

# GOLD

By Earle B. Amey

**Domestic survey data and tables were prepared by Mahbood Mahdavi and Mary E. Ewell, statistical assistants, and the world production table was prepared by Ronald L. Hatch, lead international data coordinator.**

Domestic gold mine production in 1999 was nearly 7% below the all-time high reached in 1998. Primarily, this decline was the result of plummeting gold prices and greater volatility in gold markets. The United States has been the second largest gold producer (behind South Africa) since 1991, when U.S. production surpassed that of the Soviet Union for the first time in five decades. Nevada produced three-fourths of domestic production; the remaining output came from 11 other States. Gold was produced at 77 lode mines; a dozen or more large placer mines, nearly all in Alaska; and numerous small placer mines, mostly in Alaska and the Western States. In addition, a small amount of domestic gold was produced as a byproduct of processing base metals, principally copper. Thirty mines yielded 92% of the gold produced in the United States. The value of U.S. gold mine production in 1999 was less than \$3.1 billion.

Domestic gold exploration activity dropped considerably on a total dollar basis for the second consecutive year; however, the percentage of the total world gold budget going to the United States continued to increase because U.S. companies spent proportionately more on gold as worldwide gold exploration expenditures dropped by 31% from 1998, following a 40% decrease in 1997 (diGesù and others, 1999b).

Commercial-grade refined gold came from about two dozen domestic producers. Of several thousand companies and artisans, a few dozen companies dominated the fabrication of gold into commercial products. U.S. jewelry manufacturing was heavily concentrated in the New York, NY, and the Providence, RI, areas, with other concentrations in California, Florida, and Texas. In 1999, estimated end uses of gold were jewelry and arts, 85%; electrical and electronics, 7%; dental, 3%; and other industrial, 5%.

According to the World Gold Council (2000, p. 2), 1999 was the eight consecutive year of unit sales increases for gold jewelry in the United States. Total U.S. gold jewelry sales reached \$14.7 billion, up by 8% from sales in 1998.

Trade in refined bullion comprised 89% of U.S. gold imports and 83% of exports; net exports of bullion rose to 239,000 kilograms (kg), up by more than 38% from that of 1998. As shown in tables 4 and 5, Canada provided more than 40% of the bullion imported, and Switzerland was the destination for about one-half of the bullion exported.

The dollar price for gold was very volatile in 1999, but prices by yearend were little changed from gold prices at the beginning of the year. The Engelhard Corporation's daily price

of gold ranged from a low of nearly \$254 per troy ounce<sup>1</sup> on July 20 to a high of about \$327 on October 5. The average for the year was, to the nearest dollar, \$280. The previous year's prices ranged from about \$275 to \$314 and averaged \$295.

By the second quarter, 12-month London gold lease rates rose from about 1.5% in January to 4.1% in October before dropping to about 2% in December. Short-term lease rates increased from historic lows of 0.7% in January to more than 4.3% in September before dropping back to 1.5% in December (CRU International Ltd., 2000, p. S-11).

Total world mine production of gold increased about 1% from the record level reached in 1998. Despite a fifth successive decline in annual output, South Africa remained the largest producer of more than 80 gold-mining nations, followed by the United States, Australia, Canada, and China. Identified world gold resources at yearend 1998 were estimated to be 100 million kilograms (Mkg), of which 15% to 20% was byproduct resources; the world reserve base was estimated to be 77 Mkg, and reserves, 49 Mkg (R.P. Ashley, U.S. Geological Survey, oral commun., 1999). Resource and reserve terminology used by the U.S. Geological Survey (USGS) are published in USGS Circular 831 (U.S. Bureau of Mines and U.S. Geological Survey, 1980) and are printed annually as an appendix to the USGS Mineral Commodity Summaries. South Africa had about 40% of the resources, 50% of the reserve base, and 38% of the reserves. The United States had about 10% of world resources, 8% of the reserve base, and 12% of the reserves.

About 15% of all gold mined is estimated to have been used in dissipative industrial uses, or is either unaccounted for or unrecoverable (Thomas and Boyle, 1986, p. 6). Therefore, of an estimated 128 Mkg of gold mined in historical times through 1999, 108 Mkg of gold remain, with about 34 Mkg held by central banks as official stocks and about 74 Mkg held privately as bullion, coin, and jewelry.

## Production

Domestic mine production data for gold were derived by the USGS from two separate voluntary surveys of U.S. operations—one for monthly production of copper, gold, lead, silver, and zinc from lode mines and the other for the same types of data from companies that responded annually. Of the 87 lode gold producers in operation to which a survey request was sent, 82 responded. Five of the 82 responses reported that their mines either were closed or remained on

<sup>1</sup>Elsewhere in this report, ounce by itself refers to troy ounce; 1 kilogram is equivalent to 32.1507 troy ounces.

care-and-maintenance status in 1999. The individual company production and performance data in table 3 and cited elsewhere in this report were obtained from published sources, such as company annual reports.

Of the total domestic gold produced during 1999, more than 94% was extracted from gold ore, and the remaining 6% was derived from other precious-metal ores, base-metal ores, and placer deposits. By comparison, similar data assembled for 1980 indicated a 63% to 37% ratio. In both years, the contribution from placer mines amounted to less than 2% of the total gold produced.

**Alaska.**—The State's Division of Geology and Geophysical Surveys reported that gold output decreased to 15,700 kg (504,000 ounces) worth \$141 million in 1999 from an estimated 18,300 kg (588,000 ounces) worth \$173 million in 1998, or an approximate decrease in production of 14% and a decrease in associated value of more than 18% (Szumigala and Swainbank, 2000). Placer production dropped to 1,700 kg (55,900 ounces) from 3,000 kg (95,000 ounces) of gold.

The underground Fort Knox gold mine near Fairbanks began to produce gold in 1997. Kinross Gold Corporation reported that the mine produced about 10,900 kg (351,000 ounces) of gold in 1999, making it the country's ninth largest gold producer (Kinross Gold Corporation, 2000, p. 12).

The Greens Creek Mine on Admiralty Island, off Juneau, completed its third year at full production levels. Ore from the underground trackless mine was milled at the mine site. The mill produced gold and silver doré, lead, zinc, and bulk concentrates. Hecla Mining Company reported (2000, p. 37) that the mine produced almost 2,500 kg (81,000 ounces) of gold. Greens Creek was a joint venture between Kennecott Greens Creek Mining Company (70.3%) and Hecla Mining (29.7%).

USMX Inc.'s Illinois Creek gold mine in west-central Alaska was placed on care and maintenance, but produced about 200 kg (6,600 ounces) of gold as the existing heaps were rinsed (Szumigala and Swainbank, 2000).

Continued drilling at the Pogo joint venture between Teck Corporation and Sumitomo Metal Mining Co., Ltd. defined additional gold resources in the eastern interior region (Wilburn, 2000, p. 46).

**California.**—Gold production in California declined by 6% from that of 1998, as shown in table 2. California's largest gold mine, Newmont Gold Company's Mesquite Mine, near Brawley, yielded more than 5,100 kg (165,000 ounces) of gold from oxide and sulfide ores that were mined by open pit methods (Newmont Gold Company, 2000, p. 17). In eastern Imperial County, Glamis Gold Limited continued to produce gold by using heap-leaching methods at its Picacho Mine and continued exploration at its nearby Imperial project. Picacho produced more than 200 kg (6,700 ounces). In 1997, after 16 years of gold production, reserves were exhausted, and mining ceased. Gold recovery from the last ore heap was expected to take two more years, after which reclamation will begin. Glamis Gold, through its wholly owned Glamis Rand Mining Company, also produced 2,200 kg (71,000 ounces) of gold at its Rand Mine near Randsburg. Almost all mining at the Rand Mine was carried out at the Yellow Aster Pit (Glamis Gold

Limited, 2000, p. 1).

