied Research Corporation (MIRARCO); and Mineral Exploration Research Centre (MERC)
- McMaster University Steel Research Centre (SRC)
- Natural Resources Canada's Centre for Mineral and Energy Technology (CANMET)
- Northern Centre for Advanced Technology (NORCAT)

Centre for Excellence in Mining Innovation (CEMI)

Ontario's new Centre for Excellence in Mining Innovation (CEMI) is emerging as an international centre for world-class, industry-driven research and innovation.

CEMI is a mineral sector research institution in Northern Ontario, led jointly by industry and Laurentian University in collaboration with regional, national, and international R&D partners. Building on existing strength and developing excellence, CEMI is located on Laurentian University's Campus in Sudbury. CEMI's research priorities include exploration, deep mining, integrated mine process engineering, automation and telerobotics, and environmental stewardship. These collaborative projects involve other universities and research centres in Ontario and Canada, as well as international research organizations.

"Advanced research and innovation at CEMI will enhance our competitiveness in Sudbury and at our projects and operations globally."

Mike Romaniuk
Vice-President,
Sudbury Operations
Xstrata Nickel

Recognizing that Ontario's growing mineral industry cluster needs to cultivate the next generation of innovators, CEMI is working with universities across Ontario to develop new, world-class undergraduate and graduate-level programs.

The Centre is also reaching out to attract established mining talent from around the world. It is working with the Professional Engineers of Ontario to develop a program for qualified landed immigrants that would allow them to practice as professional mining engineers in Ontario within a year of enrolling in the program.

"CEMI will accelerate industry-driven research outputs and make contributions to regional, economic development and the global mining industry."

Peter K. Kaiser
Founding Executive Director, CEMI

Mining Safety - Second to None

The safety performance of the mining industry in Ontario has seen a 90 per cent improvement during the past two decades. In 1976, the lost-time injury rate (LTI) in Ontario's mining industry was 12.5 per 100 workers. In 2006, the LTI rate was 0.7 per 100 workers. A unique partnership of industry, organized labour, and government agencies led to major changes in technology, mandatory worker and supervisor training. Northern Centre for Advanced Technology (NORCAT) provides expert training and has extensive resources and programs available to industry.

Did You Know . . .

That the Ontario Mining Industry is Working with NASA

SIGHTS SET ON THE MOON

Sudbury's mining expertise has been put to the test in countries around the globe and is now facing an out-of-this-world challenge: drilling on the moon.

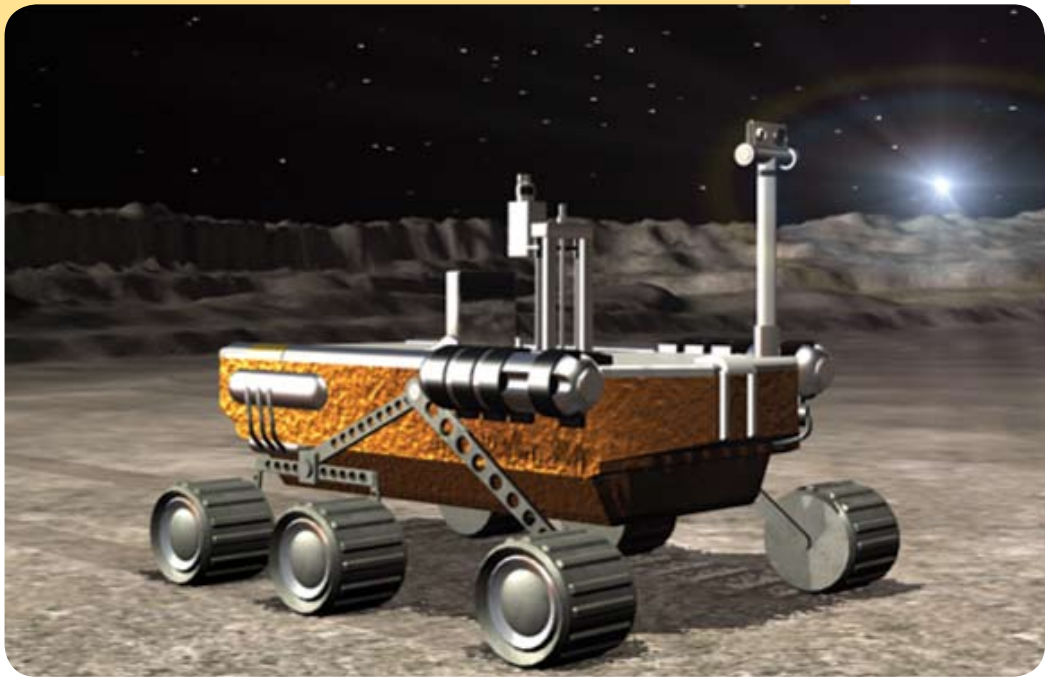
The Northern Centre for Advanced Technology (NORCAT) has won a $3 million contract from the U.S. National Aeronautics and Space Administration (NASA) to build a drill capable of penetrating the lunar surface to a depth of one metre.

