

Mining by the Numbers

April 2016

Mining investment in Québec in 2014

Background

The Institut de la statistique du Québec manages the Mining Statistics Program on behalf of the Ministère de l'Énergie et des Ressources naturelles (MERN). This program comprises two major components: (1) mineral production (value and quantity of shipments) and (2) mining investment including exploration and deposit appraisal expenditures, plus core drilling companies.

The *Annual Survey on Mining Investment*¹ was conducted in the spring of 2015. It aimed to collect final data for 2014 and revised intentions for 2015. In total, 379 questionnaires were sent to mining establishments. Among these establishments, 254 reported expenditures as project managers in 2014 or declared their intention to make expenditures in 2015. The other 125 establishments did not incur any expenditures in 2014 and did not declare any intention to do so in 2015.

Thirty-five establishments whose activities are linked to mining also had to respond to a second questionnaire about their assets (non-residential construction, machinery and equipment) and their current repair and maintenance expenditures.

In addition, preliminary data for 2015 and intentions expressed by mining companies for 2016 are currently being collected. The results of that survey will be made available on the ISQ website in the first quarter of 2016.

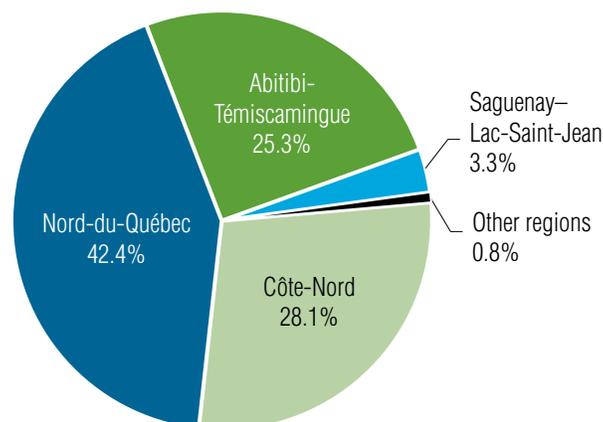
Certain definitions and explanatory notes are presented at the end of the document.

Mining investment down for the second consecutive year in 2014

Mining investment was affected by falling metal prices caused by a weak global demand combined with a stricter access to capital. Due to these conditions, after nine years of growth and record investments of \$5.1 billion in 2012, mining investment in Québec declined for the second consecutive year. For the year 2014, mining investment was down 35.0% from the previous year to \$3.0 billion. In 2013, mining investment had declined by 10.8% to \$4.6 billion.

Nord-du-Québec (\$1.3 billion), Côte-Nord (\$0.8 billion), and Abitibi-Témiscamingue (\$0.8 billion), Québec's three main mining regions, received 95.9% of total mining investment in Québec (Figure 1). In addition, Saguenay-Lac-Saint-Jean, an emerging mining region, accounted for 3.3% of total investment in Québec in 2014.

Figure 1
Distribution of mining investment by administrative region, Québec, 2014



Source: Institut de la statistique du Québec, *Survey of Mineral Exploration, Deposit Appraisal and Mine Complex Development Expenditures*.

1. Conducted in collaboration with Natural Resources Canada.

Table 1

Distribution of mining investment by Québec administrative region, 2014

Administrative region	On-mine-site exploration and deposit appraisal	Off-mine-site exploration and deposit appraisal	Mine complex development			Total
			Work	Capital ¹	Repairs ¹	
\$ thousands						
01 Bas-Saint-Laurent	-	25	-	-	-	25
02 Saguenay–Lac-Saint-Jean	x	9,807	x	x	x	99,655
03 Capitale-Nationale	-	228	-	-	-	228
04 Mauricie	-	875	x	-	-	x
05 Estrie	-	356	-	-	-	356
06 Montréal	-	-	-	-	-	-
07 Outaouais	-	1,538	-	-	-	1,538
08 Abitibi-Témiscamingue	5,814	55,702	428,805	110,720	152,894	753,935
09 Côte-Nord	x	x	x	351,714	x	837,411
10 Nord-du-Québec	27,114	140,213	374,322	587,321	132,534	1,261,503
11 Gaspésie–Îles-de-la-Madeleine	-	x	x	x	x	13,551
12 Chaudière-Appalaches	-	259	-	-	-	259
13 Laval	-	-	-	-	-	-
14 Lanaudière	-	x	-	-	-	x
15 Laurentides	-	x	x	-	x	4,703
16 Montérégie	-	x	-	x	x	x
17 Centre-du-Québec	-	-	-	-	-	-
All of Québec	54,696	262,679	903,215	1,079,021	675,999	2,975,610

1. This category includes capital and repair expenditures for off-mine-site exploration and deposit appraisal.

Source: Institut de la statistique du Québec, *Survey of Mineral Exploration, Deposit Appraisal and Mine Complex Development Expenditures*.

Compared with 2013, investment levels dropped in all three of the main mining regions in Québec. The Côte-Nord region was hardest hit, with a 59.3% drop in investments, mainly due to the collapse in iron ore prices. Investment levels in the Nord-du-Québec, Abitibi-Témiscamingue and Saguenay-Lac-Saint-Jean regions declined by 18.3%, 9.6% and 8.7% respectively.

Despite difficult economic conditions in 2013, mine complex development investment had remained relatively high, decreasing by only 7.0% from 2012. However, in 2014, these investments declined by 36.6% from the previous year. Exploration and deposit appraisal investments dropped by 38.5% in 2013 and by 16.9% in 2014. In 2014, the highest level of disinvestment was observed in mine complex development (-36.6%) and on-mine-site mineral exploration and deposit appraisal (-24.2%), compared to a smaller decline in investment in off-mine-site exploration and deposit appraisal (-15.2%).