Near the Nevada-California State line, in San Bernardino County, the Castle Mountain Mine produced an estimated 3,000 kg (95,000 ounces) of gold (Viceroy Resource Corp., 2000, p. 4). Castle Mountain was a joint venture between Viceroy Resource Corporation (75%) and MK Gold Company (25%).

**Colorado.**—Gold production in the State was 2% lower despite a slight increase in production from the Nation's 10th largest gold mine, the Cresson Mine, in the Cripple Creek District of Teller County. Golden Cycle Gold Corporation reported (2000, p. 4) that this open pit mining operation produced 7,200 kg (230,000 ounces) of gold in 1999.

**Idaho.**—Despite a 20% increase in production from Meridian Gold Inc.'s Beartrack Mine near Salmon, total gold production for Idaho slipped by almost 20% (Meridian Gold Inc., 2000, p. 20). Beartrack produced more than 4,100 kg (133,000 ounces) of gold in 1999. Pegasus Gold Corporation's Black Pine Mine in Cassia County was mined out during the fourth quarter of 1997; it produced from stockpiled ore in 1998; and was closed in 1999.

The Grouse Creek gold mine near Challis was placed on a care-and-maintenance status at the end of the second quarter of 1997 following completion of mining in the Sunbeam Pit. A closure plan developed in the third quarter of 1999 included increased dewatering requirements (Hecla Mining Company, 1999, p. 43).

**Montana.**—Exploration for gold was severely subdued because few companies had funds available for investment given the low gold prices during the year. Small-to-medium-sized companies were unable to fund exploration programs during the summer (McCulloch, 2000).

Placer Dome Inc.'s wholly owned Golden Sunlight Mine near Whitehall was Montana's largest gold-producing mine with 4,500 kg (144,800 ounces) of gold in 1999, about 9% less than in 1998 (Placer Dome Inc., 2000, p. 29).

**Nevada.**—Nevada maintained its longstanding position as the Nation's dominant gold-producing State. Of the Nation's top 30 gold-producing mines, 16 were in the Silver State. Primary gold production increased to 257,000 kg (8.3 million ounces).

Newmont Gold, the largest gold mining company in North America, produced 77,800 kg (2.5 million ounces) of gold from 9 open pit operations, 4 underground mines, and 18 processing facilities located in Elko, Eureka, Humboldt, and Pershing Counties. In May, Newmont Gold marked 35 years of production on the Carlin Trend, which it discovered in the mid-1960's. Gold production began in the fourth quarter from the high-grade Deep Post Deposit on the north end of the Carlin Trend. With reserves of 93,000 kg (3 million ounces) of gold, Deep Post consists of both a surface zone, currently being mined within the Betze-Post Pit, and a deeper zone being developed as an underground mine. In May, an asset swap with Barrick Gold Corporation was completed that provided access to the Deep Post underground deposit zone through a decline at the bottom of the Betze-Post Pit. The asset swap also provided the opportunity to begin a mile-long exploration drift from the Deep Star Mine to the Deep Post Deposit, called the

Gold Margin Corridor. The exploration drift is 1,800 feet below the surface (Newmont Gold Company, 2000, p. 8).

Barrick Gold Corporation was the Nation's second largest gold mining company in 1999 and reportedly recovered 35,100 kg (1.1 million ounces) of gold at its Betze-Post Mine/Goldstrike in Eureka County. In nearby Elko County, Barrick continued the development of its Meikle Mine/Goldstrike, an underground operation that produced 30,400 kg (977,000 ounces) of gold; it was the Nation's largest underground gold mine. The mine had an underground cooling system to keep temperatures around 80°F even though the temperature of the surrounding rock can be 140°F (Gold News, 1998). These Barrick operations on the Carlin Trend were developed within a 2,800-hectare landholding known as the Goldstrike Property (Barrick Gold Corporation, 2000, p. 4).

Northwest of Elko, Independence Mining Company, Inc. and Meridian Gold produced about 11,300 kg (362,000 ounces) of gold at their Jerritt Canyon Mine, the Nation's eighth largest gold mine (Meridian Gold Inc., 2000, p. 20). At the Getchell Mine in Humboldt County, Getchell Gold Corporation produced 3,450 kg (110,000 ounces) of gold from its underground operations. Gold mining was suspended in July at Turquoise Ridge, and the mill was shut down in order to focus on exploration and development (Placer Dome, 2000, p. 30). Other gold mines in Humboldt County included the Hycroft (formerly the Crowfoot/Lewis), the Marigold, and the Pinson.

South of and parallel to the Carlin Trend, the Battle Mountain/Eureka Trend runs from southeastern Humboldt County southeast through Lander and Eureka Counties. Gold mining operations along this trend in Lander County include the Battle Mountain Complex, which was placed on care and maintenance on January 1 (Battle Mountain Gold Company, 2000, p. 7); the McCoy/Cove gold and silver mine, which produced 3,900 kg (125,000 ounces) (Echo Bay Mines Limited, 2000, p. 6); and the country's second largest gold mine, the Cortez Mine, owned by Placer Dome (60%) and Kennecott Corporation (40%), which produced 41,300 kg (1.3 million ounces) (Placer Dome Inc., 2000, p. 29). New mineralization at the Pediment Deposit across the valley from the Pipeline project yielded a new gold resource that is amenable to open pit mining and is currently open in three directions (Placer Dome Inc., 2000, p. 11).

At Round Mountain, about 95 kilometers north of Tonopah, the Round Mountain Gold Corporation mine of Echo Bay Mines Limited produced about 16,900 kg (542,000 ounces) of gold during the year (Echo Bay Mines Limited, 2000, p. 4). The property is the sixth largest U.S. gold mine.

Battle Mountain Gold Company continued its exploration project by extending the Phoenix Zone at the Battle Mountain Complex, thereby adding about 31,000 kg (1 million ounces) of gold to its reserve base. In addition, Barrick Gold continued to develop the Rossi-Storm Deposit at the Ken Snyder Mine (Franco-Nevada Mining Corporation Limited), which poured its first gold on December 9, 1998. Ken Snyder's first full year of commercial production was 5,400 kg (174,000 ounces) of gold making it the country's 13th largest gold mine in 1999.

Exploration was at a much lower level than previous years. Activity was concentrated along the major "trends," Battle

Mountain, Carlin, Getchell, and Midas. A number of gold projects were pursued in Mineral, Esmeralda, and western Nye counties, in the Humboldt Range of Pershing County, and in the Snowstorm Mountains along the Humboldt-Elko County line (Tingley and LaPointe, 2000).

**South Dakota.**—Gold production decreased by more than 18% compared with that of 1998. Homestake Mining Company's 120-year-old Homestake Mine at Lead was again the largest gold-producing mine in South Dakota and the 11th largest gold-producing mine in the country. During the year, the mine, a nearly 2.5-kilometer-deep operation with associated surface mining, yielded about 6,600 kg (213,000 ounces) of gold at a reported cash production cost of \$261 per ounce (Homestake Mining Company, 2000, p. 6).

Goldcorp Inc. operated an open pit gold mine near Lead, the Wharf Mine, which produced about 3,300 kg (107,000 ounces) of gold (Goldcorp Inc., 2000, p. 4).

