CANADA

By Natural Resources Canada

Overview
Greig Birchfield
Minerals and Mining Statistics Division
Minerals and Metals Sector, Natural Resources Canada

The total value of all mineral commodities mined in Canada, including metals, nonmetals and coal, increased to C$20.2 billion in 2003, compared with C$19.9 billion in 2002[1]. This 1.5% increase was due primarily to a large rise in the value of diamond production. However, the value of mine production of most of the important metallic minerals declined.

(Note that this measure of Canadian mineral production reflects only the production and value of domestically mined minerals and does not include the value of production of imported materials. As a result, primary aluminium production is not included as it is produced from imported bauxite ore. It also does not include the value of recycled material.)

The value of coal production declined to C$1.5 billion in 2003 from C$1.6 billion in 2002 as the volume of coal production decreased.

A second more comprehensive measure of the value of the Canadian mineral industry includes not only the value of the above metals, nonmetals and coal, but also revenue from oil sands mining and value generated by the smelting and refining and further processing of these commodities. Also included are concentrates and intermediate products exported from Canada. By this measure, the value of the mining and mineral processing industries reaches approximately C$50 billion. At the time of writing, this concept of the industry was still being developed; therefore, this article does not address this measure of the industry.

The volume of most major metals produced from Canadian mines fell in 2003, largely in response to the lower metal prices experienced in 2002. Although prices rebounded in 2003, metal production was slower to react. The decreased output for most base and precious metals led to a 6.5% decline in the value of metal production from C$10.4 billion in 2002 to C$9.7 billion in 2003. Iron ore was an exception – a 6.7% rise in production, combined with higher iron-ore prices, resulted in a 13.1% increase in the value of iron ore

[1] The production data presented in this Overview are based on Natural Resources Canada's Annual Census of Mines, Quarries and Sand Pits' shipments data and may differ from production figures cited elsewhere in this Canada paper. The data do not include crude oil, natural gas or natural gas by-products. The 2003 data are preliminary annual figures released in February 2004.

produced. Uranium production declined, even so, Canada remains the world's largest producer of uranium. Copper, gold, platinum group metals, lead and zinc also experienced declines in value of production. Although the volume of nickel produced fell by nearly 14%, the value increased by 4.2% as the result of rising nickel prices. Canada ranks among the world leaders in the production of the above metals.

The value of nonmetal mining production (which includes structural materials such as cement and sand and gravel) experienced a significant increase of 13.8% in 2003, reaching a record C$9.0 billion. The increase was driven by a very substantial increase in the volume of diamonds produced. In 2003, diamonds attained the highest value of the nonmetals (C$1.7 billion) and were the third most valuable mineral commodity after gold (C$2.3 billion) and nickel (C$2.0 billion). The volume of potash production increased by 9.4% in 2003, but the value of production increased by only 1.3%. Canada continues to rank first in the world in potash production.

In 2003, diamond mining in Canada completed its fifth full year of production and a second diamond mine began production. Both of these mines are in the Northwest Territories. A third mine is scheduled to open in 2006 or 2007. Canada now ranks third in terms of the value of global production of rough diamonds, trailing only Botswana and Russia.

The Canadian mineral industry traditionally includes mining (including coal), primary metal manufacturing, nonmetallic mineral product manufacturing, and fabricated metal product manufacturing. It does not include the crude petroleum and natural gas industries. The industry accounted for C$40.8 billion, or 4.0%, of Canada's Gross Domestic Product (GDP) in 2003, measured at basic prices in 1997 dollars, an increase of 2.0% over 2002 levels. Mining contributed 24.5% of the industry's GDP, primary metal manufacturing, 29.4%, nonmetallic mineral manufacturing, 13.2%, and fabricated metals, the remaining 32.8%.

According to preliminary data compiled by Natural Resources Canada, employment in the Canadian mining industry recorded a fractional 0.7% decline in 2003, falling to an estimated 47,305, down from 47,633 in 2002. Employment in metal mining decreased by 2.2% to 24,539 while nonmetal mining was up by 5.6% to 18,363. Employment in the coal-mining sector fell by 14.8% to 4,403 in 2003.

The very small decline in mining-sector employment was not, however, reflected in mine openings and closings. Preliminary information indicates that in 2003 there were three mine openings (two new mines and one re-opening) and ten mine closings (two closures and eight production suspensions). One of the new mines is the Diavik diamond mine in the Northwest Territories. Three of the suspensions were asbestos mines and two suspensions were coal-mining operations.

When the primary metal, nonmetallic mineral and metal fabricating industries are included, employment in 2003 reached an estimated 341,593, up from an estimated 338,836 in 2002. All three sectors of the mineral manufacturing industry realised slight increases in their levels of employment.

Exports of crude minerals (excluding petroleum and natural gas), coal, smelted and refined outputs, and mineral products contributed C$47.0 billion to the value of Canada's domestic exports in 2003, a 5.3% decline compared with 2002. This represented 13.3% of Canada's total domestic exports of C$354.0 billion. Metallic mineral and mineral product domestic exports accounted for 75.8% (C$35.7 billion) of the total non-fuel (including coal) value, nonmetal domestic exports (including structural materials) accounted for 20.6% (C$9.7 billion), and coal accounted for 3.6% (C$1.7 billion). The US remains Canada's principal trading partner, with domestic exports of non-fuel minerals and mineral products, including coal, to that country valued at C$34.3 billion. Exports to the EU totalled C$5.9 billion, to Japan, C$1.7 billion, and to Mexico, C$0.3 billion.

In 2003, Canadian imports of non-fuel minerals and mineral products, including coal, decreased by 6.2% to C$45.4 billion. Canada's merchandise trade surplus (domestic mineral exports plus re-exports minus total mineral imports) totalled C$3.0 billion in 2003, up from C$2.6 billion in 2002. The value of both total exports and total imports decreased in 2003 compared with 2002. (Tables 1 and 2 and note)

Exploration

Ginette Bouchard
Exploration Analyst
Minerals and Metals Sector, Natural Resources Canada

Louis Arseneau
Senior Economic Policy Analyst
Minerals and Metals Sector, Natural Resources Canada

The Canadian mineral exploration sector now appears to have fully recovered from the downward trend of the late 1990s when exploration and deposit appraisal spending tumbled to an historical low of C$497 million in 2000. The turnaround, which began timidly in 2001 with expenditures of C$513 million, became more evident in 2002, with recorded spending of C$573 million. The rebound was further confirmed in 2003 when more than 600 exploration and deposit appraisal project operators reported expenditures of C$641 million (preliminary) to the federal-provincial/territorial Survey of Mineral Exploration, Deposit Appraisal and Mine Complex Development Expenditures.

