Diamonds

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SUMMARY

Major events in the Canadian and international diamond industry during 2000 and 2001 included the following:

- The Diavik diamond project in the Northwest Territories received its regulatory permits, allowing construction to begin at the mine site. The $1.3 billion mine is expected to begin production early in 2003.
- BHP Diamonds Inc. (now BHP-Billiton) bought Dia Met Minerals Ltd. for $687 million to consolidate its interest in the Ekati™ diamond mine at 80%.
- De Beers Canada Mining Inc. bought Winspear Diamonds Inc. in 2000 for $305 million. This gave De Beers a 68% interest in the Snap Lake diamond project. In early 2001, De Beers purchased the remaining 32% interest in the project from Aber Diamond Corporation for $173 million. In August 2001, De Beers announced that it would delay production at Snap Lake by one year to 2006.
- In mid-2001, De Beers Consolidated Mines Limited completed its privatization process and was delisted from the Johannesburg Stock Exchange. The company is now the world's largest private diamond miner.
- In 2000, the diamond trading arm of De Beers, Diamond Trading Company (DTC), sold a record $5.67 billion worth of diamonds. The final sales figures for 2001 are expected to be down substantially as sales in the first half were down by 26% to $2.62 billion and second-half sales are usually lower than first-half sales.
- In Australia, the ownership of Ashton Mining and its 40% interest in the Argyle diamond mine were hotly contested by Rio Tinto and De Beers. In the end, Rio Tinto prevailed and purchased Ashton for A$713 million.
- During 2000-01, the Kimberley Process to address the conflict diamonds issue took shape and resulted in a proposed international certification scheme for rough diamonds that will be fully implemented by the end of 2002.

