

Mineral Exploration, Deposit Appraisal and Mine Complex Development Activity in Canada

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INTRODUCTION

This review provides analytical highlights and describes mineral resource development activities from primary exploration to mine production in Canada (focussing on 2001) with emphasis being placed on mineral exploration and deposit appraisal expenditures. Also briefly discussed are the revised spending intentions (as of August 2002) for the survey year 2002, as well as other exploration indicators such as drilling and claim-staking activity. The 2000 and 2001 final data used for the analysis are presented in the statistical tables at the end of this chapter.

Expenditures are compiled from the federal-provincial-territorial Survey of Mineral Exploration, Deposit Appraisal and Mine Complex Development Expenditures, which is briefly described in the Background section at the end of this chapter. This annual survey of exploration and mining companies provides an accurate measure of overall mineral development activity in Canada. In 2001, the response rate to that survey was 96%. The results were compiled from the reports of 616 active company project operators and 38 prospectors or groups of prospectors. All 38 prospectors and 491 of these companies reported that they were active in mineral exploration while 70 were active in deposit appraisal and 115 in mine complex development. (Note: Some companies are involved in more than one work phase at the same time.)

TRENDS AND PERSPECTIVE

Exploration and deposit appraisal expenditures by both junior and senior companies (definitions are provided below) appear to have stabilized since 1999.

Expenditures declined slightly from \$504.3 million in 1999 to \$496.7 million in 2000. Final figures for 2001 indicate that expenditures increased by a small amount to \$512.9 million, and company revised spending intentions for 2002 (as of August 2002) again indicate expenditures topping the \$500 million mark.

At the same time as exploration and deposit appraisal spending by seniors has declined each year since 1999, spending by juniors has increased from \$141.4 million in 1999 to \$177.7 million in 2001. A further significant increase is anticipated for 2002 to almost \$210 million. Off-mine-site exploration expenditures (excluding deposit appraisal) for these years parallel the totals, rising each year from \$92.9 million in 1999 to an expected \$167.9 million in 2002 for junior companies.

Historically (Tables 3a and 3b, and Figure 2), after unprecedented levels of exploration and deposit appraisal expenditures were reached in 1987 and 1988, principally as a result of the Canadian Mining Exploration Depletion Allowance (MEDA), expenditures fell, reaching in 1992 their lowest level since 1972. Higher metal prices and significant diamond and nickel-copper discoveries in the early to mid-1990s led to a resurgence in expenditures in 1996 and 1997. Lower metal prices through the latter part of the 1990s and reduced investor confidence as a result of the Bre-X exploration incident in Indonesia and the Asian financial crisis led to the latest decline in exploration and deposit appraisal expenditures. However, improvement is now being seen as exploration and deposit appraisal expenditures in 2001 reached their highest point since 1998. When all the data for 2002 have been compiled, expectations are that expenditure levels will at least be maintained. The impact of government initiatives since 2000, aimed at assisting junior exploration companies in obtaining financing for their off-mine-site exploration programs, still remains to be fully assessed. Indications for 2002 are that these initiatives have contributed to increased junior off-mine-site exploration spending and probably have offset the effect of low commodity prices. On the other hand, senior exploration expenditures off-mine-site still appear to be declining.

Low metal prices represent the most important factor influencing mineral resource development expenditures over the 1999 to 2001 period. For example, copper, which traded at US\$1.18/lb in June 1997, averaged only US\$0.716/lb in 2001 and for the first nine months of 2002 averaged just over US\$0.70/lb. Zinc, which traded at US\$0.750/lb in August 1997, averaged US\$0.402/lb in 2001 and through September 2002 averaged only US\$0.354/lb. Nickel prices have fared slightly better, averaging US\$3.92/lb in 2000, its highest yearly average since 1990. However, nickel prices averaged only US\$2.10/lb in 1998, US\$2.73/lb in 1999 and US\$2.73/lb in 2001. In the first nine months of 2002, the price of nickel recovered somewhat to average US\$3.02/lb. Gold prices, with the exception of 2002, have been in the doldrums for several years, averaging about US\$275/oz over the 1999-2001 period. This compares to a recent annual average high of US\$387.69/oz in 1996. Gold prices have strengthened in 2002 and, in September, averaged about \$320/oz. Uncertainty in the equity markets, low interest rates and the unsettled world situation have contributed to the recent strength in gold prices.

Metal prices in general are not expected to rise much in the near term with uncertain global economic conditions, but the recent strength shown by nickel, and especially gold, two minerals traditionally targeted for exploration, gives rise to some optimism for the future. The high platinum and palladium prices of 2000 and 2001 (palladium prices averaged about US\$680/oz in 2000 and US\$604/oz in 2001; platinum averaged US\$544/oz in 2000 and US\$529/oz in 2001) have also spurred interest in those metals. From about \$4.5 million in exploration and deposit appraisal expenditures in 1998 for platinum group metals (PGM), companies have increased their search for these metals significantly with expenditures reaching about \$30 million in 2001. This is another indication of how metal prices influence exploration decisions. Palladium prices have weakened in 2002, trading at about US\$325/oz in the third quarter. Platinum prices have ranged from about US\$450/oz to US\$575/oz in 2002 and traded at about US\$545/oz in the third quarter.

Exploration for diamonds is not driven by an international market price. However, changes in the economy, demography and structure of the diamond industry do have an impact on diamond prices.

Spending by senior companies was more noticeably affected by the low metal prices. In fact, expenditures by these companies on exploration and deposit appraisal in Canada declined from \$362.9 million in 1999 to \$335.1 million in 2001. A further drop to \$291.8 million is anticipated for 2002, based on revised spending intentions. However, exploration and deposit appraisal expenditures on diamonds may mask a more severe decline for the traditional commodity groups. For example, in 2001, expenditures

for diamonds made by seniors increased by 52% over 2000 (up \$36.2 million) to reach \$105.6 million, while such expenditures for precious metals decreased by 25.4% (down \$30.8 million) to reach \$90.5 million. Mine complex development expenditures decreased from \$854.2 million in 1999 to \$831.0 million in 2000. For 2001, expenditures stabilized at \$829.5 million. In that year, precious metals expenditures decreased by \$54.2 million while expenditures for diamonds increased by \$64.6 million.

As a result of activity in the diamond sector, especially the development of the Diavik mine in the Northwest Territories, capital spending (construction, machinery and equipment), mostly incurred by senior companies, increased sharply from 1999 (\$866.9 million) to 2000 (\$1.5 billion). Capital spending increased again in 2001 to \$1.8 billion.

In summary, total mineral resource development expenditures, including repair and maintenance costs, increased from \$3.5 billion in 1999 to \$4.2 billion in 2000 and to \$4.6 billion in 2001. For diamonds alone, close to \$900 million was spent in 2001 (Table 5).

Low metal prices have also had an impact on the number of significant metal and non-metal producing mines operating in Canada. In 2000, six new mines opened but this was more than offset by 12 mine closures. In 2001, the divergence was even more pronounced: 15 closures versus only 2 openings (for additional information, refer to the chapter on "Canadian Mine Openings, Closings, Expansions, Extensions and New Mine Developments"). Similarly, the number of advanced projects (at the deposit appraisal stage) are in decline, dropping from 132 in 1999 to 124 in 2000, 91 in 2001, and an expected 70 in 2002. The total number of advanced projects managed by seniors alone dropped from 33 to 24 between 2000 and 2001, resulting in a 25% decline in the associated expenditures. Generally, seniors manage one third of the advanced projects and account for 80% of such expenditures. Preliminary indications for 2002 are that there will be an improvement in the ratio of mine openings to closings. The effects of mine closings and cutbacks tend also to influence on-mine-site exploration expenditures and deposit appraisal expenditures. Between 1998 and 2001, expenditures dropped from \$129.4 million to \$71.5 million. For 2002, both on-mine-site exploration and on-mine-site deposit appraisal expenditures for senior companies are expected to rise in tandem with an expected improvement in mine opening and closing results. This increase, however, will likely be more than offset by declines in off-mine-site expenditures by senior companies. Mergers and changes in corporate strategy may continue to have an effect on their off-mine-site budgets as senior companies concentrate their efforts on producing operations.

Canadian companies remain committed to explore and develop properties in other countries. Indeed, more than 70% of recent budgets of the larger Canadian-based companies have been committed to programs abroad, although budgets have recently been declining there as well. Nevertheless, in global terms, Canada remains an attractive area for exploration (for additional information, refer to the chapter entitled “Canada’s Global Mining Presence”). Since 1992, Canada has been second in the world as a recipient of exploration expenditures and, in fact, the difference between Canada and first-place Australia is narrowing (for additional information, refer to the chapter entitled “Canadian Mineral Exploration and Discovery Analysis”).

NEW MEASURES FOR THE INDUSTRY

Metal market conditions are beyond government control as they are subject to global supply and demand dynamics. However, both the federal and several provincial and territorial governments have recently instituted measures designed to stimulate exploration in Canada. In addition to initiatives that were in place prior to 2000, the following recent initiatives, designed to stimulate exploration activity, are worth noting.

In the Economic Statement and Budget Update of October 18, 2000, the Minister of Finance announced a temporary 15% investment tax credit for investors in flow-through shares (FTS) of mineral exploration companies. This Investment Tax Credit for Exploration (ITCE) is designed to assist junior mining companies in raising new equity through the issuance of FTS and applies to eligible expenses incurred after October 17, 2000, and before January 1, 2004.

Following the introduction of the federal ITCE, harmonized tax credit programs were announced by Ontario in December 2000, Saskatchewan in March 2001, and British Columbia in July 2001.

In September 2001, the Quebec government announced the extension of its existing enhanced deduction program for FTS until the end of 2003.

In November 2001, the Yukon government announced that the Yukon Mineral Exploration Tax Credit had been extended until April 1, 2003. The tax credit was implemented on April 1, 1999, to encourage mineral exploration in the Yukon.

Finally, as part of its April 2002 budget, the Manitoba government introduced the Manitoba Mineral Exploration Tax Credit (MMETC).

For more information on taxation in the mining industry, refer to the Economic and Financial Analysis Branch (of Natural Resources Canada’s

Minerals and Metals Sector) web site at www.nrcan.gc.ca/miningtax/index.htm.

Provincially (Tables 15a and 15b), junior exploration and deposit appraisal expenditures increased between 2000 and 2001 in Ontario (up \$12.7 million to \$39.7 million), Nunavut (up \$7.5 million to \$40.1 million), and Quebec (up \$5.3 million to \$30.0 million). Smaller increases were registered in New Brunswick, Manitoba and the Northwest Territories. British Columbia’s junior exploration expenditures remained virtually unchanged at \$18.3 million. Expenditures in the other provinces and territories declined from 2000 to 2001. Referring again to junior companies, but for off-mine-site exploration only, increased expenditures are anticipated everywhere except for Nova Scotia, Saskatchewan and the Northwest Territories in 2002, compared to 2000. The decline is expected to be lower than \$1 million for each of Nova Scotia and Saskatchewan.

MINERAL RESOURCE DEVELOPMENT EXPENDITURES, 2001

The wide spectrum of mineral resource development activities and their geographic dispersion across Canada require detailed and sophisticated indicators to measure activity levels. The information collected since 1997 by mineral resource development work phase permits a more complete monitoring of the activities of an exploration project as it progresses toward the mine complex development stage (Table 20).

Mineral Exploration

Of the \$1.3 billion in mineral resource development expenditures in 2000 and 2001 (excluding capital, repair and maintenance expenditures), the mineral exploration phase (which includes activities up to and including the first delineation of a previously unknown mineral deposit to establish its potential economic value [tonnage and grade]), accounted for \$381.2 million (28.4% of the total) in 2001 compared to \$342.5 million (25.8%) in 2000 (Tables 1, 9a and 16a). Although exploration was on the rise, decreases (totaling \$10.8 million) were recorded in New Brunswick, Nova Scotia, Alberta, Manitoba, British Columbia, and the Yukon, and were not significant for Saskatchewan. The exploration total for 2001 represents 74.3% of all exploration and deposit appraisal expenditures, compared to 69.0% in 2000. In 2001, some 88.9% of spending in the mineral exploration phase was at off-mine-site locations, down slightly from 91.0% in 2000. Junior companies spent \$157.9 million in 2001 on exploration at off-mine-site locations (Table 3c) while seniors spent \$181.0 million. For the juniors, exploration expenditures incurred at off-mine-site locations have increased by 69.9% (\$65.0 million) since 1999.

The significant increase in off-mine-site exploration expenditures between 2000 and 2001 (\$27 million) had an impact on overall exploration and deposit appraisal expenditures and explains, in large measure, the increase in the exploration share of total expenditures (74.3%, compared to 69.0% in 2000). Most of the increases (Tables 7a, 7b, 15a and 15b) came from Nunavut (up \$14.6 million) and Ontario (up \$22.6 million). In Nunavut (Figure 7a), two juniors increased their budgets significantly: Hope Bay Gold Corporation Inc. at the Hope Bay gold project and Twin Mining Corporation at the Jackson Inlet project, which had an impact on precious metal and diamond expenditures, respectively. Similarly, in Ontario, two seniors increased their budgets significantly: De Beers Canada Exploration Inc., at and around the Victor project, and Goldcorp Inc., at the former Cochenour mine, thus affecting diamond and precious metal expenditures, respectively. On-mine-site exploration is also on the rise after a low of \$30.7 million in 2000, partly as the result of an important exploration program at the Raglan mine in Quebec by Société minière Raglan du Québec ltée. In 2001, a total of \$42.3 million was expended on-mine-site in Canada.

In 2001, as in 2000, Ontario ranked first, followed by Quebec, in exploration expenditures. These two provinces accounted for close to half of the total exploration expenditures in 2001. In 1999, this ranking was reversed. In 2001, exploration expenditures exceeded deposit appraisal expenditures in all provinces and territories except Nova Scotia (non-metals) and the Northwest Territories (diamonds) where deposit appraisal was the main target of expenditures (Figures 6a and 6b). As usual, off-mine-site exploration was dominant over on-mine-site exploration in all provinces and territories. In 2001, for off-mine-site exploration expenditures, Ontario, with \$81 million, was by far the leader followed by Quebec and Nunavut with \$59 million and \$52 million, respectively. Quebec was first for on-mine-site exploration expenditures. In 2000, Quebec was first in off-mine-site exploration and second in on-mine-site exploration.

In decreasing order of exploration expenditures by commodity group, precious metals ranked first in 2001, followed by base metals and then diamonds (Tables 13a and 18a), accounting for \$133.1 million, \$114.1 million and \$95.5 million, respectively. Exploration for diamonds in Ontario was at a record level due mainly to the Victor project of De Beers Canada Exploration Inc. (Figure 6a). The ranking of commodities sought for off-mine-site exploration was precious metals at \$109.0 million, followed closely by base metals at \$100.0 million and diamonds at \$95.5 million; for on-mine-site exploration, precious metals were the leader at \$24.1 million followed by base metals at \$14.1 million. Looking at the dominant commodity groups in the provinces and territo-

ries, again in 2001 as in 2000, precious-metal exploration was dominant in Ontario, Nunavut (diamonds were dominant in 1999 but, recently, the major Hope Bay gold project has caused a change), British Columbia and the Yukon; base metals were dominant in Quebec (precious metals were dominant in 1999), Manitoba, Newfoundland and Labrador, and New Brunswick; uranium in Saskatchewan; diamonds in the Northwest Territories and Alberta; and non-metals in Nova Scotia (Figure 6a).

Deposit Appraisal

For the deposit appraisal phase, which includes activities that bring a delineated deposit to the stage of detailed knowledge required for a production feasibility study, expenditures in 2001 totaled \$131.7 million (25.7% of the total), down again from the \$154.1 million (31.0%) spent in 2000 (Tables 1, 9b and 16b). Despite a decrease in deposit appraisal expenditures, increases were recorded in Newfoundland and Labrador, Nova Scotia, New Brunswick, Quebec and the Northwest Territories. The percentage of deposit appraisal expenditures spent on off-mine-site locations was 77.8% in 2001 and 72.6% in 2000. At off-mine-site locations (Table 3c), junior companies spent only \$19.8 million on deposit appraisal activities in 2001 (\$28.1 million in 2000), due in part to less advanced work being done on the Hope Bay gold project in Nunavut, while seniors spent \$82.7 million (as opposed to \$83.7 million in 2000).

In 2001, the Northwest Territories ranked first followed by Quebec and Ontario in terms of deposit appraisal expenditures (Tables 7b, 16a and 16b). Together these three jurisdictions accounted for about 68.6% of the total deposit appraisal expenditures. Deposit appraisal at off-mine-site locations (Tables 7a and 7b) was dominant everywhere except in Ontario, Manitoba and New Brunswick where deposit appraisal at on-mine-site locations ranked first, attributable to precious metals for Ontario and base metals for the latter. For deposit appraisal expenditures at off-mine-site properties, the Northwest Territories was a strong first in 2001 (in 2000, it ranked third), while Ontario ranked first for deposit appraisal at on-mine-site properties (in 2000, it ranked second after Quebec). The important increase in off-mine-site activities in the Northwest Territories, as a result of the two major diamond projects managed by De Beers Canada Mining Inc. and De Beers Canada Exploration Inc. (Snap Lake and Gahcho Kué), was partly offset by a much smaller budget allocated to the Victor project (which was on hold) in Ontario by the same company (De Beers Canada Exploration Inc.). Most of the decrease in deposit appraisal at on-mine-site locations was a consequence of an important decline in expenditures at the Raglan mine in Quebec.

In decreasing order of deposit appraisal expenditures by commodity group in 2001, diamonds were first followed by precious metals and then base metals (Tables 13b and 18b) with \$49.2 million, \$33.8 million and \$25.3 million of the \$131.7 million, respectively. When considering deposit appraisal at off-mine-site locations, the commodity grouping by rank is diamonds, first; base metals, second; and precious metals, third. For deposit appraisal at on-mine-site locations, precious metals is by far the dominant commodity group followed by base metals.

Looking at total deposit appraisal expenditures by dominant commodity group (Figures 6a and 6b) in the provinces and territories, the distribution is the same as for exploration except for Quebec, British Columbia and the Yukon. For these jurisdictions, precious metals led base metals for Quebec, and base metals led precious metals for British Columbia and the Yukon. In 2000, Newfoundland and Labrador and British Columbia had precious metals as the leading commodity group.

Mine Complex Development

Expenditures on the mine complex development phase, which includes activities to define, block out and gain access to the ore, prepare it for production, and other field work to extend the current ore reserves (excluding capital, repair and maintenance costs) were maintained at \$830 million for the second year in a row (Table 1). By definition, all activities in the mine complex development phase are on-mine-site activities.

In 2001, as in 2000, Quebec was first, followed by Ontario, and together these two provinces accounted for 51.3% in 2001, and 64.8% in 2000, of all mine complex development expenditures (Tables 9d and 16d), while the Northwest Territories ranked third. Major mine complex development expenditures incurred by Diavik Diamond Mines Inc. at the Diavik mine, set to be in production in 2003, caused Quebec and Ontario's share to decrease in 2001. Precious metals, the main commodity group targeted, represented 27.5% of all expenditures for this work phase (Tables 13d and 18d), almost equivalent to that of base metals, while diamonds represented 14.8%.

Mineral Resource Development Activity by Work Phase

The distribution of expenditure by type of activity and by work phase reflects project evolution over time. Figure 4 shows graphically and quantitatively how the distribution of expenditures in the exploration work phase is different from those in the deposit appraisal work phase and the mine complex development phase. The distribution of the expenditures by work phase is somehow consistent through the years.

The exploration work phase is characterized mainly by surface drilling and geoscientific surveys that are used to discover a deposit and complete its first delineation. In the deposit appraisal work phase, the deposit is better defined by further surface and/or more underground drilling and, in many cases, by the beginning of important rock work. Ultimately, intense engineering studies are conducted and a feasibility study concludes this phase. If the feasibility study results are positive, a commitment to go into production is usually made. The mine complex development phase is characterized by large-scale (mainly underground) rock work, more underground drilling and large capital investment in order to build or extend the mine and its facilities.

For example, in 2001, geology accounted for 46.5% of the geoscientific survey expenditures during the exploration work phase as geochemistry and geophysics also play an important role in identifying and verifying mineral showings. Geology accounted for 81.9% of the geoscientific survey expenditures during the deposit appraisal work phase and for 75.7% during the mine complex development work phase.

As for the differences during the exploration work phase between activities taking place on-mine-site and off-mine-site, in 2001 there was generally more rock work, less geochemistry, and no airborne geophysics at on-mine-site locations while there are no records of underground drilling and there was a very small amount of rock work at off-mine-site locations. As for the differences between on-mine-site and off-mine-site activities during the deposit appraisal work phase, in the former there is more underground drilling and rock work while, in the latter case, there are more engineering studies.

TOTAL MINERAL RESOURCE DEVELOPMENT INVESTMENT, 2001

Total mineral resource development investment in Canada, including capital and repair and maintenance expenditures, increased by 11.3% from \$4.2 billion in 2000 to \$4.6 billion in 2001 (Table 1). Capital, and repair and maintenance expenditures include spending for construction, machinery and equipment. Most of these expenditures (99.6%) were directed at mine complex development in 2001. In that year, \$1.8 billion was spent on capital investment while \$1.5 billion was spent on repair and maintenance. Each represents about one third of the total mineral resource development investment. Compared to 2000, capital investment increased by 19.1% and repair and maintenance costs increased by 12.8%.

As shown in Figure 1b, Quebec, Ontario, the Northwest Territories and British Columbia represented 77.2% of all mineral resource development

investment in 2001. The highest level of capital investment was recorded in the Northwest Territories (30.4% of the total) which, when combined with Quebec and Ontario, represented 77.3% of all capital expenditures. In the Northwest Territories, capital expenditures exceeded those of other mineral resource development expenditures and were mainly the result of the Diavik diamond mine being developed. The smallest contribution of capital investment, compared to the other mineral resource development investment, for a single province or territory was recorded in Nova Scotia and Nunavut (apart from the Yukon where no expenditures were recorded).

In 2001, investment in the environment (included in the above total investment) accounted for 2.7% (\$125.8 million) of all investment (Table 2). Quebec, Ontario and British Columbia spent the most on environment, accounting for 56.2% (\$70.7 million) of all environment expenditures. In 2000, it is important to note that British Columbia ranked first with \$25.8 million spent while Quebec ranked first in 2001 with \$30.2 million.

MORE ABOUT MINERAL RESOURCE DEVELOPMENT ACTIVITIES, 2001

Traditional indicators of exploration activity also include new mineral claims acquired and the total number of metres drilled (Figure 3); however, expenditures on mineral exploration and deposit appraisal have proven to be the most accurate indicator of mineral exploration and deposit appraisal activity. Some results for the sum of exploration and deposit appraisal work phase expenditures are reviewed here.

