

# Gold

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Gold has long been valued for its rarity, lustrous beauty, ductility, high resistance to corrosion, and conductivity. It has been treasured for its decorative and monetary value for at least 8000 years. The origin of the chemical symbol for gold, Au, is from the Latin word *aurum* meaning literally “glowing dawn.” Gold has a high density, its weight being equal to 19.3 times an equivalent volume of water. It is found as the free element in nature and is commonly associated with quartz, pyrite and other metallic minerals. The main industrial uses for gold are in jewellery (83%) and electronics (8%). Gold bullion coins, such as the Maple Leaf coin, are also important products.

Gold prices made an impressive recovery in 2003, rising above the US\$400/oz barrier towards year-end, the highest level seen in 14 years. On average, gold was up 17% over 2002, reaching an annual average of US\$363/oz. Much of this rise in prices can be attributed to the fall in the U.S. dollar, coupled with a surge in investment demand. De-hedging by gold miners also played an important part in the price rise, particularly in the first half of the year. While the price rise in U.S. dollar terms was positive, the net effect of the stronger Canadian dollar against the U.S. dollar resulted in gold prices in Canadian dollar terms ending the year slightly lower than where they started in 2003.

## **CANADIAN DEVELOPMENTS**

2003 mine production:	\$2.29 billion
World rank:	Eighth (mine production)
Exports:	\$2.75 billion

In 2003, Canadian gold production totalled 141.5 t, a decrease of 7% compared to the 2002 total of 152 t. The reduction in production resulted primarily from a number of mine closures in Quebec, Ontario and Nunavut (Figure 1).

Ontario accounted for 57% of Canada’s total gold production, followed by Quebec (20%) and British Columbia (16%). The other provinces and territories combined contributed 7%. Approximately 93% of Canada’s gold production in 2003 came from hard-rock underground and open-pit gold mines. Of the remainder, 6% was from base-metal mines and 1% was from placer mining operations. Higher prices for gold in 2003 resulted in a value of gold exports (including gold contained in scrap and base-metal concentrates) at about the same amount as in 2002 at \$2.75 billion despite a 3.5% decrease in the amount of gold exported (167 t, down from 173 t in 2002). The volume and value of imports were an estimated 37 t worth \$534 million, down from 42 t worth \$606 million in 2002. Gold was mined in every Canadian province and territory in 2003 with the exception of Nova Scotia and Prince Edward Island (Figure 2).

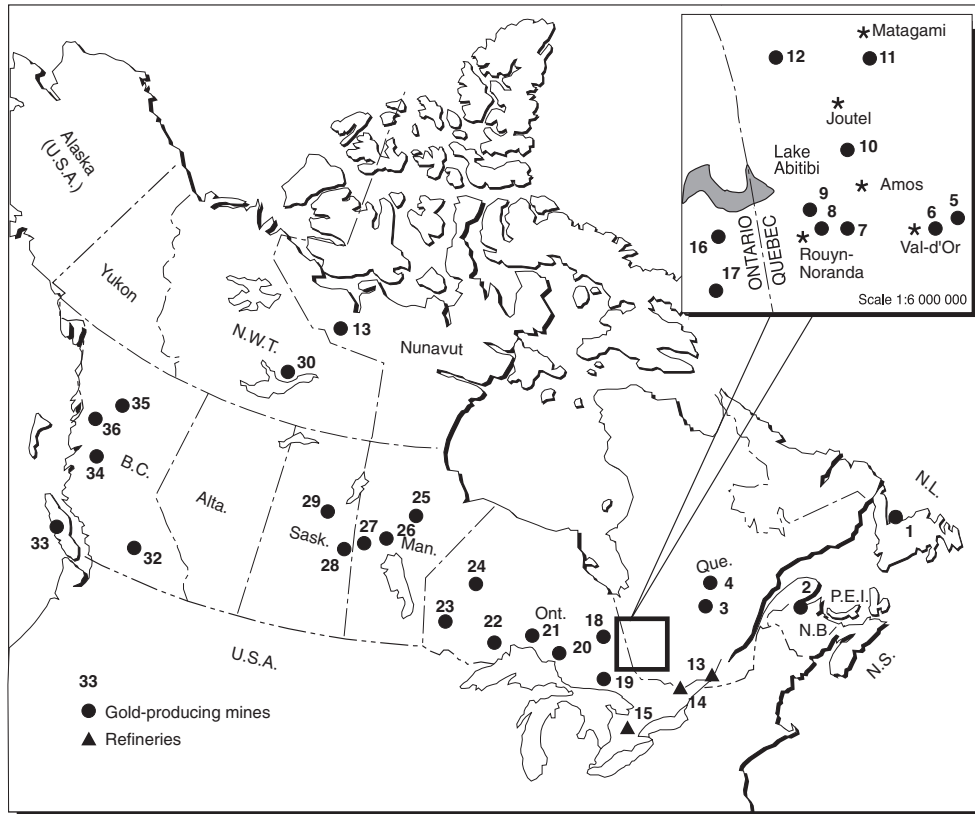
Canadian gold mines continue to improve efficiencies and cut costs despite the increased value in the Canadian dollar. The closure of some higher-cost mines has also helped to improve the overall cost-competitiveness of Canadian operations. The average cash cost of production from Canadian underground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

Kinross Gold Corporation completed a merger and integration of TVX Gold Inc. and Echo Bay Mines Ltd. into Kinross at the end of January 2003. As a result of the merger, Kinross produced some 1.62 million gold-equivalent ounces at total cash costs of US\$222/oz in 2003.

## **Nunavut**

In August, Kinross announced the suspension of operations at its Lupin mine in Nunavut due to its poor economic performance. As a result, there was no gold production during the fourth quarter of 2003 and gold production for the full year was reportedly 56 008 oz at total cash costs of US\$407/oz. The plant and equipment were placed on care and maintenance pending the results of the review of future alternatives for the property.

**Figure 1**  
**Gold-Producing Mines and Principal Gold Refineries in Canada, 2003**



Numbers refer to locations on map above.

**GOLD-PRODUCING MINES**

1. Hammerdown	Richmont Mines Inc.
2. Brunswick	Noranda Inc.
3. Joe Mann	Meston Resources Inc.
4. Troilus	Inmet Mining Corporation
5. Louvicourt	Aur Resources Inc.
6. Sigma	McWatters Mining Inc. (closed in 2003)
Beaufor	Richmont Mines Inc. (50%) and Louvem Mines Inc. (50%)
7. LaRonde	Agnico Eagle Mines Limited
8. Doyon	Cambior Inc.
Mouska	Cambior Inc.
9. Bouchard-Hébert	Breakwater Resources Ltd.
10. Sleeping Giant	Cambior Inc. (50%) and Aurizon Mines Ltd. (50%)
11. Bell Allard	Noranda Inc.
12. Selbaie	Billiton Metals Canada Inc.
16. Holt-McDermott	Barrick Gold Inc.
Holloway	Newmont Canada Ltd. (84.65%) and Teddy Bear Valley Mines, Limited (15.35%)
17. Macassa	Kirkland Lake Gold Inc.
18. Porcupine J.V.	Placer Dome (CLA) Limited (50%) and Kinross Gold Corporation (50%)
Golden Giant	Newmont Canada Limited
Kidd Creek	Falconbridge Limited
19. Sudbury Division	Falconbridge Limited
Ontario Division	Inco Limited
20. Eagle River	River Gold Mines Ltd.