Revised intentions for 2015: mining investment down 8.2%

According to intentions expressed by companies for 2015, mining investment will decline by 8.2% compared with 2014, and investments should total about \$2.7 billion. Exploration and deposit appraisal investments will drop 11.5% to \$281 million, while mine complex development investments will decrease 7.8% to \$2.5 billion.

Mine complex development

Mine openings and closures in 2014

The year 2014 was marked by the opening of a gold mine, but also by the closure of a gold, a lithium, and an iron mine. Work has started on the development and construction of the first diamond mine in Québec, and pre-commercial production is scheduled to begin in 2016.

In October 2014, Goldcorp started pre-commercial production at the Eleonore underground gold mine (Goldcorp, news release, October 2, 2014). Commercial production began in early April 2015 (Goldcorp, news release, April 1, 2015). The Eleonore mine is located in the James Bay Territory.

Table 2

Mining investment in Québec, 2011-2015¹

	2011	2012	2013	2014	2015	Change 2014/2013
	\$ millions					%
Exploration and deposit appraisal	834	621	382	317	281	-16.9
Off-mine-site	748	582	310	263	243	-15.2
On-mine-site	86	38	72	55	38	-24.2
Mine complex development	3,089	4,509	4,194	2,658	2,451	-36.6
General work	506	977	985	903	678	-8.3
Capital	2,018	2,897	2,647	1,079	1,096	-59.2
Repairs	564	635	563	676	676 ²	20.2
Total	3,923	5,130	4,576	2,976	2,731	-35.0

1. 2011-2014: final data; 2015: revised intentions.

2. Amount not surveyed, imputed from the 2014 *Annual Survey on Mining Investment*.

Source: Institut de la statistique du Québec, *Survey of Mineral Exploration, Deposit Appraisal and Mine Complex Development Expenditures*.

In the second quarter of 2014, IAMGOLD Corporation completed its last mining activities at the Mouska underground gold mine, then carried out closure activities (IAMGOLD Corporation, news release, August 13, 2014). The Mouska mine, where commercial production had started in July 1991, is located about 30 kilometres east of Rouyn-Noranda.

RB Energy started to produce lithium carbonate in the summer of 2013. Continuous production was achieved in November of the same year, then a first commercial shipment was made in August 2014. On October 8, 2014, due to financial problems and as part of an effort to curtail costs, the company halted its operations at the Québec Lithium mine (RB Energy, news release, October 8, 2014). On October 13, 2014, RB Energy

filed for protection under the *Companies' Creditors Arrangement Act* (RB Energy, news release, October 13, 2014). The mine complex, located near La Corne in Abitibi, is now in care and maintenance mode. It comprises an open pit and a lithium carbonate processing plant.

After acquiring the majority of shares for the Bloom Lake mining complex from Consolidated Thompson in 2011 and investing significantly in that mine, Cliffs Natural Resources decided, in November 2014, to suspend all mining operations at Bloom Lake (Cliffs Natural Resources, news release, October 19, 2014). The decision became effective in December of the same year. The last shipment of iron ore out of the port of Sept-Îles was completed in January 2015 (Cliffs Natural Resources, news release, January 2, 2015). On January 27, 2015, after failing to find a buyer, Cliffs Natural Resources announced that Bloom Lake General Partner Limited as well as some of its subsidiaries, including Cliffs Quebec Iron Mining, were filing for protection under the *Companies' Creditors Arrangement Act* (Cliffs Natural Resources, news release, January 27, 2015). The Bloom Lake mine, located in the Fermont area, is currently in care and maintenance mode.

After acquiring the Vezza mine and the Sleeping Giant mine and mill in March 2013, Maudore Minerals, through its subsidiary Aurbec Mines, extracted ore from both its mines and processed the ore at the Sleeping Giant mill on a non-commercial basis, thus financing part of the development of these two mines. In November 2014, after a few months of operations, the company decided to shut down both mines and the mill (Maudore Minerals, news release, November 7, 2014). In January 2015, Maudore Minerals announced that its subsidiary Aurbec Mines was filing for bankruptcy (Maudore Minerals, news release, January 7, 2015). The Vezza and Sleeping Giant mines, positioned about 50 kilometres from each other, are located in the Nord-du-Québec region, between the municipalities of La Sarre and Matagami. Both mines are currently in care and maintenance mode.

Table 3

Mine openings and closures, Québec, 2014

Mine	Company	Region	Commodity	Month
Opening(s)				
Eleonore	Goldcorp	Nord-du-Québec	Gold	October
Closure(s)				
Mouska	Wesdome Gold Mines	Abitibi-Témiscamingue	Gold	April
Québec Lithium	RB Energy	Abitibi-Témiscamingue	Lithium	October
Bloom Lake	Cliffs Natural Resources	Côte-Nord	Iron	December

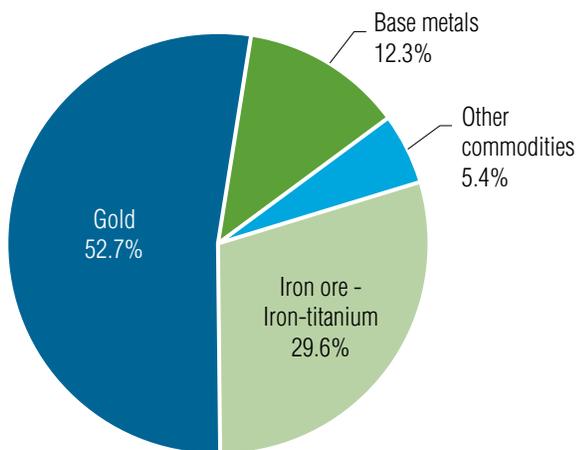
Source: Institut de la statistique du Québec, Québec Mining Directory, 2014.