New Mineral Claims

New mineral claims staked or recorded in Canada in 2001 covered an area of 11.2 million hectares (ha), compared to 10.3 million ha in 2000. Alberta, Quebec and Manitoba accounted for about 66.0% of the total staking activity during the year (Tables 6a and 6b). For the fifth year in a row, Alberta was the leading province with over 4 million ha staked, accounting for nearly 37.6% of total new mineral claim activity. However, this is still relatively low compared to the diamond claim staking that occurred in Alberta in 1997 when over 37 million ha were staked. Increases in 2001 staking were recorded in Alberta, Newfoundland and Labrador, Ontario and Saskatchewan.

In Alberta, much of the lands (claims dropped) were quickly reacquired by other parties. In Newfoundland and Labrador, the increase in the area staked can be attributable to an increase in exploration for nickel and platinum-palladium in Labrador, for gold

in central Newfoundland, and for base metals in eastern Newfoundland. In Ontario, the increase is directly linked to more exploration for platinum group metals and diamonds. In Saskatchewan, a sustained interest in diamonds still has an impact on the level of new claims being staked in that province.

Drilling Activity for Exploration and Deposit Appraisal

Total exploration and deposit appraisal drilling (both diamond and other types) amounted to 1.8 million metres (m) in 2001 (Tables 16c and 10b), down from 2.1 million m in 2000. Of the 2001 total, diamond drilling accounted for 95.1%, or 1.7 million m. Surface exploration and deposit appraisal drilling totaled 1.4 million m, of which 95.2% was diamond drilling. Underground exploration and deposit appraisal drilling amounted to 0.37 million m of which 94.7% was diamond drilling. The statistics reveal that 30.1% of all metres drilled were for on-mine-site exploration and deposit appraisal.

In terms of regional activity in 2001, Quebec, Ontario, British Columbia and Manitoba, in decreasing order of importance, were the most active jurisdictions accounting for 75.2% of all drilling (surface and underground) (Table 16c).

Of the 1.4 million m drilled for surface exploration and deposit appraisal, 44.9% was undertaken mainly for precious metals, 35.5% for base metals, 7.8% for diamonds, 4.5% for uranium, and 3.3% for other metals. Ontario at 27.7%, Quebec at 23.8%, and British Columbia at 14.6% were the leading jurisdictions for surface metres drilled in Canada during 2001 (Table 17a).

Of the 0.37 million m drilled for underground exploration and deposit appraisal, precious metals activity accounted for 66.2% and base metals for 26.2%. Quebec accounted for 44.5% of total underground activity followed by Ontario with 28.1% (Table 17b).

On-Mine-Site and Off-Mine-Site Exploration and Deposit Appraisal Expenditures

Exploration and deposit appraisal expenditures for off-mine-site activity were \$441.4 million in 2001, up from 423.6 million in 2000. On-mine-site activity totaled \$71.5 million in 2001, down from \$73.0 million in 2000 (Table 1).

As in 2000, Ontario ranked first with 19.6% of the total, followed closely by the Northwest Territories at 19.1% and Quebec at 16.8% (Quebec was second in 2000) of the total off-mine-site exploration and deposit appraisal spending in 2001 (Tables 7a and 7b). In comparison, Quebec accounted for 40.0%

while Ontario accounted for 38.1% of the total on-mine-site spending. There was no on-mine-site spending reported in the Yukon.

Of the mineral commodities sought in 2001, diamonds accounted for 32.2% of off-mine-site expenditures followed by precious metals and base metals at 28.1% and 27.1%, respectively. On-mine-site expenditures on the search for precious metals amounted to 60.1% of the total while base metals accounted for 27.7% (Table 12b).

Exploration and Deposit Appraisal Activity by Province/Territory

Despite a 3.3% increase in total exploration and deposit appraisal expenditures, expenditures decreased in most provinces and territories except Newfoundland and Labrador, Quebec, Manitoba, and the Northwest Territories. A major increase of 68.7% in the Northwest Territories, mainly attributable to the Snap Lake diamond project of De Beers Canada Exploration Inc., offset all recorded decreases. Only Quebec and Ontario had expenditures in excess of \$100 million. The three leading jurisdictions, in decreasing order of expenditures, were Ontario, Quebec and the Northwest Territories, which together accounted for 59.1% of Canada's total exploration and deposit appraisal expenditures during 2001. Significant declines (above 30%) in percentage terms occurred in Alberta and the Yukon but, in dollar terms, Saskatchewan and British Columbia together represented 50.2% (\$14.8 million) of the total decrease of \$29.6 million (Tables 8 and 9c).

Exploration and Deposit Appraisal Expenditures by Mineral Commodity Sought

Precious metals (including gold, silver and PGM), diamonds, and base metals (including copper, nickel, lead and zinc) continued to be the principal targets of exploration and deposit appraisal activities in Canada in 2001 (Tables 12a and 12b, and Figure 5).

Precious metals exploration and deposit appraisal expenditures declined by 13.8% to \$166.9 million in 2001, down from \$193.6 million in 2000. This type of expenditures represented only 32.5% of total Canadian expenditures in 2001, compared to 39.0% in 2000. Despite this decline, precious metals expenditures exceeded those for base metals, as has generally been the case with the exception of 1992 and the period prior to 1985. But, for the first time, diamonds became the second most sought commodity, surpassing base metals as explained below.

Ontario was the leading recipient of exploration and deposit appraisal expenditures for precious metals at

34.5% (\$57.6 million) followed by Quebec at 25.6% (\$42.8 million) (Tables 13c and 18c). The other leading jurisdictions were Nunavut at 18.1% and British Columbia at 8.7%. For all of these jurisdictions except Quebec, precious metals were the dominant commodity group searched for. It is also worth noting that PGM expenditures were still around \$30 million (most of it in Ontario). All jurisdictions were down from 2000 spending levels for precious metals with the exception of New Brunswick and Manitoba (Figure 6c).

Diamond exploration and deposit appraisal expenditures increased to \$144.7 million in 2001 from \$91.9 million in 2000 (Table 12b). Spending on diamonds accounted for 28.2% of all exploration and deposit appraisal expenditures in Canada during 2001. As in recent years, the largest amount of exploration and deposit appraisal spending on diamonds in Canada, \$78.9 million, or 54.5%, occurred in the Northwest Territories (Tables 13c and 18c, and Figure 6c). Second in ranking has been Nunavut but, in 2001, Ontario took over second place with \$27.5 million (19.0%), followed now by Nunavut in third with \$17.7 million (12.2%). In Ontario, although many companies are searching for diamonds (23 project operators), the De Beers' Victor project spurred activity in the province. Quebec, Saskatchewan, Manitoba and Alberta together accounted for the remaining 14.2% of all diamond exploration and deposit appraisal expenditures. Diamonds were the leading commodity sought in the Northwest Territories and Alberta, accounting for 91.1% and 56.9% respectively of their total exploration and deposit appraisal spending.

Base metals dropped to the third most sought-after commodity grouping in 2001. Base-metal exploration and deposit appraisal expenditures fell by 5.8% to \$139.4 million in 2001 from \$148.0 million in 2000. Prior to this, especially in 1996, buoyant base-metal exploration and deposit appraisal can be mostly attributed to the overall impact of the late-1994 major nickel-copper discovery at Voisey's Bay in Labrador. Base-metal activities accounted for 27.2% of total Canadian exploration and deposit appraisal expenditures in 2001.

In 2001, Quebec was the leading recipient of base-metal exploration and deposit appraisal expenditures at 34.2% of the total (\$47.7 million) (Table 18c and Figure 6c). Other leading jurisdictions were Ontario at 17.1% (\$23.8 million), Manitoba at 12.4% (\$17.3 million), and Newfoundland and Labrador at 11.3% (\$15.8 million). For Newfoundland and Labrador, New Brunswick, Quebec and Manitoba, base metals were the main commodity group for which exploration and deposit appraisal were conducted.

All other mineral commodities accounted for \$61.8 million (12.1%) of exploration and deposit appraisal expenditures in Canada during 2001. This was comparable to the 2000 results. They consist of uranium at 43.8%, other metals at 29.9%, nonmetals at 13.8%, coal at 8.9%, and iron at 3.6%. Most of the uranium expenditures were reported in Saskatchewan where uranium is the leading commodity sought. Worth mentioning are significant expenditure increases for the following additional metals: vanadium, tantalum and rare earth elements. Altogether they contributed 35.9% (\$6.6 million) in 2001, compared to 11.6% (\$2.1 million) in 2000, of all expenditures in that category. The nonmetals category (excluding diamonds) totaled \$8.5 million, of which, in decreasing order of expenditures, stone, graphite, kaolin and gemstones contributed close to 50% of all expenditures in this category. British Columbia, Nova Scotia and Quebec represented 66.9% of all nonmetals expenditures. Nonmetals remain the leading commodity group in Nova Scotia. Coal is primarily reported in British Columbia and Alberta and remained the second most sought-after commodity in Alberta for the fourth consecutive year.

Exploration and Deposit Appraisal by Range of Expenditures and by Junior and Senior Companies

Companies active in exploration and deposit appraisal in Canada are originally classified into six groups: (1) producers, (2) affiliates of producing mining companies, (3) oil companies, (4) foreign companies, excluding oil companies, (5) junior companies and prospectors, and (6) other companies. A company is classified into the first of these groups in which it fits. Table 19 lists expenditures for each group. For this analysis, companies classed in groups 1, 2, 3, 4 and 6 are referred to as seniors.

Of the 515 active company project operators (excluding prospectors) in 2001, 78 (spending more than \$1 million each) accounted for 83.3% of the total exploration and deposit appraisal expenditures of \$512.9 million (including prospectors) (Table 4). This compares to 86 project operators accounting for 84.0% in 2000. In 2001, 39 of these were senior companies (50 in 2000) representing 62.6% (\$321.3 million) of all Canadian expenditures, compared to 65.8% (\$327.0 million) in 2000; 39 were junior companies (36 in 2000), representing 20.6% (\$105.7 million), compared to 18.2% (\$90.4 million) in 2000. About 60% of the junior expenditures occurred in the expenditure ranges above \$1 million, compared to 96% for the seniors in the same expenditure ranges.

During 2001, there were more junior project operators in the \$5 million-\$10 million expenditure range than in 2000, leading to increased spending in these categories. As in 2000, only one junior company

spent more than \$10 million in 2001. A major increase (of 14) in the number of junior project operators was in the \$100 000-\$200 000 range of expenditures, but they only had a very small impact on the overall junior spending in that range (up \$2.1 million). About one third of junior project operators (122) spend in the \$1-\$50 000 range of expenditures but contribute only about 1% of all junior spending.

For the seniors, there were more companies spending above \$10 million (three more project operators for an increase of \$62.2 million), but this increase was counterbalanced by fewer project operators (28 instead of 42) in the \$1 million-\$5 million and \$5 million-\$10 million ranges, for a total decrease of \$67.9 million in those groups. The majority of senior project operators spent in the \$100 000-\$200 000 range of expenditures but represent only 1.1% of all senior expenditures. In 2000, the \$1 million-\$5 million range was dominant. There is also a significant number of senior project operators in the \$1-\$50 000 range of expenditures (25), representing less than 0.1% of the senior expenditures.

Exploration and Deposit Appraisal Expenditures by Junior and Senior Companies

Expenditures incurred by junior companies in 2001 increased by 14% to reach \$177.7 million (Tables 14b and 15b). In 2002, expectations are for a further increase of 17.8%. In 2001, increases were recorded in New Brunswick, Quebec, Ontario, Manitoba, the Northwest Territories and Nunavut. In dollar terms, increases were very important in Ontario, Nunavut and Quebec (up \$25.4 million). Altogether, in decreasing order of importance, Nunavut, Ontario, Quebec and British Columbia accounted for 72.1% of all junior expenditures (Figure 7c). Over the 1999-2002 period, the share of the junior expenditures increased from 28.0% to 31.4% to 34.7% to 41.8% in 2002, based on spending intentions.

Expenditures reported by senior companies decreased slightly by 1.6% in 2001. In 2002, a further decline of 12.9% is yet to be confirmed. In 2001, decreases were recorded in New Brunswick, Ontario, Manitoba, Saskatchewan, Alberta, British Columbia, the Yukon and Nunavut. In dollar terms, important declines were reported in Ontario, Nunavut and British Columbia (in total a drop of \$31.7 million), but were compensated for by an important increase in the Northwest Territories (up \$33.3 million). Altogether, in decreasing order of importance, Ontario, Quebec, the Northwest Territories and Saskatchewan accounted for 74.2% of all senior expenditures (Figure 7c).

In 2001, as in 2000, junior companies principally spent, in the same order of importance, for precious

metals (43.0%), base metals (24.9%) and diamonds (22.0%). Of the \$76.4 million spent on precious metals, about \$23 million was dedicated to platinum group metals. As for the seniors, the primary target was diamonds (31.5%), followed by base metals (28.4%) and precious metals (27.0%). In 2000, the main target for the seniors was precious metals (35.6%), followed by base metals (30.5%) and diamonds (20.4%) (Figure 8c).

CONCLUSION

In conclusion, it is encouraging that the levels of exploration and deposit appraisal in Canada for 1999, 2000 and 2001 have at least been maintained around \$500 million after the recent declines recorded in 1997 and 1998. Further improvements in the levels are still to be confirmed and will appear in the final 2002 results. The impact of the incentive measures put in place since 2000 by different governments has not yet been fully assessed, but junior company expenditures for off-mine-site activities appear to be on the rise. Moreover, overall mineral resource development in Canada remains dependent on global economic conditions and the investment climate, and the directions of both these factors were unclear and uncertain at mid-year 2002.

Diamonds continue to be an important player in terms of total mineral resource development expenditures. Capital costs, and consequently total mineral investment, increased in 2001, reaching \$4.6 billion. A second diamond mine, Diavik, is scheduled to open in 2003. Other promising projects are those by De Beers at Snap Lake in the Northwest Territories and the Victor project in Ontario, and by Tahera Corporation, which owns the Jericho project in Nunavut.

BACKGROUND INFORMATION ON MINERAL RESOURCE DEVELOPMENT STATISTICS

Natural Resources Canada (NRCan) coordinates the collection of all statistics for off-mine-site and on-mine-site expenditures for the exploration and deposit appraisal phases and the mine complex development phase. Statistics Canada coordinates the collection of detailed on-mine-site statistics on capital, repair and maintenance expenditures reported by producers at the mine complex development phase. NRCan and Statistics Canada cooperate with the provinces and territories to collect, assemble and publish the comprehensive national mineral resource development statistics presented in this review. These are compiled from the annual federal-provincial-territorial Survey of Mineral Exploration,

Deposit Appraisal and Mine Complex Development Expenditures. To protect the confidential data provided by respondents, only aggregate statistics are released.

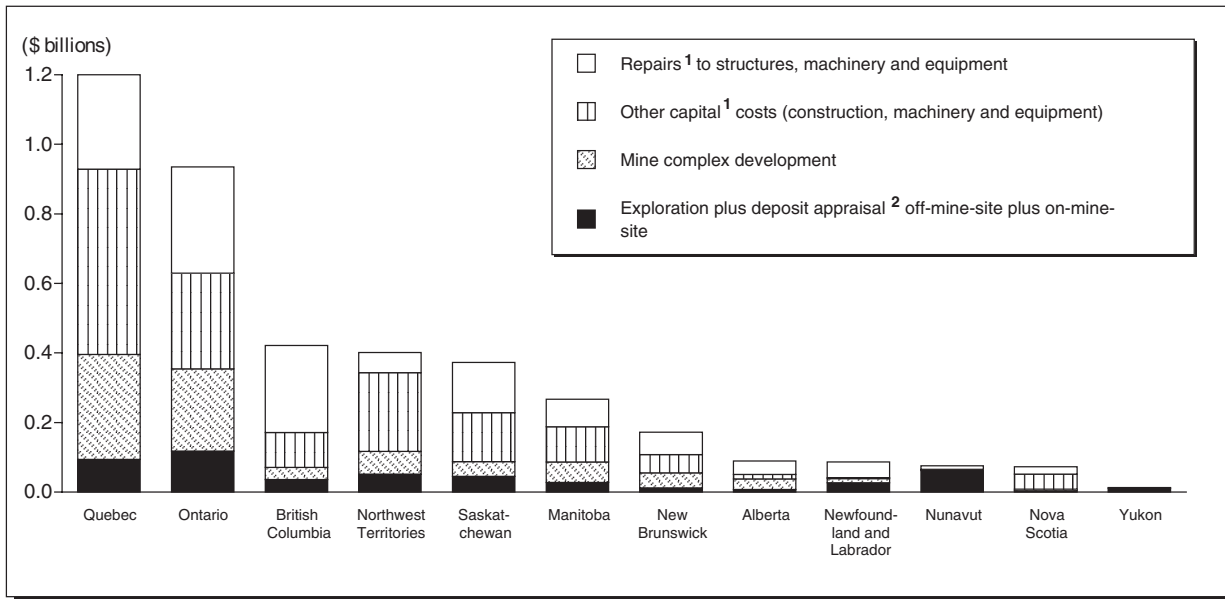
New definitions of work phases for mineral resource development were introduced in the 1997 survey. They provide a more complete and accurate coverage of mineral resource development expenditures in Canada from exploration to mine production. Table 20 describes the mineral resource development and mining process model upon which the new definitions are based. Specific definitions by category of expenditures are available on NRCan's exploration web site at http://mmsd1.mms.nrcan.gc.ca/mmsd/exploration/default_e.asp.

Notes: (1) Information in this review was current as of August 2002. (2) This and other reviews, including previous editions, are available on the Internet at www.nrcan.gc.ca/mms/cmy/index_e.html.

NOTE TO READERS

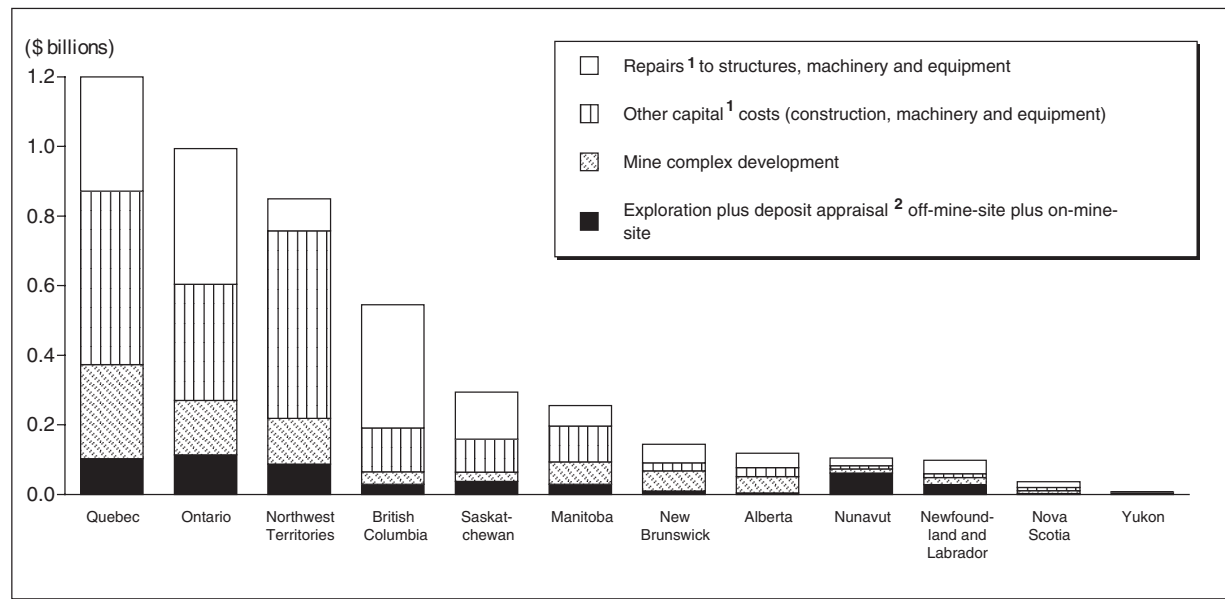
The intent of this document is to provide general information and to elicit discussion. It is not intended as a reference, guide or suggestion to be used in trading, investment, or other commercial activities. The author and Natural Resources Canada make no warranty of any kind with respect to the content and accept no liability, either incidental, consequential, financial or otherwise, arising from the use of this document.

Figure 1a
Total Mineral Resource Development Expenditures in Canada, by Province and Territory, 2000
\$4.2 Billion



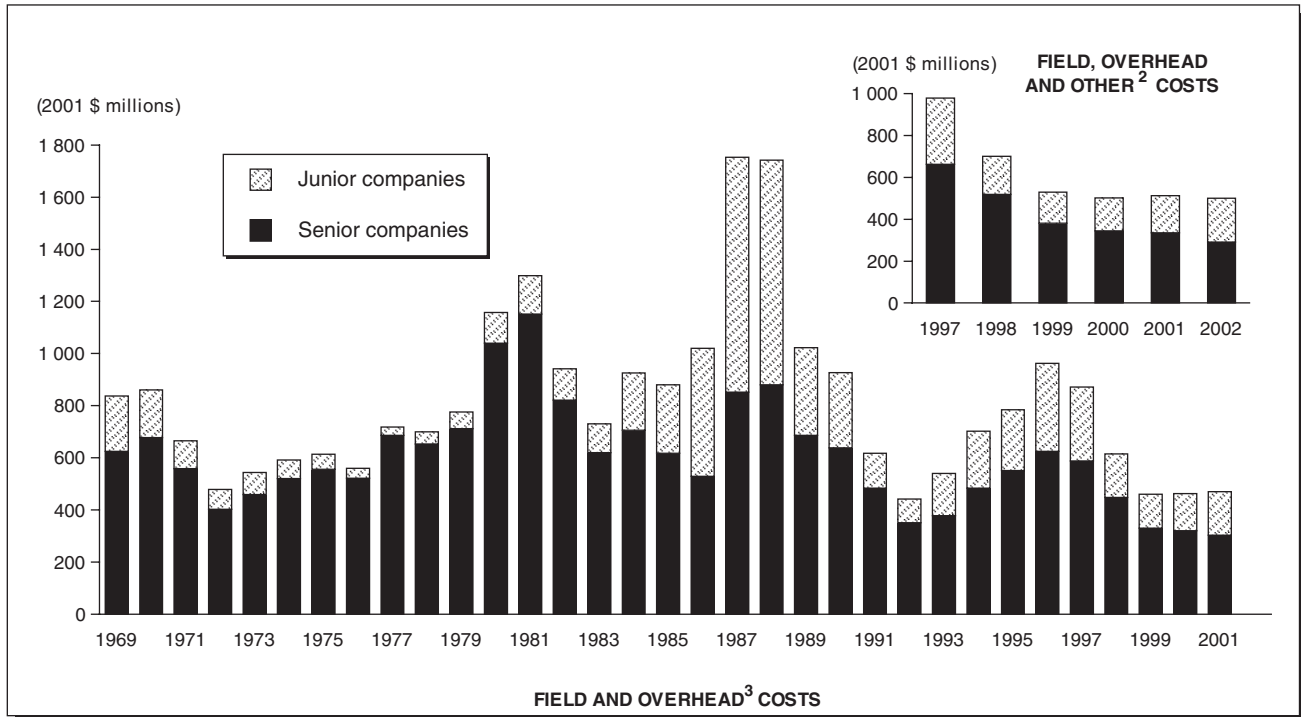
Source: Natural Resources Canada, from a federal-provincial-territorial survey of mining and exploration companies.
¹ Includes expenditures related to exploration, deposit appraisal and mine complex development (97.5%). ² Exploration and deposit appraisal activities include only the search for and appraisal of deposits and do not include work for extensions of known reserves.

