

# SILVER

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In 2003, silver production in the United States, which accounted for about 7% of global mine production, declined by about 8% or 110 metric tons (t) compared with that of 2002. Silver was produced from precious-metal ores at about 24 lode mines and from base-metal ores at about 13 mines. Fewer than 10 placer operations recovered silver in 2003, and the quantity recovered was less than 1% of total domestic production. Alaska's silver production was withheld to protect company proprietary data, but Alaska remained the country's leading silver producer in 2003.

Photography remained the leading domestic market for silver products in 2003, accounting for an estimated 1,900 t or about 35% of total domestic consumption, down from 37% in 2002.

U.S. imports for consumption of refined silver totaled 4,510 t, 210 t more than in 2002 (table 1). Mexico (47%) was the leading source of imported refined silver into the United States, followed by Canada (30%) and Peru (13%). The silver content of all imports totaled about 5,000 t.

In 2003, silver was mined in more than 40 countries. Mine production in 2003 was essentially unchanged from mine production in 2002. Increased mine production in China, Chile, Peru, and Russia was slightly more than offset by reduced mine output in Australia, Canada, Mexico, and the United States. In Russia, the startup of the Dukat silver mine in the fourth quarter of 2002 helped boost Russia's mine output of silver in 2003 by about 75% to 700 t. In World Silver Survey 2004, the Silver Institute listed Mexico as the world's leading silver producer followed by Peru, Australia, China, and Poland (Silver Institute, 2004, p. 19).

## Legislation and Government Programs

The U.S. Mint is responsible for safeguarding a significant portion of the Nation's precious-metal resources and is the custodian of most of its silver. The value of the resources is reported at the lower of cost or market value. Amounts and values of custodial silver in the custody of the U.S. Mint on September 30, 2003, were 220,062 kilograms of silver with a market value of \$36.190 million (at \$5.1150 per fine troy ounce) and a statutory value of \$9.148 million. A statutory rate of \$1.29292 per fine troy ounce was used to value the custodial silver held by the U.S. Mint. During the first year following depletion of silver in the National Defense Stockpile, the U.S. Mint used about 280 t of silver in its bullion coinage and commemoratives. Previously while using the stockpile transfers, large taxpayer savings were generated since silver was carried on the books at \$1.29 per ounce. The sale price of the coins was at the current market price for silver plus a \$1.25 cost allocated for minting each coin (U.S. Mint, undated<sup>1</sup>).

<sup>1</sup>References that include a section mark (§) are found in the Internet References Cited section.

## Production

Production data were obtained from about 47 domestic producers, most of which responded to requests from the U.S. Geological Survey for data, representing about 92% of U.S. production.

Domestic mine production of silver, which totaled 1,240 t, was down sharply in 2003 compared with production in 2002 (table 1). The 8% decline was the third consecutive drop in mine output and reduced mine production to its lowest level since 1994. Most of the drop in output can be attributed to the closure of Echo Bay Mines Ltd.'s McCoy/Cove gold mine in Nevada. Production at the mine, which had been a major producer in previous years, was discontinued on March 31, 2002, and the mine site has been reclaimed. Despite the rebound in global copper prices during 2003, there was a significant reduction in byproduct silver generated at copper mines. Downtime at Kennecott Utah Copper Corp.'s Bingham Canyon Mine reduced production from late March until mid-April 2003. Also contributing to lower production were lower grades of ore being dug from the mine. While copper ore grades were lower by about 8% compared with 2002 ore grades, silver ore grades were down by 31%. Reductions at Bingham Canyon were compounded by cutbacks at Asarco, Inc.'s Mission Mine in southern Arizona. Asarco (a subsidiary of Grupo Mexico S.A. de C.V.) announced on December 20, 2002, that it had significantly reduced copper production at its Mission mining complex to about 15% of its established capacity (Asarco, Inc., 2002; Silver Institute, 2004, p. 21-22).

## Consumption

Silver, the least expensive of the precious metals, is the whitest and has the highest electrical and thermal conductivity of all the metals. These and other unique properties are the basis for its use in catalysts, electrical and electronics components, jewelry and silverware, and photography.

The annual decline in demand for silver by the photographic sector accelerated in 2003, falling by 8.5% to 1,920 t compared with 2,100 t in 2002. Global use of silver in the photographic industry totaled 6,100 t in 2003, a decrease of 5% when compared with use in 2002. The decline in market share for photography was the continuation of a decline in silver use in this sector that began in 2000. Competition from digital technology has been the main factor contributing to this reduction in silver use. Analysts at the Photo Marketing Association estimated that overall U.S. camera sales were expected to rise to 25 million units in 2003 from 24 million units in 2002—a modest increase—but sales of digital cameras were expected to soar to nearly 13 million units in 2003 from 9.4 million units in 2002 and were forecast to

reach 22.8 million units in 2004. Part of the reason for digital photography's increasing popularity is that better technology has addressed several user complaints, such as slow image processing, poor battery life, and photo quality differences between film and digital cameras. The declining cost of digital imaging technology is another factor that has contributed to the weakening demand for silver-base photography (Photo Marketing Association International, 2004). Domestic uses of silver in industrial applications other than photography increased by about 3%, driven by increased demand in the electrical and electronics sectors and an improving economic environment.

As the white precious metal, silver still had significant use as an historic storage of wealth in coinage, jewelry, and silverware. U.S. silver fabrication (486 t) in this sector increased by about 11%. Because silver does not spark when subjected to an electrical charge, it is used in electronics as a solder and in electrical contacts. The most significant uses of silver in electronics are in the preparation of thick-film, silver-palladium pastes for use as silkscreen circuit paths in multilayer ceramic capacitors, in the manufacture of membrane switches, silver film in electrically heated automobile windshields, and in conductive adhesives. Domestic fabrication demand in this sector was about 1,230 t in 2003, an increase of about 5% when compared with 1,170 t used in 2002. Other uses consumed about 1,470 t of silver as antibacterial agents, in bearings, chemical catalysts used to make basic feedstock for polyethylene, dental alloys, mirrors, solders, and other applications. Another 341 t of silver was used in the making of silver bullion coins, which were purchased by investors (Silver Institute, 2004, p. 76-83).

## Prices

For much of 2003 the price of silver ranged between \$4.50 and \$5.00 per troy ounce, with an annual average price of \$4.91 per ounce that was only 6% above the 2002 average. This average increase was much less than the 17% increase for gold and the 28% increase experienced by platinum.

## Trade

Domestic silver supply was estimated to be 6,570 t in 2003. The largest component of the silver supply was made up of imported silver bullion, dore, silver metal, and other silver-bearing materials with a total silver content of about 5,000 t. Exports of refined silver totaled 181 t in 2003. The silver content of all exports, including waste and scrap, was about 1,300 t.