Company spending intentions for 2004, which were expressed in late 2003, point to an even stronger increase, with spending expected to reach C$795 million. At the time of writing this article, a review of incoming data for the upcoming revised intentions survey indicated that this total will likely be surpassed, as many companies have decided to invest more in their projects

than originally planned, and have succeeded in raising the necessary financing.

As elsewhere in the world, the Canadian exploration sector has been buoyed by rising metal prices. However, in Canada, the industry has also benefited from timely exploration incentives at both the federal and provincial levels. These measures, introduced specifically to counter the latest downward trend in expenditures and to help reconstitute the country's ore reserves base, have been especially useful for the junior mining sector, which has traditionally played a very important role in Canada's mineral deposit discovery record. Incentives, such as the 15% federal tax credit for exploration and complementary provincial tax credits, have rendered the flow-through share mechanism more attractive and have reinvigorated the interest of investors and financial markets in mining and exploration companies' shares. NRCan estimates that over C$300 million was raised for exploration in Canada via the issuance of flow-through shares in 2003.

About 75% of the C$795 million in spending intentions for 2004 is scheduled for the exploration work phase, and the remaining 25% is expected to be spent on deposit appraisal activities. In 2003, there were about 80 off-mine-site advanced projects that qualified for the deposit appraisal work phase. In addition, improved metal prices led companies to revisit over 70 former mine sites, undertaking projects at both the exploration and deposit appraisal stages.

Canada's young diamond mining industry continues to gain strength and prominence as a world producer. The success of diamond mining in Canada has led to large investments in the search for diamonds by both junior and senior companies. In the past decade, over C$1.5 billion has been spent on the search for these gems in Canada, primarily in the northern part of the country, and companies continue actively to pursue diamonds at both the exploration and deposit appraisal work phases. It is estimated that, in 2004, diamonds will again represent more than 25% of all exploration and deposit appraisal spending in Canada, with expenditures of C$214 million. Precious metals (mainly gold) and base metals will account for most of the remaining expenditures, both commodity groups currently being supported by stronger prices.

The vigour of the Canadian exploration sector is evident across the country. All 12 provincial or territorial mining jurisdictions are expected to record spending increases in 2004 compared with 2003. Ontario (C$202 million), Quebec (C$164 million) and the Northwest Territories (C$110 million) will be the top three regional targets, and the smaller jurisdictions of Nova Scotia, New Brunswick and the Yukon, which had all seen their spending spiral downwards in recent years, are expected to register increases, ranging from 57% in the Yukon to almost 700% in New Brunswick. (Table 3)

The upward trend in exploration and deposit appraisal expenditures has mostly been influenced by off-mine-site spending, a category of work where junior mining companies have really intensified their activities in recent years

(from C$141 million in 1999 to an expected C$350 million in 2004). They are even expected to exceed senior company off-mine-site spending, a feat that has not occurred since the boom of the mid-to-late 1980s when a 133% super deduction for exploration expenses helped propel flow-through-share-financed work to its highest level ever. Senior mining companies are expected to account for C$337 million in off-mine-site spending in 2004 and their on-mine-site spending is predicted to reach C$109 million. This total represents an improvement over recent years but questions remain as to whether these efforts will be sufficient to address downward-trending ore reserves of the main metals mined in Canada.

Overall, the Canadian exploration sector appears to have recovered quite nicely from the recent downturn in spending. However, this recovery hinges on a sustained positive outlook for metal prices and has been helped by a number of temporary federal and provincial tax credits. Continued diamond exploration success, encouraging results at advanced projects, and world-class discoveries will be needed to extend this upward trend, which, according to the Metals Economics Group, has positioned Canada as the top exploration destination in the world.

Aluminium

Wayne Wagner
Senior Industry Specialist, Light Metals
Minerals and Metals Sector, Natural Resources Canada

Production of primary aluminium in Canada increased by 3.1% to 2.79 Mt in 2003, compared with 2.71 Mt in 2002, ranking Canada third after China and Russia. The value of Canadian primary production in 2003 is estimated at C$5.6 billion, down slightly (2%) from C$5.7 billion in 2002 owing to the strengthening of the Canadian currency.

Canadian exports of primary smelter products in 2003 increased to 2.33 Mt valued at C$4.81 billion (US$3.43 billion), compared with 2.13 Mt valued at C$4.94 billion (US$3.14 billion) in 2002. Of this amount, unwrought exports to the US totalled 1.79 Mt valued at C$3.87 billion (US$2.76 billion).

Reported Canadian use of aluminium metal at the first processing stage, including the use of recycled aluminium, was 102 Mt in 2002 up approximately 6% from a revised figure of 0.96 Mt in 2001.

During the past year, plans and changes in Canadian operations have included:

•Aluminerie Alouette Inc began preliminary work in late 2002 on a C$1.4 billion expansion of its smelter from 244,000 t/y to 550,000 t/y, with the first metal expected in 2005. Partners in this smelter are Alcan (40%), Aluminium Austria Metall Québec (20%), Hydro Aluminum (20%), Soc Générale de Financement du Québec (SGF) (13.33%) and Marubeni Québec Inc (6.66%).

•Alcan Inc completed the takeover of Pechiney in 2003 to solidify its position as one of the world's largest aluminium and packaging companies, and work

continues to fulfill conditions imposed by regulatory agencies regarding sales of assets of the merged company.

•Aluminerie de Bécancour, with a capacity of 390,000 t/y, is now owned by Alcoa Inc (74.95%) and Alcan Inc (25.05%) after Alcan's takeover of Pechiney.

•Alcan has announced the closure of 90,000 t/y of Söderberg capacity in the Jonquière smelter by the second quarter of 2004.

•In British Columbia, Alcan's 275,000 t/y smelter at Kitimat continued operating at a reduced rate of 240,000 t/y. Production rates had been lowered in 2001 because of low water levels in the Nechako Reservoir, but had increased to the current rate in mid-2002.

•Alcoa Inc continued negotiations with the Quebec government to upgrade the 437,000 t/y Baie Comeau smelter. Additional power is required for the operation of pre-baked cells, which will replace existing Söderberg technology and expand the capacity of the smelter. Construction of the C$1 billion upgrade to the smelter began in 2003. However, owing to uncertainties in the power supply, the company suspended renovations on the smelter in January 2004. Completion of the upgrade was expected in 2010. The capacity of the smelter would increase by 110,000 t/y to 547,000 t/y.

•Alcoa also continued negotiations with the Quebec government on a C$1 billion expansion of the Deschambault smelter (Lauralco) located near Québec City. Alcoa wishes to expand smelter capacity from 250,000 t/y to 570,000 t/y. Construction on the project would start in 2006, production in 2008, and with full capacity to be reached in 2013.

•In British Columbia, Alberni Aluminium Corp continued work on a proposal for a 360,000 t/y aluminium smelter near Port Alberni, Vancouver Island. Work continued on obtaining a long-term power supply and finding investors for the project. The proposed US$1.5 billion smelter would not be in production before 2008.