Figure 1b
Total Mineral Resource Development Expenditures in Canada, by Province and Territory, 2001
\$4.6 Billion



Source: Natural Resources Canada, from a federal-provincial-territorial survey of mining and exploration companies.
¹ Includes expenditures related to exploration, deposit appraisal and mine complex development (99.6%). ² Exploration and deposit appraisal activities include only the search for and appraisal of deposits and do not include work for extensions of known reserves.

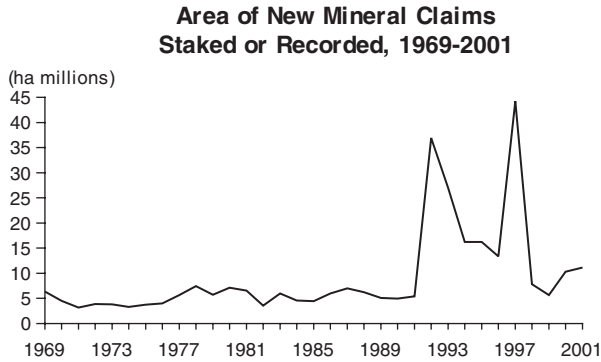
Figure 2
Exploration Plus Deposit Appraisal Expenditures,¹ by Junior and Senior Companies, 1969-2002



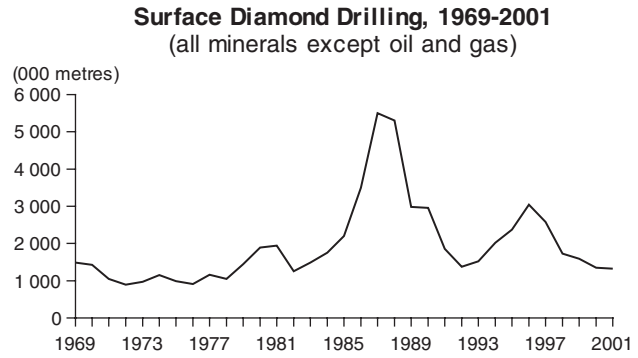
Source: Natural Resources Canada, from a federal-provincial-territorial survey of mining and exploration companies.

¹Includes on-mine-site plus off-mine-site activities. ²Other costs include engineering, economic and pre- or production feasibility studies, environment, and land access. ³Overhead costs include mineral leases, claims and property taxes, and project-related head office expenditures. Notes: Total exploration expenditures for 1975-81 are overstated by an average of about 17% relative to earlier and later years because of changes to the methodology used by Statistics Canada over the years. Expenditures for 1997 to 2002 include both exploration plus deposit appraisal as per the new definitions; up to and including 1996, most of the expenditures now included in the deposit appraisal work phase were reported under exploration (broadly speaking). Data for 2002 (field, overhead and other costs only) are company spending intentions, revised August 21, 2002.

Figure 3
Selected Measures of Exploration Activity



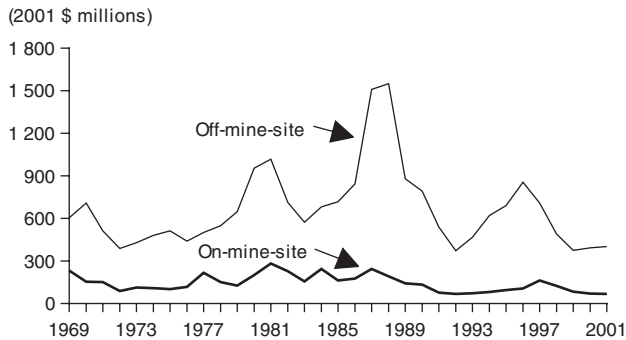
Source: Information obtained and compiled annually by Natural Resources Canada from provincial and territorial mining recorders.



Sources: 1969-84, Statistics Canada (cat. no. 26-201); 1985-99, from a federal-provincial-territorial survey of mining and exploration companies.

Note: Drilling statistics for 1969-84 are not strictly comparable to and may be understated relative to those for 1985-99.

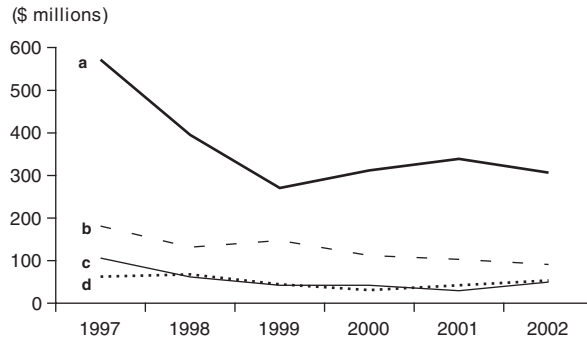
Exploration Plus Deposit Appraisal, Field Work Plus Overhead Expenditures, 1969-2001
(all minerals except oil and gas)



Sources: 1969-84, Statistics Canada, *Exploration, Development and Capital Expenditures for Petroleum and Natural Gas Wells, Intentions* (cat. no. 61-216); 1985-99, from a federal-provincial-territorial survey of mining and exploration companies.

Notes: Adjusted to 2001 dollars using Gross Domestic Product deflator series. These expenditures do not include expenditures for oil and gas exploration. Expenditures for 1997-2001 include exploration plus deposit appraisal as per new definitions; up to and including 1996, most of the expenditures now included in the deposit appraisal work phase were under exploration (broadly speaking). Off-mine-site and on-mine-site overhead expenditures for 1969-88 were estimated based on an average from the years 1989-96.

Exploration and Deposit Appraisal Expenditures,¹ On- and Off-Mine-Site, 1997-2002



Source: Natural Resources Canada, from a federal-provincial-territorial survey of mining and exploration companies.

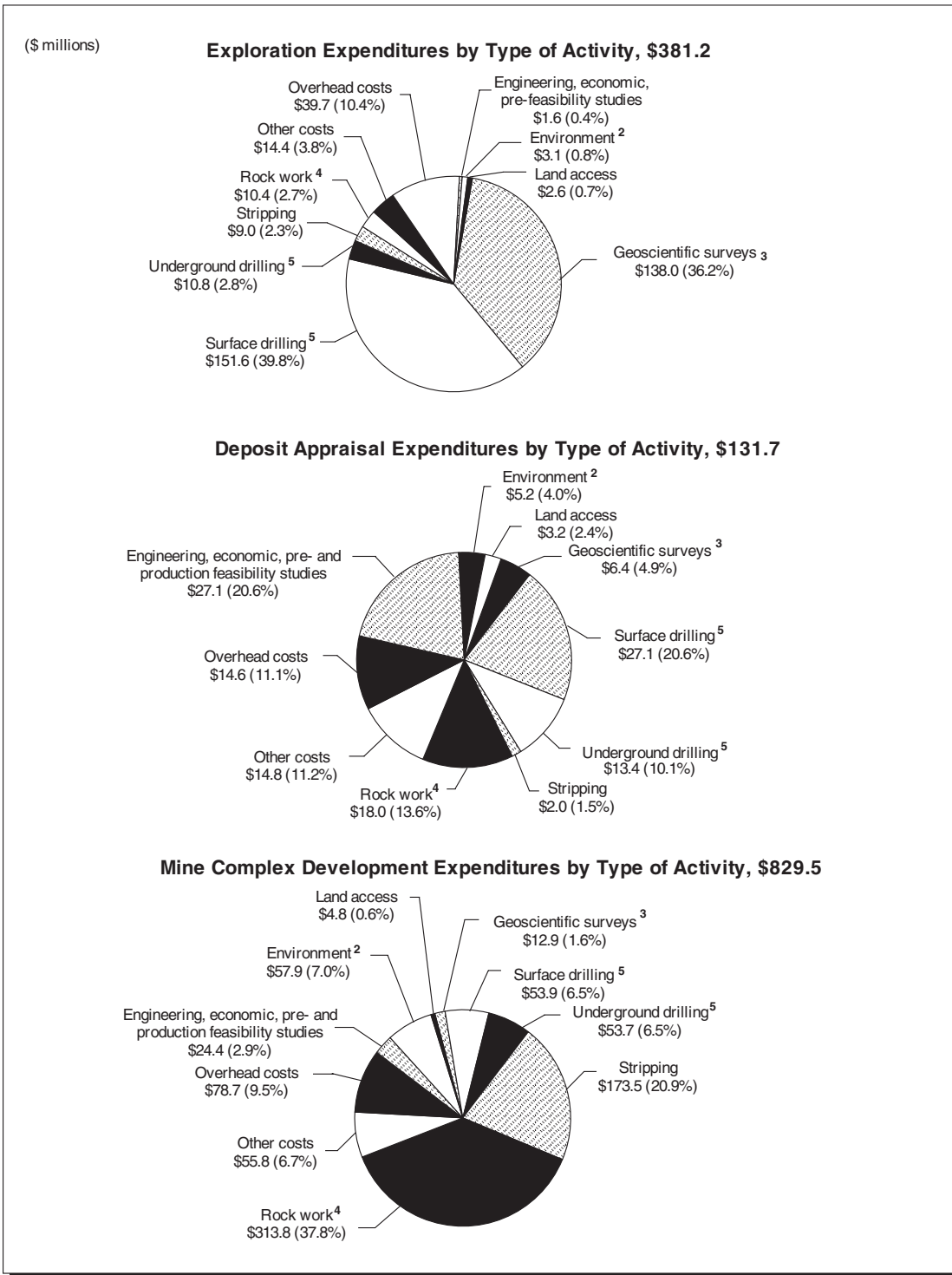
^aExploration, off-mine-site. ^bDeposit appraisal, off-mine-site.

^cDeposit appraisal, on-mine-site. ^dExploration, on-mine-site.

¹Includes field work, overhead, engineering, economic, pre- or production feasibility studies, environment and land access expenditures.

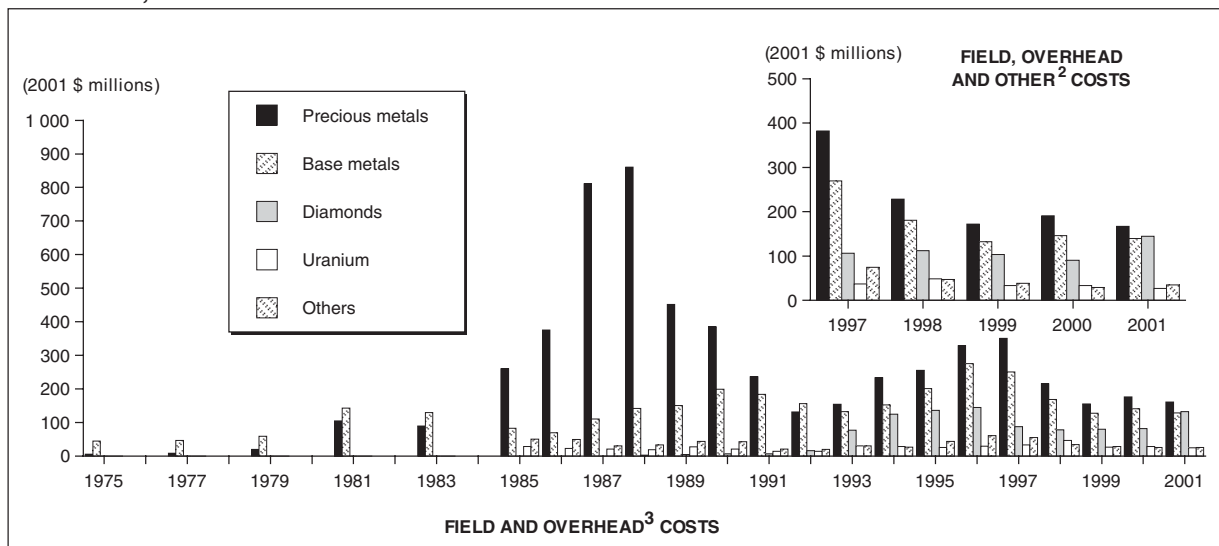
Note: Data for 2002 are company spending intentions, revised August 21, 2002.

Figure 4
Exploration, Deposit Appraisal and Mine Complex Development Expenditures,¹ by Type of Activity, 2001



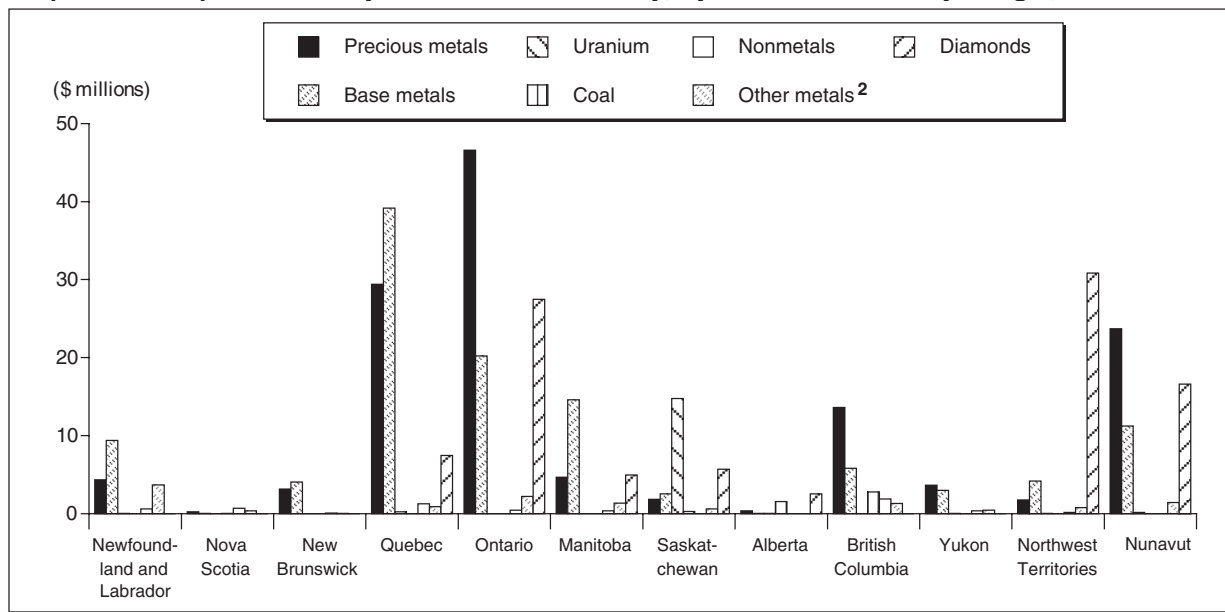
Source: Natural Resources Canada, from a federal-provincial-territorial survey of mining and exploration companies.
¹ Includes on-mine-site plus off-mine-site activities. ² Environment includes characterization, permitting, protection, monitoring and restoration.
³ Geoscientific surveys include geology, geochemistry, ground geophysics and airborne geophysics. ⁴ Rock work activity includes shaft work, drifts, cross-cuts, raises, declines, rock sampling and dewatering costs. ⁵ Drilling includes diamond and other types of drilling.

Figure 5
Exploration Plus Deposit Appraisal Expenditures,¹ for Base Metals, Precious Metals and Diamonds, 1975-2001



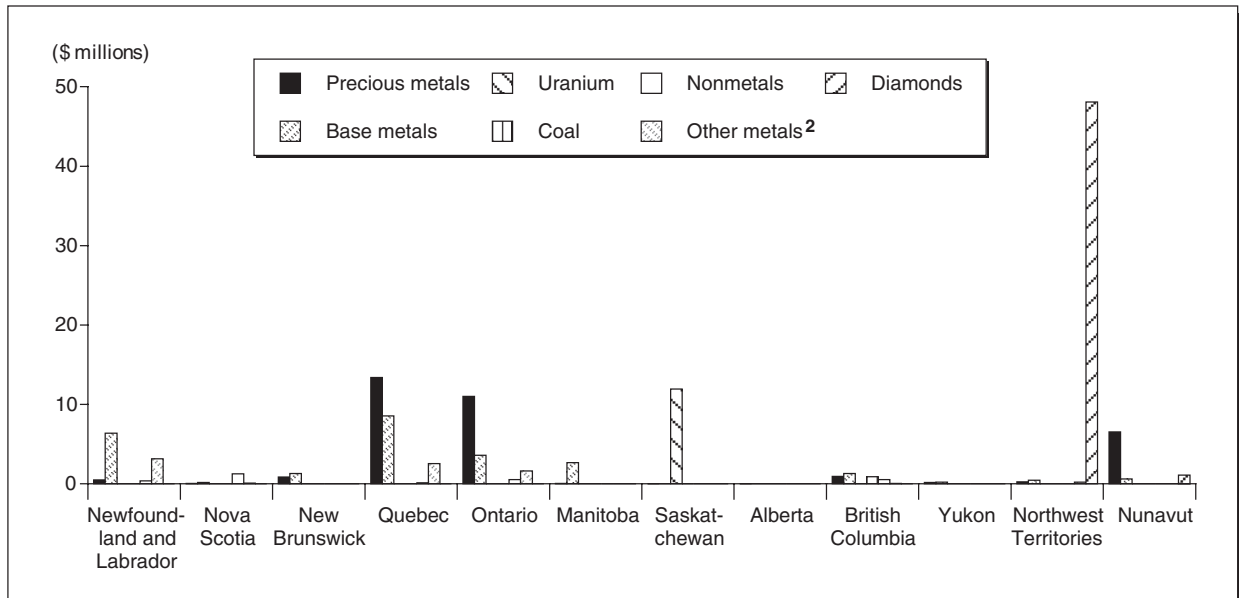
Sources: Natural Resources Canada and Statistics Canada, from a federal-provincial-territorial survey of mining and exploration companies.
¹ Includes on-mine-site plus off mine-site activities; 1997-2001 expenditures include both exploration plus deposit appraisal as per the new definitions; up to and including 1996, most of the expenditures now included in the deposit appraisal work phase were under exploration (broadly speaking). ² Other costs include engineering, economic and pre- or production feasibility studies, environment, and land access. ³ Overhead costs include mineral leases, claims and property taxes, and project-related head office expenditures.
 Note: Data have not been compiled for 1976, 1978, 1980, 1982 and 1984.

Figure 6a
Exploration Expenditures¹ by Province and Territory, by Mineral Commodity Sought, 2001



Source: Natural Resources Canada, from a federal-provincial-territorial survey of mining and exploration companies.
¹ Includes on-mine-site plus off-mine-site activities. Includes field work, overhead, engineering, economic and pre-feasibility studies, environment and land access expenditures. ² Includes ferrous metals.

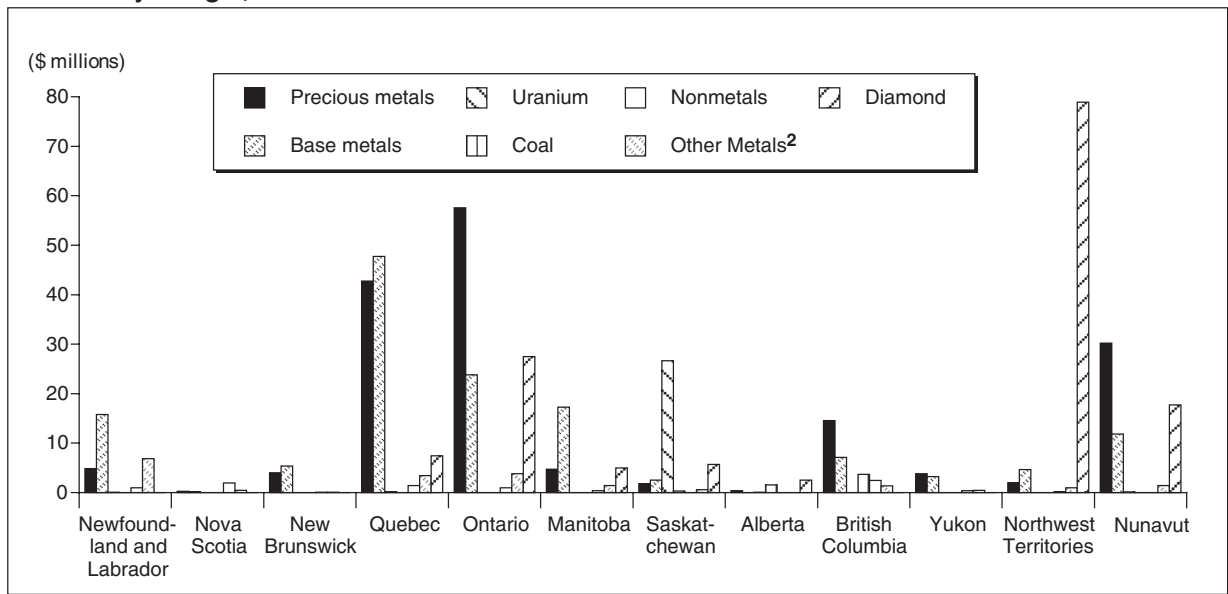
Figure 6b
Deposit Appraisal Expenditures¹ by Province and Territory, by Mineral Commodity Sought, 2001



Source: Natural Resources Canada, from a federal-provincial-territorial survey of mining and exploration companies.

¹ Includes on-mine-site plus off-mine-site activities. Includes field work, overhead, engineering, economic and pre- or production feasibility studies, environment and land access expenditures. ² Includes ferrous metals.

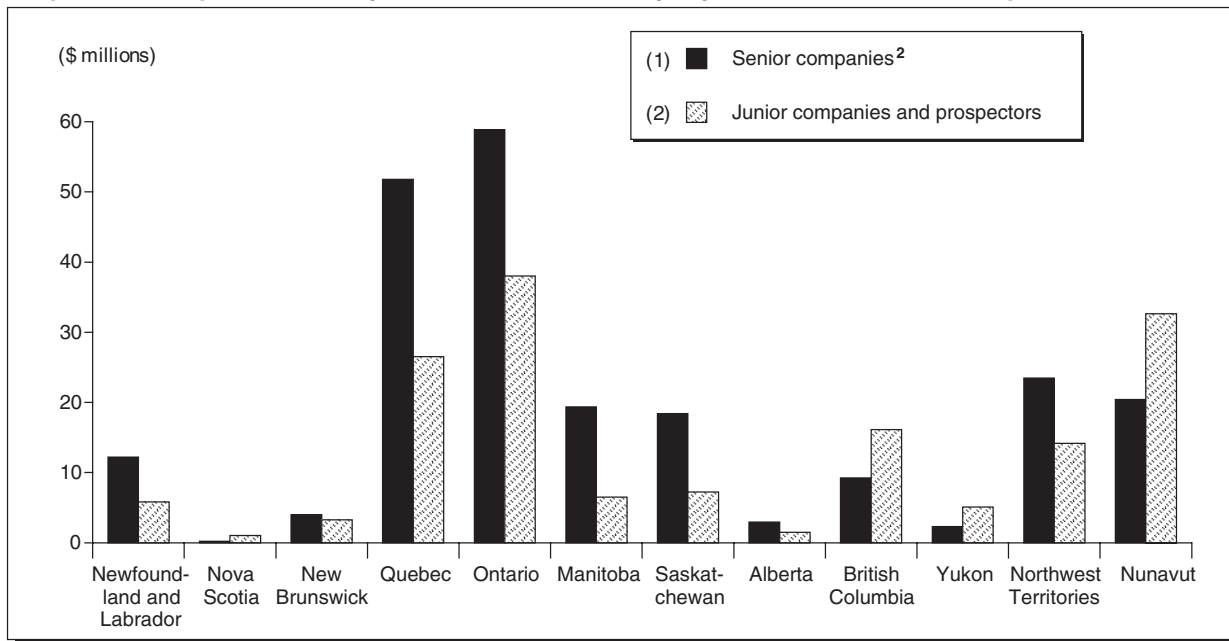
Figure 6c
Exploration Plus Deposit Appraisal Expenditures,¹ by Province and Territory, by Mineral Commodity Sought, 2001



Source: Natural Resources Canada, from a federal-provincial-territorial survey of mining and exploration companies.