Mineral commodities: Disinvestment in iron mines

In 2014, mine complex development expenditures totalled \$2.7 billion: \$0.9 billion in general rock work, \$1.1 billion in capital expenditures (non-residential construction, machinery and equipment) and \$0.7 billion in non-capital repair and maintenance expenditures. Mines where gold is the main commodity extracted figured prominently in Québec, accounting for 52.7% of mine complex development expenditures. Iron and iron-titanium mines came in second with 29.6% of those expenditures (Figure 2).

Figure 2

Distribution of mine complex development expenditures by type of mine, Québec, 2014



Source: Institut de la statistique du Québec, *Survey of Mineral Exploration, Deposit Appraisal and Mine Complex Development Expenditures*.

Gold

Investments in gold mine complex development stood at \$650 million and \$750 million respectively for the Abitibi-Témiscamingue and Nord-du-Québec regions in 2014.

In Abitibi, these include the LaRonde underground mine (Agnico Eagle Mines), in operation since 1988, as well as the Canadian Malartic open-pit mine, which was put in operation in 2011 by Osisko Mining Corporation, then was jointly acquired by Agnico Eagle Mines (50%) and Yamana Gold Corporation (50%) in June 2014. These two mines accounted for over half of mine complex development expenditures in Abitibi-Témiscamingue.

The Abitibi-Témiscamingue region also hosts eight more gold mines that were in operation in 2014. They include the following mines: Goldex (Agnico Eagle Mines), Lapa (Agnico Eagle Mines), Beaufor (Richmont Mines) and Westwood (IAMGOLD Corporation). The latter achieved pre-commercial production in March 2013, then commercial production started in July 2014.

QMX Gold Corporation operated the Lac Herbin mine in 2014. It suspended its ore extraction operations in March 2015 (QMX Gold Corporation, news release, March 19, 2015), then ore stockpiles were processed at the Aurbel mill until the end of July. The Lac Herbin mine and Aurbel gold mill were put in care and maintenance with the aim of resuming mining activities and providing toll milling services to mining projects in the region (QMX Gold Corporation, news release, September 29, 2015).

The Monique mine (Richmont Mines) achieved pre-commercial production in July 2013 and commercial production in October of the same year. Mining activities at the Monique open-pit were completed in January 2015. The on-site stockpile continued to be batch processed at the Camflo mill (Richmont Mines) in 2015 (Richmont Mines, news release, February 19, 2015). The Camflo mill continues to process ore from the Beaufor mine.

The Mouska mine (IAMGOLD Corporation) was in operation during the first quarter of 2014.

Still in Abitibi, non-commercial operations started in 2014 at a re-opened mine. Ore extraction began at the Elder mine (Abcourt Mines) in May 2013 (Abcourt Mines, news release, May 21, 2013). The ore extracted was toll processed off of the mine site and the first gold bricks from the Elder mine were poured in October 2013 (Abcourt Mines, news release, October 23, 2013).

In the Nord-du-Québec region, five gold mines were in operation in 2014. The Eleonore mine (Goldcorp), located in the James Bay Territory, achieved pre-commercial production in October 2014. This new mine alone accounts for a large share of mine complex development expenditures in the Nord-du-Québec region.

Also in the Nord-du-Québec region is the Casa Berardi mine, acquired from Aurizon Mines in June 2013 by Hecla Québec, a subsidiary of the Hecla Mining Company. The Bachelor Lake mine (Metanor Resources), where commercial production started in November 2013 (Metanor Resources, news release, November 14, 2013), is also located in the Nord-du-Québec region.

In addition, two mines (a new mine and a re-opened mine) were operated on a non-commercial basis in the Nord-du-Québec region in 2014. Both mines belong to Maudore Minerals which, through its subsidiary Aurbec Mines, extracted ore from its Vezza and Sleeping Giant mines and processed the ore at the Sleeping Giant mill, before shutting down all operations in November 2014 and placing its mining facilities in care and maintenance (Maudore Minerals, news release, November 7, 2014).

Iron ore – Iron-titanium

In 2014, the price of iron ore plummeted and the titanium dioxide market weakened. In this context, in 2014, investments in iron ore and iron-titanium mines dropped 61.2% from 2013 to \$786 million. Investments in these types of mines had experienced marked growth starting in 2008, increasing by 430.1% between 2008 and 2013. In 2008, these investments accounted for 25.7% of total mine complex development expenditures in Québec; that percentage had risen to 48.2% by 2013. In 2014, they returned to a level similar to that of 2009, representing 29.6% of total mine complex development expenditures in Québec.

The Côte-Nord region was directly hit by this drop in investments, as it is home to the Mont-Wright iron mine and the Fire Lake open pit (ArcelorMittal Mines Canada) as well as the Bloom Lake iron mine (Cliffs Natural Resources), in care and maintenance since December 2014. Both these companies, as well as the Iron Ore Company of Canada, which mines iron ore in Labrador (Carol Lake mine), own related facilities in the region, such as an iron ore pellet plant and port facilities. Rio Tinto Fer et Titane owns an ilmenite mine at Tio Lake, north of Havre-Saint-Pierre.

