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Diamonds: Adding lustre to the Canadian economy

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Diamonds: Adding lustre to the Canadian economy

Bruna Santarossa

International Trade Division

Summary

They have been captivating people for centuries. In 1953, movie star Marilyn Monroe celebrated them in song. In 1971, Agent 007 James Bond pursued criminals attempting to smuggle them. Now they are setting the economy of the Northwest Territories on fire.

They are diamonds.

The excitement began in 1991 when these brilliant precious stones of pure carbon were discovered at Point Lake near Lac de Gras in the Northwest Territories. Since then, two diamond mines have begun production: EKATI¹ and Diavik², both in the Northwest Territories. A third mine, the Jericho³ project, just north of EKATI in Nunavut, is expected to be in production in 2005. The Snap Lake⁴ project, also in the Northwest Territories, is expected to begin production in 2006.

A relative latecomer, Canada is now a major player in the international diamond scene. Not only is Canada rich in diamonds, it is rich in high quality diamonds. From 1998 to 2002 roughly 13.8 million carats have been mined, collectively worth \$2.8 billion. This is roughly a 1.5-kilogram bag of ice each day for five years, with each bag worth \$1.5 million.

Recent production data suggest that by the end of 2003 Canada will have produced almost 15% of the world's supply of diamonds, the third largest producer of diamonds, behind Botswana and Russia.

Diamond mining is adding a new lustre to the Canadian economy and dazzle to that of the Northwest Territories. Current projects are contributing substantially, both economically and socially, to Canada and particularly the North.

The impact of this industry shows no sign of abating. The EKATI and Diavik diamond mines are expected to be viable operations for the next 11 and 20 years, respectively. Once they are up and running, Jericho is expected to operate for eight years, and Snap Lake for about 18 years. Several projects are at the advanced exploration stage in other regions of Canada. This article profiles one of Canada's most dynamic industries: diamond mining.

Note to readers

BHP Billiton Diamonds Inc., Diavik Diamond Mines Inc. and Aber Diamond Mines Ltd. have signed waivers allowing their statistics on production, employment, capital investment and trade to be published. Statistics Canada appreciates this gesture and thanks them for the consent to use the data in this article.

1. The EKATI mine is 80% owned by the Anglo-Australian company BHP Billiton Diamonds Inc. a subsidiary of BHP Billiton of Melbourne, Australia. Charles Fipke and Stewart Blusson, the geologists who made the initial discovery, each own 10%.

2. The Diavik mine is a joint venture between Aber Diamond Mines Ltd (40%) a subsidiary of Aber Diamond Corporation of Toronto and Diavik Diamond Mines Inc (60%) a subsidiary of Rio Tinto plc, London, U.K.

3. The Jericho project is being developed by Tahera Corporation, Toronto.

4. The Snap Lake project is 100% owned by DeBeers Canada Corporation, Toronto.

Diamond rush: Boosting the NWT economy

The Northwest Territories was set abuzz with the discovery of diamonds in 1991. Two diamond mines have opened since then: the EKATI Diamond mine, which began production in 1998 and the Diavik Diamond mine, which opened in 2003. A third mine, Snap Lake, is expected to begin production in 2006. As a result, the Northwest Territories is flourishing both socially and economically with increases in gross domestic product and in high-paying jobs.

The NWT's economy surged ahead 5.1% in 2002, fuelled by the EKATI mine running at full capacity and by construction of the Diavik mine, which neared completion. Diamond mining accounted for just over 20% of the Northwest Territories' GDP.

Ancillary industries, such as non-residential construction, wholesale and transportation, have also benefited. Non-residential construction and other engineering projects were kept busy as a result of expansion at the EKATI mine and construction of the Diavik mine.

Wholesale sales increased 40% between 1998 and 2002⁵, as wholesalers shipped machinery and building supplies. Truck transportation was up as well, as a result of transporting machinery and supplies from Yellowknife to the mines on over 400 km of ice road. In 2002, almost 9,000 loads of materials and supplies were transported to the EKATI mine and to the Diavik project.

High-income employment for northerners

Diamond mining is providing high-income employment to Canada's northern communities. Between 1998 and 2001, the number of employees directly involved in diamond mining increased almost seven-fold, from just over 90 to more than 700.

