

# Mining by the Numbers

October 2013

Mining Investment in Québec in 2012

## Background

The Institut de la statistique du Québec manages the mining statistics program on behalf of the Ministère des Ressources naturelles (MRN). This program has three major components: 1) Mineral production (value and quantity of shipments); 2) Mining investment including exploration and deposit appraisal expenditures; and 3) Core drilling companies.

The *Annual Survey on Mining Investment*, conducted in collaboration with Natural Resources Canada, took place in the spring 2013. Its objective was to revise the preliminary data for the same period collected in the fall 2012. In total, 451 questionnaires (425 in 2011) were sent to 417 mining companies (386 in 2011). A total of 314 respondents reported work as project managers, and 103 did not report any expenditures.

Thirty-six producing companies also had to respond to a second questionnaire about their assets (non-residential construction, machinery and equipment) and their current repair and maintenance expenditures.

The 2013 preliminary survey, which includes intentions for 2014, is underway, and its results will be made available online on the ISQ website in early 2014.

Certain definitions and explanatory notes are presented at the end of the document.

## MINING INVESTMENT IN 2012: \$5 BILLION THRESHOLD EXCEEDED, LEADING TO A NINTH YEAR OF GROWTH DESPITE END-OF-YEAR UNCERTAINTIES

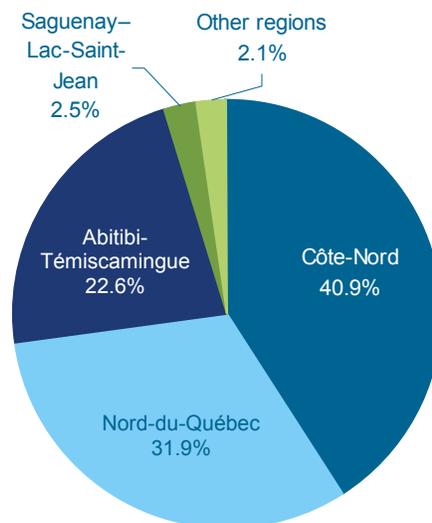
Thanks to a 30.8% increase from 2011, the year 2012 was not only the ninth consecutive year of growth for the Québec mining industry, but also set a new mining investment record with \$5,129 million invested (Table 1). Over the past two years, mining investment rose more than 65% in Québec.

Three Québec administrative regions accounted for 95.3% of that amount (Figure 1), namely the Côte-Nord (40.9%), Nord-du-Québec (31.9%) and Abitibi-Témiscamingue (22.6%) regions.

For a second year in a row, all three regions in the mining triangle exceeded \$1 billion in investments, while the Côte-Nord region stood out with investments totalling over \$2 billion.

Despite fluctuations in the price of iron during the year, investments continued in the Côte-Nord region thanks to expansion projects announced by mining companies Arcelor-Mittal Mines Canada and Cliffs Québec Iron Mining.

Figure 1  
Distribution of Total Mining Investment by Administrative Region, Québec, 2012



Source: Institut de la statistique du Québec, *Survey on Mineral Exploration, Deposit Appraisal and Mine Complex Development Expenditures*, 2012 and 2013 (revised intentions).

Table 1  
Mining Investment, Administrative Regions and All of Québec, 2012<sup>1</sup>

Administrative region	Exploration and deposit appraisal	Mine complex development	Total
	\$		
Bas-Saint-Laurent	196,518	–	196,518
Saguenay-Lac-Saint-Jean	38,290,064	92,455,439	130,745,503
Capitale-Nationale	x	–	x
Mauricie	x	x	2,180,744
Estrie	1,790,567	–	1,778,087
Montréal	–	–	–
Outaouais	2,888,266	–	2,888,266
Abitibi-Témiscamingue	167,246,449	991,341,585	1,158,588,034
Côte-Nord	77,056,623	2,019,891,536	2,096,948,159
Nord-du-Québec	309,921,608	1,324,594,292	1,634,515,900
Gaspésie-Îles-de-la-Madeleine	15,691,351	74,188,657	89,969,288
Chaudière-Appalaches	3,298,724	–	3,298,724
Laval	–	–	–
Lanaudière	198,894	–	198,894
Laurentides	1,987,860	6,235,982	8,223,842
Montérégie	x	x	x
Centre-du-Québec	–	–	–
<b>All of Québec</b>	<b>620,748,017</b>	<b>4,509,137,991</b>	<b>5,129,886,008</b>

1. Final data.

Source: Institut de la statistique du Québec, *Survey on Mineral Exploration, Deposit Appraisal and Mine Complex Development Expenditures*, 2012 and 2013 (revised intentions).

## REVISED INTENTIONS FOR 2013: DECLINE ANTICIPATED FOR THE FIRST TIME IN 10 YEARS

Since the third quarter 2012, the global mining industry has been experiencing a downturn due to declining demand for raw materials and the resulting drop in metal and mineral prices. Despite this new and difficult context, the Québec mining industry remains relatively untouched. According to intentions expressed by companies, mining investment is expected to decrease by about 10% in 2013 to \$4.63 billion, which would lead to the second best year in the history of mining investment in Québec (Table 2).

In 2013, major work will continue on several mining sites: Éléonore (Goldcorp), Mont-Wright Mining Complex (ArcelorMittal), Raglan (Glencore Canada Corporation), Nunavik Nickel (Canadian Royalties) and Bloom Lake (Cliffs Québec Iron Mining).

However, the situation remains more problematic for mining exploration companies. Revised intentions for 2013 regarding exploration and deposit appraisal work suggest a drop of 28% compared with 2012 and of 46% compared with record year 2011 (\$833.9 million).