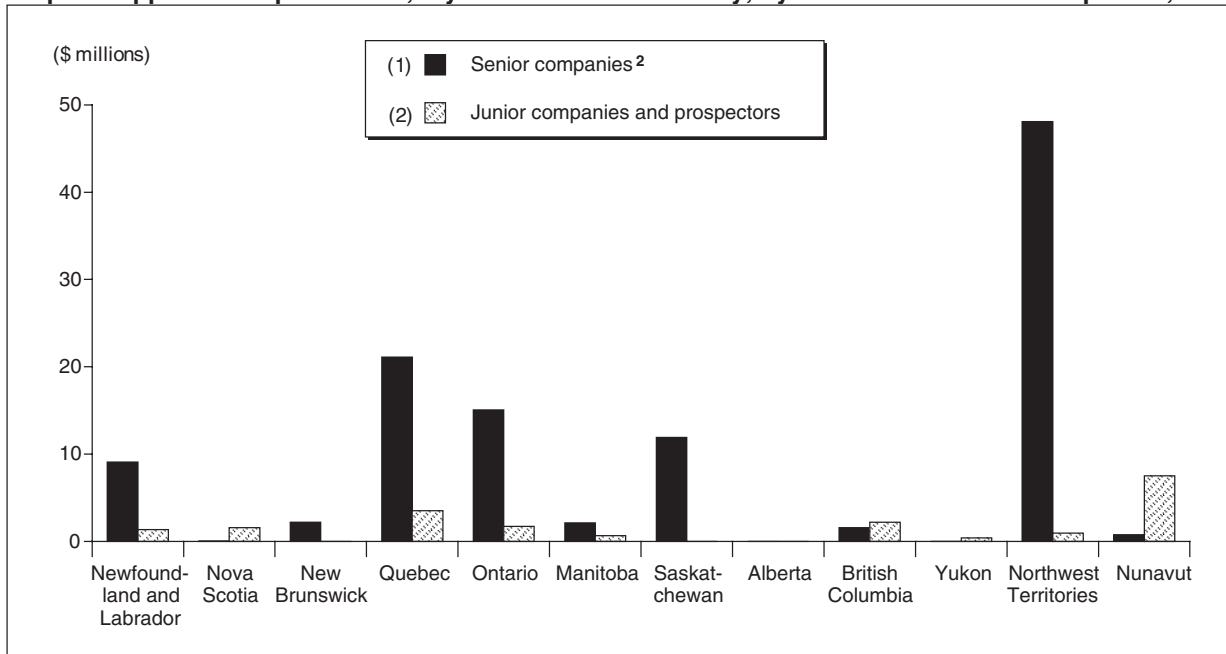
¹ Includes on-mine-site plus off-mine-site activities. Includes field work, overhead, engineering, economic and pre- or production feasibility studies, environment and land access expenditures. ² Includes ferrous metals.

Figure 7a
Exploration Expenditures,¹ by Province and Territory, by Junior and Senior Companies, 2001



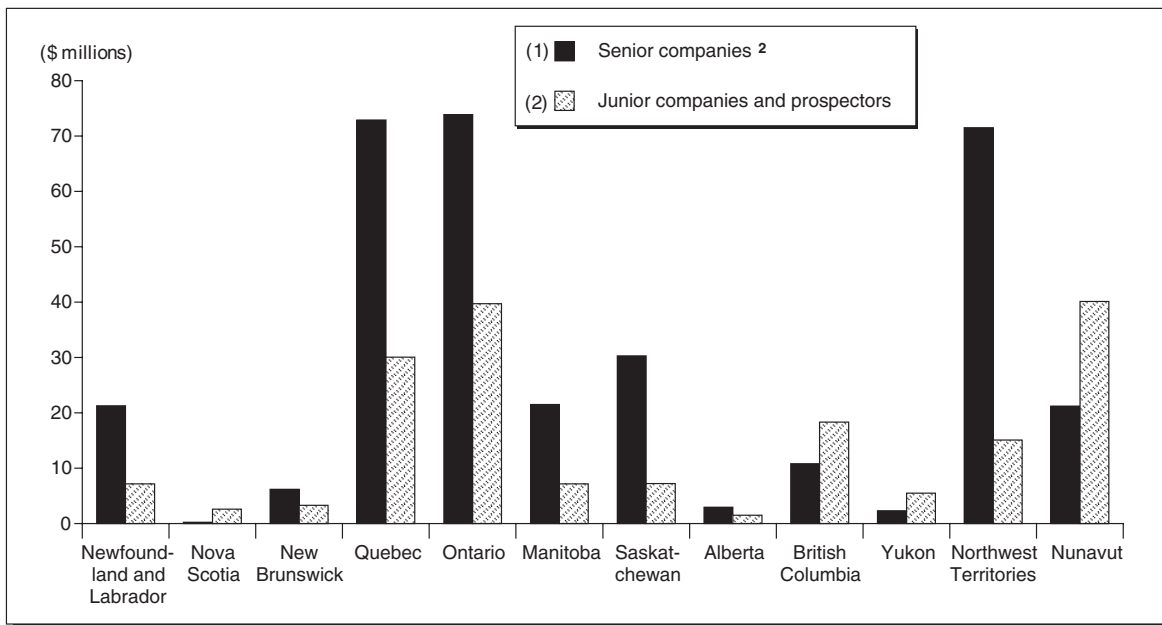
Source: Natural Resources Canada, from a federal-provincial-territorial survey of mining and exploration companies.
¹ Includes on-mine-site plus off-mine-site activities. Includes field work, overhead, engineering, economic and pre-feasibility studies, environment and land access expenditures. ² Senior companies include companies with a producing mine in Canada, affiliates of companies with a producing mine in Canada, oil companies, foreign companies (excluding oil companies), and other companies.

Figure 7b
Deposit Appraisal Expenditures,¹ by Province and Territory, by Junior and Senior Companies, 2001



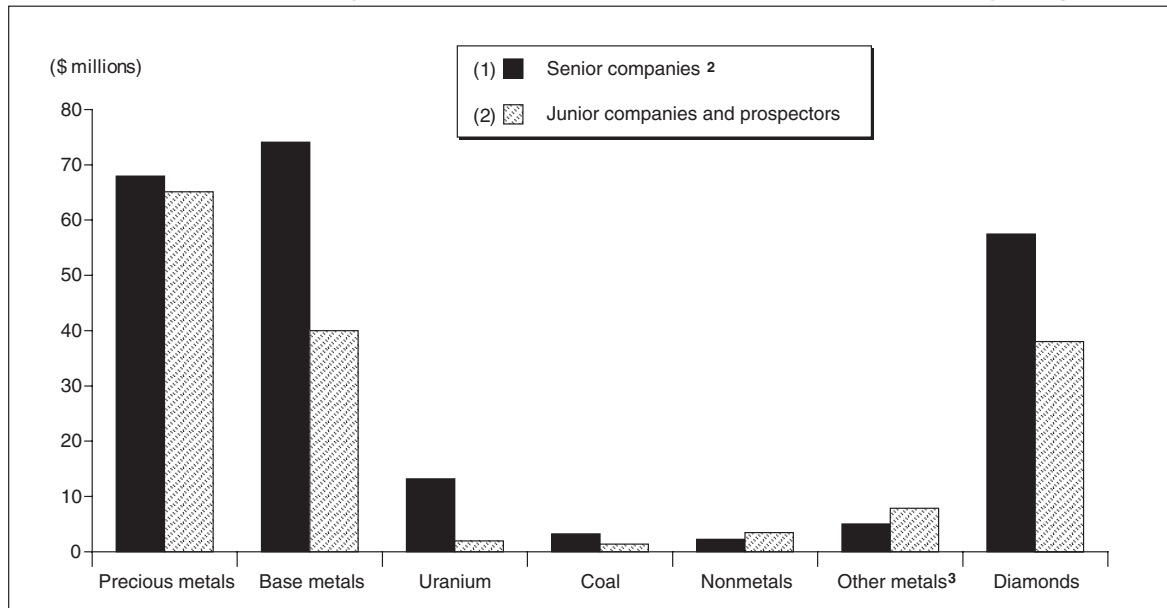
Source: Natural Resources Canada, from a federal-provincial-territorial survey of mining and exploration companies.
¹ Includes on-mine-site plus off-mine-site activities. Includes field work, overhead, engineering, economic and pre- or production feasibility studies, environment and land access expenditures. ² Senior companies include companies with a producing mine in Canada, affiliates of companies with a producing mine in Canada, oil companies, foreign companies (excluding oil companies), and other companies.

Figure 7c
Exploration Plus Deposit Appraisal Expenditures,¹ by Province and Territory, by Junior and Senior Companies, 2001



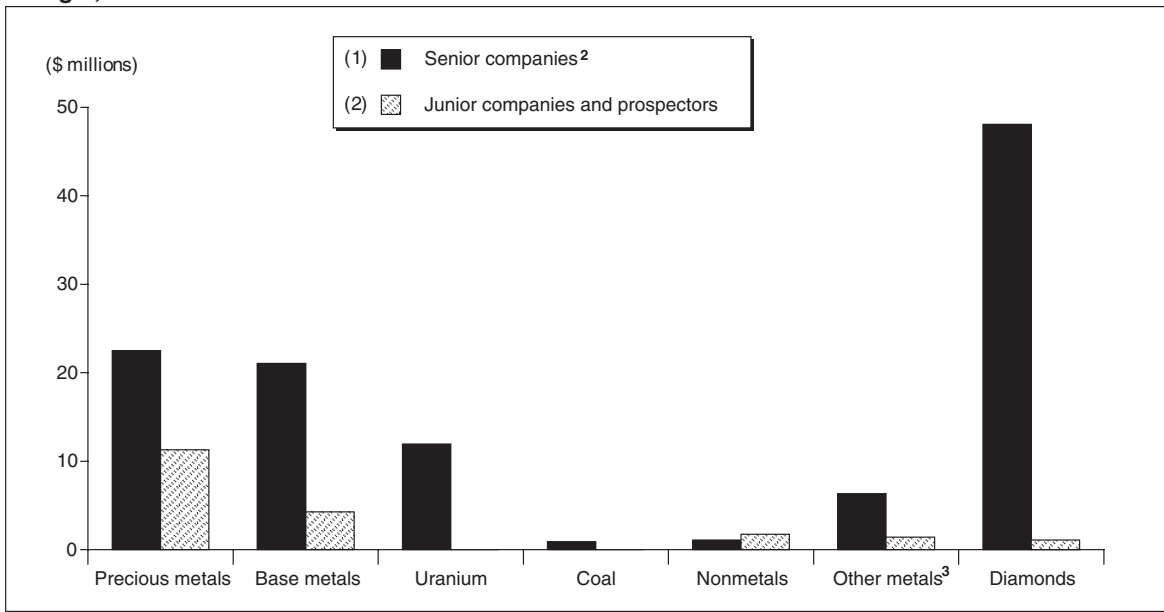
Source: Natural Resources Canada, from a federal-provincial-territorial survey of mining and exploration companies.
¹ Includes on-mine-site plus off-mine-site activities. Includes field work, overhead, engineering, economic and pre- or production feasibility studies, environment and land access expenditures. ² Senior companies include companies with a producing mine in Canada, affiliates of companies with a producing mine in Canada, oil companies, foreign companies (excluding oil companies), and other companies.

Figure 8a
Exploration Expenditures,¹ by Junior and Senior Companies and Mineral Commodity Sought, 2001



Source: Natural Resources Canada, from a federal-provincial-territorial survey of mining and exploration companies.
¹ Includes on-mine-site plus off-mine-site activities. Includes field work, overhead, engineering, economic and pre-feasibility studies, environment and land access expenditures. ² Senior companies include companies with a producing mine in Canada, affiliates of companies with a producing mine in Canada, oil companies, foreign companies (excluding oil companies), and other companies. ³ Includes ferrous metals.

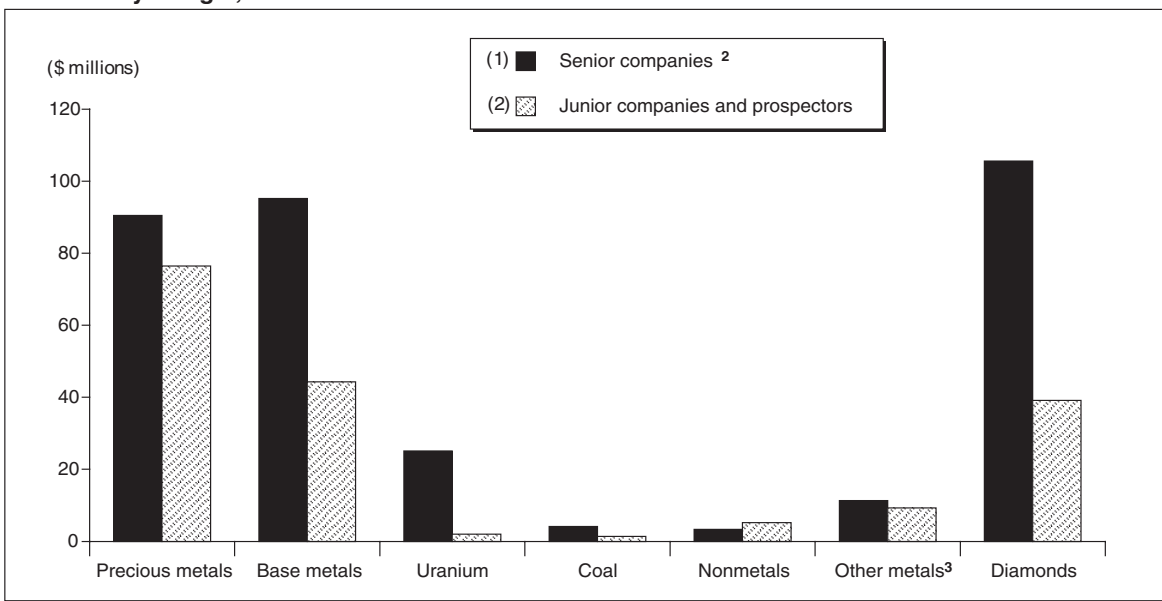
Figure 8b
Deposit Appraisal Expenditures,¹ by Junior and Senior Companies and Mineral Commodity Sought, 2001



Source: Natural Resources Canada, from a federal-provincial-territorial survey of mining and exploration companies.

¹ Includes on-mine-site plus off-mine-site activities. Includes field work, overhead, engineering, economic and pre- or production feasibility studies, environment and land access expenditures. ² Senior companies include companies with a producing mine in Canada, affiliates of companies with a producing mine in Canada, oil companies, foreign companies (excluding oil companies), and other companies. ³ Includes ferrous metals.

Figure 8c
Exploration Plus Deposit Appraisal Expenditures,¹ by Junior and Senior Companies and Mineral Commodity Sought, 2001



Source: Natural Resources Canada, from a federal-provincial-territorial survey of mining and exploration companies.

¹ Includes on-mine-site plus off-mine-site activities. Includes field work, overhead, engineering, economic and pre- or production feasibility studies, environment and land access expenditures. ² Senior companies include companies with a producing mine in Canada, affiliates of companies with a producing mine in Canada, oil companies, foreign companies (excluding oil companies), and other companies. ³ Includes ferrous metals.

TABLE 1. COMPARISON OF 2000 AND 2001 EXPENDITURES, ON- AND OFF-MINE-SITE ACTIVITY FOR EXPLORATION, DEPOSIT APPRAISAL AND MINE COMPLEX DEVELOPMENT

Expenditure Category	2000					2001				
	Off-Mine-Site		On-Mine-Site		Total	Off-Mine-Site		On-Mine-Site		Total
	(\$ millions)	(%)	(\$ millions)	(%)	(\$ millions)	(\$ millions)	(%)	(\$ millions)	(%)	(\$ millions)
EXPLORATION										
Field work and overhead	301.9	91.2	29.3	8.8	331.2	332.2	88.9	41.6	11.1	373.9
Engineering studies	3.2	95.5	0.1	4.5	3.3	0.9	98.2	...	1.8	1.0
Economic studies	0.4	100.0	—	—	0.4	0.2	100.0	—	—	0.2
Pre-feasibility studies	1.7	59.8	1.1	40.2	2.8	0.3	59.7	0.2	40.3	0.5
Environment	2.0	92.1	0.2	7.9	2.2	2.7	86.5	0.4	13.5	3.1
Land access	2.6	99.4	...	0.6	2.6	2.6	98.9	...	1.1	2.6
Subtotal	311.8	91.0	30.7	9.0	342.5	338.9	88.9	42.3	11.1	381.2
Capital (1)	1.2	29.4	2.8	70.6	4.0	7.6	100.0	—	—	7.6
Repair and maintenance (1)	1.3	20.2	5.0	79.8	6.3	1.2	71.5	0.5	28.5	1.7
Total	314.2	89.1	38.6	10.9	352.9	347.6	89.0	42.8	11.0	390.4
DEPOSIT APPRAISAL										
Field work and overhead	86.2	68.0	40.6	32.0	126.9	69.6	72.4	26.6	27.6	96.2
Engineering studies	9.1	90.7	0.9	9.3	10.0	15.9	89.7	1.8	10.3	17.7
Economic studies	0.3	81.0	0.1	19.0	0.3	4.7	96.6	0.2	3.4	4.8
Pre- or production feasibility studies	7.4	96.3	0.3	3.7	7.7	4.3	94.2	0.3	5.8	4.6
Environment	7.2	95.8	0.3	4.2	7.6	4.9	93.5	0.3	6.5	5.2
Land access	1.6	97.5	...	2.5	1.7	3.2	100.0	—	—	3.2
Subtotal	111.9	72.6	42.3	27.4	154.1	102.5	77.8	29.2	22.2	131.7
Capital (1)	31.4	95.9	1.3	4.1	32.7	1.6	85.2	0.3	14.8	1.9
Repair and maintenance (1)	12.9	66.8	6.4	33.2	19.3	2.1	100.0	—	—	2.1
Total	156.1	75.7	50.0	24.3	206.2	106.2	78.3	29.5	21.7	135.7
EXPLORATION PLUS DEPOSIT APPRAISAL										
Field work and overhead	388.2	84.7	69.9	15.3	458.1	401.8	85.5	68.2	14.5	470.1
Engineering studies	12.2	91.9	1.1	8.1	13.3	16.8	90.1	1.8	9.9	18.7
Economic studies	0.7	91.2	0.1	8.8	0.7	4.8	96.7	0.2	3.3	5.0
Pre- or production feasibility studies	9.1	86.5	1.4	13.5	10.5	4.6	91.0	0.5	9.0	5.0
Environment	9.2	95.0	0.5	5.0	9.7	7.6	90.9	0.8	9.1	8.3
Land access	4.2	98.7	0.1	1.3	4.3	5.8	99.5	...	0.5	5.8
Subtotal	423.6	85.3	73.0	14.7	496.7	441.4	86.1	71.5	13.9	512.9
Capital (1)	32.6	88.6	4.2	11.4	36.7	9.2	97.0	0.3	3.0	9.5
Repair and maintenance (1)	14.2	55.3	11.5	44.7	25.6	3.3	87.4	0.5	12.6	3.7
Total	470.4	84.1	88.7	15.9	559.0	453.9	86.3	72.2	13.7	526.1
MINE COMPLEX DEVELOPMENT										
Field work and overhead	n.a.	n.a.	730.3	100.0	730.3	n.a.	n.a.	742.4	100.0	742.4
Engineering studies	n.a.	n.a.	50.5	100.0	50.5	n.a.	n.a.	23.4	100.0	23.4
Economic studies	n.a.	n.a.	7.1	100.0	7.1	n.a.	n.a.	0.1	100.0	0.1
Pre- or production feasibility studies	n.a.	n.a.	0.2	100.0	0.2	n.a.	n.a.	0.9	100.0	0.9
Environment	n.a.	n.a.	32.9	100.0	32.9	n.a.	n.a.	57.9	100.0	57.9
Land access	n.a.	n.a.	10.1	100.0	10.1	n.a.	n.a.	4.8	100.0	4.8
Subtotal	n.a.	n.a.	831.0	100.0	831.0	n.a.	n.a.	829.5	100.0	829.5
Capital (1)	n.a.	n.a.	1 454.0	100.0	1 454.0	n.a.	n.a.	1 766.1	100.0	1 766.1
Repair and maintenance (1)	n.a.	n.a.	1 329.0	100.0	1 329.0	n.a.	n.a.	1 524.0	100.0	1 524.0
Total	n.a.	n.a.	3 614.0	100.0	3 614.0	n.a.	n.a.	4 119.5	100.0	4 119.5
Grand total	470.4	11.3	3 702.7	88.7	4 173.1	453.9	9.8	4 191.7	90.2	4 645.6

Sources: Natural Resources Canada and Statistics Canada, from a federal-provincial-territorial survey of mining and exploration companies.
 — Nil; ... Amount too small to be expressed; n.a. Not applicable.

(1) Includes construction, and machinery and equipment expenditures, as well as related environmental protection and restoration expenditures.

Note: Numbers may not add to totals due to rounding.