More recent employment figures⁶ indicate that there are currently about 2,200 jobs related to diamond mining. The EKATI mine directly employs about 800 people while another 800 people are employed on a contract basis. Over three-quarters of its direct employees are Northern Residents, and 39% are Aboriginal.

The Diavik mine employs roughly 625, of whom 73% are Northern Residents and 37% are Aboriginal. The Snap Lake project is expected to employ about 500 people once it is in full operation.

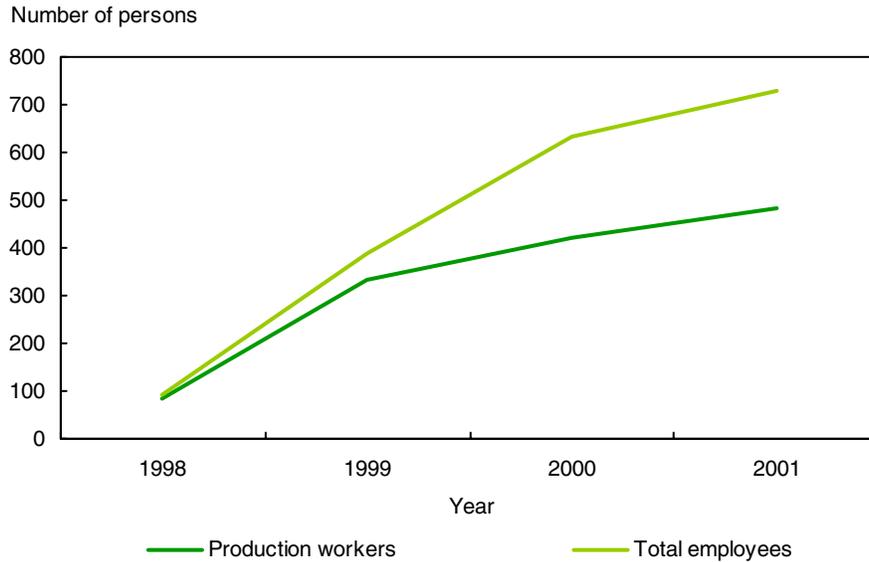
In addition, the industry pays high salaries. The average salary for all workers employed in the diamond mining industry in the Northwest Territories between 1998 and 2001 was \$61,639. The average for production employees, those involved in the mining operations, was slightly higher, at \$64,336.

These average salaries were roughly 30% higher than for all workers employed in the non-metallic mineral mining and quarrying sector across Canada, and 44% higher than the salaries for production employees in this sector.

5. 1998 wholesale industry sales for NWT include Nunavut.

6. Current employment figures as well as employment estimates for Snap Lake project are from the literature found at the following websites: Government of the Northwest Territories at <http://www.gov.nt.ca/RWED/diamond/index/htm>; BHP Billiton Annual Report on Northern and Aboriginal Employment 2002, BHP Billiton Diamonds Inc. at www.bhpbilliton.com; and Diavik Diamond Mines Inc. at www.diavik.ca.

Number of workers directly employed by the diamond mining industry, 1998 to 2001



Source: Statistics Canada, Catalogue no. 26-201-XIB.

Investment: Diamond mining no. 1 in NWT

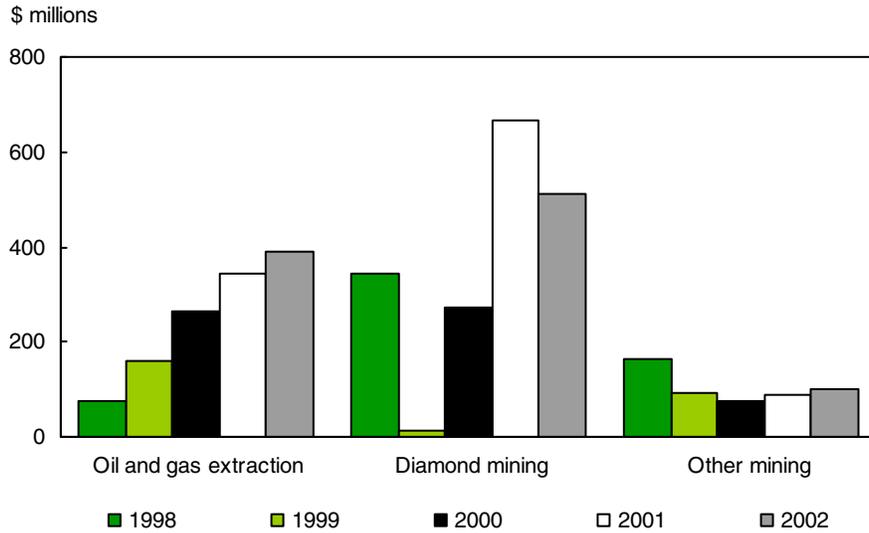
It costs a lot of money to construct and maintain a diamond mine. In the Northwest Territories, the cost is compounded by a harsh, yet fragile, environment characterized by long winters and short summers. Transportation involves 'ice' roads, and environmental commitments must ensure that, among other things, companies remain sensitive to caribou migration patterns.