## World Review

In 2003, global silver output decreased by about 100 t to 18,700 t. Most of the decrease in output was attributed to reported moderate decreases in silver production for Australia, Canada, Mexico, and the United States, which fell by a combined 592 t.

**Chile.**—Silver production in Chile increased by 3% to 1,250 t. Higher primary silver output along with increased byproduct

silver produced at the country's copper mines accounted for the bulk of the increase. Coeur d'Alene Mines Corporation's Cerro Bayo Mine accounted for a large portion of primary silver production, increasing to 151 t in 2003 from 97 t in 2002. Adding to the total was a 59% increase in silver output from the Escondida copper mine, which temporarily reduced production in 2002 owing to weak market conditions (Coeur d'Alene Mines Corporation, 2004; Silver Institute, 2004, p. 23). The Cerro Bayo property covers about 103 square miles and is located south of Coyhaique, the capital of Region XI in southern Chile. The Cerro Bayo property is known to include multiple epithermal veins containing gold and silver. Coeur has been granted exploitation concessions (the Chilean equivalent of an unpatented claim except that the owner does not have title to the surface, which must be separately acquired from the surface owner) covering the mineralized areas of the property as well as necessary surface rights to permit mining.

The ore processing mill at the Cerro Bayo Mine uses the standard flotation process to produce a high-grade gold-and-silver concentrate. The concentrate processed at this mill is sold to third-party smelters, primarily in Japan. During 2003, Coeur began metallurgical studies designed to determine the feasibility of further treating the concentrate to produce a dore, which would reduce transportation and refining costs. The mill has a design capacity of 1,500 metric tons per day. During 2003, recovery rates of 90% for gold and 92% for silver were achieved.

**China.**—Mine production of silver in China grew at the rate of about 10% per year during the past 10 years, reaching an alltime high in 2003. While domestic demand for silver was strong in 2003, reaching 1,980 t, it grew at a slower rate than production. To ease the oversupply pressure on its domestic market, China exported large quantities of silver to the international market. Some silver specialists in China believe that a better solution for solving the supply imbalance would be to expand domestic consumption. This would require the country to attach greater importance to developing downstream products of silver, a prerequisite to developing domestic demand and seizing market share. In China, silver is mainly used in the chemical industry, electrical and electronics products, and jewelry. The technology for processing silver beyond the refinery stage, however, is not yet fully developed (Antaike Precious & Minor Metals Monthly, 2003).

A major portion of silver production in China is from imported base-metal concentrates. In an effort to gain more control of the silver management mechanism, the central Government reinstated the value added tax (VAT) on imports of silver. According to a Financial Ministry circular, the VAT was resumed on imports of silver contained in concentrates, nonferrous metals, smelting semis, and silver contained in silver products. The Chinese Government repealed the VAT on these products in 2000 in an effort to support the development of the domestic silver market in China (Antaike Precious & Minor Metals Monthly, 2003; Silver Institute, 2004, p. 75).

**Mexico.**—Silver output was down by 6% from 2,747 t in 2002 to 2,569 t in 2003. Increased output from Hecla Mining Company's San Sebastian Unit and some of Mexico's small-to medium-sized silver producers was more than offset by an 8% decrease in output by Industrias Peñoles, S.A. de C.V.,

the country's leading silver producer. Peñoles reported the production of 1,500 t of silver in 2003 compared with 1,640 t in 2002. Several units in Peñoles' mining division reported production records. Total metal content production, however, declined owing to the closure of the Las Torres (Guanajuato) and El Monte (Hidalgo) mines that had reached the end of their operational life cycles. The combined loss of production from these operations totaled about 80 t of silver (Hecla Mining Company, 2004, p. 35; Industrias Peñoles, SA. de C.V., undated§).

**Peru.**—Peru was South America's leading producer of silver. Cia. Minas Benaventura (367 t) and Volcan Cia. Minera (295 t) were Peru's leading silver producers in 2003. Peru produced 2,775 t of silver in 2003, a 3% increase compared with 2002 production. Essentially all of Peru's silver production was as a byproduct of lead and zinc mining (Silver Institute, 2004, p. 19).

### Current Research and Technology

Antibiotic-resistant bacteria are a major concern to healthcare providers in the United States and around the world. Now, a new line of bandages with a natural silver-base antibacterial agent to which bacteria reportedly cannot become resistant has been introduced. Silver has a long history of antibacterial uses. In the Middle Ages, wealthy families thought that silver metal had disease-fighting properties, so they fed their children with silver spoons. The ancient Greeks drank wine from silver cups because they thought it would minimize the outbreak of disease. Silver dressings are used regularly in hospital settings to help control infections in major wounds and burns. The new silver-base bandages use silver in the wound pad as a natural antibacterial agent. Laboratory tests reportedly showed that silver reduced bacterial growth such as *Staph. aureus*, *E. coli*, *E. hirae*, and *Pseudomonas aeruginosa* (a powerful germ that does not respond to many antibacterials) in the dressing for 24 hours (Beiersdorf Inc., 2004).

### Outlook

In 2003, about 35% of domestic silver use was in photography, down from 37% in 2002. Silver use in photography fell for the second consecutive year. Although the decline has been partially owing to economic weakness and the reduction in tourism travel in the United States, digital photography continues to eat into silver's share of the photographic market. In 2002, global sales of digital cameras increased by 20%, compared with a modest decrease in sales of conventional cameras. Conventional camera sales increased modestly in 2003, while sales of digital cameras increased by 31%. In the medium term, it appears that the impact of digital technology will continue to grow, affecting demand not only in photographic films, but also to some degree in graphic arts paper, medical x-ray film, and motion picture film. As new digital technology is introduced and the cost of digital cameras is subsequently reduced, this process can be expected to accelerate. The cost per pixel for digital cameras has fallen dramatically during the past decade, which translates into cheaper cameras with improved picture quality.

Demand for silver continues to outstrip supply each year, and the aboveground supply has been drawn down. Uses for silver continue to grow in the fields of electronics, medicine, superconductivity, water purification, and many others. The fear that digital photography may greatly decrease demand for silver, at least in the medium term, may be unfounded for two reasons. First, on January 13, 2004, the Eastman Kodak Company announced that it would "increase its commitment to high-performance APS films and 35 mm reloadable camera sales and manufacturing in emerging markets," such as China, Eastern Europe, India, and Latin America. China's consumption of silver has been growing rapidly and was estimated to have been about 1,980 t in 2003. China has become the world's third leading market for photographic materials, with film sales reaching 205 million rolls in 2003 and color paper sales of more than 97 million square meters during the same period. The other reason is that most of the silver used in photography is recycled, making the overall impact of the photography segment on silver demand less than it appears (Antaika Precious & Minor Metals Monthly, 2004; Eastman Kodak Company, 2004).