CANADIAN DEVELOPMENTS

Mine Developments

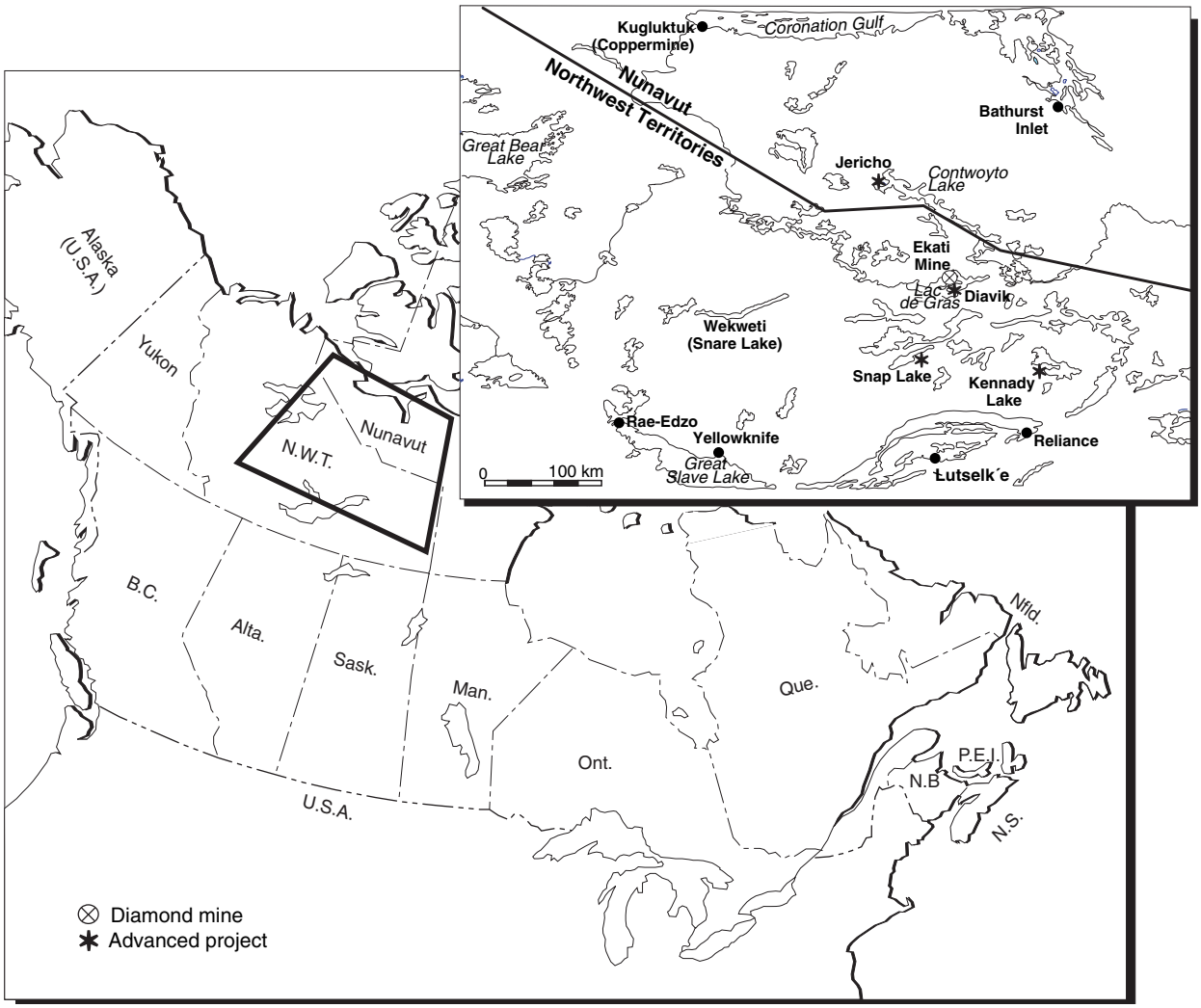
Ekati™ Mine

Ownership of the Ekati™ diamond mine was consolidated in mid-2001. BHP Limited of Australia completed a $687 million buy-out of Canadian-owned Dia Met Minerals Ltd. of Kelowna, British Columbia. Dia Met's major asset was its 29% interest in the Ekati™ mine. Ownership of the mine is now BHP with 80% and Charles Fipke and Stewart Blusson each with 10%. At the same time, BHP Limited and Billiton PLC of the United Kingdom were completing a merger to create BHP-Billiton and become the largest mining company in the world.

The Ekati™ diamond mine is located near Lac de Gras, about 300 km northeast of Yellowknife in the Northwest Territories. At full capacity, annual production is expected to be about 3.5-4.5 million ct. At this level, the mine will account for about 4% of global diamond production by weight and 6% by value.

In December 2001, production from the Misery pipe began. This pipe has an estimated ore reserve of about 5.4 Mt grading 3.3 ct/t with an average value of US$34/ct. Ore from the Misery pipe is trucked 30 km over an all-weather road to the recovery facility.

Figure 1
Diamond Properties, Slave Province



Source: Indian and Northern Affairs Canada.

After an intensive three-year environmental assessment by the Mackenzie Valley Environmental Impact Review Board on its proposal to mine the Sable, Beartooth and Pigeon pipes, BHP-Billiton received approval to start the regulatory approval phase. This next phase involves the government issuing the permits and licences that contain the terms and conditions which the company must meet during development and production. The addition of these pipes to the mining plan will extend the life of the mine by 3 years to an estimated 18 years.

Ongoing exploration on the company's claim block has identified some 126 diamondiferous kimberlite pipes.

BHP-Billiton continues to meet its commitments to purchase goods and services from northern companies and to hire northern Aboriginals and Northerners on a priority basis. BHP employs about 550 people. Some 80% of the Ekati™ mine's staff are Northerners, of which over 50% are Aboriginals.

Diavik Diamond Project

The Diavik diamond project is an unincorporated joint venture between Diavik Diamond Mines Inc. (DDMI) (60%) and Aber Diamond Mines Ltd. (40%). DDMI is headquartered in Yellowknife, Northwest Territories, and is a wholly owned subsidiary of Rio Tinto plc of London, England. Aber Diamond Mines Ltd. is a wholly owned subsidiary of Aber Diamond Corporation (formerly Aber Resources Ltd.) of Toronto, Ontario. The two joint-venture participants retain the right to market independently their respective share of the diamonds to be produced from the Diavik diamond mine. DDMI is the manager of the project.

The Diavik diamond project underwent an intensive environmental assessment and regulatory approval process that began in March 1998 and culminated in December 2000 when, after receiving all of the necessary permits and licences, Diavik and Aber announced that they would begin construction of the $1.3 billion project.

As part of the approval process, in addition to its land use permits, land leases, a Class A water licence, explosive permit, and fish habitat and navigable water authorizations, the company signed a number of agreements with the federal and territorial governments as well as participation agreements with five affected Aboriginal groups.

The Diavik diamond project is a proposal to mine four kimberlite pipes located just offshore of a 20-km^2 island in Lac de Gras, approximately 300 km northeast of Yellowknife and 30 km southeast of BHP-Billiton's Ekati™ diamond mine. The pipes are referred to as A-154 South, A-154 North, A-418 and A-21.

The diluted proven and probable reserves included in the mine plan are estimated at 25.6 Mt of ore grading 4.0 ct/t. It is expected that the Diavik mine will produce 101.5 million ct of diamonds at an average value of US$63/ct (2000 valuation) over its mine life.

The Diavik project plan calls for a two-year ramp-up period after which annual kimberlite processing is expected to reach 1.5 Mt and diamond production is forecast to average approximately 6 million ct.

Mining of all pipes will be by open-pit methods and will finish with underground mining of selected pipes. DDMI plans to build three water-retention dikes from shore to surround the four diamond-bearing pipes to enable mining to occur.

Construction of the first water-retention dike around the two A-154 pipes began in 2001 to enable dewatering and overburden removal in the second half of 2002. Construction of a physical plant (including the maintenance shop, accommodation complex, power generation facility, and processing plant) also began in 2001 with completion planned for 2002. Diamond production is scheduled to commence in the first half of 2003.

By September 2001, construction costs had reached $655 million. It is expected that in 2002 an additional $385 million in goods and services will be spent. The project remains within its targeted budget of $1.3 billion.

In late 2001, Aber announced that it will receive a US$230 million debt facility from a consortium of banks including the Bank of Montreal, the Canadian Imperial Bank of Commerce, the Deutsche Bank, the Royal Bank, and the Export Development Corporation. The loan is one of the largest debt financings ever provided for a mine in Canada.