The diamond mining industry invested \$1.8 billion in capital spending in the Northwest Territories⁷ between 1998 and 2002. This represented 37% of all capital expenditure incurred in the Northwest Territories during this period.

The diamond mining industry was also the largest contributor to capital expenditure in the mining and oil and gas extraction sector of the Northwest Territories. Diamond mining accounted for just over one-half of the \$3.6 billion spent in this sector.

⁷ 1998 capital investment data for NWT includes Nunavut.

Mining and oil and gas extraction capital expenditure, NWT, 1998 to 2002¹



¹ 1998 data include NWT and Nunavut.

Source: Investment and Capital Stock Division, Statistics Canada.

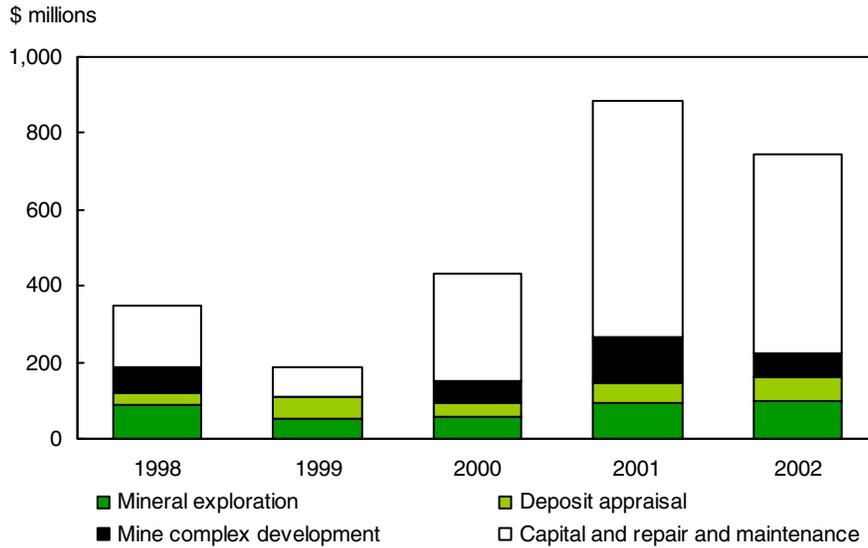
Between 1998 and 2002, companies invested a total of \$2.6 billion in developing Canada's diamond mineral resources. These costs included exploration, mine complex development, capital investment and repair and maintenance expenses⁸. Investment in diamond mineral resource development represented roughly 12% of all investment in metal and mineral resource development in Canada during this period.

The Northwest Territories was the primary target, with 90% of total diamond mineral resource investment occurring there.

Nearly two-thirds of all investment in diamond mineral resource development was directed to capital and repair and maintenance expenditure between 1998 and 2002. Not surprisingly, almost all of this was in the Northwest Territories.

8. Exploration expenditures refer to those for mineral exploration and deposit appraisal including engineering, economic and feasibility studies, environment and land access costs. Mineral exploration includes activities up to and including the first delineation of a previously unknown mineral deposit to establish its potential economic value (tonnage and grade). Deposit appraisal includes activities that bring a delineated deposit to the stage of detailed knowledge required for a production feasibility study. Mine complex development costs 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.

Breakdown of diamond mineral resource investment, Canada, 1998 to 2002



Source: Federal-Provincial-Territorial Survey of Mining and Exploration Companies, Natural Resources Canada.

The new northern diamond mines are providing significant, lasting investments in Northern and Aboriginal businesses. Of the \$1.2 billion in contracts issued to construct the Diavik Diamond mine, approximately \$900 million were with Northern businesses and just over \$600 million with Aboriginal businesses⁹.