**WEB SITE**

<a href="http://www.richmont-mines.com">www.richmont-mines.com</a>
<a href="http://www.noranda.com">www.noranda.com</a>
<a href="http://www.ressourcescampbell.com">www.ressourcescampbell.com</a>
<a href="http://www.inmet-mining.com">www.inmet-mining.com</a>
<a href="http://www.aurresources.com">www.aurresources.com</a>
<a href="http://www.mcwatters.com">www.mcwatters.com</a>
<a href="http://www.richmont-mines.com">www.richmont-mines.com</a>
<a href="http://www.agnico-eagle.com">www.agnico-eagle.com</a>
<a href="http://www.cambior.com">www.cambior.com</a>
<a href="http://www.cambior.com">www.cambior.com</a>
<a href="http://www.breakwater.ca">www.breakwater.ca</a>
<a href="http://www.cambior.com">www.cambior.com</a>
<a href="http://www.aurizon.com">www.aurizon.com</a>
<a href="http://www.breakwater.ca">www.breakwater.ca</a>
<a href="http://www.bhpbilliton.com">www.bhpbilliton.com</a>
<a href="http://www.barrick.com">www.barrick.com</a>
<a href="http://www.newmont.com">www.newmont.com</a>
<a href="http://www.klgold.com">www.klgold.com</a>
<a href="http://www.placerdome.com">www.placerdome.com</a>
<a href="http://www.kinross.com">www.kinross.com</a>
<a href="http://www.newmont.com">www.newmont.com</a>
<a href="http://www.falconbridge.com">www.falconbridge.com</a>
<a href="http://www.falconbridge.com">www.falconbridge.com</a>
<a href="http://www.inco.com">www.inco.com</a>
<a href="http://www.rivergoldmine.com">www.rivergoldmine.com</a>

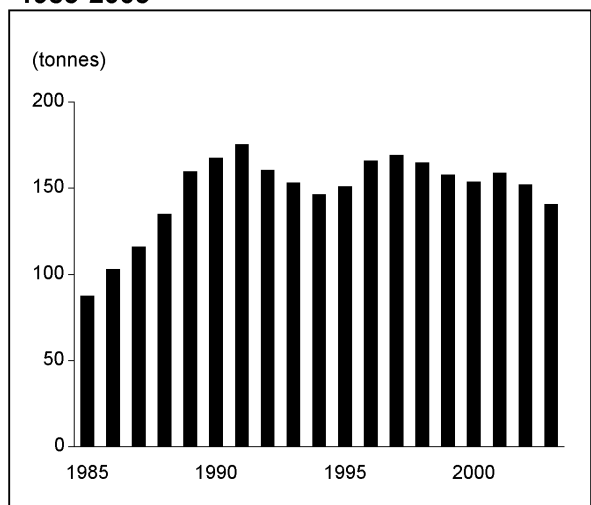
**GOLD-PRODUCING MINES (CONT'D)**

21. Hemlo Mines	Barrick Gold Inc. (50%) and Teck Cominco Limited (50%)	<a href="http://www.barrick.com">www.barrick.com</a>
22. Lac des Iles	North American Palladium Ltd.	<a href="http://www.teckcominco.com">www.teckcominco.com</a>
23. Campbell Red Lake	Placer Dome (CLA) Limited Goldcorp Inc.	<a href="http://www.napalladium.com">www.napalladium.com</a>
24. Musslewhite	Placer Dome (CLA) Limited	<a href="http://www.placerdome.com">www.placerdome.com</a>
25. Manitoba Division	Inco Limited	<a href="http://www.placerdome.com">www.placerdome.com</a>
26. New Britannia	Kinross Gold Corporation	<a href="http://www.inco.com">www.inco.com</a>
27. Manitoba Mines	Hudson Bay Mining & Smelting	<a href="http://www.kinross.com">www.kinross.com</a>
28. Konuto Lake	Hudson Bay Mining & Smelting	<a href="http://www.angloamerican.co.uk">www.angloamerican.co.uk</a>
29. Seabee	Claude Resources Inc.	<a href="http://www.angloamerican.co.uk">www.angloamerican.co.uk</a>
30. Con Giant	Miramar Mining Corporation (closed in 2003)	<a href="http://www.clauderessources.com">www.clauderessources.com</a>
31. Lupin	Miramar Mining Corporation	<a href="http://www.miramarmining.com">www.miramarmining.com</a>
32. Highland Valley	Kinross Gold Corporation (on care and maintenance in 2003)	<a href="http://www.miramarmining.com">www.miramarmining.com</a>
33. Myra Falls	Teck Cominco Limited	<a href="http://www.kinross.com">www.kinross.com</a>
34. Huckleberry	Boliden Westmin (Canada) Limited	<a href="http://www.kinross.com">www.kinross.com</a>
35. Kemess South	Huckleberry Mines Ltd. (50%) and Japan Group (50%)	<a href="http://www.aurizon.com">www.aurizon.com</a>
36. Eskay Creek	Northgate Exploration Limited	<a href="http://www.teckcominco.com">www.teckcominco.com</a>
	Barrick Gold Inc.	<a href="http://www.boliden.ca">www.boliden.ca</a>
		<a href="http://www.imperialmetals.com">www.imperialmetals.com</a>
		<a href="http://www.northgateexploration.ca">www.northgateexploration.ca</a>
		<a href="http://www.barrick.com">www.barrick.com</a>

**WEB SITE (CONT'D)****PRINCIPAL GOLD REFINERIES**

13. Canadian Copper Refinery (CCR), Noranda Inc.	<a href="http://www.noranda.com">www.noranda.com</a>
14. Royal Canadian Mint	<a href="http://www.mint.ca">www.mint.ca</a>
15. Johnson Matthey Limited	<a href="http://www.matthey.com">www.matthey.com</a>

**Figure 2**  
**Mine Production of Gold in Canada, 1985-2003**



Source: Natural Resources Canada.

**Ontario**

For the third consecutive year, Goldcorp Inc. produced more than 15 t of gold (500 000 oz) at the Red Lake mine at a reported cash cost of US\$80/oz; this will place the mine, for the third year in a row, as the leading Canadian gold producer in terms of volume of gold produced and among the producers with the lowest production costs in the world. Work to expand the Red Lake mine continues

with shaft sinking of a new 2179-m shaft to improve efficiencies and increase capacity set to begin in 2004.