Snap Lake Project

The Snap Lake diamond deposit is located approximately 220 km northeast of Yellowknife in Canada's Northwest Territories. The deposit is unique in that the diamondiferous kimberlite is in the form of a dyke as opposed to a normal pipe. The dyke is a tabular-shaped structure about 2.5 m thick that dips at a shallow angle of 15°.

The indicated resource is presently estimated to be 22.8 Mt and has been delineated over an area of approximately 2.5 by 2.5 km.

Originally the project was a joint venture between two Canadian companies, Winspear Resources Inc. (later Winspear Diamonds Inc.) (67.76%) and Aber Resources (32.24%). However, in August 2000, De Beers Canada purchased Winspear for $305 million, thereby gaining ownership of Winspear's interest in

Snap Lake. Then, in February 2001, De Beers purchased the remaining interest in the property from Aber Diamond Corporation for $173 million.

Once it owned 100% of the Snap Lake project, De Beers filed Land and Water Use Permit Applications to allow construction of a 3000-t/d underground diamond mine. In May, the project was referred for environmental assessment and this process is currently under way.

In August 2001, De Beers announced a one-year delay in the development of the Snap Lake project. Production is now expected to commence sometime in 2006.

Jericho Project

Tahera Corporation completed a feasibility study on the Jericho diamond project in June 2000. The feasibility study considered the economics of constructing a modest-sized mining operation centred on the land-based Jericho kimberlite pipe. The feasibility study indicates that 3 million ct will be produced over an eight-year mine life. The project is located in Nunavut about 170 km north of Lac de Gras.

Tahera has filed a formal project proposal for the Jericho diamond project with the relevant authorities and submitted a draft Environmental Impact Statement (EIS) in early 2001. These filings marked the formal commencement of the environmental assessment and regulatory approval process for the proposed Jericho diamond mine.

In September 2001, Tahera signed a letter of understanding with Kennecott Canada Exploration Inc. (owned by Rio Tinto PLC). Under the terms of the letter, by fufilling a number of obligations, including spending $1 million and drilling a minimum of 20 kimberlite targets, Kennecott will have the option to incorporate the Jericho project in the existing joint-venture agreement it has with Tahera on the Rockinghorse and Hood River properties, which are about 120 km northeast of the Jericho project in Nunavut.

Exploration Developments

Diamonds remain a prime exploration target in the North as well as in most of the southern provinces. Some projects at the advanced exploration stage are outlined below.

In Saskatchewan, the Fort à la Corne diamond project received promising results following a large-diameter drilling program carried out during 2001. The project, located 50 km northeast of Prince Albert, is a joint venture among De Beers Canada Exploration Inc. (wholly owned by De Beers) (42.25%), Kensington Resources Ltd. (42.25%), Cameco Corporation (5.5%) and UEM Inc. (10%). De Beers is the operator of the project. Independent valuations of the diamonds recovered indicate diamond values of about US$150/ct. Work is expected to continue to determine the total resource.

In Ontario at the Victor project in the James Bay lowlands, about 90 km west of Attawapiskat on the coast, De Beers Canada continued a bulk sampling program. During 2000-01, a bulk sample of approximately 10 000 t was extracted from the Victor pipe. The sample was processed on site and the data recovered showed considerable variation in the concentration of diamonds. De Beers is continuing its evaluation of the project and may proceed with a prefeasibility study.

In Quebec, the Ashton Mining Corporation of Canada and SOQUEM Inc. joint venture reported the discovery of two diamondiferous kimberlite pipes in north-central Quebec. The two pipes, Renaud 1 and 2, were drilled and returned both macro- and micro-diamonds. The partners are planning a significant exploration program in the region for 2002.

On the eastern shore of the Ungava Bay in northern Quebec, Twin Mining Corporation is focusing on the 4.5-km-long Torngat North area. The ongoing exploration program for Torngat is expected to identify other sections of the dyke system of higher diamond grade. If test samples warrant, a 2000 to 5000-t bulk sample will be taken. Diamond drilling to establish the down-dip attitude of the dyke is planned as well.

In Nunavut, in the area south of Coronation Bay, Ashton Mining and Kennecott Canada reported encouraging results from kimberlites discovered in the northern part of the Slave craton. Also in Nunavut, Twin Mining reported the recovery of macro-diamonds from the Freightrain pipe at Jackson Inlet on Baffin Island.

The Northwest Territories remains a focal point for diamond exploration. Evaluation work by De Beers Canada continues on the Kennady Lake property where results of a large-diameter drilling program are expected to determine whether additional work is warranted.

Canadian Government Diamond Valuator

In the Northwest Territories and Nunavut, the Canada Mining Regulations require that all diamonds produced in the territories be examined by a government valuator in order to establish a value for the diamonds for the purpose of calculating royalties owed to the Crown. The valuation must be done before the diamonds are sold or exported out of the territories.

In August 1998, the Canadian government, represented by the Department of Indian Affairs and Northern Development, signed a three-year contract with Diamonds International Canada (DICAN) Ltd. DICAN is a Canadian incorporated company with headquarters in Yellowknife, Northwest Territories. It is a partnership between Aboriginal Diamonds Group Ltd. (51%) and WWW International Diamond Consultants Ltd. (49%). In mid-2001, the contract was extended for an additional two years.

DICAN has a team of nine individuals with expertise in the valuation of rough diamonds and in statistical analysis of rough diamond production. As required by regulation, DICAN provides the government with a value of diamond production from the Ekati™ mine for use in the calculation of royalties that BHP-Billiton will pay to the Crown.