TABLE 2. SUMMARY OF ENVIRONMENT EXPENDITURES FOR EXPLORATION, DEPOSIT APPRAISAL AND MINE COMPLEX DEVELOPMENT, 2000 AND 2001

Expenditure Category	Exploration		Deposit Appraisal				Exploration Plus Deposit Appraisal				Mine Complex Development				Total					
	2000	2001	2000	2001	2000	2001	2000	2001	2000	2001	2000	2001	2000	2001	2000	2001				
	(\$000)	(%)	(\$000)	(%)	(\$000)	(%)	(\$000)	(%)	(\$000)	(%)	(\$000)	(%)	(\$000)	(%)	(\$000)	(%)	(\$000)	(%)	(\$000)	(%)
Environment																				
Characterization	442	8.5	491	15.7	4 394	48.7	1 990	38.2	4 836	34.1	2 481	29.8	2 077	2.1	4 372	3.7	6 912	6.2	6 853	5.4
Permits	725	14.0	337	10.8	1 706	18.9	2 080	40.0	2 431	17.1	2 417	29.0	1 935	2.0	2 374	2.0	4 367	3.9	4 791	3.8
Protection	243	4.7	251	8.0	1 192	13.2	1 104	21.2	1 435	10.1	1 356	16.3	26 490	27.3	25 311	21.6	27 925	25.1	26 667	21.2
Restoration	746	14.4	2 055	65.6	275	3.0	30	0.6	1 021	7.2	2 085	25.0	2 383	2.5	25 814	22.0	3 404	3.1	27 899	22.2
Subtotal	2 156		3 134		7 567		5 204		9 723		8 338		32 885		57 872		42 608		66 210	
Capital, share of environment	128	2.5	-	-	-	-	-	-	128	0.9	-	-	32 207	33.1	26 324	22.4	32 335	29.0	26 324	20.9
Repair and maintenance, share of environment	2 882	55.8	-	-	1 460	16.2	-	-	4 341	30.6	-	-	32 099	33.0	33 239	28.3	36 440	32.7	33 239	26.4
Total environment	5 166	100.0	3 134	100.0	9 027	100.0	5 204	100.0	14 193	100.0	8 338	100.0	97 191	100.0	117 434	100.0	111 384	100.0	125 773	100.0
Total environment as a percentage of grand total (1)		1.5		0.8		4.4		3.8		2.5		1.6		2.7		2.9		2.7		2.7

Source: Natural Resources Canada, from a federal-provincial-territorial survey of mining and exploration companies.

- Nil.

(1) Grand total refers to Table 1.

Note: Numbers may not add to totals due to rounding.

TABLE 3a. EXPLORATION PLUS DEPOSIT APPRAISAL EXPENDITURES, FIELD WORK PLUS OVERHEAD, BY JUNIOR AND SENIOR COMPANIES, 1969-2001

Year	Current Dollars				Constant 2001 Dollars			
	Share of Total		Total	% of Total Junior	Share of Total		Total	% of Total Junior
	Junior	Senior			Junior	Senior		
	(\$ millions)				(\$ millions)			
1969	44.4	130.5	174.9	25.4	212.6	624.9	837.5	25.4
1970	39.9	147.2	187.1	21.3	183.6	677.4	861.0	21.3
1971	24.5	127.5	152.0	16.1	107.2	557.7	664.9	16.1
1972	18.3	97.4	115.7	15.8	75.7	402.9	478.6	15.8
1973	22.5	121.6	144.1	15.6	84.8	458.4	543.2	15.6
1974	21.8	158.5	180.3	12.1	71.5	520.0	591.5	12.1
1975	19.5	187.8	207.3	9.4	57.7	556.1	613.8	9.4
1976	13.9	192.9	206.8	6.7	37.6	521.8	559.4	6.7
1977	12.5	271.0	283.5	4.4	31.6	685.9	717.5	4.4
1978	19.8	275.0	294.8	6.7	47.0	652.5	699.5	6.7
1979	29.4	329.5	358.9	8.2	63.5	711.9	775.4	8.2
1980	60.2	530.0	590.2	10.2	118.1	1 039.5	1 157.5	10.2
1981	83.0	651.2	734.2	11.3	146.8	1 151.8	1 298.6	11.3
1982	73.8	502.5	576.3	12.8	120.5	820.5	941.0	12.8
1983	71.2	400.6	471.8	15.1	110.2	619.9	730.0	15.1
1984	146.9	470.4	617.3	23.8	220.2	705.3	925.5	23.8
1985	181.1	424.7	605.8	29.9	263.0	616.7	879.7	29.9
1986	348.6	374.7	723.3	48.2	491.5	528.2	1 019.7	48.2
1987	668.2	631.8	1 300.0	51.4	901.4	852.3	1 753.7	51.4
1988	668.3	681.8	1 350.1	49.5	862.1	879.6	1 741.7	49.5
1989	272.6	555.3	827.9	32.9	336.6	685.6	1 022.1	32.9
1990	241.0	533.7	774.7	31.1	288.2	638.2	926.3	31.1
1991	116.1	415.6	531.8	21.8	134.9	482.9	617.8	21.8
1992	79.9	305.4	385.3	20.7	91.6	350.2	441.8	20.7
1993	142.7	334.5	477.3	29.9	161.4	378.3	539.7	29.9
1994	195.8	432.3	628.1	31.2	218.9	483.2	702.1	31.2
1995	213.4	504.2	717.6	29.7	233.4	551.4	784.8	29.7
1996	313.9	580.9	894.8	35.1	337.7	625.0	962.7	35.1
1997	266.7	553.4	820.2	32.5	283.5	588.3	871.9	32.5
1998	155.9	420.0	575.9	27.1	166.4	448.3	614.6	27.1
1999	123.3	314.8	437.9	28.1	129.1	330.3	459.5	28.1
2000	142.3	315.8	458.1	31.1	143.8	319.1	462.9	31.1
2001	167.7	302.4	470.1	35.7	167.7	302.4	470.1	35.7

Source: Natural Resources Canada, from a federal-provincial-territorial survey of mining and exploration companies.

(1) Includes on-mine-site plus off-mine-site activities.

Note: Expenditures starting in 1997 include exploration plus deposit appraisal as per the new definitions; up to and including 1996, most of the expenditures now included in the deposit appraisal work phase were reported under exploration (broadly speaking).

TABLE 3b. EXPLORATION PLUS DEPOSIT APPRAISAL EXPENDITURES, ⁽¹⁾ BY JUNIOR AND SENIOR COMPANIES, 1997-2002

Year	Current Dollars				Constant 2001 Dollars			
	Share of Total		Total	% of Total Junior	Share of Total		Total	% of Total Junior
	Junior	Senior			Junior	Senior		
	(\$ millions)				(\$ millions)			
1997	298.0	623.0	921.0	32.4	316.7	662.3	979.0	32.4
1998	170.5	485.4	655.9	26.0	182.0	518.0	700.1	26.0
1999	141.4	362.9	504.3	28.0	148.4	380.8	529.2	28.0
2000	156.0	340.7	496.7	31.4	157.6	344.3	501.8	31.4
2001	177.7	335.1	512.9	34.7	177.7	335.1	512.9	34.7
2002 (si)	209.3	291.8	501.1	41.8	208.9	291.2	500.2	41.8

Source: Natural Resources Canada, from a federal-provincial-territorial survey of mining and exploration companies.

(si) Company spending intentions, revised August 21, 2002.

(1) Includes on-mine-site plus off-mine-site activities. Includes field work, overhead, engineering, economic and pre- or production feasibility studies, environment and land access expenditures.

TABLE 3c. EXPLORATION AND DEPOSIT APPRAISAL EXPENDITURES, ⁽¹⁾ ON- AND OFF-MINE-SITE, BY JUNIOR AND SENIOR COMPANIES, 1997-2002

	Exploration		Deposit Appraisal		Exploration Plus Deposit Appraisal		Exploration Plus Deposit Appraisal
	On-Mine-Site	Off-Mine-Site	On-Mine-Site	Off-Mine-Site	On-Mine-Site	Off-Mine-Site	On- and Off-Mine-Site
	(\$000)						
1997							
Junior	–	233 231	–	64 730	–	297 961	297 961
Senior	62 383	338 796	105 608	116 222	167 991	455 018	623 009
Total	62 383	572 027	105 608	180 951	167 991	752 979	920 970
1998							
Junior	–	144 970	–	25 573	–	170 544	170 544
Senior	67 875	249 959	61 535	106 018	129 411	355 977	485 387
Total	67 875	394 929	61 535	131 591	129 411	526 520	655 931
1999							
Junior	–	92 923	–	48 498	–	141 421	141 421
Senior	44 471	177 265	42 302	98 889	86 773	276 154	362 927
Total	44 471	270 188	42 302	147 386	86 773	417 575	504 348
2000							
Junior	–	127 853	–	28 109	–	155 962	155 962
Senior	30 743	183 929	42 273	83 744	73 016	267 672	340 689
Total	30 743	311 782	42 273	111 853	73 016	423 635	496 651
2001							
Junior	–	157 913	–	19 820	–	177 733	177 733
Senior	42 297	180 963	29 173	82 704	71 469	263 667	335 136
Total	42 297	338 876	29 173	102 524	71 469	441 400	512 869
2002 (si)							
Junior	–	167 863	–	41 461	–	209 324	209 324
Senior	53 330	138 884	49 838	49 718	103 168	188 602	291 769
Total	53 330	306 747	49 838	91 179	103 168	397 926	501 093

Source: Natural Resources Canada, from a federal-provincial-territorial survey of mining and exploration companies.

– Nil.

(si) Company spending intentions, revised August 21, 2002.

(1) Includes field work, overhead, engineering, economic and pre- or production feasibility studies, environment and land access expenditures.

TABLE 4. EXPLORATION PLUS DEPOSIT APPRAISAL EXPENDITURES, BY RANGE OF EXPENDITURES AND BY JUNIOR AND SENIOR COMPANIES, 1999 TO 2002

Range of Expenditures	Junior			Senior			Total		
	Companies	Expenditures	Percentage of Total Expenditures	Companies	Expenditures	Percentage of Total Expenditures	Companies	Expenditures	Percentage of Total Expenditures
(\$)	(number)	(\$000)	(%)	(number)	(\$000)	(%)	(number)	(\$000)	(%)
1999									
>10 million	2	29 101	20.6	10	190 759	52.6	12		43.6
5 million-10 million	1	5 234	3.7	12	91 230	25.1	13	96 464	19.1
1 million-5 million	21	37 727	26.7	26	63 308	17.4	47	101 035	20.0
500 000-1 million	38	26 929	19.0	14	10 632	2.9	52	37 560	7.4
200 000-500 000	83	25 818	18.3	13	3 991	1.1	96	29 809	5.9
100 000-200 000	54	7 603	5.4	13	1 840	0.5	67	9 444	1.9
50 000-100 000	48	3 492	2.5	11	769	0.2	59	4 261	0.8
1-50 000	163	2 746	1.9	23	398	0.1	186	3 145	0.6
Subtotal	410	138 651	98.0	122	362 927	100.0	532	501 578	99.5
Prospectors (2)	25	2 770	2.0	–	–	–	25	2 770	0.5
Total 1999	435	141 421	100.0	122	362 927	100.0	557	504 348	100.0
2000									
>10 million	1	16 697	10.7	8	160 666	47.2	9	177 363	35.7
5 million-10 million	1	5 678	3.6	16	112 933	33.1	17	118 611	23.9
1 million-5 million	34	67 998	43.6	26	53 380	15.7	60	121 378	24.4
500 000-1 million	35	24 328	15.6	12	8 254	2.4	47	32 582	6.6
200 000-500 000	73	24 039	15.4	7	2 184	0.6	80	26 222	5.3
100 000-200 000	59	8 280	5.3	14	2 080	0.6	73	10 359	2.1
50 000-100 000	48	3 368	2.2	12	887	0.3	60	4 255	0.9
1-50 000	141	2 522	1.6	22	304	0.1	163	2 826	0.6
Subtotal	392	152 909	98.0	117	340 689	100.0	509	493 598	99.4
Prospectors (2)	32	3 053	2.0	–	–	–	32	3 053	0.6
Total 2000	424	155 962	100.0	117	340 689	100.0	541	496 651	100.0
2001									
>10 million	1	14 336	8.1	11	222 869	66.5	12	237 205	46.3
5 million-10 million	4	28 571	16.1	9	60 863	18.2	13	89 434	17.4
1 million-5 million	34	62 821	35.3	19	37 525	11.2	53	100 346	19.6
500 000-1 million	42	28 921	16.3	9	6 494	1.9	51	35 416	6.9
200 000-500 000	72	23 103	13.0	9	3 046	0.9	81	26 150	5.1
100 000-200 000	73	10 411	5.9	24	3 629	1.1	97	14 040	2.7
50 000-100 000	57	4 027	2.3	4	304	0.1	61	4 331	0.8
1-50 000	122	2 052	1.2	25	405	0.1	147	2 458	0.5
Subtotal	405	174 243	98.0	110	335 136	100.0	515	509 379	99.3
Prospectors (2)	38	3 490	2.0	–	–	–	38	3 490	0.7
Total 2001	443	177 733	100.0	110	335 136	100.0	553	512 869	100.0
2002 (si)									
>10 million	–	–	–	8	159 141	54.5	8	159 141	31.8
5 million-10 million	5	35 491	17.0	8	62 008	21.3	13	97 499	19.5
1 million-5 million	44	100 634	48.1	22	61 042	20.9	66	161 676	32.3
500 000-1 million	48	31 450	15.0	7	4 100	1.4	55	35 550	7.1
200 000-500 000	89	27 413	13.1	12	3 455	1.2	101	30 868	6.2
100 000-200 000	52	6 748	3.2	10	1 301	0.4	62	8 049	1.6
50 000-100 000	35	2 122	1.0	8	505	0.2	43	2 627	0.5
1-50 000	75	1 242	0.6	13	217	0.1	88	1 459	0.3
Subtotal	348	205 100	98.0	88	291 769	100.0	436	496 869	99.2
Prospectors (2)	36	4 224	2.0	–	–	–	36	4 224	0.8
Total 2002 (si)	384	209 324	100.0	88	291 769	100.0	472	501 093	100.0

Source: Natural Resources Canada, from a federal-provincial-territorial survey of mining and exploration companies.

– Nil; (si) Company spending intentions, revised August 21, 2002.

(1) Includes on-mine-site plus off-mine-site activities. Includes field work, overhead, engineering, economic and pre- or production feasibility studies, environment and land access expenditures. (2) Number of prospectors is under-estimated because it contains groups of prospectors.

Note: Numbers may not add to totals due to rounding.

TABLE 5. SUMMARY OF TOTAL DIAMOND EXPLORATION, DEPOSIT APPRAISAL AND MINE COMPLEX DEVELOPMENT EXPENDITURES, ⁽¹⁾ 1998-2001

Expenditure Category	1998	1999	2000	2001
	(\$ millions)			
Field work and overhead	148.9	83.9	95.0	240.2
Engineering, economic and pre- or production feasibility studies, environment and land access	36.7	25.0	55.2	27.5
Capital and repair (2)	161.4	76.0	281.8	619.8
Total	347.1	185.0	432.1	887.4

Source: Natural Resources Canada, from a federal-provincial-territorial survey of mining and exploration companies.

(1) Includes on-mine-site plus off-mine-site activities. (2) Includes construction, and machinery and equipment expenditures.

Note: Numbers may not add to totals due to rounding.

TABLE 6a. AREA ⁽¹⁾ OF NEW MINERAL CLAIMS STAKED OR RECORDED IN CANADA, 1995-2001

Province/Territory	1995		1996		1997		1998		1999		2000		2001	
	(hectares)	(%) (3)	(hectares)	(%) (4)	(hectares)	(%) (5)	(hectares)	(%) (6)	(hectares)	(%) (7)	(hectares)	(%) (8)	(hectares)	(%) (9)
Newfoundland and Labrador	6 106 617	1 188.3	417 575	6.8	334 075	80.0	361 900	108.3	241 075	66.6	324 225	134.5	391 625	120.8
Nova Scotia	183 893	119.3	424 815	231.0	208 191	49.0	74 180	35.6	157 394	212.2	96 819	61.5	87 722	90.6
New Brunswick	60 464	94.9	93 760	155.1	53 760	57.3	40 000	74.4	28 336	70.8	49 344	174.1	35 712	72.4
Quebec	1 474 196	175.3	954 967	64.8	1 050 629	110.0	728 142	69.3	754 102	103.6	2 187 551	290.1	2 115 424	96.7
Ontario	668 832	91.1	903 488	135.1	855 584	94.7	577 632	67.5	604 096	104.6	874 896	144.8	981 904	112.2
Manitoba	670 316	48.2	325 452	48.6	386 243	118.7	475 634	123.1	(r) 801 550	168.5	(r) 1 759 381	219.5	1 054 106	59.9
Saskatchewan	340 881	18.8	469 040	137.6	950 253	202.6	680 048	71.6	(c) 161 083	23.7	523 440	325.0	558 131	106.6
Alberta	1 665 000	24.7	5 328 000	320.0	37 200 000	698.2	3 490 000	9.4	(b) 1 026 000	29.4	2 349 600	229.0	4 192 055	178.4
British Columbia	845 550	109.2	997 740	118.0	765 257	76.7	474 296	62.0	478 740	100.9	699 050	146.0	636 800	91.1
Yukon	376 844	134.5	514 483	136.5	459 507	89.3	131 221	28.6	152 731	116.4	52 675	34.5	38 713	73.5
Northwest Territories	3 839 299	131.1	2 956 017	77.0	1 953 191	66.1	827 615	42.4	563 378	(c) 68,1	891 419	158.2	626 177	70.2
Nunavut	..	..	..	..	..	..	..	..	710 092	..	498 230	70.2	441 270	88.6
Total	16 231 892	99.9	13 385 337	82.5	44 216 690	330.3	7 860 668	17.8	5 678 577	72.2	10 306 630	181.5	11 159 639	108.3

Source: Provincial and territorial mining recorders.

.. Not available; (r) Revised.

(a) Not strictly comparable to 1990 and earlier years because the total is the area of claims recorded and not the area of claims staked. (b) Prior to 1999, Saskatchewan data do not include exploration permits. (c) Percentage based on new claims staked in 1999 in the Northwest Territories and Nunavut combined.

(1) Excludes coal. (2) Percentage of 1994 over 1993. (3) Percentage of 1995 over 1994. (4) Percentage of 1996 over 1995. (5) Percentage of 1997 over 1996. (6) Percentage of 1998 over 1997. (7) Percentage of 1999 over 1998. (8) Percentage of 2000 over 1999. (9) Percentage of 2001 over 2000.

Note: Numbers may not add to totals due to rounding.

TABLE 6b. AREA⁽¹⁾ OF NEW MINERAL CLAIMS STAKED OR RECORDED IN CANADA, 1999-2001

Province/Territory	1999		2000		2001	
	(hectares)	(%)	(hectares)	(%)	(hectares)	(%)
Newfoundland and Labrador	241 075	4.2	324 225	3.1	391 625	3.5
Nova Scotia	157 394	2.8	96 819	0.9	87 722	0.8
New Brunswick	28 336	0.5	49 344	0.5	35 712	0.3
Quebec	754 102	13.3	2 187 551	21.2	2 115 424	19.0
Ontario	604 096	10.6	874 896	8.5	981 904	8.8
Manitoba	(r) 801 550	14.1	(r) 1 759 381	17.1	1 054 106	9.4
Saskatchewan	161 083	2.8	523 440	5.1	558 131	5.0
Alberta	1 026 000	18.1	2 349 600	22.8	4 192 055	37.6
British Columbia	478 740	8.4	699 050	6.8	636 800	5.7
Yukon	152 731	2.7	52 675	0.5	38 713	0.3
Northwest Territories	563 378	9.9	891 419	8.6	626 177	5.6
Nunavut	710 092	12.5	498 230	4.8	441 270	4.0
Total	5 678 577	100.0	10 306 630	100.0	11 159 639	100.0

Source: Provincial and territorial mining recorders.

(r) Revised.

(1) Excludes coal.

Note: Numbers may not add to totals due to rounding.

TABLE 7a. EXPLORATION AND DEPOSIT APPRAISAL, OFF-MINE-SITE AND ON-MINE-SITE EXPENDITURES, ⁽¹⁾ BY PROVINCE AND TERRITORY, 2000

Province/Territory	Exploration		Deposit Appraisal		Exploration Plus Deposit Appraisal	
	Off-Mine-Site	On-Mine-Site	Off-Mine-Site	On-Mine-Site	Off-Mine-Site	On-Mine-Site
	(\$000)					
Newfoundland and Labrador	16 181	1 014	10 014	108	26 195	1 122
Nova Scotia	3 003	–	582	–	3 585	–
New Brunswick	9 687	510	28	1 900	9 715	2 410
Quebec	66 753	4 968	3 432	18 963	70 185	23 931
Ontario	58 672	19 060	25 999	14 209	84 671	33 268
Manitoba	21 808	3 073	1 465	1 774	23 273	4 847
Saskatchewan	25 357	426	18 054	1 753	43 411	2 179
Alberta	6 494	–	734	10	7 227	10
British Columbia	26 715	992	5 538	2 678	32 254	3 670
Yukon	9 014	–	2 143	76	11 157	76
Northwest Territories	30 379	–	20 683	307	51 062	307
Nunavut	37 719	700	23 180	496	60 899	1 196
Total	311 782	30 743	111 853	42 273	423 635	73 016
Total (on- plus off-mine-site)	342 525		154 126		496 651	

Source: Natural Resources Canada, from a federal-provincial-territorial survey of mining and exploration companies.

– Nil.

(1) Includes field work, overhead, engineering, economic and pre- or production feasibility studies, environment and land access expenditures.

Note: Numbers may not add to totals due to rounding.

TABLE 7b. EXPLORATION AND DEPOSIT APPRAISAL, OFF-MINE-SITE AND ON-MINE-SITE EXPENDITURES, BY PROVINCE AND TERRITORY, 2001

Province/Territory	Exploration		Deposit Appraisal		Exploration Plus Deposit Appraisal	
	Off-Mine-Site	On-Mine-Site	Off-Mine-Site	On-Mine-Site	Off-Mine-Site	On-Mine-Site
	(\$000)					
Newfoundland and Labrador	17 996	34	10 179	233	28 175	267
Nova Scotia	1 101	135	1 583	–	2 684	135
New Brunswick	7 259	–	–	2 200	7 259	2 200
Quebec	59 082	19 253	15 255	9 357	74 337	28 610
Ontario	81 325	15 545	5 115	11 655	86 440	27 200
Manitoba	23 452	2 447	654	2 114	24 106	4 561
Saskatchewan	23 967	1 646	11 923	–	35 889	1 646
Alberta	3 861	592	–	–	3 861	592
British Columbia	23 459	1 939	2 586	1 153	26 045	3 092
Yukon	7 401	–	406	–	7 807	–
Northwest Territories	37 627	–	46 557	2 461	84 184	2 461
Nunavut	52 347	706	8 266	–	60 612	706
Total	338 876	42 297	102 524	29 173	441 400	71 469
Total (on- plus off-mine-site)	381 173		131 697		512 869	

Source: Natural Resources Canada, from a federal-provincial-territorial survey of mining and exploration companies.

– Nil.

(1) Includes field work, overhead, engineering, economic and pre- or production feasibility studies, environment and land access expenditures.

Note: Numbers may not add to totals due to rounding.

