

Gold

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After three years of consecutive decline, Canada's gold production increased by 2.6 t from 146.4 t in 1994 to 149.0 t in 1995. In 1991, Canadian production reached a record level of 175.3 t. Canada is the world's fourth largest gold producer behind South Africa, the United States and Australia. Its value of gold shipments remained at \$2.5 billion in 1995.

During the next few years, Canadian gold production should gradually recover from its decline of the last three years. Increased production will come from a number of sources. Inmet Mining Corporation's Troilus mine will start up in 1996 with a production capacity of 5 t/y. The Kemess project of Royal Oak Mines Inc. is scheduled to be brought on stream in 1998 at a rate of 6.5 t/y. In addition, there are various new mine openings and expansions scheduled to start before the end of 1998. Together these should boost gold production from its current level of 149 t in 1995 to nearly 170 t by 1998, and keep it above that level until the end of the decade.

The average price of gold in 1995 remained at US\$384/troy oz. Gold's trading range in 1995 was the lowest since the termination of the Gold Standard in 1972. The London p.m. gold fix prices traded in the range of US\$372.45-\$396.95/oz in 1995.

CANADIAN DEVELOPMENTS

There were about 50 primary gold mines in Canada at the end of 1995 accounting for 88.3% of the gold produced. The rest of the gold came from base-metal mines (8.1%) and placer operations (3.6%). A total of seven mines opened while one closed during the year. Employment in primary gold mines in 1995 totalled 8864 compared to the 1994 level of 8626. Employment figures in the gold industry have been generally declining from the 1989 peak of 12 600.

British Columbia

British Columbia's gold production increased by 59% to 19.2 t in 1995 from 12.2 t in 1994. The major increase is the result of production start-up at the Eskay Creek mine. Over the next five years production is expected to continue to grow as the Kemess, Red Mountain and Mount Polley projects also begin operations.

The Eskay Creek project of Prime Resources Group began producing gold and silver in January 1995. The ore from Eskay Creek is shipped to smelters in Japan and Quebec. Eskay Creek's annual gold production is expected to be around 6 t. It is one of the highest-grade precious metal deposits in the world with reserves of 1 Mt grading 66 g/t gold and 2930 g/t silver. Homestake Mining Company, which holds a 54% controlling interest in Prime Resources Group, is the mine operator at Eskay Creek.

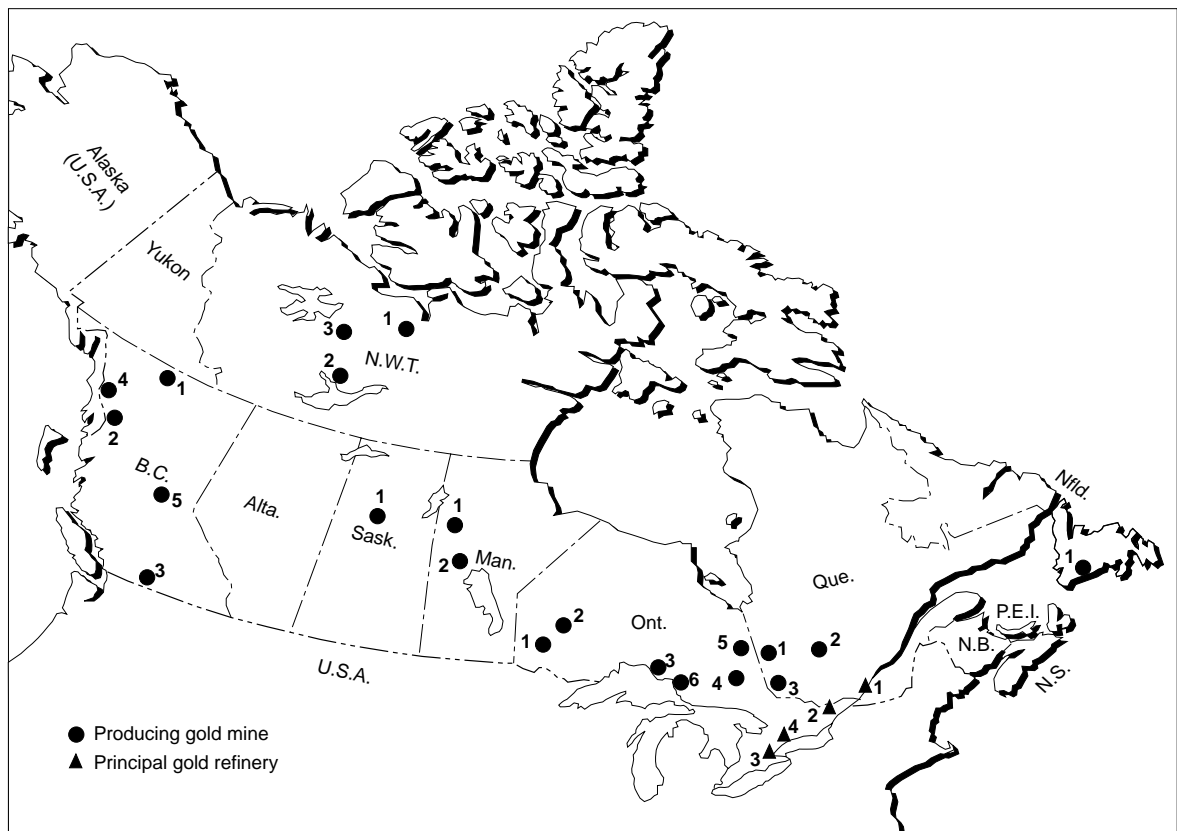
Kinross Gold Corporation brought the QR deposit on stream in the spring of 1995. The mine is expected to produce 1.3 t/y for a period of six years. Reserves at QR are estimated to be 1.3 Mt grading 4.7 g/t gold.

Imperial Metals Corporation and Sumitomo Corporation are expected to begin production at the Mount Polley copper-gold project in 1997. Mount Polley has reserves of 81.5 Mt grading 0.4 g/t gold and 0.30% copper. Production is expected to be at a rate of 2.7 t/y of gold.

Royal Oak Mines Inc. purchased El Condor Resources Ltd. and St. Phillips Resources Inc. to develop the Kemess project. Royal Oak also obtained compensation of \$104 million from the B.C. government for the cancellation of the Windy Craggy project. Kemess has reserves of 200 Mt grading 0.63 g/t gold and 0.22% copper. Gold production is expected to start in 1998 at a rate of 6.5 t/y.

Royal Oak Mines Inc. bought the Red Mountain project from Barrick Gold Corporation in exchange for a \$3 million work commitment over three years. Current mineable reserves at Red Mountain are estimated at 24 t of gold.

Figure 1
Primary Canadian Gold Mines and Principal Gold Refineries, 1995



PRIMARY GOLD MINES

Northwest Territories

1. Echo Bay Mines Ltd. – Lupin mine
2. Royal Oak Mines Inc. – Giant mine
Miramar Mining Corporation – Con mine
3. Royal Oak Mines Inc. – Colomac mine

British Columbia

1. North American Metals Corporation – Golden Bear mine
2. Westmin Resources Limited – Premier mine
Prime Resources Group Inc. – Eskay Creek mine
Prime Resources Group Inc. – Nickel Plate mine
4. Cominco Limited and Prime Resources Group Inc. – Snip mine
5. Kinross Gold Corporation – QR mine

Saskatchewan

1. La Ronge Area
Claude Resources – Seabee mine
Cameco Corporation and Uranerz Exploration and Mining Limited – Contact Lake mine

Manitoba

1. Granduc Mining Corporation and Black Hawk Mining Inc. – BT mine
2. TVX Gold Inc. and High River Gold Mines Ltd. – New Britannia mine

Ontario

1. Red Lake Area
Placer Dome Inc. – Campbell mine
Goldcorp Inc. – Red Lake mine
2. Pickle Lake Area
Barrick Gold Corp. – Golden Patricia mine
3. Hemlo Area
Homestake Mining Company/Teck Corporation – Williams mine
Hemlo Gold Mines Inc. – Golden Giant mine
Homestake Mining Company/Teck Corporation – David Bell mine
4. Timmins – Kirkland Lake Area
Placer Dome Inc. – Dome mine
Royal Oak Mines Inc. – Pamour and Hoyle mines
Kinross Gold Corporation – Hoyle Pond mine

Ontario (cont'd)

4. Timmins – Kirkland Lake Area (cont'd)
Kinross Gold Corporation – Macassa mine and Lake Shore tailings project
Barrick Gold Corp. – Holt-McDermott mine
A.J. Perron Gold Corp. – Kerr mine
Northfield Minerals Inc. – Cheminis mine
5. Placer Dome Inc. – Detour Lake mine
6. River Gold Mines Ltd. – Eagle River mine

Quebec

1. Northwestern Area
TVX Gold Inc. and Golden Knight Resources Inc. – Golden Pond Est and Ouest mines
2. Desmaraisville – Chibougamau Area
Campbell Resources Inc. – Joe Mann mine
MSV Resources Inc. – Copper and Rand mines
3. Rouyn-Noranda – Val-D'Or Area
Barrick Gold Corp. – Doyon and Bousquet 1 and 2 mines
Agnico-Eagle Mines Limited – LaRonde mine
Placer Dome Inc. – Sigma 1-2 and Kierna mines
Cambior Inc. and Aurizon Mines Ltd. – Sleeping Giant mine
Cambior Inc. – Chimo and Mouska mines
Hemlo Gold Mines Inc. – Silidor mine
Mine Richmond Inc. – Francœur mine
Western Quebec Mines – Joubi mine
Aurizon Mines Ltd. and Louvem Mines Inc. – Beaufor mine
Lithos Corporation – Wrightbar mine