Fuel cells offer a long-term option for power generation and motor vehicles. Currently, fuel cell development for use in motor vehicles is centered on proton exchange membrane (PEM) cells and alkaline-base cells. While the most promising research is focused on platinum-base fuel cells, alkaline-base cells are also of interest because they have cost and technical advantages compared with PEM cells, including the ability to use nonplatinum catalysts, such as gold or silver. The U.S. Government recently proposed a federally funded 3-year study on the use of gold and silver as catalysts for automotive and industrial uses.

### References Cited

- Antaika Precious & Minor Metals Monthly, 2003, China reinstates VAT on silver imports: Antaika Precious & Minor Metals Monthly, no. 40, May, p. 1.
- Antaika Precious & Minor Metals Monthly, 2004, China's annual silver report: Antaika Precious & Minor Metals Monthly, no. 49, February-March, p. 3.
- Asarco, Inc., 2002, Asarco to reduce Mission unit copper production to 15 percent of total capacity: Phoenix, AZ, Asarco, Inc. news release, December 20, 1 p.
- Beiersdorf Inc., 2004, Cuts and scrapes can't resist silver: Wilton, CT, Beiersdorf Inc. USA news release, May 27, 2 p.
- Coeur d'Alene Mines Corp., 2004, Coeur reports 4th quarter and 2003 results: Coeur d'Alene, ID, Coeur d'Alene Mines Corporation press release, February 14, 12 p.
- Eastman Kodak Company, 2004, Kodak to accelerate 35mm consumer film effort in emerging markets: Rochester, NY, Eastman Kodak Company news release, January 13, 2 p.
- Hecla Mining Company, 2004, Annual report—2003: Coeur d'Alene, ID, Hecla Mining Company, March 15, 50 p.
- Photo Marketing Association International, 2004, PMA processing survey, highlights and overview through January 2004: Jackson, MI, Photo Marketing Association International news release, March 22, 15 p.
- Silver Institute, 2004, World silver survey 2004: Washington, DC, Silver Institute, May, 87 p.

### Internet References Cited

- Industrias Peñoles, S.A. de C.V., [undated], 2003 annual report, accessed August 22, 2004, via URL <http://www.penoles.com.mx>.
- U.S. Mint, [undated], 2003 annual report, accessed July 22, 2004, via URL <http://www.usmint.gov>.

## GENERAL SOURCES OF INFORMATION

### U.S. Geological Survey Publications

1998 Assessment of Undiscovered Deposits of Gold, Silver, Copper, Lead, and Zinc in the United States. Circular 1178, 2000.

Precious Metals. Mineral Industry Surveys, monthly, through December 2003.

Silver. Mineral Industry Surveys, monthly, since January 2004.

Silver. Ch. in Mineral Commodity Summaries, annual.

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

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

|  |                        | 1999                | 2000                | 2001                | 2002                   | 2003                |
|--|------------------------|---------------------|---------------------|---------------------|------------------------|---------------------|
| United States:                                 |                        |                     |                     |                     |                        |                     |
| Mine production:                               |                        |                     |                     |                     |                        |                     |
| Quantity                                       | metric tons            | 1,950               | 1,980               | 1,740               | 1,350 <sup>r</sup>     | 1,240               |
| Value  | thousands              | \$329,000           | \$318,000           | \$245,000           | \$201,000 <sup>r</sup> | \$196,000           |
| Refinery production:                           |                        |                     |                     |                     |                        |                     |
| Domestic and foreign ores and concentrates     | metric tons            | 2,000               | 2,780               | 2,640               | 2,580                  | 2,160               |
| Scrap (old and new)                            | do.                    | 1,500               | 1,680               | 1,060               | 1,030                  | 1,200               |
| Exports, refined                               | do.                    | 621 <sup>r</sup>    | 373 <sup>r</sup>    | 783 <sup>r</sup>    | 680 <sup>r</sup>       | 181                 |
| Imports for consumption, refined               | do.                    | 3,190 <sup>r</sup>  | 4,090 <sup>r</sup>  | 3,340 <sup>r</sup>  | 4,300 <sup>r</sup>     | 4,510               |
| Stocks, December 31:                           |                        |                     |                     |                     |                        |                     |
| Industry                                       | metric tons            | NA                  | 462                 | 360                 | 280                    | 93                  |
| Futures exchanges                              | do.                    | 2,490               | 2,920               | 3,250               | 3,290                  | 3,430               |
| Department of the Treasury                     | do.                    | 617                 | 220                 | 220                 | 220                    | 220                 |
| National Defense Stockpile                     | do.                    | 778                 | 458                 | 21                  | --                     | --                  |
| Price, average <sup>2</sup>                    | dollars per troy ounce | \$5.25              | \$5.00              | \$4.39              | \$4.62                 | \$4.91              |
| Employment, mine and mill workers <sup>3</sup> |                        | 1,500               | 1,200               | 1,100               | 1,100                  | 1,200               |
| World, mine production                         | metric tons            | 17,100 <sup>r</sup> | 17,800 <sup>r</sup> | 18,500 <sup>r</sup> | 18,800 <sup>r</sup>    | 18,700 <sup>e</sup> |

<sup>e</sup>Estimated. <sup>r</sup>Revised. NA Not available. -- Zero.

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

<sup>2</sup>Price data are the annual Handy & Harman quotations published in Platts Metals Week.

<sup>3</sup>Employment data are from the Mine Safety and Health Administration.

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

(Kilograms)

| State              | 2001      | 2002                   | 2003      |
|--------------------|-----------|------------------------|-----------|
| California         | 7,590     | 3,440 <sup>r</sup>     | 958       |
| Colorado           | 2,830     | W                      | W         |
| Nevada             | 544,000   | 424,000                | 322,000   |
| Other <sup>2</sup> | 1,180,000 | 927,000 <sup>r</sup>   | 916,000   |
| Total              | 1,740,000 | 1,350,000 <sup>r</sup> | 1,240,000 |

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

<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, Colorado (2002-03), Idaho, Missouri, Montana, New Mexico, South Dakota, and Utah.

