

# Mining in QUÉBEC

As the province's gold and iron camps witness a true renaissance, exploration in new areas unveils great potential in other commodities.

## TABLE OF CONTENTS

Rediscovering a Vast Mining Territory .....	p48
Interview with Minister Serge Simard .....	p56
Gold Production in Québec .....	p58
Base Metals .....	p64
The Abitibi's Remaining Potential .....	p67
Other Areas, Other Minerals .....	p72
Rare Earths and Strategic Minerals .....	p77
A New Day for Canada's Iron Ore.....	p86
Raising Funds in Québec .....	p90
A Hub of Engineering Expertise .....	p93
Québec's Services Industry .....	p101

This report was researched and prepared by Global Business Reports ([www.gbreports.com](http://www.gbreports.com)) for Engineering & Mining Journal.

Editorial researched and written by Alfonso Tejerina, Clotilde Bonetto Gandolfi, Sarah Timson and Patricia Matey Garcia. For further information, contact [info@gbreports.com](mailto:info@gbreports.com)

Cover photo: Canadian Malartic open-pit gold mine in the Abitibi (courtesy of Osisko Mining Corp.)

A REPORT BY GBR FOR E&MJ

NOVEMBER 2011

# The Abitibi's Remaining Potential

## Exploring for more gold in a prolific area



(Photo courtesy of Alexandria Minerals)

A great geological endowment and excellent incentives in place for exploration companies make Québec one of the favorite destinations for junior companies.

According to the report by the Metals Economics Group for 2010, Québec was the second Canadian destination for exploration, receiving 17% of the country's C\$2.2 billion exploration budget. This is only second to Ontario and does not include expenditures in iron ore, which are significant in Québec.

Most of the gold exploration is concentrated in the Abitibi belt where companies take advantage of the existing access infrastructure, potential synergies with producing mines and drilling costs that go from competitive to exceptionally low. In this context, a number of juniors are building up their 43-101 compliant gold resources, mostly with the idea of attracting the attention of development companies. Juniors with significant resources in the Abitibi include Maudore Minerals, Alexandria Minerals, Niogold and Xmet, amongst others.

Maudore Minerals has 100% ownership of the high-grade Comtois deposit in the Abitibi, which has 1.2 million oz in inferred resources as of February 2010's 43-101 resource calculation. Of these, 504,000 oz are within the first 150 m.

"The grade is the best thing we have. Our potential open-pit has a grade of 3.2 g/mt, which is triple the average grade for open pits in operation. Our 'underground' resource has a grade of 6.8 g/mt. This, combined with being in Québec with very low-cost hydro-power, would make for a very low-cost producing mine," said Ron Shorr, chairman and CEO of Maudore.

The company has been aggressively drilling since the publication of this resource in early 2010. Last year it totaled 82,500 m of drilling.

"Over 80,000 m of drilling are not included in the resource yet. Our drilling is increasing the confidence in the known resources, in the open-pit area in particular, and also expanding the resources at depth and along strike," said COO Kevin Weston.

Ron Shorr insists Comtois' high grade proves the Abitibi area is far from being fully explored. "We are in the north-eastern portion of the Abitibi Greenstone belt and that is not mature at all. We are 75 km from the nearest gold mine. We may be sitting on a massive sulphide gold deposit, similar to Agnico-Eagle's LaRonde. More than half of the massive sulphide gold deposits in the world are in Québec," he said.

Toronto-based Alexandria Minerals Corporation holds 21,000 hectares in the Val-d'Or area and is working mainly on three properties: Orenada, where it has a resource of 447,000 oz gold (M+I) and 302,000 oz (inferred); Sleepy, where there are 150,000 oz of inferred resource; and finally Akasaba.

"The resources we have in hand do not include anything that we have been doing in Akasaba. We envision a substantial increase in the number of ounces when we complete our 20,000 m program. Akasaba is a relatively new story for us, even though it was an old-producing mine back in the 1960s. In terms of geology and mineralization, we see it as other rich volcanic massive sulphide (VMS) targets like Agnico-Eagle's LaRonde, which is a 10 million oz deposit," said Eric Owens, President and CEO of Alexandria Minerals.

Orenada sits within 15 km of four mills, all of which are operating below capacity according to the company. Alexandria's next steps at this property are to complete an economic assessment, to expand the resource and to find a joint venture partner.

"The goal is to move Orenada as close to production as possible by outsourcing the milling component. This would allow us to be ready for production in just 18-24 months, as opposed to constructing our own mill," Owens said. Finally, more drilling at Sleepy, the other property with a defined resource, is also in the company's plans.