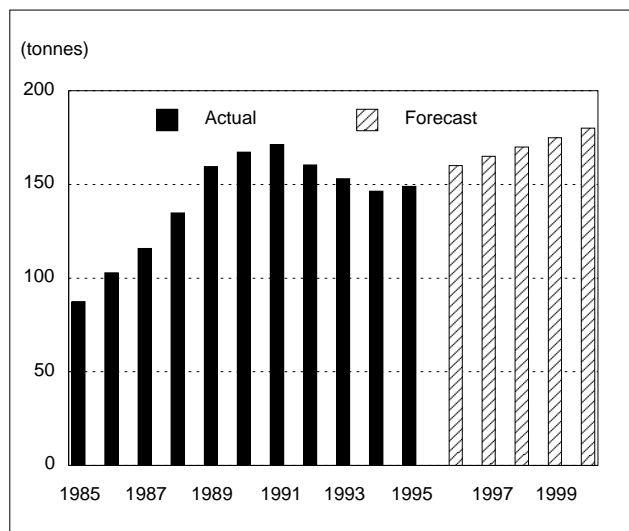
Newfoundland

1. Royal Oak Mines Inc. – Hope Brook mine

PRINCIPAL GOLD REFINERIES

1. Noranda Minerals Inc. Canadian Copper Refiners
2. Royal Canadian Mint
3. Johnson Matthey Limited
4. Imperial Smelting and Refining

Figure 2
Canadian Gold Production, 1985-2000



Source: Natural Resources Canada.

Northwest Territories and Yukon

Gold production in the Northwest Territories and Yukon increased by 11.2% from 16.5 t in 1994 to 18.3 t in 1995. Higher production at the Colomac mine and increased placer gold production were the main reasons for the increase.

Production at the Colomac mine, which resumed in 1994, was expected to reach 5 t of gold in 1995. The Colomac mine had been closed since 1991 due to high operating costs.

Yukon's 1995 gold production of 4.6 t was derived exclusively from placer deposits. However, Loki Gold Corporation's Brewery Creek project is expected to come on stream in 1996 at a rate of 2.5 t/y. The heap leaching operation has reserves of 16 Mt grading 1.5 g/t gold.

Saskatchewan

Production at the Contact Lake mine of Cameco Corporation and Uranerz Exploration and Mining Limited began in 1995 at a rate of 2 t/y of gold. Contact Lake has ore reserves of 1.6 Mt grading 9.6 g/t gold.

Other projects that are expected to begin production in Saskatchewan in the next few years are the Komis and Goldfields projects of Waddy Lake Resources and Greater Lenora Resources, respectively. Once in production, gold output from the Komis and Goldfields projects is expected to reach 1.3 t/y and 3 t/y, respectively.

Manitoba

In Manitoba, Granduc Mining Corporation and Black Hawk Mining Inc. produced around 1 t of gold at the BT mine in the Lynn Lake area. The BT open-pit mine has reserves for one more year. The ore from the BT mine is brought to the Lynn Lake mill. In early 1996, the companies plan to start production at the Farley Lake property, also in the Lynn Lake area. Probable ore reserves from the open-pit mine at Farley Lake are estimated at 1.6 Mt grading 3.6 g/t gold.

Production at the New Britannia mine of TVX Gold Inc. and High River Gold Mines Ltd. began in August 1995 at an estimated rate of 3 t/y of gold. Mineable ore reserves at the New Britannia mine are 4.2 Mt grading 6 g/t gold.

REA Gold Corporation announced that the Bissett gold mine will begin producing in 1997. Reserves at Bissett are 3.2 Mt grading 9 g/t gold, and production at Bissett is expected to reach nearly 3 t/y of gold.

Ontario

Ontario's gold production in 1995 was 63.2 t, a decrease of 8.6% from the 1994 total of 69.2 t. This important decline was prompted by a five-month shut-down at the Golden Giant mine of Hemlo Gold Mines Ltd. because of a strike and a suspension of operations for security reasons. As a result of the temporary closure, production at the three mines in the Hemlo area accounted for only 41% of Ontario's total production in 1995, compared to 48.8% in 1994.

River Gold Mines Ltd. started production at the Eagle River gold mine near Wawa. Reserves at Eagle River stand at 800 000 t grading 14.1 g/t gold. Production is expected to be about 1.3 t/y.

Placer Dome Inc. started production at the Dome open-pit mine in July 1995. The company has outlined proven and probable reserves of 32.5 Mt grading 2.4 g/t gold. Mill throughput increased from 3800 to 9100 t/d, while annual production is expected to increase from 6 t to 10 t. The Paymaster mine, which is adjacent to the Dome mine, also resumed production in 1995 and became part of the Dome mine complex.

In 1996, production is also expected to start at the Holloway project of Hemlo Gold Mines Inc. and Teddy Bear Valley Mines Ltd. Total reserves at the Holloway project are 6 Mt grading 6.8 g/t gold, and its gold production is expected to reach 3 t/y.

Royal Oak Mines Inc. plans to bring the Nighthawk Lake mine on stream in the spring of 1996. It is expected to produce around 1 t/y of gold.

Placer Dome Inc. announced that the Musselwhite project in northwestern Ontario is estimated to hold reserves of 11 Mt grading 9.5 g/t gold, equivalent to 98 t of gold. Gold production is expected to reach 6 t/y starting in the middle of 1997. TVX Gold Inc. owns 32% of the project.

In addition to new mine openings, there are several anticipated production increases at existing mines such as: Placer Dome Inc.'s Detour Lake mine, Kinross Gold Corporation's Hoyle Pond mine, Barrick Gold Corp.'s Holt-McDermott mine, and Gold Corp. Inc.'s Red Lake mine. These production increases will help Ontario's output recover from its current level of 63 t/y to more than 75 t/y by 1998.

Quebec

Quebec's gold production decreased slightly from 40.9 t in 1994 to 39 t in 1995.

Louvem Mines Inc. and Aurizon Mines Ltd. began production at the Beaufor mine in January 1996. Total gold production at Beaufor is expected to reach approximately 1 t/y.

Lithos Corporation also started production at the Wrightbar mine at an approximate rate of 1 t/y of gold.

In June 1995, MSV Resources Inc. started gold production at the Eastmain mine at a planned rate of 1.6 t/y. However, due to start-up problems, the mine never met its original production target and the operation was temporarily closed.

Inmet Mining Corporation announced that it will bring the Troilus project on stream at the end of 1996. The Troilus project, which is located 150 km north of Chibougamau, hosts reserves of 49 Mt grading 1.34 g/t gold. Gold production is expected to reach 5 t/y, and the capital cost of the project is estimated at \$150 million.

TVX Gold Inc. and Golden Knight Resources Ltd. plan to develop the Principale deposit at a cost of \$30 million. Gold production at the Casa Berardi complex is expected to increase by the end of 1996 to 4.5 t/y from the current level of 3 t/y.

Gold production at the Astoria mine of Yorbeau Resources was temporarily suspended in 1995.

Newfoundland

Currently, the only producing operation in Newfoundland is the Hope Brook mine of Royal Oak Mines Inc., which produces about 3 t/y of gold.

WORLD DEVELOPMENTS

South Africa

South Africa remained the world's largest gold producer with an estimated output of 525 t in 1995. Its output declined significantly in the first half of 1995 due to labour unrest, rising costs and declining ore grades. South Africa's share of world production was estimated at 23% in 1995, compared to approximately 66% in 1970.

The newly elected government attempted to adopt a new mineral policy for South Africa, which includes the transfer of mineral rights to the State. It is expected that such a transfer could accelerate the development of gold projects by increasing competition and allowing small mining companies, as well as foreign companies, to invest in South Africa.

It is also anticipated that the issue of mine safety will become increasingly important following Anglo American's Vaal Reefs accident in which 104 miners were killed last May. A Commission of Enquiry recommended that a *Health and Safety in Mines Act* be drafted. Over the last 10 years, fatalities in South African gold mines have exceeded 500 per year.

South Africa has moved from being the lowest-cost gold producer in 1985 to being one of the highest-cost producers. Cash costs in South Africa in 1985 were approximately US\$147/oz, while costs at other major Western World producers averaged about \$200/oz. However, by 1994, South Africa was considered to be the highest-cost producer with a cash cost of \$282/oz compared to the average Western World cost of \$241/oz.

In South Africa, wages represent more than 50% of total production costs. The National Union of Mineworkers (NUM) and the Chamber of Mines agreed on a 10.5% salary increase. The Chamber of Mines obtained some concessions from the NUM regarding discussions on full calendar year operations. These concessions were offset in the last year as the number of public holidays increased from 4 to 12. The net result is expected to further reduce South Africa's future gold production.

Anglo American Corporation of South Africa Ltd. is the world's largest gold producer with production of 252 t in 1994 (the latest year for which data are available). The company announced that the Moab mine would be developed with production start-up scheduled for 1997. The Moab mine is expected to produce 13 t/y of gold over a period of 28 years.

Gold Fields of South Africa Ltd. is the world's second largest gold producer with output of 124 t in 1994, while Gencor ranked fourth with production of 65 t.

JCI Ltd. is currently developing the South Deep project which will have a gold production capacity of 16.5 t/y. Mineable reserves at South Deep are 118 Mt grading 10 g/t gold.

Despite a large reserve base, South Africa's mine production of gold faces major difficulties due to declining ore grades, the extreme depth of gold reserves (average depth of 2500 m), intensifying competition from low-cost producing countries, and relatively high domestic inflation. In addition, the elimination of various economic and political sanctions by its trading partners will allow South African gold producers to increase their investments abroad.