TABLE 3  
LEADING SILVER-PRODUCING MINES IN THE UNITED STATES IN 2003, IN ORDER OF OUTPUT<sup>1</sup>

| Rank | Mine                         | County and State     | Operator                               | Source of silver       |
|------|------------------------------|----------------------|--|------------------------|
| 1    | Greens Creek                 | Juneau, AK           | Kennecott Greens Creek Mining Co.      | Zinc ore.              |
| 2    | Red Dog                      | Northwest Arctic, AK | Teck Cominco Alaska Inc.               | Lead-zinc ore.         |
| 3    | Rochester                    | Pershing, NV         | Coeur d'Alene Mines Corp.              | Gold ore.              |
| 4    | Galena                       | Shoshone, ID         | Silver Valley Resources Corp.          | Silver ore.            |
| 5    | Bingham Canyon               | Salt Lake, UT        | Kennecott Utah Copper Corp.            | Copper-molybdenum ore. |
| 6    | Midas <sup>2</sup>           | Elko, NV             | Newmont Gold Company                   | Silver ore.            |
| 7    | Lucky Friday                 | Shoshone, ID         | Hecla Mining Company                   | Do.                    |
| 8    | Montana Tunnels              | Jefferson, MT        | Montana Tunnels Mining, Inc.           | Gold ore.              |
| 9    | Carlin Mines Complex         | Elko, Eureka, NV     | Newmont Gold Company                   | Do.                    |
| 10   | Bagdad                       | Yavapai, AZ          | Phelps Dodge Corp.                     | Copper-molybdenum ore. |
| 11   | Round Mountain               | Nye, NV              | Round Mountain Gold Corporation        | Gold ore.              |
| 12   | Denton-Rawhide               | Mineral, NV          | Kennecott Rawhide Mining Co.           | Do.                    |
| 13   | Mission Complex <sup>3</sup> | Pima, AZ             | ASARCO Incorporated                    | Copper ore.            |
| 14   | Brushy Creek                 | Reynolds, MO         | Doe Run Resources Corp.                | Lead ore.              |
| 15   | Fletcher                     | do.                  | do.                                    | Do.                    |
| 16   | Ray                          | Pinal, AZ            | ASARCO Incorporated                    | Copper ore.            |
| 17   | Buick                        | Iron, MO             | Doe Run Resources Corp.                | Lead ore.              |
| 18   | Cresson                      | Teller, CO           | Cripple Creek & Victor Gold Mining Co. | Gold ore.              |
| 19   | Betze-Post/Goldstrike        | Eureka, NV           | Barrick Gold Corporation               | Do.                    |
| 20   | Meikle/Goldstrike            | Elko, NV             | do.                                    | Do.                    |
| 21   | Continental Pit              | Silver Bow, MT       | Montana Resources, Inc.                | Copper-molybdenum ore. |
| 22   | Sweetwater                   | Reynolds, MO         | Doe Run Resources Corp.                | Lead ore.              |
| 23   | Florida Canyon               | Pershing, NV         | Florida Canyon Mining, Inc.            | Gold ore.              |
| 24   | Viburnum #28                 | Iron, MO             | Doe Run Resources Corp.                | Lead ore.              |
| 25   | Fort Knox                    | Fairbanks, AK        | Fairbanks Gold Mining, Incorporated    | Gold ore.              |

<sup>1</sup>The mines on this list accounted for 99% of U.S. mine production in 2003.

<sup>2</sup>Formerly Ken Snyder.

<sup>3</sup>Includes Eisenhower, Mission, Pima, and San Xavier Mines.

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

| Year and country       | Silver ores and concentrates |                   | Bullion                    |                   | Doré                       |                   | Total                      |                   |
|------------------------|------------------------------|-------------------|----------------------------|-------------------|----------------------------|-------------------|----------------------------|-------------------|
|                        | Silver content (kilograms)   | Value (thousands) | Silver content (kilograms) | Value (thousands) | Silver content (kilograms) | Value (thousands) | Silver content (kilograms) | Value (thousands) |
| 2002                   | 230,000                      | \$56,600          | 624,000                    | \$97,900          | 22,700                     | \$3,360           | 877,000                    | \$158,000         |
| 2003:                  |                              |                   |                            |                   |                            |                   |                            |                   |
| Armenia                | 43                           | 9                 | 18                         | 4                 | --                         | --                | 61                         | 13                |
| British Virgin Islands | --                           | --                | 82                         | 15                | --                         | --                | 82                         | 15                |
| Canada                 | --                           | --                | 16,200                     | 2,750             | 94                         | 13                | 16,300                     | 2,770             |
| El Salvador            | 4                            | 4                 | --                         | --                | --                         | --                | 4                          | 4                 |
| France                 | --                           | --                | 94                         | 17                | --                         | --                | 94                         | 17                |
| Guatemala              | --                           | --                | 811                        | 144               | --                         | --                | 811                        | 144               |
| Hong Kong              | 16                           | 11                | 85                         | 15                | --                         | --                | 101                        | 26                |
| Japan                  | 392                          | 172               | 128                        | 25                | --                         | --                | 520                        | 197               |
| Korea, Republic of     | --                           | --                | 432                        | 78                | 80                         | 20                | 512                        | 98                |
| Mexico                 | 57,100                       | 15,900            | 20,900                     | 3,230             | --                         | --                | 78,000                     | 19,100            |
| Netherlands            | --                           | --                | 71                         | 14                | --                         | --                | 71                         | 14                |
| Singapore              | --                           | --                | 53                         | 8                 | --                         | --                | 53                         | 8                 |
| Sri Lanka              | --                           | --                | 66                         | 11                | --                         | --                | 66                         | 11                |
| Switzerland            | --                           | --                | --                         | --                | 19,600                     | 3,160             | 19,600                     | 3,160             |
| Taiwan                 | --                           | --                | 12                         | 3                 | --                         | --                | 12                         | 3                 |
| Trinidad and Tobago    | 212                          | 47                | 22                         | 4                 | --                         | --                | 234                        | 51                |
| United Kingdom         | 123                          | 22                | 95,900                     | 14,400            | --                         | --                | 96,000                     | 14,400            |
| Total                  | 57,900                       | 16,200            | 135,000                    | 20,700            | 19,800                     | 3,190             | 212,000                    | 40,100            |

-- Zero.

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

Source: U.S. Census Bureau.

