

GOLD

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Domestic gold mine production increased to a record level—nearly 11% above the previous all-time high reached in 1993. Primarily, this growth was the result of a significant amount of new capacity that had been in preparation during the previous 2 to 3 years before coming on-stream. The United States has been the second largest producer (behind South Africa) since 1991, when U.S. production surpassed that of the Soviet Union for the first time in nearly five decades. Nevada produced three-fourths of domestic production; the remaining output came from 11 other States. Although the majority of the Nation's gold mines were in the Western States, one was operating in South Carolina. Gold was produced at about 120 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. Of the gold produced in the United States, 30 mines yielded 92%. The value of U.S. gold mine production was more than \$3.4 billion.

Domestic gold exploration activity, which had been increasing during the previous 3 years, dropped considerably on a total dollar basis; the percentage as a share of worldwide exploration, however, increased after more than 4 years on a downward trend. U.S. industry's exploration spending decreased by about 36%, to an estimated \$103 million from \$160 million in 1997. U.S. gold producers also spent less on exploration in Australia and the South Pacific, reducing expenditures by 13% in 1998 compared with 26% in 1997 (American Metal Market, 1999).

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 1998, estimated uses of gold were jewelry and arts, 79%; electronics, 4%; dental, 2%; and other industrial, 15%.

According to the World Gold Council (1999, p. 2), 1998 marked the seventh consecutive year of unit sales increases for gold jewelry in the United States. Total U.S. gold jewelry sales reached \$13.7 billion, up by 8% from sales in 1997.

Trade in refined bullion composed 92% of U.S. gold imports and 82% of exports; net exports of bullion dropped to 173,000 kilograms (kg), down by about 13% from that of 1997. As shown in tables 4 and 5, Canada provided more than one-third of the bullion imported, and the United Kingdom was the destination for about one-half of the bullion exported.

The dollar price for gold decreased throughout the year. The Engelhard Corporation's daily price of gold ranged from a low

of nearly \$275 per troy ounce¹ on August 28 to a high of about \$314 on April 24. The average for the year was, to the nearest dollar, \$295. The previous year's prices ranged from about \$298 to \$368 and averaged \$332.

By the second quarter, 12-month London gold lease rates began to drop from more than 2% and continued to drop throughout the year to less than 1.6%. Short-term lease rates, however, reached historic lows of 0.7% during August and October before climbing back to 1.4% in December (CRU International Ltd., 1999, p. S-13).

Total world gold mine production increased to a record level—more than 6% above the previous all-time high reached in 1993. Despite a fourth successive annual decline in production, South Africa remained the largest of more than 80 gold-producing nations, followed by the United States, Australia, Canada, and China. Identified world gold resources at yearend 1998 were estimated to be 89 million kilograms (Mkg), of which 15% to 20% was byproduct resources; the world reserve base was estimated to be 77 million tons, and reserves, 48 Mkg (R.P. Ashley, Gold Resource Specialist, U.S. Geological Survey, oral commun., 1998). Resource and reserve terminology used here are defined in Mineral Commodity Summaries, which is published annually by the U.S. Geological Survey. South Africa had about 50% of the resources and reserve base and 38% of the reserves. The United States had about 12% of world resources, 8% of the reserve base, and 12% of the reserves.

About 15% of all gold mined to date is thought to have been lost, used in dissipative industrial uses, or otherwise unaccounted for or unrecoverable (Thomas and Boyle, 1986, p. 6). Therefore, of an estimated 125 Mkg of gold mined in historical times through 1998, 106 Mkg of gold remain, with about 34 Mkg held by central banks as official stocks and about 72 Mkg held privately as bullion, coin, and jewelry.

Production

Domestic mine production data for gold were derived by the U.S. Geological Survey 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 kinds of data from companies that responded annually. Of the 117 lode gold producers in operation to which a survey request was sent, 108 responded, representing more than 92% of the total gold shown in tables 1 and 2. The individual company production and performance data cited in table 3 and

¹Where used by itself elsewhere in this report, ounce refers to troy ounce; 1 kilogram of gold is equivalent to 32.1507 troy ounces. Multiply troy ounces by 0.03110348 to convert to kilograms.

cited in this report were obtained from published sources, such as company annual reports.

Of the total domestic gold produced during 1998, more than 93% was extracted from gold ore, and the remaining 7% 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 18,300 kg (588,000 ounces) worth \$173 million in 1998 from an estimated 18,400 kg (592,000 ounces) worth \$207 million in 1997, or an approximate increase in production of 0.5% and an decrease in associated value of 16% (Szumigala and Swainbank, 1999). An estimated 117 placer mines were operating in 1998, about 6 fewer than in 1997. Placer production dropped to 3,000 kg (95,000 ounces) from 3,400 kg (109,000 ounces) of gold.

The underground Fort Knox gold mine near Fairbanks began to produce gold in 1997. Kinross Gold Corporation, the owner and operator, reported that the mine produced about 11,400 kg (365,000 ounces) of gold in 1998, making it the country's seventh largest gold producer (Kinross Gold Corporation, 1999, p. 16).

Operations at the Greens Creek Mine on Admiralty Island, off Juneau, continued a second year at full production level. Ore from the underground trackless mine was milled at the mine site. The mill produced gold and silver doré and lead, zinc, and bulk concentrates. Hecla Mining Company (1999, p. 14) reported that the mine produced almost 1,900 kg (61,000 ounces) of gold. Greens Creek was a joint venture between Kennecott Greens Creek Mining Company (70.3%) and Hecla Mining (29.7%).

Dakota Mining Corporation's Illinois Creek gold mine in west-central Alaska continued leaching ore left on the leach pads from 1997 at a rate of about 40 kilograms per week (Szumigala and Swainbank, 1999).

A drilling program at the Pogo joint venture between Teck Corporation and Sumitomo Metal Mining Co., Ltd. defined additional gold resources in the eastern interior region (Wilburn, 1999, p. 47).

Arizona.—Addwest Minerals International Limited's Gold Road Mine, an underground mine in Mohave County, produced 500 kg (16,000 ounces) of gold. On June 26, the mine was officially shut down (Addwest Minerals International Limited, 1998, p. 1).

California.—Gold production in California reportedly declined by almost 23% from that of 1997, as shown in table 2. California's largest gold mine, Newmont Gold Company's Mesquite Mine, near Brawley, yielded about 4,800 kg (150,000 ounces) of gold from oxide and sulfide ores that were mined by open pit methods (Newmont Gold Company, 1999, p. 188). 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 500 kg (16,300 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 one more year, after which reclamation will begin. Glamis Gold, through its wholly owned Glamis Rand Mining Company, also produced 2,700 kg (87,000 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, 1999, p. 6-7).