TABLE 7c. EXPLORATION AND DEPOSIT APPRAISAL, OFF-MINE-SITE AND ON-MINE-SITE EXPENDITURES, ⁽¹⁾ BY PROVINCE AND TERRITORY, 2002

Province/Territory	Exploration		Deposit Appraisal		Exploration Plus Deposit Appraisal	
	Off-Mine-Site	On-Mine-Site	Off-Mine-Site	On-Mine-Site	Off-Mine-Site	On-Mine-Site
	(\$000)					
Newfoundland and Labrador	14 040	2 150	1 390	210	15 430	2 360
Nova Scotia	2 204	–	3 689	–	5 893	–
New Brunswick	2 500	–	34	1 100	2 534	1 100
Quebec	60 662	17 225	3 241	27 912	63 903	45 137
Ontario	57 856	25 282	27 141	16 398	84 997	41 680
Manitoba	22 235	4 259	129	3 578	22 364	7 837
Saskatchewan	27 108	240	13 574	500	40 683	740
Alberta	8 193	660	–	–	8 193	660
British Columbia	30 276	1 924	12 663	40	42 939	1 964
Yukon	7 230	–	24	–	7 254	–
Northwest Territories	21 289	–	16 280	100	37 569	100
Nunavut	53 153	1 590	13 014	–	66 167	1 590
Total	306 747	53 330	91 179	49 838	397 926	103 168
Total (on- plus off-mine-site)	360 076		141 017		501 093	

Source: Natural Resources Canada, from a federal-provincial-territorial survey of mining and exploration companies.

– Nil.

(1) Includes field work, overhead, engineering, economic and pre- or production feasibility studies, environment and land access expenditures.

Notes: Data for 2002 are company spending intentions, revised August 21, 2002. Numbers may not add to totals due to rounding.

TABLE 8. EXPLORATION PLUS DEPOSIT APPRAISAL EXPENDITURES, ⁽¹⁾ BY PROVINCE AND TERRITORY, 1999-2002

Province / Territory	1999		2000			2001			2002 (si)		
	(\$ millions)	(%)	(\$ millions)	(%)	2000 as a % of 1999 Expenditures (%)	(\$ millions)	(%)	2001 as a % of 2000 Expenditures (%)	(\$ millions)	(%)	2002 as a % of 2001 Expenditures (%)
Newfoundland and Labrador	31.3	6.2	27.3	5.5	87.3	28.4	5.5	104.1	17.8	3.6	62.5
Nova Scotia	5.3	1.0	3.6	0.7	68.2	2.8	0.5	78.6	5.9	1.2	209.0
New Brunswick	10.1	2.0	12.1	2.4	119.9	9.5	1.8	78.0	3.6	0.7	38.4
Quebec	113.5	22.5	94.1	19.0	82.9	102.9	20.1	109.4	109.0	21.8	105.9
Ontario	87.4	17.3	117.9	23.7	135.0	113.6	22.2	96.4	126.7	25.3	111.5
Manitoba	22.8	4.5	28.1	5.7	123.1	28.7	5.6	101.9	30.2	6.0	105.4
Saskatchewan	43.6	8.6	45.6	9.2	104.6	37.5	7.3	82.3	41.4	8.3	110.4
Alberta	14.7	2.9	7.2	1.5	49.1	4.5	0.9	61.5	8.9	1.8	198.8
British Columbia	41.3	8.2	35.9	7.2	87.0	29.1	5.7	81.1	44.9	9.0	154.1
Yukon Territory	12.7	2.5	11.2	2.3	88.1	7.8	1.5	69.5	7.3	1.4	92.9
Northwest Territories	84.1	16.7	51.4	10.3	61.1	86.6	16.9	168.7	37.7	7.5	43.5
Nunavut	37.4	7.4	62.1	12.5	166.0	61.3	12.0	98.7	67.8	13.5	110.5
Total	504.3	100.0	496.7	100.0	98.5	512.9	100.0	103.3	501.1	100.0	97.7
Exploration	314.7	62.4	342.5	69.0	108.9	381.2	74.3	111.3	360.1	71.9	94.5
Deposit appraisal	189.7	37.6	154.1	31.0	81.3	131.7	25.7	85.4	141.0	28.1	107.1

Source: Natural Resources Canada, from a federal-provincial-territorial survey of mining and exploration companies.

(si) Company spending intentions, revised August 21, 2002.

(1) Includes on-mine-site plus off-mine-site activities. Includes field work, overhead, engineering, economic and pre- or production feasibility studies, environment and land access expenditures.

Note: Numbers may not add to totals due to rounding.

TABLE 9a. EXPLORATION ACTIVITY, ⁽¹⁾ BY PROVINCE AND TERRITORY, 2000

Province/Territory	Drilling (Surface and Underground)				Geochemical	Geology	Geophysical		Rock Work (2)	Other Field Costs	Engineering Studies	Economic Studies	Pre-Feasibility Studies	Mineral Lease and Head Office	Environment	Land Access	Grand Total
	Diamond		Other				Ground	Airborne									
	Metres	Cost	Metres	Cost													
	(000)	(\$000)	(000)	(\$000)													
Newfoundland and Labrador	60	8 002	–	–	497	2 579	2 082	869	560	901	96	–	16	1 527	46	19	17 195
Nova Scotia	8	557	–	–	161	717	97	522	277	51	12	10	151	373	30	46	3 003
New Brunswick	66	4 633	–	–	370	866	2 648	295	186	153	–	–	947	23	75	10 197	
Quebec	361	31 454	5	515	2 442	15 569	4 565	2 859	3 957	1 853	643	197	671	6 777	117	101	71 721
Ontario	496	34 608	...	17	2 796	11 229	5 414	2 226	3 943	8 074	25	105	1 894	6 329	148	923	77 732
Manitoba	116	12 176	–	–	1 864	1 615	3 321	1 023	974	963	1	9	–	2 832	6	97	24 881
Saskatchewan	108	13 295	1	1 275	845	1 597	2 615	1 109	151	1 011	445	–	–	3 400	41	2	25 784
Alberta	4	893	12	1 330	189	935	594	300	5	563	396	–	–	1 159	77	52	6 494
British Columbia	157	9 351	2	145	1 875	5 812	1 345	352	949	1 091	1 552	77	82	3 430	1 270	376	27 707
Yukon	11	3 069	–	–	1 504	1 712	2 09	763	670	432	7	–	–	595	13	40	9 014
Northwest Territories	37	11 096	2	325	4 280	2 762	2 574	4 763	–	1 446	129	–	–	2 633	115	256	30 379
Nunavut	65	16 594	1	100	5 266	5 667	2 973	2 109	416	1 065	17	–	–	3 302	269	641	38 419
Total	1 490	145 728	22	3 706	22 089	51 060	28 438	17 191	12 088	17 601	3 323	398	2 813	33 306	2 156	2 627	342 525
Percentage of grand total	n.a.	42.5	n.a.	1.1	6.4	14.9	8.3	5.0	3.5	5.1	1.0	0.1	0.8	9.7	0.6	0.8	100.0

Source: Natural Resources Canada, from a federal-provincial-territorial survey of mining and exploration companies.

– Nil; ... Amount too small to be expressed; n.a. Not applicable.

(1) Includes on-mine-site plus off-mine-site activities. (2) Includes stripping, trenching, shaft work, drifts, cross-cuts, raises, declines, rock sampling and de-watering costs.

Note: Numbers may not add to totals due to rounding.

TABLE 9b. DEPOSIT APPRAISAL ACTIVITY, ⁽¹⁾ BY PROVINCE AND TERRITORY, 2000

Province/Territory	Drilling (Surface and Underground)				Geochemical	Geology	Geophysical		Rock Work (2)	Other Field Costs	Engineering Studies	Economic Studies	Pre- or Production Feasibility Studies	Mineral Lease and Head Office	Environment	Land Access	Grand Total
	Diamond		Other				Ground	Airborne									
	Metres	Cost	Metres	Cost													
	(000)	(\$000)	(000)	(\$000)	(\$000)												
Newfoundland and Labrador	13	2 967	–	–	60	214	208	–	2 090	28	2 416	4	585	494	566	491	10 122
Nova Scotia	–	–	...	50	–	–	30	–	–	10	60	15	261	119	37	–	582
New Brunswick	30	1 900	...	...	–	21	–	–	5	–	–	–	2	–	–	–	1 928
Quebec	124	4 985	...	...	32	621	36	–	12 643	464	1 081	41	812	1 096	570	14	22 395
Ontario	236	17 421	5	5 023	50	4 245	197	–	9 650	38	289	3	406	2 489	223	175	40 208
Manitoba	27	1 463	–	–	69	–	–	–	656	505	164	28	–	253	102	–	3 239
Saskatchewan	26	1 517	...	1 060	–	147	200	–	6 951	2 021	2 104	–	1 372	2 817	1 383	235	19 806
Alberta	–	–	–	–	–	–	–	–	–	–	13	51	–	140	540	–	744
British Columbia	24	2 206	–	–	19	1 521	50	15	136	150	1 268	91	292	1 495	371	601	8 217
Yukon	2	370	–	–	5	232	–	–	16	223	499	80	330	150	274	40	2 219
Northwest Territories	20	2 797	2	2 237	165	524	35	100	8 313	445	604	20	3 000	828	1 920	2	20 990
Nunavut	57	14 788	–	–	–	794	25	–	650	990	1 492	10	626	2 616	1 580	108	23 677
Total	559	50 414	9	8 370	399	8 318	781	115	41 111	4 874	9 989	342	7 683	12 498	7 567	1 665	154 126
Percentage of grand total	n.a.	32.7	n.a.	5.4	0.3	5.4	0.5	0.1	26.7	3.2	6.5	0.2	5.0	8.1	4.9	1.1	100.0

Source: Natural Resources Canada, from a federal-provincial-territorial survey of mining and exploration companies.

– Nil; ... Amount too small to be expressed; n.a. Not applicable.

(1) Includes on-mine-site plus off-mine-site activities. (2) Includes stripping, trenching, shaft work, drifts, cross-cuts, raises, declines, rock sampling and de-watering costs.

Note: Numbers may not add to totals due to rounding.

TABLE 9c. EXPLORATION PLUS DEPOSIT APPRAISAL ACTIVITIES, ⁽¹⁾ BY PROVINCE AND TERRITORY, 2000

Province/Territory	Drilling (Surface and Underground)				Geochemical	Geology	Geophysical		Rock Work (2)	Other Field Costs	Engineering Studies	Economic Studies	Pre- or Production Feasibility Studies	Mineral Lease and Head Office	Environment	Land Access	Grand Total
	Diamond		Other				Ground	Airborne									
	Metres	Cost	Metres	Cost													
	(000)	(\$000)	(000)	(\$000)	(\$000)												
Newfoundland and Labrador	73	10 969	–	–	557	2 792	2 290	869	2 651	928	2 511	4	601	2 021	612	510	27 317
Nova Scotia	8	557	...	50	161	717	127	522	277	61	72	25	411	492	67	46	3 585
New Brunswick	96	6 533	...	...	370	887	2 648	295	191	153	–	–	949	23	75	12 125	
Quebec	484	36 439	5	515	2 474	16 191	4 602	2 859	16 601	2 317	1 723	238	1 483	7 873	688	115	94 116
Ontario	733	52 029	6	5 040	2 846	15 474	5 610	2 226	13 593	8 113	314	108	2 300	8 819	371	1 098	117 939
Manitoba	142	13 640	–	–	1 932	1 615	3 321	1 023	1 630	1 468	165	37	–	3 085	108	97	28 121
Saskatchewan	134	14 812	2	2 335	845	1 743	2 816	1 109	7 101	3 032	2 549	–	1 372	6 216	1 425	237	45 590
Alberta	4	893	12	1 330	189	935	594	300	5	563	409	51	–	1 299	618	52	7 237
British Columbia	182	11 557	2	145	1 894	7 333	1 395	368	1 084	1 241	2 821	168	374	4 926	1 642	977	35 924
Yukon	13	3 439	–	–	1 509	1 944	209	763	686	655	506	80	330	745	287	80	11 233
Northwest Territories	57	13 893	4	2 562	4 445	3 286	2 609	4 863	8 313	1 891	734	20	3 000	3 461	2 035	258	51 369
Nunavut	123	31 381	1	100	5 266	6 461	2 997	2 109	1 066	2 055	1 508	10	626	5 918	1 849	749	62 096
Total	2 049	196 142	31	12 076	22 489	59 378	29 219	17 306	53 199	22 476	13 312	740	10 497	45 804	9 723	4 292	496 651
Percentage of grand total	n.a.	39.5	n.a.	2.4	4.5	12.0	5.9	3.5	10.7	4.5	2.7	0.1	2.1	9.2	2.0	0.9	100.0

Source: Natural Resources Canada, from a federal-provincial-territorial survey of mining and exploration companies.

– Nil; ... Amount too small to be expressed; n.a. Not applicable.

(1) Includes on-mine-site plus off-mine-site activities. (2) Includes stripping, trenching, shaft work, drifts, cross-cuts, raises, declines, rock sampling and de-watering costs.

Note: Numbers may not add to totals due to rounding.

TABLE 9d. MINE COMPLEX DEVELOPMENT ACTIVITY, ⁽¹⁾ BY PROVINCE AND TERRITORY, 2000

Province/Territory	Drilling (Surface and Underground)				Geochemical	Geology	Geophysical		Rock Work (2)	Other Field Costs	Engineering Studies	Economic Studies	Pre- or Production Feasibility Studies	Mineral Lease and Head Office	Environment	Land Access	Grand Total
	Diamond		Other				Ground	Airborne									
	Metres	Cost	Metres	Cost													
	(000)	(\$000)	(000)	(\$000)	(\$000)												
Newfoundland and Labrador	2	143	147	2 249	33	60	–	–	8 624	1	20	–	–	110	114	8	11 361
Nova Scotia	7	380	108	343	–	133	19	–	2 768	97	98	15	–	511	320	37	4 720
New Brunswick	25	5 434	22	8 800	32	62	–	–	26 303	–	–	–	–	88	2 327	–	43 045
Quebec	197	16 637	49	2 935	478	1 878	50	–	201 838	30 442	15 617	–	–	23 180	7 676	622	301 354
Ontario	506	24 742	175	4 380	40	5 774	91	–	191 337	541	2 298	–	–	2 578	4 954	15	236 750
Manitoba	151	7 101	–	–	372	529	47	–	48 984	109	510	–	–	1 032	114	–	58 798
Saskatchewan	52	9 131	14	256	–	723	892	–	12 637	1 752	80	–	56	9 534	6 966	–	42 027
Alberta	4	458	13	491	–	80	–	–	22 760	148	798	55	110	4 884	634	43	30 460
British Columbia	86	4 036	436	3 604	612	1 881	9	–	9 701	–	2 308	–	–	5 691	6 966	357	35 165
Yukon	–	–	–	–	–	–	–	–	–	–	31	–	–	–	–	–	31
Northwest Territories	2	250	...	258	–	474	–	–	4 481	249	28 694	7 000	–	13 279	2 338	9 007	66 030
Nunavut	–	–	–	–	–	22	–	–	412	–	–	–	–	338	478	–	1 250
Total	1 031	68 312	965	23 315	1 566	11 616	1 108	–	529 845	33 338	50 455	7 070	165	61 226	32 885	10 089	830 991
Percentage of grand total	n.a.	8.2	n.a.	2.8	0.2	1.4	0.1	–	63.8	4.0	6.1	0.9	...	7.4	4.0	1.2	100.0

Source: Natural Resources Canada, from a federal-provincial-territorial survey of mining and exploration companies.

– Nil; ... Amount too small to be expressed; n.a. Not applicable.

(1) Includes on-mine-site plus off-mine-site activities. (2) Includes stripping, trenching, shaft work, drifts, cross-cuts, raises, declines, rock sampling and de-watering costs.

Note: Numbers may not add to totals due to rounding.

TABLE 10a. SUMMARY OF DRILLING ACTIVITY IN CANADA, 2000

Drilling Activity	Exploration				Deposit Appraisal				Exploration Plus Deposit Appraisal On- Plus Off-Mine-Site (metres)
	Off-Mine-Site		On-Mine-Site		Off-Mine-Site		On-Mine-Site		
	(metres)	(% of subtotal)	(metres)	(% of subtotal)	(metres)	(% of subtotal)	(metres)	(% of subtotal)	
Diamond drilling									
Surface	1 161 783	96.2	66 423	23.6	109 860	55.7	15 442	4.3	1 353 508
Underground	45 840	3.8	215 580	76.4	87 484	44.3	346 504	95.7	695 408
Subtotal	1 207 623	100.0	282 003	100.0	197 344	100.0	361 946	100.0	2 048 916
Percentage of off- plus on-mine-site diamond drilling	81.1		18.9		35.3		64.7		
Other drilling									
Surface	17 332	100.0	4 776	100.0	8 133	95.2	–	–	30 241
Underground	–	–	–	–	407	4.8	2	100.0	409
Subtotal	17 332	100.0	4 776	100.0	8 540	100.0	2	100.0	30 650
Percentage of off- plus on-mine-site other drilling	78.4		21.6		100.0		...		
Total surface drilling	1 179 115		71 199		117 993		15 442		1 383 749
Total underground drilling	45 840		215 580		87 891		346 506		695 817
Grand total	1 224 955		286 779		205 884		361 948		2 079 566

Source: Natural Resources Canada, from a federal-provincial-territorial survey of mining and exploration companies.

– Nil; ... Amount too small to be expressed.

Note: Numbers may not add to totals due to rounding.

TABLE 10b. SUMMARY OF DRILLING ACTIVITY IN CANADA, 2001

Drilling Activity	Exploration				Deposit Appraisal				Exploration Plus Deposit Appraisal On- Plus Off-Mine-Site (metres)
	Off-Mine-Site		On-Mine-Site		Off-Mine-Site		On-Mine-Site		
	(metres)	(% of subtotal)	(metres)	(% of subtotal)	(metres)	(% of subtotal)	(metres)	(% of subtotal)	
Diamond drilling									
Surface	1 036 264	98.7	163 666	53.0	102 449	87.6	24 044	11.8	1 326 423
Underground	13 496	1.3	145 218	47.0	14 476	12.4	179 674	88.2	352 864
Subtotal	1 049 760	100.0	308 884	100.0	116 925	100.0	203 718	100.0	1 679 287
Percentage of off- plus on-mine-site diamond drilling	77.3		22.7		36.5		63.5		
Other drilling									
Surface	63 032	100.0	–	–	4 319	100.0	–	–	67 351
Underground	–	–	19 561	100.0	–	–	–	–	19 561
Subtotal	63 032	100.0	19 561	100.0	4 319	100.0	–	–	86 912
Percentage of off- plus on-mine-site other drilling	76.3		23.7		100.0		–		
Total surface drilling	1 099 296		163 666		106 768		24 044		1 393 774
Total underground drilling	13 496		164 779		14 476		179 674		372 425
Grand total	1 112 792		328 445		121 244		203 718		1 766 199

Source: Natural Resources Canada, from a federal-provincial-territorial survey of mining and exploration companies.

– Nil.

Note: Numbers may not add to totals due to rounding.

TABLE 11a. EXPLORATION PLUS DEPOSIT APPRAISAL (SURFACE DRILLING),⁽¹⁾ BY PROVINCE AND TERRITORY, BY MINERAL COMMODITY SOUGHT, 2000

Province/Territory	Metals					Nonmetals	Diamonds	Coal	Total
	Base	Precious	Iron	Uranium	Other				
(000 metres)									
Newfoundland and Labrador	45	13	–	–	11	2	–	–	71
Nova Scotia	1	4	...	–	1	2	–	–	9
New Brunswick	39	15	–	–	2	...	–	–	56
Quebec	159	169	–	–	18	3	...	–	349
Ontario	133	183	–	–	7	4	11	–	337
Manitoba	87	11	–	–	1	–	–	–	98
Saskatchewan	18	8	...	76	...	–	7	–	110
Alberta	–	1	–	–	–	–	5	9	16
British Columbia	57	97	...	–	–	8	...	...	168
Yukon	5	8	–	–	–	–	–	–	13
Northwest Territories	7	7	–	–	4	–	41	–	60
Nunavut	15	70	–	...	3	–	9	–	97
Total	565	587	...	76	53	19	73	9	1 384

Source: Natural Resources Canada, from a federal-provincial-territorial survey of mining and exploration companies.

– Nil; ... Amount too small to be expressed.

(1) Includes on-mine-site plus off-mine-site activities. Drilling includes diamond and other types of drilling.

Notes: Numbers may not add to totals due to rounding. The mineral commodity group for unspecified mineral commodities was pro-rated.

TABLE 11b. EXPLORATION PLUS DEPOSIT APPRAISAL (UNDERGROUND DRILLING),⁽¹⁾ BY PROVINCE AND TERRITORY, BY MINERAL COMMODITY SOUGHT, 2000

Province/Territory	Metals					Nonmetals	Diamonds	Coal	Total
	Base	Precious	Iron	Uranium	Other				
(000 metres)									
Newfoundland and Labrador	–	2	–	–	–	–	–	–	2
Nova Scotia	–	–	–	–	–	–	–	–	–
New Brunswick	24	16	–	–	–	...	–	–	40
Quebec	36	104	–	–	–	–	–	–	140
Ontario	118	276	–	–	7	–	–	–	401
Manitoba	29	15	–	–	–	–	–	–	44
Saskatchewan	3	22	–	1	–	–	–	–	26
Alberta	–	–	–	–	–	–	–	–	–
British Columbia	8	8	–	–	–	–	–	–	15
Yukon	–	–	–	–	–	–	–	–	–
Northwest Territories	–	–	–	–	–	–	1	–	1
Nunavut	7	19	–	–	–	–	–	–	26
Total	224	462	–	1	7	...	1	–	696

Source: Natural Resources Canada, from a federal-provincial-territorial survey of mining and exploration companies.

– Nil; ... Amount too small to be expressed.

(1) Includes on-mine-site plus off-mine-site activities. Drilling includes diamond and other types of drilling.

Note: Numbers may not add to totals due to rounding.

TABLE 12a. COMPARISON OF 1999 AND 2000 EXPLORATION PLUS DEPOSIT APPRAISAL EXPENDITURES,⁽¹⁾ BY MINERAL COMMODITY SOUGHT

Mineral Commodity	1999 Expenditures	2000 as % of 1999 Expenditures	2000 Total Expenditures			Percentage of Canadian Total
			On-Mine-Site	Off-Mine-Site	On-Mine-Site Plus Off-Mine-Site	
	(\$ millions)	(%)	(\$ millions)			(%)
Base metals (2)	139.3	106.2	20.9	127.2	148.0	29.8
Precious metals (3)	181.0	107.0	49.1	144.5	193.6	39.0
Iron ore	4.4	18.8	–	0.8	0.8	0.2
Uranium	35.2	96.4	–	33.9	33.9	6.8
Other metals	15.5	112.0	1.3	16.1	17.4	3.5
Nonmetals	12.0	65.9	1.5	6.4	7.9	1.6
Diamonds	108.7	84.6	0.3	91.6	91.9	18.5
Coal	8.2	36.5	–	3.0	3.0	0.6
Total	504.3	98.5	73.0	423.6	496.7	100.0

Source: Natural Resources Canada, from a federal-provincial survey of mining and exploration companies.

– Nil.

(1) Includes field work, overhead, engineering, economic and pre- or production feasibility studies, environmental and land access expenditures.