Table 2  
Mining Investment in Québec, 2009-2012 and 2013<sup>1</sup>

	2009	2010	2011	2012	2013 <sup>1</sup>	Change 2012/2011
	\$ millions					%
<b>Exploration and deposit appraisal</b>	<b>379</b>	<b>512</b>	<b>834</b>	<b>621</b>	<b>447</b>	<b>-25.6</b>
Off-mine-site	314	476	748	582	420	-22.2
On-mine-site	65	35	86	38	27	-55.2
<b>Mine complex development</b>	<b>1,661</b>	<b>2,405</b>	<b>3,089</b>	<b>4,509</b>	<b>4,179</b>	<b>46.0</b>
General work	404	410	506	977	907	92.9
Capital	896	1,561	2,018	2,897	2,636	43.5
Repairs	361	433	564	635	635 <sup>2</sup>	12.6
<b>Total</b>	<b>2,041</b>	<b>2,917</b>	<b>3,923</b>	<b>5,130</b>	<b>4,626</b>	<b>30.8</b>

1. Revised intentions (July 2013).

2. Amount not surveyed, imputed from the 2012 annual survey.

Source: Institut de la statistique du Québec, *Survey on Mineral Exploration, Deposit Appraisal and Mine Complex Development Expenditures*, 2012 and 2013 (revised intentions).

## MINE COMPLEX DEVELOPMENT

### Mine openings and closures in 2012

The year 2012 was marked by four mine openings and three closures in Québec (Table 3).

One of those mines, Richmond Mines' Francoeur underground gold mine, was the subject of two announcements during the year: its opening in May followed by its closure in December due to higher than expected operating costs (Richmont Mines, press release, November 29, 2012).

North American Palladium ceased production at its Sleeping Giant mine located 40 km north of Amos, in the Nord-du-Québec region. However, the Sleeping Giant gold mill will continue to operate in order to process ore from the Vezza mine, located 85 km north of Matagami (North American Palladium, press release, January 17, 2012).

In February, Xstrata Nickel, now called Glencore Canada Corporation, opened its fourth nickel-copper mine, the Kikialik underground mine, which is part of the Raglan infrastructure and is located in the Ungava Peninsula (Xstrata Nickel, factsheet, October 2012).

In May, Century Mining, a subsidiary of Russian company White Tiger Gold, closed the Lamaque mine and put its assets up for sale. Located in Val-d'Or, the mine employed 140 people (Abitibi Express, June 5, 2012).

On December 20, the Québec Lithium mine, owned by Canada Lithium Corp., started to produce spodumene concentrate to feed the company's lithium carbonate hydrometallurgical plant (Canada Lithium Corp., press release, December 20, 2012). Canada Lithium had previously signed an agreement with a Chinese company for the annual delivery of 12,000 tonnes of lithium carbonate starting in 2013 (Canada Lithium, press release, November 12, 2012). The open-pit mine, mill and plant are located in the La Corne Township, 60 km north of Val-d'Or in the Abitibi-Témiscamingue region.

Finally, in December, following total investments of \$800 million, Canadian Royalties, a subsidiary of Chinese mining group Jilin Jien Nickel Industry, began to extract nickel-copper ore from one of its open-pit mines located in the Ungava Peninsula, in Northern Québec (Industrie & Commerce, September/October 2012).

Table 3  
Mine Openings and Closures, Québec, 2012

Mine	Company	Region	Commodities	Month
<b>Openings</b>				
Québec Lithium	Canada Lithium Corp.	Abitibi-Témiscamingue	Lithium (carbonate)	December
Nunavik Nickel	Canadian Royalties Inc. (Jilin Jien Nickel Industry Co., Ltd.)	Nord-du-Québec	Nickel, copper, cobalt	December
Francoeur	Richmont Mines Inc.	Abitibi-Témiscamingue	Gold	May
Kikialik (mine no. 4)	Glencore Canada Corporation (Xstrata Nickel)	Nord-du-Québec	Nickel, copper, cobalt	February
<b>Closures</b>				
Francoeur	Richmont Mines Inc.	Abitibi-Témiscamingue	Gold	December
Lamaque	White Tiger Gold Ltd. (Century Mining)	Abitibi-Témiscamingue	Gold	May
Sleeping Giant	North American Palladium Ltd.	Nord-du-Québec	Gold	January

Source: Institut de la statistique du Québec, *Québec Mining Directory*, 2013.

### Mineral commodities: Iron ore and gold remain industry leaders

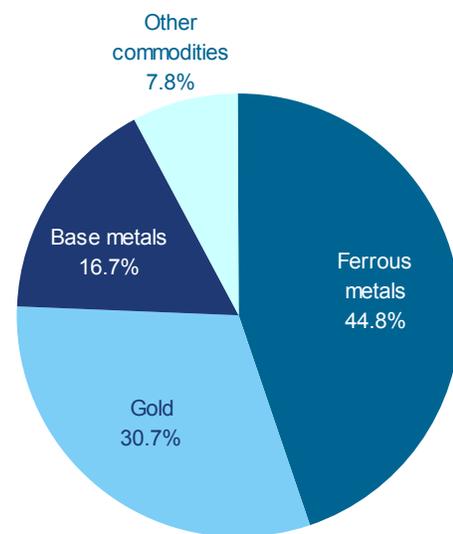
In 2012, mine complex development expenditures totalled \$4.5 billion, i.e. \$1.0 billion in general rock work, \$2.9 billion in capital costs (non-residential construction, machinery and equipment) and \$0.6 billion in non-capital repair and maintenance expenditures.

Iron ore and gold still dominate the mining industry in Québec, respectively accounting for 44.8% and 30.7% of development costs (Figure 2). Regarding iron mining, expansion work continued at the Mont-Wright (ArcelorMittal) and Bloom Lake (Cliffs Québec Iron Mining) mines, both located in the Côte-Nord region.