Near the Nevada-California State line, in San Bernardino County, the Castle Mountain Mine produced an estimated 2,800 kg (90,000 ounces) of gold (Viceroy Resource Corporation, 1999, p. 9). Castle Mountain was a joint venture between Viceroy Resource Corporation (75%) and MK Gold Company (25%).

Colorado.—Gold production in the State was 5% higher owing to an 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 (1999, p. 1) reported that this open pit mining operation produced 7,200 kg (230,000 ounces) of gold in 1998.

Idaho.—In spite of a 3% increase in production from Meridian Gold Inc.'s Beartrack Mine near Salmon, total gold production for Idaho slipped by almost 25% (Meridian Gold Inc., 1999, p. 11). Beartrack produced more than 3,400 kg (110,000 ounces) of gold in 1998. Pegasus Gold Corporation's Black Pine Mine in Cassia County was mined out during the fourth quarter of 1997; it produced 100 kg (3,200 ounces) from stockpiled ore in 1998 versus 1,400 kg (45,000 ounces) in 1997 (Pegasus Gold Corporation, 1999, p. 10).

Gold production at the Grouse Creek gold mine near Challis declined by more than 85%, to 120 kg (4,000 ounces) in 1998 from 840 kg (27,000 ounces) in 1997. During the year, the mine was placed on care-and-maintenance status (Hecla Mining Company, 1999, p. 158).

Montana.—Exploration for gold continued to fall because few companies had funds available for investment given the low gold prices. What funds that were available were redirected from Montana as companies reported difficulty in securing finances on Montana projects (McCulloch, 1999).

A new U.S. gold company, Apollo Gold Co., emerged from the reorganization of Pegasus Gold, which sought protection under U.S. bankruptcy laws on January 16, 1998. Pegasus and 13 of its subsidiaries will be liquidated as Apollo takes control of 3 former Pegasus mines—Diamond Hill and Montana Tunnels in Montana and Florida Canyon in Nevada (Platt's Metals Week, 1999a).

Placer Dome Inc.'s wholly owned Golden Sunlight Mine near Whitehall was Montana's largest gold-producing mine with 4,900 kg (158,500 ounces) in 1998, about the same as in 1997 (Placer Dome Inc., 1999, p. 35). The company indicated that it was working with the Montana Department of Environmental Quality to complete an environmental impact statement for an expanded Stage 5 pit that will extend the main pit life by 6 years.

The State of Montana banned the use of cyanide for any new gold or silver open pit mines using heap-leaching or vat-leaching techniques. The ban was a result of the voters' approval of Initiative 137, which won by a 53% to 47% margin in November. The law will also affect expansion plans at existing mines with cyanide ore processing, as well as several developing gold and silver projects in Montana, including the

controversial McDonald project near Lincoln (Platt's Metals Week, 1998).

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 244,000 kg (7.8 million ounces).

Newmont Gold, the largest gold mining company in North America, produced 86,100 kg (2.8 million ounces) of gold from 17 open pit operations and 5 underground mines centered in Elko, Eureka, Humboldt, and Pershing Counties (Newmont Gold Company, 1999, p. 187). In May, Newmont Gold marked 33 years of production on the Carlin Trend, which it discovered in the mid-1960's. The company's extensive operations along the Carlin Trend included open pit mines from which nearly 369 billion kilograms of ore and waste was mined during the year, accounting for more than 80% of Newmont's Carlin Trend production. Mining began at its new Rosebud underground mine, located in Pershing County, in April 1997 (Newmont Gold Company, 1998, p. 7). To recover gold from the widely varying grades and many types of ore it is mining along the Carlin Trend in 1998, Newmont Gold used several processing methods. The company's \$350 million refractory (sulfidic and carbonaceous) ore treatment plant, which was reported to be the largest facility of its kind in the world, processed about one-fourth of the company's production in Nevada—21,800 kg (700,000 ounces) of gold during the year, a 30% increase from 1997. On May 5, the first sulfidic ore was processed through the first of two new autoclaves at Twin Creek's Sage Mill. The second autoclave was commissioned in October. The twin autoclaves, the industry's largest, have a combined capacity of 4 Mkg per day.

Barrick Gold Corporation was the Nation's second largest gold mining company and reportedly recovered 47,000 kg (1.5 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 26,400 kg (847,000 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, 1998b). These Barrick operations on the Carlin Trend were developed within a 2,800-hectare landholding known as the Goldstrike property. In addition, Barrick's wholly owned Bullfrog Mine near Beatty produced nearly 6,500 kg (208,600 ounces) of gold (Barrick Gold Corporation, 1999, p. 25).

Northwest of Elko, Independence Mining Company, Inc. and Meridian Gold produced about 11,000 kg (343,000 ounces) of gold at their Jerritt Canyon Mine, the Nation's eighth largest gold mine (Meridian Gold Inc., 1999, p. 11). At the Getchell Mine, in Humboldt County, Getchell Gold Corporation produced 5,000 kg (160,000 ounces) of gold from its underground operations (Getchell Gold Corporation, 1999, p. 8). 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 produced 1,200 kg (39,000 ounces) (Battle Mountain Gold Company, 1999, p. 6); the McCoy/Cove gold and silver mine, which produced 5,200 kg (167,000 ounces) (Echo Bay Mines Limited, 1999, p. 6); and the country's third largest gold mine, the Cortez Mine (Placer Dome (60%) and Kennecott Corporation (40%)), which produced 35,400 kg (1.1 million ounces) (Placer Dome Inc., 1999, p. 35). Mining permits for the Cortez joint venture's South Pipeline project are expected by the end of 1998, and development was tentatively planned for 2002. With a 20% royalty held by Royal Gold, Incorporated and lower ore grades than at the Pipeline project, the owners appeared to be in no hurry to develop the South Pipeline (diGesú and others, 1998).

At Round Mountain, about 95 kilometers north of Tonopah, the Round Mountain Gold Corporation Mine property of Echo Bay Mines Limited, the country's fifth largest mine, produced about 15,900 kg (511,000 ounces) of gold during the year (Echo Bay Mines Limited, 1999, p. 4).