The South African mines' ability to continue reducing costs is limited by their relatively low-grade reserves. Grades have declined from 13 g/t gold in 1973 to around 5 g/t in 1995.

With increasing production costs, it is anticipated that a rationalization of the gold industry will take place. A number of options are open. It is likely that there will be some pressure to further reduce the existing workforce of around 350 000 employees. Some companies will sell or merge some assets, and some operations will have to close.

It is expected that South Africa's gold production may very well decrease to below 500 t/y by the end of the decade.

United States

Gold production in the United States decreased by 16 t to around 310 t in 1995. U.S. production has enjoyed a decade of rapid growth from its level of 80 t in 1985. The United States is the world's second largest gold producer behind the Republic of South Africa. According to the U.S. Bureau of Mines, 25 mines yielded about 75% of the gold produced in the country. Nevada accounted for about two thirds of U.S. production with 220 t. The other major producing states are California, South Dakota and Montana. The growth in gold production in Nevada was made possible by the application of the heap leach process, which is designed to treat low-grade ores.

Attempts by the House of Congress and the Senate to reach an agreement on amending the U.S. Mining Law of 1872 were unsuccessful. It is unlikely that additional attempts to revise the Mining Law will be made before the presidential elections in November 1996.

Cumulative production from Newmont Gold Company's Carlin mine complex and Barrick Gold Corporation's Betze-Post mine was approximately 115 t in 1995, an increase of 10 t over 1994. Barrick Gold Corporation announced production start-up at the Meikle deposit for the third quarter of 1996. The Meikle deposit is located 2 km north of the Betze-

Post mine. It contains 6.5 Mt of ore grading 21.6 g/t gold. The Meikle underground mine is expected to produce 11 t/y of gold for 11 years.

The Grouse Creek mine of Hecla Mining Company and Great Lakes Minerals Inc., which began production in December 1994, has encountered significant shortfalls with tonnage and ore grade. A new mining plan is being developed to optimize the project. The underground and open-pit mine was initially expected to produce 3.5 t/y of gold.

FMC Gold Company's Beartrack mine in Idaho came on stream in 1995 at a rated capacity of 3 t/y of gold.

Placer Dome Inc. (60%) and Kennecott (40%) own the Pipeline project, which hosts mineral resources of 12.6 Mt grading 1 g/t gold in addition to proven and probable reserves of 32 Mt grading 4.5 g/t gold. Following court settlements regarding claim ownership, production at Pipeline could start in 1997 at a rate of 6 t/y of gold.

Placer Dome Inc. (60%) and Kennecott (40%) also own the South Pipeline deposit. Proven and probable geological reserves at the South Pipeline open pit are 81 Mt grading 1.5 g/t gold.

Santa Fe Gold plans to start production at the Mule Canyon project in 1997 at a rate of 3 t/y for a period of eight years. Mule Canyon has reserves of 9 Mt grading 3.7 g/t gold.

Cyprus Amax plans to start production at the Fort Knox mine in Alaska in 1997 at a rate of 11 t/y.

Other projects that are waiting for final environmental approval include Echo Bay Mines Ltd.'s Juneau project in Alaska, and Hemlo Gold Mines Inc.'s New World project in Montana.

After a period of substantial growth, gold production in the United States is expected to increase slightly to between 320 and 340 t/y in the next few years.

Australia

After a period of sustained growth, Australian gold production registered a 2-t decrease to an estimated level of 255 t in 1995. The decrease was caused by heavy rain in Western Australia. However, Australia's gold production has shown a spectacular increase over the past 10 years from its level of 59 t in 1985. It is expected that gold production could grow further from its current level of 255 t/y to reach more than 300 t/y by the turn of the century.

In the past few years, Australian companies have been very successful in finding major gold discoveries, particularly at existing mine sites. Australia's production is mainly derived from Western Australia (75%), Queensland (12%), the Northern Territory (7%), and New South Wales (3%).

Australia's most important mines in 1994 were the Super Pit of Kalgoorlie Consolidated Gold Mines (19 t), PosGold Ltd.'s Boddington mine (13 t), Newcrest Mining's Telfer mine (13 t), and Western Mining Corporation's St. Yves mine (12 t).

Australia's five largest gold companies in 1994 were PosGold Ltd. (30 t), Western Mining Corporation (26 t), Placer Pacific (25 t), Newcrest (22 t), and CRA Ltd. (16 t). Recently, there has been an increasing number of Australian gold companies wishing to merge in order to become important world producers.

The proposed merger of Normandy Mining Ltd., PosGold Ltd., Gold Mines of Kalgoorlie Ltd., and North Flinders into one company would bring current output of the new company to nearly 50 t/y. The new entity would therefore become the eighth largest gold producer in the world.

RTZ Corp. shareholders approved a merger with its Australian subsidiary, CRA Ltd. The new company will have a combined gold production of 56 t/y.

Placer Pacific started production in August 1995 at the Osborne copper-gold deposit where reserves are 11.4 Mt grading 1.3 g/t gold. Annual production is expected to reach 1.2 t of gold.

Delta Gold NL and Placer Pacific Ltd. started production at two gold deposits near Placer Pacific's Granny Smith mine. The Keringal deposit has reserves of 5.5 Mt grading 2 g/t gold, while the Sunrise deposit has proven and probable reserves of 1.8 Mt grading 3.7 g/t gold. These deposits are expected to increase the Granny Smith mine's life by about two years to 1999.

Major production increases in 1996 include Great Central Mines NL's Jundee project, which has reserves of 7.2 Mt grading 2.4 g/t gold. Production at Jundee is expected to reach 5 t/y. Pegasus Gold NL's Mount Todd mine, which came on stream in 1995, is expected to double its capacity from 4 to 8 t/y in 1996.

North Ltd. is seeking approval from the New South Wales government to bring the Lake Cowal gold deposit on stream. The A\$177 million project has a resource of 49 Mt grading an average of 1.5 g/t gold with an anticipated production of 7 t/y. Australia's future growth in its gold output is also going to be helped by increased production at the Bronzewing mine of Great Central NL, which will reach 12.5 t in 1997, up from 6 t in 1995. In the longer term, Newcrest Mining Ltd. envisages spending A\$400 million to bring the Cadia Hill gold-copper mine on stream by 1998. Cadia Hill could produce 9 t/y of gold.

GoldCorp was set up by the Western Australian government to produce the series of Australian Nugget bullion investor coins. The coins come in denominations of two ounces, ten ounces, and one kilogram.

GoldCorp is Australia's largest gold refiner with a capacity of 150 t/y.

Papua New Guinea

Papua New Guinea's (PNG) gold production in 1995 was expected to have declined to 55 t from 61 t in 1994. PNG's gold production peaked in 1992 at 71 t. Despite the decrease in production over the last two years, PNG's gold production is expected to recover to 70 t/y by 1998, once the Lihir mine achieves full production.

In March the PNG government granted a mining lease for the Lihir gold project. Initial production at Lihir is expected by the middle of 1997 at a rate of 19 t/y, and its development costs are expected to be US\$670 million. Lihir is owned by Lihir Gold Co. (40%), RTZ Corporation PLC and Venezuelan Goldfields Ltd. (with 17% and 7.5% respectively), Niugini Mining (17%), the PNG government (9%), and the land-owners of Lihir Island (9%). Lihir has mineable reserves of approximately 104 Mt grading an average of 3.25 g/t gold. The cash operating cost is projected to be \$214/oz for the first five years of the project.

The PNG government announced that the government-owned Mineral Resource Development Co. plans to float 49% of its mine holdings in the country's mining and oil projects in 1996. The proceeds of this sale, which could reach US\$300 million, will be used to pay off debts and provide working capital.

The Porgera gold mine decreased its production from 32 t in 1994 to 26.4 t in 1995, compared to its peak of 46 t in 1992. The decrease is attributed to declining ore grades and lower throughput. However, in future years, the grade decrease will be partly compensated for by an increase in milling capacity from 8300 to 16 500 t/d. This US\$78 million expansion will allow mine production to be maintained at a level of 30 t/y until the end of the decade. The expansion is scheduled to be completed in the first quarter of 1996. The operation has 65.4 Mt of proven and probable reserves grading 4.5 g/t gold, representing around 300 t of gold. The mine, located in Enga Province, is owned equally by Placer Pacific Ltd. (the operator), Highlands Gold (a 65% subsidiary of Australia's MIM Holdings), Renison Goldfields Consolidated, and the Government of PNG.

The OK Tedi gold-copper mine is owned by Broken Hill Pty. Co. Ltd. (52%), Metall Mining Corp. (18%) and the PNG government (30%). The OK Tedi mine has reserves of 350 Mt grading 0.9 g/t gold and 0.87% copper, and a production capacity of 15 t/y of gold. The PNG government approved the terms of a US\$82 million compensation package by OK Tedi to land-owners affected by the mine. Currently, mine tailings and overburden at OK Tedi are released into local rivers at a rate of 80 000 t/d.

Other operating gold mines in PNG include Placer Dome's 60%-owned Misima mine with production of 10 t/y of gold. Misima has ore reserves of 20 Mt grading 1.2 g/t gold.

Dome Resources NL is expected to commission the Tolukuma gold mine in 1996, and gold production at Tolukuma is expected to be around 1.5 t/y.

Production at Highlands Gold Ltd.'s Nena copper-gold project is expected to start in 1998, and gold production there should reach 4 t/y.

Commonwealth of Independent States

Gold production in the Commonwealth of Independent States (C.I.S.) was estimated to be 250 t in 1995. The general decline in production from a peak of over 285 t in 1989 is largely attributed to the exhaustion of some placer deposits (particularly in Russia) and a shortage of hard currency to develop new mines. About 20% of the C.I.S.'s annual gold production is believed to originate as a by-product from base-metal operations, particularly copper.