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

| Year and country     | Other unwrought silver      |                      | Metal powder                |                      | Silver nitrate              |                      | Semimanufactured forms <sup>2</sup> |                      | Waste and scrap             |                      |
|----------------------|-----------------------------|----------------------|-----------------------------|----------------------|-----------------------------|----------------------|-------------------------------------|----------------------|-----------------------------|----------------------|
|                      | Gross weight<br>(kilograms) | Value<br>(thousands) | Gross weight<br>(kilograms) | Value<br>(thousands) | Gross weight<br>(kilograms) | Value<br>(thousands) | Gross weight<br>(kilograms)         | Value<br>(thousands) | Gross weight<br>(kilograms) | Value<br>(thousands) |
| 2002                 | 32,700                      | \$9,960              | 360,000                     | \$63,600             | 81,200                      | \$9,560              | 290,000                             | \$50,300             | 2,380,000                   | \$555,000            |
| 2003:                |                             |                      |                             |                      |                             |                      |                                     |                      |                             |                      |
| Argentina            | --                          | --                   | --                          | --                   | --                          | --                   | --                                  | --                   | 686                         | 98                   |
| Australia            | --                          | --                   | --                          | --                   | 13,300                      | 1,940                | 33                                  | 6                    | --                          | --                   |
| Austria              | --                          | --                   | 255                         | 43                   | --                          | --                   | --                                  | --                   | 1,490                       | 200                  |
| Belgium              | 77                          | 16                   | 1,510                       | 266                  | --                          | --                   | 3,220                               | 543                  | 159,000                     | 35,100               |
| Brazil               | --                          | --                   | --                          | --                   | --                          | --                   | 21,400                              | 3,610                | 107                         | 17                   |
| Canada               | 16,200                      | 3,070                | 11,400                      | 1,950                | 43,200                      | 5,640                | 46,000                              | 7,880                | 655,000                     | 132,000              |
| Cayman Islands       | 185                         | 50                   | --                          | --                   | --                          | --                   | --                                  | --                   | --                          | --                   |
| China                | 77                          | 24                   | 663                         | 123                  | 6,400                       | 665                  | 1,660                               | 283                  | 272,000                     | 37,400               |
| Colombia             | --                          | --                   | --                          | --                   | --                          | --                   | 83                                  | 14                   | 8                           | 23                   |
| Czech Republic       | --                          | --                   | --                          | --                   | --                          | --                   | 47                                  | 8                    | 85                          | 28                   |
| Dominican Republic   | 2,730                       | 596                  | 57                          | 10                   | --                          | --                   | 913                                 | 155                  | 81                          | 11                   |
| Finland              | --                          | --                   | 1,660                       | 287                  | --                          | --                   | --                                  | --                   | 327                         | 42                   |
| France               | 4                           | 3                    | 13,700                      | 2,420                | --                          | --                   | 8,710                               | 1,580                | 2,420                       | 228                  |
| Germany              | 110                         | 26                   | 51,200                      | 8,850                | 19                          | 6                    | 10,200                              | 1,780                | 147,000                     | 31,300               |
| Grenada              | --                          | --                   | --                          | --                   | --                          | --                   | 260                                 | 45                   | --                          | --                   |
| Guadeloupe           | --                          | --                   | --                          | --                   | --                          | --                   | --                                  | --                   | 137                         | 18                   |
| Hong Kong            | 149                         | 84                   | 43,600                      | 7,440                | 367                         | 65                   | 12,200                              | 2,110                | 801                         | 117                  |
| India                | 82                          | 20                   | 73                          | 17                   | --                          | --                   | 294                                 | 52                   | 13,100                      | 2,030                |
| Israel               | --                          | --                   | 722                         | 123                  | --                          | --                   | 1,220                               | 212                  | --                          | --                   |
| Italy                | 94                          | 18                   | 56,600                      | 9,600                | 6                           | 5                    | 1,300                               | 223                  | 215,000                     | 49,800               |
| Jamaica              | 120                         | 26                   | --                          | --                   | --                          | --                   | 203                                 | 35                   | --                          | --                   |
| Japan                | 152                         | 76                   | 54,100                      | 9,470                | --                          | --                   | 31,800                              | 5,430                | 178,000                     | 45,100               |
| Jordan               | --                          | --                   | --                          | --                   | --                          | --                   | 1,070                               | 189                  | --                          | --                   |
| Korea, Republic of   | 433                         | 102                  | 40,700                      | 7,030                | 242                         | 30                   | 52,300                              | 9,030                | 5,650                       | 734                  |
| Lithuania            | --                          | --                   | --                          | --                   | --                          | --                   | 421                                 | 72                   | --                          | --                   |
| Lebanon              | --                          | --                   | 231                         | 41                   | --                          | --                   | --                                  | --                   | --                          | --                   |
| Malaysia             | --                          | --                   | --                          | --                   | --                          | --                   | 883                                 | 168                  | 42                          | 5                    |
| Mexico               | 3,440                       | 854                  | 11,000                      | 1,970                | 3,740                       | 586                  | 64,000                              | 11,300               | 2                           | 4                    |
| Netherlands          | --                          | --                   | 5,630                       | 970                  | --                          | --                   | 6,640                               | 1,150                | --                          | --                   |
| Netherlands Antilles | 171                         | 38                   | --                          | --                   | --                          | --                   | --                                  | --                   | --                          | --                   |
| New Zealand          | 21                          | 4                    | 27                          | 5                    | --                          | --                   | 161                                 | 35                   | --                          | --                   |
| Panama               | 213                         | 55                   | --                          | --                   | --                          | --                   | 87                                  | 15                   | --                          | --                   |
| Philippines          | --                          | --                   | --                          | --                   | 70                          | 13                   | 1,270                               | 207                  | 21                          | 3                    |
| Poland               | --                          | --                   | --                          | --                   | --                          | --                   | 501                                 | 85                   | --                          | --                   |
| Russia               | 3                           | 4                    | --                          | --                   | --                          | --                   | --                                  | --                   | 262                         | 1,280                |
| Saudi Arabia         | --                          | --                   | --                          | --                   | 50                          | 9                    | 44                                  | 8                    | 107,000                     | 24,900               |
| Singapore            | --                          | --                   | 4,810                       | 819                  | --                          | --                   | 7,280                               | 1,260                | 226                         | 31                   |
| South Africa         | --                          | --                   | --                          | --                   | 26                          | 3                    | --                                  | --                   | 13,800                      | 1,950                |
| Spain                | 28                          | 6                    | --                          | --                   | --                          | --                   | 18,200                              | 3,090                | --                          | --                   |
| Sweden               | 3                           | 3                    | 2,860                       | 486                  | --                          | --                   | 518                                 | 95                   | 194,000                     | 26,300               |
| Switzerland          | 19                          | 4                    | 581                         | 105                  | --                          | --                   | 366                                 | 70                   | --                          | --                   |
| Taiwan               | 55                          | 13                   | 82,400                      | 14,100               | 558                         | 115                  | 10,100                              | 1,730                | 9,210                       | 1,260                |
| Thailand             | 527                         | 86                   | 210                         | 36                   | --                          | --                   | 14,700                              | 2,380                | --                          | --                   |
| Trinidad and Tobago  | 5                           | 3                    | --                          | --                   | --                          | --                   | 311                                 | 56                   | --                          | --                   |
| Turkey               | --                          | --                   | --                          | --                   | --                          | --                   | --                                  | --                   | 761                         | 99                   |
| United Arab Emirates | --                          | --                   | --                          | --                   | --                          | --                   | 97                                  | 16                   | 537                         | 115                  |
| United Kingdom       | 273                         | 111                  | 89,200                      | 15,300               | --                          | --                   | 17,600                              | 3,110                | 41,200                      | 19,800               |
| Uruguay              | --                          | --                   | --                          | --                   | --                          | --                   | 7,860                               | 1,330                | 198                         | 26                   |
| Venezuela            | 116                         | 25                   | --                          | --                   | 999                         | 34                   | --                                  | --                   | 120                         | 16                   |
| Vietnam              | 431                         | 94                   | --                          | --                   | --                          | --                   | --                                  | --                   | --                          | --                   |
| Other                | 264                         | 60                   | 104                         | 18                   | 183                         | 20                   | 264                                 | 50                   | 31                          | 12                   |
| Total                | 26,000                      | 5,470                | 473,000                     | 81,500               | 69,200                      | 9,120                | 344,000                             | 59,400               | 2,020,000                   | 410,000              |

-- Zero.