(2) Includes copper, nickel, lead and zinc. (3) Includes silver, gold, and platinum group metals.

Notes: Numbers may not add to totals due to rounding. The mineral commodity group for unspecified mineral commodities was pro-rated.

TABLE 12b. COMPARISON OF 2000 AND 2001 EXPLORATION PLUS DEPOSIT APPRAISAL EXPENDITURES, ⁽¹⁾ BY MINERAL COMMODITY SOUGHT

Mineral Commodity	2000 Expenditures (\$ millions)	2001 as % of 2000 Expenditures (%)	2001 Total Expenditures			Percentage of Canadian Total (%)
			On-Mine-Site	Off-Mine-Site	On-Mine-Site Plus Off-Mine-Site	
Base metals (2)	148.0	94.2	19.8	119.6	139.4	27.2
Precious metals (3)	193.6	86.2	42.9	124.0	166.9	32.5
Iron Ore	0.8	267.2	0.3	2.0	2.2	0.4
Uranium	33.9	79.8	1.5	25.6	27.1	5.3
Other Metals	17.4	106.2	0.8	17.6	18.5	3.6
Nonmetals	7.9	108.3	1.8	6.8	8.6	1.7
Diamonds	91.9	157.4	2.5	142.2	144.7	28.2
Coal	3.0	183.1	1.9	3.5	5.5	1.1
Total	496.7	103.3	71.5	441.4	512.9	100.0

Source: Natural Resources Canada, from a federal-provincial survey of mining and exploration companies.

(1) Includes field work, overhead, engineering, economic and pre- or production feasibility studies, environmental and land access expenditures.

(2) Includes copper, nickel, lead and zinc. (3) Includes silver, gold, and platinum group metals.

Notes: Numbers may not add to totals due to rounding. The mineral commodity group for unspecified mineral commodities was pro-rated.

TABLE 13a. EXPLORATION EXPENDITURES, ⁽¹⁾ BY PROVINCE AND TERRITORY, BY MINERAL COMMODITY SOUGHT, 2000

Province/Territory	Metals					Nonmetals	Diamonds	Coal	Total
	Base	Precious	Iron	Uranium	Other				
	(\$000)								
Newfoundland and Labrador	10 761	3 211	511	–	2 566	138	–	8	17 195
Nova Scotia	338	964	68	–	170	1 459	–	4	3 003
New Brunswick	6 642	3 222	–	–	280	52	–	–	10 197
Quebec	30 360	28 408	–	22	4 600	1 269	7 062	–	71 721
Ontario	26 786	41 968	–	22	2 211	550	6 194	–	77 732
Manitoba	18 443	3 922	–	–	242	1	2 274	–	24 881
Saskatchewan	3 268	1 863	65	16 536	170	–	3 729	152	25 784
Alberta	25	1 262	–	101	129	–	4 187	789	6 494
British Columbia	8 680	15 124	16	–	1 340	1 929	27	591	27 707
Yukon	2 592	6 343	–	–	79	–	–	–	9 014
Northwest Territories	3 523	3 221	67	–	946	–	22 622	–	30 379
Nunavut	10 050	15 440	102	221	789	–	11 818	–	38 419
Total	121 469	124 948	829	16 902	13 523	5 398	57 914	1 543	342 525

Source: Natural Resources Canada, from a federal-provincial survey of mining and exploration companies.

– Nil.

(1) Includes on-mine-site plus off-mine-site activities. Includes field work, overhead, engineering, economic and pre-feasibility studies.

Notes: Numbers may not add to totals due to rounding. The mineral commodity group for unspecified mineral commodities was pro-rated.

TABLE 13b. DEPOSIT APPRAISAL EXPENDITURES, ⁽¹⁾ BY PROVINCE AND TERRITORY, BY MINERAL COMMODITY SOUGHT, 2000

Province/Territory	Metals					Nonmetals	Diamonds	Coal	Total
	Base	Precious	Iron	Uranium	Other				
	(\$000)								
Newfoundland and Labrador	3 135	5 089	–	–	1 370	514	13	–	10 122
Nova Scotia	174	41	–	–	367	–	–	–	582
New Brunswick	1 140	760	–	–	–	28	–	–	1 928
Quebec	6 530	15 173	–	–	490	202	–	–	22 395
Ontario	6 792	19 308	–	–	810	181	13 118	–	40 208
Manitoba	3 034	72	–	–	33	100	–	–	3 239
Saskatchewan	1 028	1 553	–	17 026	–	200	–	–	19 806
Alberta	–	–	–	–	–	10	–	734	744
British Columbia	2 227	3 888	–	–	113	1 270	–	719	8 217
Yukon	1 290	929	–	–	–	–	–	–	2 219
Northwest Territories	775	467	–	–	688	–	19 060	–	20 990
Nunavut	441	21 392	–	–	–	–	1 844	–	23 677
Total	26 566	68 670	–	17 026	3 871	2 506	34 035	1 453	154 126

Source: Natural Resources Canada, from a federal-provincial survey of mining and exploration companies.

– Nil.

(1) Includes on-mine-site plus off-mine-site activities. Includes field work, overhead, engineering, economic and pre- or production feasibility studies, environmental and land access expenditures.

Note: Numbers may not add to totals due to rounding.

TABLE 13c. EXPLORATION PLUS DEPOSIT APPRAISAL EXPENDITURES, ⁽¹⁾ BY PROVINCE AND TERRITORY, BY MINERAL COMMODITY SOUGHT, 2000

Province/Territory	Metals					Nonmetals	Diamonds	Coal	Total
	Base	Precious	Iron	Uranium	Other				
	(\$000)								
Newfoundland and Labrador	13 897	8 300	511	–	3 936	652	13	8	27 317
Nova Scotia	512	1 005	68	–	537	1 459	–	4	3 585
New Brunswick	7 782	3 982	–	–	280	80	–	–	12 125
Quebec	36 890	43 580	–	22	5 090	1 472	7 062	–	94 116
Ontario	33 578	61 276	–	22	3 021	731	19 312	–	117 939
Manitoba	21 477	3 994	–	–	275	101	2 274	–	28 121
Saskatchewan	4 296	3 416	65	33 562	170	200	3 729	152	45 590
Alberta	25	1 262	–	101	129	10	4 187	1 522	7 237
British Columbia	10 907	19 012	16	–	1 453	3 199	27	1 310	35 924
Yukon	3 882	7 272	–	–	79	–	–	–	11 233
Northwest Territories	4 298	3 687	67	–	1 635	–	41 682	–	51 369
Nunavut	10 491	36 831	102	221	789	–	13 662	–	62 096
Total	148 035	193 618	829	33 928	17 393	7 904	91 949	2 996	496 651

Source: Natural Resources Canada, from a federal-provincial survey of mining and exploration companies.

– Nil.

(1) Includes on-mine-site plus off-mine-site activities. Includes field work, overhead, engineering, economic and pre- or production feasibility studies, environmental and land access expenditures.

Note: Numbers may not add to totals due to rounding. The mineral commodity group for unspecified mineral commodities was pro-rated.

TABLE 13d. MINE COMPLEX DEVELOPMENT EXPENDITURES, ⁽¹⁾ BY PROVINCE AND TERRITORY, BY MINERAL COMMODITY SOUGHT, 2000

Province/Territory	Metals					Nonmetals	Diamonds	Coal	Total
	Base	Precious	Iron	Uranium	Other				
	(\$000)								
Newfoundland and Labrador	–	–	10 738	–	–	623	–	–	11 361
Nova Scotia	–	8	–	–	–	3 111	–	1 602	4 720
New Brunswick	24 326	16 214	–	–	–	2 505	–	–	43 045
Quebec	54 345	84 418	85 801	–	34 863	41 926	–	–	301 354
Ontario	72 027	161 279	–	–	1 096	2 347	–	–	236 750
Manitoba	49 499	9 093	–	–	103	103	–	–	58 798
Saskatchewan	4 835	730	–	22 585	–	11 477	–	2 400	42 027
Alberta	–	–	–	–	–	55	–	30 405	30 460
British Columbia	5 022	3 008	–	–	2 998	831	–	23 307	35 165
Yukon	10	21	–	–	–	–	–	–	31
Northwest Territories	–	7 720	–	–	–	–	58 310	–	66 030
Nunavut	1 081	169	–	–	–	–	–	–	1 250
Total	211 144	282 660	96 539	22 585	39 060	62 979	58 310	57 713	830 991

Source: Natural Resources Canada, from a federal-provincial survey of mining and exploration companies.

– Nil.

(1) Includes on-mine-site plus off-mine-site activities. Includes field work, overhead, engineering, economic and pre- or production feasibility studies, environmental and land access expenditures.

Note: Numbers may not add to totals due to rounding.

TABLE 14a. EXPLORATION AND DEPOSIT APPRAISAL EXPENDITURES, ⁽¹⁾ BY JUNIOR AND SENIOR COMPANIES AND MINERAL COMMODITY SOUGHT, 2000

Work Phase/ Type of Company	Base Metals	Precious Metals	Uranium	Diamonds	Others	Total
(\$000)						
Exploration, off-mine-site						
Junior companies and prospectors	38 698	54 143	3 714	20 756	10 543	127 853
Senior companies	74 958	48 452	13 188	37 155	10 176	183 929
Total	113 656	102 595	16 902	57 911	20 718	311 782
Exploration, on-mine-site						
Junior companies and prospectors	–	–	–	–	–	–
Senior companies	7 733	22 264	–	–	747	30 743
Total	7 733	22 264	–	–	747	30 743
Exploration, off- plus on-mine-site						
Junior companies and prospectors	38 698	54 143	3 714	20 756	10 543	127 853
Senior companies	82 691	70 715	13 188	37 155	10 923	214 672
Total	121 389	124 858	16 902	57 911	21 465	342 525
Deposit appraisal, off-mine-site						
Junior companies and prospectors	5 449	18 070	–	1 857	2 734	28 109
Senior companies	7 993	23 791	17 026	31 871	3 063	83 744
Total	13 442	41 861	17 026	33 728	5 796	111 853
Deposit appraisal, on-mine-site						
Junior companies and prospectors	–	–	–	–	–	–
Senior companies	13 124	26 810	–	307	2 033	42 273
Total	13 124	26 810	–	307	2 033	42 273
Deposit appraisal, off- plus on-mine-site						
Junior companies and prospectors	5 449	18 070	–	1 857	2 734	28 109
Senior companies	21 117	50 600	17 026	32 178	5 096	126 017
Total	26 566	68 670	17 026	34 035	7 829	154 126
Exploration plus deposit appraisal, off- plus on-mine-site						
Junior companies and prospectors	44 146	72 213	3 714	22 613	13 276	155 962
Senior companies	103 809	121 316	30 214	69 333	16 018	340 689
Total	147 955	193 529	33 928	91 946	29 294	496 651

Source: Natural Resources Canada, from a federal-provincial survey of mining and exploration companies.

– Nil.

(1) Includes field work, overhead, engineering, economic and pre- or production feasibility studies, environmental and land access expenditures.

Note: Numbers may not add to totals due to rounding.

TABLE 14b. EXPLORATION AND DEPOSIT APPRAISAL EXPENDITURES, ⁽¹⁾ BY JUNIOR AND SENIOR COMPANIES AND MINERAL COMMODITY SOUGHT, 2001

Work Phase/ Type of Company	Base Metals	Precious Metals	Uranium	Diamonds	Others	Total
	(\$000)					
Exploration, off-mine-site						
Junior companies and prospectors	40 026	65 143	1 973	38 039	12 732	157 913
Senior companies	59 998	43 841	11 690	57 477	7 956	180 963
Total	100 024	108 984	13 664	95 516	20 687	338 876
Exploration, on-mine-site						
Junior companies and prospectors	–	–	–	–	–	–
Senior companies	14 095	24 147	1 503	–	2 552	42 297
Total	14 095	24 147	1 503	–	2 552	42 297
Exploration, off- plus on-mine-site						
Junior companies and prospectors	40 026	65 143	1 973	38 039	12 732	157 913
Senior companies	74 093	67 988	13 193	57 477	10 508	223 260
Total	114 119	133 131	15 166	95 516	23 240	381 173
Deposit appraisal, off-mine-site						
Junior companies and prospectors	4 267	11 297	–	1 102	3 154	19 820
Senior companies	15 350	3 721	11 923	45 617	6 093	82 704
Total	19 618	15 018	11 923	46 719	9 247	102 524
Deposit appraisal, on-mine-site						
Junior companies and prospectors	–	–	–	–	–	–
Senior companies	5 706	18 773	–	2 461	2 232	29 173
Total	5 706	18 773	–	2 461	2 232	29 173
Deposit appraisal, off- plus on-mine-site						
Junior companies and prospectors	4 267	11 297	–	1 102	3 154	19 820
Senior companies	21 057	22 494	–	48 078	8 325	111 877
Total	25 324	33 791	11 923	49 180	11 479	131 697
Exploration plus deposit appraisal, off- plus on-mine-site						
Junior companies and prospectors	44 293	76 440	1 973	39 141	15 885	177 733
Senior companies	95 150	90 482	25 116	105 555	18 833	335 136
Total	139 443	166 922	27 089	144 697	34 719	512 869

Source: Natural Resources Canada, from a federal-provincial survey of mining and exploration companies.

– Nil.

(1) Includes field work, overhead, engineering, economic and pre- or production feasibility studies, environmental and land access expenditures.

Note: Numbers may not add to totals due to rounding.

TABLE 15a. EXPLORATION AND DEPOSIT APPRAISAL EXPENDITURES, ⁽¹⁾ BY PROVINCE AND TERRITORY, BY JUNIOR AND SENIOR COMPANIES, 2000

Province/Territory	Exploration			Deposit Appraisal			Exploration Plus Deposit Appraisal		
	Junior Companies and Prospectors	Senior Companies	Total	Junior Companies and Prospectors	Senior Companies	Total	Junior Companies and Prospectors	Senior Companies	Total
(\$000)									
Newfoundland and Labrador	7 343	9 851	17 195	1 247	8 875	10 122	8 591	18 726	27 317
Nova Scotia	2 950	53	3 003	582	–	582	3 532	53	3 585
New Brunswick	1 858	8 339	10 197	–	1 928	1 928	1 858	10 267	12 125
Quebec	23 898	47 823	71 721	822	21 573	22 395	24 720	69 396	94 116
Ontario	26 184	51 548	77 732	880	39 327	40 208	27 064	90 875	117 939
Manitoba	4 296	20 585	24 881	1 465	1 774	3 239	5 761	22 359	28 121
Saskatchewan	7 926	17 858	25 784	1 028	18 779	19 806	8 953	36 637	45 590
Alberta	2 847	3 647	6 494	–	744	744	2 847	4 390	7 237
British Columbia	16 924	10 783	27 707	1 660	6 557	8 217	18 584	17 340	35 924
Yukon	6 181	2 833	9 014	2 040	179	2 219	8 221	3 012	11 233
Northwest Territories	11 375	19 004	30 379	1 805	19 186	20 990	13 179	38 190	51 369
Nunavut	16 072	22 347	38 419	16 580	7 096	23 677	32 653	29 443	62 096
Total	127 853	214 672	342 525	28 109	126 017	154 126	155 962	340 689	496 651

Source: Natural Resources Canada, from a federal-provincial survey of mining and exploration companies.

– Nil.

(1) Includes on-mine-site plus off-mine-site activities. Includes field work, overhead, engineering, economic and pre- or production feasibility studies, environmental and land access expenditures.

Note: Numbers may not add to totals due to rounding.

TABLE 15b. EXPLORATION AND DEPOSIT APPRAISAL EXPENDITURES, ⁽¹⁾ BY PROVINCE AND TERRITORY, BY JUNIOR AND SENIOR COMPANIES, 2001

Province/Territory	Exploration			Deposit Appraisal			Exploration Plus Deposit Appraisal		
	Junior Companies and Prospectors	Senior Companies	Total	Junior Companies and Prospectors	Senior Companies	Total	Junior Companies and Prospectors	Senior Companies	Total
(\$000)									
Newfoundland and Labrador	5 824	12 206	18 030	1 333	9 079	10 412	7 157	21 285	28 442
Nova Scotia	1 035	201	1 236	1 571	12	1 583	2 606	213	2 819
New Brunswick	3 263	3 996	7 259	–	2 200	2 200	3 263	6 196	9 459
Quebec	26 541	51 793	78 335	3 494	21 118	24 612	30 035	72 911	102 947
Ontario	37 997	58 873	96 870	1 728	15 042	16 769	39 725	73 915	113 640
Manitoba	6 515	19 383	25 898	654	2 114	2 768	7 169	21 497	28 667
Saskatchewan	7 222	18 390	25 613	–	11 923	11 923	7 222	30 313	37 535
Alberta	1 500	2 953	4 453	–	–	–	1 500	2 953	4 453
British Columbia	16 137	9 261	25 398	2 181	1 558	3 739	18 318	10 819	29 137
Yukon	5 092	2 309	7 401	406	–	406	5 499	2 309	7 807
Northwest Territories	14 169	23 458	37 627	940	48 078	49 018	15 109	71 537	86 645
Nunavut	32 617	20 436	53 053	7 513	753	8 266	40 130	21 189	61 318
Total	157 913	223 260	381 173	19 820	111 877	131 697	177 733	335 136	512 869

Source: Natural Resources Canada, from a federal-provincial survey of mining and exploration companies.

– Nil.

(1) Includes on-mine-site plus off-mine-site activities. Includes field work, overhead, engineering, economic and pre- or production feasibility studies, environmental and land access expenditures.

Note: Numbers may not add to totals due to rounding.

TABLE 16a. EXPLORATION ACTIVITY, ⁽¹⁾ BY PROVINCE AND TERRITORY, 2001

Province/Territory	Drilling (Surface and Underground)				Geochemical	Geology	Geophysical		Rock Work (2)	Other Field Costs	Engineering Studies	Economic Studies	Pre- or Production Feasibility Studies	Mineral Lease and Head Office	Environment	Land Access	Grand Total
	Diamond		Other				Ground	Airborne									
	Metres	Cost	Metres	Cost													
	(000)	(\$000)	(000)	(\$000)													
Newfoundland and Labrador	41	5 178	1	16	839	4 114	1 482	473	1 470	2 293	19	3	1	2 074	34	33	18 030
Nova Scotia	3	196	1	67	92	280	160	-	52	25	22	-	35	218	48	41	1 236
New Brunswick	41	2 783	12	588	342	1 382	437	139	124	111	14	-	1 305	35	1	7 259	
Quebec	346	27 115	...	20	2 058	14 539	8 264	5 742	7 074	3 844	169	7	46	8 749	517	190	78 335
Ontario	420	30 911	10	10 415	4 984	20 301	7 326	6 500	5 166	2 396	150	50	259	7 034	215	1 164	96 870
Manitoba	100	10 860	3	120	1 466	2 191	2 712	1 943	965	1 580	1	-	-	4 070	23	65	25 898
Saskatchewan	88	11 643	11	4 010	356	1 173	3 517	580	2	1 712	150	-	-	2 433	25	12	25 613
Alberta	7	1 317	31	718	139	201	271	127	-	162	157	-	-	1 329	15	16	4 453
British Columbia	182	10 946	-	-	1 623	4 690	853	153	1 058	871	157	72	10	2 922	1 653	390	25 398
Yukon	12	2 791	-	-	667	2 379	262	122	561	121	-	-	-	326	145	27	7 401
Northwest Territories	27	10 587	6	5 409	4 144	3 795	2 937	5 468	15	760	92	32	103	3 855	34	398	37 627
Nunavut	91	23 569	7	3 192	3 440	9 180	1 930	2 375	2 823	484	25	-	-	5 370	389	274	53 053
Total	1 359	137 895	83	24 556	20 151	64 224	30 151	23 522	19 311	14 359	955	164	454	39 684	3 134	2 612	381 173
Percentage of grand total	n.a.	36.2	n.a.	6.4	5.3	16.8	7.9	6.2	5.1	3.8	0.3	...	0.1	10.4	0.8	0.7	100.0

Source: Natural Resources Canada, from a federal-provincial-territorial survey of mining and exploration companies.

- Nil; ... Amount too small to be expressed; n.a. Not applicable.

(1) Includes on-mine-site plus off-mine-site activities. (2) Includes stripping, trenching, shaft work, drifts, cross-cuts, raises, declines, rock sampling and de-watering costs.

Note: Numbers may not add to totals due to rounding.

TABLE 16b. DEPOSIT APPRAISAL ACTIVITY, ⁽¹⁾ BY PROVINCE AND TERRITORY, 2001

Province/Territory	Drilling (Surface and Underground)				Geochemical	Geology	Geophysical		Rock Work (2)	Other Field Costs	Engineering Studies	Economic Studies	Pre- or Production Feasibility Studies	Mineral Lease and Head Office	Environment	Land Access	Grand Total
	Diamond		Other				Ground	Airborne									
	Metres	Cost	Metres	Cost													
	(000)	(\$000)	(000)	(\$000)													
Newfoundland and Labrador	7	1 713	-	-	2	289	98	-	-	146	239	4 022	1 253	474	256	1 921	10 412
Nova Scotia	1	30	...	...	-	17	-	-	9	12	185	80	411	385	456	...	1 583
New Brunswick	10	1 900	-	-	-	300	-	-	-	-	-	-	-	-	-	-	2 200
Quebec	151	6 768	-	-	...	359	194	-	6 195	2 465	4 179	483	1 990	1 398	582	-	24 612
Ontario	60	6 224	-	-	179	1 437	192	-	5 740	73	828	72	422	1 362	241	-	16 769
Manitoba	34	2 144	-	-	-	10	27	-	242	-	3	-	101	236	-	5	2 768
Saskatchewan	-	-	-	-	-	-	-	-	-	3 527	1 918	-	-	5 476	1 002	-	11 923
Alberta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
British Columbia	21	1 257	-	-	137	884	-	-	-	57	424	168	253	171	206	182	3 739
Yukon	-	-	-	-	24	-	-	-	-	4	89	-	-	30	239	20	406
Northwest Territories	18	4 218	4	11 461	-	1 884	148	-	7 731	8 523	8 402	-	150	4 302	1 713	486	49 018
Nunavut	18	4 756	-	-	-	80	-	160	-	-	1 444	-	-	756	510	560	8 266
Total	321	29 010	4	11 461	343	5 261	659	160	19 917	14 806	17 710	4 824	4 580	14 588	5 204	3 175	131 697
Percentage of grand total	n.a.	22.0	n.a.	8.7	0.3	4.0	0.5	0.1	15.1	11.2	13.4	3.7	3.5	11.1	4.0	2.4	100.0

Source: Natural Resources Canada, from a federal-provincial-territorial survey of mining and exploration companies.

- Nil; ... Amount too small to be expressed; n.a. Not applicable.

(1) Includes on-mine-site plus off-mine-site activities. (2) Includes stripping, trenching, shaft work, drifts, cross-cuts, raises, declines, rock sampling and de-watering costs.

Note: Numbers may not add to totals due to rounding.

