



# 2008 Minerals Yearbook

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## GOLD

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# GOLD

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In 2008, domestic mine production of gold decreased to 233,000 kilograms (kg), slightly less than that of 2007 (tables 1, 2). This marks the eighth year in a row that production has dropped and was 36% lower than the historical high of 366,000 kg in 1998. In 2008, the value of domestic production increased to \$6.550 billion, up 22% compared with that of 2007 because of the increase in the price of gold. It was the seventh straight year that the value had increased. Production from the major mines in Nevada was lower as a result of mining lower grade ore, closure of two mines, and companies concentrating on mine development instead of gold production. Many mine projects and expansions planned within the past 5 years have been slow to develop; however, some of these projects were expected to begin production in 2009. Five mines began production in 2008—Rock Creek in Alaska, Mesquite in California, Cortes Hills and Hycroft open pit in Nevada, and Kettle River-Buckhorn in Washington. However, four mines stopped production in 2008—Rock Creek in Alaska, Montana Tunnels in Montana, and Lone Tree and Jerritt Canyon in Nevada. Price increases have spurred exploration and development of new gold projects. However, since new mines can take more than 10 years to open, there was a lag in replacement of older mines with opening of new mines. The economic slowdown that started in 2008 hampered investment in new projects. Mines in Nevada accounted for almost 76% of domestic production in 2008. The remaining production came from mines in Alaska, Utah, Colorado, Montana, California, South Dakota, Washington, New Mexico, Arizona, and Idaho, in descending order of production. Gold was produced at lode mines, a few large placer mines in Alaska, and numerous small placer mines, mostly in Alaska and the Western States. In addition, domestic gold was produced as a byproduct of processing base metals, principally copper. In the United States, 30 operations yielded 99% of the gold produced.

The 2008 domestic exploration budget increased to \$882 million, a 34% increase compared with that of 2007. Much of the increase in exploration was in Alaska and Nevada and was concentrated on copper and gold projects. Exploration for gold has gone beyond the current gold-producing States; for example, Michigan, Minnesota, North Carolina, South Carolina, and others have been explored for potential gold deposits. The worldwide gold exploration budget rose by 16% compared with that of 2007 to \$4.9 billion and represented 39% of the worldwide exploration budget for all minerals (Lowrey, 2008; Wilburn, 2009).

Commercial-grade refined gold was produced by about two dozen domestic companies. 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 Providence,

RI, areas, with other manufacturers in California, Florida, and Texas. In 2008, the estimated percentages for end use of gold were jewelry and arts, 72%; dental and medical, 11%; electrical and electronics, 7%; and other, 10%.

Trade in refined bullion comprised 51% of U.S. gold imports and 81% of exports; the United States was a net exporter of 342,000 kg of bullion in 2008. The increase in exports was caused by an increase in price and an increase in investments outside the United States. Canada and Mexico provided almost 71% and 10%, respectively, of the refined bullion imported, and Switzerland and the United Kingdom were the destinations for 41% and 39%, respectively, of the refined bullion exported (tables 4, 6).

The Engelhard Corp.'s daily price of gold was volatile and rose above the \$1,000-per-troy-ounce-level for the first time ever in March. The price began the year at \$848.84 per troy ounce and rose to alltime high of \$1,013.62 on March 17. The price fluctuated for the remainder of 2008 and ended the year at \$863.11 per troy ounce. The annual average price of \$873.50 per troy ounce, 25% above the annual average gold price in 2007, was the highest annual average price ever.

Investment demand continued to be very high in 2008 because of the financial and economic crisis that stimulated investors to seek a safe investment. It was estimated that investors purchased 1,350 metric tons (t) (43.3 million troy ounces) of gold in 2008 and resulted in regional supply shortages for small bars and coins. In 2008, gold held in gold exchange-traded funds (ETFs) and similar products increased by 295 t to 1,190 t. With physical shortage of small bars and coins, many investors bought gold through ETFs. Domestic gold holdings in ETFs increased by 24%, or 164 t, to 847 t, with the SPDR Gold Trust, formerly streetTRACKS Gold Shares, was traded on the New York Stock Exchange (NYSE) and accounted for 92% of domestic gold ETF holdings. Because gold ETFs are essentially paper gold products, with each share representing a physical allotment of gold that is held in trust, they provide an easily accessible investment. Gold ETFs follow the gold prices, with a fee structure to cover administrative and storage costs (CPM Group, 2009, p. 3, 47–50).

The leading 15 mining companies produced about one-half of the gold produced in 2008. The top five were, in descending order, Barrick Gold Corp. (Toronto, Ontario, Canada), Newmont Mining Co. (Denver, CO), AngloGold Ashanti Ltd. (Johannesburg, South Africa), Gold Fields Ltd. (Johannesburg), and Goldcorp Inc. (Vancouver, British Columbia, Canada), which accounted for almost one-third of world gold production (Klapwijk and others, 2009, p. 38).

The gold mining industry continued its unprecedented period of change driven by mergers and acquisitions in 2008. Kinross Gold Corp. (Toronto), the eighth ranked gold mining company,

completed a takeover of Aurelian Resources Inc. (Toronto) for \$809 million. Aurelian Resources discovered a gold deposit, Fruta del Norte, in Ecuador. Kinross also purchased the share that its joint-venture partners, Teck Cominco Ltd. (Vancouver) and Anglo American plc (London, United Kingdom), held of the Lobo-Marte project in Chile for \$390 million. Goldcorp purchased Gold Eagle Mines Ltd. (Toronto), which owned assets near Goldcorp's Red Lake Mine, for \$1.3 billion. In March, Barrick acquired Arizona Star Resources Corp. (Toronto), the majority owner of the Cerro Casale deposit in Chile, for \$732 million. Barrick also purchased Rio Tinto plc's (London) 40% share of the Cortez joint venture in Nevada on March 1 and Yamana Gold Inc.'s (Toronto) 40% share of the Storm Mine in Nevada on October 1. Newmont purchased Miramar Mining Corp.'s (Vancouver) Hope Bay project in the Territory of Nunavut, Canada. In April, Hecla Mining Co. (Coeur d'Alene, ID) completed the acquisition of the Greens Creek Mine, in Alaska, by purchasing Rio Tinto's 70% share for \$750 million. AngloGold increased its share of the Cripple Creek Mine to 100% by purchasing its partner's interest for \$149 million. Other activities in the gold mining industry included Lihir Gold Ltd.'s (Port Moresby, Papua New Guinea) purchase of Equigold NL (Perth, Western Australia, Australia); Goldcorp's sale of its interest in Silver Wheaton Corp. (Vancouver); the merger of Metallica Resources Inc. (Toronto), New Gold Inc. (Vancouver), and Peak Gold Ltd. (Vancouver) to form a new company called NewGold Inc.; and the merger of Oxiana Ltd. (Melbourne, Victoria, Australia) with Zinifex Ltd. (Melbourne) to form Oz Minerals Ltd. (Melbourne) (Goldsmith, 2009, p. 1–10; Klapwijk and others, 2009, p. 48).

Total world mine production of gold in 2008 was 3% lower than that of 2007. Mine production in China increased, and China continued as the world's leading gold producer. Annual output in South Africa decreased for the seventh year in a row because of higher costs, lower grade ore, and labor issues. The leading producers among the more than 95 gold-mining nations were, in descending order, China, the United States, Australia, South Africa, and Peru (table 8).

It was estimated that 15% of all gold ever mined was employed in dissipative industrial uses or was unaccounted for or unrecoverable (Thomas and Boyle, 1986, p. 6). Therefore, of an estimated 157,000 t of gold mined historically through 2008, 133,000 t of gold remains in circulation, with 28,700 t held by central banks as official stocks and 104,000 t held privately as bullion, coin, and jewelry.

## Production

Domestic lode mine production data for gold were derived by the U.S. Geological Survey from two separate voluntary surveys of U.S. mining operations—one for monthly production of copper, gold, lead, silver, and zinc from lode mines and the other for lode mine production data surveyed annually. In 2008, one respondent reported that its mine closed. Individual company production and performance data listed in table 3 and cited elsewhere in this report were obtained from published sources, such as company annual reports. For purposes of ranking in this report, Newmont's operations in Eureka County, NV—Carlin

East, Deep Post, Gold Quarry, Leeville, and Pete Mines—were treated as a single operation.

**Alaska.**—The Alaska Division of Geological and Geophysical Surveys reported that gold output increased to 24,800 kg, valued at \$695 million in 2008 from 22,600 kg, valued at \$511 million in 2007, or an increase in production of 10% and an increase in value of 36% (Szumigala and others, 2009, p. 12).

The Pogo Mine, 145 kilometers (km) southeast of Fairbanks, was completed in 2006, and was a joint venture between Sumitomo Metal Mining Co. Ltd. (Tokyo, Japan) (51%), Teck Cominco (40%), and Sumitomo Co. (Tokyo) (9%), and operated by Teck Cominco. The mine produced 10,800 kg of gold in 2008, below the capacity of 11,200 kg of gold (Teck Cominco Ltd., 2009, p. 46).

Kinross' underground Fort Knox Mine, near Fairbanks, produced 10,200 kg gold equivalent (includes other metals) in 2008, slightly less than production in 2007, making it the country's ninth ranked gold mine, after the Pogo Mine (Kinross Gold Corp., 2009, p. 8). Construction of the Walter Creek heap-leach facility, which began on October 31, 2007, was limited because of record-breaking rainfall; however, 78% of the leach pad was completed. The company planned to start leaching operations in the third quarter of 2009. The mine was originally slated to close in 2010; however, because the leaching operations can produce gold from much lower grade ore, the mine was projected to continue operation until 2015 and the gold production from leach pads until 2021 (Szumigala and others, 2009, p. 32).

The polymetallic Greens Creek Mine, on Admiralty Island near Juneau, was one of the leading silver mines in the country. Hecla owed 29.7% of the underground mine through April 16, and purchased the remaining 70.3% of the mine from Kennecott Greens Creek Mining Co. (Juneau). The ore from the underground mine was milled at the mine site, and the smelter produced gold and silver dore, lead, zinc, and bulk concentrates. Owing to mining lower grade ore, overall production was 2,090 kg, slightly less than that in 2007 (Hecla Mining Co., 2009, p. 7, 19–20).

The Nixon Fork Mine, owned by St Andrew Goldfields Ltd. (Oakville, Ontario, Canada), started production in 2007; however, production was suspended on October 10, 2008. The mine was placed on care-and-maintenance status because of dramatically lower grade ore than expected. St Andrew entered an option to sell the mine to Pacific North West Capital (Vancouver) (St Andrew Goldfields Ltd., 2009, p. 4, 10, 42).

The number of Alaskan placer operations that produced gold increased to 217 in 2008 from 174 in 2007. Estimated placer production in 2008, which was included in the data reported by the State, increased slightly to 1,710 kg from 1,680 kg of gold in 2007. In 2008, there was only one underground placer operation, Silverado Gold Mines Ltd.'s (Vancouver) Nolan Creek operations in the Brooks Range. Recreational mining activities increased owing to higher gold prices; however, in 2008, recreational gold production was 13 kg compared with 59 kg in 2007 (Szumigala and others, 2009, p. 12–15).