Placer Dome merged with Getchell Gold of Denver, CO, which operated the Getchell and the Turquoise Ridge gold mines in Nevada. Placer Dome planned to complete the development of the new Turquoise Ridge gold mine and to expand the mill to 6 Mkg of ore per day (Metal Bulletin, 1998).

Battle Mountain Gold Company continued its exploration project by extending the Phoenix zone at the Battle Mountain complex, which added about 31,000 kg (1 million ounces) of gold to its reserve base. In addition, Barrick Gold continued to develop the Rossi-Storm deposit as Franco-Nevada Mining Corporation Limited's and Euro-Nevada Mining Corporation Limited's Ken Snyder Mine poured its first gold on December 9. Ken Snyder's full commercial production rate was expected to be 8,000 kg (260,000 ounces) per year of gold (Wilburn, 1999, p. 47).

South Dakota.—Gold production decreased by almost 30% compared with that of 1997. Homestake Mining Company's 120-year-old Homestake Mine at Lead was again the largest gold-producing mine in South Dakota and the ninth 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 8,600 kg (277,000 ounces) of gold at a reported cash production cost of \$249 per ounce (Homestake Mining Company, 1999, p. 24).

Goldcorp Inc. operated an open pit gold mine near Lead, the Wharf Mine, which produced about 3,400 kg (110,000 ounces) of gold (Goldcorp Inc., 1999, p. 71).

Utah.—Rio Tinto Limited's Bingham Canyon Mine, which was operated by Kennecott Utah Copper Corp., produced about 11,400 kg (366,000 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 sixth largest gold producer in 1998. Kennecott also operated the nearby Barney's Canyon Mine, an open pit and heap-leaching operation that produced 2,600 kg (83,000 ounces) of gold (Rio Tinto Limited, 1999, p. 13).

Washington.—Echo Bay Mines' Kettle River underground mine, located in the northeastern part of the State, produced 3,500 kg (114,000 ounces) of gold in its eighth year of production (Echo Bay Mines Limited, 1999, p. 8).

The State Department of Ecology approved certain key water rights for the Crown Jewel project in November, but additional State and Federal permits and approvals are required. In addition, legal appeals by special interest groups remain outstanding. If favorable rulings are assumed and no further legal delays take place then, construction could begin in early 1999, with projected annual production of 5,400 kg (175,000 ounces) of gold to follow about 14 months later (diGesú and others, 1998).

World Review

World gold mine production rose significantly in 1998 for the third consecutive year. Increasing production from mines in Australia, North America, and South America has been enough to help offset a continuing sharp 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 1998 was 4.1 Mkg (133 million ounces) compared with the previous year's total supply of 4.2 Mkg (136 million ounces) (Klapwijk and others, 1999, p. 7). Gold Fields Mineral Services reported increases in mine production (3%), official sector sales (10%), and old gold scrap components of supply (75%) mainly attributable to distress and price-related sales out of East Asia (Klapwijk and others, 1999, p. 7).

On the demand side, Gold Fields Mineral Services reported no dramatic increases. Bar hoarding reverted back to the 1996 level, or about half of the 1997 level, and jewelry fabrication fell by 6%, mainly caused by extremely weak East Asian demand. In 1998, an economic crisis dropped East Asia's demand by 37%, which accounted for about 20% of the total world demand in 1997 (Klapwijk and others, 1999, p. 7).

With regard to gold exploration, the Metals Economics Group, Halifax, Canada, determined from its annual survey of worldwide exploration budgets for 182 companies that \$1.56 billion (55%) of the 1998 world exploration budget total for nonferrous metals was directed to gold, with 144 companies reporting active gold programs; this was a \$1.1 billion (40%) decrease from the \$2.6 billion (65% of the total) reported for gold exploration in 1997 (diGesú and others, 1997). As in the preceding 4 years, Latin America received the highest expenditure gold—\$441.2 million (29%) of the 1998 reported world total exploration dollars (diGesú and others, 1998).

Australia.—Australian gold mine production dropped only by about 1% from its highest level ever in 1997, helping Australia retain its position as the world's third largest gold-producing nation. Of the 312,000 kg (10 million ounces) of gold mined in 1998 (Australian Journal of Mining, 1999, p. 8), Western Australia, Queensland, and New South Wales accounted for about 74%, 11%, and 7%, respectively (Australian Bureau of Agricultural and Resource Economics, 1999, 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.

More than 10 of the Australian mines were exhausted, shut down, or placed on care-and-maintenance because of high costs

and/or depletion of economic reserves. Granny Smith, Sunrise Dam, and Kanowna Belle continued to be low-cost operations. The lowest costs in Australia were reported by the Sunrise Dam operation—at \$92 per ounce (Klapwijk and others, 1999, p. 45).

The Australian gold industry received a pledge of assistance from the Government. A meeting between Government and industry representatives led to an agreement not to cap the diesel fuel rebate. This announcement came a year after the Government proposed the introduction of changes in the rebate regime; the Australian mining industry protested the proposal (American Metal Market, 1998a).

The Paraburdoo gold project at Western Australia's Mount Olympus deposit moved into full production. The first gold was poured on December 30. The treatment plant was scheduled to reach 600 Mkg per year of ore. The Mount Olympus deposit will provide plant feed for 3.5 years, producing about 5,000 kg (180,000 ounces) of gold (Platt's Metals Week, 1999c).

Brazil.—During 1998, delays in investing in new mining projects caused gold production to fall for the 10th consecutive year, to about the 55-ton (1.8-million-ounce) level for the first time since 1982. Output from the informal mining sector, the garimpeiros, was estimated to have dropped to as low as 14,000 kg (450,000 ounces) of gold. Low prices had a devastating effect on junior exploration companies and small producers; most of the formal mining sector, however, coped admirably, 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 more than 3%, reversing the upward trend from 1995 through 1997. Gold was produced at about 40 lode gold mines, which accounted for 92.2% of the total gold output. Base-metal mines and placer mines accounted for 6% and 1.8%, respectively. During the year, three gold mines began operation and two mines shut down. Canada's principal gold-producing Provinces were, in descending order of output, Ontario, Quebec, British Columbia, and Manitoba. Gold was also produced in New Brunswick, Newfoundland, Saskatchewan, the Northwest Territories, and Yukon Territory (Patrick Chevalier, Natural Resources Canada, written commun., 1999).

The Royal Canadian Mint introduced a 24-carat, 1-ounce gold wafer. The wafer, an investment product, was added to the Gold Maple Leaf coin collection and could be purchased individually in a blister pack (Gold News, 1998a).