**Utah.**—Rio Tinto Limited's Bingham Canyon Mine, which was operated by Kennecott Utah Copper Corp., produced about 11,400 kg (367,000 ounces) of gold as a byproduct of its copper mining operations near Salt Lake City. Long ranked as one of the Nation's principal gold-producing mines, Bingham Canyon was the 7th largest gold producer in 1999. Kennecott also operated the nearby Barney's Canyon Mine, an open pit and heap-leaching operation that produced 3,500 kg (112,000 ounces) of gold (Rio Tinto Limited, 2000, p. 37).

**Washington.**—Echo Bay Mines's Kettle River underground mine, located in the northeastern part of the State, produced 3,200 kg (104,000 ounces) of gold in its ninth year of production (Echo Bay Mines Limited, 2000, p. 8).

The Crown Jewel project, with projected annual production of 5,400 kg (175,000 ounces) of gold, received an unfavorable ruling on a water quality permit. The ruling, made by Washington State's Pollution Control Hearings Board, delayed the project's start-up date (American Metal Market, 2000).

## World Review

World gold mine production rose in 1999 for the fourth consecutive year. Increased production from mines in Indonesia, Peru, and Russia was enough to help offset a continuing decline in gold output from South Africa. According to its annual review of world gold supply and demand, Gold Fields Mineral Services Limited calculated that the total global supply of gold in 1999 was 4.11 Mkg (132 million ounces) compared with the previous year's total supply of 4.13 Mkg (133 million ounces) (Klapwijk and others, 2000, p. 7). Gold Fields Mineral Services reported increases in mine production (1%), official sector sales (14%), and net producer hedging (400%) at pre-Asian crisis levels (Klapwijk and others, 2000, p. 7).

On the demand side, Gold Fields Mineral Services reported no dramatic increases. Bar hoarding surged by 47% largely as a result of a phenomenal 53,000 kg (1.7 million ounces) of hoarding in Japan. In 1999, there were only a handful of countries where fabrication grew substantially. In these instances, economic recovery and lower currency gold prices were the main driving forces (Klapwijk and others, 2000, p.

10).

With regard to gold exploration, the Metals Economics Group, Halifax, Canada, determined from its annual survey of worldwide exploration budgets for 132 companies (diGesú and others, 1999a) that \$1.08 billion (50%) of the 1999 world exploration budget total for nonferrous metals was directed to gold, with 100 companies reporting active gold programs. The expenditures for gold were \$480 million less than the \$1.6 billion (55% of the total) reported for gold exploration in 1998. As in the preceding 5 years, Latin America received the highest expenditure for gold—\$290.6 million (27%) of the reported 1999 world total exploration dollars (diGesú and others, 1999b).

**Australia.**—Australian gold mine production dropped by about 2% from 1998. However, Australia retained its position as the world's third largest gold-producing nation. Of the 302,600 kg (9.7 million ounces) of gold mined in 1999, Western Australia, Queensland, and New South Wales accounted for about 70%, 11%, and 7%, respectively (Australian Bureau of Agricultural and Resource Economics, 2000, p. 15); Western Australia's production was derived principally from mining operations near Kalgoorlie. Other Australian gold-producing States were, in descending order of output, Northern Territory, Victoria, Tasmania, and South Australia.

The Chalice and Kidston mines, both approaching depletion of their gold reserves, were among the highest cost Australian gold mines, at \$358 per troy ounce and \$294 per troy ounce, respectively. Almost one-half of Australia's gold output in 1999 was mined at operations with cash costs below \$200 per ounce (Klapwijk and others, 2000, p. 45).

In Western Australia, at least 17 gold-processing plants were closed down as ore supplies diminished. An estimated 1,800 geologists were out of work and hundreds of drill rigs were idle. People abandoned Western Australian mining towns to seek work elsewhere; in the key mining center of Kalgoorlie, retail sales slumped by 15% and the price of residential property fell by 10% (Mining Journal, 1999).

On December 13, the Australian Gold Council (AGC) and the Australian Stock Exchange launched an expanded gold share index, which is called the AGC Gold Index. This new index includes 35 gold companies and officially replaces the old 14-member Gold Index on April 3, 2000 (Platt's Metals Week, 1999a).

**Brazil.**—During 1999, gold production declined 17% to about the 41 ton (1.3-million-ounce) level. Output from the informal, noncorporate mining sector, the garimpeiros, was estimated to have dropped to as low as 14,000 kg (450,000 ounces) of gold. Low gold prices had a devastating effect on junior exploration companies and small producers; most of the formal mining sector, however, performed well, maintaining about 40,000 kg (1.3 million ounces) of gold production by reducing costs (Klapwijk and others, 1999, p. 37).

**Canada.**—Canada retained its position as the world's fourth largest gold producer, although production dropped by 4% to 158,000 kg. Gold was produced at about 33 lode gold mines, which accounted for 88% of the total gold output. Base-metal mines and placer mines accounted for 10% and 2%,

respectively. During the year, 3 gold mines began operation and 13 mines shut down. Canada's principal gold-producing Provinces were Ontario (48%), Quebec (24%), British Columbia (16%), and Manitoba (5%). Gold was also produced in Alberta, New Brunswick, Newfoundland, Saskatchewan, the Northwest Territories, and Yukon Territory (John Keating, Natural Resources Canada, written commun., 2000).

**Chile.**—Gold output in Chile increased marginally to 45,700 kg (1.5 million ounces) despite much lower gold production at La Copeia, Chile's premier gold mine. Strong performances were achieved at Barrick Gold's two mines, El Indio and El Tambo, both of which have been slated for closure due to high costs and depletion of economic reserves (Klapwijk and others, 2000, p. 38).

**China.**—China has set its new gold production target for 2000 at 175,000 kg. The Chinese produced 170,000 kg of gold in 1999 and 178,000 kg of gold in 1998 (Platt's Metals Week, 1999c).

China prepared plans to reform its gold products pricing system to keep pace with changes in the world gold market. China's gold decorated ornaments were priced \$2.50 to \$4.50 per troy ounce higher than those in Hong Kong, Taiwan, Thailand, and Singapore. In addition, taxes paid by China's enterprises are higher than those in other southeast Asian countries, with a value-added tax rate and consumption tax rate at 17% and 15%, respectively. The Republic of Korea and Thailand have a value-added tax levy of 10%, and Singapore charges only a 3% consumer tax. China consumed about 192,000 kg in 1998, making it the fourth largest gold market in the world as well as the top consumer in Asia (Platt's Metals Week, 1999b).

**India.**—The Indian Government took steps to remove duties on reexports in order to implement the Forward Contracts Act, which allows commercial banks to forward trading contracts for the sale and purchase of gold within the country. This much-awaited gold deposit action, designed to get idle gold into circulation, took place after the nation's elections. Five public-sector banks collected about 50,000 kg of gold that was sent overseas to be refined into gold bullion bars and brought back into the country (American Metal Market, 1999).

**Indonesia.**—Gold output was estimated to have risen by 5% in 1999 to 30,000 kg. The Grasberg Mine, which produced 93,000 kg of gold, generated as a byproduct 62% of the country's gold output. Also, the Minahasa Mine raised its gold production by 3,000 kg, as Newmont Mining Company began operating Indonesia's first heap-leach pad operation at the mine. The Gosowong gold-silver project and the Batu Hijau operation started producing gold in 1999 (Klapwijk and others, 2000, p. 40).

**Mexico.**—Gold production declined by 12% to about 22,500 kg in 1999 (Klapwijk and others, 1999, p. 38).

**Papua New Guinea.**—Gold production in Papua New Guinea declined 4% to 61,000 kg. Lihir Gold Limited's Lihir Mine on Lihir Island in the Bismark Archipelago improved its gold production with all three autoclaves functioning and a new oxygen plant installed. Porgera and Misima Mines also showed small increases in gold production, but gold output at the Ok Tedi Mine was reduced as it continued to have

environmental problems (Klapwijk and others, 2000, p. 40).