Construction on Coeur d'Alene Mines Corp.'s (Coeur d'Alene) Kensington project continued through 2008; however, construction of the tailings facilities remained suspended

pending an appeal filed with the U.S. Supreme Court. On October 1, development activities were curtailed, and the company laid off approximately 50% of the workforce while waiting for the decision. The company reported reserves of 46,000 kg of gold at the mine (Coeur d'Alene Mines Corp., 2009, p. 40–42).

NovaGold Resources Inc. (Vancouver) was developing three projects—Big Hurrah, Nome Gold, and Rock Creek—all near Nome on the Seward Peninsula. NovaGold received regulatory authorizations and began production in September at the Rock Creek Mine and its satellite Big Hurrah Mine. The mill operated until October 9 when it was shut down owing to equipment problems. The mill was restarted on November 12 and operated until November 24; a total of 100,000 t of ore was milled in 2008. On November 24, the mining operation was suspended and entered a period of care and maintenance because of unanticipated mechanical problems, failure to meet environmental requirements, and financial and credit downturn. The company planned to make a decision in the second quarter of 2009 on restarting operations. If the mine restarts, it would not begin production until 2010. NovaGold also was considering selling the mine. The combined probable reserves were estimated to be 15,900 kg of gold. The Nome Gold alluvial sand and gravel project had estimated measured and indicated resources of 58,000 kg of gold (NovaGold Resources Inc., 2009, p. 20–23, 28–29).

In 2008, 32 exploration projects had a total budget of \$1 million or greater, and 42 additional projects had exploration budgets of \$100,000 or more. Exploration expenditures were \$329 million in 2008, slightly lower than in 2007. Many of the companies in Alaska were looking for gold or copper-gold deposits (Szumigala and others, 2009, p. 2–3).

Advanced exploration projects included the copper-gold porphyry Pebble project near Iliamna and the Dolin Creek gold project near Aniak. These two projects accounted for more than 60% of the exploration expenditures and drill footage in 2008. Anglo American and Northern Dynasty Minerals Ltd. (Vancouver) were 50–50 partners in the Pebble Copper-Gold-Molybdenum Project, which included the high-grade underground Pebble East and open pit Pebble West. Northern Dynasty announced revised measured and indicated resources of 1,770 t gold, 22 million metric tons (Mt) of copper, and 1.3 Mt of molybdenum (Northern Dynasty Minerals Ltd., 2008; Szumigala and others, 2009, p. 2–3, 7–8).

In 2008, a feasibility study continued on Barrick and NovaGold's Donlin Creek joint venture, in the historic Kuskokwim Gold Belt of southwest Alaska; completion was scheduled for early 2009. The project has a measured and indicated gold resource of 985,000 kg and was scheduled to start permitting in 2009 and begin construction in 2012 (NovaGold Resources Inc., 2009, p. 15–19).

**Arizona.**—In 2008, all gold was recovered as a byproduct from copper mining and processing. In late 2007, BHP Billiton Ltd. (Melbourne) restarted production from its Pinto Valley copper mine, and in 2008 the mine produced 40 kg of gold. BHP planned to cease mining sulfide ore and place the mine on care-and-maintenance status in February 2009 because of rising costs. However, the company planned to continue to produce

copper cathode from residual solvent extraction electrowinning operations, which do not produce byproducts (BHP Billiton Ltd., 2009, p. 3, 9).

American Bonanza Gold Corp. (Vancouver) started a feasibility study at its Copperstone underground gold project in La Paz County and planned to complete the study in the first half of 2009 (American Bonanza Gold Corp., 2008).

**California.**—In 2008, gold production was from the recently restarted Western Goldfields Inc.'s (Toronto) Mesquite Mine and residual production from leach pads at Atna Resources Ltd.'s (Golden, CO) Briggs Mine. These mines ceased active mining operations in 2001 and 2004, respectively, but continued residual gold production. In 2008, exploration and development studies for both mines were ongoing. Gold was also produced by Cal Sierra Development Inc.'s (Marysville) Yuba River gold dredging operations. Other operations produced gold as a secondary product in 2008, mainly from placer sand and gravel mines and from several small underground mines that primarily produced specimen gold products.

Western Goldfields entered into full production at its Mesquite Mine open pit. In 2008, production of gold was 3,450 kg of gold—well below the expected full production of 5,000 kilograms per year (Western Goldfields Inc., 2009, p. 27–28).

Atna and Canyon Resources Corp. (Golden, CO) announced the completion of their merger; the merged company was named Atna Resources Inc. An updated technical report of the Briggs Mine was completed in May 2008, which estimated the proven and probable reserves of the closed open pit at 8,300 kg of gold. The company planned to restart operations at the fully permitted Briggs Mine in 2009 and produce 590 kg of gold. The Briggs Mine was estimated to have a 6-year life span and annual production of 1,240 to 1,560 kg of gold (Atna Resources Ltd., 2009, p. 1–4).

Sutter Gold Mining Inc. (Lakewood, CO) announced an update to the mineral resources for the proposed Sutter Gold underground mine, which included the historic Lincoln Gold Mine along the California's Mother Lode belt. The indicated mineral resources were 6,940 kg of gold, 29% more than the 2006 estimate (Sutter Gold Mining Inc., 2008).

Emgold Mining Corp. (Grass Valley, CA) continued the permitting process to reopen the historic Idaho-Maryland Gold Mine, which has estimated measured and indicated resources of 14,700 kg of gold (Emgold Mining Corp., 2009, p. 4–5).

**Colorado.**—In 2008, Colorado remained the fourth ranked gold-producing State in the country. The Nation's tenth ranked gold mine, the Cresson Mine owned by Cripple Creek & Victor Gold Mining Co. (CC&V), a fully owned subsidiary of AngloGold, reported that its open pit operation produced 8,030 kg of gold in 2008, 8% less than that of 2007 owing to the vertical height of the leach pads. In 2009, CC&V expected production to increase to 8,700 kg (AngloGold Ashanti Ltd., 2009, p. 94–96).

The Front Range gold property, which includes the Cash and Rex Mines, was a 50–50 joint venture with Global Minerals, Ltd. (Vancouver) and several private owners. The property merged a collection of former producing high-grade gold mines into one contiguous group. The property, which was the State's only other gold producer, produced a small amount of

concentrate that was transported by truck to a smelter (Global Minerals, Ltd., 2009, p. 4–5).

LKA International Inc.'s (Gig Harbor, WA) Golden Wonder Mine in the San Juan Mountains stopped producing gold in the second quarter of 2006 and has not produced since. Richmond Mines (Rouyn-Noranda, Quebec, Canada) notified LKA that it would not proceed with a joint venture with LKA because of the difficulties in finding economically viable zones at Golden Wonder Mine (LKA International, Inc., 2008).

**Idaho.**—Idaho had limited gold production in 2008 from New Jersey Mining Co.'s (Kellogg, ID) Golden Chest Mine near Murray. New Jersey Mining also continued to develop and explore in Idaho. In addition to New Jersey Mining, other companies with projects with associated gold were in early development stages in 2008 (Gillerman and Bennett, 2009).

**Montana.**—In 2008, the open pit polymetallic Montana Tunnels Mine near Jefferson City, a 50–50 joint venture with Elkhorn Tunnels, LLC (Aspen, CO) and Apollo Gold Corp. (Greenwood Village, CO), produced 1,510 kg of gold, 15,100 kg of silver, 7,060 t of lead, and 17,200 t of zinc. In December, mining operations ceased because of low base-metal prices and as of December 31, the company had stockpiled 1,650,000 t of ore and planned to operate the mill until the end of April 2009; the mine was to be placed on care-and-maintenance status in April 2009, and Apollo estimated 2009 production would be about 200 kg of gold, 5,000 kg of silver, 1,000 t of lead, and 5,000 t of zinc (Apollo Gold Corp., 2009, p. 1, 3).

Barrick's Golden Sunlight Mine produced 3,730 kg of gold in 2008. This was 39% less than that in 2007 because of high levels of waste stripping owing to a mine expansion plan. Once the expansion plan is complete, it will extend the mine life to 2015 (Barrick Gold Corp., 2009a, p. 41–42; 2009b).

**Nevada.**—Gold production decreased by 4% to 178,000 kg, but Nevada kept its longstanding position as the Nation's leading gold-producing State and trailed only Australia, China, and South Africa based on 2008 world production data. According to the State of Nevada, 19 mines reported gold production and a reported gold reserve was 2,180 t in 2008 (Nevada Bureau of Mines and Geology, 2009, p. 3–5, 14–19).

In 2008, Barrick reported new production from the Cortez Hills Mines and Allied Nevada Gold Corp. (Reno) reopened the Hycroft open pit mine. Newmont was waiting on permits for the Emigrant deposits. Other mines that were also waiting on permits to open or restart production included Atna Resources' Reward Mine, Firstgold Corp.'s (Cameron Park, CA) Relief Canyon Mine, and Imperial Metals Corp.'s (Vancouver) Sterling Mine (Nevada Bureau of Mines and Geology, 2009, p. 25–26).

In 2008, Barrick produced 86,000 kg of gold from its fully owned Bald Mountain, Goldstrike, Cortez, Meikle, Storm, and Ruby Hill Mines; 75% share of the joint-venture Turquoise Ridge Mines (25% owned by Newmont); 50% of Smoky Valley Common Operation (50% owned and operated by Kinross); and 33.33% of Marigold Mine (67.67% owned and operated by Goldcorp), unchanged from the company's 2007 Nevada gold mines production. Combined production at Goldstrike and Meikle Mines was 53,100 kg of gold, a 5% increase compared with that of 2007. The increase was attributed to the completion of a waste rock removal program for mine development in the

second quarter of 2008. In the first quarter of 2008, Barrick purchased the remaining 40% share of the Cortez Mine, and Barrick's share of gold production increased by 32% compared with its 2007 share of gold production. Similarly, Barrick purchased the remaining 40% of the Storm Mine in the third quarter 2008, and Barrick's share of production increased by 29% compared with its 2007 share of gold production. These increases were offset by production losses because of mining lower grade ores, such as at Bald Mountain (production decreased by 15% compared with that of 2007), Smoky Valley Common Operation (decreased 19%), and Turquoise Ridge (decreased 32%). Barrick started construction on the Cortez Hills Mine in Lander County and reported 212 kg of gold production in 2008. In the fourth quarter, opponents to the mine appealed a U.S. District Court decision on a suit seeking to overturn the U.S. Bureau of Land Management's approval of the Cortez Hills project on environmental and religious grounds (Barrick Gold Corp., 2009a, p. 41–42; 2009b).