As a result of foreign investment, gold production in the C.I.S. is expected to grow in the next few years, even though there will be a decline in placer gold production in Russia.

Russia

Russian gold production was reported to have decreased to 140 t in 1995 from 145 t in 1994. Currently, Russia's production originates mostly from the Far East (62%), East Siberia (24%) and the Urals (12%). The decreased Russian production can be attributed principally to declining reserves at several alluvial operations, high taxes averaging 60%, and late payments by central authorities. Other problems include high import taxes for machinery and a shortage of funds for geological surveys.

About 80% of Russia's gold production comes from placer deposits, but these deposits account for only 20% of the total proven reserve base. As gold reserves are generally concentrated in large low-grade deposits, Russian gold production will likely continue to decline in the medium term.

The Russian Federation Committee on Precious Metals and Precious Stones (Roskomdragmet) exercises state regulations over the extraction and production of precious metals and stones. Roskomdragmet is also responsible for ensuring the proper exploration of mineral resources, and the processing and marketing of precious metals and stones. International gold-trading rights are held by Vneshtorgbank.

Russia's gold output is produced by state-owned enterprises as well as by private enterprises and cooperatives known as Artels. There are about 350 producers with various forms of ownership, including

200 Artels which generally operate small placer deposits. Artels account for approximately 60% of Russia's total gold production originating mostly from Magadan, Yakutia and Chita.

The gold industry is of great importance to the Russian Federation. To address the problem of declining production, Russia has decided to open gold exploration to tenders in several regions. Until new mines enter into production, output is expected to continue to decline.

In November, an interim government decree on precious metals and stones was introduced. The new law, which was introduced in Parliament, would give ownership of the diamonds and precious metals to the producers, but reserves the right of first refusal for the State, the Central Bank, or the authorities in the territories in which the gold was produced. The owner can then sell its gold production to one of the 100 Russian commercial banks of its choice.

Amax Gold Inc. plans to develop the Kubaka gold project in the Magadan region. Amax Gold, which owns 50% of the Omolon Mining Company, plans to start production at Kubaka in 1997 at a rate of 10 t/y for a period of seven years.

Star Mining Corp. of Australia has a 35% interest in LenaGold and the Sukhoi Log project in eastern Siberia. Sukhoi Log, with estimated reserves of 550 Mt grading 2.6 g/t gold and a potential production of 46.7 t/y, is reported to be one of the largest undeveloped gold deposits in the world.

TVX Gold Inc. has acquired a 50% interest in the Asacha and Rodnikovoe gold-silver deposits in Kamchatka through the acquisition of 50% of Trevozhnoye Zarevo. TVX Gold also has the option to increase its interest to 100%. According to preliminary estimates, these deposits contain 70 t of gold. A feasibility study is expected to be finalized in 1996.

Kinross Gold Corporation acquired ASARCO Incorporated's interest in the Aginskoe deposit located in the Kamchatka region. Kinross (the operator) and Grynberg Resources Ltd. each own 25% of the Kamgold joint venture, which hosts proven reserves of 0.9 Mt grading 29.6 g/t gold. Production at Aginskoe could start by the middle of 1997 at a rate of 6 t/y upon receipt of appropriate permits from the Russian government.

RTZ Corporation PLC owns 55% of the Svetloye joint venture, which is studying the feasibility of bringing the Svetlinskoye mine on stream in the southern Urals. Svetlinskoye is estimated to have a production capacity of 5 t/y of gold.

Armada Gold of Canada owns a 64% interest in the Baley project in the Chita region. According to a preliminary feasibility study, Baley is estimated to contain around 200 t of gold. Results from a feasibility study are expected to be released in September 1996.

High River Gold Mines Ltd. acquired a 22.9% ownership in Buryatzoloto, which operates the Zun-Holba and Irokinda mines as well as placer deposits. Buryatzoloto's current production is around 1.7 t/y.

Far East Gold, also of Canada, acquired an 80% interest in Koryakiya Mining Company, which owns the Ametistovoe gold deposit. Estimated reserves at Ametistovoe are 6.6 Mt grading 15.5 g/t gold.

Uncertainty about Russia's legal framework and the jurisdictional conflicts between local and central authorities make the present investment climate there unattractive. However, the enormous undeveloped potential of Russia, coupled with its high need for foreign investment, is expected to encourage authorities to make Russia's legal framework more attractive for foreign investment in mining. According to a senior official from Roskomdragmet, Russia's gold mining industry would require more than US\$5 billion to build or upgrade approximately 30 mining and milling complexes in the next four years.

Uzbekistan

Uzbekistan's gold production was estimated at 75 t in 1995 and is expected to approach 100 t/y by 1996 once additional development projects are brought on stream.

The Muruntau low-grade open-pit mine was commissioned in 1969 and is reported to have an annual production of 55 t. The mine treats about 20 Mt/y of ore grading 3 g/t gold.

Production at the Zarafshan tailings retreatment joint venture will start in 1995 at an annual rate of 15 t. The Zarafshan joint venture is owned by Newmont Gold Company (50%), the Uzbek State Committee of Geology and Mineral Resources, and Navoli Mining and Metallurgical Combine with 25% each. The joint venture plans to process gold tailings over a 16-year period with reserves of 150 t. The capital cost of the project has been increased from US\$150 million to \$220 million due to high transportation and equipment prices and increased plant capacity.

Representatives of Lonrho plc, the State Committee of Geology and Mineral Resources, and the Navoy Mining and Metallurgical Combinat Uzbekistan, as well as the International Finance Corporation (IFC), agreed to develop the Amantaytua and Daughystau deposits south of the Zarafshan gold fields. Initial production will be 10 t/y, rising to 15 t/y after four years. Reserves are reported to be 60 Mt grading 3 g/t gold, while the capital cost to build the project is expected to be US\$250 million.

Kazakstan

Kazakstan's 20-t/y gold production is derived mostly from the Ust-Kamenogorsk base-metal operation and the Tselinny mining and chemical plant slag heaps.

Bakyrchik Gold PLC (BK Gold) and the Kazakstan government started production at the Bakyrchik mine. BK Gold retained a 40% ownership in the mine and is the mine operator, while the state mining company Altynalmas owns 60% of the joint venture. Production at Bakyrchik is expected to double from its current level to reach 8 t/y by 1997. The Bakyrchik mine contains proven and estimated reserves of 31 Mt grading 9.11 g/t gold, equivalent to about 250 t of gold.

Goldbelt Resources has received final approval from the Kazakstan government to operate the Leninogorsk gold and silver tailings project. However, Goldbelt's joint-venture partner Pegasus Gold Inc. announced that it will no longer be involved in this project. The gold tailings contain 150 Mt of material grading 0.6 g/t gold and 4.8 g/t silver.

Placer Dome Inc. informed the Government of Kazakstan of its plan to withdraw from the Vasilkovskoye gold deposit. Placer Dome expects the repayment of the US\$35 million deposit it made before conducting its due diligence process. Vasilkovskoye has a geological resource of 138 Mt grading 3 g/t gold.

Kyrghyzstan

Kyrghyzstan's gold production is almost exclusively derived from the Machmal mine at a rate of 3 t/y. However, by the year 2000, Kyrghyzstan's production could easily reach 20 t/y as new mines begin to produce.

The Kumtor Operating Company, owned by Cameco (33%) and the Kyrghyzstan government (67%), is currently proceeding with the development of the Kumtor deposit. Production at the US\$325 million open-pit gold project is expected to start by 1997 at a rate of 15.6 t/y for a period of 11 years. Kumtor has total estimated reserves of 517 t of gold, of which 211 t are amenable to open-pit mining. Grades at Kumtor are 3.9 g/t gold, and its cash operating costs are expected to be US\$160/oz.

Brush Creek Mining and Development Co. Inc. and the Kyrghyzstan government signed an agreement to set up a joint venture to develop the Dzherul gold deposit. The capital cost of the project is expected to reach US\$200 million, with Brush Creek retaining a 30% interest. The deposit, which hosts reserves of 47 t, should allow an annual production of 5 t of gold.

Tadjikistan

Nelson Gold is expected to commission the Zeravshan gold project in early 1996. Zeravshan, in which Nelson has a 49% interest, has reserves of 28.3 Mt grading 1.4 g/t gold. Initial production is expected to be around 2.4 t/y of gold.

Asia and the Pacific

In addition to being a prolific region for gold production, Asian countries are the world's fastest growing gold markets.

China

For the first time, Chinese authorities released an official gold production figure estimated at 105 t in 1995. According to the Gold Administration Bureau of the Ministry of Metallurgical Industries (MMI), the four largest provinces that account for 55% of Chinese gold production are: Shandong (27.4 t), Henan (13.7 t), Hebei (8.9 t) and Shaanxi (7.8 t). The MMI also announced that Chinese gold production is expected to reach 150 t/y by the year 2000.

It is reported that the majority of China's 600 mines produce less than 0.3 t/y of gold, while 40 operations produce more than 0.3 t/y. The majority of China's production is derived from lode deposits (75%); the balance of output is 15% from placer deposits (mainly from the Heilongjiang Province), and 10% as a by-product of base-metal deposits (primarily copper mines from the Jiangxi and Anhui provinces). According to the China National Gold Corporation (CNGC), employment in China's gold production sector stands at around 200 000 employees. However, this figure also includes employees from institutions such as hospitals and schools. The main organization dealing with gold production is the CNGC, which accounts for 10% of China's gold production. The CNGC reports to the MMI's Gold Administration Bureau, which has responsibility for overall policy formulation, management, monitoring and coordination.