In addition to providing its valuation services, DICAN is also committed to providing valuation training to Canadians. Initially, northern Aboriginals will be given priority for the training program after which other Northerners and other Canadians will be targeted. To date, two candidates have taken the training and one currently participates in the valuation process.

CANADIAN DIAMOND MANUFACTURING

Diamond Cutting and Polishing

In comparison to other countries with cutting and polishing industries, the Canadian industry is fairly new and still quite small. However, the start of Canada's mine production of rough diamonds has created quite an interest in establishing new facilities in this country.

There are now three cutting and polishing factories operating in Yellowknife. BHP-Billiton Plc has contracts to supply each facility with up to 2500 ct in each five-week period. The factories require specific assortments of diamonds, which BHP-Billiton prepares at its sales offices in Antwerp, Belgium. The assortments are then shipped back to the company's sorting and valuation facility in Yellowknife and sales to the factories take place there. BHP-Billiton expects to have trained Northerners to a level that will allow the assortments for the northern factories to be prepared in Yellowknife prior to shipping the remainder of the production to Antwerp.

The first facility in Yellowknife was established by Sirius Diamonds Ltd. in June 1999. The company employs about 30 people, most of whom are Northerners. Sirius diamonds are marketed as Polar Bear diamonds.

The second factory, which was constructed by Deton'cho Diamonds, majority owned by the Yellowknives Dene, began production in March 2000. The factory is located in Ndilo, a Yellowknives Dene community adjoining Yellowknife. It has about 20 employees, most of whom are Aboriginal trainees. The company markets its diamonds under the Loon Diamond trade name.

Arslanian Cutting (NWT) Works (in association with the Dogrib Rae Band) began production in December 2000. Arslanian Cutting (NWT) Works and the Dogrib Rae Band have signed a mentoring agreement whereby Arslanian Cutting Works will provide training and other assistance to the Dogrib Rae Band in establishing a future factory in the Northwest Territories, most likely in the Dogrib community of Rae Edzo, 120 km west of Yellowknife.

In order to maximize initial production, Arslanian Cutting Works brought 30 experienced polishers from its factories in Armenia. The company also established a one-on-one training program to train Northerners in the art of cutting and polishing rough diamonds. This operation is unique in that the parent organization is also a core customer of BHP-Billiton Diamonds in Antwerp, Belgium.

Together, the three facilities can purchase approximately 10% (by value) of BHP's production. They will create approximately 80 diamond cutting jobs with an additional 20-25 support positions.

The Government of the Northwest Territories (GNWT) has signed a Memorandum of Understanding with Diavik Diamond Mines Inc. concerning access to rough diamonds for N.W.T. manufacturers. Discussions are also under way with Aber Diamond Corporation. It is anticipated that these and future projects will provide further opportunities for Northerners.

Other manufacturers include Cohenor Inc. and Hope Diamond Co. with small factories in Montréal, Quebec, and Polar Star with a factory in Edmonton, Alberta.

The General and Vocational College of Matane, Quebec (Collège d'enseignement général et professionnel [CÉGEP] de Matane) offers a course on diamond cutting and polishing. A new Matane firm, Papillon Gemme Inc., has cut Quebec's first diamond. The diamond was recovered by Twin Mining Corporation from the Torngat property in northern Quebec. The gem, on display at the Museum of Civilization in Québec City, is the first diamond to be recovered and cut and polished in Quebec. The presence of the training program for diamond cutters was a major factor in the company's decision to locate in Matane. The firm intends to sign an agreement with Twin Mining Corporation to purchase diamonds and cut them in Matane.

In mid-2001, the GNWT introduced a diamond certification scheme for diamonds that have been mined and cut and polished in the Northwest Territories. Under the certification process, the GNWT observes when packages of rough diamonds purchased from BHP-Billiton are opened and marked for manufacture; as well, the GNWT inspects the factories to examine the diamonds during production and reviews the factory's records. All certified diamonds must meet the minimum standard of cut that has been established by the N.W.T. diamond industry. Each diamond also undergoes the Gemprint process, which provides a unique image of each diamond for identification in case of loss or theft.

Currently, Deton'cho Diamonds Inc. and Arslanian Cutting Works (NWT) participate in the GNWT certification program. Sirius Diamonds Ltd. has chosen not to participate in it.

In November 2001, the GNWT introduced a discussion paper on proposed legislation to license diamond manufacturers in the N.W.T. The results of the discussion will be known sometime in 2002.

In early 2001, BHP Diamonds Inc. (now BHP-Billiton) launched its own Ekati™ brand of diamonds. Each Ekati™ diamond is accompanied by three certificates. One is from the American Gem Society Laboratories (AGS), which provides unbiased third-party verification of the diamond's specifications (colour, clarity, cut and carat weight). The second is the GNWT certificate outlined above, which validates the diamond's Canadian origin. The third certificate guarantees that the diamond is from the Ekati™ mine. In order to receive a certificate, the finished diamond must weigh at least one third of a carat and meet the AGS Triple Ideal grade of cut.