Chile.—Gold production in Chile declined by 12%, to 45,000 kg (1.5 million ounces). Short-term redirection of mining towards Chimberos, a nearby high-grade silver deposit, caused lower gold output at La Copia, Chile's premier gold mine. In addition, the last gold was extracted from Kinross Gold's Guanaco Mine (Klapwijk and others, 1999, p. 37).

India.—The Indian Government raised the import duty on gold bullion by 60%. Gold prices in India reacted sharply, soaring by Rupee 150 to close at Rupee 4,350 per 0.1 kg of gold. The duty increase was aimed at controlling gold imports, which increased by 28% during the first 11 months of 1998 (Platt's Metals Week, 1999b).

Bombay remained the main trading center for jewelry manufacturing in the world's largest gold-consuming nation, but the direct route for imported gold reportedly has been shunned. Higher local taxes in Bombay and alternative nearby well-developed centers were the reasons that gold was first imported from elsewhere and then redirected to Bombay. According to the World Gold Council, India consumed 737,000 kg (24 million ounces) of gold in 1997, of which 526,000 kg (17 million ounces) was imported through official channels and the rest was smuggled or obtained through recycling of scrap that was exported to India (American Metal Market, 1998b).

India reported gold jewelry exports of more than \$800 million in the fiscal year ending March 31, 1998. Although about 7% more than in 1997, the amount of gold jewelry exported was short of the official target of \$850 million (Platt's Metals Week, 1998).

Indonesia.—Gold output was estimated to have risen by 37% in 1998 and by more than 220% since 1993. Much of this growth was attributed to PT Freeport Indonesia's Grasberg copper-gold mine in West Irian, which increased its production of byproduct gold by 32,000 kg, to 88,000 kg. This made Grasberg the largest gold-producing mine in the world. A further increase was expected in 1999 as the newly commissioned fourth concentrator achieves full output. Gold output was also achieved at the Minahasa Mine, which had its first full year of operation in 1997 (Klapwijk and others, 1999, p. 38).

Indonesia's informal mining sector recorded much higher gold output in 1998, because more people turned to mining because of either economic duress or astronomical local prices (Klapwijk and others, 1999, p. 39).

Mexico.—Gold production remained at close to 26,000 kg (840,000 ounces) in 1998. The La Herradura Mine, a joint venture of Newmont Mining Company and Peñoles Group, poured its first gold in July. Annual gold production will reach about 4,000 kg (130,000 ounces) (Klapwijk and others, 1999, p. 37).

Papua New Guinea.—Gold production in Papua New Guinea rose after five consecutive years of decline. Lihir Gold Limited's Lihir Mine on Lihir Island in the Bismark Archipelago had its first full year of gold production, and although output rose to more than 16,000 kg (510,000 ounces), it fell short of capacity because of technical problems. At older gold mines, operations returned to normal after one of the worst droughts in history had affected gold output at the Ok Tedi and the Porgera Mines. Gold production increased beyond pre-drought levels at all operations except the Misima Mine, where mining ceased in line with the mine plan (Klapwijk and others, 1999, p. 39).

Peru.—For the third consecutive year, gold production in Peru exceeded that in Brazil, making it the largest gold producer in Latin America at more than 89,000 kg (2.9 million ounces) of gold, which was 17% more than that of 1997. 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 more than 42,000 kg (1.4 million ounces) of gold in 1998. The Yanacocha Mine, which was the largest gold mining operation in Latin America for the fourth consecutive

year, yielded gold at cash costs of \$95 per ounce in 1998. In addition, production began at Hochschild Cia Minera's Sipan and Ares Mines, where gold output totaled more than 8,000 kg (260,000 ounces) during 1998. A third, smaller mine, Minera Erika, also began producing gold during 1998. Established Peruvian gold mines performed well; the Minera Poderosa and the Retamas Mines recorded gold production increases of 15% and 5%, respectively (Klapwijk and others, 1999, 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. The majority of Russia's production 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 fell by 10%, to 104,000 kg (3.3 million ounces) of gold. This was the fourth consecutive year of declining production, reflecting the continued financial crisis prevailing in the country. The only regions to record an increase in gold production were the Magadan Oblast and the Buryat Republic. The Ministry of Finance announced its intention to prefinance and obtain preemptive rights to purchase 60,000 kg (1.9 million ounces) of gold, but an economic crisis that gripped the country in the second half of the year rendered this purchase impossible. Russian commercial banks purchased about 90,000 kg (2.9 million ounces) of gold, up from 41,000 kg (1.3 million ounces) in 1997 (Klapwijk and others, 1999, p. 40).

South Africa.—In 1970, the continent of Africa was the source of 81.8% of the world's gold output, but with the increase in production in Australia and North America, Africa's share had declined to less than 19% in 1998. Gold production in South Africa, the world's largest gold-producing nation, declined for the fourth consecutive year, to 474,000 kg (15.2 million ounces) of gold, close to 4% lower than that of 1997. During the last 2 years, 100,000 jobs have been lost through active retrenchment, as well as natural attrition. Much of management's efforts have been directed towards ore reserve management, with a continued emphasis on training and development (Klapwijk and others, 1999, p. 33).

The tonnage and grade of ore milled during 1998 by the nearly three dozen mines comprising the membership of the Chamber of Mines of South Africa amounted to almost 83 billion kilograms at a grade of 5.09 grams of gold per ton of ore; this compares with a higher total tonnage of 93 billion kilograms, which was at a slightly lower grade of 4.95 grams per ton, milled by Chamber members in 1997.

Of the top 15 gold-producing companies in the world in 1998, 4 were South African. AngloGold Limited, formed from the gold interests of Anglo American Corp. of South Africa Ltd. (AAC) in midyear, became the leading gold-producing company in the world. AAC had owned the Freegold and the Vaal Reefs Mines. Gold Fields Limited, the product of a merger between Gold Fields of South Africa Ltd. (GFSA) and Gencor Limited in 1997, was third in the world. GFSA had owned the Driefontein and the Kloof Mines. The other two companies were Harmony Gold Mining Company Limited (11th) and Avgold Limited (15th) (Klapwijk and others, 1999, p.

31).