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

<sup>2</sup>Containing 99.5% or more by weight of silver.

Source: U.S. Census Bureau.

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

| Year and country | Silver ores and concentrates |                   | Ash and residues           |                   | Bullion                    |                   | Dore                       |                   | Total                      |                   |
|------------------|------------------------------|-------------------|----------------------------|-------------------|----------------------------|-------------------|----------------------------|-------------------|----------------------------|-------------------|
|                  | Silver content (kilograms)   | Value (thousands) | Silver content (kilograms) | Value (thousands) | Silver content (kilograms) | Value (thousands) | Silver content (kilograms) | Value (thousands) | Silver content (kilograms) | Value (thousands) |
| 2002             | 61,000                       | \$13,100          | 63,500                     | \$11,600          | 4,020,000                  | \$593,000         | 16,600                     | \$4,430           | 4,100,000                  | \$610,000         |
| 2003:            |                              |                   |                            |                   |                            |                   |                            |                   |                            |                   |
| Belgium          | --                           | --                | --                         | --                | 3,010                      | 470               | --                         | --                | 3,010                      | 470               |
| Canada           | 2,540                        | 1,370             | --                         | --                | 1,300,000                  | 209,000           | 904                        | 145               | 1,300,000                  | 210,000           |
| Chile            | --                           | --                | --                         | --                | 61,800                     | 9,590             | --                         | --                | 61,800                     | 9,590             |
| China            | --                           | --                | --                         | --                | 18,000                     | 2,630             | --                         | --                | 18,000                     | 2,630             |
| Colombia         | --                           | --                | --                         | --                | --                         | --                | 1,690                      | 302               | 1,690                      | 302               |
| Costa Rica       | --                           | --                | --                         | --                | 75                         | 22                | --                         | --                | 75                         | 22                |
| France           | --                           | --                | --                         | --                | 92                         | 14                | --                         | --                | 92                         | 14                |
| Germany          | --                           | --                | --                         | --                | 40,300                     | 6,280             | --                         | --                | 40,300                     | 6,280             |
| Hong Kong        | --                           | --                | --                         | --                | 17,000                     | 2,690             | --                         | --                | 17,000                     | 2,690             |
| Italy            | --                           | --                | --                         | --                | 19,400                     | 3,180             | 117                        | 28                | 19,500                     | 3,200             |
| Mexico           | --                           | --                | --                         | --                | 1,710,000                  | 264,000           | 220,000                    | 69,700            | 1,930,000                  | 334,000           |
| Panama           | --                           | --                | --                         | --                | 190                        | 62                | --                         | --                | 190                        | 62                |
| Peru             | --                           | --                | --                         | --                | 557,000                    | 86,400            | 10,500                     | 2,010             | 568,000                    | 88,500            |
| Poland           | --                           | --                | --                         | --                | 40,000                     | 6,760             | --                         | --                | 40,000                     | 6,760             |
| Sweden           | --                           | --                | --                         | --                | 1,560                      | 245               | --                         | --                | 1,560                      | 245               |
| Taiwan           | --                           | --                | 1,340                      | 266               | --                         | --                | --                         | --                | 1,340                      | 266               |
| United Kingdom   | --                           | --                | --                         | --                | 238,000                    | 38,400            | --                         | --                | 238,000                    | 38,400            |
| Total            | 2,540                        | 1,370             | 1,340                      | 266               | 4,000,000                  | 630,000           | 233,000                    | 72,200            | 4,240,000                  | 703,000           |

-- Zero.

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

Source: U.S. Census Bureau.