Northern and Aboriginal business also figures prominently during operations. During 2002, BHP Billiton Diamonds Inc. spent over \$355 million in the North. Spending through Northern Aboriginal-owned businesses reached over \$123 million or 34.7% of total northern spending¹⁰. Diavik currently contracts out approximately \$30 million in labour annually with Northern firms, of which over 80% are Aboriginal¹¹.

Diamond exploration expanding to Nunavut, Ontario

Before 2000, diamond exploration occurred almost exclusively in the Northwest Territories. Since then, it has expanded to other regions of Canada.

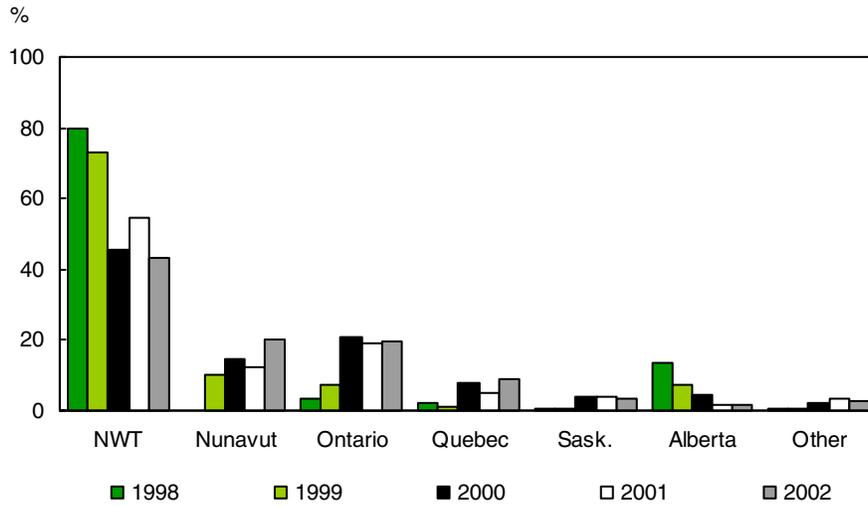
During 1998 and 1999, more than three-quarters of the \$228 million spent on diamond exploration took place in the Northwest Territories¹². Between 2000 and 2002, this fell to less than 50% as companies began to target other areas of Canada.

By 2002, 43% of diamond exploration was occurring in the Northwest Territories, 20% in Nunavut and another 20% in Ontario.

Diamond exploration accounted for 23% of the total \$2.7 billion spent on metal and mineral exploration in Canada from 1998 to 2002. This was third only to precious metals (including gold and silver), which accounted for 36% of total spending on Canadian exploration and base metals (including copper, nickel, lead and zinc), which accounted for 28%.

9. *Diavik Socio-Economic Monitoring Report To December 31, 2002.*
 10. *BHP Billiton Diamonds Inc. Annual Report on Northern Spending 2002.*
 11. T. Hofer, Diavik Diamond Mines Inc., Personal Communications, December 2003.
 12. 1998 diamond exploration data for the NWT includes Nunavut.

Percentage distribution of diamond exploration expenditure, by province and territory, 1998 to 2002¹



¹ The 1998 data for NWT include Nunavut.

Source: Federal-Provincial-Territorial Survey of Mining and Exploration Companies, Natural Resources Canada.

Government revenues on rise

The Federal Government and the Government of the Northwest Territories are expected to accrue both direct and indirect benefits from the production of diamonds.

Direct benefits will accrue to the Federal Government through royalties¹³ and business and personal income taxes.

Indian and Northern Affairs Canada estimates that over the life of the mines, the EKATI, Diavik and Snap Lake projects will collectively generate royalties of \$1.6 billion, federal business taxes of \$2.6 billion, territorial business taxes of \$1.3 billion, and employee and other business income taxes of \$4.7 billion.