In Abitibi-Témiscamingue, the main gold projects underway in 2012 include IAMGOLD Corporation's Westwood mine, Agnico-Eagle Mines' LaRonde II and Lapa mines, and Richmond Mines' Francoeur mine. Work on this last project ended toward the end of the year. In the Nord-du-Québec region, Opinaca Mines, a subsidiary of Goldcorp Inc., continued the underground development of the Éléonore project, in the James Bay Territory.

Regarding base metals, large amounts were invested in the infrastructures of two mines located in the Nord-du-Québec region. Glencore Canada Corporation carried out expansion work at its Raglan nickel-copper mine in the Ungava Peninsula, with the goal of achieving an annual production of 32,000 tonnes of nickel in 2014. As for Nyrstar, it continued the underground development of the Langlois mine, which reopened in December 2011; the mine is located near Lebel-sur-Quévillon in the Nord-du-Québec region.

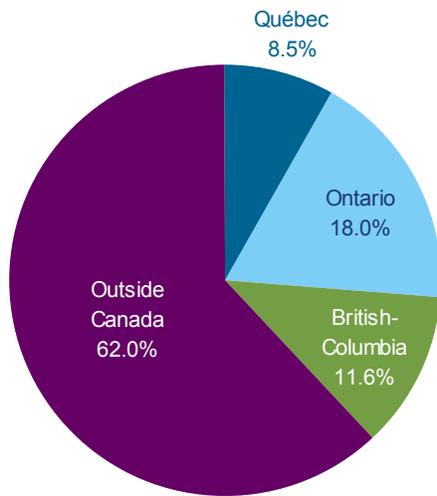
Figure 2  
Distribution of Mine Complex Development Expenditures by Commodity Mined, Québec, 2012



Source: Institut de la statistique du Québec, *Survey on Mineral Exploration, Deposit Appraisal and Mine Complex Development Expenditures, 2012 and 2013 (revised intentions)*.

The globalization of the mining industry is being felt in Québec. In 2012, 62% of mine complex development work was controlled by foreign companies whose head office was located in countries such as Luxembourg, Switzerland, China and the United States. Québec's share stood at 8.5% (Figure 3).

**Figure 3**  
Distribution of Mine Complex Development Expenditures by Location of Company Head Office, Québec



Source: Institut de la statistique du Québec, *Survey on Mineral Exploration, Deposit Appraisal and Mine Complex Development Expenditures, 2012 and 2013* (revised intentions).

Finally, in 2012, development work was conducted almost exclusively by large companies, i.e. “senior companies,” which incurred 93.8% of all expenditures.

### Highlights

In January, Opinaca Mines, a subsidiary of Goldcorp Inc., inaugurated its Gaumont exploration shaft. With a depth of 715 metres, it is one of the main components of the future Éléonore underground mine, whose construction costs are estimated at \$1.4 billion. Gold production should begin toward the end of 2014, with initial annual shipments estimated at 8.9 tonnes (285,000 ounces). Current reserves stand at 93.3 tonnes of gold (3 million ounces) with additional resources of 131 tonnes (4 million ounces). The addition of a second production shaft would allow the mine to double its annual production (Le Jamésien, January 2012; The Northern Miner, July 30, 2012).

In February, Swiss mining companies Glencore and Xstrata completed their merger negotiations. In Québec, Xstrata owns the Raglan mine (nickel-copper), the Matagami mine (zinc-copper), as well as the Horne smelter and the Canadian Copper Refinery (CCR). It also has an interest in the CEZinc refinery. The new entity will be known in Europe as Glencore Xstrata and will be the fourth largest mining company in the world, with revenues of \$209.4 billion (La Presse, February 8, 2012). In Canada, it will be called Glencore Canada Corporation.

In February, IAMGOLD Corporation published a pre-feasibility study on the expansion of the Niobec mine and the ferroniobium plant located in Saint-Honoré, in the Saguenay–Lac-Saint-Jean region. The chosen scenario is

based on underground expansion using block caving mining. The proposed project would triple annual ferroniobium production while ensuring a mine life of over 40 years. The results of the feasibility study will be released in the third quarter 2013 (IAMGOLD Corporation, press release, February 23, 2012).

In June, Agnico-Eagle Mines connected its upper (LaRonde) and lower (LaRonde II) infrastructures at the LaRonde mine, which is currently over 3.1 km deep, making it the deepest mine in the Western Hemisphere. The mill also underwent retrofit and modernization work during the year. Based on current reserves, production could continue until 2016 at a daily extraction rate of 7,000 tonnes of ore grading 4 g/t gold (Abitibi Express, June 19, 2012).

Canada Lithium Corp. continued to work on the construction of the Québec Lithium mine, located in the municipality of La Corne, 60 km north of Val-d’Or. The current reserves of the open-pit mine stand at 16 million tonnes, ensuring an initial mine operating life of 15 years. On the site of the mine are a concentrator (spodumene concentrate) and a lithium carbonate plant (The Gazette, June 21, 2012).

In July, after noticing that it would be difficult for its new Zezza gold mine located near Matagami to achieve expected profitability, North American Palladium (NAP) announced its plan to sell it along with its Sleeping Giant gold mill north of Amos (NAP, press release, July 9, 2012).

In July, Agnico-Eagle Mines announced that it was resuming gold production at its Goldex mine, located in Val-d’Or, which had been closed since October 2011 due to ground stability issues. Gold shipments should resume in the fall 2013 from two satellite areas, Zones M and E, located 150 metres under the main gold structure called the GEZ Zone (La Presse, July 27, 2012). The mine will use existing infrastructures, i.e. the well and plant, but a paste backfill plant will have to be built (Abitibi Express, July 31, 2012).