Newmont produced 70,300 kg or 39% of Nevada's gold production from nine open pits and five underground mines. The operations were Eastern Nevada operations (which includes Carlin East, Deep Post, Gold Quarry, Leeville, and Pete Mines), Lone Tree, Midas, Mule Canyon, Phoenix, Trenton Canyon, Twin Creeks Mines and the joint-venture Turquoise Ridge (25% share) (Driesner and Coyner, 2009, p. 7–15). In 2008, gold production from Newmont's Nevada operations decreased by 4% because of the completion of milling at Lone Tree and lower production at Twin Creeks. Production at the Midas Mine had been suspended after a fatal accident in June 2007, but the restrictive order issued by the Mine Safety and Health Administration (MSHA) was lifted in October 2007, and production returned to normal levels in 2008. Along with the return of Midas production, Leeville increased production by 80% compared with that in 2007. Newmont expected to sell less gold in 2009 primarily because of mining lower grade ore and the completion of mining activities at Deep Post by yearend 2009 (Newmont Mining Corp., 2009, p. 19–20, 25, 61–62).

In 2008, Yukon-Nevada Gold Corp. (Vancouver) produced 1,120 kg of gold from its Jerritt Canyon Mine, which consisted of a milling facility and two underground mines (Smith and SSX), 70% lower than in 2007. Early in 2008, the mines and mill were closed for an extended safety and care-and-maintenance cycle because of the lack of investment in these areas during the previous 5 years. Subsequent to this voluntary shutdown, on March 19, the Nevada Division of Environmental Protection issued a "stop order" because of issues involving the installation and maintenance of instrumentation necessary to monitor key parameters in the emission control systems. The mine restarted operation in late April upon the completion of the improvements to the mines and mill. On August 8, Yukon-Nevada shut down mining at its operations because of increasing cost. The company was expected to have the new mine plan and a new gas handling system in place and restart the mine early in 2009 (Yukon-Nevada Gold Corp., 2009, p. 2–3).

In October, Pacific Rim Mining Corp. (Vancouver) sold its shares of the joint-venture Denton-Rawhide to its partner Kennecott Minerals Co. (Salt Lake City, UT), a fully owned subsidiary of Rio Tinto, for \$3.1 million plus the cash flow from

49% of all gold from the operation through December 31, 2008. Production from the mine had been falling since 2003 when active mining stopped and residual production from leach pads continued. In 2008, production was 610 kg of gold and 4,680 kg of silver (Pacific Rim Mining Corp., 2008; Driesner and Coyner, 2009, p. 17).

In 2008, the Robinson copper mine near Nye, owned by Quadra Mining Ltd. (Vancouver), produced 72,000 t of copper and 4,280 kg of gold. The company projected that production would be 64,000 t of copper and 3,100 kg of gold in 2009. As of January 1, 2009, the proven and probable reserves contained 660,000 t of copper and 28,100 kg of gold (Quadra Mining Ltd., 2009, p. 6–8).

The Rochester Mine, owned by Coeur d'Alene Mines, produced 94,400 kg of silver and 654 kg of gold. In August 2007, the company completed mining the existing reserves; however, gold and silver production was expected to continue from stockpiled ore and existing leach pads until 2014. The company planned to continue to explore in and around the Rochester Mine (Coeur d'Alene Mines Corp., 2009, p. 29–30).

Jipangu Inc. (Tokyo) owned and operated the Florida Canyon and Standard Mines in Pershing County, Nevada. In 2008, construction began on a new leach pad at the Florida Canyon Mine. According to the State of Nevada, the Florida Canyon Mine produced 1,470 kg of gold, a 75% increase in gold production compared with 2007 production, and 1,270 kg of silver. Standard Mine production was curtailed because of permitting problems; therefore, production dropped to 82 kg of gold and 113 kg silver (Driesner and Coyner, 2009, p. 8; Jipangu Inc., 2009).

In 2008, Great Basin Gold Ltd. (Vancouver) extracted 50,000 t of ore, resulting in 2,500 gold equivalent kilograms, from trial mining activities at the underground Hollister Mine. From that, 33,800 t of the ore was processed at Newmont's Midas operations, which produced 1,300 kg of gold and 5,970 kg of silver (Driesner and Coyner, 2009, p. 15; Great Basin Gold Ltd., 2009, p. 41–52).

Exploration continued to increase in the State as companies searched for high-grade veins in and around old mining districts. In 2008, the State of Nevada had almost 222,000 mining claims, a 4% increase compared with those in 2007. At least 88 projects were drilled by 58 junior companies, and 35 projects developed by 10 major or mid-tier companies were recorded in 2008. Only 15 projects targeted metals other than gold (Nevada Bureau of Mines and Geology, 2009, p. 26–32).

**New Mexico.**—Gold production in New Mexico was a byproduct of copper production in Grant County at Freeport-McMoRan Copper & Gold Inc.'s (Phoenix, AZ) Ivanhoe concentrator. In 2008, gold production was 218 kg (New Mexico Energy, Minerals and Natural Resources Department, 2009).

In 2008, one silver-gold project began development and several polymetallic deposits were being explored. The Santa Fe Gold Corp. (Albuquerque) began construction at the Summit silver-gold mine and anticipated that the mine would start in the first quarter of 2009 (Santa Fe Gold Corp., 2008).

**South Carolina.**—Romarco Minerals Inc. (Vancouver) announced the new measured and indicated resource for its

Haile Gold Mine Project in Lancaster County, at 46,700 kg of gold. In 2008, the company continued its exploration of the deposit and was undertaking a bankable feasibility study and permitting process (Romarco Minerals Inc., 2008).

**South Dakota.**—Wharf Resources Inc. (Lead) operated the Goldcorp-owned Wharf open pit gold mine near Lead, which produced about 1,890 kg of gold. The company continued exploration near the mine and extended the mine's life to 2012 (Goldcorp Inc., 2009, p. 54).

**Utah.**—Rio Tinto's Bingham Canyon Mine, which was operated by Kennecott Utah Copper Corp. (Magna), near Salt Lake City, produced 11,400 kg of gold as a byproduct of its copper mining operation. Bingham Canyon remained the seventh-ranked gold producer and the leading gold-producing mine outside Nevada in 2008 even though gold production dropped by 7% as compared with that of 2007. In 2008, Kennecott Utah also operated the nearby Barney's Canyon Mine, which had closed in the first quarter of 2002 but continued gold production from heap-leaching pads that produced 156 kg of gold. Several other small mines produced minor amounts of gold (Bon and Krahulec, 2009, p. 5; Rio Tinto plc, 2009, p. 12).

Exploration for gold and silver continued to increase because of higher prices. The exploration was largely focused in the eastern Basin and Range Province of the western part of the State (Bon and Krahulec, 2009, p. 11).

**Washington.**—Kinross completed construction on the underground Kettle River-Buckhorn Mine, in the north-central part of the State. Production started in the fourth quarter, and 871 kg of gold was produced. The new mine fed the Kettle River Mill, adjacent to the closed Kettle River Mine, which was about 76 km from the Kettle River-Buckhorn Mine. The project has an estimated 30,800 kg of gold reserves (Kinross Gold Corp., 2009, p. 49–50).

## World Industry Structure

World gold mine production in 2008 was 3% lower than that in 2007. Mine production of gold decreased by 57,700 kg in Indonesia; 39,900 kg in South Africa; 32,000 kg in Australia; 7,690 kg in Mali; 7,210 kg in Canada; 4,810 kg in the United States; 3,220 kg in the Philippines; 3,190 kg in Tanzania; 3,150 kg in Zimbabwe; 3,050 kg in Ghana; 2,370 kg in Chile; 2,290 kg in Mongolia; 2,020 kg in Argentina; 2,000 kg in Japan; and 1,570 kg in Costa Rica. These decreases were partially offset by gold production increases in several countries. Production increases were: 19,400 kg in Russia; 11,000 kg in Mexico; 10,000 kg in China; 9,630 kg in Peru; 7,570 kg in Kyrgyzstan; 5,640 in New Zealand; 5,340 kg in Burkina Faso; 4,520 kg Colombia; 4,320 kg in Guinea; 3,000 kg in Papua New Guinea; 2,980 kg in Mauritania; and 1,200 kg in Turkey. In 2008, the top 12 gold producing countries—China, the United States, Australia, South Africa, Peru, Russia, Canada, Uzbekistan, Ghana, Papua New Guinea, Indonesia, and Mexico (in descending order)—accounted for 76% of global production. The next 10 leading gold producing countries accounted for another 15%, while the remaining 74 countries made up the last 9% of global gold production in 2008.

According to its annual review of world gold supply and demand, Gold Fields Mineral Services Ltd. (GFMS) calculated that the total global supply of gold in 2008 to be 3,880 t compared with the revised 2007 total supply of 3,920 t. GFMS also reported decreases in official sector sales (49%) and mine production (2.5%), no net producer hedging, and no implied net disinvestment for sales of bars and coins by private investors. Old scrap production increased by 27% in 2008 compared with 2007 old scrap production because of the increase in gold price (Klapwijk and others, 2009, p. 7).

GFMS reported that total fabrication in 2008, including the use of scrap, was 2,850 t, 7% lower than that of 2007, the lowest since 1988. In 2008, gold consumption in jewelry fabrication was 2,160 t, 10% lower than that of 2007. The top six gold jewelry manufacturing countries, in descending order—India (498 t), China (316 t), Turkey (277 t), Italy (169 t), Saudi Arabia (87 t), and the United States (77 t)—represented 62% of the world's jewelry production. In 2008, India, Italy, Saudi Arabia, Turkey, and the United States decreased production by 15%, 19%, 13%, 17%, and 19%, respectively, as compared with jewelry production in 2007, owing to increased gold prices and economic downturn. In contrast, gold jewelry fabrication in China rose 6% in 2008. In 2008, coin fabrication was 191 t, up by 40% as compared with that of 2007, the highest level in 21 years, and was the only end use that saw an increase in 2008. The demand for safe haven investments and the lack of reselling gold coins has caused increases in production, a gold coin shortage, and extended delivery times. In 2008, the U.S. Mint sales of the American Eagle gold coins were 26,764 kg, which was 334% higher than sales in 2007, and sales of American Buffalo coins were 5,334 kg (171,000 1-ounce coins) only up slightly as compared with those of 2007. In 2008, Canada increased gold coin minting to 27,600 kg or an increase of 211% as compared with minting in 2007, and Austria minted 24,900 kg, or 370% more during the same period. The amount of gold used in electronics fell 6% to 293 t, which reflected a global economic downturn. Gold used in dentistry declined by 3% to 56 t in 2008 owing to an increase in nonmetallic substitutions. Other industrial and decorative uses decreased by 7%. Gold used in medals and for imitation coins decreased by 11% because of the high and volatile gold price (Klapwijk and others, 2009, p. 35–37, 80–106).

## World Review

**Argentina.**—In 2008, production was 40,000 kg or 5% lower than production in 2007 because of production losses at Bajo de la Alumbrera Mine [Xstrata plc (Zug, Switzerland) 50%, Goldcorp 37.5%, Yacimientos Mineros Agua de Dionisio (Catamarca) 20%, and Yamana 12.5% ownership] owing to mining lower grade ore because a transition between pit stages encountered an unusually high gypsum content in the ore. Production loss at AngloGold's Cerro Vanguardia Mine was caused by mining low-grade ores and intermittent plant breakdowns. Some of the losses were offset by a 13% increase in gold production from Barrick's Veladero Mine (AngloGold Ashanti Ltd., 2009, p. 54–55; Barrick Gold Corp., 2009b; Goldcorp Inc., 2009, p. 51–52).