**Quebec**

In September, Agnico-Eagle Mines Limited announced that it had completed a transaction to purchase a 100% interest in Barrick Gold Corporation's Bousquet property, which lies immediately to the west and south of Agnico-Eagle's LaRonde mine in northwestern Quebec. Agnico-Eagle also acquired the used machinery and equipment from the Bousquet mine, which closed at the end of 2002. In addition to the Bousquet mine assets, Agnico-Eagle increased its interest in the Bruce property, located 2 km east of LaRonde, to 100% and purchased certain of Barrick's regional exploration properties located to the south and west of Cambior's Doyon property. Barrick will retain a 2% net smelter return royalty on all of the properties acquired by Agnico-Eagle. Earlier in the year, Agnico-Eagle reported a rock fall in two production stopes at the LaRonde mine. There were no injuries and no equipment was damaged. Underground and mill operations were not interrupted. While overall reserves were unaffected, total gold production for 2003 at LaRonde was reported at some 14 600 oz lower than production in 2002, due mainly to the necessity of replacing higher-grade mining blocks with ore from low-grade areas of the mine.

As a result of continuing losses and a limited cash position, McWatters Mining Inc. issued a series of announcements towards the end of 2003 regarding mine closures and the sale of assets as the company struggled to stay solvent. In October, the company announced that it was

temporarily suspending mining and milling operations at its Sigma mine at Val-d'Or in northwestern Quebec. The mill was placed on a care-and-maintenance schedule pending a return to operation. In November, McWatters announced the sale of its Kiena Mine Complex west of Val-d'Or to Western Québec Mines Inc. Mining at the Kiena mine was suspended in September 2002. In December, the company sold its interests in the East Amphi and Fourax exploration properties near Malartic, Quebec, to Richmond Mines Inc. Despite these efforts, McWatters announced in January 2004 that it had filed for protection under the *Bankruptcy and Insolvency Act* for itself and other members of its group pending the filing of a proposal to its creditors. The company also announced that it had engaged Prime Corporate Finance of Australia to find an investor interested in acquiring all or part of its Sigma-Lamaque property.

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

## WORLD DEVELOPMENTS

World	1999	2000	2001	2002	2003
	(tonnes)				
Mine production	2 574	2 590	2 623	2 594	2 585
Gold fabrication	3 741	3 776	3 502	3 163	3 049

Gold is produced from mines on every continent with the exception of Antarctica (where mining is not permitted) in operations ranging from small enterprises employing just a few individuals to the very large-scale industrial complexes with hundreds of employees.

For most of the past 100 years, South Africa has been the dominant gold producer worldwide. This position is now being challenged as production in South Africa declines and new players in the marketplace expand their production. According to information from the World Gold Council, South Africa remained the world's largest producing nation in 2003 with just under 376 t, or 14% of the world total. Australia was not far behind with almost 284 t (11%), followed by the United States with 277 t. The past decade has also witnessed two emerging, important new gold mining countries, Indonesia and Peru. Gold production in Indonesia has risen from some 2 t in 1992 to almost 163 t in 2003, primarily from the Grasberg mine (the world's largest gold-producing mine) and from a joint-venture copper-gold deposit held by Rio Tinto and Freeport McMoran Copper & Gold Inc. In Peru, production has risen from 18 t in 1992 to 172 t in 2003, of which

almost half came from Newmont's Yanacocha mine, the second largest gold mine in the world. Canada remained the eighth largest producer in the world in 2003 (Figure 3).

In terms of gold-producing companies, three of the top 10 gold producers are Canadian. Barrick, at 171 t, ranked third after Newmont (233 t) of the United States and AngloGold (175 t) of South Africa. Placer Dome ranked fifth with 120 t and Kinross with 49 t rose to tenth place, up from fourteenth in 2002.

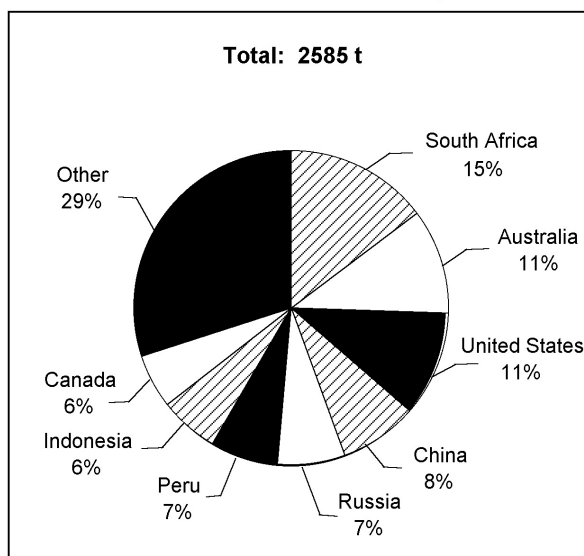
## United States

Gold output in the United States fell by some 14 t in 2003 to 277 t. Mine closures in 2002, combined with lower production at the Bingham Canyon mine and Newmont's Nevada operations, contributed to the fall in production to the lowest level since 1989.

In November, Toronto-based Kinross completed the purchase of Denver-based Crown Resources Corporation along with its 100%-owned Buckhorn Mountain gold deposit in north-central Washington State. The plan is to develop the Buckhorn site and process the ore at the nearby Kettle River gold milling facility.

Placer Dome entered into a joint venture with Newmont Mining Corporation at Turquoise Ridge in Nevada. Placer Dome will own 75% of the joint venture and will be the operator. Newmont acquired a 25% equity position in the Turquoise Ridge and Getchell deposits. Start-up at the Turquoise Ridge mine was initiated in April. The mine is ramping up to its expected full production rate of

**Figure 3**  
**World Mine Production of Gold, 2003**



Sources: Natural Resources Canada; GFMS Limited.

300 000 oz/y by the end of 2004. The joint venture is expected to reduce capital requirements and lower operating costs.

Elsewhere in Nevada, Placer Dome U.S. Inc. announced that it had doubled the measured and indicated mineral resource estimate at the Cortez Hills discovery. The deposit is located within the Cortez joint venture, which is 60% owned and operated by Placer Dome U.S. Inc. and 40% owned by Kennecott Minerals Company. Measured and indicated gold mineral resources have increased from 2.1 to 4.5 million oz, and inferred mineral resources have increased from 0.9 to 1.0 million oz.

## South America

Taken together, Peru, Brazil, Chile and Argentina now account for some 15% of the total world production of gold. Peru is the largest producer and has seen some of the highest growth rates in the region. Most of the increase in Peruvian gold production is the result of developments at the Yanacocha mine, now ranked as the second largest mine in the world after the Grasberg mine in Indonesia. Production at the Yanacocha mine rose by 18 t to reach 87 t in 2003. Owned as a joint-venture project between Denver-based Newmont (51.35%) and Peru's Compañía de Minas Buenaventura S. A. A. (43.65%), the increase in production was attributed to higher grades and additional output from the commissioning of the fifth open pit in late 2002.

Mine production declined slightly in Brazil, Chile and Argentina. The closure of the Igarape Bahia mine at the end of 2002 and the sale of the Fazanda Brasileiro mine, both owned and operated by Brazil's Companhia Vale do Rio Doce (CVRD), contributed to the decline in Brazilian output. In Chile, lower annual output at the El Peñón mine and the Refugio mine offset increases at Escondida and La Coipa.

Lower outputs at the Bajo de Alumbra and Cerro Vanguardia mines contributed to the lower production values in Argentina.