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

| Year and country                 | Other unwrought silver   |                       | Metal powder             |                   | Silver nitrate           |                   | Semimanufactured forms <sup>2</sup> |                       | Waste and scrap          |                   |
|----------------------------------|--------------------------|-----------------------|--------------------------|-------------------|--------------------------|-------------------|-------------------------------------|-----------------------|--------------------------|-------------------|
|                                  | Gross weight (kilograms) | Value (thousands)     | Gross weight (kilograms) | Value (thousands) | Gross weight (kilograms) | Value (thousands) | Gross weight (kilograms)            | Value (thousands)     | Gross weight (kilograms) | Value (thousands) |
| 2002                             | 263,000                  | \$38,700 <sup>r</sup> | 12,100                   | \$2,540           | 572                      | \$103             | 70,800 <sup>r</sup>                 | \$10,400 <sup>r</sup> | 816,000                  | \$117,000         |
| 2003:                            |                          |                       |                          |                   |                          |                   |                                     |                       |                          |                   |
| Argentina                        | --                       | --                    | --                       | --                | --                       | --                | --                                  | --                    | 8                        | 107               |
| Aruba                            | --                       | --                    | --                       | --                | --                       | --                | --                                  | --                    | (3)                      | 5                 |
| Australia                        | --                       | --                    | --                       | --                | 25                       | 7                 | --                                  | --                    | 247                      | 728               |
| Belgium                          | --                       | --                    | 12                       | 2                 | --                       | --                | --                                  | --                    | 7                        | 33                |
| Bermuda                          | --                       | --                    | --                       | --                | --                       | --                | --                                  | --                    | 1                        | 3                 |
| Brazil                           | --                       | --                    | --                       | --                | --                       | --                | 4,420                               | 729                   | 84                       | 294               |
| Canada                           | 56,300                   | 8,620                 | 456                      | 48                | 15                       | 5                 | 3,150                               | 538                   | 195,000                  | 23,600            |
| Chile                            | --                       | --                    | --                       | --                | --                       | --                | --                                  | --                    | 60                       | 314               |
| China                            | 18,000                   | 2,730                 | --                       | --                | --                       | --                | --                                  | --                    | 3,750                    | 527               |
| Colombia                         | --                       | --                    | --                       | --                | --                       | --                | --                                  | --                    | 1,220                    | 181               |
| Costa Rica                       | --                       | --                    | --                       | --                | --                       | --                | --                                  | --                    | 42,700                   | 4,340             |
| Dominican Republic               | 4                        | 12                    | 57                       | 7                 | --                       | --                | --                                  | --                    | 3,180                    | 1,460             |
| El Salvador                      | --                       | --                    | --                       | --                | --                       | --                | --                                  | --                    | (3)                      | 3                 |
| France                           | 977                      | 202                   | 4,350                    | 810               | --                       | --                | 284                                 | 46                    | 1,220                    | 303               |
| Germany                          | 3                        | 8                     | 3,140                    | 636               | --                       | --                | 231                                 | 32                    | 25,300                   | 3,090             |
| Guatemala                        | --                       | --                    | --                       | --                | --                       | --                | --                                  | --                    | 18                       | 242               |
| Hong Kong                        | --                       | --                    | (3)                      | 7                 | --                       | --                | --                                  | --                    | 6                        | 26                |
| India                            | 570                      | 184                   | --                       | --                | --                       | --                | 432                                 | 65                    | 54                       | 9                 |
| Ireland                          | --                       | --                    | --                       | --                | --                       | --                | --                                  | --                    | 44                       | 324               |
| Israel                           | --                       | --                    | (3)                      | 2                 | --                       | --                | --                                  | --                    | 11,500                   | 322               |
| Italy                            | 276                      | 169                   | 100                      | 16                | --                       | --                | (3)                                 | 14                    | 10,100                   | 2,940             |
| Jamaica                          | --                       | --                    | --                       | --                | --                       | --                | --                                  | --                    | 998                      | 18                |
| Japan                            | 55                       | 14                    | 9,250                    | 2,030             | 224                      | 37                | --                                  | --                    | 2,360                    | 1,820             |
| Jordan                           | --                       | --                    | --                       | --                | --                       | --                | --                                  | --                    | 1,570                    | 325               |
| Korea, Republic of               | --                       | --                    | --                       | --                | --                       | --                | --                                  | --                    | 224                      | 800               |
| Kuwait                           | --                       | --                    | --                       | --                | --                       | --                | --                                  | --                    | 134,000                  | 3,620             |
| Malaysia                         | --                       | --                    | 302                      | 51                | --                       | --                | --                                  | --                    | 165,000                  | 10,200            |
| Mauritius                        | --                       | --                    | --                       | --                | --                       | --                | --                                  | --                    | 341                      | 70                |
| Mexico                           | 205,000                  | 30,300                | 345                      | 41                | 362                      | 36                | 3,740                               | 571                   | 40,200                   | 21,200            |
| Morocco                          | --                       | --                    | --                       | --                | --                       | --                | --                                  | --                    | 10,700                   | 53                |
| Netherlands                      | --                       | --                    | --                       | --                | 16                       | 2                 | --                                  | --                    | (3)                      | 2                 |
| New Zealand                      | --                       | --                    | --                       | --                | --                       | --                | --                                  | --                    | 120                      | 521               |
| Panama                           | 120                      | 11                    | --                       | --                | --                       | --                | --                                  | --                    | 259                      | 1,740             |
| Peru                             | --                       | --                    | 1,400                    | 197               | --                       | --                | 2,790                               | 395                   | 1                        | 7                 |
| Philippines                      | --                       | --                    | --                       | --                | --                       | --                | --                                  | --                    | 99,000                   | 4,040             |
| Poland                           | --                       | --                    | --                       | --                | --                       | --                | 320                                 | 28                    | --                       | --                |
| Portugal                         | --                       | --                    | --                       | --                | --                       | --                | --                                  | --                    | 9,480                    | 104               |
| Saint Vincent and the Grenadines | --                       | --                    | --                       | --                | --                       | --                | --                                  | --                    | 7                        | 3                 |
| Saudi Arabia                     | --                       | --                    | --                       | --                | --                       | --                | --                                  | --                    | 71,400                   | 4,580             |
| Singapore                        | --                       | --                    | --                       | --                | --                       | --                | --                                  | --                    | 3,370                    | 1,130             |
| South Africa                     | --                       | --                    | --                       | --                | --                       | --                | --                                  | --                    | 2                        | 27                |
| Spain                            | --                       | --                    | --                       | --                | --                       | --                | 135                                 | 21                    | --                       | --                |
| Switzerland                      | --                       | --                    | 649                      | 116               | --                       | --                | --                                  | --                    | --                       | --                |
| Taiwan                           | --                       | --                    | 10                       | 9                 | --                       | --                | --                                  | --                    | 11,400                   | 136               |
| Thailand                         | --                       | --                    | --                       | --                | --                       | --                | --                                  | --                    | 2                        | 26                |
| United Kingdom                   | --                       | --                    | 771                      | 181               | 19                       | 9                 | 1,530                               | 261                   | 38,900                   | 6,260             |
| Venezuela                        | --                       | --                    | --                       | --                | --                       | --                | --                                  | --                    | 1,670                    | 11,900            |
| Total                            | 281,000                  | 42,200                | 20,800                   | 4,160             | 661                      | 96                | 17,000                              | 2,700                 | 886,000                  | 107,000           |

<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>Containing 99.5% or more by weight of silver.

<sup>3</sup>Less than 1/2 unit.

Source: U.S. Census Bureau.



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

(Metric tons)