Diamond Tools and Equipment Manufacturing

These products include drill bits, segments for circular blades, grinding wheels and specialty tools. The major manufacturing plants are: Fordia at Ville St-Laurent, Quebec; Diamond Production at Montréal, Quebec; North Star Abrasives at Montréal, Quebec; Diacan at Québec City, Quebec; Diamond Systems at Dorval, Quebec; Dimatec at Winnipeg, Manitoba; JKS Boyle, Longyear, JKS Lamage, and Pilot Diamond Tools, all in North Bay, Ontario; Diaset Products at Delta, British Columbia; and Hobic Bit Industry at Richmond, British Columbia.

Diamond Jewellery Manufacturing

There are approximately 20 major jewellery manufacturing plants located mainly in the Toronto region with a few in Montréal. There are also several smaller plants in Montréal.

Synthetic Diamond Production

Crystalline Manufacturing Ltd. of Calgary, Alberta, produces synthetic diamond films using the Carbon Vapour Deposition (CVD) method.

WORLD EVENTS

Conflict Diamonds

The term "conflict diamonds" refers to those rough diamonds that are used by rebel movements or their allies to finance conflict aimed at undermining legitimate governments, as described in relevant United Nations Security Council (UNSC) resolutions insofar as they remain in effect, or in other UNSC resolutions that may be adopted in the future, and as understood and recognized in the United Nations General Assembly (UNGA) resolution 55/56 or in other similar UNGA resolutions that may be adopted in the future.

Currently, under UNSC sanctions, only those exports of diamonds from Sierra Leone and Angola that have an official certificate of origin issued by the government can be imported by a UN member country. As well, under UNSC sanctions, no exports of rough diamonds from Liberia may be imported by a UN member country.

The Kimberley Process on Conflict Diamonds

The Kimberley Process derives its name from the city in South Africa that is synonymous with diamonds and was the location of the first meeting of countries whose ultimate goal was to develop a scheme to prevent conflict diamonds from entering the legitimate diamond trade.

That first meeting was held in May 2000 and was followed by several technical experts meetings in Luanda, Angola; London, England; and Windhoek, Namibia. In September 2000, a ministerial-level meeting was held in Pretoria, South Africa, at which it was agreed to co-sponsor a resolution on conflict diamonds, which was passed at the 55th session of the UNGA in December 2000.

The resolution called for breaking the link between the illicit transaction of rough diamonds and armed conflict as a contribution to the prevention and settlement of conflicts. In addition to the resolution, the UNGA encouraged the member countries of the Kimberley Process to continue their work and to consider expanding the membership of the Process to allow all key states with significant interest in the world diamond industry to participate in further meetings and to move ahead with the process to develop detailed

proposals for an envisaged international certification scheme for rough diamonds in close collaboration with the diamond industry and civil society.

During 2001, there were six plenary meetings of the Kimberley Process, each building on the work of the previous meetings. The meetings were attended by representatives of 35 governments of producing, exporting and importing countries, industry through the World Diamond Council, and civil society, including Partnership Africa Canada, Global Witness, Amnesty International, and Fatal Transactions.

The first meeting in February in Windhoek, Namibia, set out a road map for the continued progress on negotiating an international certification scheme that would break the link between rough diamonds and armed conflict. Subsequent plenary sessions were held in April in Brussels, in July in Moscow, in September in London, and in October in Luanda, Angola.

Immediately following the sixth plenary meeting in November in Gaborone, Botswana, Ministers representing the world's leading diamond-producing, exporting and importing states declared that the detailed proposals for an international certification scheme developed by participants in the Kimberley Process provided a good basis for the envisaged certification scheme.

The Ministers encouraged those states already in a position to issue a certificate to do so immediately and all others to start issuing certificates by mid-2002 with the intent of having full simultaneous implementation by the end of 2002.

In the United States, the *Clean Diamond Trade Act* was passed by the House of Representatives in November 2001. The next step will be passage of the Bill by the U.S. Senate, which is expected sometime in the fall of 2002.

In Canada, Mr. David Pratt, a federal Member of Parliament, introduced a private members bill that would prohibit the importation of conflict diamonds into Canada. The Bill, introduced in October 2001, if enacted, would prohibit the import of diamonds and jewellery containing diamonds from countries that do not have a system for controlling the import and export of rough diamonds.

World Natural Rough Diamond Production

World production of natural rough diamonds in 2000 was estimated by Terraconsult bvba of Belgium at 110.7 million ct valued at US$7.8 billion, for an average price of US$71/ct.

In 2000, the major producing countries included: Botswana with 24.6 million ct valued at US$2.1 billion, Russia with 20.5 million ct valued at US$1.6 billion, South Africa with 10.5 million ct valued at US$1.1 billion, the Democratic Rebublic of Congo with 16.5 million ct valued at US$585 million, Angola with 4.0 million ct valued at US$740 million, Namibia with 1.5 million ct valued at US$419 million, Australia with 26.2 million ct valued at US$360 million, and Canada with 2.6 million ct valued at US$454 million.

In South Africa in June 2001, De Beers, the world's largest diamond miner, completed a US$18 billion privatization program that resulted in the de-listing of its shares from the Johannesburg Stock Exchange. The new private De Beers is held by DB Investments SA, which is a consortium of Anglo American (45%), the Oppenheimer family-owned Central Holdings Ltd. (45%), and Debswana Mining Company, a joint-venture partnership between the Government of Botswana and De Beers (10%).