**Australia.**—Australian gold production in 2008 decreased by 13% compared with that of 2007, to 215,000 kg, the lowest level since 1989. Production from established operations dropped, and a number of small-scale mines closed because of lower grades. In June, a gas pipeline explosion cause major power shortages to mines and adversely affected mine output (CPM Group, 2009, p. 91; Klapwijk and others, 2009, p. 44).

In 2008, Barrick had nine operations in Australia, of which Barrick's share was 40,700 kg of gold, 20% less compared with that in 2007. Darlot, Lawlers, and Granny Smith Mines combined to form the Yilgarn South operations and in 2008, produced 10,100 kg gold, 21% less than production in 2007 because of the lower ore feed at Granny Smith as the mine transitioned to underground mining. In 2008, the Cowal Mine produced 26% less compared with 2007 production. The 1,520-kg drop was attributed to east wall remediation work, which was completed in the fourth quarter to allow the company to access higher grade material. Other Barrick mines produced less gold in 2008 compared with 2007 production; Henty decreased by 280 kg, Kanowna decreased by 2,960 kg, Osborne decreased by 280 kg, and Plutonic decreased by 2,520 kg. Production from Kalgoorlie, a joint venture with Newmont, decreased slightly in 2008 compared with production in 2007 (Barrick Gold Corp., 2009a, p. 43–44; 2009b).

In 2008, AngloGold's Sunrise Dam Gold Mine produced 13,500 kg of gold, a decrease of 28% compared with 2007 gold production. The mine consists of an open pit and an underground mine, and in early 2008, the high-grade ore area was mined out (AngloGold Ashanti Ltd., 2009, p. 56–57).

Newcrest Mining Ltd. (Melbourne) operated four mines in 2008, and the Cadia Hill Mine produced 12,500 kg of gold, an 8% increase compared with 2007 production. In 2008, Ridgeway and Telfer Mines produced 9% and 7% less gold, respectively, and the 70%-owned Cracow Mine produced 17% less gold compared with gold produced in 2007 (Newcrest Mining Ltd., 2008a–c; 2009).

North Queensland Metals Ltd. (Fortitude Valley, Queensland) produced 1,570 kg of gold from the Pajingo Mine, which was purchased from Newmont at the end of 2007. This was about 4,000 kg lower than 2007 production because of mining lower grade ore (North Queensland Metals Ltd., 2009).

In 2008, Newmont owned the Jundee and Tanami operations as well as the Kalgoorlie joint-venture project with Barrick. The Jundee operation sold 11,700 kg of gold in 2008, 27% more than sales in 2007 because higher grade ore was processed. The Tanami operation sold 11,400 kg of gold, 17% less during the same time period because of a 15% decrease in mill ore grade (Newmont Mining Corp., 2009, 63–64).

A small part of the production losses was offset by new or restarted mines. Avoca Resources Ltd. (West Perth, Western Australia) poured the first dore bar from its Higginsville Gold Mine in July (Avoca Resources Ltd., 2009). The Frog's Leg Mine, a joint venture between La Mancha Resources Inc. (Montreal, Quebec, Canada) (51%) and Dioro Exploration NL (Nedlands, Western Australia) (49%), started in May and St Barbara Ltd.'s (Melbourne) Leonora Mine restarted operations in October. Focus Minerals Ltd. (Perth) began production from

the Coolgardie Gold Mine in April (La Mancha Resources Inc., 2008; Focus Minerals Ltd, 2009; St Barbara Ltd., 2009).

**Brazil.**—In 2008, Brazilian production was up slightly owing to the startup of Jaguar Mining Inc.'s (Concord, NH) Paciencia and Troy Resources NL's (West Perth) Andorinhas Mines. Jaguar's Turmalina Mine had its first full year of production, and Kinross's Paracatu Mine increased production by bringing an expansion project online. Production from AngloGold's Mineracao, the country's leading gold mine, was about the same as that in 2007. These production gains were partially offset by losses at Yamana's Chapada and Sao Francisco Mines (AngloGold Ashanti Ltd., 2009, p. 60; Klapwijk and others, 2009, p. 43; Yamana Gold Inc., 2009, p. 48).

**Burkina Faso.**—In 2008, gold production increased by 239% from 2007 production. The increase was attributed to the commercial startup of SEMAFO Inc.'s (Saint-Laurent, Quebec, Canada) Mana Mine that produced 6,080 kg of gold in 2008 (SEMAFO Inc., 2009, p. 2).

**Canada.**—Canada ranked seventh in world gold production, as its output decreased by 7% to 95,000 kg, the lowest level in 20 years (table 8). Goldcorp operated three mines in Ontario—the Musselwhite, Porcupine, and Red Lake Mines. In 2008, the Red Lake Mine produced 19,600 kg of gold, a 10% decrease compared with 2007 production because of manpower shortages, ore body development, and infrastructure upgrade activities. The Porcupine Mine produced 9,050 kg of gold, 8% less than compared in 2007, and Musselwhite Mine produced 6,550 kg of gold, 5% less than in 2007 (Goldcorp Inc., 2009, p. 39–44).

In 2008, Barrick's Eskay Creek Mine in British Columbia produced 404 kg of gold. The mine ceased mining in first quarter 2008, and reclamation and closure activities continued. Barrick and Teck Cominco's Hemlo joint operation in Ontario produced 8,090 kg of gold, a 23% decrease compared with 2007 production because of declining grades (Barrick Gold Corp., 2009a, p. 42; 2009b).

In 2008, Century Mining Corp.'s (Blaine, WA) Sigma-Lamaque operations in Quebec were placed on temporary hold because of a lack of capital to transition from the Sigma open pit to the Lamaque underground operations. Underground operations started in May 2007 and open pit operations stopped in November 2007, with continued production from leach pads (Century Mining Corp., 2008).

Other mines that had reduced production in 2008 compared with that in 2007 were Agnico-Eagle Mines Ltd.'s (Toronto) LaRonde Mine in Quebec (7% lower) and NorthGate Minerals Corp.'s (Vancouver) Kemess South Mine in British Columbia (33% lower). These reductions were partially offset by the Agnico-Eagle's Goldex startup in August 2008 that produced 1,790 kg of gold by yearend (Agnico-Eagle Mines Ltd., 2009, p. 8–9, 14; Northgate Minerals Corp., 2009, p. 8).

**Chile.**—In 2008, gold production was 39,200 kg, 6% lower compared with that of 2007. The leading gold producing mine was Yamana Gold's El Penon Mine, which produced 12,700 kg of gold, 6% more than production in 2007. These gains were offset by a 23% reduction in gold from the BHP Billiton Group majority owned copper-gold Escondida Mine (BHP Billiton Group, 2009, p. 9; Yamana Gold Inc., 2009, p. 47).

**China.**—China's production of gold increased by 4%, to 285,000 kg, compared with 2007 gold production. In 1990, China first produced more than 100,000 kg of gold, and since that time, annual production has only declined once—from 1998 to 1999.

China was not only a major producer of gold; it also was a major consumer. In 2008, China consumed 396,000 kg of gold, mainly in jewelry manufacturing and in the investments market. Consumption was 68,000 kg more than 2007 and represented 14% of world total gold consumption. China remained the second leading consumer in the world behind India, which consumed 660,000 kg of gold, 14% less than 2007 consumption (China Metal Market—Precious and Minor Metals, 2009, p. 5).

**Fiji.**—Vatukoula Gold Mine, the country's only commercial gold mine, now owned by Vatukoula Gold Mines plc (London), restarted in April (Vatukoula Gold Mines plc, 2009).

**Ghana.**—Production of gold in 2008 was 80,500 kg which was 4% lower than that of 2007. Production from Newmont's Ahafo Mine was 16,000 kg, up 17% compared with 2007 gold production owing to an increase in grade and plant efficiency. In 2008, AngloGold operations, Obuasi and Iduapriem Mines, produced 17,300 kg of gold, slightly more than production in 2007. Other gold operations had lower production because of power shortages owing to drought conditions and lower grades (AngloGold Ashanti Ltd., 2009, p. 64–67; Klapwijk and others, 2009, p. 41; Newmont Mining Corp., 2009, p. 67–68).

**Guatemala.**—In 2008, Guatemala's leading gold producing mine, Goldcorp's Marlin Mine, produced 7,510 kg of gold, 6% more than 2007 gold production (Goldcorp Inc., 2009, p. 50).

**Guinea.**—Gold production in 2008 rose by 28% compared with that of 2007, to 19,900 kg. AngloGold's Siguiri Mine produced 12,200 kg of gold in 2008, 19% more than production in 2007, and Crew Gold Corp. (Weybridge, United Kingdom) operated the LEFA Mine, which produced 6,150 kg of gold in 2008, 104% greater than 2007 production (AngloGold Ashanti Ltd., 2009, p. 68–69; Crew Gold Corp., 2009, p. 9).

**Kazakhstan.**—In 2008, production remained the same because increased production from two new mines, Altylnalmas Gold Ltd.'s (Almaty) Bakyrchik Mine and Orsu Metals Corp.'s (London) Varvarinskoye Mine, was offset by reductions from KazakhGold Group Ltd.'s (London) operations. KazakhGold had limited production from its three main operations because of development, renovation, and maintenance programs (Klapwijk and others, 2009, p. 47).

**Kyrgyzstan.**—Gold production for 2008 was 18,100 kg, up 72% as compared with that in 2007. Centerra Gold Inc.'s (Toronto) Kumtor Mine produced 17,300 kg of gold, an 85% increase compared with 2007 production because of higher grade ore mined (Centerra Gold Inc., 2009, p. 16–17).

**Indonesia.**—In 2008, gold production fell to 60,200 kg, a 49% decrease compared with 2007 gold production. Some of the leading gold producers were copper mines that produced byproduct gold. Freeport McMoRan's Grasberg Mine and Newmont-operated Batu Hijau Mine represented 60% and 14% of Indonesian gold production in 2008, respectively. Production at Batu Hijau and Grasberg were 51% and 57% lower, respectively, than production in 2007 because of heavy rainfall in the beginning of the year (Freeport-McMoRan



Copper & Gold Inc., 2009, p. 15; Newmont Mining Corp., 2009, p. 65–67). Offsetting some of the reduction in production was Newcrest's Gosowong Mine which produced 13,000 kg of gold, 11% more than 2007 production (Newcrest Mining Ltd., 2008a–c; 2009).

**Mali.**—In 2008, gold production fell by 16% owing to the maturity of mines and a drop in ore grade. AngloGold had interests in three gold mines in Mali—Morila {AngloGold and Randgold Resources [St. Helier, Jersey Island, (United Kingdom)], 40% each and Government of Mali, 20%}, Sadiola [AngloGold and IAMGOLD Corp. (London), 38% each; Government of Mali, 18%; and International Finance Corp. (IFC), 6%], and Yatela (AngloGold and IAMGOLD, 40% each and Government of Mali, 20%). In 2008, these mines produced 32,400 kg of gold, accounting for 79% of the total gold mined in Mali, 7% lower than gold production in 2007 (AngloGold Ashanti Ltd., 2009, p. 70–73).