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•Coal

Kevin Stone
Industry Analyst, Minerals and Metals
Minerals and Metals Sector, Natural Resources Canada

Don Downing
Vice President, Management Consulting
Norwest Corp.

Canada produced 62.2 Mt of coal in 2003, down 6.7% from 2002's 66.6 Mt. The decline was in bituminous coal production; sub-bituminous and lignite coal production remained the same.

Thanks to the rising demand for coking coal on the world market, Canada's coal exports increased by 10% to 28.3 Mt in 2003, including 23.7 Mt of coking coal, and stopped a downward trend evident since 1997. The increases occurred mainly in the exports to Europe and Latin America, which increased by 4.1% and 3.2%, respectively. Exports to the Middle East and North America also saw a moderate increase. However, exports to Asia, Canada's largest export market, slid again. The Asian share of Canada's coal exports was down from 64% in 2002 to 57% in 2003, even with the new demand from China.

China, as a new coking-coal importer, imported 670,000 t from Canada, accounting for 2.7% of Canada's exports. The Asian share loss was picked up by Europe and Latin American countries.

Canada imported 22.4 Mt of coal in 2003, almost the same level as in 2002. Imports principally supply electricity generating stations and the cement industry in the provinces of Ontario, New Brunswick and Nova Scotia, and the steel industry in Ontario. Bituminous coal is imported into central and eastern Canada from the eastern US, Colombia, and Venezuela and sub-bituminous coal is imported from the western US. In 2003, 85% of the total imports, or 19.2 Mt, was thermal coal. The balance (3.2 Mt) was coking coal consumed by Canada's steel industry. Of the total coal imports, the US supplied 19.4 Mt, Colombia supplied 1.9 Mt, and Venezuela provided 666,000 t. Ontario imported 18.2 Mt, all from the US. New Brunswick imported 1.3 Mt from Colombia. Nova Scotia imported 1.8 Mt, supplied in almost equal measure by the US, Colombia and Venezuela.

Domestic consumption of coal was down slightly to the 60 Mt range from 62 Mt in 2002. Electricity generation used 56 Mt and the remaining 4 Mt was consumed by Canada's steel, cement and other industries. The decrease in consumption last year was attributable to Ontario using less coking coal.

Of significance to coal demand in Canada was a declaration by the government of Ontario that it planned to shut down or convert to natural gas over 7,000 MWe of existing coal-fired generation in the province by the 2007 time period. Various industrial consumers of electricity in the province have publicly announced opposition to the plan, which could impact electricity security and pricing in Canada's largest provincial economy. Ontario relies mainly on coal imports and the change would have only a marginal impact on Canadian coal production, but the issue remains of concern to the industry.

One event dominated the coal-mining news in Canada in 2003. The major consolidation of the Canadian coal-mining industry signalled in late 2002 was consummated in the first quarter of 2003. The merger of the metallurgical coal mining assets of Luscar Ltd, Teck Cominco Ltd and Fording Inc resulted in the formation of the Elk Valley Coal Corp (EVCC) and created a single metallurgical coal producer in the country. There were six operating metallurgical coal mines (Greenhills, Fording River, Line Creek, Elkview, Coal Mountain. and Luscar) and associated lands involved in the merger, as well as an interest in Neptune Bulk Terminals Ltd, a bulk-commodity terminal in

Vancouver, BC. (Luscar is the operator of assets owned by Sherritt Coal Partnership.) Teck Cominco was appointed managing partner of EVCC.

As part of the deal, Luscar purchased the thermal coal assets of Fording and thereby became the dominant domestic producer of thermal coal. The assets involved included vast acreages of undeveloped coal lands, royalty interests, coal-mining service contracts and an interest in an operating mine joint venture.

As a result of the consolidations, all 15 of Canada's large-scale mining operations (greater than 1 Mt/y) are now operated by two companies, EVCC and Luscar Ltd, and account for approximately 99.5% of total production.

Lignite is produced from three mines in Saskatchewan; sub-bituminous (five) and bituminous coal (two) is produced from seven mines in Alberta; and there are five large bituminous coal mines in British Columbia. Small mines include Compliance Coal's surface mine in south-central BC and Quinsam Ltd's underground mine on Vancouver Island off the west coast. There was approximately 200,000 t of surface-mined coal produced for local consumption in the eastern provinces of New Brunswick and Nova Scotia from several small-scale operations.

As worldwide demand for metallurgical coal increases, EVCC is planning to increase production and to bring back its deferred Cheviot project. The company has submitted its mine licence application to obtain the remaining approvals from the Alberta Energy and Utilities Board and from Alberta Environment to develop the Cheviot Creek pit at its Cardinal River operations located near Hinton, Alberta. Mining is anticipated by the fourth quarter of this year (2004). Initial production will be 1.4 Mt/y of coking coal. If market demand remains strong, annual production may be expanded to 2.8 Mt in 2005. New production from Cheviot would dovetail with the previously announced production ramp-down and ultimate closure of the Luscar mine in 2004-05.

Pine Valley Mining Corp announced in April 2004 that the Willow Creek coal mine, located near the town of Chetwynd in northeastern British Columbia, is scheduled to commence commercial production in 2004. Initial production is projected at 45,000 t/mth commencing in June, and at up to 95,000 t/mth by September. Annual production is projected at 1.1 Mt.

Other proposed coal-mine developments in western Canada include: Western Canadian Coal Corp's Burnt River/Wolverine and Sukunka projects; Northern Energy & Mining's Trend project; and Aurora Coal's Wapiti project in northeastern British Columbia. In Alberta, Grande Cache Coal Corp received approval to develop a new metallurgical/hard coking coal underground and surface mine near the town of Grande Cache on the former Smoky River Coal Ltd's lands, but no progress has been reported. Compliance Coal Corp proposed a thermal coal project (the Basin project) near Princeton in southern British Columbia in 2002; however, there has been no report on its progress. In eastern Canada, the Nova Scotia Government is willing to bring back coal

mining. In December 2003, the provincial government announced that it was ready to tender the Donkin coal mineral rights. In April 2004, the government selected a consultant to assist with the tendering process.

In Alberta, construction of the new coal-fired unit No. 3 at the Genesee generating station continues. The new unit will require additional sub-bituminous coal mining capacity at the adjacent Genesee mine. The co-owners of Genesee 3, Epcor and TransAlta, are also planning to collaborate on other generating projects, including the previously announced Keephills generating station expansion.

The Brooks Power project, including a generation plant and surface coal mine, was acquired by Sherritt Coal Partnership II, which is currently reviewing the project and dealing with the environmental assessment application.