Several factors prevent China from increasing its gold production faster. By law, gold producers have to sell their entire production to the People's Bank of China (PBOC). In September 1993, the Chinese government changed its policy to try to attract gold producers by offering to purchase gold at 10% below the world market price, which represents a significant increase over previous prices.

Gold smuggling occurs mostly between gold producers and converters (predominantly jewellery manufacturers). For instance, in the summer of 1995, the PBOC was purchasing gold at 96 yuan per gram while retail prices ranged from 134 to 142 yuan per gram. In addition, gold and gold jewellery imports are subject to duties and local taxes of 127%. There is significant gold smuggling to Hong Kong for finished gold products being exported illegally back to China. It was also reported that significant quantities of gold are being smuggled each year into China from Russia.

As another measure to encourage growth in its gold production, the country announced that foreign companies will be allowed to engage in gold mining in

China. China has made available to foreign companies a number of low-grade deposits with refractory ore grading less than 3.5 g/t gold.

Vancouver-based Asia Minerals and the Zhaoyuan Gold Industrial Group announced the signing of the final contract to establish the Yingezhuang gold joint venture. After completing the feasibility study in 1996 and the US\$72 million investment in the mine expansion, the joint-venture partners will each have a 50% interest in the Yingezhuang gold mine located in Shandong Province. The project will expand the mine's production from 0.3 to 2 t/y. Yingezhuang is the first foreign joint venture in the Chinese gold mining industry.

In November 1994, Barrick Power Gold Corp. (a joint venture between Barrick Gold Corporation and Power Corporation of Canada) signed two letters of intent with the CNGC covering the development of the Paishanlou deposit in Liaoning Province and the Changkeng deposit in Guangdong Province. Barrick Power has the option to acquire a 75% interest in the joint venture.

According to the China Pearl and Diamond Corporation, Chinese gold consumption totals around 300 t, with jewellery representing around 85% of that amount. There are currently about 700 jewellery manufacturing plants in China with some devoted entirely to the re-export market.

With the recent growth in gold consumption, the Chinese government has been increasing taxes on jewellery sales to diminish the gap between internal production and national demand. According to the World Gold Council, current gold consumption in China is around 0.2 g/y per person compared to 8 g/y in Taiwan. The average annual salary for citizens living in the largest 100 cities in China is US\$500. As this figure increases, so should gold demand.

China mints 99.9%-pure gold and silver Panda coins. According to the China Gold Coin Corporation, gold coin sales are estimated at around 3 t/y. The gold coins are available in five sizes ranging from one ounce to one twentieth of an ounce.

Japan

The Hishikari gold-silver mine of Sumitomo Metal Mining Co., Ltd., located on Kyushu Island, is Japan's only gold mine. Its production is estimated at 8 t in 1995. Hishikari has average grades of 80 g/t gold and 35 g/t silver.

Japanese gold consumption was expected to have risen to 390 t in 1995, with 188 t resulting from investment demand. Gold consumption for 1994 and 1993 stood at around 355 t each. Gold consumption is expected to grow because of the recovery in the Japanese economy, the strength of the yen, income

tax cuts, and an increase in consumer Gold Accumulation Plans.

According to the World Gold Council, gold demand created by Gold Accumulation Accounts was expected to total 40 t in 1995 compared to 30 t in 1994. Under the plans, investors deposit a minimum of 3000 yen each month. According to Japanese sources, the earthquake in central Japan made investors more eager to hold gold bars instead of paper investments.

In 1994, Japan was also the world's most important fabricator of gold in the electronics (69 t) and dental (17 t) industries, accounting for 36% and 27% respectively of the world market.

Indonesia

Indonesia's gold output quadrupled in the last five years to reach 75 t in 1995. Indonesian production is expected to exceed 100 t/y before the end of the decade.

The bulk of Indonesia's production is from Freeport McMoRan Copper and Gold Inc.'s Ertsberg/Grasberg copper-gold mine. After expanding its daily milling capacity from 71 000 t to 115 000 t, the company is planning a further expansion to a possible 200 000 t/d. RTZ Corp. acquired a 12% interest in Freeport McMoRan at a price of US\$500 million to fund the proposed expansion. Gold production by Freeport McMoRan was around 40 t in 1995, and could reach 70 t/y by the year 2000. Proven and probable reserves stand at 1.7 billion t grading 1.26 g/t gold and 1.3% copper.

Indonesian gold production also increased in recent years due to the recent start-up of CRA's Kelian mine. Output at the Kelian mine in 1995 was 13.5 t, a decline of 1 t from the 1994 total, partly because of lower grades.

Newmont Gold Corporation announced that it will commission the Minahasa mine in early 1996. The US\$130 million mine will produce 4.4 t/y of gold for a period of 13 years. In addition, Newmont has announced that its Batu Hiau project is the single largest gold occurrence ever discovered by the company. Batu Hiau is reported to contain reserves exceeding 800 t of gold.

Bre-X Minerals Ltd. of Calgary has also reported a major discovery on its Busang deposit that could host several hundred tonnes of gold.

Africa

Following important investments by international development agencies and local governments in geo-science activities, as well as the revision of mining codes and investment laws, increased attention is being devoted to gold exploration in African countries.

Ghana

Ghana's gold production has more than tripled in the past five years from 17 t in 1990 to 52 t in 1995. According to national authorities, production could reach 75 t/y by the end of the century due to good mineral potential and a liberalization of the country's mining laws.

Gold production at the Ashanti mine in 1995 was expected to total 30 t. This production increase is attributable to the start-up of the 220 000-t/m bioleaching plant. Production at the Ashanti gold mine is derived from underground, open-pit and tailings retreatment operations. Total reserves at the Ashanti mine are 74 Mt grading 7.6 g/t gold, which is equivalent to 560 t of gold. The mine, with 10 000 employees, has a cash operating cost of US\$175/oz.

The Ashanti gold mine is owned by Lonrho plc (41.3%) and the Ghana government (31.3%), with institutional and private investors owning the remainder.

Pioneer Group Inc.'s Terebie Goldfields mine increased production from 5.5 t to 7.8 t at the end of 1995. An additional expansion could boost production to over 12 t/y by 1998.

Golden Shamrock Mines also plans to increase production at the Iduapriem mine from 3.5 to 7 t/y once a feasibility study is completed.

Zimbabwe

Zimbabwe's gold production stood at around 24 t in 1995. The commissioning of Zimbabwe Ltd.'s Bundara mine at the end of 1994 allowed an output increase of 2 t in 1995. Improvements to Zimbabwe's investment climate should favour increased gold production in the future.

Mali

Production at the Syama gold mine in Mali increased to 6 t in 1995. The mine is owned by BHP Minerals (65%), the Government of Mali (20%), and the International Finance Corporation (IFC) (15%). The deposit is expected to contain 100 t of gold.

Anglo American Corporation of South Africa Ltd. announced that production at the Sadiola mine will start in early 1997. Once in full production in the summer of 1997, Sadiola will produce 11 t/y of gold. Sadiola hosts reserves estimated at 50 Mt grading 2 g/t gold. Anglo American Corporation and International African Mining Gold Corp. (IamGold) each own 38% of the project, while the Government of Mali and the IFC own 18% and 6%, respectively.

Latin America and Mexico

Major changes in investment and mining laws, as well as relatively unexplored land, have made Latin America a very active area for gold mining exploration and development. Currently, there are several foreign companies pursuing gold mining projects in Latin America, particularly in Chile, Peru, Mexico, Argentina, Brazil and Venezuela.

Brazil

Brazil's 1995 gold production was expected to have declined by 3 t to 72 t. Mining companies accounted for approximately 60% (42 t) of production in 1995, while the Garimpeiros' share of output continued to decline to 40% (30 t).

The sharp decline in the Garimpeiros' production from its peak of 90 t in 1989 is mainly due to the depletion of easily accessible alluvial gold deposits, more stringent environmental regulations, and restricted land access to certain regions, particularly in the Amazon. Several organizations are pressuring Brazilian authorities to ensure that each miner uses a retort for greater recovery of mercury. The number of Garimpeiros has substantially declined in the past six years from an estimated one million in 1989, the year when Brazilian gold production peaked at 101 t, to less than 400 000 in 1995.

With the introduction of new constitutional reforms that enable foreign companies to hold controlling interests in Brazilian operations, it is expected that gold mining investment in Brazil will increase to US\$100 million in 1996 after several years of decline.

Production by the state-owned Companhia Vale Rio Doce (CVRD), Brazil's largest gold producer, was expected to reach 17 t in 1995. CVRD plans to increase production to 21 t in 1996 and to 31 t/y by the year 2000. Currently, the Igarape Bahia mine is the company's largest gold mine with an output of 10 t in 1995. CVRD is also scheduled to bring the 1-t/y Almas mine on stream in Minas Gerais State.

To achieve its objective of producing more than 30 t/y by the year 2000, CVRD plans to bring the Caete project on stream with a production level of 3.5 t/y. In addition, CVRD and Mineracao Morro Velho are currently studying the feasibility of the Salobo copper-gold deposit. The capital cost of the project is US\$765 million and production could start in 1999 at a rate of 8 t/y of gold. Also, CVRD announced that it had made a significant gold discovery near the Serra Pelada project in Para State. The project, which is reported to be the biggest find in Brazil, could contain 150 t of gold. A major unknown that could significantly affect CVRD's expansion projects are the plans by the Government of Brazil to privatize CVRD, scheduled for 1996.