The Syama Mine, 80% owned by Resolute Mining Ltd. (Perth), had its first pour in late 2008, and Avion Resources Corp. (Toronto) planned to restart the Tabakoto mill, processing run-of-mine stockpiles first, followed by ore from Avion's nearby Segala project (Avion Resources Corp., 2009; Klapwijk and others, 2009, p. 41).

**Mauritania.**—In 2008, production from Red Back Mining Inc.'s (Vancouver) Tasiast Gold Mine, the country's only gold mine, was 4,360 kg of gold in its first full year of production. First Quantum Minerals Ltd.'s (Vancouver) Guelb Moghrein copper-gold operation was the only other gold producer in 2008 (Red Back Mining Inc., 2009, p. 3).

**Mexico.**—In 2008, gold production reached an alltime high of more than 50,000 kg and was 28% greater than 2007 gold production. Goldcorp operated three mines in Mexico; Los Filos started commercial production on January 1 and produced 6,640 kg of gold for the year. El Sauzal and San Dimas produced 8,530 kg and 2,700 kg gold, respectively, which was 11% and 44% less, respectively, compared with gold production in 2007 owing to mining lower ore grade (Goldcorp Inc., 2009, p. 45–49).

Other mines that increased production were New Gold's Cerro San Pedro Mine, which had its first full year of production and produced 2,630 kg of gold. Alamos Gold Inc.'s (Toronto) Mulatos Mine produced 4,700 kg of gold, up by 42% because of improvements to leach pad operations (Alamos Gold Inc., 2009, p. 10–12; NewGold Inc., 2009, p. 11–12).

Fresnillo plc (London) operated two gold mines and one silver mine with byproduct gold production. In 2008, Fresnillo's gold production was 8,200 kg, 6% less than 2007 gold production (Fresnillo plc, 2009).

**Mongolia.**—Gold production in 2008 was 15,200 kg, 13% lower than 2007 production owing to losses at Centerra Gold's Boroo Gold Mine. Gold production from the mine was 6,000 kg in 2008, which was lower because of mining lower ore grade (Centerra Gold Inc., 2009, p. 18–19).

**New Zealand.**—In 2008, gold production was 16,300 kg, up 53% compared with production in 2007. Newmont's Waihi Mine produced 4,390 kg, 52% more than 2007 production because of higher mill throughput owing to the completion of a maintenance program in 2007 (Newmont Mining Corp., 2009,

p. 63–64). In 2008, OceanaGold Corp. (Melbourne) produced 5,710 kg of gold from the Macraes Goldfield, which was 26% more than 2007 production owing to the commissioning of Frasers Underground operations. OceanaGold's other operation, the Reefion Goldfields, marked its first full year of production and produced 2,370 kg of gold in 2008 (OceanaGold Corp., 2009, p. 6–8).

**Papua New Guinea.**—Production from Papua New Guinea mines increased by 5% in 2008 as compared with that of 2007. Barrick owned 95% of the Porgera Mine, and the Papua New Guinea Government held the remaining 5%. Barrick's share of production was 19,500 kg of gold in 2008, which was higher because of higher grade (Barrick Gold Corp., 2009a, p. 45; 2009b). In 2008, Lihir produced 24,000 kg of gold, 10% more than that of 2007 and reported gold reserves of 678,000 kg (Lihir Gold Ltd., 2009, p. 12–15). Ok Tedi Mining Ltd.'s (Tabubil) Ok Tedi Mine produced 3% more than that in 2007, and New Guinea Gold Corp.'s (Vancouver) Sinivit Mine, had its first pour in 2008 (Klapwijk and others, 2009, p. 46).

**Peru.**—In 2008, production of gold in Peru increased by 6%, to 180,000 kg, compared with production in 2007, and Peru remained the fifth ranked gold producing country in the world. Newmont and Compañía de Minas Buenaventura S.A.A. (Lima) jointly owned Yanacocha Mine in the Cajamarca District produced 56,000 kg of gold, 16% more gold compared with that of 2007. The higher production was a result of opening a new gold mill in the second quarter (Newmont Mining Corp., 2009, p. 62–63).

Barrick's Lagunas Norte produced 36,500 kg of gold in 2008, up 8% compared with production in 2007. As Barrick's Pierina Mine neared the end of its economic mine life, the company produced 12,400 kg of gold, 23% less than production in 2007 (Barrick Gold Corp., 2009a, p. 43; 2009b).

Buenaventura owned three other mines and a 35.78% share of another mine. In 2008, excluding Yanacocha, Buenaventura produced 13,100 kg, 5% more than production in 2007 (Compañía de Minas Buenaventura S.A.A., 2009, p. 3).

**Philippines.**—In 2008, production fell by 8% compared with that in 2007 because of reduction from the artisanal mines and from the two large-scale gold mines. However, some of the decreases were partially offset by increased byproduct gold production from Philex Mining Corp.'s (Pasig City) Padcal Copper Mine (Klapwijk and others, 2009, p. 46).

**Russia.**—Russian gold production in 2008 increased to 176,000 kg, 12% higher than 2007 production. The leading gold producer in Russia was Polyus Gold Mining Co. (Moscow), with 38,000 kg of production from three mines and several alluvial deposits, up slightly compared with 2007 production of 37,800 kg. In 2008, Polyus had three mines under construction and three other projects undergoing feasibility studies. As of December 31, Polyus's proven and probable gold reserves were 2,300,000 kg (Polyus Gold Mining Co., 2009, p. 4–9).

The Kupol Mine (75% owned by Kinross) had its first pour during the second quarter of 2008 and produced 19,500 kg of gold. As of December 31, the mine had proven and probable reserves of 131,000 kg of gold (Kinross Gold Corp., 2009, p. 7, 144).

In 2008, Peter Hambro Mining plc (London) accounted for 12,200 kg of gold, up 36% compared with production in 2007. Peter Hambro produced gold from two open pit mines (Pioneer and Pokrovskiy), alluvial operations, and joint ventures. Much of the increase was attributed to the startup of Pioneer's production in April (Peter Hambro Mining plc, 2009, p. 3–5, 16–21).

Production from JSC Polymetal's (St. Petersburg) four gold-silver mines rose by 18%, to 8,860 kg in 2008. The increase was a result of commissioning additional mill capacity. As of December 31, Polymetal estimated its proven and probable reserves to be 165,000 kg of gold (JSC Polymetal, 2008, p. 16–25, 129).

**South Africa.**—In 2008, three companies operated mines that accounted for more than 80% of South African gold production. They were, in descending order, Gold Fields, AngloGold, and Harmony Gold Mining Co., Ltd. (Randfontein). In 2008, Gold Fields produced 64,300 kg of gold, 23% less than 2007 production from the Beatrix, Driefontein, Kloof, and South Deep Mines (Gold Fields Ltd., 2009, p. 1–8).

AngloGold had seven mining operations grouped into the West Wits and Vaal River regions that combined produced 65,000 kg of gold in 2008, 10% less than in 2007. In 2008, West Wits operations included the Mponeng, Savuka, and Tau Tona Mines and produced 30,500 kg of gold. The Vaal River operations made up the rest of AngloGold's South African gold production and included Great Noligwa, Kopanang, Moab Khotsoeng, and Tau Lekoa (AngloGold Ashanti Ltd., 2009, p. 38–53).

Harmony operated 10 underground mines, 2 surface operations, and several other gold producing operations in South Africa. In 2008, production from Harmony's operations was 54,600 kg of gold, 11% less compared with that in 2007 (Harmony Gold Mining Co., Ltd., 2009, p. 1–10).

Overall in 2008, South Africa's gold production of 213,000 kg was a 16% decrease from that in 2007 owing to power outages early in the year. In addition, mine production was hindered because of temporary closure of shafts owing to mine accidents. Companies continued to have problems with finding and retaining enough trained labor force and competition with illegal miners (Klapwijk and others, 2009, p. 39).

**Tanzania.**—In 2008, gold production dropped by 8%, to 37,000 kg, compared with 2007 production. Gold production from Barrick's operations was 27,700 kg, down slightly compared with that of 2007. Barrick's fully owned Balyanhulu and North Mara Mines production was 18% and 17% lower, respectively, in 2008 compared with 2007 production. North Mara production was lower because of equipment availability issues resulting from an excavator fire and local civil disruptions. At Balyanhulu, production was down because of staffing issues resulting from an illegal strike. The Tulawaka Gold Mine [70% owned by Barrick and 30% owned by Northern Mining Explorations Ltd. (Montreal)] production was up 18% in 2008 compared with production in 2007 (Barrick Gold Corp., 2009a, p. 45; 2009b).

AngloGold's Geita Mine produced 8,210 kg of gold in 2008, a 19% decrease compared with production in 2007. Trouble accessing high-grade ore because of a pit wall collapse at the

Nyankanga Pit in the first quarter of 2007 resulted in lower gold production in 2008 (AngloGold Ashanti Ltd., 2009, p. 78–79).

**Turkey.**—Gold production in 2008 was 11,100 kg, up 12% compared with that of 2007. The production gains were because of the restart of the Eldorado Gold Corp.'s (Vancouver) Kisladag Mine in the third quarter of 2008. On March 6, a court decision allowed resumption of all production activities, and the mine produced 5,920 kg of gold in 2008 (Eldorado Gold Corp., 2009).

**Zimbabwe.**—In 2008, gold production dropped almost 50% to 3,600 kg because of Government policies and poor economic conditions that adversely affected gold production (Klapwijk and others, 2009, p. 42).

## Outlook

Worldwide consolidation of the gold industry was expected to continue as gold producers seek to secure their assets, increase gold reserves, cut costs, and exploit gold's higher prices. With the seventh straight year of price increases, exploration and development funding has increased. Several new mines were expected to open, and older mines would reopen or expand production in 2009. Even with new exploration and development during the past 6 years, new mines can take decades to begin operation at increased production costs. Current gold mines will operate at higher production costs and lower ore grades as the mine matures. Gold production was expected to remain relatively stable and may take years to significantly increase. Gold consumption by manufacturers was expected to continue to drop if the economic downturn continues, and higher gold prices would limit gold jewelry purchases. Investment in gold in various forms was expected to continue to increase as investors purchase gold as a safe haven, hedge against economic failures, portfolio diversifier, and as a store of wealth.