Teck Cominco closed the Bullmoose mine in 2003. Reserves at the mining site were depleted. Luscar suspended its Obed Mountain mine in Alberta in April 2003 citing oversupply in the export thermal coal market. Since 1978, the mine had produced, on average, 1.1 Mt/y of bituminous thermal coal for domestic and international customers. Luscar does not have plans to restart the operation.

In the final quarter of 2003, international coal trade was turned on its ear as China emerged as an importer of metallurgical coal, reducing its exports of both coal and coke. This reversal rippled through the market and rapidly depleted any slack in the supply chain virtually overnight. Metallurgical coal prices, therefore, strengthened as the year closed.

The market shift has benefited new mining projects in western Canada and attracted customers and potential financing based on the prospect that stronger demand and prices for metallurgical coal of all qualities will continue through 2004.

2003 began and ended somewhat tumultuously for the Canadian coal industry. First, the big merger created a metallurgical coal powerhouse and a domestic coal monopoly, and then export metallurgical coal market conditions generated rising prices and an impetus for increased production and exports.

Export markets for thermal coal remained dynamic and competitive, with rising prices, but exports of thermal coal are expected to remain at low levels as Canada’s exports are based essentially on one dedicated thermal coal mine in Alberta. This provides limited upside flexibility in the immediate term.

The outlook for 2004 is positive. Canadian coal production is expected to reach 65-66 Mt and new projects will come on stream. Canadian coal exports are also expected to increase by about 10%.

Diamonds

Don Law-West
Mineral Resources Directorate
Indian and Northern Affairs Canada

2003 was a watershed year for the Canadian diamond industry. Mine production more than doubled to 11.2 Mct valued at C$1.7 billion, from 4.9 Mct valued at C$791 million in 2002. Canada now accounts for approximately 15% of world diamond production and is the third-largest producer by value after Botswana and Russia.

Canada's second diamond mine, Diavik, began operating in late 2002. It is an unincorporated joint venture between Diavik Diamond Mines Inc (DDMI), which owns 60%, and Aber Diamond Mines Ltd. (ADML), which owns 40%. DDMI is a wholly-owned subsidiary of Rio Tinto plc of London, UK, and ADML is a wholly-owned subsidiary of Aber Diamond Corp of Toronto, Ontario.

The C$1.27 billion Diavik mine completed its first full year of production and produced some 3.8 Mct. The mine employs about 630 people of which 74% are northern residents; in addition, Aboriginals make up 35% of the total work force.

Canada's first diamond mine, Ekati, completed its fifth full year of production, with an output of some 7.4 Mct. This represents the largest production year for the mine to date. The mine is owned 80% by BHP Billiton Ltd. Mr Chuck Fipke and Dr Stuart Blusson, who discovered the diamond deposit in 1991, each holds a 10% interest in the mine.

Together, the two mines are the largest private employers in the Northwest Territories. They have created jobs for a total of 1,300 people who work directly for the companies. In addition, it has been estimated that at least an additional 2,600 indirect jobs have been created.

The Snap Lake diamond project owned by De Beers Canada completed its environmental assessment process and received its final environmental permit in June this year. The company plans to undertake a bulk-sampling programme leading to commercial production in early 2008. The project is expected to produce about 1.53 Mct/y (average value about US$76/ct) and reserves are sufficient for a mine life of over 20 years. Capital costs are expected to be about C$490 million and the project will create about 350 direct jobs and another 600 indirect jobs.

Canada's first diamond mine outside the Northwest Territories will be the Jericho project located in Nunavut. The project is owned by Tahera Corp, a Canadian company located in Toronto. In February 2004 the project received approval from the Nunavut Impact Review Board, which issued a report to the federal government recommending approval of the project. The federal government is expected to make its decision with respect to approval of the Jericho diamond project during the second quarter. This will allow the

company to complete project financing in 2004. Once in commercial production, the mine is expected to produce about 300,000 ct/y.

Across Canada there are several diamond projects at an advanced stage of exploration. In Saskatchewan there are two projects in the Fort à la Corne region. The Star diamond project, owned and operated by Shore Gold Inc, is mining a 25,000 t bulk sample from a 235 m deep concrete-lined shaft. The company expects to recover about 3,000 ct.

Nearby, is the 140/141 kimberlite bodies owned by a joint venture between De Beers Canada Inc (42.25%), Kensington Resources Ltd (42.25%), Cameco Corp (5.5%) and UEM Inc (10% carried). De Beers is the operator of the project and is undertaking a large-diameter drilling programme during 2004. Both of these projects must work through about 100 m of glacial overburden.

In northern Ontario, De Beers' Victor project is undergoing a comprehensive study for its environmental assessment process. De Beers plans to begin commercial production in late 2007 and to recover about 600,000 ct/y over an 11-year mine life. Capital costs for the project have been estimated at about C$800 million.

In north-central Quebec, Ashton Mining of Canada Inc, in a joint venture with Soquem Inc, has recovered diamonds from its Renaud property where nine kimberlite bodies have been identified, four of which are undergoing bulk sampling. Also, Ashton has announced the discovery of what is now referred to as the Lynx anomaly about 2 km west of the Renaud.

Ashton has reported diamond results for a 3.87 t sample of kimberlitic boulders that returned 4.63 ct, giving the sample an estimated diamond content of 1.2 ct/t. The two largest diamonds weighed 0.96 ct and 0.28 ct. Work at these projects will continue throughout 2004.

Nunavut has become one of the country's most active diamond exploration areas. Several junior and senior mining and exploration companies have claimed large areas of land in the Melville Peninsula and northern Baffin Island. These companies include BHP Billiton, De Beers, Stornoway Diamond Corp and Shear Minerals, among others.

Canada also has a small but growing diamond-manufacturing industry. There are four factories operating in Yellowknife in the Northwest Territories where, under territorial government policy, the diamond-mining companies are obligated to provide a portion of their production for sale to the northern factories.

There are also manufacturers located in Vancouver, Toronto and Matane (Quebec).

Gold

Patrick Chevalier
Senior Advisor - Precious Metals
Minerals and Metals Sector, Natural Resources Canada

In 2003, Canadian gold production totalled 140.6 t, a decrease of 7.5% compared with the 2002 total of 152 t. The reduction in production resulted primarily from a number of mine closures in Quebec, Ontario and Nunavut.

Ontario accounted for 57% of Canada's total gold production, followed by Quebec (20%) and British Columbia (16%). The other provinces and territories combined contributed 7%. Approximately 93% of production in 2003 came from hard-rock underground and open-pit gold mines. Of the remainder, 6% was from base-metal mines and 1% was from placer mining operations. Higher prices for gold in 2003 resulted in the value of exports (including gold contained in scrap and base-metal concentrates) being maintained at about the same level as 2002, at C$2.68 billion, despite a 3.5% decrease in the volume of exports (167 t compared with173 t in 2002). Imports totalled 37 t valued at C$534 million, down from 42 t worth C$606 million in 2002.