## Africa

Harmony Gold became the largest gold producer in South Africa ahead of AngloGold through the merger with ARMgold in September. The combined outputs of Harmony and ARMgold, however, declined by 8% in 2003 to reach 104 t. AngloGold reported 102 t of production in 2003. South Africa's third largest producer, Gold Fields, reportedly produced 7% less gold at its Driefontein, Kloof and Beatrix mines. Taken all together, South Africa's mines produced some 5% less gold in 2003, primarily as a result of operational problems, lower grades and the suspension of higher-cost operations as a result of the strengthening South African rand against the U.S. dollar.

In Ghana, Africa's second largest gold-producing nation, output was largely unchanged from 2002 at 70 t. Resolute Mining Limited ceased mining operations at its Obotan mine at the end of 2002 and placed the mine on care and maintenance in March 2003. In July, the company sold the Obotan plant to Golden Star Resources for relocation to its Bogoso/Prestea operation as part of an expansion program.

In August, Ghana's Ashanti Goldfields Company Limited and South Africa-based AngloGold Limited announced plans to merge the two companies. A final decision to go ahead, pending regulatory approval from the Government of Ghana, is expected in 2004. The new company, AngloGold Ashanti Limited, will comprise six operations in five countries with combined reserves of 45.1 million oz with current life-of-mine plans of 15 years or longer.

With the opening of the Morila and Yaleta gold mines in 2001, Mali has become the third largest gold producer in Africa (47 t). Lower grades, technical difficulties and heavy rains, however, combined to result in lower reported gold production from mines in Mali in 2003. The Morila mine reported the most significant drop at 25%, largely as the result of a 37% fall in the ore grade. The Morila mine is jointly owned by Randgold Resources (40%) AngloGold (40% and operator) and the Mali government (20%). Lower ore grade also affected production at the Sadiola mine (AngloGold, 38%; IAMGOLD Corporation, 38%; the Mali government, 18%; and the International Finance Corporation, 6%) and the Yaleta mine (AngloGold, 40%; IAMGOLD Corporation, 40%; and the Mali government, 20%).

In July 2003, Placer Dome acquired the North Mara mine in Tanzania from East Africa Gold Mines. North Mara comprises three open pits. Mining is under way at the Nyabirama pit. The Nyabigena pit is in the development phase and the Gokona pit is currently being drilled and evaluated. The mine produces about 200 000 oz of gold annually at total operating costs of about \$250/oz. Proven and probable gold mineral reserves as of December 31, 2003, are estimated at 3.8 million oz. Additional mineral resources are estimated at 781 000 oz (measured and indicated) and 37 000 oz (inferred). The mine is operated by Afrika Mashariki Gold Mines Limited (AMGM), a wholly owned subsidiary of Placer Dome.

## Asia

Increased mine production in China helped to increase the overall rise in output from Asia by about 5% over 2002. China is the region's largest gold-producing nation and the fourth largest in the world. China is largely self-sufficient in gold, producing and using some 210 t in 2003. Over the past 10 years, China has seen significant growth in gold production, expanding at a rate of 6.5%/y. Roughly 98% of gold used in China is for jewellery. As internal demand

continues to grow, gold production is expected to continue to increase over the medium term.

In Indonesia, both the Grasberg and Batu Hijau mines reported higher output over 2002. Production at Freeport-McMoRan Copper & Gold Inc.'s Grasberg copper-gold mine rose by about 8% despite a slippage in the open pit in October and further problems in December that restricted access to higher-grade ore. Mine production in 2004 is expected to be affected by the slippage event.

Gold production at the Misima mine (Placer Dome [80%] and Oil Search Limited [20%]) in Papua New Guinea continued from low-grade stockpiles. Mining activities were concluded in 2001 and stockpile milling is expected to be completed sometime in the second quarter of 2004. Production at Placer Dome's other operation in Papua New Guinea, Porgera, increased as the mine returned to more normal levels of production following a cut in electricity supply in 2002. The proven and probable mineral reserves at the end of 2003 were estimated at 7.2 million oz of gold with a projected mine life of nine years. This represents an improvement of 0.8 million oz compared to the stated proven and probable mineral reserves in December 2002.

In Laos, the first commercial copper-gold mining operation started production in 2003. The Sepon mine produced over 5 t of gold in its first year of operation. The Sepon mine is owned by Australian-based Oxiana Limited (80% and operator) and Rio Tinto plc (20%).

The Bulghah mine started its first full year of operations in Saudi Arabia in 2003 and produced some 4 t of gold. Owned by Saudi Arabian Mining Company (Ma'aden), the Bulghah open-pit mine contains some 36 Mt grading 1.05 g/t gold.

Production at the Kumtor mine in Kyrgyzstan was up sharply (28%) in 2003, signalling a return to more normal levels of production following a pit wall failure in 2002. Toronto-based Cameco Gold Inc., a wholly owned subsidiary of Cameco Corporation, operates the mine and holds a one-third interest through Kumtor Gold Company (KGC). The remaining two-thirds is held by the Kyrgyz government. Cameco and the Kyrgyz government agreed to transfer all of KGC to a new jointly owned Canadian company, Centerra Gold Inc. In conjunction with its acquisition of KGC and Cameco's other gold assets, Centerra will undertake a public offering in Canada in 2004. Cameco expects to retain a majority interest in Centerra.

## Europe

European gold production fell by about 1 t to 20 t for 2003. Output was lower in Italy, Spain, Bulgaria and Romania while it was up in Sweden and Finland. Italy's only gold mine was placed on care and maintenance in the first half of the year. Dublin-based Minmet plc acquired a

100% interest in Björkdalsgruvan AB, which operates the Björkdal gold mine in northern Sweden. Total output at Björkdal in 2003 rose to 43 287 oz after a record third quarter that produced 16 106 oz. Following ongoing exploration drilling and assay analysis of previously drilled core, the known contained gold reserves at the mine were increased to over 1.1 million oz.

## Russia

Russian gold production increased a modest 1% in 2003 to reach 182 t. At just over 30 t, the Krasnoyarsk region led the way in total gold production in 2003, overtaking Magadan as the country's largest gold-producing region. Magadan ranked second at 26 t followed by Yakutia at 20 t. Part of the losses in the Magadan region in 2003 were the result of lower output at the Kubaka mine (54.7% owned by Toronto-based Kinross Gold Corporation) where open-pit mining was completed in late 2002.

Russia's largest producer, Norilsk Nickel, announced in September that it had acquired a 58.55% interest in OAO Lenzoloto and a 50.7% interest in OAO Matrosov Mine. OAO Lenzoloto is a holding company that owns a controlling interest in nine different gold-mining companies in the Bodaibo area of the Irkutsk region. The company also mines alluvial gold and ores bordering the western section of the Sukhoi Log deposit. Gold production in 2003 was approximately 280 000 oz. Gold reserves are estimated at 4 million oz. OAO Matrosov Mine developed the Natalka gold deposit in the Magadan region. Gold production in 2003 was approximately 23 000 oz. The measured gold resources are estimated at 8 million oz. The Group intends to conduct an additional geological survey of the Natalka deposit in 2004-05.