Niogold Mining Corp.'s main focus is on the Marban block. Marban holds a 43-101 resource of 598,000 oz Au indicated and 361,000 oz inferred, and two new high-grade zones have been discovered recently in the area. The company, which refers to the Abitibi district as the 'Golden Highway', has a joint venture at Marban with Aurizon Mines, by which the latter can acquire up to 65%; expenditures in the ground for the ini-



Ron Shorr, chairman and CEO, Maudore Minerals

tial 50% earn-in are C\$20 million in three years. "The Marban Block represents only 14% of our land package. It had past production of 600,000 oz from three shafts. We are fully evaluating the bulk tonnage potential near surface, initially from 0 to 300 m depth and also we are moving deeper and towards the east," said Rock Lefrançois, President and COO of Niogold.

On top of Marban, where Niogold remains the operator until Aurizon completes its 50% earn-in, the company is also drilling 20,000 m in other properties in the area. "This will be Niogold's biggest year for drilling to date. However, we are in that stage between being a junior and a producer where it is difficult to attract attention," said Chairman and CEO Michael Iverson.

In a similar situation to Niogold, as a company in between an explorer and a producer, is Québec City-based Conway Resources, who are working to reopen the old Belleterre mine in the Témiscamingue area. Belleterre produced short of one million oz gold in between the 1930s and the 50s, most of which came from one single vein. The company is working to prove the economic feasibility of other veins of the property.

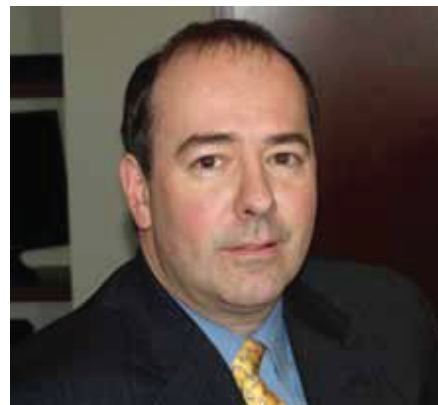
"The historic resource is 175,000 oz (not 43-101 compliant yet); we want to

increase it to 200,000 oz and then restart the mining exploitation. We plan to process 300-400 mt/d," said Laurent Beaudoin, Chairman, Conway Resources.

The company wants to move into production as soon as possible rather than just validate the old resource. "We could spend millions in drilling and still have the same results, so what we are going to do is a ramp to start extracting material as well. We are going to use the thermal fragmentation technology patented by Rocmec, by which we are going to extract just the mineralized zones in the vein. This makes the project more efficient and profitable," said Beaudoin.

Conway plans to use new gold extraction methods. "Over the last years everyone has moved into cyanide-based gold production, but there is another technology by Nichromet Extraction which provides a dry final product, non-polluted. This way we will save between C\$325,000 and C\$1.2 million annually in waste management. We will use the residue in a separate manufacturing plant to produce industrial materials for the construction business mainly, which will be good for job creation."

Beaudoin expects the gold mill to cost C\$45-50 million, and the plan is to be in production in 24 months.



Marco Gagnon, President and CEO, Adventure Gold

### Re-thinking the exploration models

According to Agnico-Eagle Mines' vice president for Canada, Paul-Henri Girard, "the increase in metals prices is inciting people to take old projects out of their drawers." Dusting off old projects, however, requires a new exploration approach that will be suitable to the always-changing commodity scenario.

The success of Osisko at Canadian Malartic is a great example that the Abitibi can hold large deposits with bulk, low-grade ore, exploitable under highly profitable parameters. A number of juniors are following suit and are working with that idea in mind. One of them is Eagle Hill Exploration, owners of the Windfall Lake property, comprising 362 contiguous claims for a land package of 12,000 hectares.

"Prior to our arrival at Windfall Lake, previous operators had already spent C\$25 million on it and drilled over 330 holes, but were unable to put together a solid geological map, even though they were hitting high grades. There was all this information on the property available and we needed to understand how it fit into the geological model," said Bradley Kitchen, President and CEO, Eagle Hill Exploration.

The company analyzed 8,700 m of core that had never been assayed which, according to Kitchen, saved them C\$1.2 million in drilling costs. The results favored the company's hypothesis that Windfall Lake could be a bulk-tonnage scenario. "What we have done is different from most junior resource companies that chase drill-holes to get more funding so they can do more drilling. Between August and December 2010, we spent time better assessing the modeling of the deposit. Since December we have hit gold in all 24 holes we have drilled."

In a similar fashion, Yorbeau Resources of Montréal also decided to sit down and put an exploration twist at their Rouyn property, which covers a 12 km stretch of the Cadillac

**Field oriented, technically inclined, discovery driven**

**Threegold Resources Inc.**

Threegold has established itself as one of the premier exploration companies in Québec. The Company consists of a highly qualified technical team with extensive Québec-based exploration experience including previous gold discoveries and expertise in geology, financing and public company management.

200 de l'Escale, suite 100, Val-d'Or, Québec, J9P 4G8  
Tel: 819-825-3883 E-mail: info@threegold.ca  
Website: www.threegold.ca THG - TSX Venture exchange