Canadian gold mines continue to improve efficiencies and cut costs despite the increased value of the Canadian dollar versus the US dollar. The closure of some higher-cost mines has also helped improve the overall cost-competitiveness of Canadian operations. The average cash cost of production from Canadian underground and open-pit gold mines was about US$177/oz in 2003, down from about US$182/oz in 2002. In all, 25 gold mines were in production at the end of 2003, compared with 30 in 2002.

For the third consecutive year, Goldcorp Inc produced more than 15 t of gold (500,000 oz) at the Red Lake mine in Ontario at a reported cash cost of US$80/oz. This will place the mine, for the third year in a row, as the leading Canadian gold producer in terms of volume of gold produced; it is also among the producers with the lowest production costs in the world. Work to expand Red Lake continues, with the sinking of a new 2,179 m shaft to improve efficiencies and increase capacity, planned to begin in 2004.

In September 2003, Agnico-Eagle Mines Ltd announced that it had completed a transaction to purchase a 100% interest in Barrick Gold Corp's Bousquet property, which lies immediately to the west and south of Agnico-Eagle's LaRonde mine in northwestern Quebec. Agnico-Eagle also acquired the used machinery and equipment from the Bousquet mine, which closed at the end of 2002. In addition to the Bousquet mine assets, Agnico-Eagle increased its interest in the Bruce property (located one mile east of LaRonde) to 100%, and purchased certain of Barrick's regional exploration properties located to the south and west of Cambior's Doyon property. Barrick will retain a 2% net smelter return royalty on all of the properties acquired by Agnico-Eagle. Earlier in the year, Agnico-Eagle reported a rock fall in two production stopes at LaRonde. There were no injuries and no equipment was damaged. Underground and mill operations were not interrupted. While overall reserves

were unaffected, total gold production for 2003 at LaRonde was reported at some 14,600 oz lower than production in 2002, due mainly to the necessity of replacing higher-grade mining blocks with ore from low-grade areas of the mine.

Kinross Gold Corp completed a merger and integration of TVX Gold Inc and Echo Bay Mines Ltd into Kinross at the end of January 2003. As a result of the merger, Kinross produced some 1.62 Moz of gold-equivalent at total cash costs of US$222/oz in 2003. In August, Kinross announced the suspension of operations at its Lupin mine in Nunavut because of poor economic performance. As a result, there was no gold production during the fourth quarter of 2003 and gold production for the full year was reportedly 56,008 oz at total cash costs of US$407/oz. The plant and equipment were placed on care-and-maintenance pending the results of the review of future alternatives for the property.

As a result of continuing losses and a limited cash position, McWatters Mining Inc made a series of announcements towards the end of 2003 regarding mine closures and the sale of assets as the company struggled to stay solvent. In October, the company announced that it was temporarily suspending mining and milling operations at its Sigma mine at Val-d'Or in northwestern Quebec. The mill was placed on a care-and-maintenance schedule pending a return to operation. In November, McWatters announced the sale of its Kiena mine complex west of Val-d'Or to Western Québec Mines Inc. Mining at Kiena was suspended in September 2002. In December, the company sold its interests in the East Amphi and Fourax exploration properties near Malartic, Quebec, to Richmont Mines Inc. Despite these efforts, McWatters announced in January 2004 that it had filed for bankruptcy protection for itself and other members of its group pending the filing of a proposal to its creditors. The company also announced that it had engaged Prime Corporate Finance of Australia to find an investor interested in acquiring all or part of its Sigma-Lamaque property.

Inmet Mining Corp announced a near doubling of its gold reserves at the Troilus mine in northern Quebec. Gold reserves were increased to more than one million recoverable ounces as a result of operational improvements and additional in-fill drilling; this will extend the expected life of the mine by an additional four years from 2006 to 2010.

Iron Ore

Louis Perron
Senior Policy Advisor, Iron Ore
Minerals and Metals Sector, Natural Resources Canada

In 2003, under the tight international market for both iron-ore pellets and concentrates, supported by increasing iron-ore demand from China, Canada's iron-ore shipments reached 33.2 Mt, an increase of 7.4% compared with the previous year. In line with this growth, the value of Canada's iron-ore production increased by 13.1% to C$1.44 billion. Canada's iron-ore exports registered a 5.6% hike to reach 27.1 Mt; the pellet market registered an

increase of 14.0% to 20.6 Mt and the concentrate market decreased by 13.8% to 6.5 Mt.

On account of strong demand for iron-ore products from steelmakers – especially from China – and recent price hikes for steel products, the negotiated price for Canadian iron-ore concentrate or fines bound for Europe was raised by 22.3% to US$0.39/Fe unit, and the price of pellets bound for Europe was increased by 21.2% to US$0.65/Fe unit. These price hikes are expected to counterbalance the decrease in profits caused by the recent appreciation of the Canadian dollar versus the US dollar as iron-ore prices are denominated in the latter currency.

Iron ore is one of Canada's most important mineral products in terms of both tonnage and value. On that basis, Canada is the world's ninth-largest iron ore producer and it ranks fifth for exports. Canada's iron-ore production is concentrated in the Labrador Trough, a major geological belt extending through northern Quebec and Labrador. Canada's production in this area comes from three mining operations owned by Iron Ore Co of Canada (IOC), Quebec Cartier Mining Co (QCM) and Wabush Mines.

Production at IOC in 2003 increased by 1.9% to 14.7 Mt compared with 2002. This production increase was made possible through operational and productivity improvements, the most significant being the plant maintenance shutdown, which was brought down to three days from its usual five weeks. However, the company's efforts to tap into the significant increase in world demand for iron ore were constrained because of production difficulties in the first half of the year at IOC's Carol Lake operation in Labrador City, Newfoundland and Labrador. The company is implementing a major cost-reduction programme aimed at cutting C$120 million by 2005. It also carried on its tailings management programme to comply with the Canadian Government's new Metal Mining Effluent Regulation. The first phase of that project is scheduled for completion by 2007.

Through Investment Quebec (IQ), the Government of Quebec announced on November 3, 2003, that it was granting QCM a C$176 million interest-free loan reimbursable by 2010. IQ will also invest C$20 million in the form of stock capital, which will allow it to become an equal partner in QCM with Caemi Mineraçao e Metalurgia SA and Dofasco Inc. The inflow of capital will enable QCM to finance C$350 million of development work related to stripping heavy rock overburden to get open-pit access to higher-grade ore and ensure continued operation of the mine at a capacity of 12 Mt for the next 15 years. Under this agreement, Dofasco and Caemi will inject C$69 million to finance QCM and will provide a C$40 million loan that will be converted into preferred shares. QCM's iron-ore production for the year amounted to 13.3 Mt, an 11.5% increase over 2002.