**Peru.**—For the fourth consecutive year, gold production in Peru exceeded that in Brazil, making it the largest gold producer in Latin America at more than 128,000 kg of gold, which was 36% more than that of 1998. The main impetus for this increase came from the large-scale, low-cost, open pit, heap-leach Yanacocha Mine in northern Peru, where owners Newmont Gold and Cia. de Minas Buenaventura extracted almost 52,000 kg of gold in 1999. The Yanacocha Mine, which was the largest gold mining operation in Latin America for the fifth consecutive year, yielded gold at cash costs of \$103 per ounce, making it one of the lowest-cost gold mines in the world in 1999. Even lower cash costs were reported at Barrick Gold Corporation's Pierina Gold Mine, where full design capacity was achieved in 1999 and output reached 26,000 kg of gold (Klapwijk and others, 2000, p. 36).

**Russia.**—Of the independent gold-producing countries resulting from the dissolution of the Soviet Union in late 1991, Russia was by far the largest gold producer in terms of output and number of operations. Most of Russia's production was derived from formerly state-owned enterprises and workers' cooperatives, known as artels, which principally exploited placer deposits scattered throughout Siberia and the Russian Far East.

Production in Russia grew by 10%, to 126,000 kg of gold, which ended four consecutive years of declining production. This number includes an estimate for unofficial gold. The Magadan, Krasnoyarsk, and Irkutsk regions reported higher gold production, as producers benefited from the devaluation of the rouble and higher gold prices during the last months of 1999 (Klapwijk and others, 2000, p. 40).

Effective October 1, the Central Bank increased the discount rate for gold and platinum from 2% to 5%. Because Russia also has a 5% export duty on precious metals, commercial Russian banks are more likely to export gold than sell to the Central Bank, leaving Russian gold producers with fewer sales options and uncertain financing opportunities. The Central Bank had been expected to buy between 60,000 kg and 80,000 kg of gold (Platt's Metals Week, 1999d).

**South Africa.**—In 1970, the continent of Africa was the source of 82% of the world's gold output, but with the increase in production in Australia and North America, Africa's share had declined to about 18% in 1999. Gold production in South Africa, the world's largest gold-producing nation, declined for the sixth consecutive year, to 450,000 kg of gold, 3% less than that of 1998, and left gold production at its lowest level in 45 years. Gold production was affected by a high incidence of seismic events and accidents, as well as a number of strikes associated with the annual wage negotiations and a growing sense of worker dissatisfaction about ongoing retrenchments (Klapwijk and others, 2000, p. 33).

The tonnage and grade of ore milled during 1999 by the mines comprising the membership of the Chamber of Mines of South Africa amounted to almost 87 billion kg at a grade of 4.62 grams per ton of gold ore; this compares with a lower total tonnage of 83 billion kg at a higher grade of 5.09 grams per ton that was milled by Chamber members in 1998.

Of the top 15 gold-producing companies in the world in

1999, 5 were South African. AngloGold Limited, listed on the Australian Stock Exchange in November, remained the leading gold-producing company in the world. Gold Fields Limited was third in the world. The other three companies were Harmony Gold Mining Company Limited (11th), Durban Roodepoort Deep Limited (13th), and Randfontein Estates (15th). Durban Roodepoort Deep was listed on the Australian Stock Exchange in March (Klapwijk and others, 2000, p. 31).

**Uzbekistan.**—Gold production in Uzbekistan increased by 6% to about 85,000 kg. This modest increase was a result of higher output from Newmont Gold's efforts at Zarafshan, which processes high-grade tailings from the state-owned Muruntau Mine. It produced 17,000 kg of gold in 1999, up more than 45% from 1998 and the highest level recorded since startup in 1995 (Klapwijk and others, 2000, p. 41).

## Outlook

Several events in 1999 influenced gold industry trends. Central bank sales of gold reserves kept the gold price below \$300 per troy ounce during most of 1999. The price of gold fell to a 20-year-low trading range on July 26th. The gold industry reacted by closing gold mines, 10 in the United States, and by merging operations. This trend of consolidation to maintain gold reserves is expected to continue; thus, forecasts of a future gold industry comprised of less than 10 major companies can not be easily dismissed.

In addition, less world gold exploration funding was available in 1999, the second consecutive year of lower spending. As mentioned previously, 31% less was spent on gold exploration in 1999 than in 1998, after five consecutive years of significant increases. Moreover, less gold exploration expenditures are expected to continue with the prediction of low prices for gold. Such cutbacks have serious implications. As less gold is discovered and old gold mines are closed, a gap may be created between global gold supply and demand, thereby creating future gold shortages.

## References Cited

- American Metal Market, 1999, India elections delay plan: American Metal Market, v. 107, no. 173, September 8, p. 9.
- 2000, Crown Jewel mine stalled: American Metal Market, v. 108, no. 15, January 25, p. 6.
- Australian Bureau of Agricultural and Resource Economics, 2000, Australian mineral statistics, fourth quarter 1999: Canberra, Australian Bureau of Agricultural and Resource Economics, 32 p.
- Barrick Gold Corporation, 2000, Barrick achieves record year—Earnings rise 10%, cash flow 30%: Toronto, Canada, Barrick Gold Corporation press release, February 29, 8 p.
- Battle Mountain Gold Company, 2000, Form 10-K405: Washington, DC, U.S. Securities and Exchange Commission, 97 p.
- CRU International Ltd., 2000, Gold quarterly industry and market outlook: London, CRU International Ltd., March, 122 p.
- diGesù, Dominique, Bearmish, Marilyn, Angelucci, Josee, Burgess, Sindy, Cox, David, Goulden, Jason, Lowery, Jim, Slaunwhite, Janice, and Selva, Sandra, 1999a, Overview of worldwide exploration budgets (part I): Halifax, Canada, Metals Economics Group Strategic Report, v. 12, no. 5, September-October, p. 1-5.
- 1999b, Overview of worldwide exploration budgets (part II): Halifax, Canada, Metals Economics Group Strategic Report, v. 12, no. 6, November-December, p. 1-7.
- Echo Bay Mines Limited, 2000, Echo Bay Mines annual report 1999: Englewood,

CO, Echo Bay Mines Limited, 48 p.

Glamis Gold Limited, 2000, Glamis Gold annual report 1999: Reno, NV, Glamis Gold Limited, 36 p.

Gold News, 1998, Gold snapshot—Underground mines are growing trend: Gold News, November-December, p. 2.

Golden Cycle Gold Corporation, 2000, Form 10-K405: Washington, DC, U.S. Securities and Exchange Commission, 23 p.

Goldcorp Inc., 2000, Goldcorp annual report 2000: Toronto, Canada, Goldcorp Inc., 21 p.

Hecla Mining Company, 1999, Form 10-Q: Washington, DC, U.S. Securities and Exchange Commission, 43 p.

———2000, Form 10-K405: Washington, DC, U.S. Securities and Exchange Commission, 106 p.

Homestake Mining Company, 2000, Form 10-K: Washington, DC, U.S. Securities and Exchange Commission, 134 p.

Kinross Gold Corporation, 2000, Kinross annual report 1999: Toronto, Canada, Kinross Gold Corporation, 77 p.

Klapwijk, Philip, le Roux, Hester, Walker, Paul, and Newman, Paul, 2000, Gold 2000: Gold Fields Mineral Services Limited, 113 p.

McCulloch, R.B., 2000, Montana: Mining Engineering, v. 52, no. 5, May, p. 72-75.