Uzbekistan.—Following 2 years of consistent growth in gold output, production in Uzbekistan decreased to about 80,000 kg (2.6 million ounces). This modest decrease was largely a result of lower output from Newmont Gold's efforts at Zarafshan, where production from the 218 billion kilograms of low-grade stockpiled material, which had been accumulated during 27 years of mining at the Muruntau Mine, dropped to less than 11,000 kg (350,000 ounces) of gold. The Muruntau Mine was considered to be the largest open pit gold mine in the world (Klapwijk and others, 1999, p. 40).

Outlook

The Gold Institute reported that although open pit mines still produced the majority of gold in the United States, underground mines were a growing trend. In 1997, 22% of the 18 largest mining companies' production came from underground mines. By 2000, 33% of U.S. production is expected to come from underground mines.

Central bank gold sales continued to generate negative sentiment in the gold markets, where the price of gold fell to a 19-year-low trading range. In addition, world gold exploration expenditures in 1998 will have serious implications. As mentioned previously, 40% less was spent on gold exploration in 1998 than in the peak year of 1997 after five consecutive years of significant increases. Lower gold exploration expenditures are expected to continue with the prediction of low prices for gold. As less gold is discovered and old gold mines are closed, a gap may be created between the world's future gold supply and its demand thereby creating future gold shortages.

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TABLE 1
SALIENT GOLD STATISTICS 1/

		1994	1995	1996	1997	1998
United States:						
Mine production	kilograms	327,000	317,000	326,000	362,000 r/	366,000
Value	thousands	\$4,050,000	\$3,950,000	\$4,090,000	\$3,870,000	\$3,480,000
Gold recovered by cyanidation:						
Extracted in vats, tanks, and closed containers 2/	kilograms	169,000	157,000	170,000 r/	201,000 r/	238,000
Leached in open heaps or dumps 3/	do.	119,000	121,000	124,000 r/	132,000 r/	103,000
Refinery production:						
Ores, concentrates and dore	do.	241,000	NA	NA	270,000	277,000
Recycled materials (new and old scrap)	do.	148,000	NA	NA	100,000	163,000
Imports for consumption, refined	do.	96,400	111,000	143,000	194,000	257,000
Exports, refined	do.	334,000	277,000	406,000	391,000	430,000
Net deliveries from foreign stocks in Federal Reserve Bank of New York	do.	217,000	244,000	373,000	143,000	310,000
Stocks, December 31:						
Industry 4/	do.	32,700	NA	NA	(5/)	(5/)
Commodity Exchange (Comex) 6/	do.	49,100	45,400	20,700	15,200	25,200
Department of the Treasury 7/	metric tons	8,140	8,140	8,140	8,140	8,130
Volume of U.S. Gold Futures Trading 8/	do.	26,400	24,200	14,300	29,700	28,600
Department of the Treasury: 9/						
American Eagle gold coin	kilograms	10,900	13,900	10,700	20,000	49,200
Other Numismatic gold coins	do.	852	1,150	1,190	500	86
Consumption in industry and the arts	do.	76,100	NA	NA	137,000	219,000
Apparent demand, refined 10/	do.	294,000	NA	NA	265,000	667,000
Price: Average per troy ounce 11/		\$385.42 r/	\$385.50 r/	\$389.09 r/	\$332.39 r/	\$295.24
Employment, mine and mill only 12/		14,100	14,700	16,900	16,300	13,400
World:						
Production, mine	kilograms	2,250,000 r/	2,220,000 r/	2,280,000 r/	2,420,000 r/	2,480,000 e/
Official bullion reserves 13/	metric tons	34,800	34,600	34,400	34,000	33,600

e/ Estimated. r/ Revised. NA Not available.

1/ Data are rounded to 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/ Data under review.

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

7/ Includes gold in Exchange Stabilization Fund.

8/ Comex only.

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

10/ 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.

11/ Engelhard Incorporate Industries quotation.

12/ Data from Mine Safety and Health Administration.

13/ 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	1997	1998
Alaska 2/	18,400 r/	18,300
Arizona	2,140	1,840
California	24,200 r/	18,700
Idaho	7,490	W
Montana	10,200	8,200
Nevada	243,000	273,000
South Dakota	16,400	12,100
Washington	4,040	3,540
Other States 3/	36,200	30,600
Total	362,000 r/	366,000

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

1/ Data may not add to totals shown because of independent rounding.

2/ Production data collected by the State.

3/ Includes Colorado (1997 and 1998), Idaho (1997), New Mexico (1997 and 1998), South Carolina (1997 and 1998), Utah (1997 and 1998), and Wisconsin (1997).

TABLE 3
LEADING GOLD-PRODUCING MINES IN THE UNITED STATES IN 1998, IN ORDER OF OUTPUT 1/

Rank	Mine	County and State	Operator	Kilograms produced
1	Carlin Mines Complex 2/	Eureka, Elko, etc., NV	Newmont Gold Company	82,100
2	Betze-Post/Goldstrike	Eureka, NV	Barrick Gold Corp.	46,600
3	Cortez	Lander, NV	Placer Dome Inc.	35,400
4	Meikle/Goldstrike	Eureka, NV	Barrick Gold Corp.	26,400
5	Round Mountain	Nye, NV	Round Mountain Gold Corp.	15,900
6	Bingham Canyon	Salt Lake, UT	Kennecott Utah Copper Corp.	11,400
7	Fort Knox	Fairbanks, AK	Fairbanks Gold Mining Inc.	11,400
8	Jerritt Canyon	Elko, NV	Independence Mining Company, Inc.	10,700
9	Homestake	Lawrence, SD	Homestake Mining Company	8,630
10	Cresson	Teller, CO	Cripple Creek & Victor Gold Mining Co.	7,170
11	Bullfrog	Nye, NV	Barrick Gold Corp.	6,470
12	McCoy/Cove	Lander, NV	Echo Bay Minerals Co.	5,210
13	Getchell	Humboldt, NV	FirstMiss Gold Inc.	4,960
14	Golden Sunlight	Jefferson, MT	Placer Dome Inc.	4,930
15	Mesquite	Imperial, CA	Newmont Gold Company	4,790
16	Florida Canyon	Lander, NV	Pegasus Gold Corporation	4,760 3/
17	Rosebud	Pershing, NV	The Rosebud Mining Co.	4,070
18	Bald Mountain	White Pine, NV	Placer Dome Inc.	4,050
19	McLaughlin	Napa, CA	Homestake Mining Company	4,000
20	Denton-Rawhide	Mineral, NV	Kennecott Rawhide Mining Co.	3,890
21	Ruby Hill	Eureka, NV	Homestake Mining Company	3,620
22	Kettle River	Ferry, WA	Echo Bay Minerals Co.	3,540
23	Hycroft	Humboldt, NV	Vista Gold Corp.	3,510
24	Beartrack	Lemhi, ID	Meridian Gold Inc.	3,430
25	Wharf	Lawrence, SD	Goldcorp Inc.	3,430
26	Ridgeway	Fairfield, SC	Kennecott Ridgeway Mining Co.	3,080
27	Castle Mountain	San Bernardino, CA	Viceroy Resource Corporation	2,770
28	Rochester	Pershing, NV	Coeur Rochester Inc.	2,760
29	Rand	Kern, CA	Glamis Rand Mining Company	2,710
30	Barney's Canyon	Salt Lake, UT	Kennecott Barney's Canyon Mining Co.	2,580

1/ Data are rounded to three significant digits; these mines accounted for more than 91% of the U.S. gold production in 1998.