Responding to changes in the marketplace, Wabush Mines proceeded with an important capital investment in late 2002/early 2003 to scale up its production level from the 4.5 Mt/y production capacity it operated under in 2002 to the 6.2 Mt/y design capacity of its three production lines. This

resulted in the company producing just under 5.2 Mt of ore in 2003, an increase of about 13% over the previous year.

Canadian shipments of iron ore are forecast to reach a level of around 34.8 Mt in 2004. Of that amount, Wabush Mines expects to produce around 5.6 Mt, while QCM is planning a production level in the order of 13.0 Mt and IOC 16.2 Mt.

Magnesium

Wayne Wagner
Senior Industry Specialist for Magnesium
Minerals and Metals Sector, Natural Resources Canada

Canadian primary magnesium production[2] capacity fell by 20% in 2003 to approximately 56,000 t/y after Magnola Metallurgy Inc closed its Danville, Quebec, smelter. In 2003, Canada ranked second after China in magnesium production capacity. Canada exported C$187 million worth of magnesium metal and metal products, down 30% from C$267 million in 2002.

Norsk Hydro Canada Inc has produced primary magnesium metal at its 50,000 t/y smelter in Bécancour, Quebec, using an electrolytic process since 1989. The plant also recycles magnesium scrap produced by its customers and has a recycling/remelt capacity of 22,000 t/y. Norsk Hydro has been working on a series of new alloys for high-temperature applications and is participating in work done by the European Council for Automotive Research and Development (EUCAR). The company is the world leader in the production of pure and alloyed magnesium and has a global service support network for technical support, recycling and application development.

Timminco Ltd operates a silicothermic reduction facility producing high-purity metal (up to 99.98% pure) for specialised markets at its 6,000 t/y magnesium plant in Haley, Ontario. The operation includes a dolomitic limestone deposit and facilities to produce high-purity metal from that resource. Processing facilities include an extrusion and anode fabrication and assembly plant, as well as magnesium billet and slab processing facilities. Timminco has now completed its financial restructuring. It has also completed installation of dual-casting capacity to increase productivity, to reduce operating costs, and to cast more varied shapes. Timminco has suspended a previously announced temporary closure of the Haley smelter for the second half of 2004 due to increased demand for metal.

Magnola Metallurgy Inc (owned 80% by Noranda Inc and 20% by Soc. Générale de Financement du Québec) closed the 58,000 t/y magnesium metal plant at Danville, Quebec, in April 2003. The company cited low magnesium prices as the reason for the closure. Noranda has granted rights for its patented AJ alloy system (Mg-Al-Sr) to BMW Group for use in a future high-pressure die-cast magnesium engine block.

[2] Canadian magnesium production data are confidential due to the limited number of companies reporting. This production capacity is reported in financial and press reports.

Globex Mining Enterprises Inc continued work on its magnesium-talc deposit near Timmins, Ontario, from which production of both magnesium metal and high-quality talc is possible. Work continued on obtaining financing for a US$12 million full bankable feasibility study for the US$1.0 billion project, including a mine-mill complex located near Timmins, Ontario, and a 95,000 t/y smelter located near Rouyn-Noranda, Quebec.

Gossan Resources Ltd holds a dolomite property at Inwood, Manitoba, with a resource of high-purity dolomite previously estimated at 67 Mt at an average grade of 21.6% MgO. A five-hole drilling programme was completed in 2003. Mintek Engineering of South Africa also tested a bulk sample and determined it suitable for Mintek's new atmospheric silicothermic process to produce metal. Gossan has hired Hatch Associates to do work for a preliminary feasibility study.

Leader Mining International Inc continued work on its Cogburn ultramafic intrusive near Hope, British Columbia, which contains magnesium-bearing silicates. Activities have included initial work on environmental permitting, infrastructure and other studies. In May 2003, Hatch Associates delivered a positive project feasibility study for a mine and a 120,000 t/y smelter project.

The town of Thetford Mines, Quebec, continued studying a proposal to produce magnesium from asbestos-mining residues totalling more than 300 Mt of material averaging approximately 24% magnesium.

Nickel

Bill McCutcheon
Minerals and Metals Sector, Natural Resources Canada

Largely as a result of a strike at Inco's Ontario operations, estimated Canadian mine production in 2003 dropped 14% to 162,800 t and finished output fell to 124,400 t. Production in 2004 could rebound by 15% and 20%, respectively. With high nickel prices expected to continue in 2004, re-examination of other Canadian nickel properties and former nickel mines should accelerate.

The Sudbury Joint Venture (SJV), owned 75% by FNX Mining Co and 25% by Dynatec Corp, re-opened Inco's former McCreedy West mine in May 2003, reaching commercial production in November. Over 47,000 t of ore was mined in 2003 and trucked to the Clarabelle mill for processing and sale to Inco. McCreedy ore production is forecast at 270,000 t in 2004 containing 3,175 t of nickel. The SJV acquired five former Inco properties, spending over C$25 million on exploration in 2003. In 2004, the SJV plans to finish feasibility studies at the Levack mine and the PM deposit at McCreedy West. At the Norman property, the SJV is planning a 600 m shaft to investigate the 2000 deposit below the former Whistle pit. In 2003, Falconbridge Ltd produced 24,000 t of nickel in concentrate from its four Sudbury mines and 25,000 t from its Raglan mine. Smelter production rose 3% to nearly 60,000 t of nickel in matte, including 6,400 t of nickel from secondary and custom sources. Falconbridge sends its matte to its refinery in Norway. Falconbridge will bring

the Montcalm deposit on stream in early 2005, producing 8,000 t/y of nickel. Falconbridge's main exploration targets in Sudbury were the Nickel Rim South and Fraser Morgan orebodies. In 2003, Falconbridge's measured plus indicated resources in Sudbury increased by 4 Mt and its inferred resources increased by 6 Mt. The company will sink a shaft to define and develop the Nickel Rim South property, where inferred resources were 12 Mt averaging 1.6% Ni, 3.7% Cu, 5 g/t PGM + Au, 16 g/t Ag, and 0.04% Co.

Inco Ltd's Sudbury operations were shut by a labour dispute from June 1 until August 28, and Inco's Ontario production fell by 28,000 t owing to the strike and start-up problems. To boost output in 2004, Inco plans to run its smelter above rated feed capacity, increase the interval between maintenance closures, and process imported feed. Inco's Manitoba nickel production dropped as a result of lower tonnage and grade mined at Thompson, despite a 50% increase in the tonnage mined at the Birchtree mine. Increased magnesium oxide content in Birchtree ore had caused smelter problems; this was resolved by the installation of a new flotation circuit, which raised concentrate grade. Inco could reduce costs if it can operate Thompson with only one furnace.