Meridian Gold Inc., 2000, Meridian annual report 1999: Reno, NV, Meridian Gold Inc., 42 p.

Metal Bulletin, 1998, Placer Dome and Getchell to merge: Metal Bulletin, no. 8338, December 24, p. 7.

Mining Journal, 1999, Australians dig in: Mining Journal, v. 333, no. 8542, July 30, p. 77.

Newmont Gold Company, 2000, Newmont Gold Company annual report 1999: Denver, CO, Newmont Gold Company, 22 p.

Placer Dome Inc., 2000, Placer Dome annual report 1999: Vancouver, B.C., Canada, Placer Dome Inc., 72 p.

Platt's Metals Week, 1999a, AGC expands gold share index: Platt's Metals Week, v. 70, no. 51, December 20, p. 1.

———1999b, China plans gold price reform: Platt's Metals Week, v. 70, no. 24, June 14, p. 4.

———1999c, China targets 175 mt gold: Platt's Metals Week, v. 70, no. 52, December 27, p. 4.

———1999d, Russian gold producers fear fewer sales options: Platt's Metals Week, v. 70, no. 42, October 18, p. 9.

Rio Tinto Limited, 2000, Rio Tinto Limited 1999 annual report and accounts: London, England, Rio Tinto Limited, 144 p.

Szumigala, D.J., and Swainbank, R.C., 2000, Alaska's mineral industry 1999: Alaska Division of Geology and Geophysics Surveys Information Circular 46, January, 12 p.

Thomas, P.R., and Boyle, E.H., Jr., 1986, Gold availability appraisal: U.S. Bureau of Mines Information Circular 9070, 87 p.

Tingley, J.V., and LaPointe, D.D., 2000, Nevada: Mining Engineering, v. 52, no. 5, May, p. 75-83.

U.S. Bureau of Mines and U.S. Geological Survey, 1980, Principles of a resource/reserve classification for minerals: U.S. Geological Survey Circular 831, 5 p. [Definitions reprinted annually in USGS Mineral Commodity Summaries.]

Viceroy Resource Corporation, 2000, Viceroy Resource annual report 1999: Vancouver, Canada, Viceroy Resource Corporation, 32 p.

Wilburn, D.R., 2000, Exploration: Mining Engineering, v. 52, no. 5, May, p. 38-48.

World Gold Council, 2000, U.S. gold jewelry retail sales annual report for 1999: New York, NY, World Gold Council, 7 p.

## GENERAL SOURCES OF INFORMATION

### U.S. Geological Survey Publications

Contributions to the gold metallogeny of northern Nevada: (CD-ROM), U.S. Geological Survey Open-File Report 98-338, 1999.

Geologic and grade-tonnage information on tertiary epithermal precious- and base-metal vein districts associated with volcanic rocks, Bulletin 1666, 1986.

Geologic characteristics of sediment- and volcanic-hosted disseminated gold deposits—Search for an occurrence model, Bulletin 1646, 1985.

Geology and resources of gold in the United States, Bulletin 1857, 1998.

Gold. Ch. in Mineral Commodity Summaries, annual.<sup>2</sup>

Gold. Ch. in Minerals Yearbook, annual.<sup>2</sup>

Gold. Ch. in United States Mineral Resources, Professional Paper 820, 1973.

Precious metals. Mineral Industry Surveys, monthly.<sup>2</sup>

Principal gold-producing districts of the United States, Professional Paper 610, 1968.

### Other

American Metal Market, daily.

Canadian Mines Handbook 1997-98.

Engineering and Mining Journal, monthly.

Gold. Ch. in Mineral Facts and Problems, U.S. Bureau of Mines Bulletin 675, 1985.

Jewelers' Circular-Keystone, monthly.

Mining Journal, biweekly.

The Mining Record, weekly.

The Northern Miner, weekly.

Platt's Metals Week, weekly.

Randol Mining Directory 1999.

World Gold—A Minerals Availability Appraisal, U.S. Bureau of Mines Special Publication SP 24-94, 1994This page has been generated to show the new footer.

<sup>2</sup>Prior to January 1996, published by the U.S. Bureau of Mines.

TABLE 1  
SALIENT GOLD STATISTICS 1/

		1995	1996	1997	1998	1999
United States:						
Mine production	kilograms	317,000	326,000	362,000	366,000	341,000
Value	thousands	\$3,950,000	\$4,090,000	\$3,870,000	\$3,480,000	\$3,070,000
Gold recovered by cyanidation:						
Extracted in vats, tanks, and closed containers 2/	kilograms	157,000	170,000	201,000	238,000	196,000
Leached in open heaps or dumps 3/	do.	121,000	124,000	132,000	103,000	131,000
Refinery production:						
Ores, concentrates and dore	do.	NA	NA	270,000	277,000	265,000
Recycled materials (new and old scrap)	do.	NA	NA	100,000	163,000	143,000
Imports for consumption, refined	do.	111,000	143,000	194,000	257,000	196,000
Exports, refined	do.	277,000	406,000	391,000	430,000	435,000
Net deliveries from foreign stocks in Federal Reserve Bank of New York						
	do.	244,000	373,000	143,000	310,000	380,000
Stocks, December 31:						
Industry 4/	do.	NA	NA	17,300	16,600	14,700
Commodity Exchange (Comex) 5/	do.	45,400	20,700	15,200	25,200	37,900
Department of the Treasury 6/	metric tons	8,140	8,140	8,140	8,130	8,170
Volume of U.S. Gold Futures Trading 7/	do.	24,200	14,300	29,700	28,600	29,800
Department of the Treasury: 8/						
American Eagle gold coin	kilograms	13,900	10,700	20,000	49,200	78,200
Other numismatic gold coins	do.	1,150	1,190	500	86	430
Consumption in industry and the arts	do.	NA	NA	137,000	219,000	245,000
Apparent demand, refined 9/	do.	NA	NA	265,000	667,000	283,000
Price, average per troy ounce 10/		\$385.50	\$389.09	\$332.39	\$295.24	\$279.91
Employment, mine and mill only 11/		14,700	16,900	16,300	13,400	10,300
World:						
Production, mine	kilograms	2,230,000 r/	2,300,000 r/	2,450,000 r/	2,520,000 r/	2,540,000
Official bullion reserves 12/	metric tons	34,600	34,400	34,000	33,600	33,300

r/ Revised. NA Not available.

1/ Data are rounded to no more than three significant digits, except prices.

2/ May include small quantities recovered by gravity methods.

3/ May include tailings, waste-ore dumps, and previously mined ore at some inactive mines.

4/ Unfabricated refined gold held by refiners, fabricators, dealers, and the U.S. Department of Defense.

5/ Commodity Exchange (Comex) Division of the New York Mercantile Exchange.

6/ Includes gold in Exchange Stabilization Fund.

7/ Comex only.

8/ Fiscal year bullion disbursements to U.S. Mint coin programs. Fiscal year begins October 1, of year prior to year indicated.

9/ Defined as refinery production from primary materials plus refinery production from old scrap plus net bullion flow to market from foreign stocks at the New York Federal Reserve Bank plus net imports of bullion. Assumed to include gold held for investment purposes. Excludes gold contained in fabricated items, imported coins, and official monetary gold.

10/ Engelhard Corporation industries quotation.

11/ Data from Mine Safety and Health Administration.

12/ Held by central banks, governments, and international monetary organizations. Data from International Monetary Fund.