Base metals

All development expenditures for base metal mines were made in the Nord-du-Québec region. These investments totalling \$328 million in 2014 were mainly aimed at nickel, copper and zinc.

Two nickel and copper mines are located in the north of the Ungava Peninsula, in the Nord-du-Québec region: the Raglan mine (Glencore Canada Corporation), in operation since 1997, and the Nunavik Nickel mine (Jilin Jien Nickel Industry Co), whose first copper shipments were made at the end of 2013 (Canadian Royalties, news release, November 5, 2013). These two mines account for most mine complex development expenditures in the Nord-du-Québec region.

South of these mines are two zinc and copper mines. In the Matagami area, the Bracemac-McLeod underground mine (Glencore Canada Corporation) achieved pre-commercial production in May 2013 and commercial production in July of the same year. The Langlois underground mine (Nystar Canada Resources) is located in the Lebel-sur-Quévillon area. This mine was operated intermittently between 1996 and 2008, then resumed its operations in 2012 (Nyrstar.com; Langlois fact sheet).

Other commodities

The other mineral commodities extracted from Québec mines in 2014 are niobium, lithium, salt, silica, graphite, mica and feldspar. Moreover, work has started on the development and construction of the first diamond mine in Québec. Development expenditures for these mine complexes totalled \$144 million in 2014, distributed in several regions of the province.

The Niobec mine, located in the municipality of Saint-Honoré in the Saguenay–Lac-Saint-Jean region, produces between 8% and 10% of the annual global volume of niobium in the form of ferroniobium. In January 2014, IAMGOLD filed a study demonstrating the feasibility of using block caving at the mine, which would triple production and extend mine life beyond 40 years. This expansion project carried high capital costs and was abandoned in the absence of a funding partner. In January 2015, IAMGOLD announced that it had sold its Niobec mine to a group of companies led by Magris Resources (IAMGOLD, news release, January 22, 2015).

The Québec Lithium open-pit mine (RB Energy) and lithium carbonate processing plant are located near La Corne in Abitibi. Production of lithium carbonate started in 2013, but stopped in October 2014 (RB Energy, news release, October 8, 2014). The mine and processing plant are now in care and maintenance mode.

Timcal Graphite & Carbon, named Imerys Graphite & Carbon since 2014, operates the Lac-des-Îles graphite mine located near Mont-Laurier as well as a processing plant in Terrebonne. Imerys Mica Suzorite has been operating the Lac Letondal mine in Haute-Mauricie since 1970. Ore is extracted every four years to supply the company's processing plant in Boucherville. K+S Windsor Salt extracts salt (halite) from the Seleine mine located in the Îles-de-la-Madeleine. Dentsply Canada sporadically extracts feldspar for dental ceramic purposes from the Othmer mine near Buckingham, in the Outaouais region. One extraction operation usually provides enough feldspar for several years.

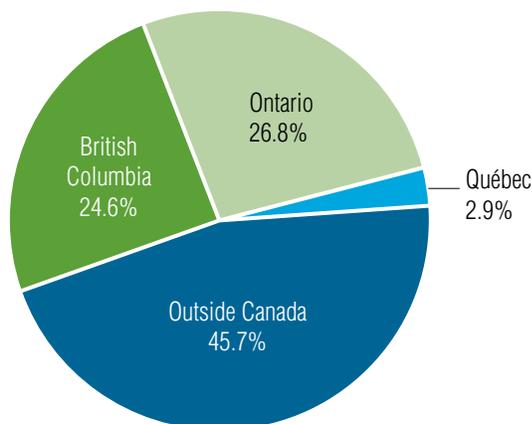
In Québec, in 2014, three silica mines were in operation. Silicium Québec and Sitec Quartz extract high-purity silica for industrial applications from the Petit-Lac-Malbaie mine located in the municipality of Charlevoix. In the Saint-Canut area in the Laurentides region, Unimin Canada operates a silica mine from siliceous sandstone aimed at the glass market. Still in the Laurentides, in the Saint-Rémi-d'Amherst area, the mining company Gerdin mines silica on a seasonal basis.

On July 10, 2014, Stornoway Diamond Corporation announced its decision to proceed with the construction of the Renard diamond mine located 350 kilometres north of Chibougamau in the James Bay Territory. This decision was made following the closing of the comprehensive financing package for the project totalling \$946 million. Construction on the project has started. Pre-commercial production is expected to begin in the second half of 2016, and commercial production should start in the second quarter of 2017 (Stornoway Diamond Corporation, news release, July 10, 2014).

As part of the global mergers and acquisitions trend, the number of Québec and Canadian mining companies that carry out mine complex development work declined in favour of companies headquartered abroad. This situation led to a reversal in the distribution of mine complex development investments according to the location of the head office of mining companies. In 2010, mine complex development projects controlled by foreign companies only accounted for 25.3% of mine complex development investments in Québec, but this proportion had increased to 66.0% by 2011.

In 2014, 45.7% of mine complex development investments were controlled by foreign companies whose head office was located in countries such as the United States, Luxembourg, Switzerland, Great Britain, France, Germany and China. These foreign investments comprise a wide variety of commodities, including iron ore, base metals, precious metals and several industrial minerals. In 2014, the share of foreign companies dropped below the 60% mark to its lowest level since 2011 due in part to the disinvestment of these companies in the development of iron mines.

Figure 3
Distribution of mine complex development expenditures by location of company head office, Québec, 2014



Source: Institut de la statistique du Québec, *Survey of Mineral Exploration, Deposit Appraisal and Mine Complex Development Expenditures*.