Orbite Aluminæ continued working on the Grande-Vallée aluminous clay deposit and on the construction of its high-purity alumina plant in Cap-Chat, Gaspésie. Recent mineral dressing studies also showed that certain rare earth metals (yttrium, erbium) and rare metals such as scandium and gallium could be extracted at the plant (The Northern Miner, July 9, 2012).

Taking advantage of major mining investments being made in the Côte-Nord and Nord-du-Québec regions, in August, the Port of Sept-Îles began \$220 million marine construction work at its Sept-Îles facilities in anticipation of iron ore handling by new Côte-Nord and Labrador producers, as well as increased activity at Aluminerie Alouette and start-up of apatite production at Mine Arnaud. Work is expected to be completed by summer 2014. At that point, it will be possible for Capesize ore carrier ships of over 200,000 tonnes to dock at the harbour. Ultimately, port authorities would like Chinamax

ships (300,000 tonne capacity) to be able to dock at the harbour following a second expansion phase (Le Nord-Est, August 22, 2012).

Announced in 2011, investments of \$530 million are underway at the Raglan nickel-copper mine owned by Glencore Canada Corporation. They consist in developing mine No. 5, called Qakimajurq, deepening Raglan 2 mine, upgrading the mill, and expanding the hotel complex where employees are housed. This work will increase annual nickel production to 32,000 tonnes as of 2014 and will extend the mine's life until 2025 (Industrie & Commerce, September/October 2012).

The month of October was very prolific in announcements, both good and bad, about the Québec mining industry.

Nemaska Lithium released the results of the preliminary economic report on project Whabouchi, in the James Bay Territory, Nord-du-Québec. According to this study, the mine and mill will require an initial investment of \$454 million. The open-pit mine will produce 213,000 tonnes of spodumene concentrate per year, which will be processed into nearly 20,700 tonnes of lithium hydroxide and 10,000 tonnes of lithium carbonate (Nemaska Lithium, press release, October 2, 2012). Nemaska plans on building the metallurgical plant in Salaberry-de-Valleyfield, Montérégie (Le Soleil, October 4, 2012).

Oceanic Iron Ore published the results of a pre-feasibility study on its Hopes Advance iron deposit located in the Ungava Bay, in the Nord-du-Québec region. The deposit contains 2 billion tonnes of resources with an average grade of 32.2% iron. Mine life is estimated at over 30 years and its development will require investments of \$2.85 billion for an initial scenario based on an annual production of 10 million tonnes of iron ore. The concentrate will be shipped to clients by sea. The company hopes to complete its feasibility study in 2013 (The Northern Miner, October 8, 2012).

Stornoway Diamond obtained its mining lease from the Ministère des Ressources naturelles to begin production at the Renard diamond deposit located near the Otish Mountains in Nord-du-Québec (Le Devoir, October 19, 2012). The feasibility study completed in November 2011 provides for both surface and underground development of the deposit at a daily extraction rate of 6,000 tonnes of diamond ore, a first in Québec's mining history. Project costs are estimated at \$802 million (The Northern Miner, October 8, 2012). For 2012, the company approved a \$28.4 million budget for pre-development work including detailed design and engineering. A 5,000-tonne bulk sample program will be completed in the fall (Stornoway Diamond, press release, May 23, 2012).

In October, Strateco Resources suspended its underground exploration and deposit appraisal activities at the Matoush uranium deposit, located in the Otish mountains, while awaiting an environmental study conducted by the Bureau d'audiences publiques sur l'environnement (BAPE) on the uranium industry (La Presse, October 19, 2012).

Following a drop in the price of iron ore during the year, Luxembourg company ArcelorMittal reflected on the possibility of selling some of its mining assets, including its facilities in Vermont (Mont-Wright mine) and Port-Cartier (pellet plant and port facilities). Its mining assets in Côte-Nord are currently undergoing major expansion work for an estimated total cost of \$2.1 billion (The Globe and Mail, October 19, 2012).

In October, Jeffrey Mine abandoned the project of reopening its chrysotile mine in Asbestos, Estrie. As for LAB Chrysotile, it decided not to resume its operations at the Lac d'Amiante mine in Thetford-Mines (Le Devoir, October 20, 2012).

## EXPLORATION AND DEPOSIT APPRAISAL: SLOWDOWN IN QUÉBEC IN 2012

The value of exploration work in Québec, including on-mine-site and off-mine-site deposit appraisal work, totalled \$621 million in 2012 (Table 4), down 25.6% compared with a record \$834 million registered in 2011. Final data for 2012 indicate an 10.8% decline compared with the results of the preliminary survey published in March 2013 (\$696 million).

**Table 4**  
Distribution of Exploration and Deposit Appraisal Expenditures by Type of Company, Québec, 2012

	Type of company		Total per work phase	Change 2012/2011
	Junior and public <sup>1</sup>	Senior		
	\$ millions			%
<b>Off-mine-site</b>				
Exploration	266.1	76.7	342.9	-17.7
Deposit appraisal	174.1	65.3	239.4	-27.8
<b>On-mine-site</b>				
Exploration	–	26.0	26.0	-49.2
Deposit appraisal	–	12.5	12.5	-64.0
<b>Total (exploration and deposit appraisal)</b>	<b>440.2</b>	<b>180.5</b>	<b>620.7</b>	<b>-25.6</b>

1. The share of public companies is \$22.5 million (3.6% of the total).

Source: Institut de la statistique du Québec, *Survey on Mineral Exploration, Deposit Appraisal and Mine Complex Development Expenditures, 2012 and 2013 (revised intentions)*.

A distribution of exploration and deposit appraisal expenditures for 2012 by administrative region (Table 1) shows that half of all expenditures (\$621 million) were incurred in Nord-du-Québec with \$310 million (50%), followed by Abitibi-Témiscamingue with \$167 million (27%), Côte-Nord (\$77 million; 12%) and Saguenay-Lac-Saint-Jean (\$38 million; 6%).