TABLE 2  
MINE PRODUCTION OF GOLD IN THE UNITED STATES, BY STATE 1/

(Kilograms)

State	1998	1999
Alaska 2/	18,300	15,700
Arizona	1,840	786
California	18,700	17,500
Idaho	W	W
Montana	8,200	7,570
Nevada	273,000	257,000
South Dakota	12,100	9,940
Washington	3,540	3,250
Other States 3/	30,600	29,800
Total	366,000	341,000

W Withheld to avoid disclosing company proprietary data, included with "Other States."

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Production data collected by the State.

3/ Includes Colorado, New Mexico, South Carolina, Wisconsin, and States indicated by symbol W.

TABLE 3  
LEADING GOLD-PRODUCING MINES IN THE UNITED STATES IN 1999, IN ORDER OF OUTPUT 1/

Rank	Mine	County and State	Operator	Kilograms
1	Carlin Mines Complex	Eureka, Elko, etc., NV	Newmont Gold Company	42,600
2	Cortez	Lander, NV	Placer Dome Inc.	41,300
3	Betze-Post/Goldstrike	Eureka, NV	Barrick Gold Corporation	35,100
4	Meikle/Goldstrike	do.	do.	30,400
5	Twin Creeks	Humboldt, NV	Newmont Gold Company	27,300
6	Round Mountain	Nye, NV	Round Mountain Gold Corporation	16,900
7	Bingham Canyon	Salt Lake, UT	Kennecott Utah Copper Corp.	11,400
8	Jerritt Canyon	Elko, NV	Independence Mining Company, Inc.	11,300
9	Fort Knox	Fairbanks, AK	Fairbanks Gold Mining Inc.	10,900
10	Cresson	Teller, CO	Cripple Creek & Victor Gold Mining Co.	7,200
11	Homestake	Lawrence, SD	Homestake Mining Company	6,600
12	Lone Tree	Humboldt, NV	Newmont Gold Corp.	6,000
13	Ken Snyder	Elko, NV	Euro-Nevada Mining Co.	5,400
14	Mesquite	Imperial, CA	Newmont Gold Company	5,100
15	Golden Sunlight	Jefferson, MT	Placer Dome Inc.	4,500
16	Beartrack	Lemhi, ID	Meridian Gold Inc.	4,100
17	McCoy/Cove	Lander, NV	Echo Bay Mines Limited	3,900
18	Ruby Hill	Eureka, NV	Homestake Mining Company	3,850
19	McLaughlin	Napa, CA	do.	3,800
20	Denton-Rawhide	Mineral, NV	Kennecott Rawhide Mining Co.	3,600
21	Rosebud	Pershing, NV	Hecla Mining Company	3,500
22	Barney's Canyon	Salt Lake, UT	Kennecott Barney's Canyon Mining Co.	3,500
23	Getchell	Humboldt, NV	Getchell Gold Corporation	3,450
24	Wharf	Lawrence, SD	Wharf Resources, Ltd.	3,300
25	Bald Mountain	White Pine, NV	Placer Dome Inc.	3,300
26	Kettle River	Ferry, WA	Echo Bay Mines Limited	3,200
27	Castle Mountain	San Bernardino, CA	Viceroy Resources Corporation	3,000
28	Briggs	Inyo, CA	Canyon Resources Corp.	2,700
29	Ridgeway	Fairfield, SC	Kennecott Ridgeway Mining Co.	2,500
(2/)	Florida Canyon	Pershing, NV	Florida Canyon Mining, Inc.	W

W Withheld to avoid disclosing company proprietary data.

1/ Data are rounded to no more than three significant digits; these mines accounted for more than 92% of the U.S. gold production in 1999.

2/ Production at Florida Canyon is withheld; mine is among the top 30 gold-producing mines in the United States, but is not shown in rank order to avoid disclosing company proprietary data.

Sources: Company annual reports, Securities and Exchange Commission's 10K and 6K reports, and company news releases.



TABLE 4  
U.S. EXPORTS OF GOLD, BY COUNTRY 1/

Year and country	Ores and concentrates 2/		Doré and precipitates		Refined bullion 3/		Ash and residues		Total	
	Quantity (kilograms)	Value (thousands)	Quantity (kilograms)	Value (thousands)	Quantity (kilograms)	Value (thousands)	Quantity (kilograms)	Value (thousands)	Quantity (kilograms)	Value (thousands)
1998	401	\$3,460	91,600	\$810,000	430,000	\$4,030,000	--	--	522,000	\$4,850,000
1999:										
Argentina	--	--	--	--	220	2,060	--	--	220	2,060
Armenia	--	--	--	--	33	317	--	--	33	317
Australia	--	--	--	--	22,400	199,000	--	--	22,400	199,000
Belgium	--	--	--	--	--	--	--	--	--	--
Bolivia	--	--	--	--	1,310	12,200	--	--	1,310	12,200
Canada	--	--	5,160	41,800	13,300	119,000	--	--	18,400	161,000
Colombia	--	--	--	--	11	90	--	--	11	90
France	--	--	--	--	5	59	--	--	5	59
Germany	114	1,150	12	91	33	289	--	--	159	1,530
Hong Kong	--	--	503	4,110	710	7,370	--	--	1,210	11,500
Hungary	--	--	--	--	--	--	--	--	--	--
India	--	--	--	--	201	1,670	--	--	201	1,670
Ireland	1	8	--	--	54	558	--	--	55	566
Israel	(4/)	4	5	33	50	471	--	--	55	508
Italy	--	--	--	--	3	40	--	--	3	40
Japan	--	--	12	95	1,000	8,250	--	--	1,020	8,340
Korea, Republic of	--	--	520	4,090	4,450	40,700	--	--	4,970	44,800
Mexico	--	--	223	5,470	28,000	248,000	--	--	28,200	253,000
Netherlands	--	--	--	--	492	4,510	--	--	492	4,510
Peru	--	--	--	--	7,420	65,600	--	--	7,420	65,600
Saudi Arabia	--	--	--	--	3,400	28,700	--	--	3,400	28,700
Singapore	--	--	17	164	1,380	11,300	--	--	1,400	11,500
Sweden	--	--	--	--	1	9	--	--	1	9
Switzerland	--	--	80,100	719,000	205,000	1,830,000	--	--	285,000	2,550,000
Taiwan	--	--	1	7	1,070	8,650	--	--	1,080	8,660
Turkey	--	--	--	--	629	5,570	--	--	629	5,570
United Arab Emirates	--	--	--	--	1,910	18,800	--	--	1,910	18,800
United Kingdom	1	12	759	3,330	142,000	1,250,000	--	--	142,000	1,260,000
Other	(4/)	4	10	50	523	4,640	--	--	533	4,700
Total	117	1,180	87,300	778,000	435,000	3,880,000	--	--	523,000	4,660,000

See footnotes at end of table.