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TABLE 1  
SALIENT GOLD STATISTICS<sup>1</sup>

		2004	2005	2006	2007	2008
United States:						
Production:						
Mine:						
Quantity	kilograms	258,000	256,000	252,000	238,000	233,000
Value	thousands	\$3,400,000	\$3,670,000	\$4,910,000	\$5,350,000	\$6,550,000
Gold recovered by cyanidation:						
Extracted in vats, tanks, closed containers <sup>2</sup>	kilograms	9,940	W	W	W	W
Leached in open heaps or dumps <sup>3</sup>	do.	234,000	229,000	217,000 <sup>r</sup>	207,000	194,000
Refinery:						
Concentrates and dore	do.	222,000	195,000	181,000	176,000	168,000
Recycled materials (new and old scrap)	do.	91,700	81,300	89,100	135,000	181,000
Exports, refined	do.	114,000	182,000	228,000	392,000	460,000
Imports for consumption, refined	do.	139,000	105,000	136,000	113,000	118,000
Net deliveries from foreign stocks in Federal Reserve Bank of						
New York	do.	3,000	--	--	189,000	220,000
Stocks, December 31:						
Industry <sup>4</sup>	do.	1,080	2,040	2,000	1,140	W
Gold exchange traded funds holdings, United States only	do.	94,900	285,000	498,000	683,000	847,000
Commodity Exchange (COMEX) <sup>5</sup>	do.	180,000	211,000	234,000	229,000	265,000
U.S. Department of the Treasury	metric tons	8,140	8,140	8,140	8,140	8,140
U.S. Gold Futures Trading <sup>6</sup>	do.	46,500	49,400	49,500	77,900	119,000
Consumption:						
American Buffalo Bullion gold coin <sup>7</sup>	kilograms	--	--	10,500	4,250	5,890
American Eagle gold coin <sup>7</sup>	do.	15,800	13,800	9,770	12,800	35,600
In industry and the arts	do.	185,000	183,000	185,000	180,000	176,000
Price, average <sup>8</sup>	dollars per troy ounce	410.52	446.20	605.83	698.95	873.50
Employment, mine and mill only <sup>9</sup>		7,550	7,910	8,350	9,130	9,560
World:						
Production, mine	kilograms	2,420,000 <sup>r</sup>	2,470,000 <sup>r</sup>	2,370,000 <sup>r</sup>	2,370,000 <sup>r</sup>	2,280,000 <sup>e</sup>
Official bullion reserves <sup>10</sup>	metric tons	31,400	30,800	30,400	29,900	28,700

<sup>e</sup>Estimated. <sup>r</sup>Revised. do. Ditto. W Withheld to avoid disclosing company proprietary data. -- Zero.

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

<sup>2</sup>May include small quantities recovered by gravity methods.

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

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

<sup>5</sup>Commodity Exchange (COMEX) Division of the New York Mercantile Exchange.

<sup>6</sup>COMEX only.

<sup>7</sup>Data from U.S. Mint.

<sup>8</sup>Engelhard Corp. industries quotation.

<sup>9</sup>Data from the Mine Safety and Health Administration.

<sup>10</sup>Held by central banks, governments, and international monetary organizations. Data from the International Monetary Fund.

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

(Kilograms)

State	2007	2008
Nevada	186,000	178,000
Other States <sup>2</sup>	52,400	55,400
Total	238,000	233,000

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

<sup>2</sup>Includes Alaska, Arizona, California, Colorado, Idaho, Montana, New Mexico, South Dakota, Utah, and Washington.

TABLE 3  
LEADING GOLD-PRODUCING MINES IN THE UNITED STATES IN 2008, IN ORDER OF OUTPUT<sup>1</sup>

Rank	Mine	County and State	Majority owner	Quantity (kilograms)
1	Eastern Nevada Operations <sup>2</sup>	Eureka, NV	Newmont Mining Corp.	41,100
2	Goldstrike <sup>3</sup>	do.	Barrick Gold Corp.	39,900
3	Twin Creeks	Humboldt, NV	Newmont Mining Corp.	15,900
4	Smoky Valley Common Operation	Nye, NV	Kinross Gold Corp.	14,900
5	Cortez	Lander, NV	Barrick Gold Corp.	14,200
6	Meikle	Elko, NV	do.	13,200
7	Bingham Canyon <sup>4</sup>	Salt Lake, UT	Kennecott Utah Copper Corp.	11,400
8	Pogo	Southeast Fairbanks, AK	Teck Cominco Ltd.	10,800
9	Fort Knox <sup>5</sup>	Fairbanks North Star, AK	Kinross Gold Corp.	10,200
10	Cresson	Teller, CO	AngloGold Ashanti Ltd. <sup>6</sup>	8,030
11	Phoenix	Lander, NV	Newmont Mining Corp.	5,450
12	Turquoise Ridge	Humboldt, NV	Barrick Gold Corp.	5,250
13	Midas	Elko, NV	Newmont Mining Corp.	4,680
14	Marigold	Humboldt, NV	Goldcorp Inc.	4,490
15	Robinson	White Pine, NV	Quadra Mining Ltd.	4,280
16	Golden Sunlight	Jefferson, MT	Barrick Gold Corp.	3,730
17	Mesquite	Imperial, CA	Western Goldfield, Inc.	3,450
18	Bald Mountain	White Pine, NV	Barrick Gold Corp.	3,220
19	Ruby Hill	Eureka, NV	do.	3,190
20	Greens Creek	Juneau, AK	Hecla Mining Co. <sup>7</sup>	2,090
21	Wharf	Lawrence, SD	Wharf Resources Inc.	1,890
22	Storm <sup>8</sup>	Elko, NV	Barrick Gold Corp.	1,620
23	Montana Tunnels	Jefferson, MT	Apollo Gold Corp.	1,510
24	Florida Canyon	Pershing, NV	Jipangu Inc.	1,470
25	Hollister	Elko, NV	Great Basin Gold Ltd.	1,300
26	Jerritt Canyon	do.	Yukon-Nevada Gold Corp.	1,120
27	Kettle River-Buckhorn	Okanogan, WA	Kinross Gold Corp.	841
28	Rochester	Pershing, NV	Coeur d'Alene Mines Corp.	654
29	Denton-Rawhide	Mineral, NV	Kennecott Minerals Co.	551
30	Lone Tree <sup>9</sup>	Humboldt and Lander, NV	Newmont Mining Corp.	522

do. Ditto.

<sup>1</sup>Data are rounded to no more than three significant digits; the mines on this list accounted for more than 99% of U.S. mine production in 2008.

<sup>2</sup>Includes Carlin East, Deep Post, Gold Quarry, Leeville, and Pete Mines.

<sup>3</sup>Formerly listed as Betze-Post Mine.

<sup>4</sup>Quantity refers to total quantity of gold produced in concentrates.

<sup>5</sup>Quantity refers to gold equivalent produced (that is, includes value of associated metals).

<sup>6</sup>On July 1, AngloGold Ashanti Ltd. purchased the remaining 33% of Cripple Creek & Victor Gold Mining Co. from Golden Cycle Gold Corp.

<sup>7</sup>In February, Hecla Mining Co. purchased the 70.3% interest in the mine from Rio Tinto Plc.

<sup>8</sup>Formerly listed as Rossi/Storm Mine.

<sup>9</sup>Includes Mule Canyon and Trenton Canyon Mines.

Sources: Company annual reports, company 10-K reports submitted to the Securities and Exchange Commission, company news releases, and Nevada Bureau of Mines and Geology.

TABLE 4  
U.S. EXPORTS OF GOLD, BY COUNTRY<sup>1,2</sup>

Year and country	Ores and concentrates <sup>3</sup>		Dore and precipitates		Refined bullion <sup>4</sup>		Total	
	Quantity (kilograms)	Value (thousands)	Quantity (kilograms)	Value (thousands)	Quantity (kilograms)	Value (thousands)	Quantity (kilograms)	Value (thousands)
2007	3,190 <sup>r</sup>	\$34,000 <sup>r</sup>	123,000	\$2,740,000	392,000	\$8,700,000	519,000	\$11,500,000
2008:								
Australia	114	2,520	--	--	12,200	361,000	12,300	363,000
Bahamas, The	3	46	--	--	--	--	3	46
Belgium	--	--	--	--	39	1,190	39	1,190
Bermuda	1	7	--	--	--	--	1	7
Bolivia	--	--	10	247	--	--	10	247
Brazil	--	--	--	--	76	2,000	76	2,000
Cambodia	--	--	--	--	1	20	1	20
Canada	1	16	34	736	11,800	357,000	11,800	358,000
China	--	--	--	--	219	5,210	219	5,210
Costa Rica	5	78	11	298	208	5,230	224	5,600
Dominican Republic	29	350	--	--	--	--	29	350
France	2	15	--	--	--	--	2	15
Germany	162	3,430	--	--	143	2,960	305	6,380
Guatemala	1	24	--	--	--	--	1	24
Hong Kong	45	1,190	--	--	4,240	102,000	4,280	103,000
India	2	21	1	30	18,700	495,000	18,800	495,000
Indonesia	--	--	--	--	21	613	21	613
Ireland	3	23	--	--	2	33	6	56
Israel	--	--	--	--	19	250	19	250
Italy	--	--	--	--	1	30	1	30
Jamaica	2	16	--	--	--	--	2	16
Japan	2	22	--	--	--	--	2	22
Korea, Republic of	524	15,100	--	--	(5)	7	525	15,100
Lebanon	--	--	--	--	31	342	31	342
Malaysia	--	--	--	--	649	15,900	649	15,900
Mexico	833	12,700	1	11	3,830	100,000	4,660	113,000
Netherlands	1	3	--	--	--	--	1	3
New Zealand	--	--	--	--	1	18	1	18
Norway	7	34	--	--	--	--	7	34
Oman	--	--	--	--	8	220	8	220
Pakistan	--	--	--	--	5	131	5	131
Peru	--	--	43	1,160	85	2,460	128	3,620
Philippines	--	--	94	1,560	3	35	96	1,600
Singapore	--	--	1	23	910	22,800	911	22,900
South Africa	--	--	--	--	5,270	139,000	5,270	139,000
Spain	1	4	--	--	--	--	1	4
Sweden	589	15,000	--	--	--	--	589	15,000
Switzerland	3	28	106,000	2,990,000	190,000	5,510,000	296,000	8,500,000
Taiwan	1	9	--	--	--	--	1	9
Thailand	2	26	--	--	8,510	213,000	8,510	213,000
Trinidad and Tobago	--	--	--	--	8	238	8	238
Turkey	--	--	--	--	1,020	25,300	1,020	25,300
United Arab Emirates	--	--	--	--	20,700	548,000	20,700	548,000
United Kingdom	14	172	151	3,180	180,000	5,210,000	181,000	5,210,000
Uruguay	53	1,050	--	--	--	--	53	1,050
Vietnam	28	389	--	--	47	821	75	1,210
Total	2,430	52,300	106,000	3,000,000	460,000	13,100,000	568,000	16,200,000

<sup>r</sup>Revised. -- Zero.

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

<sup>2</sup>Ash and residues data were zero for listed years.

<sup>3</sup>Includes base-metal ores, concentrates, and matte destined for refining.

<sup>4</sup>Bullion also moves in both directions between U.S. markets and foreign stocks on deposit in the Federal Reserve Bank. Monetary gold is excluded.

TABLE 4—Continued  
U.S. EXPORTS OF GOLD, BY COUNTRY<sup>1,2</sup>

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<sup>5</sup>Less than ½ unit.