In November, Inco reached agreement with Canadian Royalties Inc, which can spend C$5 million in five years to acquire a 50% share of the TNC South project in Manitoba. Nuinsco Resources worked on the Mel property, near Thompson, held under option from Inco. Nuinsco's goal is to outline 1 Mt of ore accessible by ramp that can be sent to Inco's Thompson mill for processing and sale.

The feasibility study estimated capital costs at US$776 million for the Voisey's Bay project: 76% for the mine/concentrator/infrastructure in Labrador, 17% for the hydrometallurgical programme, 6% for modifications to Inco's Canadian smelters, and 2% for exploration. Average annual production is planned at 50,000 t of nickel, 2,270 t of cobalt and 38,500 t of copper; the majority of the copper in concentrate will be sold. Inco expects to ship concentrate by mid-2006 when the demonstration hydrometallurgical plant at Argentia is ready. A government organisation, Technology Partnerships Canada, will provide conditional repayable funding of C$60 million to the development of the proposed hydrometallurgical process.

Sherritt International Corp indirectly owns half of the interest in the nickel/cobalt refinery in Alberta. The refinery gets 95% of its feed from its mine at Moa Bay, Cuba, where nickel laterite is leached to nickel-cobalt sulphide residue. In 2003, the refinery produced 31,100 t and a record 3,141 t of cobalt. Sherritt continued to evaluate plans to increase nickel production at the mine/refinery by 60% to 50,000 t/y of nickel and about 5,000 t/y of cobalt.

North American Palladium Ltd produced 1,846 t of by-product nickel during 2003 from its open-pit palladium mine near Thunder Bay, Ontario. A new crusher installation was completed in mid-year, and average mill throughput rose to 16,300 t/d in the fourth quarter, up nearly 30% from a year earlier. A

pre-feasibility study for an underground operation was completed and a full feasibility study begun.

Canmine Corp remained shut during 2003 after going into bankruptcy in mid-2002. The hydrometallurgical refinery in Cobalt, Ontario, was sold during 2003.

Potash

Kevin Stone
Industry Analyst, Minerals and Metals
Minerals and Metals Sector, Natural Resources Canada

As predicted at the beginning of 2003, Canadian potash producers saw increases in both production and exports thanks to rising demand for fertiliser worldwide. Canada, the world leader in potash production, increased its annual output by 7% from 8.5 Mt to 9.1 Mt (K_2O), accounting for 33% of the world production of 27.8 Mt (K_2O) in 2003. All producers saw an increase in production. The largest Canadian producer, Potash Corp of Saskatchewan (PotashCorp), achieved a 10% increase in its output from 6.5 Mt to 7.1 Mt KCl in 2003.

Canada's potash operations are concentrated in the province of Saskatchewan. PotashCorp, based in Saskatoon, has five mines. IMC Global, headquartered at Lake Forest, Illinois, has four mines, and Agrium of Calgary, Alberta, operates one mine in the province. Potash Corp also has one operation located in the province of New Brunswick.

Canada remained the largest potash exporter in the world in 2003. Exports increased by 10% from the previous year's 8.1 Mt to 8.9 Mt (K_2O). The biggest jump was in exports to offshore markets, which increased, on average, by 20%. Exports to Latin America increased by 47% from the previous year's 900,000 t to 1.3 Mt (K_2O). Exports to Asia increased by 27% from 1.4 Mt to 1.7 Mt (K_2O). Exports to the US were unchanged and the US remains Canada's largest export market, accounting for half of Canada's potash exports.

Asia was Canada's second-largest export market, accounting for 31%. Latin America's share reached 15%. Other destinations were Australia (2.2%) and EU countries (1.4%).

The average potash price, fob Vancouver, remained unchanged during the year at US$110-115/t. However, producers' profits did not match the increases in production and sales owing to the rising cost of natural gas, freight rates and a strong Canadian dollar.

The outlook for Canadian potash production in 2004 is positive as the world grain stock continues to decline, driving up world grain prices and prompting an increase in grain production. This will in turn push up demand for fertiliser, including potash.

Uranium

Robert Vance
Advisor, Uranium Development
Energy Sector, Natural Resources Canada

Canada retained its position as world leader in uranium production in 2003, with output totalling 10,455 t U (tonnes of uranium metal) valued at over C$500 million. As of January 1, 2004, Canada's 'known' recoverable uranium resources totalled more than 432,000 t U, sufficient for about 40 years of production at current rates of extraction. With over 85% of the resource base categorised as 'low-cost', Canada is well positioned to continue its leadership in uranium production.

All operating mines and mills are situated in the province of Saskatchewan. Two companies, both with head offices in the province, operate all four facilities. Cameco Corp wholly owns and operates the Rabbit Lake mine and mill, and is the majority owner and operator of the Key Lake mill and the McArthur River mine. Areva/Cogema Resources Inc is the majority owner and operator of the McClean Lake mine and mill.

McArthur River is the world's largest high-grade uranium deposit discovered to date (around 175,000 t U with an average grade of 20% U). Mining high-grade uranium in this groundwater-saturated setting requires the use of ground-freezing and high-tech mining methods. Saskatchewan also hosts the world's second largest high-grade uranium deposit, Cigar Lake (about 90 000 t U with an average grade of 17% U). High-tech mining methods specifically adapted to the local geology have been developed at the site. The Cigar Lake mine is currently expected to begin production in 2007.

On August 29, 2003, a screening environmental assessment of a proposal to dispose of potentially acid-generating Cigar Lake waste rock in the Sue C pit at McClean Lake concluded that the environmental effects of the project are not likely to be significant. On January 8, 2003, a screening environmental assessment of the construction and operation of the mine was initiated. A one-day Canadian Nuclear Safety Commission (CNSC) hearing to consider the screening report is to be held on June 10, 2004. If it is concluded at that hearing that the project is not likely to cause significant adverse environmental effects, the CNSC will then consider a licence application to complete mine construction at the site.

Although local deposits at Key Lake were mined out in 1997, the mill is being used to process all ore from the McArthur River mine. The Key Lake mill produced a total of 5,830 t U in 2003, down from the 2002 total of 7,199 t U, because a breach in a development drift in early April led to flooding at the base of the mine that resulted in the temporary suspension of operations. Mining resumed on July 2, about one month earlier than originally anticipated. A small contribution (79 t U) of total 2003 mill production is derived from Key Lake stockpiled mineralised waste rock that is used to **lower** the grade of McArthur River ore to produce a mill feed of about 3.4% U. A proposal to

increase production by 18% at McArthur River and Key Lake is currently the subject of an environmental assessment initiated in January 2003.

Production at Rabbit Lake in 2003 totalled 2,280 t U, up significantly from 2002 production of 440 t U, as operations returned to higher levels of production once technical difficulties, principally related to unstable ground conditions in the Eagle Point underground mine, were overcome. Following the identification of prospects for additional reserves near the existing mine, the development of an exploration drift was completed in early 2004 and drilling to define the potential reserves was initiated.