By year-end, Russian officials had announced that the government would delay the auction of rights to develop the undeveloped Sukhoi Log gold mine in the Irkutsk region until at least sometime in 2004. Preliminary plans to develop the project call for Russian companies and foreign firms alike to participate in the tender for the Sukhoi Log deposit, which has contained reserves estimated at 1029 t. Gold content is estimated at 2.7 g/t of ore. Investment needs are estimated at \$0.7 billion-\$1.5 billion. Different government ministries in Moscow continue to discuss and review the terms and conditions for the auction, including the level of foreign investment.

## Australia

Gold mine production was up sharply in Australia in 2003 to reach 284 t, up 18 t over the previous year as new mines that had started production in late 2002 came on stream. Increased output at existing operations also helped push up the total production, including higher production at Newcrest Mining Limited's Ridgeway mine and the Barrick Gold Corporation/Newmont Mining

Corporation joint-venture super pit project at Kalgoorlie in Western Australia.

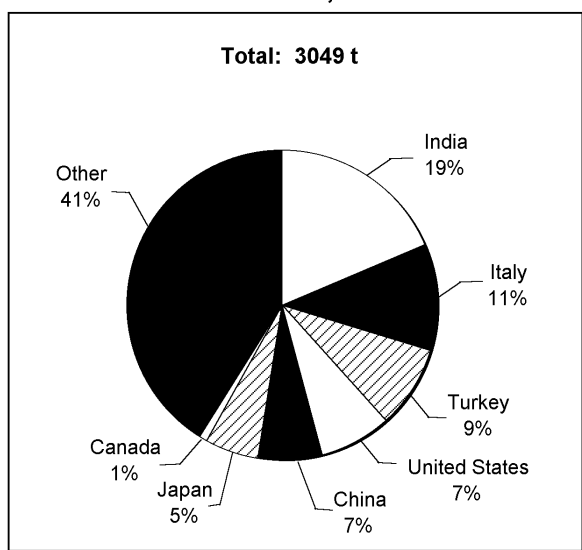
Work continued on Newcrest Mining Limited's Telfer deposit in Western Australia. Mining at Telfer was suspended in 2000 due to high operating costs and, since then, the company has worked to redevelop the project and is expected to re-open it in the third quarter of 2004. The project is estimated to contain 18 million oz of gold and production is expected to average 800 000 oz/y of gold over 20 years.

The Boddington mine remained on care and maintenance in 2003. Negotiations continue between joint-venture partners Newmont (44.4%), AngloGold (33.3%) and Newcrest (22.2%) with regard to the Boddington expansion project. Work is expected to begin in late 2005 for a project that will produce more than 300 000 oz/y over 15 years.

## GOLD DEMAND

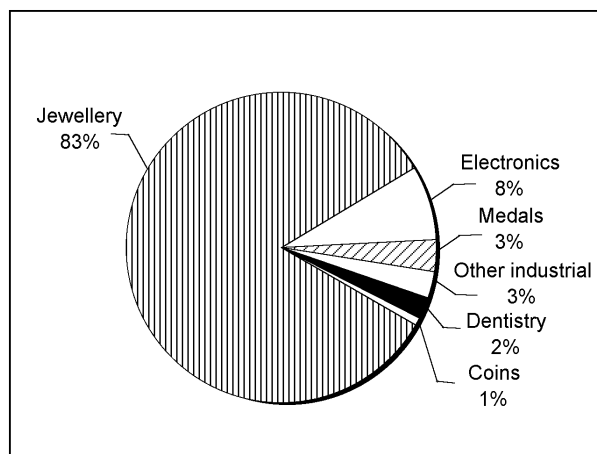
World gold demand rose over 4% in 2003, largely as a result of stronger investment buying offsetting declines in fabrication and de-hedging. Fabricated demand for gold fell by 3.6% to 3049 t, the lowest level in 12 years. While fabrication demand was up sharply in Turkey (47%) to reach third place after India and Italy, the increase was not enough to offset the fall in fabrication demand in Europe, Latin America and parts of east Asia (Figure 4). Jewellery demand fell by over 100 t, largely as the result of a 20% drop in the important Italian market.

**Figure 4**  
**World Gold Fabrication, 2003**



Source: GFMS Limited.

**Figure 5**  
**World Gold Markets, 2003**



Source: GFMS Limited.

While only accounting for 8% of the total fabricated demand for gold, the electronics industry is the second largest market for gold after jewellery (Figure 5). Gold's high electrical conductivity, malleability and resistance to corrosion have made it an important component in the manufacture of a wide range of electronic products and equipment, including computers, telephones, cellular telephones and home appliances. Some 237 t was used in 2003 with Japan leading the way in the market accounting for 42% of the demand, or 100 t.

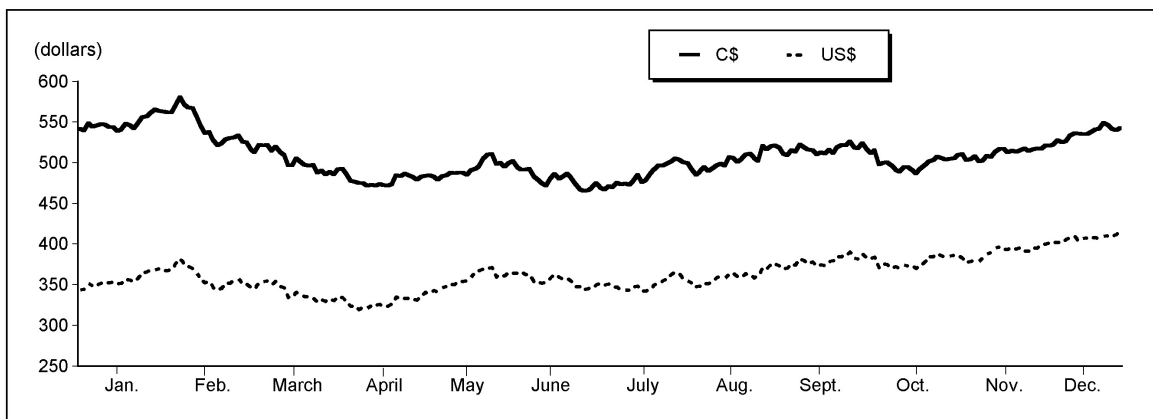
Turkey led the way in official coin production (47 t) in 2003, ahead of the United States (15 t) and Canada (7 t). Total world coin production rose 9% to reach close to 105 t.

## PRICES AND STOCKS

Gold prices made an impressive recovery in 2003, rising above the US\$400/oz barrier towards year-end, the highest level seen in 14 years. On average, gold was up 17% over 2002, reaching an annual average of US\$363/oz. While the price rise in U.S. dollar terms was positive, the net effect of the stronger Canadian dollar against the U.S. dollar resulted in gold prices in Canadian dollar terms ending the year lower than where they started in 2003. Gold averaged \$508/oz in Canadian dollar terms, up from \$487/oz in 2002 (Figure 6).