2/ Includes production for the Lone Tree, Twin Creeks, and all other Newmont gold mines in Nevada.

3/ Estimated; fourth quarter production assumed to be approximately equal to the average of the production for the prior three quarters.

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

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

Year and country	Ores and concentrates 2/		Dore and precipitates		Refined bullion 3/		Ash and residues		Total		Waste and scrap		Metal powder		Gold compounds	
	Quantity (kilograms)	Value (thousands)	Quantity (kilograms)	Value (thousands)	Quantity (kilograms)	Value (thousands)	Quantity (kilograms)	Value (thousands)	Quantity (kilograms)	Value (thousands)	Quantity (kilograms)	Value (thousands)	Quantity (kilograms)	Value (thousands)	Quantity (kilograms)	Value (thousands)
1997	427	\$4,600	85,300	\$738,000	391,000	\$4,270,000	--	--	476,000	\$5,010,000 r/	60,500	\$538,000	164	\$1,640	123,000	\$12,900
1998:																
Australia	--	--	--	--	47,000	460,000	--	--	47,000	460,000	--	--	--	--	--	--
Bahrain	--	--	12	99	26	188	--	--	38	287	--	--	--	--	3	4
Belgium	--	--	--	--	--	--	--	--	--	--	1,290	13,000	--	--	--	--
Bolivia	--	--	15	152	1,490	14,400	--	--	1,500	14,600	--	--	--	--	--	--
Canada	190	1,490	6,990	55,700	46,700	433,000	--	--	53,900	490,000	32,000	174,000	5	42	724,000	5,780
China	1	15	--	--	508	4,770	--	--	509	4,780	2	20	5	33	17	49
Colombia	--	--	--	--	--	--	--	--	--	--	--	--	6	77	13,100	311
Ecuador	--	--	--	--	38	347	--	--	38	347	--	--	--	--	--	--
France	--	--	26	141	1,140	11,200	--	--	1,170	11,300	392	3,590	--	--	--	--
Germany	50	620	7	48	543	5,100	--	--	600	5,770	1,960	18,400	5	39	248	61
Hong Kong	--	--	571	3,280	3,410	31,700	--	--	3,980	34,900	2	39	--	--	42	233
India	--	--	--	--	23	240	--	--	23	240	2	20	--	--	17	34
Indonesia	--	--	--	--	15	106	--	--	15	106	--	--	--	--	--	--
Israel	--	--	4	45	115	1,080	--	--	119	1,120	10	95	4	31	35,800	911
Italy	--	--	--	--	56	541	--	--	56	541	3,540	17,200	--	--	--	--
Japan	3	34	3	45	64	700	--	--	70	779	4	42	18	257	61	39
Korea, Republic of	--	--	--	--	5,770	53,700	--	--	5,770	53,700	1	5	9	70	61	14
Malaysia	5	50	--	--	79	585	--	--	84	635	--	--	--	--	--	--
Mexico	2	25	86	1,510	25,500	231,000	--	--	25,600	232,000	3	51	33	353	9	7
Netherlands	--	--	(4/)	5	1,400	12,800	--	--	1,400	12,900	--	--	--	--	--	--
Pakistan	--	--	--	--	160	1,450	--	--	160	1,450	--	--	13	145	--	--
Peru	90	632	107	522	3,910	36,000	--	--	4,100	37,100	--	--	--	--	--	--
Philippines	--	--	4	40	25	279	--	--	29	319	--	--	--	--	2	11
Romania	--	--	--	--	18	115	--	--	18	115	--	--	--	--	--	--
Singapore	4	36	61	496	93	1,010	--	--	158	1,540	--	--	2	18	5,170	1,760
Slovenia	--	--	--	--	33	333	--	--	33	333	--	--	--	--	--	--
Sweden	--	--	--	--	1	7	--	--	1	7	1,800	17,100	3	22	--	--
Switzerland	3	20	69,600	641,000	79,600	756,000	--	--	149,000	1,400,000	--	--	3	13	--	--
Taiwan	--	--	5	61	1,500	14,300	--	--	1,510	14,400	57	206	2	18	269	41
Turkey	--	--	--	--	863	8,060	--	--	863	8,060	--	--	--	--	--	--
United Arab Emirates	--	--	--	--	358	3,400	--	--	358	3,400	1	13	--	--	--	--
United Kingdom	51	532	14,000	107,000	209,000	1,950,000	--	--	223,000	2,060,000	17,800	130,000	67	785	1,560	67
Uruguay	--	--	--	--	18	210	--	--	18	210	--	--	--	--	--	--
Venezuela	--	--	--	--	--	--	--	--	--	--	--	--	5	53	1	7
Yugoslavia	--	--	--	--	13	123	--	--	13	123	--	--	--	--	--	--
Other	1	10	2	14	21	202	--	--	24	226	--	--	17	107	3	9
Total	401	3,460	91,600	810,000	430,000	4,030,000	--	--	522,000	4,850,000	58,900	374,000	196	2,060	781,000	9,340

r/ Revised.

1/ Data are rounded to 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: Bureau of the Census.