McClean Lake produced 2,318 t U in 2003, down slightly from 2,342 t U produced in 2002. Mining operations were temporarily suspended in 2002, and the mill is currently being fed by stockpiled ore, principally from the Sue C deposit. Project descriptions for the development of the Sue E open pit and a proposal to expand the mill to process Cigar Lake ore were submitted to regulators in March 2004. An environmental assessment of the Sue E open-pit was initiated on October 30, 2003.

The Federal Court of Canada issued an order on September 23, 2002, that quashed a 1999 McClean Lake operating licence on the grounds that an environmental assessment (EA) under the Canadian Environmental Assessment Act (CEAA) had not been conducted prior to issuing the licence. An appeal court subsequently ordered the decision stayed, pending the disposition of the appeal, which was heard at the beginning of May this year. The Government of Saskatchewan, the Lac La Ronge Indian Band, Kitsaki Development, and Northern Resource Trucking, all filed notices of motion with the Federal Court of Appeal to present information in support of the appeal.

The Cluff Lake mine and mill closed at the end of December 2002. In its final year of operation, the mine was awarded the John T Ryan trophy for achieving the lowest lost time accident rate (0) for a metal mine in Canada. In 2003, 27 t U were recovered from the mill as circuits were cleaned during the mothballing process. On April 14, 2004, the federal Minister of the Environment approved the Cluff Lake Decommissioning Comprehensive Study Report after concluding that the project is not likely to cause significant environmental effects. Once a decommissioning licence is received from the CNSC (anticipated in July 2004), the two-year-long decommissioning programme will begin. The proposed decommissioning programme includes demolition of the mill, establishment of a soil and vegetation cover on the tailings management area, and filling the mined-out Claude open pit with waste rock.

Monitoring, water treatment, and minor engineering works remain the main activities at the decommissioned uranium mining facilities in Elliot Lake, Ontario. Since the last facility closed in 1996, uranium-mining companies have committed over C$75 million to decommission all mines, mills and waste management areas at what was the centre of uranium production in Canada for over 40 years.

Indicators of the spot market price for uranium show that the price has risen significantly (by about 65%) from April 2003 to April 2004. Although the benefit to Canadian uranium producers has been limited somewhat because of unfavourable currency exchange rates, uranium producers are welcoming the strengthened market after enduring a lengthy and challenging period during which uranium prices were low.

With a solid low-cost resource base and environmentally sustainable operations, Canadian uranium producers are well positioned to capitalise on a stronger uranium market.

Tables 1-3 follow:

Table 1 Mineral industry value of production (C$ million)

	2002[r]	2003[p]	Change (%)
Metallic minerals	10,378.5	9,700.2	-6.5
Nonmetallic minerals	7,938.9	9,030.9	13.8
Total non-fuels	18,317.4	18,731.1	2.3
Coal	1,600.5	1,494.5	-6.6
Total minerals	19,918.0	20,225.6	1.5

Sources: Natural Resources Canada; Statistics Canada. [p] Preliminary; [r] Revised.
Note: Totals may not add due to rounding.

Table 2 Metals and minerals production (shipments)

	Unit	2000	2001	2002[r]	2003[p]
	(000)				
Aluminium	t	2,373	2,583	2,709	2,792
Antimony	kg	364	234	145	88
Asbestos	t	310	277	242	..
Bismuth	kg	202	258	203	145
Cadmium	kg	934	979	899	710
Cement	t	12,612	12,986	13,710	14,063
Coal	t	69,163	70,355	66,608	62,163
Cobalt	kg	2,022	2,112	2,065	1,743
Columbium (niobium)	kg	2,183	2,911	3,333	3,270
Copper	t	622	614	584	534
Diamonds	ct	2,435	3,716	4,937	11,200
Gold	g	153,715[r]	158,875	151,904	140,529
Gypsum	t	8,572	7,821	8,809	8,330
Iron ore	t	35,247	27,119	30,902	32,957
Lead	t	143	150	101	77
Lime	t	2,565	2,213	2,248	2,215
Molybdenum	kg	6,980	8,556	7,953	9,304
Natural gas	000 m^3	167,790	171,388	..	..
Nepheline syenite	t	717	710	717	697
Nickel	t	181	184	180	155
Peat	t	1,277	1,319	1,385	1,341
Petroleum	000 m^3	128	130	..	..
Platinum group	g	15,304	20,694	24,372	18,514
Potash (K_2O)	t	9,033	8,237	8,361	9,145
Quartz (silica)	t	1,508	1,613	1,540	1,586
Salt	t	12,164	13,725	12,736	13,390
Sand and gravel	t	238,901	236,486	238,120	235,574
Selenium	kg	335	238	175	253
Silver	kg	1,169	1,265	1,352	1,255
Stone	t	118,335[r]	124,758	124,746	119,356
Sulphur, elemental	t	8,621	8,154	7,671	7,920
Sulphur in smelter gas	t	831	762	703	589
Tantalum	kg	70	94	71	67
Tellurium	kg	53	51	39	40
Uranium (U)	kg	9,921	12,991	12,855	10,294
Zinc	t	936	1,012	924	744

Note: Information in this article was current as of June 2004. The data presented in tables 1 and 2 are subject to revision as more recent data become available.

Table 3 Mineral exploration and deposit appraisal expenditures, 2003 and 2004 (C$ millions)

Province/Territory	2003[p]	2003[p] Off-mine-site only	2004[si]	2004[si] Off-mine-site only
Newfoundland and Labrador	21.0	20.2	30.9	27.8
Nova Scotia	6.6	5.9	11.3	10.3
New Brunswick	2.4	2.4	18.8	18.9
Quebec	150.1	100.0	164.2	129.3
Ontario	190.8	149.1	201.9	156.6
Manitoba	25.9	18.8	30.2	24.9
Saskatchewan	42.4	41.4	51.0	42.2
Alberta	4.8	4.7	5.1	4.6
British Columbia	49.9	47.3	54.2	49.8
Yukon	12.3	12.3	19.4	19.4
Northwest Territories	49.8	49.1	110.4	104.8
Nunavut	85.4	85.4	97.8	97.8
Total	**641.3**	**536.6**	**795.2**	**686.3**
Exploration	470.3	415.2	585.4	528.2
Deposit appraisal	171.0	121.4	209.8	158.0

Source: Natural Resources Canada from the federal-provincial-territorial Survey of Mineral Exploration, Deposit Appraisal and Mine Complex Development Expenditures.
[p] Preliminary; [si] Spending intentions.

Notes: Exploration covers activities up to and including the discovery and first delineation of a new mineral deposit of potential economic interest; deposit appraisal includes activities to bring a delineated deposit to the stage of detailed knowledge required for a feasibility study to support a production decision. Data are current as of March 2004. Numbers may not add to totals due to rounding.