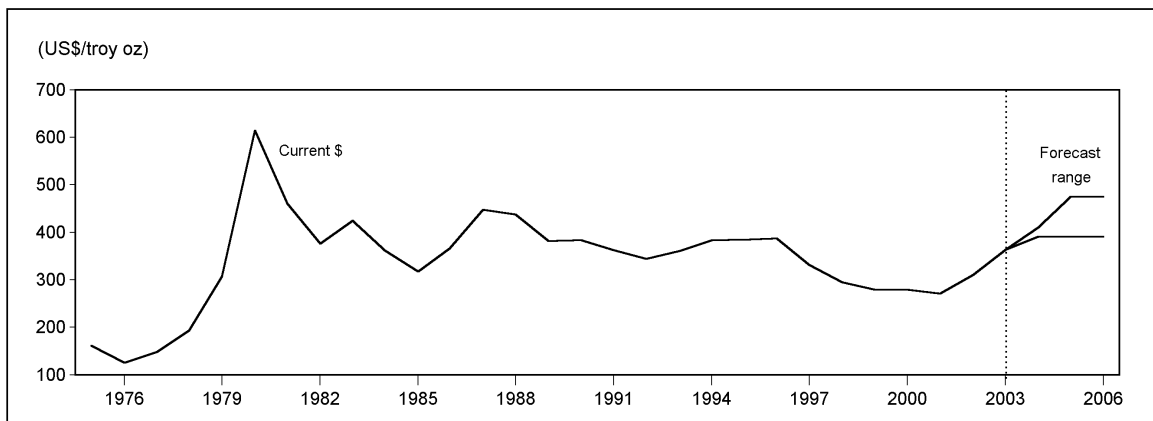
While mining of new gold resources is an important contributor to the overall supply of gold, the recycling and remobilization of existing stocks play an important role as well. According to information provided by GFMS Limited, the total above-ground stock of gold increased by about 1.8% in 2003 to reach some 150 500 t (61% of which had been mined since 1950). Of this amount, 63% is held in the form of fabricated products while

**Figure 6**  
Price, London Daily Gold Fix (PM), 2003



Sources: Natural Resources Canada; London Bullion Market Association.

**Figure 7**  
Annual Average Gold Prices, London Bullion Market Association, 1975-2006



Source: Natural Resources Canada.

another 35% (or 52 800 t) is in the form of gold bullion (including official coins). Official sector holdings account for 29 200 t. Total supply to the market of above-ground stocks amounted to 1549 t in 2003 and provided 37% of the global supply of gold.

In December 2003, the Government of Canada completed its gold bullion sales program. Since 1980, the government had been following a policy of selling its gold bullion at a gradual and controlled pace to enhance the liquidity and rate of return of its portfolio of international reserves. Proceeds from gold sales over the last 20 years have been invested in interest-bearing assets, raising the return for the government's Exchange Fund Account by US\$13 billion more than would have been the case had the government maintained its gold holdings. Some 15 t

of gold bullion was sold in 2003, compared to 14 t in 2002. The government continues to hold about 3 t of gold reserves entirely in the form of gold coins.

## OUTLOOK

In 2002, the average price of gold began what could become a new upward trend lasting for the next several years. The average price has risen from US\$271/troy oz in 2001 (a 20-year low) to US\$309/oz in 2002 and \$363/oz in 2003. The decline in mine production, the stabilization of gold sales from the official sector, and especially the buyback by mining companies of a portion of their hedging programs led to a sustainable price increase that few analysts had anticipated. The drop in demand from



jewellery due to the economic slowdown was more than offset by gold purchases under these hedging programs.

Low interest rates and the record U.S. current account deficit will continue to put downward pressure on the U.S. dollar in 2004. This in turn will put upward pressure on prices. The renewal of the agreement by central banks to limit sales (the current agreement, known as the Washington Agreement, expires in 2004), de-hedging by producers and lower mine output will combine to help support higher gold prices in the near term. The liberalization of gold markets in China and India is expected to increase investor demand in both of these important markets. Merger and acquisition activity will also likely continue in 2004 as large producers continue to seek increased market share. Gold is expected to average somewhere in the US\$400-\$410/oz range in 2004 and in the \$425-\$450/oz range in 2005 (Figure 7).

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 June 30, 2004. (3) This and other reviews, including previous editions, are available on the Internet at [www.nrcan.gc.ca/mms/cmy/com\\_e.html](http://www.nrcan.gc.ca/mms/cmy/com_e.html).

#### NOTE TO READERS

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

#### TARIFFS

Item No.	Description	Canada			United States	EU	Japan
		MFN	GPT	USA	Canada	Conventional Rate (1)	WTO (2)
71.08	Gold (including gold plated with platinum) Non-monetary:						
7108.11.00	Powder	Free	Free	Free	Free	Free	Free
7108.12.00	Other unwrought forms	Free	Free	Free	Free	Free	Free
7108.13	Other semi-manufactured forms						
7108.13.10	Of 10 carats or more	Free	Free	Free	Free	Free	Free
7108.13.20	Of less than 10 carats	4%	Free	Free	Free	Free	Free

Sources: Canadian Customs Tariff, effective January 2004, Canada Border Services Agency; Harmonized Tariff Schedule of the United States, 2004; Official Journal of the European Union (October 30, 2003 Edition); Customs Tariff Schedules of Japan, 2003.

(1) The customs duties applicable to imported goods originating in countries that are Contracting Parties to the General Agreement on Tariffs and Trade or with which the European Community has concluded agreements containing the most-favoured-nation tariff clause shall be the conventional duties shown in column 3 of the Schedule of Duties. (2) WTO rate is shown; lower tariff rates may apply circumstantially.

**TABLE 1. CANADA, GOLD PRODUCTION AND TRADE, 2001-03**

	2001		2002		2003	
	(grams)	(\$000)	(grams)	(\$000)	(grams)	(\$000)
<b>PRODUCTION</b>						
Newfoundland and Labrador	1 503 224	20 203	1 476 495	23 107	1 083 036	17 616
Prince Edward Island	—	—	—	—	—	—
Nova Scotia	45 038	605	—	—	—	—
New Brunswick	262 382	3 526	261 467	4 092	250 140	4 069
Quebec	33 995 945	456 905	32 741 543	512 405	28 109 000	457 192
Ontario	79 859 887	1 073 316	79 410 478	1 242 773	77 037 943	1 253 021
Manitoba	6 424 801	86 349	5 466 423	85 549	3 962 542	64 451
Saskatchewan	1 898 121	25 511	1 601 691	25 066	2 073 831	33 731
Alberta	38 705	520	72 053	1 128	50 000	813
British Columbia	23 614 119	317 373	21 723 299	339 969	21 793 263	354 467
Yukon	2 775 158	37 298	2 067 791	32 361	1 587 518	25 821
Northwest Territories	4 041 240	54 314	3 555 329	55 641	2 745 656	44 658
Nunavut	4 415 978	59 351	3 527 777	55 210	1 835 861	29 860
<b>Total</b>	<b>158 874 598</b>	<b>2 135 272</b>	<b>151 904 346</b>	<b>2 377 301</b>	<b>140 528 790</b>	<b>2 285 698</b>
Mine output	160 199 710	..	152 059 221	..	142 109 896	..
<b>EXPORTS</b>						
2600.00 (1)	Gold in ores and concentrates					
Japan	3 682 978	24 798	803 030	2 357	6 993 740	71 209
United States	1 236 613	1 623	2 337 991	38 178	1 835 212	30 360
China	35 400	222	46 094	532	161 750	2 265
South Korea	12 441	85	—	—	41 698	617
United Kingdom	54 007	571	49 990	732	3 253	53
Other countries	12 600	83	5 700	43	50 169	720
<b>Total</b>	<b>5 034 039</b>	<b>27 382</b>	<b>3 242 805</b>	<b>41 842</b>	<b>9 085 822</b>	<b>105 224</b>