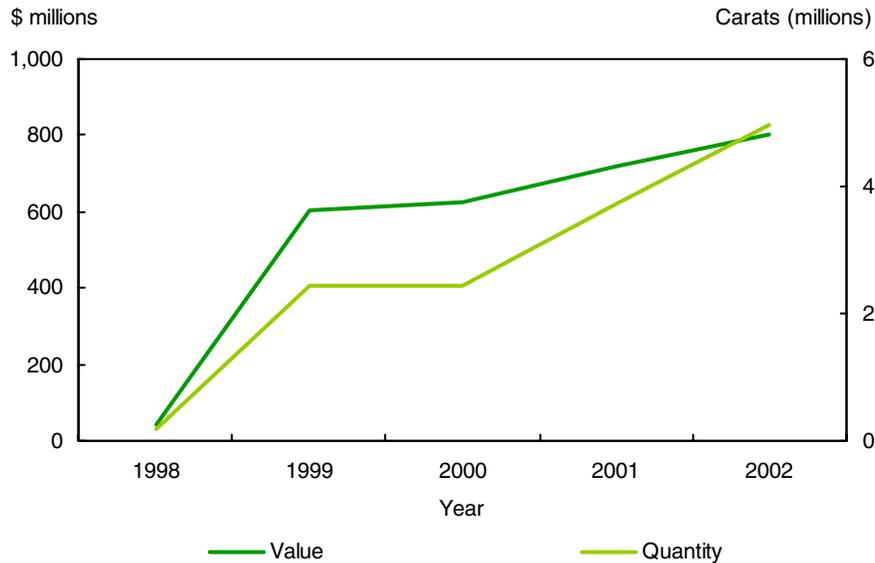
13. Indian and Northern Affairs Canada is responsible for the administration of mineral resources in the Territories through the Canadian Mining Regulations (CMR) and the *Territorial Lands Act*. Royalties are based on a formula contained in the CMR.

Production: Five million carats in five years

Diamond production has gone from zero to almost five million carats in five short years. In 2001, there was a 53% increase in the quantity of diamonds mined from the previous year; in 2002 carat recovery increased by 34% over 2001.

The value of production has increased accordingly, from zero prior to 1998 to just over \$800 million in 2002.

Canadian diamond production, 1998 to 2002



Source: Statistics Canada, Catalogue no. 26-202-XIB.

With the opening of the Diavik mine in 2003, there has already been a marked increase in production. In the first six months of 2003 alone, almost 4.2 million carats of diamonds were mined in Canada, just 17% less than the total for 2002.

With the opening of the Jericho mine in 2005 and the Snap Lake mine in 2006, there will be further noticeable increases in production. The EKATI mine is expected to average 4 million to 5 million carats per year over the life of the mine. The Diavik mine is expected to yield 8 million carats per year. The Jericho mine is expected to yield 0.39 million carats per year, while Snap Lake is expected to yield roughly 1.5 million carats a year.

The average price per carat of mined diamonds fell from a high of \$257 in 2000 to \$161 in 2002. This was a result of the recovery of smaller, lower-value stones that began in 2001 at a second diamond deposit (EKATI's Misery pipe). The average price declined when these diamonds were blended with better quality, larger stones.

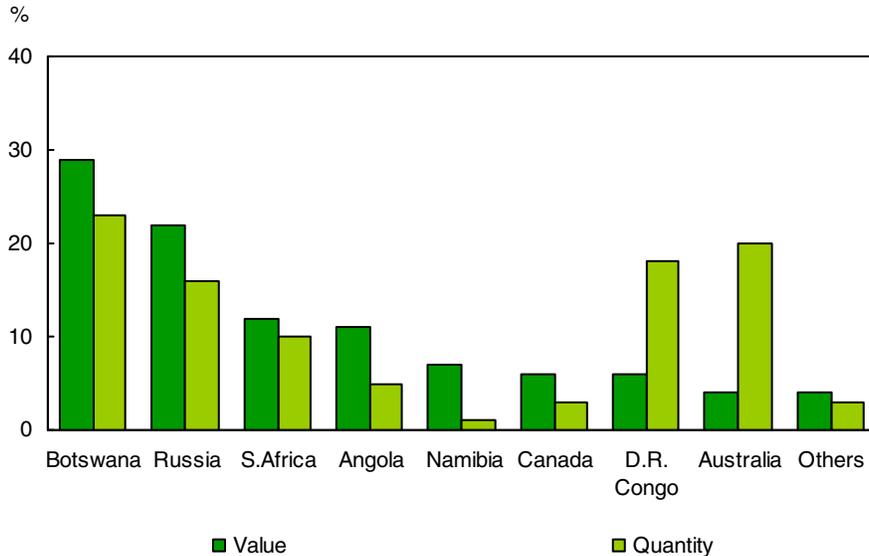
It is expected that the diamonds mined at the EKATI mine will have an average value of \$140 per carat over the life of the mine. Those of the Diavik mine will have an average value of \$104 per carat; those from the Jericho mine an average of \$129; and those from the Snap Lake mine, \$106 per carat¹⁴.