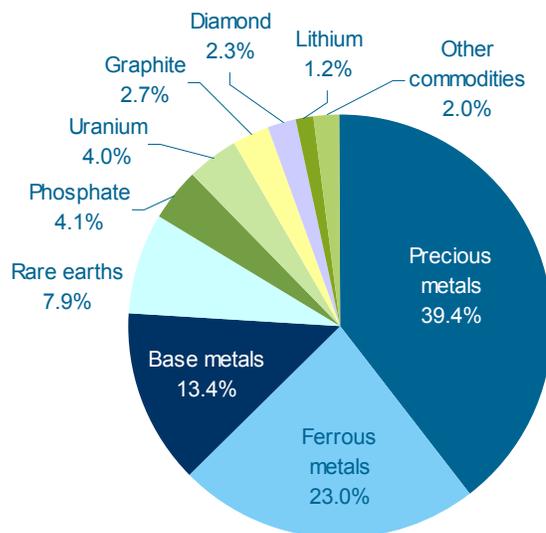
Since average annual gold prices were up compared with 2011, precious metals remained the most sought-after commodity group in Québec, accounting for 39.5% (\$245 million) of exploration expenditures (Figure 4), followed by ferrous metals (\$143 million; 23.0%) and base metals, including copper, nickel and zinc (\$83 million; 13.4%).

Nevertheless, the share of gold decreased significantly from 2011, when it accounted for 54% of exploration expenditures. This drop is partly due to mining exploration companies' interest in two new substances that are making their first appearance on the radar screen: phosphate (\$25 million; 4.1%) and graphite (\$17 million; 2.7%).

In 2012, small exploration companies (junior companies) regained some of the ground lost to large companies (senior companies) over the past four years. This year, their share of exploration and deposit appraisal work reached 67.3%, for a total of \$418 million (Figure 5).

It would seem that this trend will continue, as revised intentions for 2013 point to a significant decline of mining activities by large companies in Québec. After hitting a record

Figure 4  
Distribution of Exploration and Deposit Appraisal Expenditures by Commodity Sought, Québec

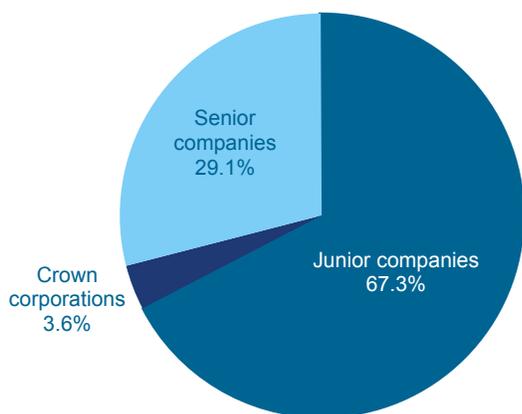


Source: Institut de la statistique du Québec, *Survey on Mineral Exploration, Deposit Appraisal and Mine Complex Development Expenditures, 2012 and 2013* (revised intentions).

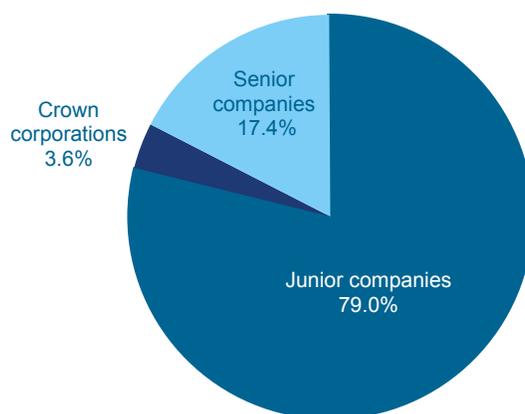
high in 2011 with exploration expenditures of \$347 million, their share is expected to decrease from 41.6% to 17.4% according to revised intentions for 2013. In the mining industry, it is well established that, in an unfavourable economic environment, with metal prices down and development costs up, mining companies tend to curtail their spending, exploration being one of the main areas to suffer cutbacks.

Figure 5  
Distribution of Exploration and Deposit Appraisal Expenditures by Type of Company, Québec, 2012 and 2013<sup>1</sup>

2012



2013 r.i.



1. Revised intentions (July 2013).

Source: Institut de la statistique du Québec, *Survey on Mineral Exploration, Deposit Appraisal and Mine Complex Development Expenditures, 2012 and 2013* (revised intentions).

Based on a minimum exploration expenditure threshold of \$100,000, in 2012, a total of 184 establishments managed 361 separate projects.

Table 5 shows a list of the 25 main exploration and deposit appraisal projects in terms of investments, by administrative region. These projects accounted for 51.0% of all exploration expenditures in 2012.