TABLE 4--Continued  
U.S. EXPORTS OF GOLD, BY COUNTRY 1/

Year and country	Waste and scrap		Metal powder		Gold compounds	
	Quantity (kilograms)	Value (thousands)	Quantity (kilograms)	Value (thousands)	Quantity (kilograms)	Value (thousands)
1998	58,900	\$374,000	196	\$2,060	781,000	\$9,340
1999:						
Argentina	--	--	--	--	--	--
Armenia	--	--	--	--	35,700	170
Australia	2	22	--	--	61	6
Belgium	2,330	21,700	1	17	--	--
Bolivia	--	--	--	--	--	--
Canada	22,000	142,000	37	248	431,000	8,270
Colombia	--	--	10	142	--	--
France	--	--	2	25	47	31
Germany	756	10,100	5	72	63	64
Hong Kong	2	22	--	--	302	221
Hungary	--	--	--	--	402	6
India	3	12	8	54	1	8
Ireland	--	--	11	161	54	8
Israel	--	--	13	177	81,400	1,460
Italy	1,470	12,900	3	31	22	43
Japan	327	3,270	11	130	108	32
Korea, Republic of	3	29	7	72	--	--
Mexico	--	--	6	63	113	762
Netherlands	--	--	(4/)	6	32	169
Peru	--	--	--	--	--	--
Saudi Arabia	--	--	--	--	--	--
Singapore	3	9	1	18	1,800	1,170
Sweden	1,650	14,900	3	17	--	--
Switzerland	--	--	5	49	104	1,030
Taiwan	3	33	--	--	5	16
Turkey	--	--	25	219	--	--
United Arab Emirates	--	--	--	--	--	--
United Kingdom	11,300	95,900	108	1,130	455	462
Other	106	1,060	12	166	9,360	152
Total	40,000	302,000	270	2,800	561,000	14,100

-- Zero.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Includes base metal ores, concentrates, and matte destined for refining.

3/ Bullion also moves in both directions between U.S. markets and foreign stocks on deposit in the Federal Reserve Bank. Monetary gold excluded.

4/ Less than 1/2 unit.

Source: U.S. Census Bureau.

TABLE 5  
U.S. IMPORTS FOR CONSUMPTION OF GOLD, BY COUNTRY 1/

Year and country	Ores and concentrates 2/		Doré and precipitates		Refined bullion 3/		Ash and residues		Total	
	Quantity (kilograms)	Value (thousands)	Quantity (kilograms)	Value (thousands)	Quantity (kilograms)	Value (thousands)	Quantity (kilograms)	Value (thousands)	Quantity (kilograms)	Value (thousands)
1998	2,540	\$22,300	14,100	\$19,900	257,000	\$2,350,000	4,670	\$4,930	278,000	\$2,490,000
1999:										
Algeria	--	--	--	--	4,970	42,000	--	--	4,970	42,000
Argentina	--	--	2,580	18,300	222	1,670	--	--	2,800	20,000
Australia	41	439	3,130	24,600	2,380	19,700	--	--	5,550	44,800
Austria	--	--	--	--	2,360	21,900	--	--	2,360	21,900
Belgium	--	--	--	--	81	781	--	--	81	781
Bolivia	--	--	99	902	5,330	46,000	--	--	5,430	46,900
Brazil	--	--	--	--	31,700	287,000	--	--	31,700	287,000
Canada	8	58	705	5,380	85,200	804,000	64	671	86,000	810,000
Chile	--	--	1,630	16,100	5,800	52,200	40	402	7,480	68,700
China	--	--	--	--	--	--	--	--	--	--
Colombia	--	--	24	256	8,280	68,100	--	--	8,300	68,300
Costa Rica	--	--	18	165	105	913	--	--	124	1,080
Dominican Republic	--	--	--	--	132	1,160	--	--	132	1,160
Ecuador	--	--	137	1,220	365	3,600	--	--	502	4,820
France	--	--	--	--	5	55	--	--	5	55
Germany	--	--	3	30	15	134	--	--	18	163
Honduras	--	--	423	3,450	278	2,170	--	--	701	5,610
Japan	--	--	--	--	--	--	--	--	--	--
Korea, Republic of	--	--	--	--	--	--	--	--	--	--
Malaysia	--	--	--	--	--	--	--	--	--	--
Mexico	65	607	5,510	50,600	1,780	15,800	13	152	7,370	67,200
Netherlands Antilles	--	--	--	--	209	1,720	--	--	209	1,720
Nicaragua	--	--	329	2,160	3,700	33,000	14	519	4,040	35,700
Norway	--	--	12	112	467	4,170	--	--	479	4,280
Panama	--	--	--	--	173	1,490	--	--	173	1,490
Peru	2	15	6,810	54,200	19,400	177,000	--	--	26,200	231,000
South Africa	--	--	5	38	5,420	48,900	--	--	5,420	48,900
St. Vincent and the Grenadines	--	--	--	--	--	--	--	--	--	--
Switzerland	--	--	--	--	5,120	42,500	--	--	5,120	42,500
Taiwan	--	--	--	--	--	--	--	--	--	--
Ukraine	--	--	--	--	407	3,360	--	--	407	3,360
United Kingdom	--	--	3,120	30,600	10,900	102,000	--	--	14,100	132,000
Other	1	13	190	1,760	827	8,040	2	15	1,020	9,840
Total	117	1,130	24,700	210,000	196,000	1,790,000	133	1,760	221,000	2,000,000

See footnotes at end of table.

TABLE 5--Continued  
U.S. IMPORTS FOR CONSUMPTION OF GOLD, BY COUNTRY 1/

Year and country	Waste and scrap		Metal powder		Gold compounds	
	Quantity (kilograms)	Value (thousands)	Quantity (kilograms)	Value (thousands)	Quantity (kilograms)	Value (thousands)
1998	16,700	\$102,000	12,800	\$120,000	9,820	\$50,000
1999:						
Algeria	--	--	--	--	--	--
Argentina	--	--	--	--	--	--
Australia	18	166	6	48	--	--
Austria	--	--	--	--	--	--
Belgium	319	3,650	--	--	--	--
Bolivia	71	405	--	--	--	--
Brazil	2	17	--	--	--	--
Canada	5,420	16,700	5,150	45,800	--	--
Chile	2	17	--	--	--	--
China	251	2,340	--	--	--	--
Colombia	2,020	13,700	--	--	7,020	56,600
Costa Rica	2,200	4,920	--	--	--	--
Dominican Republic	12,100	28,700	(4/)	5	--	--
Ecuador	241	989	--	--	--	--
France	76	619	--	--	--	--
Germany	69	129	61	626	1,170	265
Honduras	4	10	--	--	--	--
Japan	84	57	1	12	724	384
Korea, Republic of	1,490	967	--	--	--	--
Malaysia	422	3,950	--	--	--	--
Mexico	4,540	11,500	139	1,180	--	--
Netherlands Antilles	--	--	--	--	--	--
Nicaragua	--	--	--	--	--	--
Norway	--	--	71	541	--	--
Panama	266	1,460	--	--	--	--
Peru	144	1,460	--	--	--	--
South Africa	15	200	--	--	348	1,770
St. Vincent and the Grenadines	317	208	--	--	--	--
Switzerland	2	23	22	215	13	103
Taiwan	63	142	--	--	1	8
Ukraine	--	--	--	--	--	--
United Kingdom	10	86	3	34	52	93
Other	281	1,630	55	210	82	472
Total	30,500	94,100	5,500	48,700	9,400	59,700

-- Zero.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Includes base metal ores, concentrates, and matte destined for refining.

3/ Bullion also moves in both directions between U.S. markets and foreign stocks on deposit in the Federal Reserve Bank. Monetary gold excluded.

4/ Less than 1/2 unit.

Source: U.S. Census Bureau.