TABLE 1 (cont'd)

		2001		2002		2003	
		(grams)	(\$000)	(grams)	(\$000)	(grams)	(\$000)
<b>EXPORTS (cont'd)</b>							
7 108.11	Gold powder						
	United States	9 087 177	124 231	4 390 801	65 556	425 153	8 908
	Japan	–	–	195	3	–	–
	Total	9 087 177	124 231	4 390 996	65 559	425 153	8 908
7 108.12	Other unwrought forms						
	United States	125 869 886	1 728 791	144 668 723	2 310 469	116 695 419	1 948 763
	United Kingdom	13 012 008	174 543	7 691 486	115 769	38 028 334	599 844
	Switzerland	2 527 892	35 230	43 873	665	2 251 942	31 713
	Spain	–	–	–	–	502 344	8 154
	United Arab Emirates	713 300	9 364	997 742	14 684	497 656	7 586
	Japan	502 656	6 690	1 987 420	30 298	–	–
	Mexico	597 187	10 828	–	–	–	–
	Other countries	–	–	10 400	156	3 340	47
	Total	143 222 929	1 965 446	155 399 644	2 472 041	157 979 035	2 596 107
7 108.13	Other semi-manufactured forms						
	United States	9 476 313	112 542	10 502 104	127 216	3 613 570	37 414
	Other countries	–	–	215	4	8 231	117
	Total	9 476 313	112 542	10 502 319	127 220	3 621 801	37 531
	Total refined gold exports	166 820 458	2 229 601	173 535 764	2 706 662	171 111 811	2 747 770
<b>IMPORTS (2)</b>							
2600.00 (3)	Gold in ores and concentrates						
	United States	1 727 004	19 954	1 114 900	14 042	2 059 697	25 749
	Spain	422 695	4 452	322 081	4 968	590 844	8 922
	Argentina	1 547 580	17 973	812 866	9 425	594 095	7 860
	Chile	123 450	1 569	475 725	3 996	576 224	7 605
	Saudi Arabia	774 668	9 222	–	–	388 593	3 905
	Mexico	102 450	1 448	371 365	4 666	295 688	2 740
	Bulgaria	253 240	3 538	319 333	3 182	189 930	2 312
	Peru	540 299	7 052	469 917	6 697	73 368	721
	Indonesia	1 377 552	17 345	–	–	–	–
	Philippines	177 450	2 116	–	–	–	–
	Other countries	618 550	8 529	216 778	3 316	779 988	6 390
	Total	7 664 948	93 198	4 102 965	50 292	5 548 427	66 204
7108.11	Gold powder						
	United States	45 741	534	27 371	355	7 039	70
	Other countries	3 430	34	558	10	1 398	21
	Total	49 171	568	27 929	365	8 437	91
7108.12	Other unwrought forms						
	Guyana	13 679 561	195 187	13 916 180	218 304	11 386 894	189 080
	United States	13 314 775	121 440	5 955 147	74 543	6 684 559	105 652
	Brazil	–	–	–	–	3 934 658	61 417
	South Korea	–	–	911 000	15 560	1 831 186	35 843
	Nicaragua	3 013 280	28 039	2 588 467	26 347	2 400 653	22 931
	Hong Kong	–	–	8	–	914 765	18 112
	United Kingdom	778	10	90 754	1 282	2 133 848	12 880
	Jamaica	115 649	1 055	249 432	1 849	361 871	3 463
	Switzerland	222 263	3 082	304 410	4 768	108 530	1 728
	India	–	–	55 279	887	48 554	815
	Germany	1 879	18	11 849	90	29 706	267
	United Arab Emirates	1 038 081	8 529	–	–	2 036	32
	Singapore	84 745	1 349	–	–	119	2
	Japan	183	2	9 957 629	156 143	9	–
	Suriname	4 018 370	47 618	2 831 312	37 592	–	–
	Honduras	2 001 014	16 247	–	–	–	–
	Other countries	389 352	4 634	131 071	1 547	27 894	280
	Total	37 879 930	427 210	37 002 538	538 912	29 865 282	452 502
7108.13	Other semi-manufactured forms						
	United States	946 783	11 369	637 126	8 827	660 922	9 577
	South Africa	–	–	229 170	2 356	526 629	5 363
	Switzerland	119 582	1 858	121 129	1 909	56 803	877
	Singapore	34 467	600	150 907	2 832	28 642	572
	Israel	1 230	8	–	–	9 531	159
	Germany	8 178	133	15 076	218	9 861	154
	Armenia	–	–	963	24	6 006	110
	Italy	8 382	89	5 432	92	5 291	76
	Australia	147	2	9 403	154	4 344	53
	Other countries	17 819	303	11 434	142	3 373	47
	Total	1 136 588	14 362	1 180 640	16 554	1 311 402	16 988
	Total refined gold imports	46 730 637	535 338	42 314 072	606 123	36 733 548	535 785

Sources: Natural Resources Canada; Statistics Canada.

– Nil; . . Not available.

(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, 1988-2003**

	Auriferous Quartz Mines		Placer Operations		Base-Metal Ores		Total	
	(kg)	(%)	(kg)	(%)	(kg)	(%)	(kg)	(%)
1988	112 404	83.4	4 879	3.6	17 530	13.0	134 813	100
1989	138 211	86.6	5 354	3.4	15 930	10.0	159 494	100
1990	147 355	88.0	3 993	2.4	16 029	9.6	167 373	100
1991	153 859	87.8	3 834	2.2	17 589	10.0	175 282	100
1992	141 965	88.5	3 469	2.2	14 917	9.3	160 351	100
1993	137 346	89.7	3 787	2.5	11 997	7.8	153 129	100
1994	133 018	90.8	3 714	2.5	9 696	6.6	146 428	100
1995	132 834	88.0	5 303	3.5	12 730	8.4	150 867	100
1996	147 053	89.3	3 971	2.4	13 636	8.3	164 660	100
1997	155 543	90.7	3 987	2.3	11 949	7.0	171 479	100
1998	(r) 147 574	(r) 89.6	3 098	1.9	(r) 14 102	(r) 8.6	164 773	100
1999	141 468	89.7	3 081	2.0	13 068	8.3	157 617	100
2000	139 145	90.5	2 695	1.8	11 874	7.7	153 715	100
2001	144 816	91.2	2 461	1.5	11 598	7.3	158 875	100
2002	140 839	92.7	2 347	1.5	8 719	5.7	151 904	100
2003	130 629	93.0	1 796	1.3	8 104	5.8	140 529	100

Source: Natural Resources Canada.