At the end of 2001, De Beers and the Russian diamond mining company Alrosa finalized a new five-year marketing agreement worth US$4 billion. Under the terms of the agreement, De Beers is guaranteed US$500 million of Alrosa's run-of-mine diamond production in 2002 as well as US$300 million of an export assortment. The run-of-mine component for the remaining four years will be negotiated during 2002. The remaining 50% of Alrosa's annual production will be available to Russian manufacturers or Alrosa may decide to sign distribution contracts with other diamond distributors.

In Namibia, the Namibian Minerals Corporation announced that its major shareholder, LL Mining Corporation BV, had provided a US$10 million loan facility that will maintain the company's liquidity while its diamond recovery from its new seabed miner, which replaced one lost in an accident early in 2001, is being commissioned. Namdeb Diamond Corporation (the Namibian government [50%] and De Beers [50%] joint venture) reached its targeted production of 1.3 million ct in 2000 and is expected to maintain that production level over the next decade.

In Angola, production at the Catoca kimberlite deposit reached 1.9 million ct from 2.6 Mt of ore in 2000, and was expected to be higher in 2001 as ore production was expected to reach about 3.0 Mt. The joint-venture partners, Alrosa of Russia (32.8%), the Angolan state-owned Endiama (32.8%), Daumonty Finance (18%), and Odebrecht of Brazil (16.4%), are considering a feasibility study to increase ore production at Catoca to 6-7 Mt/y.

In Australia, Rio Tinto, following an intensive bidding war, consolidated its ownership of the Argyle diamond mine in Western Australia by purchasing

Ashton Mining Pty, which owned a 40% interest in the mine, for US$432 million. In 2000, the mine produced some 26.5 million ct. Production for 2001 is expected to be down somewhat as production for the first nine months was down 2.9 million ct to 18.1 million ct when compared to the same period in 2000. The company is making an A$280 million capital investment that will result in underground production commencing in 2006 and extending the mine life to 2018.

For the first time since it split from De Beers, production from the Argyle mine was stockpiled and not sold as diamond markets weakened in October and November 2001. The company resumed sales in December.

In Russia, Alrosa Co. Ltd. (formerly Almazy Rossii-Sakha) has begun a major capital spending program that will see some of its older open-pit operations begin production from underground developments. As well, Alrosa intends to increase annual production from its operations in Yakutia. The company expects to spend about 97.8 billion roubles by the end of 2005, at which time production should reach US$1.9 billion annually.

Factors Affecting Diamond Mining

Grade

Grade is the weight of diamonds expressed as carats per tonne (ct/t) of ore. It varies widely from one mine to another, but generally falls somewhere between 0.3 and 1.3 ct/t. The value of the ore per tonne equals the grade times the average value per carat of all the individual diamonds in the deposit.

Size (Weight) of Rough Diamonds in the Deposit

Individually, rough diamonds can range in size from micro-sized to stones weighing in excess of 1000 ct. A much more telling measure of a mine's production is the average size of its rough diamonds. Depending on the mine, the average size of rough diamonds recovered can vary from 0.01 ct (about 1 mm in size) to more than 0.7 ct.

Many mines in the world average about 0.4-0.5 ct per stone. It is interesting to note that the number of stones larger than 1 ct (0.2 g) produced at mines is very small (about 400 000 stones per year) and, in terms of total carats produced, this represents only about 0.5% of world production.

Mine Production Costs

According to different sources, production costs (excluding depreciation and interest) for kimberlites and lamproites are approximately US$5-$6/t for large and easy-to-access diamond mines operating in good climatic conditions, and are up to about US$35-$38/t for small mines located in remote areas and operating under harsh climatic conditions. The total production costs for these mines are around US$15/t and US$40-$45/t, respectively.

PRICES

There are no international prices for diamonds such as there are for precious metals like gold, silver and platinum and for base metals such as copper, lead and zinc. The market prices for rough natural diamonds are almost constantly in a state of flux.

NATURAL DIAMONDS

Natural industrial diamonds: Crushing bort sells for about US30¢/ct; casting sells for US$1-$2/ct; industrial stones sell for US$7-$10/ct; flets (e.g., a high-quality thin macle) sell for US$50/ct; and dies (larger diamonds of high quality but with poor [often yellow] colour that makes them unsuitable as gems) sell for up to US$200/ct.

Gem-quality rough diamonds: The price of a rough stone depends on its carat weight, shape, clarity and colour. The prices vary widely, but the following is an indication of the prices paid at cutting and polishing factories for gem-quality rough stones: a 1-ct stone that sells for US$20 is very low quality, US$200 is medium quality, US$400 is good quality, and US$1000 is top quality.

Synthetic Diamonds

Synthetic diamond prices depend on their particle strength, size and shape, and whether or not the diamonds are coated with a metal, etc. For this reason, there are several hundred prices for synthetic industrial diamonds. Generally speaking, synthetic diamonds used in grinding and polishing vary in price from US30¢/ct to US$1/ct. Strong and blocky material for use in sawing and drilling, and known in the trade as SDA and MBS (produced respectively by De Beers and General Electric), sells for up to US$3/ct. Large single crystals with excellent structure for use in specific applications sell for several hundred dollars per carat.