TABLE 6  
GOLD: WORLD MINE PRODUCTION, BY COUNTRY 1/ 2/

(Kilograms)

Country	1995	1996	1997	1998	1999 e/
Argentina	837	723	2,289	20,400 r/	38,515 3/
Armenia e/	300	244 3/	500	350	400
Australia	253,504	289,530	314,500	310,070 r/	302,580 3/
Belize e/	5	5	5	6	6
Benin e/	300	300	500	500	500
Bolivia	14,405	12,634	13,292	14,444 r/	11,787 3/
Botswana	86	5	28	1 r/	1
Brazil 4/	64,424	60,011	58,488	49,567 r/	40,900 3/
Bulgaria	3,100 e/	3,390 e/	1,020 r/	1,213 r/	1,500
Burkina Faso e/	3,000 5/	4,000 5/	1,450	1,100 r/	2,700
Burundi e/	2,000	2,200	1,500	1,500	1,500
Burma	369 r/	241 r/	388 r/	410 r/	382 3/
Cameroon e/	800	1,000	1,000	1,000	1,000
Canada	152,032	166,378	171,479	165,599 r/	158,275 p/
Central African Republic e/	97 3/	90	90	100	100
Chile	44,585	53,174	49,459	44,980	45,663 3/
China e/	140,000	145,000	175,000	178,000	170,000
Colombia	21,136	22,073	18,811	18,813	19,000
Congo (Brazzaville) e/	12	10	10	10	10
Congo (Kinshasa) e/ 6/	10,000 r/	8,200 r/	9,600 r/	4,800 r/	4,000
Costa Rica	400 e/	510 e/	502 r/	483 r/	300
Cote d'Ivoire	1,983	1,883 5/	2,419 5/	3,400 r/	3,200
Cuba e/	184 3/	250	250	1,000	1,000
Dominican Republic	3,281	3,659	2,349	1,424	651 3/
Ecuador e/ 5/	7,410	7,208 3/	3,070	3,500 r/	4,000
El Salvador	--	--	110	98	100
Eritrea	59	98	350	573 r/	500
Ethiopia 7/	4,500	2,500 5/	3,000 e/	2,500 r/	2,000
Fiji	3,496	4,452	4,671 r/	3,690 r/	4,500
Finland	2,061	3,070	3,000 e/	3,000 e/	3,000
France	4,615	5,651	4,350	4,500 e/	5,000
French Guiana (Guyane)	3,000	3,000 e/	3,000 e/	3,000	3,000
Gabon e/ 8/	70	70	70	70	70
Georgia e/	500	500	700	700	2,000
Ghana	53,087	49,211	54,662 r/	72,540 r/	81,000
Guatemala e/	30	30	100	100	50
Guinea	7,863	6,838	7,100 r/	11,700 r/	13,300
Guyana	9,005	12,006	13,521	13,500 e/	13,500
Honduras e/	110	142 3/	150	150	150
India 9/	2,203	2,449	2,750 r/	2,383 r/	2,400
Indonesia 10/	64,031 r/	83,564 r/	86,927 r/	124,018 r/	130,000
Iran	630 r/	640 r/	684 r/	822 r/	800
Japan	9,185	8,627	8,384	8,601	9,405 3/
Kazakhstan e/	18,200	12,500	18,700 r/	18,000 r/	22,000
Kenya	170 e/	300 e/	440 r/	388 r/	400
Korea, North e/	5,000	5,000	5,000	5,000	5,000
Korea, Republic of 9/	13,418	14,096	14,852	22,822	25,730 3/
Kyrgyzstan e/	850	1,500	17,400 3/	22,000	20,000
Liberia e/	800	700	500	800 r/	1,000
Madagascar e/	38 3/	50	50	50	50
Malaysia	3,162 r/	2,830	4,487 r/	3,394 r/	3,449 3/
Mali e/	7,800	8,400	18,400 r/	22,800 r/	25,700
Mauritania	1,196	189	--	--	--
Mexico	20,292	24,477	26,001	25,427	22,477 p/
Mongolia	4,504	6,976	8,451 r/	10,040 r/	10,038 3/
Morocco	580	482	450 e/	450 e/	450
Mozambique	6,800	67	6 r/	17 r/	20
Namibia	2,394	2,145	2,417 r/	1,882 r/	2,100
New Zealand	12,132	11,879 r/	11,359 r/	7,700 r/ e/	7,100
Nicaragua	1,316	1,500 r/	2,562 r/	3,834 r/	2,700
Niger e/	1,000	1,000	1,000	1,000	1,000
Nigeria e/	5	6	6	10	10

See footnotes at end of table.

TABLE 6--Continued  
GOLD: WORLD MINE PRODUCTION, BY COUNTRY 1/ 2/

(Kilograms)

Country	1995	1996	1997	1998	1999 e/
Oman	591	576	575	575 e/	575
Panama	1,100 e/	834	1,202	1,500 r/ e/	1,500
Papua New Guinea	53,405	51,119	45,418 r/	64,106 r/	61,293 3/
Peru 11/	57,744	64,788	76,361	94,215 r/	128,088 3/
Philippines	27,144	31,800	33,800 e/	34,038 r/	31,027 3/
Poland	510	598	435 r/	600 e/	600
Romania e/	4,000	4,000	4,000	4,000	4,000
Russia	132,170	123,000	115,000 e/	114,000 r/	125,870 3/
Rwanda e/	26	25	25	20	20
Saudi Arabia	8,080	7,530 r/	7,260 r/	9,000 r/	9,000
Senegal e/	550	600	550	600	400
Serbia and Montenegro e/	3,040 3/	3,000	3,000	2,684 r/	1,260
Sierra Leone 12/	4	16	10 e/	15 r/	30
Slovakia	518	540	458	340 r/	300
Solomon Islands	25	25 e/	25 e/	1,035 r/	3,000
South Africa	523,809	496,846	491,680	464,391 r/	449,472 3/
Spain	4,131	2,763	1,824	3,295 r/	3,600
Sudan e/	3,700	4,500	5,000	5,000	6,000
Suriname e/	300	300	300	300	300
Sweden	6,528	6,145 r/	6,777 r/	5,944 r/	4,400 3/
Taiwan 9/	11	11	9	10 e/	9
Tajikistan	1,000 e/	1,100 e/	2,550	3,000	2,700
Tanzania	320	318	300	720 r/	6,100
Turkey e/ 13/	1,200	1,200	1,000	1,000	1,200
Uganda	1,506	2,954	3,000 e/	2,500 e/	2,500
United States	317,000	326,000	362,000	366,000	341,000 3/
Uruguay e/	900	1,000	2,800 r/	1,985 r/ 3/	2,000
Uzbekistan e/	65,000	72,000	81,700	80,000 3/	85,000
Venezuela	7,110	11,719	22,322	7,248	10,000
Vietnam	72	1,000	1,000	1,000 e/	1,000
Zambia 14/	91	119	290	765 r/	740
Zimbabwe	23,959	24,772	24,156	25,175	29,700
Total	2,230,000 r/	2,300,000 r/	2,450,000 r/	2,520,000 r/	2,540,000

e/ Estimated. p/ Preliminary. r/ Revised. -- Zero.

1/ World totals, U.S. data, and estimated data are rounded to no more than three significant digits; may not add to totals shown.

2/ Table includes data available through August 11, 2000.

3/ Reported figure.

4/ Officially reported figures are as follows, in kilograms: Major companies: 1995--40,951; 1996--41,142; 1997--41,062; 1998--37,307 (revised); and 1999--37,800. Garimpos 1995--23,473; 1996--18,869; 1997--17,426; 1998--11,780 (revised); and 1999--3,100.

5/ Includes undocumented artisanal production.

6/ Formerly Zaire.

7/ Year ending July 7 of that stated.

8/ Undocumented artisanal production.

9/ Refinery output.

10/ Excludes production from so-called people's mines, which may be as much as 18,000 kilograms per year, but includes gold recovered as byproduct of copper mining.

11/ Includes documented production from placer artisanal production.

12/ Data are based on official exports and do not reflect gold moved through undocumented channels.

13/ Indicates byproduct of base metals.

14/ Year beginning April 1 of that stated. Byproduct of copper production by Zambia Consolidated Copper Mines Ltd. only. Some additional artisanal production was reported, but data are insufficient to make reliable estimates.