Mineracao Morro Velho S.A., a joint venture between Bozzano Simonson (51%) and Anglo American Corporation (49%), is Brazil's second largest gold producer with an estimated output of 12 t/y. It operates the Jacobina, Moro Velho and Sierra Grande mines.

TVX Gold Inc. owns portions of three Brazilian operations. It has a 50% share in the Crixas Goias mine, a 33% share in the Brasilia mine, and a 50% share in the Novo Astro mine. The latter mine closed in 1995 due to exhaustion of reserves. Together these three mines produced 10 t of gold in 1995. TVX's share of the production was 4 t of gold.

Peru

In 1995, Peru became South America's second largest gold producer by increasing production from 38 t to 46 t. According to officials of the Energy and Mines Ministry of Peru, production could rise to 60 t/y by 1997 mainly because of privatizations and a significant increase in output at the Yanacocha mine. Peru's gold production derived from placer operations was around 22 t in 1995.

The Yanacocha open-pit heap leaching mine of Newmont Mining (38%), Compania Minera Condessa (32.3%), Bureau de Recherches Géologiques et Minières (BRGM) (24.7%), and the International Finance Corporation (IFC) (5%) was South America's largest gold mine in 1995 following a production increase from 9.5 t to 16 t. The production increase at the Yanacocha mining complex was made possible following the start-up of the Maqui Maqui mine at a cost of US\$40 million.

Barrick Gold Corporation announced that gold reserves at the Cerro Corona project are 91 Mt grading 1.1 g/t gold and 0.5% copper, representing 90 t of gold. A production decision at Cerro Corona is expected in May 1996.

Chile

Chile's 1995 gold production was expected to grow by 1 t to around 45 t. According to Chilean government officials, annual gold production could reach 60 t by the year 2000. Approximately 6 t, or 15%, of Chile's production was as a by-product of copper mining.

Barrick Gold Corporation operates the El Indio and Tambo mines which together produced 10 t of gold in 1995. An expansion at the two mines should allow production to increase to 11 t in 1996.

Barrick Gold will also bring the Pascua mine (formerly called Nevada), located 30 km north of the El Indio complex, on stream in 1998. The cost of developing this project is US\$300 million, and production is expected to range between 9 and 12 t/y of gold depending on the results of future exploration.

Cyprus Amax and Bema Gold Corporation plan to start production at the Refugio property in February 1996. The US\$130 million heap leach mine is expected to produce 7 t/y of gold for a period of 9.4 years. Reserves at the Refugio mine are 101 Mt grading 1 g/t gold.

Compania Minera Dayton de Chile Ltda commissioned the 4-t/y Andacollo gold mine in 1995. The mine has reserves of 32 Mt grading 1.2 g/t gold. The development cost of the Andacollo project is expected to be US\$100 million, and the mine should be in operation for a period of eight years.

Production at the La Coipa mine of Placer Dome Inc. and TVX Gold Inc. stood at around 3.5 t of gold and 300 t of silver in 1995.

Production started in 1995 at the La Candelaria copper-gold mine owned by Phelps Dodge Corp. and Sumitomo Metal Mining Company Ltd. The US\$1.5 billion project has reserves for 30 years containing 90 t of gold. Output is expected to be 2.5 t/y of gold and 100 000 t/y of copper.

Bolivia

Bolivia's gold production was expected to rise to 18 t in 1995, and its future growth is being triggered mainly by the privatization of assets and expansions at the Korri Kollo mine.

Battle Mountain Gold Co. (88%) and Zeland Mines SA (12%) were expected to produce a total of 11 t of gold in 1995 following a US\$150 million expansion program at the Korri Kollo mine. Current gold recoveries at the 19 000-t/d mine are 70%. Reserves at Korri Kollo total 45 Mt grading 2.3 g/t gold and 14.5 g/t silver.

Venezuela

Venezuela's gold production, estimated at 12 t in 1995, was mostly attributed to placer mining by several small private miners.

Following the discovery of the Las Cristinas gold deposit in 1992, owned 70% by Placer Dome Inc. and 30% by Corporacion Venezolana de Guayana, several companies have focused on exploring in Venezuela. According to Placer Dome's pre-feasibility estimates, the Las Cristinas mine has a resource estimate of 214 Mt grading 1.25 g/t gold. Feasibility results are expected to be released in 1996. Gold production at Las Cristinas could be 12 t/y over a period of 13 years.

Despite a recent decision by the Central Bank to allow 60% of gold sales on the international market, several other measures, such as mineral rights tenure, currency controls, and labour and investment laws, will have to be put in place to make Venezuela an attractive place to invest.

Argentina

Argentina's gold production should grow very rapidly from its current level of 1 t/y. Several projects, mainly gold-copper, are expected to come on stream before the year 2000.

The most promising project is the Bajo de Alumbra copper-gold project of MIM Holdings Ltd. (50%), North Ltd. (25%) and Rio Algom (25%). According to feasibility estimates, this mine has reserves of 581 Mt grading 0.67 g/t gold and 0.52% copper. Gold production is expected to start in 1997 and to average 20 t/y for a 20-year period.

A US\$5 million gold refinery was brought on stream in 1995 in La Rioja Province. It has a capacity to process 50 t/y of gold and 220 t/y of silver. Almost all doré is expected to come from Chile.

Mexico

Gold production in Mexico is also expected to grow from its current level of around 16 t/y, following an increase in foreign investment.

Currently, Industrias Penoles is Mexico's largest gold producer with an output of 7 t/y. The La Cienega mine is Mexico's largest gold mine with an estimated output of 3.1 t/y.

Corporacion San Luis expects to start production in 1996 at the Malanoche mine in Durango State at a production rate of 1 t/y.

Eldorado Corp.'s La Colorada heap leaching mine, located in Sonora State, will quadruple its initial production capacity of 2.8 t/y by 1996.

A decision is expected to be taken in 1996 on Placer Dome Inc.'s 70%-owned Mulatos property, also in Sonora State, which has an identified geological resource of 30 t of gold.

Other promising projects include Cambior's (50%) and Corporación San Luis (50%) Metates' project in Durango State that shows a mineral inventory of 400 Mt grading 1 g/t gold.

Guyana

Production at Omai Gold Mines Limited's Omai mine declined to 5.5 t in 1995 from 7.8 t in 1994 as a result of the collapse of the tailings dam in August 1995. Following this incident, the Government of Guyana created a Commission of Enquiry to determine the causes of the tailings dam breach and to make recommendations on the future of the mine. In February 1996, the Omai mine was allowed to re-open using a new tailings impoundment.

An expansion at the Omai mine/milling facility from 12 000 t/d to 18 000 t/d is expected to increase output to 8.4 t in 1996. Total reserves at Omai are 69 Mt grading 1.5 g/t gold. Omai Gold Mines Limited is owned by Cambior (65%), Golden Star Resources Ltd. (30%) and the Guyana government (5%).

CONSUMPTION AND USES

Total world fabrication demand for gold in 1995 increased by about 6% to reach 3200 t. Gold jewellery demand has nearly doubled in the past 10 years and it exceeded total world production of gold by 451 t in 1995. Gold jewellery manufacturing increased by about 5% to 2700 t in 1995. Increased demand from India and the Far East is reported to be the main factor that contributed to the increase in fabrication demand. The future growth in Asian countries is expected to remain the driving force behind the gold market.

Other important sectors where gold is in demand include electronics, dentistry and coinage. World demand from the electronics sector in 1995 experienced an increase of around 3%, with Japan accounting for nearly 40% of fabrication in this sector. Demand for coinage increased by 25% from 75 t in 1994 to around 94 t in 1995. The increase was due to the relative weakness of the U.S. dollar vis-à-vis the Japanese yen and the German mark in the spring of 1995. Towards the end of 1995, sales were also triggered by expectations that the price of gold would exceed US\$400/oz. The coinage market is highly vulnerable to gold speculation trends and to commemorative coin issues. Dentistry fabrication was stable at around 60 t, with Japan accounting for 28% of that market.

Canada's gold fabrication demand increased to around 23 t in 1995 from 20.5 t in 1994. The increase is attributable to an increase in sales of the gold Maple Leaf coins from 9.5 t in 1994 to 10.1 t in 1995. Gold fabrication in Canada in 1995 was for jewellery (12 t), electronics (0.4 t), and dentistry and other industrial uses (0.5 t).

The Royal Canadian Mint produces two official coins that contain gold: a numismatic gold coin containing one quarter of an ounce of gold, and the gold Maple Leaf coin. Since its introduction in 1979, the Maple Leaf coin program has consumed some 500 t of gold, or 26% of total Canadian gold production during that period.

In 1995, the gold Maple Leaf coin ranked third behind Austria's Philharmonic coin and the Australian Nugget.

OUTLOOK

The current world economic growth, low inflation rates and the relative stability of the world's political climate should help keep gold prices relatively stable in the short term. It is expected that fabrication demand will continue to exceed gold production in the future. However, central banks, as well as private sales, are expected to continue to narrow that gap, especially when market conditions are positive. It is also anticipated that hedging by gold producers will likely dampen major price increases.

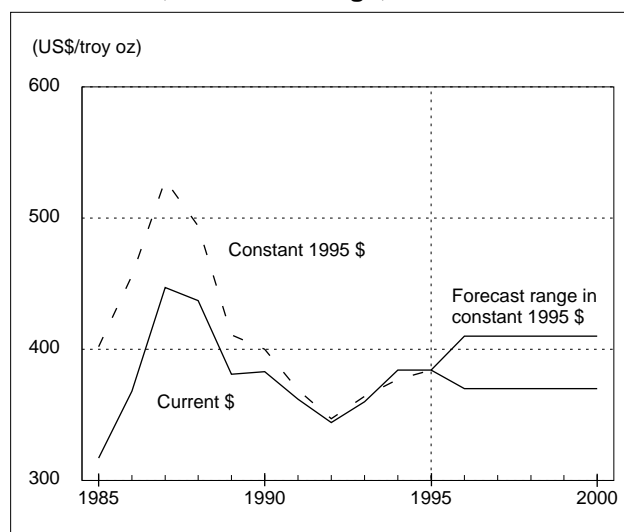
In 1996, a 2% increase in total gold fabrication demand is anticipated, with the jewellery sector being responsible for most of that growth. The current low real interest rates, as well as sharp fluctuations in currencies, are positive for the gold market.