Canadian mining companies accounted for 54.3% of total investments in mine complex development, with Québec companies representing 2.9% of those investments (Figure 3). Canadian mining companies ranked first with regard to gold mine complex development in Québec, with 94.0% of expenditures.

Exploration and deposit appraisal: More moderate decline in investments in 2012 than in 2013

In 2012 and 2013, mine exploration and deposit appraisal investments dropped by 25.6% and 38.5% respectively. In 2014, exploration expenditures, including on- and off-mine-site deposit appraisal work, totalled \$317 million, down 16.9% from the previous year, and down 61.9% compared with the record investments of \$834 million registered in 2011. According to intentions expressed by mining companies for 2015, exploration and deposit appraisal investments should reach \$281 million (Table 2).

In 2014, the Nord-du-Québec region ranked first in terms of exploration and deposit appraisal investments with \$167 million, or 52.7% of the Québec total. It was followed by Abitibi-Témiscamingue where investments totalled \$62.0 million (19.4%), then by Côte-Nord with \$52 million in investments (16.3%) and Saguenay-Lac-Saint-Jean with \$29 million (9.2%).

Table 4
Distribution of exploration and deposit appraisal expenditures by type of company, Québec, 2014

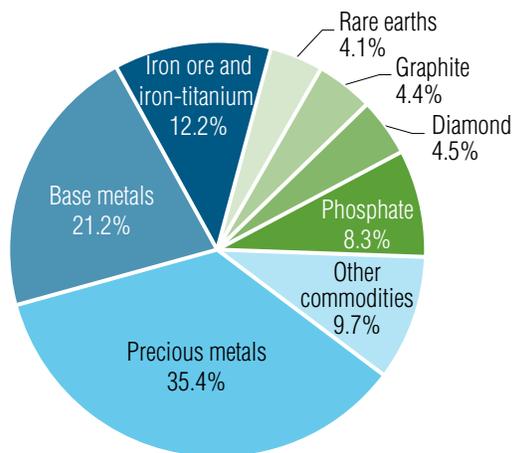
	Junior and public ¹	Senior	Total	Change 2014/2013
	\$ millions			%
Off-mine-site	187.0	75.6	262.7	-15.2
Exploration	118.3	46.9	165.1	-11.8
Deposit appraisal	68.8	28.8	97.6	-20.3
On-mine-site	-	54.7	54.7	-24.2
Exploration	-	19.2	19.2	94.9
Deposit appraisal	-	35.5	35.5	-43.0
Total mining investments	187.0	130.3	317.4	-16.9

1. The share of public companies was \$32.2 million.

Source: Institut de la statistique du Québec, *Survey of Mineral Exploration, Deposit Appraisal and Mine Complex Development Expenditures*.

As shown in Figure 4, precious metals, mostly gold, remained the most sought-after commodities in Québec, accounting for 35.4% of exploration and deposit appraisal expenditures, for a total of \$112 million. They were followed by base metals (21.2%; \$67 million), then by iron ore and iron-titanium (12.2%; \$39 million). Phosphate generated interest, as it represented 8.3% (\$26 million) of total exploration and deposit appraisal expenditures in Québec, while rare earths, graphite and diamond accounted for 13.1% (\$41 million) of these expenditures. Although gold remains dominant, mineral exploration tends to diversify in Québec, leaving room for other, less conventional mineral commodities. Around ten exploration projects related to phosphate (apatite), rare earths, graphite and lithium have reached the deposit appraisal phase.

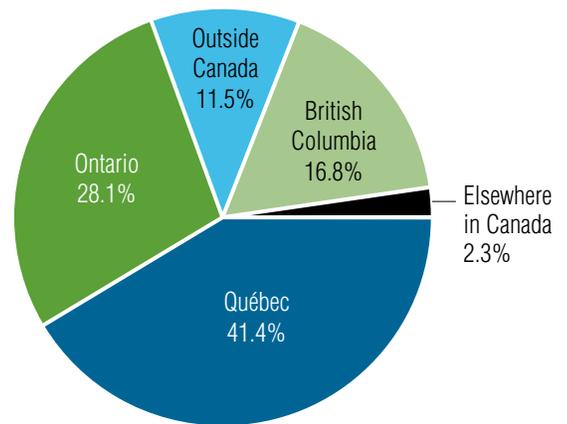
Figure 4
Distribution of exploration and deposit appraisal expenditures by commodity sought, Québec, 2014



Source: Institut de la statistique du Québec, *Survey of Mineral Exploration, Deposit Appraisal and Mine Complex Development Expenditures*.