Source: U.S. Census Bureau.



TABLE 5  
U.S. EXPORTS OF GOLD, BY COUNTRY<sup>1</sup>

Year and country	Waste and scrap		Metal powder		Gold compounds	
	Quantity (kilograms)	Value (thousands)	Quantity (kilograms)	Value (thousands)	Quantity (kilograms)	Value (thousands)
2007	616,000	\$1,480,000	2,840	\$48,900	2,150,000	\$40,100
2008:						
Armenia	--	--	28	816	--	--
Aruba	--	--	--	--	733	13
Australia	--	--	1	22	--	--
Barbados	--	--	--	--	446	8
Belgium	113,000	12,900	--	--	1,680	30
Bolivia	--	--	2	66	1,460	26
Canada	154,000	1,780,000	9	121	550,000	9,900
China	--	--	5	64	449,000	10,600
Costa Rica	--	--	1	5	188	3
Czech Republic	--	--	1	4	--	--
Dominican Republic	--	--	1	9	175,000	3,140
Ecuador	--	--	1	5	--	--
France	--	--	(2)	3	16,700	300
Germany	364,000	79,600	3	34	22,000	385
Guatemala	22	288	--	--	--	--
Honduras	--	--	26	100	1,610	29
Hong Kong	2	43	171	1,540	22,700	352
India	--	--	56	1,490	9,310	168
Ireland	--	--	--	--	8,170	147
Israel	--	--	5	141	54,500	991
Italy	3,870	765	--	--	21,900	721
Japan	578	14,600	24	618	--	--
Korea, Republic of	--	--	4	86	6,630	122
Lebanon	--	--	--	--	25,600	461
Malaysia	13	36	--	--	55,200	993
Mexico	2	17	1	31	30,100	542
Netherlands	--	--	6	138	173,000	3,500
Netherlands Antilles	--	--	--	--	1,170	21
New Zealand	--	--	--	--	2,190	39
Peru	--	--	--	--	158	5
Philippines	--	--	--	--	1,630	14
Poland	--	--	--	--	2,720	19
Romania	--	--	--	--	173	3
Russia	--	--	1	22	--	--
Saudi Arabia	--	--	--	--	860	15
Senegal	--	--	--	--	17,500	584
Singapore	--	--	202	4,460	1,130,000	32,300
South Africa	15	254	--	--	--	--
Spain	--	--	4	27	--	--
Sweden	12,600	350	--	--	--	--
Switzerland	286	7,400	3	50	--	--
Taiwan	--	--	240	5,950	130,000	2,330
Thailand	--	--	7	206	983	18
Turkey	(2)	5	137	3,450	--	--
United Arab Emirates	--	--	11	327	--	--
United Kingdom	237,000	76,400	255	5,480	10,000	162
Total	886,000	1,970,000	1,210	25,300	2,920,000	67,900

-- Zero.

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

<sup>2</sup>Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 6  
U.S. IMPORTS FOR CONSUMPTION OF GOLD, BY COUNTRY<sup>1</sup>

Year and country	Ores and concentrates <sup>2</sup>		Dore and precipitates		Refined bullion <sup>3</sup>		Total	
	Quantity (kilograms)	Value (thousands)	Quantity (kilograms)	Value (thousands)	Quantity (kilograms)	Value (thousands)	Quantity (kilograms)	Value (thousands)
2007	846 <sup>r</sup>	\$7,420	56,000	\$1,040,000	113,000	\$2,440,000	170,000	\$3,490,000
2008:								
Australia	16	184	(4)	8	24	618	40	810
Austria	--	--	--	--	659	18,900	659	18,900
Bolivia	--	--	21	591	--	--	21	590
Brazil	--	--	--	--	2,440	65,500	2,440	65,500
Canada	31	342	2,340	59,800	83,900	2,390,000	86,200	2,450,000
Chile	--	--	13,800	278,000	3,630	101,000	17,500	379,000
China	--	--	4	60	(4)	2	4	62
Colombia	--	--	14,500	339,000	4,460	123,000	19,000	462,000
Costa Rica	--	--	883	13,200	1	7	883	13,200
Dominican Republic	--	--	178	3,270	219	2,590	397	5,870
Ecuador	--	--	2,300	59,900	--	--	2,300	59,900
El Salvador	--	--	5	92	27	309	32	401
France	--	--	--	--	8	271	8	271
Ghana	--	--	1	27	66	1,340	67	1,360
Guatemala	--	--	932	28,600	466	--	1,400	40,300
Guinea	--	--	5	75	241	4,770	246	4,840
Guyana	--	--	457	12,100	338	5,420	795	17,500
Honduras	--	--	2,250	43,900	445	7,490	2,690	51,400
Hong Kong	--	--	--	--	63	1,780	63	1,780
India	--	--	--	--	45	1,350	45	1,350
Israel	--	--	--	--	3	104	3	104
Italy	--	--	--	--	122	3,630	122	3,630
Jamaica	--	--	--	--	4	79	4	79
Japan	--	--	--	--	55	1,510	55	1,510
Korea, Republic of	--	--	--	--	37	966	37	966
Liberia	--	--	1	23	--	--	1	23
Madagascar	--	--	1	10	--	--	1	10
Mali	--	--	--	--	10	245	10	245
Mexico	27,500	15,200	32,000	622,000	11,400	263,000	71,000	901,000
Netherlands Antilles	--	--	108	2,720	306	4,870	414	7,590
New Zealand	--	--	--	--	(4)	3	(4)	3
Nicaragua	--	--	2,800	33,000	34	561	2,830	33,600
Panama	--	--	435	9,310	193	3,510	628	12,800
Peru	--	--	11,800	321,000	819	23,500	12,600	344,000
Sierra Leone	--	--	3	117	1	20	4	137
South Africa	--	--	--	--	24	624	24	624
Sweden	--	--	--	--	37	1,120	37	1,120
Switzerland	--	--	225	6,680	2,030	53,200	2,250	59,800
Thailand	--	--	--	--	53	1,440	53	1,440
Turkey	--	--	--	--	3	81	3	81
United Arab Emirates	--	--	--	--	12	212	12	212
United Kingdom	--	--	--	--	5,740	111,000	5,740	111,000
Uruguay	--	--	--	--	29	719	29	719
Venezuela	--	--	--	--	81	1,300	81	1,300
Total	27,500	15,700	85,100	1,830,000	118,000	3,190,000	231,000	5,050,000

<sup>r</sup>Revised. -- Zero.

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

<sup>2</sup>Includes base-metal ores, concentrates, and matte destined for refining.

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

<sup>4</sup>Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 7  
U.S. IMPORTS FOR CONSUMPTION OF GOLD, BY COUNTRY<sup>1</sup>

Year and country	Waste and scrap		Metal powder		Gold compounds	
	Quantity (kilograms)	Value (thousands)	Quantity (kilograms)	Value (thousands)	Quantity (kilograms)	Value (thousands)
2007	42,600	\$490,000	1,120	\$12,300	162,000	\$3,170
2008:						
Antigua and Barbuda	--	--	1	7	--	--
Aruba	16	133	--	--	--	--
Australia	--	--	1	4	--	--
Bahamas	12	60	--	--	--	--
Belize	5	47	--	--	--	--
Brazil	2	33	--	--	22,900	446
Canada	3,820	44,600	19	479	--	--
Chile	1	16	--	--	--	--
China	51	608	--	--	--	--
Colombia	2,460	50,200	--	--	--	--
Costa Rica	1,680	20,100	--	--	--	--
Dominican Republic	6,880	138,000	34	530	--	--
Ecuador	42	906	--	--	--	--
El Salvador	2,500	23,000	--	--	--	--
Germany	7	26	41	928	10,500	249
Ghana	--	--	107	1,920	--	--
Guatemala	557	4,720	--	--	--	--
Guinea	--	--	2	15	--	--
Guyana	--	--	3	75	--	--
Honduras	3,830	47,400	--	--	--	--
Hong Kong	292	5,110	--	--	--	--
India	6	301	3	16	--	--
Indonesia	2	20	--	--	--	--
Ireland	--	--	--	--	1	3
Israel	--	--	35	974	--	--
Italy	88	938	4	37	965	17
Jamaica	11	142	--	--	--	--
Japan	6	50	(2)	2	22,300	552
Korea, Republic of	52	1,240	(2)	7	--	--
Liberia	--	--	2	27	--	--
Malaysia	276	3,200	--	--	--	--
Mali	--	--	25	352	--	--
Mexico	9,640	97,000	1	5	--	--
Netherlands	--	--	--	--	44,600	906
Netherlands Antilles	137	3,170	--	--	--	--
New Zealand	--	--	--	--	789	6
Nicaragua	1,380	15,500	--	--	--	--
Panama	1,270	16,300	--	--	--	--
Peru	3	48	--	--	--	--
Philippines	2	25	--	--	--	--
Sierra Leone	--	--	36	963	--	--
Singapore	1,050	1,690	--	--	--	--
Spain	7	105	--	--	--	--
Sweden	6	111	--	--	--	--
Switzerland	209	5,540	8	249	--	--
Taiwan	11	117	--	--	--	--
Thailand	167	4,050	--	--	--	--
Trinidad and Tobago	--	--	1	12	--	--
United Arab Emirates	(2)	9	--	--	--	--
United Kingdom	4	19	2	21	43	34

See footnotes at end of table.

TABLE 7—Continued  
U.S. IMPORTS FOR CONSUMPTION OF GOLD, BY COUNTRY<sup>1</sup>

Year and country	Waste and scrap		Metal powder		Gold compounds	
	Quantity (kilograms)	Value (thousands)	Quantity (kilograms)	Value (thousands)	Quantity (kilograms)	Value (thousands)
2008—Continued:						
Venezuela	1	\$15	--	--	--	--
Total	36,500	485,000	324	\$6,620	102,000	\$2,210

-- Zero.