Canada emerges as a major world player

By 2001, Canada was the sixth largest producer of diamonds by value and the seventh largest by quantity.

The 2003 production data suggest that Canada is poised to become the world's third largest producer of diamonds, producing almost 15% of the world's diamonds by value. This would put Canada just ahead of South Africa, but behind Botswana and Russia.

Share of world diamond production, 2001



Source: WWW International Diamond Consultants.

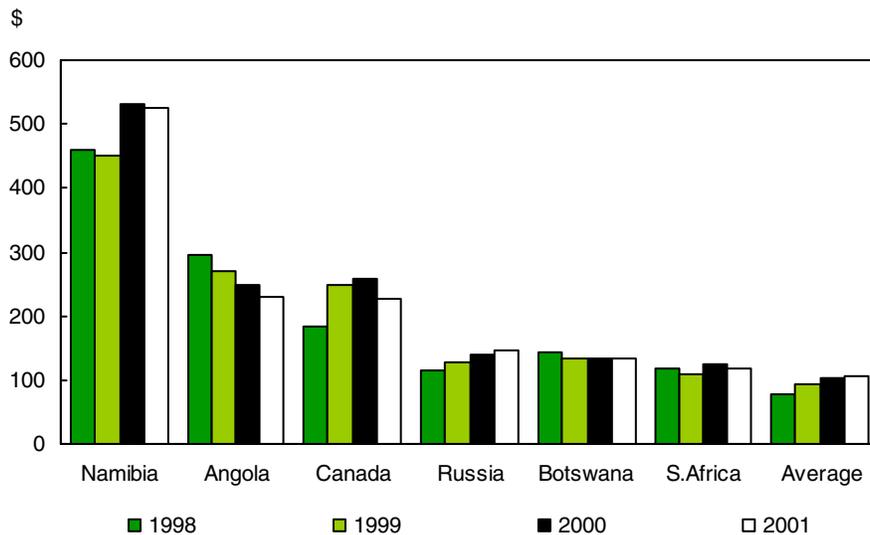
14. The estimates for carat production per year and average value per carat come from the Government of Northwest Territories website: <http://www.gov.nt.ca/RWED/diamond/index/htm> (accessed on July 7, 2003), from the Aber Diamond Corporation website: <http://www.aber.ca> (accessed on January 5, 2004) and from the Tahera Corporation website: <http://www.tahera.com> (accessed on January 6, 2004). Average value per carat estimates were listed in US\$ and converted to CA\$ using 0.7138 US\$ per CA\$ based on the Bank of Canada annual average rate for 2003.

Canada's world class diamonds

Not only is Canada rich in rough diamonds. These rough diamonds are high-quality. The quality of a rough diamond is measured in terms of its size, clarity and colour. This is reflected in its price per carat.

In 2001, when over 3.3 million carats of diamonds were mined in Canada, the average price per carat for a Canadian-mined diamond was \$228. This was third highest in the world behind prices for diamonds mined in Namibia and Angola.

Average price per carat¹ for mined diamonds, by country, 1998 to 2001



¹ Converted to CA \$ based on the Bank of Canada annual average rate for that year.

Source: WWW International Diamond Consultants.

Trade: From import-driven to export-driven

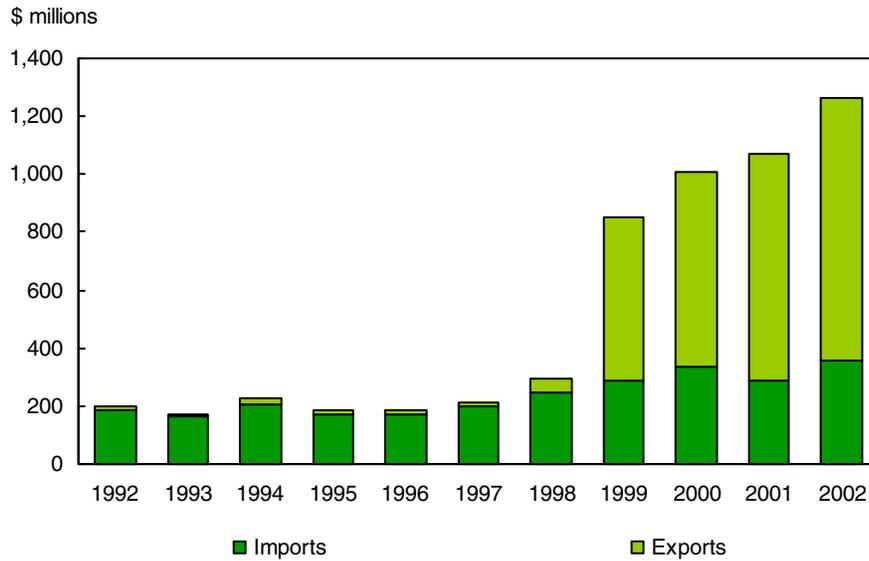
From 1992 to 1997, Canada's total trade¹⁵ in diamonds remained fairly constant, worth on average \$197 million per year. During this time, imports, primarily of gem quality cut and polished diamonds, were responsible for 93% of the Canadian diamond trade.