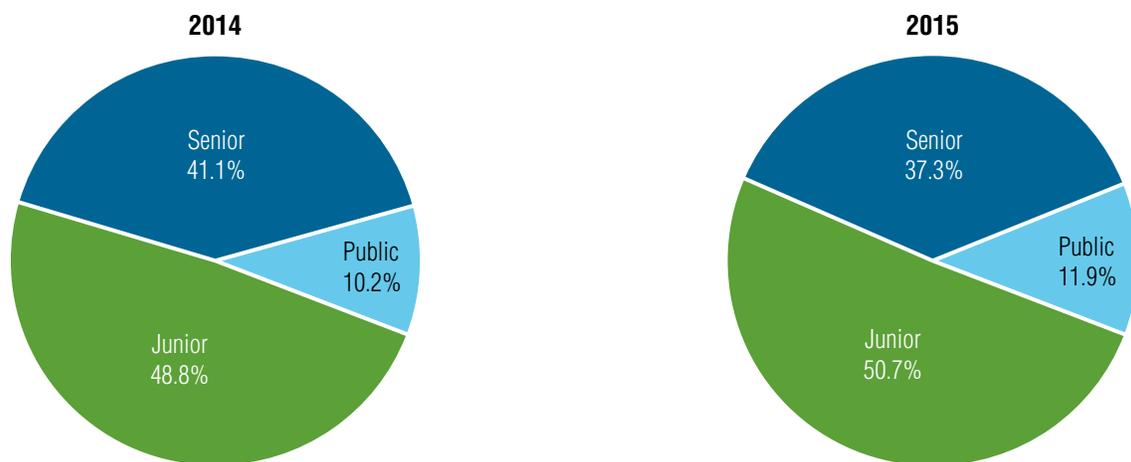
Exploration and deposit appraisal expenditures were mainly incurred by Canadian companies, which accounted for 88.5% of these investments, including 41.4% for Québec companies (Figure 5). Junior exploration companies and senior mining companies respectively accounted for 48.8% and 41.1% of exploration and deposit appraisal expenditures. Public companies incurred 10.2% of these expenditures. According to intentions expressed by mining companies, these proportions should be about the same in 2015: 50.7% for junior exploration companies, 37.3% for senior mining companies, and 11.9% for public companies.

Figure 5
Distribution of exploration and deposit appraisal expenditures by location of company head office, Québec, 2014



Source: Institut de la statistique du Québec, *Survey of Mineral Exploration, Deposit Appraisal and Mine Complex Development Expenditures*.

Figure 6
Distribution of exploration and deposit appraisal expenditures by type of company, Québec, 2014-2015¹



1. 2014: final data; 2015: revised intentions.

Source: Institut de la statistique du Québec, *Survey of Mineral Exploration, Deposit Appraisal and Mine Complex Development Expenditures*.

Cost of core drilling campaigns

Core drilling campaigns carried out by specialized enterprises account for a large proportion of exploration and deposit appraisal expenditures in Québec. Over the past 10 years, these expenditures have represented between 32.0% and 49.6% of annual exploration and deposit appraisal investments. In 2014, they accounted for 35.0% of investments. Costs associated with drilling campaigns include expenditures related to personnel and drill mobilization, site preparation, drilling, moves between drill holes, required mobile and support equipment, as well as related sampling and assaying costs.

In 2014, 30 enterprises specialized in exploration drilling with a head office in Québec were listed. Out of these 30 enterprises, 19 reported drilling activities in Québec in 2014.²

Between 2005 and 2010, the number of metres drilled for on- and off-mine-site exploration and deposit appraisal purposes increased from 889,600 metres to 1,519,396 metres, and reached a record 2,167,013 metres in 2011. Since then, 1,596,569 metres were drilled in 2012, then 836,619 metres in 2013, and 716,952 metres in 2014, a drop of 66.9% compared with the record high of 2011.

The number of metres drilled as part of mining operations reached a 10-year high, totalling 678,205 meters in 2014. This represents a 54.6% increase from the previous year (438,657 metres) and a 554.9% increase compared with 2005 (103,564 metres).

When costs associated with exploration and deposit appraisal drilling campaigns are distributed by administrative region, we can see that these costs are 42.9% higher than the Québec average in the Côte-Nord region. By comparing two remote regions that are far away from services, we notice that these costs are 31.3% higher in the Côte-Nord region than in the Nord-du-Québec region. Higher costs in the Côte-Nord region can be partially explained by the technical specifications required to carry out drilling campaigns for iron exploration.

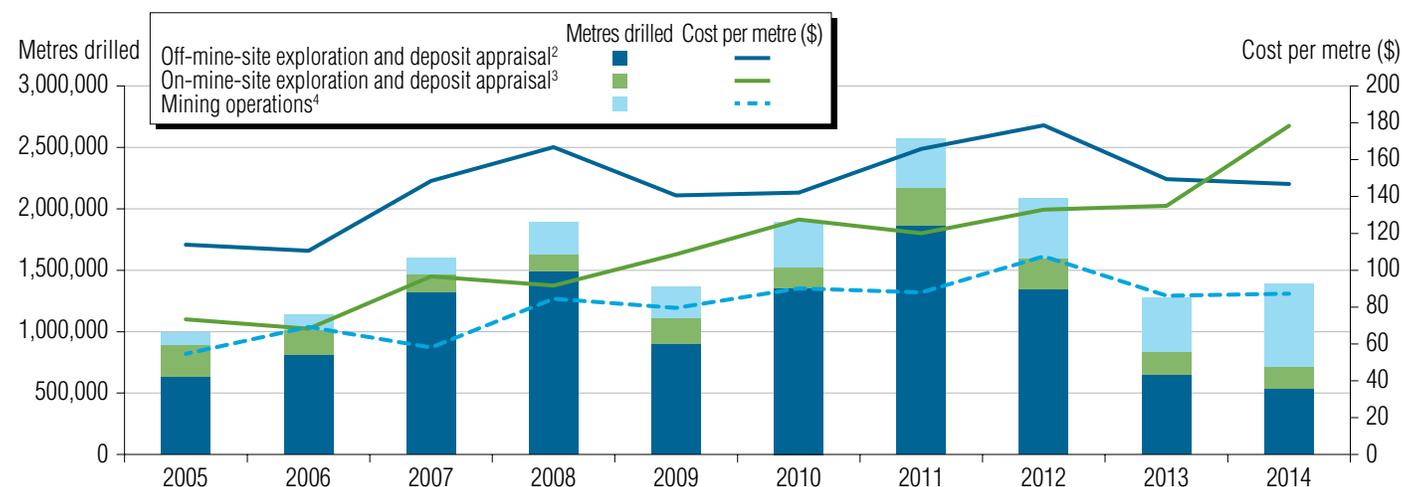
Table 5
Distribution and cost of diamond drilling for exploration and deposit appraisal purposes, 2014

Administrative region	Drilling costs	Number of metres drilled	Unit cost
	\$ millions	m	\$/m
08 Abitibi-Témiscamingue	17.0	164,922	102.95
09 Côte-Nord	10.9	49,448	221.34
10 Nord-du-Québec	80.5	477,698	168.54
Other regions	2.6	24,884	105.56
All of Québec	111.1	716,952	154.91

Source: Institut de la statistique du Québec, *Survey of Mineral Exploration, Deposit Appraisal and Mine Complex Development Expenditures*.