TABLE 16c. EXPLORATION PLUS DEPOSIT APPRAISAL ACTIVITIES, ⁽¹⁾ BY PROVINCE AND TERRITORY, 2001

Province/Territory	Drilling (Surface and Underground)				Geochemical	Geology	Geophysical		Rock Work (2)	Other Field Costs	Engineering Studies	Economic Studies	Pre- or Production Feasibility Studies	Mineral Lease and Head Office	Environment	Land Access	Grand Total
	Diamond		Other				Ground	Airborne									
	Metres	Cost	Metres	Cost													
	(000)	(\$000)	(000)	(\$000)													
Newfoundland and Labrador	48	6 891	1	16	841	4 403	1 580	473	1 470	2 439	258	4 024	1 255	2 548	290	1 954	28 442
Nova Scotia	4	226	1	67	92	297	160	–	61	37	207	80	446	603	503	41	2 819
New Brunswick	51	4 683	12	588	342	1 682	437	139	124	111	14	–	–	1 305	35	1	9 459
Quebec	497	33 883	...	20	2 059	14 898	8 458	5 742	13 269	6 309	4 347	490	2 036	10 147	1 099	190	102 947
Ontario	481	37 135	10	10 415	5 164	21 738	7 518	6 500	10 905	2 469	978	122	680	8 395	456	1 164	113 640
Manitoba	134	13 004	3	120	1 466	2 202	2 739	1 843	1 208	1 580	4	–	101	4 306	23	70	28 667
Saskatchewan	88	11 643	11	4 010	356	1 173	3 517	580	2	5 239	2 068	–	–	7 908	1 026	12	37 535
Alberta	7	1 317	31	718	139	201	271	127	–	162	157	–	–	1 329	15	16	4 453
British Columbia	204	12 204	–	–	1 760	5 574	853	153	1 058	928	581	240	263	3 092	1 859	572	29 137
Yukon	12	2 791	–	–	691	2 379	262	122	561	125	89	–	–	356	384	47	7 807
Northwest Territories	45	14 805	11	16 870	4 144	5 679	3 085	5 468	7 746	9 282	8 494	32	253	8 157	1 747	884	86 645
Nunavut	109	28 325	7	3 192	3 440	9 260	1 930	2 535	2 823	484	1 469	–	–	6 126	899	835	61 318
Total	1 679	166 905	87	36 016	20 495	69 485	30 810	23 682	39 227	29 165	18 665	4 988	5 034	54 272	8 338	5 787	512 869
Percentage of grand total	n.a.	32.5	n.a.	7.0	4.0	13.5	6.0	4.6	7.6	5.7	3.6	1.0	1.0	10.6	1.6	1.1	100.0

Source: Natural Resources Canada, from a federal-provincial-territorial survey of mining and exploration companies.

– Nil; ... Amount too small to be expressed; n.a. Not applicable.

(1) Includes on-mine-site plus off-mine-site activities. (2) Includes stripping, trenching, shaft work, drifts, cross-cuts, raises, declines, rock sampling and de-watering costs.

Note: Numbers may not add to totals due to rounding.

TABLE 16d. MINE COMPLEX DEVELOPMENT ACTIVITY, ⁽¹⁾ BY PROVINCE AND TERRITORY, 2001

Province/Territory	Drilling (Surface and Underground)				Geochemical	Geology	Geophysical		Rock Work (2)	Other Field Costs	Engineering Studies	Economic Studies	Pre- or Production Feasibility Studies	Mineral Lease and Head Office	Environment	Land Access	Grand Total
	Diamond		Other				Ground	Airborne									
	Metres	Cost	Metres	Cost													
	(000)	(\$000)	(000)	(\$000)													
Newfoundland and Labrador	2	59	109	2 772	–	141	–	–	16 197	3	–	–	–	1 044	30	–	20 247
Nova Scotia	6	212	152	212	–	23	–	–	6 951	1	116	–	–	108	254	70	7 946
New Brunswick	20	5 898	16	9 302	33	47	–	–	28 026	10 282	–	–	–	1 391	3 062	48	58 089
Quebec	182	6 269	38	2 283	396	2 358	20	–	162 276	30 493	13 960	–	43	32 903	18 681	47	269 727
Ontario	423	24 003	232	5 556	283	4 501	378	245	105 174	362	1 525	2	–	5 471	8 696	–	156 197
Manitoba	148	7 201	–	–	428	459	264	–	53 435	96	608	–	4	1 952	215	–	64 661
Saskatchewan	15	3 483	50	6 209	–	15	81	–	3 597	1 086	247	–	663	5 554	5 164	59	26 158
Alberta	2	300	10	1 325	–	67	–	–	27 921	152	919	55	111	5 523	10 427	44	46 844
British Columbia	89	3 697	624	4 419	793	1 530	187	–	14 805	283	1 198	45	60	6 961	2 212	72	36 262
Yukon	1	95	–	–	–	–	–	–	–	–	26	–	–	10	–	–	132
Northwest Territories	–	–	1 192	23 966	–	456	–	–	60 068	13 038	4 532	–	–	17 376	7 604	4 464	131 503
Nunavut	7	410	–	–	29	184	–	–	8 859	–	275	–	–	417	1 527	12	11 714
Total	894	51 626	2 423	56 043	1 962	9 780	931	245	487 308	55 797	23 406	103	881	78 709	57 872	4 816	829 478
Percentage of grand total	n.a.	6.2	n.a.	6.8	0.2	1.2	0.1	...	58.7	6.7	2.8	...	0.1	9.5	7.0	0.6	100.0

Source: Natural Resources Canada, from a federal-provincial-territorial survey of mining and exploration companies.

– Nil; ... Amount too small to be expressed; n.a. Not applicable.

(1) Includes on-mine-site plus off-mine-site activities. (2) Includes stripping, trenching, shaft work, drifts, cross-cuts, raises, declines, rock sampling and de-watering costs.

Note: Numbers may not add to totals due to rounding.

TABLE 17a. EXPLORATION PLUS DEPOSIT APPRAISAL (SURFACE DRILLING), ⁽¹⁾ BY PROVINCE AND TERRITORY, BY MINERAL COMMODITY SOUGHT, 2001

Province/Territory	Metals					Nonmetals	Diamonds	Coal	Total
	Base	Precious	Iron	Uranium	Other				
	(000 metres)								
Newfoundland and Labrador	26	15	3	–	3	2	–	–	48
Nova Scotia	–	2	...	–	1	3	–	–	5
New Brunswick	28	23	–	–	...	...	–	–	52
Quebec	190	128	–	–	5	5	4	–	331
Ontario	117	230	–	–	13	2	25	–	386
Manitoba	43	11	–	–	10	2	4	–	70
Saskatchewan	8	10	–	62	1	–	10	6	98
Alberta	–	...	–	–	–	–	7	12	19
British Columbia	52	125	–	–	6	6	–	15	204
Yukon	5	7	–	–	...	–	–	–	12
Northwest Territories	5	4	–	–	...	–	45	–	54
Nunavut	21	71	–	–	7	–	15	–	114
Total	494	626	4	62	46	19	109	33	1 394

Source: Natural Resources Canada, from a federal-provincial-territorial survey of mining and exploration companies.
 – Nil; ... Amount too small to be expressed.

(1) Includes on-mine-site plus off-mine-site activities. Drilling includes diamond and other types of drilling.

Note: Numbers may not add to totals due to rounding.

TABLE 17b. EXPLORATION PLUS DEPOSIT APPRAISAL (UNDERGROUND DRILLING), ⁽¹⁾ BY PROVINCE AND TERRITORY, BY MINERAL COMMODITY SOUGHT, 2001

Province/Territory	Metals					Nonmetals	Diamonds	Coal	Total
	Base	Precious	Iron	Uranium	Other				
	(000 metres)								
Newfoundland and Labrador	–	...	–	–	–	–	–	–	...
Nova Scotia	–	–	–	–	–	–	–	–	–
New Brunswick	6	4	–	–	–	–	–	–	10
Quebec	11	155	–	–	–	–	–	–	166
Ontario	28	70	–	–	7	–	–	–	104
Manitoba	51	15	–	–	–	–	–	–	67
Saskatchewan	2	–	–	–	–	–	–	–	2
Alberta	–	–	–	–	–	–	–	20	20
British Columbia	–	–	–	–	–	–	–	–	–
Yukon	–	–	–	–	–	–	–	–	–
Northwest Territories	–	–	–	–	–	–	–	–	2
Nunavut	–	2	–	–	–	–	–	–	2
Total	98	246	–	–	7	...	2	20	372

Source: Natural Resources Canada, from a federal-provincial-territorial survey of mining and exploration companies.
 – Nil; ... Amount too small to be expressed.

(1) Includes on-mine-site plus off-mine-site activities. Drilling includes diamond and other types of drilling.

Note: Numbers may not add to totals due to rounding.

TABLE 18a. EXPLORATION EXPENDITURES, ⁽¹⁾ BY PROVINCE AND TERRITORY, BY MINERAL COMMODITY SOUGHT, 2001

Province/Territory	Metals					Nonmetals	Diamonds	Coal	Total
	Base	Precious	Iron	Uranium	Other				
	(\$ 000)								
Newfoundland and Labrador	9 393	4 337	1 766	32	1 904	598	–	–	18 030
Nova Scotia	14	207	62	–	275	678	–	1	1 236
New Brunswick	4 038	3 124	–	–	31	65	–	–	7 259
Quebec	39 177	29 386	–	209	872	1 238	7 453	–	78 335
Ontario	20 208	46 578	133	–	2 042	421	27 489	–	96 870
Manitoba	14 584	4 672	–	–	1 351	347	4 944	–	25 898
Saskatchewan	2 518	1 815	16	14 742	575	–	5 667	279	25 613
Alberta	8	355	–	31	–	–	2 533	1 527	4 453
British Columbia	5 815	13 616	...	–	1 303	1 874	–	2 789	25 398
Yukon	2 989	3 619	–	10	426	357	–	–	7 401
Northwest Territories	4 161	1 725	4	9	742	150	30 837	–	37 627
Nunavut	11 214	23 697	–	134	1 414	–	16 594	–	53 053
Total	114 119	133 131	1 981	15 166	10 934	5 727	95 516	4 597	381 173

Source: Natural Resources Canada, from a federal-provincial survey of mining and exploration companies.

– Nil; ... Amount too small to be expressed.

(1) Includes on-mine-site plus off-mine-site activities. Includes field work, overhead, engineering, economic and pre- or production feasibility studies, environmental and land access expenditures.

Notes: Numbers may not add to totals due to rounding. The mineral commodity group for unspecified mineral commodities was pro-rated.

TABLE 18b. DEPOSIT APPRAISAL EXPENDITURES, ⁽¹⁾ BY PROVINCE AND TERRITORY, BY MINERAL COMMODITY SOUGHT, 2001

Province/Territory	Metals					Nonmetals	Diamonds	Coal	Total
	Base	Precious	Iron	Uranium	Other				
	(\$000)								
Newfoundland and Labrador	6 377	501	233	–	2 938	363	–	–	10 412
Nova Scotia	178	54	–	–	108	1 244	–	–	1 583
New Brunswick	1 320	880	–	–	–	–	–	–	2 200
Quebec	8 544	13 390	–	–	2 532	146	–	–	24 612
Ontario	3 599	10 994	–	–	1 638	538	–	–	16 769
Manitoba	2 671	67	–	–	30	–	–	–	2 768
Saskatchewan	–	–	–	11 923	–	–	–	–	11 923
Alberta	–	–	–	–	–	–	–	–	–
British Columbia	1 312	932	–	–	71	537	–	887	3 739
Yukon	231	175	–	–	–	–	–	–	406
Northwest Territories	465	262	–	–	213	–	48 078	–	49 018
Nunavut	628	6 536	–	–	–	–	1 102	–	8 266
Total	25 324	33 791	233	11 923	7 530	2 829	49 180	887	131 697

Source: Natural Resources Canada, from a federal-provincial survey of mining and exploration companies.

– Nil.

(1) Includes on-mine-site plus off-mine-site activities. Includes field work, overhead, engineering, economic and pre- or production feasibility studies, environmental and land access expenditures.

Note: Numbers may not add to totals due to rounding.

TABLE 18c. EXPLORATION PLUS DEPOSIT APPRAISAL EXPENDITURES, ⁽¹⁾ BY PROVINCE AND TERRITORY, BY MINERAL COMMODITY SOUGHT, 2001

Province/Territory	Metals					Nonmetals	Diamonds	Coal	Total
	Base	Precious	Iron	Uranium	Other				
	(\$000)								
Newfoundland and Labrador	15 770	4 838	1 999	32	4 842	961	–	–	28 442
Nova Scotia	192	261	62	–	382	1 921	–	1	2 819
New Brunswick	5 358	4 004	–	–	31	65	–	–	9 459
Quebec	47 721	42 776	–	209	3 405	1 384	7 453	–	102 947
Ontario	23 806	57 572	133	–	3 680	959	27 489	–	113 640
Manitoba	17 255	4 740	–	–	1 381	347	4 944	–	28 667
Saskatchewan	2 518	1 815	16	26 664	575	–	5 667	279	37 535
Alberta	8	355	–	31	–	–	2 533	1 527	4 453
British Columbia	7 127	14 548	...	–	1 374	2 412	–	3 676	29 137
Yukon	3 221	3 794	–	10	426	357	–	–	7 807
Northwest Territories	4 626	1 986	4	9	955	150	78 916	–	86 645
Nunavut	11 842	30 232	–	134	1 414	–	17 696	–	61 318
Total	139 443	166 922	2 214	27 089	18 464	8 556	144 697	5 484	512 869

Source: Natural Resources Canada, from a federal-provincial survey of mining and exploration companies.

– Nil; ... Amount too small to be expressed.

(1) Includes on-mine-site plus off-mine-site activities. Includes field work, overhead, engineering, economic and pre- or production feasibility studies, environmental and land access expenditures.

Notes: Numbers may not add to totals due to rounding. The mineral commodity group for unspecified mineral commodities was pro-rated.

TABLE 18d. MINE COMPLEX DEVELOPMENT EXPENDITURES, ⁽¹⁾ BY PROVINCE AND TERRITORY, BY MINERAL COMMODITY SOUGHT, 2001

Province/Territory	Metals					Nonmetals	Diamonds	Coal	Total
	Base	Precious	Iron	Uranium	Other				
	(\$000)								
Newfoundland and Labrador	–	6 290	13 014	–	–	942	–	–	20 247
Nova Scotia	–	7	–	–	–	7 837	–	101	7 946
New Brunswick	32 225	21 483	–	–	–	4 381	–	–	58 089
Quebec	89 915	49 190	78 108	–	18 298	34 217	–	–	269 727
Ontario	43 105	110 360	–	–	467	2 265	–	–	156 197
Manitoba	44 865	18 605	–	–	237	955	–	–	64 661
Saskatchewan	2 848	2 000	–	6 005	–	12 849	–	2 455	26 158
Alberta	–	–	–	–	–	1 656	–	45 188	46 844
British Columbia	7 786	2 937	–	–	5 689	1 316	–	18 534	36 262
Yukon	44	88	–	–	–	–	–	–	132
Northwest Territories	–	7 570	–	–	974	–	122 959	–	131 503
Nunavut	1 779	9 935	–	–	–	–	–	–	11 714
Total	222 566	228 464	91 122	6 005	25 665	66 419	122 959	66 278	829 478

Source: Natural Resources Canada, from a federal-provincial survey of mining and exploration companies.

– Nil.

(1) Includes on-mine-site plus off-mine-site activities. Includes field work, overhead, engineering, economic and pre- or production feasibility studies, environmental and land access expenditures.

Note: Numbers may not add to totals due to rounding.

TABLE 19. EXPLORATION PLUS DEPOSIT APPRAISAL EXPENDITURES ^(a) BY PROVINCE AND TERRITORY, BY TYPE OF COMPANY, 2001

Province/Territory	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Companies With a Producing Mine in Canada	Affiliates of (1)	Oil Companies	Foreign Companies Excluding (3)	Junior Companies and Prospectors	Other Companies	Total
	(\$000)						
Newfoundland and Labrador	6 291	14 850	–	28	7 157	116	28 442
Nova Scotia	199	–	15	–	2 606	–	2 819
New Brunswick	5 821	376	–	–	3 263	–	9 459
Quebec	50 189	2 978	–	–	30 035	7 235	102 947
Ontario	50 959	2 145	185	19 395	39 725	1 231	113 640
Manitoba	15 450	2 513	–	2 627	7 169	908	28 667
Saskatchewan	12 848	14 275	–	3 153	7 222	38	37 535
Alberta	1 561	1 393	–	–	1 500	–	4 453
British Columbia	10 170	103	322	5	18 318	219	29 137
Yukon	1 846	345	–	118	5 499	–	7 807
Northwest Territories	17 449	1 528	169	50 991	15 109	1 400	86 645
Nunavut	8 799	4 793	751	6 839	40 130	7	61 318
Total	181 580	45 297	1 442	95 665	177 733	11 153	512 869

Source: Natural Resources Canada, from a federal-provincial survey of mining and exploration companies.

– Nil.

(a) Includes on- and off-mine-site activities. Includes field work, overhead, engineering, economic and pre- or production feasibility studies, environmental and land access expenditures.

Note: Numbers may not add to totals due to rounding.

TABLE 20. GENERALIZED MODEL OF THE MINERAL RESOURCE DEVELOPMENT AND MINING PROCESS

PHASE	MINERAL RESOURCE ASSESSMENT	MINERAL EXPLORATION					MINERAL DEPOSIT APPRAISAL				MINE COMPLEX DEVELOPMENT	MINE PRODUCTION	ENVIRONMENTAL RESTORATION
		GRASS-ROOTS EXPLORATION					DA-1	DA-2	DA-3	DA-4			
	MRA	EX-1	EX-2	EX-3	EX-4	EX-5							
STAGE	Various surveys, research and synthesis.	Exploration planning.	Regional reconnaissance and surveys.	Prospecting and ground surveys of anomalies.	Verification of anomalies and showings.	Discovery and delimitation of a mineral deposit.	Mineral deposit definition.	Project engineering.	Project economics.	Feasibility study, production decision.	Mine development, construction of processing plant and infrastructure.	Production, marketing and renewal of reserves.	Mine complex closure and decommissioning, site restoration.
OBJECTIVES	Supply information and tools required to develop the mineral potential of the nation for economic benefit, in the perspective of sustainable development.	Select target commodities. Establish exploration objectives and strategies. Select target areas and sites. Acquire claims or permits if appropriate.	Seek anomalies of interest over wide areas by various survey methods. Select the more promising targets. Acquire claims or permits.	Confirm the presence, exact location and characteristics of anomalies. Acquire claims, leases and properties.	Investigate the cause of anomalies. Find mineral showings. Acquire additional claims, leases and properties.	Discover, delimit and interpret grade, quality and tonnage of a new mineral deposit. Determine if it constitutes a mineral resource of "potential economic interest" to justify more intensive and detailed work.	Define the limits, controls and internal distribution of grades, mineralogy and mineral processing characteristics of the deposit. Acquire all data required for project engineering and cost estimation.	Determine, in an iterative fashion, the design, plans, schedules, capital cost and operating cost estimates for all aspects of the project. Establish technical feasibility and costs thoroughly and re-	Obtain all the information required and determine, based on corporate objectives, parameters for the economic, financial and social-political evaluation of the project.	Diligently validate and integrate project data, interpretations, estimations, plans and evaluations to achieve MCD and production objectives. Decide on whether to undertake the mining project. Obtain permits and financing.	Complete mine development and construction on schedule and within budgets and specifications. Ensure efficient and timely mine complex start-up according to schedule, specifications and cash flow forecasts.	Achieve commercial production on schedule and meet cash flow forecasts and quality specifications. Achieve mine profitability and company survival in the perspective of sustainable development.	Restore mine site, outside plant and infrastructure to environmentally acceptable condition. Ensure the future quality of the environment.
EVALUATION METHODS	Geoscientific, mineral and economic surveys, research, compilations and synthesis by governments, research institutes, universities and industry.	Metal and mineral market research. Review of geological and ore deposit information and of the legal, fiscal and socio-political context in various areas.	Remote sensing, aerial photography and airborne geophysics. Prospecting, geology and geochemistry. Appraisal, rating and selection of anomalies.	Ground, geological, geochemical and geophysical prospecting and surveys. Compilation, appraisal and selection of significant anomalies.	Geological mapping and other surveys. Trenching, drilling and sampling. Appraisal of results, recommendations for further work, and selection of new tar-	Stripping, trenching, mapping, sampling, drilling and down-hole geophysics. Initial mineral processing tests. Environmental and site surveys. Mineral resource estimation and inventory.	Detailed mapping, sampling and drilling on surface or from underground. Systematic mineralogy and mineral processing tests. Detailed environmental and site surveys. Prefeasibility studies.	Pilot tests, engineering design and planning. Capital and operating costs for mining, mineral processing, infrastructure, environmental protection and restoration. Technical risk analysis. Prefeasibility studies.	Market, prices, product development and financial studies. Environmental, economic, financial, and socio-political risk analysis. Prefeasibility studies.	Exhaustive due diligence review of all data, interpretations, plans and estimates. Evaluation of profitability, given the geological, technical, financial and qualitative risks, and the up-side	Project management methods in a quality assurance perspective. Training program for personnel and detailed start-up plan to meet the requirements of this demanding period.	Production management methods to ensure continuous quality and efficiency improvements. Exploration, deposit appraisal and development of new zones or deposits on-mine-site and off-mine-site.	Mine closure and decommissioning. Environmental restoration and monitoring.
RESULTS	Maps, data bases, tools and models.	Exploration projects.	Regional anomalies.	Local anomalies.	Mineral showings.	Mineral deposit.	Deposit appraisal project.			Mining project.	Mining complex.	Mineral production.	Restored site.
MINERAL INVENTORY	UNDISCOVERED MINERAL POTENTIAL					INFERRED RESOURCE	DELIMITED MINERAL RESOURCE				MINERAL RESERVE		
	SPECULATIVE		HYPOTHETICAL				INDICATED	INDICATED AND MEASURED			PROVEN AND PROBABLE		
ESTIMATION ERROR (targeted margin of error of tonnage/grade estimates at the 90% confidence level)						± 100%	± 50%	Indicated: ± 50 to ± 30% Measured: ± 20 to ± 10% (often several sample grid dimensions are used in each category)			Proven (feasibility: ± 10%; mining: ± 5%)		
INVESTMENTS	Moderate	Low, but increasing multiple investments.					Larger and increasing multiple investments.				Very large industrial investment.		Full compliance
RISK LEVEL	Low	Very high, but decreasing risk of failure and financial loss.					High, but decreasing risk of failure.				Moderate to low industrial risk.		

Sources: Modified by D.A. Cranstone, A. Lemieux and M. Vallée, February 25, 1994, from M. Vallée, 1992, *Guide to the Evaluation of Gold Deposits*, CIM Special Volume 45, p. 4, and *SOQUEM Annual Report*, 1976-77, pp. 4 and 5. Revised by M. Vallée and G. Bouchard, January 2001.