In 1996, an average gold price of US\$390/troy oz is forecast, compared to \$384/oz in 1995. In the medium term, the combined effect of increased demand for gold products, particularly in the jewellery sector, along with a moderate increase in world gold production, should result in some strengthening in the price of gold.

For the rest of the decade, an average annual gold price in constant 1995 dollars of between US\$370 and \$410/oz is forecast.

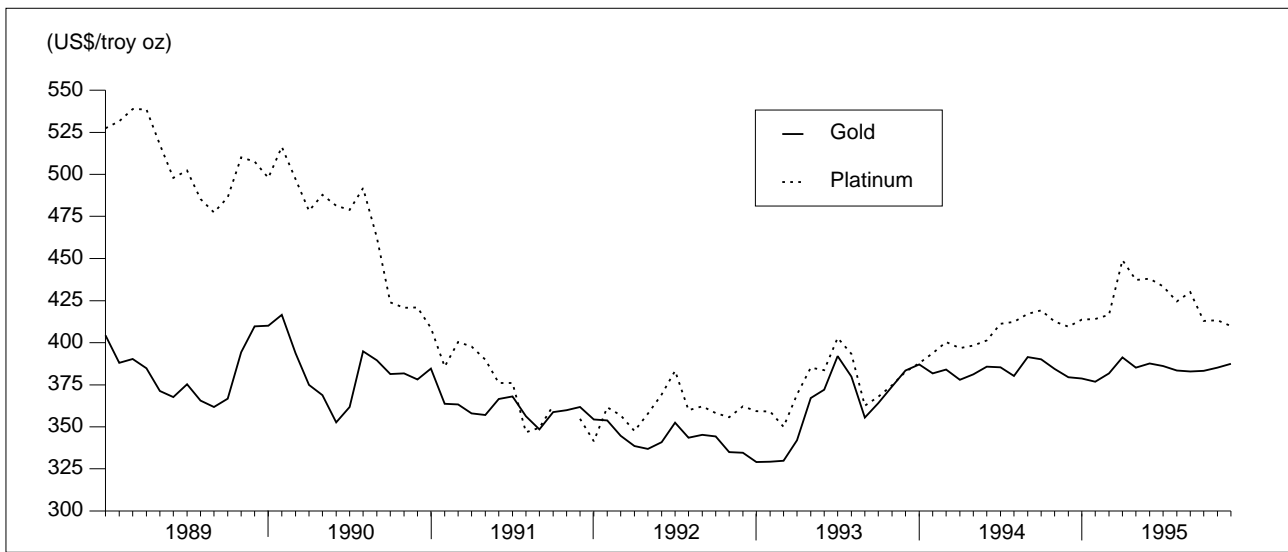
Notes: (1) For definitions and valuation of mineral production, shipments and trade, please refer to Chapter 70. (2) Information in this review was current as of February 15, 1996.

Figure 3
Gold Prices, Annual Average, 1985-2000



Sources: Natural Resources Canada; London Bullion Market Association.

Figure 4
Precious Metal Prices, Monthly Averages, 1989-95



Sources: London Bullion Market Association; Johnson Matthey Public Limited Company.

TARIFFS

Item No.	Description	Canada			United States	EU	Japan ¹
		MFN	GPT	USA	Canada	MFN	GATT
71.08	Gold (including gold plated with platinum) unwrought or in semi-manufactured forms, or in powder form						
	Non-monetary						
7108.11.00	Powder	Free	Free	Free	Free	3.3%	Free
7108.12.00	Other unwrought forms	Free	Free	Free	Free	Free	Free
7108.13	Other semi-manufactured forms						
7108.13.10	Of a purity of 10 carats or more	Free	Free	Free	Free	Free-4.2%	Free
7108.13.20	Of a purity of less than 10 carats	6.4%	4%	Free	Free	Free-4.2%	Free

Sources: Customs Tariff, effective January 1996, Revenue Canada; Harmonized Tariff Schedule of the United States, 1996; The "Bulletin International Des Douanes," Journal Number 14 (17th Edition), European Union, 1994-1995, "Conventional" column; Custom Tariff Schedules of Japan, 1995.

¹ GATT rate is shown; lower tariff rates may apply circumstantially.

TABLE 1. CANADA, GOLD PRODUCTION AND TRADE, 1994 AND 1995

Item No.	1994		1995P		
	(kilograms)	(\$000)	(kilograms)	(\$000)	
PRODUCTION					
Newfoundland	x	x	x	x	
Prince Edward Island	—	—	—	—	
Nova Scotia	—	—	—	—	
New Brunswick	365	6 156	401	6 821	
Quebec	40 932	690 158	39 011	663 577	
Ontario	69 155	1 166 026	63 200	1 075 030	
Manitoba	2 608	43 975	3 529	60 020	
Saskatchewan	x	x	x	x	
Alberta	34	569	21	349	
British Columbia	12 191	205 555	19 168	326 056	
Yukon	3 345	56 406	4 583	77 950	
Northwest Territories	13 140	221 555	13 758	234 032	
Total	146 428	2 468 926	149 026	2 534 940	
Mine output	146 891	..	150 010	..	
EXPORTS					
2600.00 ¹	Gold in ores and concentrates	3 510	46 466	7 057	62 681
7108.11	Gold powder				
	United Kingdom	235	4 307	1 740	27 132
	Japan	167	3 275	1 118	17 167
	Belgium	260	383	380	334
	United States	18	311	20	343
	Total	680	8 278	3 258	44 978
7108.12	Other unwrought forms				
	United States	116 293	1 945 132	101 990	1 723 337
	Hong Kong	11 637	194 032	16 770	282 575
	Switzerland	38 180	639 651	14 057	224 812
	Japan	1 361	22 390	10 203	163 637
	Taiwan	8 281	134 536	8 792	141 527
	Germany	3 947	68 036	5 529	89 372
	South Korea	—	—	2 153	34 112
	United Kingdom	21 275	357 210	1 055	4 394
	France	141	1 317	61	1 226
	United Arab Emirates	6	102	39	656
	Cuba	38	532	14	184
	Singapore	3	44	1	18
	Other countries	3 290	52 917	—	—
	Total	204 451	3 415 908	160 664	2 665 857
7108.13	Other semi-manufactured forms				
	United States	5 443	82 898	4 600	74 399
	United Kingdom	..	5	305	5 105
	Portugal	4	60	232	3 452
	France	—	—	206	3 312
	Thailand	—	—	87	1 286
	Taiwan	—	—	78	1 314
	Trinidad and Tobago	5	40	12	92
	Bahamas	—	—	6	104
	Greece	—	—	4	67
	Total	5 452	83 004	5 530	89 134
	Total refined gold exports	210 583	3 507 190	169 452	2 799 969
IMPORTS²					
2600.00 ³	Gold in ores and concentrates	2 566	24 549	2 648	37 378
7108.11	Gold powder				
	United States	11	127	10	112
	United Kingdom	3	23	1	9
	Germany	..	5	..	4
	Ghana	40	239	—	—
	Hong Kong	..	1	—	—
	Total	54	397	11	126

TABLE 1 (cont'd)

Item No.	1994		1995P		
	(kilograms)	(\$000)	(kilograms)	(\$000)	
IMPORTS (cont'd)					
7108.12	Other unwrought forms				
	United States	22 139	231 487	11 536	153 128
	Guyana	11 543	175 302	9 624	147 310
	Nicaragua	1 355	7 571	770	7 924
	Panama	—	—	415	1 542
	Switzerland	28	396	28	355
	Germany	25	297	11	170
	Other countries	50	1 257	99	1 505
	Total	35 140	416 019	22 484	311 941
7108.13	Other semi-manufactured forms				
	United States	1 154	11 105	1 142	12 392
	Switzerland	98	1 362	102	1 416
	Germany	20	271	15	194
	Italy	3	49	8	105
	United Kingdom	2	26	...	4
	France	1	23	...	2
	Other countries	2	14	11	148
	Total	1 280	12 854	1 278	14 265
	Total refined gold imports	36 474	429 270	23 773	326 332

Sources: Natural Resources Canada; Statistics Canada.

— Nil; . . Not available; . . . Amount too small to be expressed; P Preliminary; x Confidential.

¹ Includes HS classes 2603.00.82, 2607.00.82, 2608.00.82, 2616.10.82 and 2616.90.82. ² Imports from "Other countries" may include re-imports from Canada. ³ Includes HS classes 2603.00.00.82, 2604.00.00.82, 2607.00.00.82, 2608.00.00.82, 2616.10.00.82 and 2616.90.00.20.