(r) Revised.

**TABLE 3. CANADA, GOLD PRODUCTION, AVERAGE VALUE AND PERCENT OF TOTAL MINERAL PRODUCTION, 1988-2003**

	Total Production	Total Value	Average Value (1)	Gold as a Percent of Total Mineral Production
	(kg)	(\$000)	(\$/g)	(%)
1988	134 813	2 331 989	17	6
1989	159 494	2 315 860	15	6
1990	167 373	2 407 654	14	6
1991	175 282	2 338 614	13	7
1992	160 351	2 141 161	13	6
1993	153 129	2 284 991	15	6
1994	146 428	2 468 926	17	6
1995	150 867	2 557 502	17	6
1996	164 660	2 799 547	17	6
1997	171 479	2 527 429	15	5
1998	164 773	2 312 593	14	5
1999	157 617	2 099 302	13	4
2000	153 715	2 044 869	13	2
2001	158 875	2 135 275	13	3
2002	151 904	2 377 303	16	12
2003 (p)	140 529	2 285 701	16	14

Source: Natural Resources Canada.

(p) Preliminary.

(1) Value is based on average London p.m. fix price for gold.

**TABLE 4. WORLD MINE PRODUCTION OF GOLD, 1999-2003**

Country	1999	2000	2001	2002	2003
(tonnes)					
<b>NORTH AMERICA</b>					
Canada (1)	158	154	159	152	141
United States	342	355	335	299	277
Total North America	500	509	493	451	418
<b>AFRICA</b>					
South Africa	450	428	394	395	376
Ghana	78	74	72	70	70
Mali	25	30	45	56	47
Tanzania	9	17	34	39	45
Zimbabwe	30	25	22	21	18
Guinea	13	16	17	18	17
Other Africa	29	29	32	34	32
Total Africa	634	620	615	632	605
<b>LATIN AMERICA</b>					
Peru	129	133	134	157	172
Brazil	54	53	51	46	43
Chile	48	50	40	39	38
Argentina	35	26	31	33	29
Mexico	24	27	26	23	22
Colombia	21	21	20	20	21
Venezuela	12	14	17	17	20
Guyana	13	14	14	14	16
Bolivia	15	15	16	14	10
Other	29	26	28	28	28
Total Latin America	381	378	376	391	398
<b>ASIA</b>					
China	163	172	193	202	213
Indonesia	152	140	183	158	163
Uzbekistan	88	88	83	84	80
Papua New Guinea	65	76	68	65	69
Philippines	33	35	32	33	34
Kyrgyzstan	20	22	25	18	23
Kazakhstan	10	13	15	14	13
Mongolia	11	13	14	12	9
Saudi Arabia	5	4	4	5	9
Japan	9	8	8	9	8
Other	26	28	30	41	46
Total Asia	581	598	655	640	666
<b>EUROPE</b>					
Russia	138	154	165	181	182
Spain	5	5	4	6	6
Sweden	4	4	5	5	6
Other	15	11	11	10	9
Total Europe	163	174	185	202	202
<b>OCEANIA</b>					
Australia	300	296	285	266	284
Other	16	15	14	13	13
Total Oceania	316	312	299	279	297
Total world production	2 574	2 590	2 623	2 594	2 585

Source: GFMS Limited, "Gold Survey 2004."

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

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

**TABLE 5. WORLD GOLD FABRICATION, (1) 1999-2003**

Fabricated Gold	1999	2000	2001	2002	2003
	(tonnes)				
Carat jewellery	3 149	3 222	3 026	2 681	2 533
Electronics	248	283	200	209	238
Dentistry	66	69	69	69	67
Other uses	99	99	97	82	80
Medals and fake coins	25	29	29	27	27
Official coins	158	77	82	96	105
<b>Total gold fabrication</b>	<b>3 744</b>	<b>3 778</b>	<b>3 502</b>	<b>3 163</b>	<b>3 049</b>

Source: GFMS Limited, "Gold Survey 2004."

(1) Includes the use of scrap.

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

**TABLE 6. AVERAGE ANNUAL GOLD PRICES, 1934-2003, AND MONTHLY, 1999-2003**

Year	US\$/oz	C\$/oz	Year	US\$/oz	C\$/oz					
1934-67	35.00	..	1986	367.58	510.73					
1968	38.82	41.82	1987	446.66	592.18					
1969	41.13	44.29	1988	436.45	554.76					
1970	35.97	37.54	1989	381.27	451.33					
1971	40.87	41.27	1990	383.72	447.79					
1972	58.22	57.66	1991	362.34	415.09					
1973	97.22	97.24	1992	343.86	415.23					
1974	158.80	155.36	1993	360.06	464.35					
1975	160.96	163.76	1994	384.15	524.60					
1976	124.78	123.01	1995	384.07	526.94					
1977	147.80	157.10	1996	387.69	528.62					
1978	193.51	220.74	1997	328.41	454.52					
1979	305.69	358.12	1998	294.11	435.77					
1980	614.38	719.08	1999	278.86	413.57					
1981	459.22	550.57	2000	279.11	414.70					
1982	375.52	463.51	2001	271.40	403.08					
1983	423.52	521.82	2002	309.73	486.40					
1984	360.63	466.99	2003	363.32	509.18					
1985	317.35	433.21								
Month	1999		2000		2001		2002		2003	
	(US\$/oz)	(C\$/oz)	(US\$/oz)	(C\$/oz)	(US\$/oz)	(C\$/oz)	(US\$/oz)	(C\$/oz)	(US\$/oz)	(C\$/oz)
January	287.31	436.48	284.32	411.95	265.49	399.06	281.65	450.73	356.86	549.92
February	287.50	430.47	299.94	435.24	261.86	398.50	295.50	471.56	358.97	542.89
March	286.24	434.37	286.39	418.30	263.03	409.91	294.05	466.66	340.55	502.62
April	282.62	417.83	279.86	410.95	260.48	405.70	302.68	478.66	328.18	478.65
May	276.93	404.87	275.31	411.73	272.35	419.83	314.49	487.37	355.68	492.44
June	261.40	384.02	285.73	421.97	270.23	411.94	321.18	491.95	356.35	481.89
July	256.20	381.43	281.55	416.10	267.53	409.43	313.29	484.31	351.02	484.90
August	256.94	383.43	274.47	406.89	272.39	419.54	310.25	486.44	359.77	502.11
September	264.47	390.57	273.68	406.73	283.42	444.32	319.16	502.93	378.95	516.59
October	311.56	460.27	270.00	408.32	293.06	460.46	316.56	499.47	378.92	500.87
November	293.65	430.93	266.01	410.24	276.16	439.76	319.15	501.51	389.91	511.79
December	283.74	418.03	271.45	413.26	275.85	435.15	332.43	518.36	406.95	535.14

Source: London Bullion Market Association, p.m. fix.

.. Not available.