**Table 5**  
List of the 25 Main Exploration and Deposit Appraisal Projects, Québec, 2012

Owner/manager	Project name	Commodities sought
<b>Nord-du-Québec</b>		
Stornoway Diamonds (Canada) Inc.	Renard	Diamond
Lac Otelnuk Mining Ltd.	Lac Otelnuk	Iron ore
0849873 B.C. Ltd.	Sunny Lake: Rainy Lake deposit	Iron ore
Oceanic Iron Ore Corp.	Hopes Advance	Iron ore
New Millennium Iron Corp.	Taconite	Iron ore
Champion Iron Mines Limited	Fire Lake North	Iron ore
Glencore Canada Corp., Raglan mine	Regional exploration	Nickel, copper
Maudore Minerals Ltd.	Comtois	Gold
Eastmain Resources Inc.	Eau Claire	Gold
Eagle Hill Exploration Corporation	Windfall Lake	Gold
Balmoral Resources Ltd.	Martinière	Gold
Aurizon Mines Ltd., Casa Berardi mine	On-site exploration	Gold
Clifton Star Resources Inc.	Duparquet	Gold
Quest Rare Minerals Ltd.	Strange Lake	Rare earths
Strateco Resources Inc.	Matoush	Uranium
<b>Côte-Nord</b>		
Mine Arnaud Inc.	Mine Arnaud	Apatite (phosphate)
Cliffs Québec Iron Mining Ltd., Bloom Lake mine	Regional exploration	Iron ore
<b>Abitibi-Témiscamingue</b>		
Royal Nickel Corporation	Dumont	Nickel, copper
Agnico-Eagle Mines Ltd.	Goldex	Gold
Aurizon Mines Ltd.	Joanna: Heva-Hosco	Gold
Richmont Mines Inc.	Wasamac	Gold
Gold Bullion Development Corp. Inc.	Granada	Gold
Matamec Explorations Inc.	Kipawa	Rare earths
<b>Saguenay-Lac-Saint-Jean</b>		
Ariane Resources Inc.	Lac à Paul	Phosphate
BlackRock Metals Inc.	Blackrock	Iron, titanium, vanadium

Source: Institut de la statistique du Québec, *Survey on Mineral Exploration, Deposit Appraisal and Mine Complex Development Expenditures*, 2012 and 2013 (revised intentions).

## Cost of core drilling by region

Core drilling, carried out solely by specialized enterprises, is an important component of exploration and deposit appraisal expenditures. In Québec, in 2012, there were 32 exploration drilling companies whose head office was located in Québec.

In addition to the amounts paid to drilling companies, drilling costs include various incidental expenses: chemical analysis costs, surveying, travel expenses, salaries paid to geologists, engineers and technicians, report drafting, and supplies. Over the past 10 years, total drilling costs have accounted for an average of 40.6% of exploration and deposit appraisal budgets.

From 2002 to 2011, total exploration drilling meterage went from 696,000 to 2,167,000, a 211% increase. Over the same period, average drilling prices went from \$54 to \$159 per metre, up 195%. In 2012, drill meterage was down 26.3% to 1,596,570 (Table 6). However, cost per metre continued to increase, reaching \$172 per metre, up 7.6% from the previous year.

A breakdown of costs by region shows that the relative share of drilling compared to all exploration expenditures was relatively higher in the Côte-Nord region, at 65.8%. This suggests that mining exploration companies are more likely to use drilling when assessing iron ore projects.

**Table 6**  
Distribution and Cost of Exploration Drilling, Québec, 2012

Region	Total exploration and deposit appraisal (\$ millions)	Total drilling costs (\$ millions)	Relative share (%)	Metres drilled	Drilling costs per metre (\$/m)
Abitibi-Témiscamingue	167.3	76.6	45.8	607,550	126
Côte-Nord	75.7	49.8	65.8	174,746	285
Nord-du-Québec	309.9	132.8	42.8	706,134	188
Elsewhere in Québec	67.8	14.8	21.8	108,140	137
Total, Québec	620.7	273.9	44.1	1,596,570	172

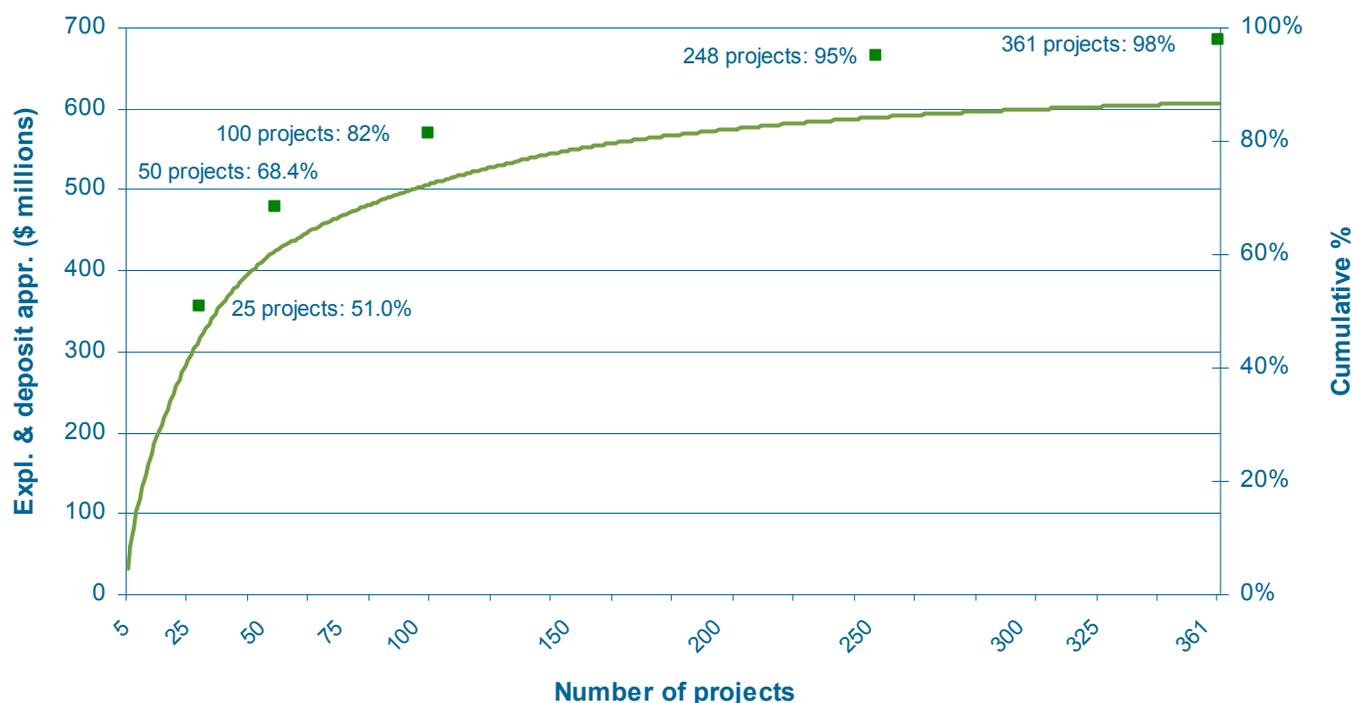
Source: Institut de la statistique du Québec, *Survey on Mineral Exploration, Deposit Appraisal and Mine Complex Development Expenditures, 2012 and 2013* (revised intentions).