OUTLOOK

The diamond industry is in a period of change, the effects of which will continue for the short to medium term.

There has been a significant consolidation in production and, at the same time, larger amounts of rough diamonds are being sold outside of the Diamond

Trading Company as seen by: the new De Beers/Russia sales agreement; the combined Rio Tinto production from both Argyle and DDMI production expected to come on stream in 2003; 65% of the existing Canadian production (until December 2002 when the contract with De Beers ends); and the emergence of Israeli business man Lev Leviev as the sole marketer of Angolan production.

In the polished diamond industry, there has been a movement towards branding and associating the product with purity or high quality of colour, clarity and cut, or with other known brand names as seen with the Canadian Arctic North certificate of the Government of Northwest Territories, the EKATI™ brand, which guarantees the source as Canada and the quality of cut to be triple excellent, and the joint marketing agreement between De Beers and LVMH, the European marketer associated with luxury goods.

The pending final outcome of the Kimberley Process and its international certification scheme, combined with the proposed legislation for rough and polished diamond imports into both the United States and Canada, will have an impact on the way business is done by the international diamond industry. The World Diamond Council, which represents industry, has proposed an industry-guaranteed chain of warranties that would be part of the Kimberley Process certificates.

At the same time, the world economy is in a period of slowdown and it remains to be seen when there will be an actual recovery.

Notes: (1) For definitions and valuation of mineral production, shipments and trade, please refer to Chapter 64. (2) Information in this review was current as of December 2001. (3) More detailed information on diamonds is available on the Internet at www.nrcan.gc.ca/mms/cmy/index_e.html and at www.gov.nt.ca/RWED/diamond/index.htm.

NOTE TO READERS

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TARIFFS

Item No.	Description	Canada			United States
		MFN	GPT	USA	Canada
7102.10	Diamonds, unsorted, whether or not worked, but not mounted or set	Free	Free	Free	Free
7102.21	Diamonds, industrial, unworked or simply sawn, cleaved or bruted, but not mounted or set	Free	Free	Free	Free
7102.29	Diamonds, industrial, other	Free	Free	Free	Free
7102.31	Diamonds, non-industrial, unworked or simply sawn, cleaved or bruted	Free	Free	Free	Free
7102.39	Diamonds, non-industrial, other	Free	Free	Free	Free
7105.10	Natural or synthetic diamond dust or powder	Free	Free	Free	Free

Sources: *Customs Tariff*, effective January 2002, Canada Customs and Revenue Agency; *Harmonized Tariff Schedule of the United States,* 2002.

TABLE 1. CANADA, DIAMOND PRODUCTION AND TRADE, 1999-2001

Item No.		1999		2000		2001 (p)	
		(carats)	($000)	(carats)	($000)	(carats)	($000)
PRODUCTION							
	Northwest Territories	2 428 783	606 254	2 435 036	624 949	3 685 171	846 925
	Total	2 428 783	606 254	2 435 036	624 949	3 685 171	846 925
EXPORTS							
7102.10	Diamonds, unsorted, whether or not worked, but not mounted or set						
	Belgium	2 317 851	523 987	1 810 401	470 752	2 202 320	507 524
	United Kingdom	81 156	21 178	706 349	182 747	763 074	187 622
	United States	1 767	553	800	1 504	2 009	2 997
	Other countries	42	13	1 912	437	3	21
	Total	2 400 316	545 731	2 519 462	655 440	2 967 406	698 164
7102.21	Diamonds, industrial, unworked or simply sawn, cleaved or bruted						
	United States	6 800	178	906	65	2 472	60
	Total	6 800	178	906	65	2 472	60
7102.29	Diamonds, industrial, other						
	United States	185	141	25	134	1 152	174
	United Kingdom	–	–	–	–	182	2
	Total	185	141	25	134	1 334	176
7102.31	Diamonds, non-industrial, unworked or simply sawn, cleaved or bruted						
	United States	26 729	4 017	10 651	1 520	81	57
	New Zealand	–	–	–	–	21	12
	Israel	–	–	41	106	–	–
	Australia	–	–	8	4	–	–
	Total	26 729	4 017	10 700	1 630	102	69
7102.39	Diamonds, non-industrial, other						
	United States	3 036	9 468	4 806	13 367	7 180	23 298
	Belgium	248	132	1 076	838	114	728
	Hong Kong	–	–	–	–	36	204
	Other countries	–	–	1 359	781	18 568	13
	Total	3 284	9 600	7 241	14 986	25 898	24 243
7105.10	Natural or synthetic diamond dust and powder						
	United States	117 795	66	92 543	80	52 726	50
	Hong Kong	–	–	476	1	–	–
	Total	117 795	66	93 019	81	52 726	50
IMPORTS							
7102.10	Diamonds, unsorted, whether or not worked, but not mounted or set						
	Israel	..	15 032	..	31 690	..	34 658
	India	..	14 600	..	15 495	..	13 193
	United States	..	10 665	..	11 927	..	10 152
	Belgium	..	8 352	..	9 221	..	7 464
	Canada	..	572	..	1 282	..	1 549
	United Kingdom	..	2 334	..	905	..	1 419
	Other countries	..	1 464	..	1 341	..	754
	Total	..	53 019	..	71 861	..	69 189

TABLE 1 (cont'd)