The contract follows several years of prototype development by NORCAT and its private sector partner Electric Vehicle Controllers Ltd. (EVC) for both NASA and the Canadian Space Agency.

The electric-powered drill will likely be deployed at the South Pole of the moon, where scientists hope to confirm the presence of water and determine the feasibility of manufacturing oxygen and fuel to support a human colony.

NORCAT started in 1995 as a not-for-profit Technology Centre and is now self-sustaining, with over 60 employees.

More information is available at www.norcat.org



TOP RANKED INDUSTRY TRAINING INSTITUTIONS AND HIGHLY SKILLED WORKFORCE

The Ontario's highly skilled workforce provides a major competitive advantage for the mineral industry. Colleges and universities offer specialized education and training programs from mining technology to geology, engineering, robotics and satellite imagery. A number of universities – Laurentian, Queen's, McMaster, Western, Carleton, the University of Toronto and the University of Ottawa offer a wide range of programs supporting the growing needs of the Industry. Post-secondary institutions produce more than 29,000 graduates a year in mathematics, engineering and the sciences.

Colleges from the North have formed a Federated School of Mines – a centre that provides specialized education and training and a single-point access to meet the mineral industry's ever-changing needs for a highly trained workforce

"The Ontario mineral industry is one of the most advanced in the world and our focus on R&D and academic programs has allowed us to maintain that leadership. That approach makes Ontario one of the best places to mine in the world."

Greg Baiden
Canadian Research Chair, Robotics and Mine Automation
Laurentian University

INDUSTRY LEADERS IN ENVIRONMENTAL STEWARDSHIP

Ontario's mining industry has worked to develop world-leading approaches to environmental stewardship. Mining companies invest more than $85 million annually in environmental protection, improvement and pollution prevention.

Mine Site Rehabilitation Expertise

Every year, mining companies make significant investments to return former mines to a natural environmental state. These rehabilitation projects are a product of good corporate governance and sound environmental laws that stimulate jobs and innovations in environmental practices and technologies.

The results are success stories – from the re-establishment of wildlife habitats and natural landscapes to manicured golf courses, park land and recreation trails.

Today, environmental stewardship is one of the cornerstones of Ontario's approach to mining and permeates every stage of the mine lifecycle, from exploration through mine closure and environmental rehabilitation.

A RISING STAR: The Diamond Industry

As Ontario's first diamond mine, De Beers' Victor project in the James Bay Lowlands is not only breaking new ground, it also stands as a shining example of stakeholders working together successfully.

De Beers produces more than 40 per cent of the rough diamonds in the world and has been exploring for diamonds in Canada since the early 1960s. The James Bay Lowlands were part of that early sampling. Advanced exploration from 1999 through 2001 determined that there were enough diamonds in the Victor deposit to be of significant economic importance.

The De Beers investment in Victor is $982 million, but its impact is much greater. Over the twelve-year life of the project, the investment will contribute an estimated $6.7 billion to Ontario's GDP. More than 1,000 jobs will be created during the construction phase and, during operations, 375 people will work in the open pit mine and process facilities. More than 250 members of the James Bay coastal First Nations communities are working on the project.

Did You Know . . .

The Economic Impact of One Mine

Generating Wealth: The Golden Giant Story

The Golden Giant Mine, which is owned by Newmont Canada and located near Hemlo in Northwestern Ontario, operated for more than 20 years and contributed millions of dollars every year to the local, provincial and national economies. The mine is now moving on to the rehabilitation phase of its life.

Statistics reveal the tremendous impact one successful mine can create:

- 6.7 million ounces of gold produced
- $3.2 billion in revenues generated
- $1.9 billion in expenditures that supported other industries
- $400 million in salaries and wages
- $660 million in corporate mining taxes
- $23.8 million in local taxes in the Marathon and Manitouwadge areas
- $1.5 million in direct donations to local charities
- 250 people employed in the last year of operation

EXPLORING THE FUTURE

Discovering Northern Ontario diamonds in the James Bay Lowlands opened the general public's eyes to a well-known fact within the industry: Ontario has a wealth of untapped mineral resources waiting to be discovered.

There are vast areas of the province that have yet to be fully explored. There are new technologies that can bring new deposits to light whether they are found in remote regions or in former mines that were thought to be past their productive life.

New products – from iPods to "smart" building materials – are constantly sweeping the consumer marketplace, innovations that depend on advanced materials based on remarkable new mineral alloys.

Rising world demand will help to ensure that Ontario's mineral industry cluster – a world leader for more than a century – will continue to expand.

As a generator of wealth, careers and communities, Ontario's mineral industry cluster has a rich history, an impressive track record and a very bright future.

"Ontario's rich geological environment and mining history creates a positive environment for new discoveries by the company."

John Londry
Vice-President Exploration
Pacific North West Capital Corp.

Ontario
Mineral Industry Cluster

For more information about Ontario's mineral industry cluster,
please visit our website:
www.omicc.ca