This changed in 1998 when Canada began mining and exporting rough diamonds. From 1998 to 2002, the trade in diamonds grew on average by 44% each year, and in 2002 reached almost \$1.3 billion. This has been almost totally export-driven, with diamond exports responsible for two-thirds of all the trade during this period.

The growth in exports of Canadian diamonds has been fuelled almost exclusively by increases in exports of rough diamonds. In 2002, Canadian rough diamond exports accounted for 95% of Canadian diamond export trade, and 68% of total Canadian diamond trade.

15. Total trade is equal to domestic exports plus foreign imports. It does not take into account diamonds of foreign origin re-exported from Canada or Canadian diamonds re-imported. Canadian diamonds re-imported fall under H.S. 9813.00.

Canadian diamond trade, 1992 to 2002



Source: International Trade Division, Statistics Canada.

The growth in diamond imports has been less dramatic, averaging 5% a year between 1998 and 2002. Most of the diamonds imported into Canada are gem quality, cut and polished stones ready to be made into jewellery. In 2002, they accounted for 92% of Canada’s diamond import trade.

Not included in the import figures are Canada’s exported rough diamonds that return. These diamonds are used by the nascent diamond cutting and polishing industry in the Northwest Territories. This local industry and the diamonds it imports are small.

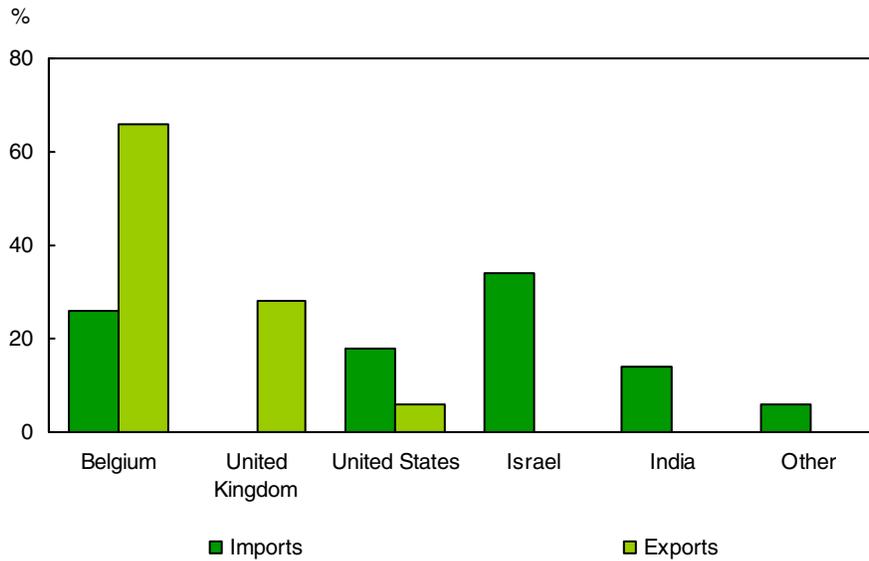
From January 2003 to June 2003, Canada’s total trade in diamonds was worth just over \$720 million, of which exports accounted for 81%. During this period, exports of Canadian rough diamonds accounted for 94% of the Canadian diamond export trade, and 76% of the total Canadian diamond trade. Gem quality, cut and polished stones represented 96% of Canadian diamond imports.

Belgium, United Kingdom major trading partners

Belgium and the United Kingdom are the principal countries of destination for diamonds from Canada. Most of the world’s mined diamonds are sorted and sold through Antwerp and London. From here, they are redistributed to customers throughout the world (including Canada) for manufacture into polished gemstones.