Figure 7

Change in number of metres drilled and unit cost for diamond drilling, Québec, 2005-2014¹



1. 2005-2014: final data.

2. Drilling outside a producing mine site, to define new mineral deposits.

3. Drilling on a producing mine site, to define new mineral deposits.

4. Drilling on a mine site, in the immediate vicinity of the deposit(s), to delimit and detail the ore or extend the current ore reserves.

Source: Institut de la statistique du Québec, *Survey of Mineral Exploration, Deposit Appraisal and Mine Complex Development Expenditures*.

2. Source: Institut de la statistique du Québec, *Annual Survey – Diamond Drilling*.

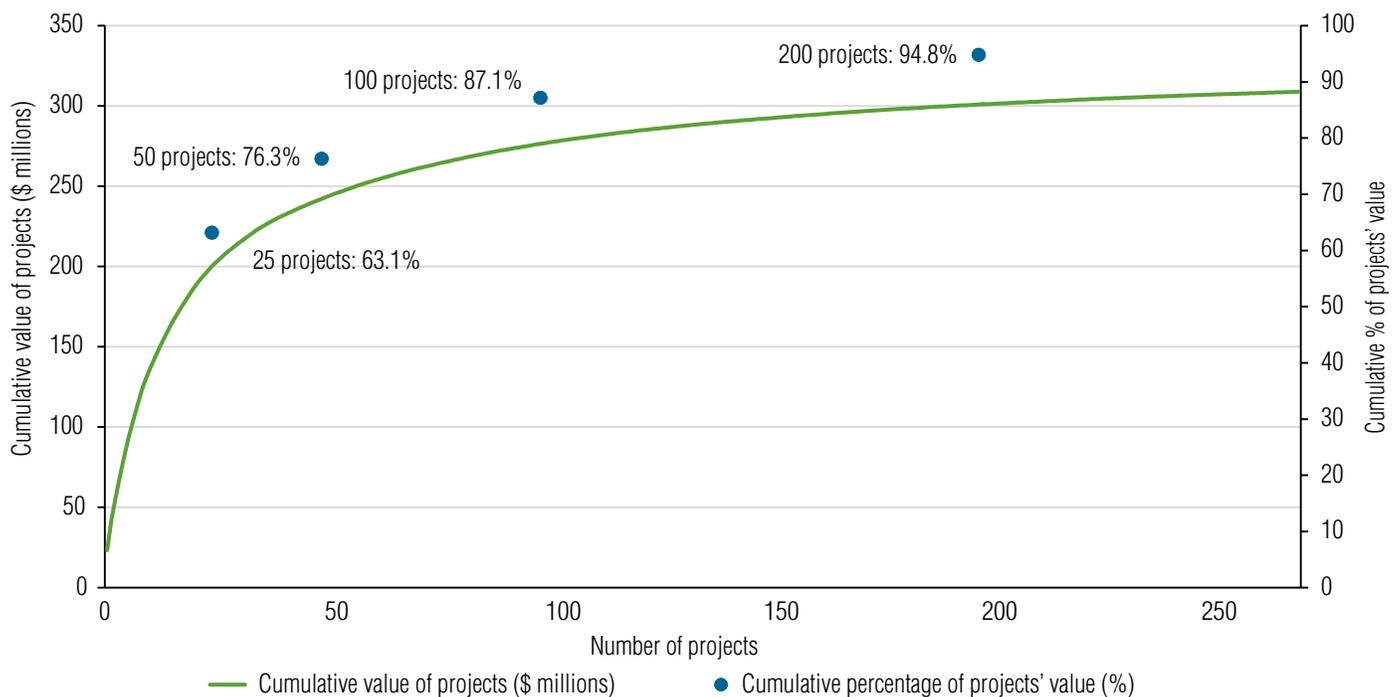
Distribution of exploration and deposit appraisal expenditures

The *Annual Survey on Mining Investment* identified 213 establishments that reported work as project managers. In total, 741 projects generated exploration and deposit appraisal investments of \$317 million during the year. When taking into account projects valued at \$100,000 and over, the number of projects goes down to 246. These projects were managed by 130 establishments and generated \$306 million in expenditures, accounting for 96.5% of total expenditures in this category.

The top 25 projects in terms of budget accounted for 63.1% of total exploration and deposit appraisal expenditures in Québec in 2014. The top 50, 100 and 200 projects respectively accounted for 76.3%, 87.1% and 94.8% of total expenditures.