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

Year and country	Ores and concentrates 2/		Dore and precipitates		Refined bullion 3/		Ash and residues		Total		Waste and scrap		Metal powder		Gold compounds	
	Quantity (kilograms)	Value (thousands)	Quantity (kilograms)	Value (thousands)	Quantity (kilograms)	Value (thousands)	Quantity (kilograms)	Value (thousands)	Quantity (kilograms)	Value (thousands)	Quantity (kilograms)	Value (thousands)	Quantity (kilograms)	Value (thousands)	Quantity (kilograms)	Value (thousands)
1997	1,710	\$18,400	13,700	\$118,000	194,000	\$2,110,000	115	\$1,750	209,000	\$2,250,000	14,100	\$78,600	6,050	\$61,500	15,700	\$72,800
1998:																
Argentina	--	--	1,300	10,100	--	--	--	--	1,300	10,100	--	--	--	--	--	--
Aruba	--	--	--	--	125	1,150	--	--	125	1,150	--	--	--	--	--	--
Australia	10	117	422	1,770	62,400	480,000	15	197	62,800	482,000	5	13	502	4,940	--	--
Austria	--	--	--	--	924	9,220	--	--	924	9,220	--	--	--	--	--	--
Belgium	--	--	6	57	226	2,540	1	5	232	2,600	--	--	--	--	12	2
Bolivia	--	--	--	--	2,220	29,000	--	--	2,220	29,000	3	16	--	--	--	--
Brazil	--	--	--	--	32,700	312,000	--	--	32,700	312,000	--	--	--	--	--	--
Canada	716	5,080	2,570	22,000	96,500	928,000	172	1,180	99,900	956,000	2,260	15,900	8,590	80,100	--	--
Chile	29	288	369	2,890	4,510	42,700	--	--	4,910	45,900	44	445	--	--	--	--
China	--	--	--	--	2	20	--	--	2	20	84	616	--	--	--	--
Colombia	--	--	--	--	2,740	20,800	--	--	2,740	20,800	1,520	13,000	--	--	5,970	48,100
Costa Rica	--	--	--	--	154	1,420	--	--	154	1,420	624	3,920	66	204	--	--
Dominican Republic	--	--	--	--	223	2,100	--	--	223	2,100	5,330	25,000	--	--	--	--
Ecuador	--	--	17	133	71	689	--	--	87	822	467	1,940	--	--	--	--
El Salvador	--	--	--	--	107	907	--	--	107	907	6	9	(4/)	4	--	--
France	--	--	4	37	145	1,450	--	--	149	1,490	31	209	76	761	--	--
Germany	--	--	1	6	7	70	2	15	9	91	50	172	87	815	1,050	371
Ghana	--	--	--	--	97	1,040	--	--	97	1,040	--	--	30	105	--	--
Guyana	--	--	--	--	218	2,130	--	--	218	2,130	54	602	1	6	--	--
Hong Kong	--	--	--	--	--	--	--	--	--	--	127	1,100	--	--	--	--
Indonesia	306	2,860	--	--	--	--	--	--	306	2,860	2	15	--	--	--	--
Ireland	--	--	--	--	--	--	--	--	--	--	39	373	--	--	48	883
Italy	--	--	--	--	1,110	8,680	4,450	3,090	5,560	11,800	3	39	2	17	1	2
Japan	--	--	--	--	--	--	--	--	--	--	42	129	1	9	2,700	519
Korea, Republic of	--	--	--	--	9	111	--	--	9	111	870	4,730	(4/)	2	--	--
Malaysia	--	--	--	--	--	--	--	--	--	--	851	6,340	--	--	--	--
Mexico	1,160	10,900	6,750	63,800	2,360	21,900	10	125	10,300	96,700	3,170	22,800	83	791	1	5
Netherlands	--	--	--	--	--	--	1	13	1	13	296	433	--	--	26	27
Netherlands Antilles	--	--	--	--	393	3,290	--	--	393	3,290	145	1,180	--	--	--	--
Nicaragua	--	--	--	--	3,530	33,100	19	296	3,550	33,300	--	--	--	--	--	--
Norway	--	--	--	--	572	5,310	--	--	572	5,310	--	--	--	--	--	--
Panama	--	--	6	53	177	1,770	--	--	182	1,820	46	252	--	--	--	--
Papua New Guinea	313	2,970	--	--	420	3,780	--	--	733	6,760	--	--	3,050	29,200	--	--
Peru	5	50	2,610	18,900	23,100	223,000	--	--	25,700	242,000	42	360	217	2,160	--	--
Philippines	--	--	--	--	--	--	--	--	--	--	117	381	--	--	--	--
Singapore	--	--	--	--	996	12,700	--	--	996	12,700	60	338	--	--	--	--
South Africa	--	--	--	--	106	950	--	--	106	950	11	101	--	--	--	--
Suriname	--	--	--	--	51	527	--	--	51	527	32	300	--	--	--	--
Switzerland	--	--	--	--	6,270	60,600	1	9	6,270	60,600	--	--	15	117	--	--
Taiwan	--	--	--	--	--	--	--	--	--	--	89	311	--	--	--	--
Trinidad and Tobago	--	--	--	--	--	--	--	--	--	--	15	162	--	--	--	--
United Arab Emirates	--	--	--	--	50	515	--	--	50	515	--	--	--	--	--	--
United Kingdom	--	--	--	--	8,380	79,800	--	--	8,380	79,800	1	7	8	79	--	--
Uruguay	--	--	--	--	5,620	54,700	--	--	5,620	54,700	--	--	--	--	--	--
Venezuela	--	--	--	--	144	1,370	--	--	144	1,370	--	--	--	--	--	--
Other	--	--	14	137	23	287	--	--	37	424	238	605	24	262	7	11
Total	2,540	22,300	14,100	120,000	257,000	2,350,000	4,670	4,930	278,000	2,490,000	16,700	102,000	12,800	120,000	9,820	50,000

1/ Data are rounded to 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: Bureau of the Census.

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

(Kilograms)