In 2002, Belgium received 66% of all Canada’s diamond exports, and the United Kingdom 28%. Almost all Canadian diamonds exported to Belgium and United Kingdom were Canadian rough diamonds.

Canadian diamond trade, by country, 2002



Source: International Trade Division, Statistics Canada.

On the other hand, Canada imports diamonds from a more diverse set of nations. These include Israel, India and the United States, which are known for their cutting and polishing expertise, as well as Belgium. In 2002, imports from Israel, Belgium, the United States and India accounted for 93% of all the diamonds brought into Canada.

In the first half of 2003, 60% of Canadian diamond exports went to the United Kingdom, and 34% to Belgium, a reverse of what was previously seen. Again, almost all the Canadian diamond exports sent to these two countries were Canadian rough diamonds. Also, 92% of diamonds imported to Canada came from Israel, Belgium, the United States and India.

In terms of quantity, the story for exports parallels that of the value of exports. But the situation for imports is different. In 2002, almost half of all Canadian diamond imports in terms of quantity were industrial diamonds, not cut and polished. These were likely used for making diamond tools and equipment. They accounted for less than 1% by value of all diamonds imported into Canada. Just over one-third (35%) came from Ghana, 23% from the United States and 15% from Belgium.

In 2002, gem quality, cut and polished stones made up 43% of imports in terms of quantity, but accounted for 92% of diamond imports into Canada by value. Just over one-quarter (27%) of these diamonds came from Israel, 25% from India, 24% from Belgium and 20% from the United States. In the first half of 2003, Canadian diamond imports by volume followed a similar pattern as that of the previous year.

The impact that the diamond mining industry is having will be felt for some years to come as existing mines reach their peak potential, other designated projects begin production, and exploration leads to new diamond discoveries.

As Marilyn Monroe sang in the movie *Gentlemen Prefer Blonds*: “Diamonds are a girl’s best friend”. Now they are Canada’s as well.

The Kimberley Process: Breaking the link between war and diamonds

'Conflict' diamonds or 'blood' diamonds have been a concern of the international community since the late 1990s. The term refers to natural rough diamonds used by rebel movements or their allies to fund insurgencies.

While the trade in 'conflict' diamonds represents only a small fraction of the international trade in diamonds, the consequences have been devastating for the affected countries, primarily Angola, Sierra Leone and the Democratic Republic of the Congo.

Canada has undertaken a leadership role in several international initiatives addressing this issue. One is the Kimberley Process (KP), an international certification scheme launched January 1, 2003. Its goal is to break the link between the illicit trade of rough diamonds and armed conflict.

Under this scheme, signatory countries are required to certify all rough diamond exports and imports in order to ensure their country of origin, to ban trade in rough diamonds with non-participating countries, and to provide production and trade statistics to the KP Secretariat in an effort to monitor the trade flow of rough diamonds.

Canada has been actively involved in the Kimberley Process since its inception. As of January 2004, Canada assumed the chairmanship of the KP.

On December 12, 2002, Parliament passed Bill C-14, the *Export and Import of Rough Diamonds Act*. It provides for "controls on the export, import or transit across Canada of rough diamonds and for a certification scheme for the export of rough diamonds in order to meet Canada's obligations under the Kimberley Process." To date, about 50 countries and/or regional economic integration organizations are participating in the Kimberley Process.

Data Sources

Sources of data used in this analysis are from Statistics Canada unless otherwise stated. All values are in Canadian dollars. Conversions are based on the Bank of Canada's average annual exchange rates.

Statistics Canada uses the Harmonised System (H.S.) of classification, which groups similar goods together to classify commodities. The data used for this study is based on information at the H.S. 6 level, the most detailed level at which international comparisons can be made.

For the purposes of this study trade in the diamond industry is limited to those commodities categorised in H.S. heading 71.02. Rough diamonds refer to mined diamonds that are unworked or simply sawn, cleaved or bruted as defined by the H.S. sub headings 7102.10 (rough, unsorted), 7102.21(rough, industrial) and 7102.31(rough, gem). The Kimberley Process uses the same nomenclature to define rough diamonds. Cut and polished diamonds fall under the H.S. sub-headings 7102.29 (cut and polished, industrial) and 7102.39 (cut and polished, gem).