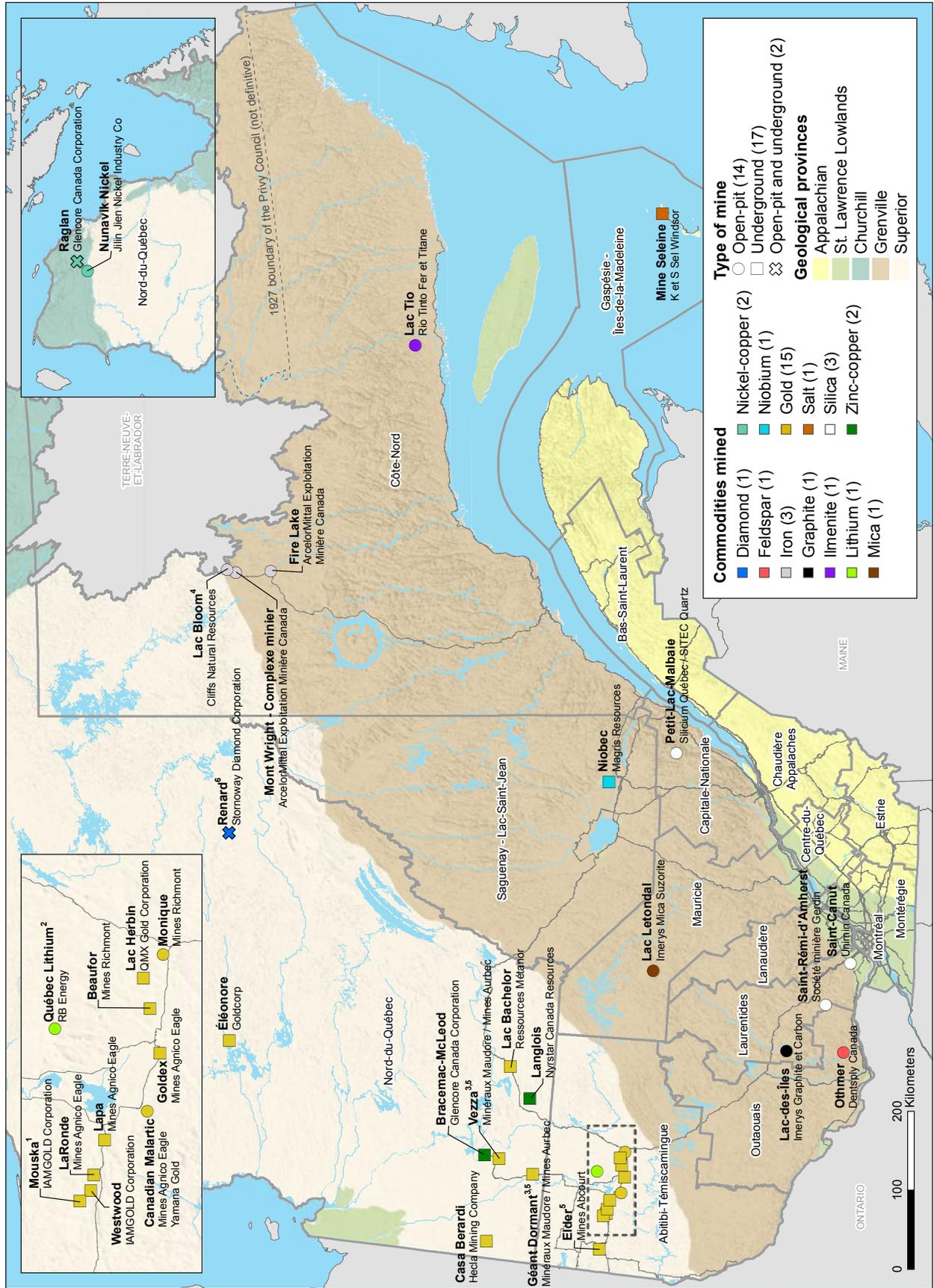
Figure 8

Cumulative budgetary distribution of exploration and deposit appraisal projects, Québec, 2014



Source: Institut de la statistique du Québec, *Survey of Mineral Exploration, Deposit Appraisal and Mine Complex Development Expenditures*.

Mines in operation or under construction, Québec, 2014



¹ Closed – April 2014; ² Production stopped – October 2014; ³ Production stopped – November 2014; ⁴ Production stopped – December 2014; ⁵ Mine project - Non-commercial production; ⁶ Construction started – July 2014. Sources: Map produced by the Institut de la statistique du Québec. Administrative divisions July 2015. SDA, MERN. Adresses Québec road network, 2015.

Glossary

Types of mining stakeholders

SENIOR COMPANY: Any company 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 and that can direct part of that income towards their mining projects.

JUNIOR COMPANY: These include companies whose main activity is mineral exploration and who obtain financing for most of their activities from public and private markets. They also include prospectors.

PUBLIC COMPANY: This group includes Crown corporations, namely the SOQUEM 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 MERN are excluded from statistical surveys.

Mineral resource development work phases

EXPLORATION EXPENDITURES include all field activities and capital, repair and maintenance expenditures conducted on- or 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- or 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, as defined under Regulation 43-101 (R.S.Q., c. V-1.1; M.O., 2005-23), has been accepted by the appropriate regulatory authorities.

MINE COMPLEX DEVELOPMENT EXPENDITURES include all surface and underground work related to **MINE DEVELOPMENT** activities as well as capital, repair and maintenance expenditures conducted on a mine site that is in production or committed to production. Capital costs are diverse and include equipment, tooling and infrastructure. The latter comprise 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.

Standard symbols

..	Data not available	x	Confidential data
...	Not applicable	t	Metric ton
–	Void or zero	n	Number
—	Negligible data	m	Metre
i	Intention	\$	In dollars
p	Preliminary data	%	Percent or Percentage
e	Estimate		

Note

Figures may not add up to totals due to rounding.

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