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

<sup>2</sup>Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 8  
GOLD: WORLD MINE PRODUCTION, BY COUNTRY<sup>1,2</sup>

(Kilograms)

Country	2004	2005	2006	2007	2008 <sup>c</sup>
Algeria	597	697	377	236	647 <sup>3</sup>
Argentina	28,466	27,904	44,131	42,021 <sup>r</sup>	40,000
Armenia	2,100	1,400	1,400	1,400 <sup>e</sup>	1,400
Australia	259,000	262,000	247,000	247,000 <sup>r,e</sup>	215,000
Belize <sup>e</sup>	--	--	5 <sup>3</sup>	5	5
Benin <sup>e</sup>	20	20	24 <sup>r</sup>	19 <sup>r</sup>	20
Bolivia	6,951	8,871	9,628	8,818 <sup>r</sup>	8,400 <sup>p,3</sup>
Botswana	162	2,770	2,800 <sup>e</sup>	2,800 <sup>e</sup>	2,800
Brazil <sup>4</sup>	47,596	38,293	43,082 <sup>r</sup>	49,613 <sup>r</sup>	49,700 <sup>p</sup>
Bulgaria	2,431	3,868	3,818	3,964 <sup>r</sup>	4,000
Burkina Faso	1,125	1,397	1,571	2,250 <sup>r,e</sup>	7,633 <sup>3</sup>
Burma <sup>e</sup>	90	90	100	100	100
Burundi <sup>e</sup>	750 <sup>r</sup>	750 <sup>r</sup>	750 <sup>r</sup>	750 <sup>r</sup>	750
Cameroon <sup>e</sup>	1,500	1,500	1,500	1,500	1,500
Canada	129,478	119,549	103,513	102,211 <sup>r</sup>	95,004 <sup>p,3</sup>
Central African Republic <sup>e</sup>	7 <sup>3</sup>	15 <sup>r</sup>	10	10	10
Chad <sup>e</sup>	150	150	150	150	150
Chile	39,986	40,447	42,100	41,527	39,162 <sup>3</sup>
China <sup>e</sup>	215,000	225,000	245,000	275,000	285,000
Colombia	37,738	35,783	15,682 <sup>r</sup>	15,482 <sup>r</sup>	20,000
Congo (Brazzaville) <sup>e</sup>	160 <sup>r</sup>	120 <sup>r</sup>	100 <sup>r</sup>	100 <sup>r</sup>	100
Congo (Kinshasa) <sup>e</sup>	10,500	9,000	10,000	10,000	10,000
Costa Rica	150 <sup>e</sup>	424	1,210	2,065 <sup>r</sup>	500
Cote d'Ivoire	1,219	1,335	1,324	1,243 <sup>r</sup>	4,200
Denmark <sup>5</sup>	1,000 <sup>e</sup>	2,324	1,129	1,861	1,665 <sup>3</sup>
Ecuador <sup>6</sup>	5,128	5,338	5,168	3,186	3,500
Equatorial Guinea <sup>e</sup>	150	200	150	100	100
Eritrea	33	30	30 <sup>e</sup>	30 <sup>e</sup>	30
Ethiopia <sup>7</sup>	3,443	4,376	4,028	3,300 <sup>e</sup>	3,300
Fiji	3,731	2,793	1,430 <sup>e</sup>	16 <sup>e</sup>	638
Finland <sup>e</sup>	5,004 <sup>3</sup>	5,000	5,000	5,000	5,000
France	1,312	1,500	1,500 <sup>e</sup>	1,500 <sup>e</sup>	1,500
French Guiana	2,773	1,955	2,000 <sup>e</sup>	2,000 <sup>e</sup>	2,000
Gabon <sup>e,8</sup>	300	300	300	300	300
Georgia <sup>e</sup>	2,000	2,000	2,000	2,000	2,000
Ghana	63,139	66,852	69,817	83,558 <sup>r</sup>	80,503 <sup>3</sup>
Greece	--	--	--	--	400
Guatemala	--	741	5,036	7,068 <sup>r</sup>	7,508 <sup>3</sup>
Guinea	11,100	25,097	16,922 <sup>r</sup>	15,628 <sup>r</sup>	19,945 <sup>3</sup>
Guyana	11,148	8,166	6,406	7,658	7,700 <sup>p</sup>
Honduras	3,683	4,438	4,100 <sup>e</sup>	3,275 <sup>r</sup>	2,600
India <sup>9</sup>	3,700	3,100	2,400 <sup>r</sup>	3,000 <sup>e</sup>	2,700
Indonesia <sup>10</sup>	91,710	130,620	93,176	117,851	60,200
Iran <sup>e</sup>	195 <sup>3</sup>	200	200	200	400
Italy <sup>e</sup>	200	150	200 <sup>3</sup>	450	450
Jamaica	20 <sup>e</sup>	--	--	--	--
Japan	8,021	8,318	8,904	8,869	6,868 <sup>3</sup>
Kazakhstan <sup>e</sup>	19,261	18,062	20,000 <sup>e</sup>	22,000 <sup>e</sup>	22,000
Kenya	567	616	432	490 <sup>r</sup>	500
Korea, North <sup>e</sup>	2,000	2,000	2,000	2,000	2,000
Korea, Republic of	233	266	277	162	175 <sup>3</sup>
Kyrgyzstan <sup>e</sup>	22,000	16,700	10,721 <sup>3</sup>	10,559 <sup>r</sup>	18,132 <sup>3</sup>

See footnotes at end of table.

TABLE 8—Continued  
GOLD: WORLD MINE PRODUCTION, BY COUNTRY<sup>1,2</sup>

(Kilograms)

Country	2004	2005	2006	2007	2008 <sup>c</sup>
Laos	6,760	7,058	6,088	4,161	5,000
Liberia	110	27	9 <sup>r</sup>	311 <sup>r,e</sup>	300
Madagascar	40 <sup>r</sup>	55 <sup>r</sup>	130 <sup>r</sup>	210 <sup>r,e</sup>	210
Malaysia	4,221	4,250	3,497	2,913 <sup>r</sup>	3,000
Mali	37,911	44,230	51,957	48,850	41,160 <sup>3</sup>
Mauritania	--	--	322	2,251 <sup>r</sup>	5,228 <sup>3</sup>
Mexico	21,818	30,356	38,961	39,355 <sup>r</sup>	50,365 <sup>p,3</sup>
Mongolia	19,240	24,120	22,561	17,473 <sup>r</sup>	15,184 <sup>3</sup>
Morocco <sup>e</sup>	1,200 <sup>3</sup>	1,200	1,200	1,200	1,200
Mozambique	56	63	85	99 <sup>r</sup>	100
Namibia	2,205	2,703	2,790 <sup>r</sup>	2,600 <sup>r</sup>	2,600
New Zealand	10,151	10,583	10,618	10,638 <sup>r</sup>	16,274 <sup>3</sup>
Nicaragua	4,315	3,674	3,595	3,400 <sup>r,e</sup>	3,400
Niger	684	4,962	2,615	2,625 <sup>r</sup>	2,700
Nigeria <sup>e</sup>	30	30	40	180 <sup>r</sup>	200
Oman	211	384	358 <sup>r</sup>	248 <sup>r</sup>	118 <sup>3</sup>
Papua New Guinea	73,670	68,483	58,349	65,000 <sup>r,e</sup>	68,000
Peru <sup>11</sup>	173,224	208,002	202,826 <sup>r</sup>	170,236 <sup>r</sup>	179,870 <sup>3</sup>
Philippines	35,464	37,490	36,141	38,792	35,568 <sup>3</sup>
Poland	527	713 <sup>r</sup>	1,700 <sup>r</sup>	883 <sup>r</sup>	902
Romania <sup>e</sup>	400 <sup>r</sup>	400 <sup>r</sup>	400 <sup>r</sup>	400	400
Russia <sup>12</sup>	163,148	164,186	159,340	156,975 <sup>r</sup>	176,347 <sup>3</sup>
Rwanda <sup>e</sup>	5 <sup>r</sup>	10 <sup>r</sup>	15 <sup>r</sup>	17 <sup>r,3</sup>	20
Saudi Arabia	8,268	7,456	5,200 <sup>e</sup>	4,440 <sup>r</sup>	4,527 <sup>3</sup>
Senegal <sup>e</sup>	600	600	600	600	600
Serbia	176 <sup>r,13</sup>	335 <sup>r,13</sup>	450 <sup>r,e</sup>	500 <sup>e</sup>	500
Sierra Leone	27	53	71	212 <sup>r,e</sup>	200
Slovakia	107 <sup>r</sup>	109	84 <sup>r</sup>	92 <sup>r,e</sup>	90
Solomon Islands <sup>e</sup>	10 <sup>3</sup>	10	10	--	--
South Africa	337,223	294,671	272,128	252,600 <sup>r</sup>	212,744 <sup>p,3</sup>
Spain	5,248	4,016 <sup>r</sup>	3,403 <sup>r</sup>	3,500 <sup>r,e</sup>	3,500 <sup>p</sup>
Sudan	5,000 <sup>e</sup>	3,625	3,158	2,703 <sup>r</sup>	2,276 <sup>3</sup>
Suriname	8,513	10,619	9,362	10,000 <sup>e</sup>	10,500
Sweden <sup>e</sup>	5,300 <sup>3</sup>	5,100	5,100	5,000	5,000
Tajikistan <sup>e</sup>	3,000	3,000	3,000	3,000	3,000
Tanzania	48,178	52,276	47,000	40,193	37,000
Thailand	4,500	4,400	3,500	2,400 <sup>e</sup>	2,721 <sup>3</sup>
Turkey	3,260 <sup>r</sup>	4,170 <sup>r</sup>	8,040 <sup>r</sup>	9,920 <sup>r</sup>	11,120 <sup>3</sup>
Uganda	1,447	1,700	1,600 <sup>e</sup>	1,600 <sup>e</sup>	1,500
United States	258,000	256,000	252,000	238,000	233,000 <sup>3</sup>
Uruguay	2,334	3,151	3,200	3,200 <sup>e</sup>	3,000
Uzbekistan <sup>e</sup>	93,000	90,000	85,000	85,000	85,000
Venezuela <sup>e</sup>	9,666 <sup>3</sup>	10,000	12,400	12,500	12,500
Vietnam <sup>e</sup>	2,065 <sup>r,3</sup>	2,138 <sup>3</sup>	2,500	3,000	3,000
Zambia	--	500	1,000	1,300	2,000
Zimbabwe	21,330	14,023	11,354	6,750	3,600
Total	2,420,000 <sup>r</sup>	2,470,000 <sup>r</sup>	2,370,000 <sup>r</sup>	2,370,000 <sup>r</sup>	2,280,000

<sup>c</sup>Estimated. <sup>p</sup>Preliminary. <sup>r</sup>Revised. -- Zero.

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

<sup>2</sup>Table includes data available through August 5, 2009.

<sup>3</sup>Reported figure.

TABLE 8—Continued  
GOLD: WORLD MINE PRODUCTION, BY COUNTRY<sup>1,2</sup>

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<sup>4</sup>Officially reported figures are as follows, in kilograms: Major companies: 2004—28,508; 2005—29,942 (revised); 2006—37,903 (revised); 2007—44,443 (revised); and 2008—44,500 (estimated). Garimpos: 2004—19,088; 2005—8,351; 2006—5,175 (revised); 2007—5,170 (revised); and 2008—5,200 (estimated).

<sup>5</sup>All production from Greenland.

<sup>6</sup>Includes undocumented artisanal production.

<sup>7</sup>Year ending July 7 of that stated.

<sup>8</sup>Undocumented artisanal production.

<sup>9</sup>Refinery output.

<sup>10</sup>Excludes production from so-called people's mines, which may be as much as 20,000 kilograms per year, but includes gold recovered as byproduct of copper mining.

<sup>11</sup>Includes documented production from placer artisanal production.

<sup>12</sup>Mine output including gold recovered as a byproduct, but excludes secondary gold production, which for Russia, in kilograms, was 2004—4,884; 2005—4,882; 2006—4,981; 2007—5,867; and 2008—not available.

<sup>13</sup>Montenegro and Serbia formally declared independence in June 2006 from each other and dissolved their union.