Item No.		1999		2000		2001 (p)	
		(carats)	($000)	(carats)	($000)	(carats)	($000)
IMPORTS (cont'd)							
7102.21.00.10	Diamonds, industrial, bort and black, diamonds for borers, unworked or simply sawn, cleaved or bruted, but not mounted or set						
	Belgium	62 990	525	74 336	473	85 754	482
	United Kingdom	73 755	407	74 656	305	76 896	390
	United States	83 552	393	168 290	663	49 392	245
	Ghana	46 983	229	78 472	285	63 789	237
	South Africa	3 652	28	8 488	60	10 722	68
	Other countries	40 677	202	19 805	109	9 964	50
	Total	311 609	1 784	424 047	1 895	296 517	1 472
7102.21.00.90	Diamonds, industrial, other, unworked or simply sawn, cleaved or bruted, but not mounted or set						
	United States	47 495	244	73 538	603	78 147	460
	Ghana	8 657	53	7 941	46	25 919	205
	Belgium	13 761	81	13 335	99	8 534	71
	United Kingdom	7 266	33	3 354	25	10 194	69
	Japan	6 199	41	4 785	31	11 387	60
	Other countries	78 335	907	8 045	66	16 370	98
	Total	161 713	1 359	110 998	870	150 551	963
7102.29.00.10	Diamonds, industrial, other, bort and black diamonds, for borers, but not mounted or set						
	United States	560	97	1 226	139	2 604	130
	Australia	203	26	110	23	281	58
	Ireland	–	–	–	–	2 000	12
	Other countries	500	130	3 015	35	38	8
	Total	1 263	253	4 351	197	4 923	208
7102.29.00.90	Diamonds, industrial, other, other than bort and black, for borers, worked but not mounted or set						
	United States	16 664	156	854	172	4 153	305
	Ireland	187 991	1 108	145 022	1 071	38 382	201
	Belgium	5 964	440	12 091	329	5 321	114
	Other countries	1 462	126	1 943	92	933	133
	Total	212 081	1 830	159 910	1 664	48 789	753
7102.31	Diamonds, non-industrial, unworked or simply sawn, cleaved or bruted, not mounted or set						
	Belgium	3 359	2 380	4 619	3 285	3 664	3 029
	Israel	2 221	2 017	2 564	1 897	2 641	1 964
	India	78	48	233	22	1 384	439
	Other countries	737	278	1 837	407	2 408	859
	Total	6 395	4 723	9 253	5 611	10 097	6 291
7102.39.00.10	Diamonds, non-industrial, other, of a weight not exceeding 0.5 carats each						
	Israel	40 778	37 451	39 732	35 753	36 614	29 372
	Belgium	11 691	13 787	15 535	14 283	16 078	14 516
	United States	13 584	(r) 9 223	15 920	10 732	14 727	9 797
	India	6 181	2 821	7 460	3 368	9 618	3 989
	Other countries	1 514	1 069	1 185	1 445	1 669	1 604
	Total	73 748	(r) 64 351	79 832	65 581	78 706	59 278

TABLE 1 (cont'd)

Item No.		1999		2000		2001 (p)	
		(carats)	($000)	(carats)	($000)	(carats)	($000)
7102.39.00.20	Diamonds, non-industrial, other, of a weight exceeding 0.5 carats each						
	Belgium	72 753	60 602	80 560	62 022	52 224	46 937
	Israel	44 756	41 749	48 117	46 769	43 565	37 820
	India	86 253	29 634	75 912	30 456	73 343	29 267
	United States	22 828	24 596	44 930	34 192	36 820	24 153
	Other countries	7 201	6 224	11 027	12 899	8 911	12 639
	Total	233 791	162 805	260 546	186 338	214 863	150 816
7105.10.00.10	Diamond dust for borers; dust mixed with a carrier in cartridges or in tubes						
	United States	348 188	885	421 508	1 037	344 258	857
	Belgium	–	–	–	–	22 754	39
	Ireland	27 601	114	59 719	126	5 224	16
	Ghana	11 056	38	10 842	38	3 900	10
	Other countries	18 284	56	11 711	37	7 942	19
	Total	405 129	1 093	503 780	1 238	384 078	941
7105.10.00.91	Natural diamond dust and powder						
	Ireland	59 411	134	7 052	26	193 213	429
	United States	102 805	324	150 451	447	147 288	416
	Belgium	1 917	7	20 552	72	11 031	39
	Ghana	20 795	42	1 000	1	6 663	17
	Other countries	22 154	67	3 487	13	561	1
	Total	207 082	574	182 542	559	358 756	902
7105.10.00.92	Synthetic diamond dust or powder						
	Ireland	817 749	2 438	1 530 223	3 868	2 329 026	4 579
	United States	990 403	1 397	1 224 678	2 414	1 439 075	3 097
	Belgium	9 219	24	189 673	306	117 575	174
	United Kingdom	1 045	4	1 530	6	61 564	92
	China	49 008	33	87 314	109	84 013	60
	Other countries	53 565	133	39 795	68	24 595	55
	Total	1 920 989	4 029	3 073 213	6 771	4 055 848	8 057

Sources: Statistics Canada; Natural Resources Canada.
– Nil; **. .** Not available; (p) Preliminary; (r) Revised.
Note: Numbers may not add to totals due to rounding.