### Distribution of exploration and deposit appraisal expenditures

The 2012 edition of the *Annual Survey on Mining Investment* identified a total of 314 establishments that manage 890 separate projects requiring investments of \$620.7 million. When taking into account projects valued at \$100,000 and over, the number of projects goes down to 361. These projects are managed by 184 exploration establishments, their cumulative cost (\$607.5 million) accounting for 97.9% of the total.

Conversely, the 25 largest projects in terms of budget accounted for 51.0% of exploration and deposit appraisal expenditures incurred in Québec in 2012, and the 50 largest projects, for 68.4% of expenditures. Finally, 95% of expenditures were incurred by the 250 largest projects, which carried individual project costs of over \$237,000 (Figure 6).

**Figure 6**  
Cumulative Budgetary Distribution of Exploration and Deposit Appraisal Projects



Source: Institut de la statistique du Québec, *Survey on Mineral Exploration, Deposit Appraisal and Mine Complex Development Expenditures, 2012 and 2013* (revised intentions).

Prepared by: Raymond Beullac, Expert advisor on minerals and mining statistics

Direction: Yrène Gagné, Director

With the collaboration of: Lucie Robitaille, Research technician  
Direction des statistiques sectorielles et du développement durable

Émilie Granger, Translator  
Direction des communications

Hugo Leblanc, Cartography  
Direction des services informationnels et techniques

Geneviève Caron and the mining survey team  
Direction des stratégies et des opérations de collecte

For more information:

Raymond Beullac  
Direction des statistiques sectorielles et du développement durable  
Institut de la statistique du Québec  
200, chemin Sainte-Foy, 3e étage  
Québec (Québec) G1R5T4  
Telephone: 418 691-2411, Ext. 3202  
Fax: 418 643-4129  
E-mail: raymond.beullac@stat.gouv.qc.ca

The PDF version of this bulletin is available on the ISQ website at [www.stat.gouv.qc.ca](http://www.stat.gouv.qc.ca).

Legal deposit  
Library and Archives Canada  
Bibliothèque et Archives nationales du Québec  
Fourth quarter 2013  
ISSN 2292-180X (Print)  
ISSN 2292-1818 (Online)

© Gouvernement du Québec,  
Institut de la statistique du Québec

Any reproduction other than for personal use is prohibited without the authorization of the Gouvernement du Québec.  
[www.stat.gouv.qc.ca/droits\\_auteur\\_an.htm](http://www.stat.gouv.qc.ca/droits_auteur_an.htm)