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

TABLE 2. CANADA, GOLD PRODUCTION BY SOURCE, 1975, 1980 AND 1985-95

	Auriferous Quartz Mines		Placer Operations		Base-Metal Ores		Total	
	(kg)	(%)	(kg)	(%)	(kg)	(%)	(kg)	(%)
1975	37 530	73.0	335	0.6	13 569	26.4	51 433	100.0
1980	31 929	63.1	2 060	4.0	16 632	32.9	50 620	100.0
1985	67 241	76.8	3 464	4.0	16 857	19.2	87 562	100.0
1986	83 197	80.9	2 802	2.7	16 900	16.4	102 899	100.0
1987	94 723	81.8	4 009	3.5	17 086	14.8	115 818	100.0
1988	112 404	83.4	4 879	3.6	17 530	13.0	134 813	100.0
1989	138 211	86.6	5 354	3.4	15 930	10.0	159 494	100.0
1990	147 355	88.0	3 993	2.4	16 025	9.6	167 373	100.0
1991	153 859	87.8	3 834	2.2	17 589	10.0	175 282	100.0
1992	141 965	88.5	3 469	2.2	14 917	9.3	160 351	100.0
1993	137 346	89.7	3 787	2.5	11 997	7.8	153 129	100.0
1994	133 018	90.8	3 714	2.5	9 696	6.6	146 428	100.0
1995P	131 587	88.3	5 303	3.6	12 136	8.1	149 026	100.0

Sources: Natural Resources Canada; Statistics Canada.

P Preliminary.

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

TABLE 3. WORLD MINE PRODUCTION OF GOLD, 1980 AND 1989-94

	1980	1989	1990	1991	1992	1993	1994
	(tonnes)						
South Africa	675.1	607.5	605.1	601.1	614.1	619.5	583.9
Canada ¹	50.6	159.5	167.4	175.3	160.4	153.1	146.4
United States	30.5	265.7	294.2	296.0	329.1	332.1	331.0
Other Africa							
Ghana	10.8	15.3	17.3	27.3	33.3	41.4	44.5
Zimbabwe	11.4	16.6	17.9	19.1	19.9	20.7	22.4
Other	11.0	35.8	34.3	42.3	46.9	48.2	48.0
Total, other Africa	33.2	67.7	69.5	88.7	100.1	110.3	114.9
Latin America							
Brazil	35.0	101.2	84.1	78.6	76.5	75.7	75.4
Chile	9.3	29.0	33.3	33.0	39.3	38.5	43.1
Peru	5.0	12.6	14.6	15.1	18.0	27.4	37.8
Colombia	17.0	31.7	32.5	30.7	29.9	26.4	25.5
Bolivia	2.0	11.5	10.4	10.0	7.9	12.1	14.7
Mexico	5.9	10.8	9.6	8.5	10.4	11.1	14.6
Venezuela	1.0	17.1	14.2	13.2	11.7	11.2	13.7
Guyana	—	2.0	2.5	2.8	3.4	10.0	11.7
Ecuador	0.7	11.3	10.0	9.2	8.6	8.1	7.6
Other	15.6	9.8	9.1	9.0	9.2	8.6	8.1
Total, Latin America	91.5	237.0	220.3	210.1	214.9	829.1	252.2
Asia							
Papua New Guinea	14.3	33.8	33.6	60.8	71.2	61.5	60.6
Indonesia	2.1	10.8	17.6	24.4	45.9	52.2	55.3
Philippines	22.0	38.0	37.2	30.5	27.2	29.8	31.2
Japan	6.7	6.1	7.3	8.3	8.9	9.4	9.6
Other	5.0	13.5	13	14.3	15.9	18.4	18.6
Total, Asia	50.1	102.2	108.7	138.3	169.1	171.3	175.3
Europe	11.8	29.5	35.6	32.3	25.3	25.6	25.5
Oceania							
Australia	17.0	203.6	244.2	236.2	243.5	247.2	256.2
Other	1.0	9.4	10.1	10.3	14.3	15.0	14.1
Total, Oceania	18.0	213.0	254.3	246.5	257.8	262.2	270.3
Total, Western World	960.8	1 682.1	1 755.1	1 788.3	1 870.8	1 903.2	1 899.5
Other countries							
C.I.S.	..	285.0	270.0	252.0	240.1	259.7	248.9
China	..	86.0	95.0	110.0	118.0	127.0	130.0
North Korea	..	9.5	13.0	13.0	17.0	15.0	14.0
Mongolia	..	5.0	5.0	4.0	4.0	4.0	4.0
Total, other countries	..	385.5	383.0	379.0	379.1	405.7	396.9
Total, world production	..	2 067.6	2 138.1	2 167.3	2 249.9	2 308.9	2 296.4

Source: Consolidated Gold Fields PLC, "Gold 1995."

.. Not available.

¹ Production figures for Canada were obtained from Natural Resources Canada.

TABLE 4. CANADA, GOLD PRODUCTION, AVERAGE VALUE AND PERCENT OF TOTAL MINERAL PRODUCTION, 1975, 1980 AND 1985-95

	Total Production	Total Value	Average Value ¹	Gold as a Percent of Total Mineral Production
	(kg)	(\$000)	(\$/g)	(%)
1975	51 433	270 830	5.27	2.0
1980	50 620	1 165 416	23.02	3.7
1985	87 562	1 219 653	13.93	2.7
1986	102 899	1 689 292	16.42	5.2
1987	115 818	2 204 472	19.03	6.1
1988	134 813	2 331 989	17.30	6.3
1989	159 494	2 315 860	14.52	5.9
1990	167 373	2 407 654	14.38	5.9
1991	175 282	2 338 614	13.34	6.7
1992	160 351	2 141 161	13.35	6.0
1993	153 129	2 284 991	14.92	6.2
1994	146 428	2 446 926	16.86	6.0
1995 ^p	149 026	2 534 940	17.01	5.8

Sources: Natural Resources Canada; Statistics Canada.

^p Preliminary.¹ Value is based on average gold London p.m. fix price.**TABLE 5. GOLD FABRICATION IN DEVELOPED AND DEVELOPING COUNTRIES, 1980 AND 1987-94**

Fabricated Gold	1980	1987	1988	1989	1990	1991	1992	1993	1994
	(tonnes)								
DEVELOPED COUNTRIES									
Carat jewellery	318	587	672	814	866	880	923	891	894
Electronics	93	116	125	129	137	141	130	139	147
Dentistry	63	45	47	47	48	51	55	54	55
Other uses	58	51	54	57	57	57	60	60	61
Medals and fake coins	18	7	8	8	9	9	6	4	3
Official coins	170	166	88	88	89	121	77	99	57
Subtotal	719	972	994	1 143	1 206	1 259	1 251	1 247	1 217
DEVELOPING COUNTRIES									
Carat jewellery	196	651	874	1 115	1 203	1 269	1 567	1 427	1 456
Electronics	2	9	10	10	12	12	13	16	19
Dentistry	2	4	4	5	5	5	6	6	5
Other uses	4	7	8	9	11	11	20	34	36
Medals and fake coins	3	10	12	13	13	18	23	19	22
Official coins	21	36	42	47	29	18	13	16	14
Subtotal	228	717	950	1 199	1 273	1 333	1 642	1 518	1 552
TOTAL									
Carat jewellery	514	1 238	1 546	1 929	2 069	2 149	2 490	2 318	2 350
Electronics	95	125	135	139	149	153	143	155	166
Dentistry	65	49	49	52	53	56	61	60	60
Other uses	62	58	62	66	67	68	80	94	97
Medals and fake coins	21	17	20	21	22	27	26	23	25
Official coins	191	202	130	135	118	139	90	115	71
Total	946	1 689	1 942	2 342	2 478	2 592	2 890	2 765	2 769

Source: Consolidated Gold Fields PLC, "Gold 1995."

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

TABLE 6. AVERAGE ANNUAL GOLD PRICES, 1934-94, AND MONTHLY, 1992-95

Year	US\$/oz	C\$/oz	Year	US\$/oz	C\$/oz
1934-67	35	. .	1981	459.22	550.57
1968	38.82	41.82	1982	375.52	463.51
1969	41.13	44.29	1983	423.52	521.82
1970	35.97	37.54	1984	360.63	466.99
1971	40.87	41.27	1985	317.35	433.21
1972	58.22	57.66	1986	367.58	510.73
1973	97.22	97.24	1987	446.66	592.18
1974	158.80	155.36	1988	436.45	554.76
1975	160.96	163.76	1989	381.27	451.33
1976	124.78	123.01	1990	383.72	447.79
1977	147.80	157.10	1991	362.34	415.09
1978	193.51	220.74	1992	343.86	415.23
1979	305.69	358.12	1993	360.06	464.35
1980	614.38	719.08	1994	384.15	524.60

Month	1992		1993		1994		1995	
	(US\$/oz)	(C\$/oz)	(US\$/oz)	(C\$/oz)	(US\$/oz)	(C\$/oz)	(US\$/oz)	(C\$/oz)
January	354.44	409.66	328.99	420.28	387.14	509.53	378.74	535.16
February	353.85	418.14	329.31	415.13	381.66	518.66	376.75	527.45
March	344.70	410.88	329.89	411.34	384.00	523.87	381.82	537.22
April	338.63	402.36	341.95	431.37	377.91	522.70	391.34	538.88
May	336.95	404.10	367.04	465.96	381.18	526.06	385.23	523.91
June	340.78	407.68	371.98	475.61	385.71	533.63	387.62	534.14
July	352.45	420.05	392.03	502.66	385.45	532.98	386.14	525.54
August	343.60	408.99	379.80	496.28	380.21	524.14	383.50	519.64
September	345.30	421.51	355.56	469.45	391.37	529.95	382.93	517.72
October	344.28	428.73	363.99	482.54	390.16	526.82	383.20	515.79
November	334.92	424.48	373.94	492.37	384.38	524.32	385.21	521.19
December	334.66	425.96	383.40	510.57	379.48	526.91	387.44	530.02

Source: London Bullion Market Association, a.m. fix, compiled by Natural Resources Canada.

. . Not available.