Country	1994	1995	1996	1997	1998 e/
Argentina	937	837	723	2,289 r/	19,459 p/
Armenia e/	100	300	244 3/	500	350
Australia	256,188	253,504	289,530	314,500 r/	312,000 3/
Belize e/	5	5	5	5	6
Bolivia	12,838	14,405	12,634	13,292 r/	13,500
Botswana	234	86	5	28 r/	10
Brazil 4/	72,397 r/	64,424	60,011	58,488 r/	58,500
Bulgaria e/	2,000	3,100	3,390	3,400	3,000
Burkina Faso e/	4,000 5/	3,000 5/	4,000 5/	1,450 r/	1,500
Burundi e/	1,000	2,000	2,200	1,500	1,500
Burma	164 r/	101 r/	172 r/	150 r/	100
Cameroon e/	800 r/	800 r/	1,000	1,000	1,000
Canada	146,428	152,032	166,378	171,479 r/	166,089 p/
Central African Republic	138	97 r/	90 e/	90 e/	100
Chile	38,786	44,585	53,174	49,459 r/	44,980 p/
China e/	132,000	140,000	145,000	175,000	178,000
Colombia	20,762	21,136 r/	22,073	18,811 r/	18,813 3/
Congo (Brazzaville) e/	12	12	10	10	10
Congo (Kinshasa) 6/	11,100 e/	1,180 r/	1,252 r/	394 r/	100
Costa Rica e/	358 3/	400	510 r/	550 r/	550
Cote d'Ivoire	1,860	1,983	1,883 r/ 5/	2,419 r/ 5/	2,500
Cuba	45	184	250 e/	250 e/	1,000
Czech Republic	75	--	--	--	--
Dominican Republic	1,538	3,281	3,659	2,349	1,424 3/
Ecuador e/ 5/	13,000	7,410 r/	7,208 r/ 3/	3,070 r/	5,000
Eritrea	78	59	98	350 r/	50
Ethiopia 7/	2,370	4,500	2,500 5/	3,000 r/ e/	3,000
Fiji	3,535 r/	3,496 r/	4,452 r/	4,500 r/ e/	4,000
Finland	1,372	2,061	3,070	3,000 e/	3,000
France	5,078	4,615	5,651	4,350 r/	4,500
French Guiana (Guyane) e/	2,270	3,000 3/	3,000	3,000	3,000 3/
Gabon e/ 8/	72 3/	70	70	70	70
Georgia e/	600	500	500	700	700
Ghana	43,478	53,087	49,211	54,446 r/	73,300 3/
Guatemala e/	30	30	30	100 r/	100
Guinea	5,617	7,863	6,838	7,000 e/	14,000
Guyana	11,710 r/	9,005 r/	12,006 r/	13,521 r/	13,500
Honduras	106	110 e/	142	150 e/	150
India 9/	2,244	2,203	2,449	2,500 e/	2,400
Indonesia 10/	42,600	62,909	69,000 r/	73,000 r/	105,000 3/
Iran	723	370	630 r/	640 r/	600
Japan	9,551	9,185	8,627	8,384 r/	8,601 3/
Kazakhstan e/	14,483 3/	18,200	12,500 r/	12,000	12,500
Kenya e/	155	170	300	300	300
Korea, North e/	5,000	5,000	5,000	5,000	5,000
Korea, Republic of 9/	12,332	13,418	14,096	14,852 r/	22,822 3/
Kyrgyzstan e/	838	850	1,500	17,400 3/	22,000
Liberia e/	700	800	700	500 r/	500
Madagascar e/	500	38 3/	50	50	50
Malaysia	4,085	3,161	2,830	4,528 r/	3,500
Mali e/	6,200	7,800	8,400	19,000 r/ e/	23,000
Mauritania	1,738	1,196	189 r/	-- r/	--
Mexico	13,888	20,292	24,477	26,001	25,427 3/
Mongolia	1,790 r/	4,504 r/	6,976 r/	8,008 r/	9,990 3/
Morocco	565	580	482 r/	450 r/ e/	450
Mozambique	6,804	6,800	67 r/	100 r/	150
Namibia	2,445	2,394	2,145	2,433	2,200
New Zealand	10,118	12,132	11,571	11,500 e/	8,800
Nicaragua	1,241	1,316	1,200 r/	1,200 r/	1,200 3/
Niger e/	1,000 r/	1,000 r/	1,000 r/	1,000 r/	1,000

See footnotes at end of table.

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

(Kilograms)

Country	1994	1995	1996	1997	1998 e/
Nigeria e/	5 3/	5	6	6	10
Norway	200	--	--	--	--
Oman	137	591	576	575	575
Panama	245 e/	1,100 e/	834 r/	1,202 r/	1,000
Papua New Guinea	59,286	53,405	51,119	49,900 r/ e/	58,500
Peru 11/	47,799	57,744	64,788	76,361 r/	89,000 3/
Philippines	27,059	27,144	31,800	33,800	25,000
Poland	628	510	598	600	600
Romania e/	4,000	4,000	4,000	4,000	4,000
Russia	146,600	132,170	123,000	115,000 e/	103,700 3/
Rwanda e/	100	26	25	25	20
Saudi Arabia	7,630	8,080	8,302	7,530 r/	7,260 3/
Senegal e/	550	550	600	550	600
Serbia and Montenegro	2,504	3,040	3,000 e/	3,000 e/	3,000
Sierra Leone 12/	125	4	16	10 r/ e/	5
Slovakia	372	518	540	458	500
Solomon Islands	31	25	25 e/	25 e/	1,500
South Africa	580,201	523,809	496,846 r/	491,680 r/	473,771 3/
Spain	5,852	4,131	2,763 r/	1,824 r/	2,000
Sudan e/	3,000	3,700	4,500	5,000	5,000
Suriname e/	300	300	300	300	300
Sweden	6,364	6,528	6,500 e/	6,100 r/ e/	6,000
Taiwan 9/	5	11	11	9 r/	10
Tajikistan e/	1,000	1,000	1,100	2,550 3/	3,000 3/
Tanzania	2,861	320	318	300	1,500
Turkey e/ 13/	996	1,200	1,200	1,000 r/	1,000
Uganda	1,627	1,506	2,954	3,000 e/	2,500
United States	327,000	317,000	326,000	362,000 r/	366,000 3/
Uruguay e/	300	900	1,000	2,000	2,000
Uzbekistan e/	65,000 r/	65,000 r/	72,000	81,700 r/	80,000 3/
Venezuela	10,094	7,110	11,719	22,322 r/	7,248 3/
Vietnam	54 r/	72 r/	1,000 r/	1,000 r/	1,000
Zambia 14/	124	91	119 r/	290 r/	730
Zimbabwe	20,512	23,959	24,772	24,156 r/	25,175 3/
Total	2,250,000 r/	2,220,000 r/	2,280,000 r/	2,420,000	2,480,000

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

1/ World totals, U.S. data, and estimated data are rounded to three significant digits; may not add to totals shown.

2/ Table includes data available through July 15, 1999.

3/ Reported figure.

4/ Officially reported figures are as follows, in kilograms: Major companies: 1994--40,188; 1995--40,951; 1996--41,142; 1997--41,062 (revised); and 1998--41,000 (estimated). Garimpos 1994--32,209 (revised); 1995--23,473; 1996--18,869; 1997--17,426 (revised); and 1998--17,500 (estimated).

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.