Institut  
de la statistique  
Québec 

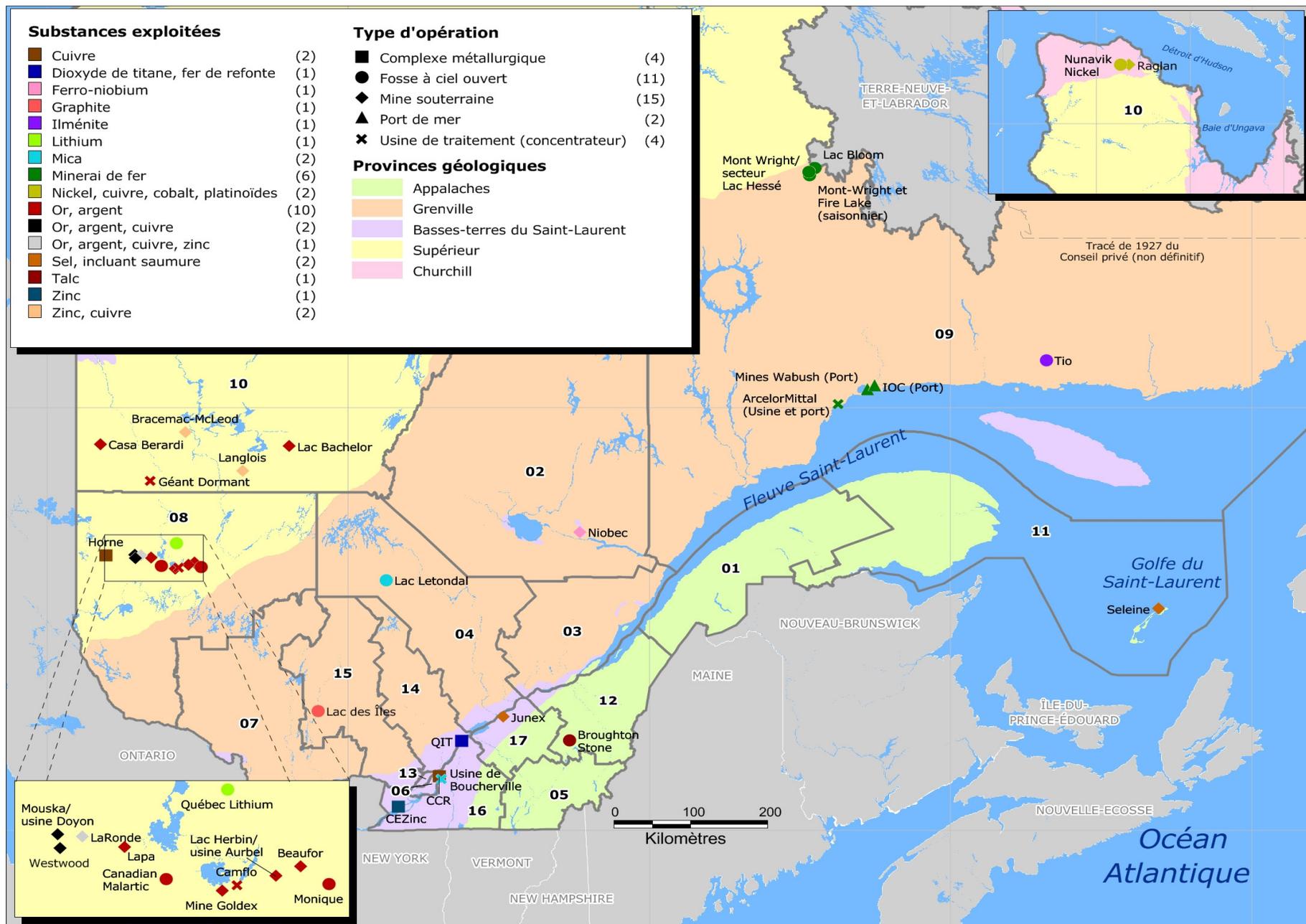
### Standard symbols

..	Data not available
–	Void or zero
i	Intention
p	Preliminary data
x	Confidential data
r	Revised data
t	Metric ton

### Abbreviations

n	Number
oz	Troy ounce
\$	In dollars
k	In thousands
M	In millions
G	In billions
%	Percent or Percentage

Map 1  
Operating Mines and Mills,<sup>1</sup> Administrative Regions, 2013



1. As of October 2013.

Sources: Institut de la statistique du Québec, *Annual Census of Mines, Quarries and Sand Pits*.  
Ministère des Ressources naturelles.

## Types of mining stakeholders

- **LARGE COMPANY (SENIOR):** Any company with assets over \$100 million that carries out exploration, deposit appraisal or mine complex development work in Québec or elsewhere. This group includes producing mining companies, exploration subsidiaries of producing mining, oil or gas companies, and non-producing companies that derive significant income from royalties, investment or other similar sources.

- **SMALL COMPANY (JUNIOR):** In the broader sense, this type of company includes strictly “junior” companies as well as “developing junior companies”. The former include companies whose main activity is mineral exploration and who obtain financing for most of their activities from public and private markets. They also comprise prospectors. “Developing junior companies” include companies that have a direct interest (full or part ownership) in a property that has reached the mine complex development phase (in production) or in a property in production from which they derive a small income and whose assets are worth less than \$100 million.

- **PUBLIC COMPANY (PUBLIC):** This group includes Crown corporations, namely SOQUEM Inc. and its subsidiaries, the Société de développement de la Baie James, and the mining funds financed by the Québec government. In order to align mining investment data for Québec with those of other provinces and territories, amounts invested by the geological branch of the MRN are excluded from statistical surveys.

## Mineral resource development work phases

- **EXPLORATION EXPENDITURES** include all field activities and capital, repair and maintenance expenditures conducted on- of off-mine-site to search for, discover and carry out the first delimitation of a mineral deposit in order to enhance its potential economic interest based on delimited tonnage, grade and other characteristics and justify additional, more detailed work.

- **DEPOSIT APPRAISAL EXPENDITURES** include all field activities and capital, repair and maintenance expenditures conducted on- of off-mine-site to bring a delimited deposit to the stage of detailed knowledge required for a feasibility study that will fully justify a production decision and the investment required. This phase usually starts after a preliminary evaluation of the mineral deposit, as defined under Regulation 43-101 (R.S.Q., c. V-1.1; M.O., 2005-23), has been accepted by the respective regulator or securities regulatory authority.

- **MINE COMPLEX DEVELOPMENT EXPENDITURES** include all surface and underground work related to **MINE DEVELOPMENT** activities as well as capital, repair and maintenance costs carried out on a mine site that is in production or committed to production. Capital costs are diverse and include equipment, machinery, tooling and related infrastructure and plants such as pellet plants, ore mills, including tailings ponds and ore transfer port facilities, but exclude metal smelting, refining plants and rail facilities.

**MINE DEVELOPMENT** includes all work carried out on a mine site to define and gain access to the ore and prepare it for production. It also includes drill programs, rock work and support activities aimed at extending the current ore reserves by exploring and appraising the immediate vicinity of the deposits.

## Location of activity

- **ON-MINE-SITE** expenditures represent all field activities and capital, repair and maintenance expenditures applied to exploration or deposit appraisal for an additional mineral deposit distinct from the current mine reserves and loaded strictly on an existing mine site in production or committed to production, as well as, by definition, all activities and expenditures applied to mine complex development, including those related to installations and infrastructure located outside the mine site.

- **OFF-MINE-SITE** expenditures represent all field activities and capital, repair and maintenance expenditures applied to exploration and deposit appraisal that are not located on a mine site that is in production or committed to production, including those on the site of temporarily or permanently closed mines, and advanced projects not yet committed to production.

A **MINE SITE** corresponds to the area covered by a mining lease or a mining concession. It also includes specific components or infrastructures located outside the mining lease or the mining concession, such as a concentrator, iron pellet plant and a tailings pond.

For a mine site to be committed to production, all of the following criteria must be met:

- (1) The feasibility of developing the deposit(s) at a profit has been established by a study that meets the standards of Regulation 43-101 (R.S.Q., c. V-1.1; M.O., 2005-23);
- (2) A formal production decision has been made by the organization;
- (3) The necessary financing is on hand or has been arranged;
- (4) All required authorizations and permits have been obtained; and
- (5) Major pieces of production equipment have been purchased or ordered.