| Country                         | 1999               | 2000               | 2001               | 2002               | 2003 <sup>c</sup>  |
|---------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Algeria <sup>c</sup>            | 1                  | 1                  | 2 <sup>3</sup>     | 2 <sup>r</sup>     | 2                  |
| Argentina                       | 74                 | 78                 | 153                | 126                | 134 <sup>3</sup>   |
| Armenia                         | NA                 | NA                 | NA                 | 6                  | 4                  |
| Australia                       | 1,720              | 2,060              | 2,100 <sup>e</sup> | 2,077              | 1,872 <sup>3</sup> |
| Bolivia                         | 422                | 434                | 408                | 450 <sup>r</sup>   | 451                |
| Brazil <sup>4</sup>             | 42                 | 41                 | 46                 | 33 <sup>r</sup>    | 35                 |
| Bulgaria <sup>c</sup>           | 25                 | 54 <sup>r</sup>    | 57 <sup>r</sup>    | 60 <sup>r</sup>    | 60                 |
| Burma                           | 4                  | 2                  | 2                  | 2 <sup>e</sup>     | 2                  |
| Canada                          | 1,174              | 1,212              | 1,265              | 1,408 <sup>r</sup> | 1,309 <sup>3</sup> |
| Chile                           | 1,381 <sup>r</sup> | 1,242 <sup>r</sup> | 1,349              | 1,210 <sup>r</sup> | 1,250              |
| China <sup>c</sup>              | 1,320              | 1,600              | 1,910              | 2,200 <sup>r</sup> | 2,500              |
| Colombia                        | 8                  | 8                  | 7                  | 7                  | 10 <sup>3</sup>    |
| Costa Rica <sup>c</sup>         | (5)                | (5)                | (5)                | (5)                | (5)                |
| Dominican Republic              | 3 <sup>e</sup>     | --                 | --                 | --                 | --                 |
| Ecuador <sup>c</sup>            | 2                  | 2                  | 2                  | 2                  | 2                  |
| El Salvador                     | (5)                | --                 | --                 | --                 | --                 |
| Ethiopia                        | 1                  | 1                  | 1                  | 1 <sup>e</sup>     | 1                  |
| Fiji                            | 2                  | 1                  | --                 | --                 | --                 |
| Finland                         | 32 <sup>e</sup>    | 25                 | 24                 | 30 <sup>e</sup>    | 34                 |
| France                          | 1                  | 1                  | 1 <sup>e</sup>     | 1 <sup>e</sup>     | 1                  |
| Ghana                           | 4 <sup>e</sup>     | 6 <sup>r</sup>     | 2                  | 2 <sup>r</sup>     | 2                  |
| Greece                          | 46                 | 37                 | 62                 | 75                 | 79 <sup>3</sup>    |
| Honduras                        | 38                 | 32                 | 47                 | 53                 | 53                 |
| India                           | 54 <sup>e</sup>    | 40                 | 45 <sup>r</sup>    | 52                 | 54                 |
| Indonesia                       | 288                | 256                | 270 <sup>r</sup>   | 294 <sup>r</sup>   | 260                |
| Iran <sup>c</sup>               | 21                 | 22                 | 22                 | 23                 | 23                 |
| Ireland                         | 15                 | 25                 | 19                 | 5 <sup>e</sup>     | 24                 |
| Italy <sup>6</sup>              | 10                 | 4                  | 4                  | 4 <sup>e</sup>     | 4                  |
| Jamaica                         | --                 | --                 | (5)                | (5) <sup>e</sup>   | (5)                |
| Japan                           | 94                 | 104                | 80                 | 81                 | 79 <sup>3</sup>    |
| Kazakhstan                      | 905                | 927                | 982                | 893 <sup>r</sup>   | 827                |
| Korea, North <sup>c</sup>       | 40                 | 40                 | 40                 | 40                 | 40                 |
| Korea, Republic of <sup>7</sup> | -- <sup>r</sup>    | -- <sup>r</sup>    | -- <sup>r</sup>    | -- <sup>r</sup>    | --                 |
| Macedonia <sup>c</sup>          | 22                 | 20                 | 15                 | 10                 | 10                 |
| Malaysia                        | 4                  | (5)                | (5)                | --                 | -- <sup>3</sup>    |
| Mali <sup>c</sup>               | 1                  | 1                  | 2                  | 3                  | 3                  |
| Mexico                          | 2,467              | 2,620              | 2,760              | 2,747 <sup>r</sup> | 2,569 <sup>3</sup> |
| Mongolia <sup>c</sup>           | 20                 | 25                 | 27                 | 27                 | 27                 |
| Morocco                         | 278                | 289                | 281                | 277 <sup>r</sup>   | 201 <sup>3</sup>   |
| Namibia                         | 10                 | 9                  | 20 <sup>r</sup>    | 44 <sup>r</sup>    | 45                 |
| New Zealand <sup>c</sup>        | 24 <sup>3</sup>    | 23                 | 23                 | 32                 | 32                 |
| Nicaragua                       | 2                  | 2                  | 2                  | 3 <sup>e</sup>     | 3                  |
| Oman                            | 3                  | 5                  | 3                  | 4 <sup>r</sup>     | --                 |
| Panama <sup>c</sup>             | 2 <sup>3</sup>     | 2                  | 2                  | 2                  | 2                  |
| Papua New Guinea <sup>c</sup>   | 67 <sup>3</sup>    | 73                 | 73                 | 75                 | 74                 |
| Peru                            | 2,231              | 2,145              | 2,353              | 2,687              | 2,775 <sup>3</sup> |
| Philippines <sup>c</sup>        | 18 <sup>3</sup>    | 17                 | 17                 | 9                  | 9                  |
| Poland                          | 1,100              | 1,148              | 1,194              | 1,229 <sup>r</sup> | 1,200              |
| Portugal                        | 27                 | 21                 | 23 <sup>e</sup>    | 19 <sup>e</sup>    | 19                 |
| Romania <sup>c</sup>            | 50 <sup>3</sup>    | 18 <sup>r</sup>    | 18 <sup>r</sup>    | 15 <sup>r</sup>    | 15                 |
| Russia <sup>c</sup>             | 375                | 370                | 380                | 400                | 700                |
| Saudi Arabia                    | 10                 | 9                  | 15                 | 14 <sup>e</sup>    | 13                 |
| Serbia and Montenegro           | 8                  | 9                  | 6                  | 7 <sup>r</sup>     | 2                  |
| Solomon Islands                 | 2                  | (5) <sup>e</sup>   | -- <sup>e</sup>    | --                 | --                 |

See footnotes at end of table.

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

(Metric tons)

| Country             | 1999                | 2000                | 2001                | 2002                | 2003 <sup>e</sup>  |
|---------------------|---------------------|---------------------|---------------------|---------------------|--------------------|
| South Africa        | 152                 | 144                 | 110                 | 113                 | 80 <sup>3</sup>    |
| Spain <sup>e</sup>  | 96                  | 66 <sup>3</sup>     | 60                  | 50                  | 50                 |
| Sudan               | NA                  | NA                  | 2                   | 3                   | 3                  |
| Sweden              | 284                 | 329                 | 306                 | 299                 | 306 <sup>3</sup>   |
| Tanzania            | (5)                 | 1                   | 7                   | 9 <sup>r</sup>      | 8                  |
| Tajikistan          | 5                   | 5                   | 5 <sup>e</sup>      | 50 <sup>e</sup>     | 50                 |
| Tunisia             | 4                   | 4                   | 4                   | 3 <sup>e</sup>      | 3                  |
| Turkey <sup>e</sup> | 100                 | 110                 | 100                 | 100                 | 100                |
| United States       | 1,950               | 1,980               | 1,740               | 1,350 <sup>r</sup>  | 1,240 <sup>3</sup> |
| Uzbekistan          | 89                  | 90                  | 80 <sup>e</sup>     | 80 <sup>e</sup>     | 80                 |
| Zambia <sup>8</sup> | 5                   | 5 <sup>e</sup>      | -- <sup>r</sup>     | -- <sup>r</sup>     | --                 |
| Zimbabwe            | 5                   | 4                   | 3                   | 2                   | 1 <sup>3</sup>     |
| Total               | 17,100 <sup>r</sup> | 17,800 <sup>r</sup> | 18,500 <sup>r</sup> | 18,800 <sup>r</sup> | 18,700             |

<sup>e</sup>Estimated. <sup>r</sup>Revised. NA Not available. -- 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>Recoverable content of ores and concentrates produced unless otherwise specified. Table includes data available through August 13, 2004.

<sup>3</sup>Reported figure.

<sup>4</sup>Includes the following quantities, in kilograms, identified as secondary silver: 1999-2002--50,000 and 2003--50,000 (estimated).

<sup>5</sup>Less than 1/2 unit.

<sup>6</sup>Includes production from imported ores.

<sup>7</sup>Smelter and/or refinery production.

<sup>8</sup>Year beginning April 1 of that stated.