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# 2011 Minerals Yearbook

## GEMSTONES [ADVANCE RELEASE]

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# Gemstones

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In 2011, the estimated value of natural gemstones produced in the United States was more than $11.0 million, and the estimated value of U.S. laboratory-created gemstone production was more than $31.9 million. The total estimated value of U.S. gemstone production was about $43.0 million. The value of U.S. gemstone imports was $23.5 billion, and the value of combined U.S. gemstone exports and reexports was estimated to be $18.2 billion. In 2011, world natural diamond production totaled almost 135 million carats, of which an estimated 74.0 million carats was gem quality.

In this report, the terms "gem" and "gemstone" mean any mineral or organic material (such as amber, pearl, petrified wood, and shell) used for personal adornment, display, or object of art because it possesses beauty, durability, and rarity. Of more than 4,000 mineral species, only about 100 possess all these attributes and are considered to be gemstones. Silicates other than quartz are the largest group of gemstones in terms of chemical composition; oxides and quartz are the second largest (table 1). Gemstones are subdivided into diamond and colored gemstones, which in this report designates all natural nondiamond gems. In addition, laboratory-created gemstones, cultured pearls, and gemstone simulants are discussed but are treated separately from natural gemstones (table 2). Trade data in this report are from the U.S. Census Bureau. All percentages in the report were computed using unrounded data. Current information on industrial-grade diamond and industrial-grade garnet can be found in the U.S. Geological Survey (USGS) Minerals Yearbook, volume I, Metals and Minerals, chapters on industrial diamond and industrial garnet, respectively.

Gemstones have fascinated humans since prehistoric times. They have been valued as treasured objects throughout history by all societies in all parts of the world. Amber, amethyst, coral, diamond, emerald, garnet, jade, jasper, lapis lazuli, pearl, rock crystal, ruby, serpentine, and turquoise are some of the first stones known to have been used for making jewelry. These stones served as symbols of wealth and power. Today, gems are worn more for pleasure or in appreciation of their beauty than to demonstrate wealth. In addition to jewelry, gemstones are used for collections, decorative art objects, and exhibits.

## Production

U.S. gemstone production data were based on a survey of more than 250 domestic gemstone producers conducted by the USGS. The survey provided a foundation for projecting the scope and level of domestic gemstone production during the year. However, the USGS survey did not represent all gemstone activity in the United States, which includes thousands of professional and amateur collectors. Consequently, the USGS supplemented its survey with estimates of domestic gemstone production from related published data, contacts with gemstone dealers and collectors, and information gathered at gem and mineral shows.

Commercial mining of gemstones has never been extensive in the United States. More than 60 varieties of gemstones have been produced commercially from domestic mines, but most of the deposits are relatively small compared with those of other mining operations. In the United States, much of the current gemstone mining is conducted by individual collectors, gem clubs, and hobbyists rather than by businesses.

The commercial gemstone industry in the United States consists of individuals and companies that mine gemstones or harvest shell and pearl, firms that manufacture laboratory-created gemstones, and individuals and companies that cut and polish natural and laboratory-created gemstones. The domestic gemstone industry is focused on the production of colored gemstones and on the cutting and polishing of large diamond stones. Industry employment is estimated to be between 1,000 and 1,200.

Most natural gemstone producers in the United States are small businesses that are widely dispersed and operate independently. The small producers probably have an average of less than three employees, including those who only work part time. The number of gemstone mines operating from year to year fluctuates because the uncertainty associated with the discovery and marketing of gem-quality minerals makes it difficult to obtain financing for developing and sustaining economically viable operations.

The total value of natural gemstones produced in the United States was estimated to be about $11.0 million during 2011 (table 3). This production value was a 10% increase from that of 2010.

Natural gemstone materials indigenous to the United States are collected or produced in every State. During 2011, all 50 States produced at least $1,390 worth of gemstone materials. There were 11 States that accounted for 90% of the total value, as reported by survey respondents. These States were, in descending order of production value, Arizona, North Carolina, Oregon, Utah, California, Tennessee, Montana, Arkansas, Colorado, Idaho, and Maine. Some States were known for the production of a single gemstone material—Tennessee for freshwater pearls, for example. Other States produced a variety of gemstones; for example, Arizona's gemstone deposits included agate, amethyst, azurite, chrysocolla, garnet, jade, jasper, malachite, obsidian, onyx, opal, peridot, petrified wood, smithsonite, and turquoise. A wide variety of gemstones also was found and produced in California, Idaho, Montana, and North Carolina.

In 2011, the United States had only one active operation in a known diamond-bearing area in Crater of Diamonds State Park near Murfreesboro in Pike County, AR. The State of Arkansas maintains a dig-for-fee operation for tourists and rockhounds at the park; Crater of Diamonds is the only diamond mine in the world that is open to the public. The diamonds occur in a lamproite breccia tuff associated with a volcanic pipe and in the soil developed from the lamproite breccia tuff. In 2011, 560 diamond stones with an average weight of 0.267 carat were recovered at the Crater of Diamonds State Park. Of the 560 diamond stones recovered, 30 weighed more than 1 carat. Since the diamond-bearing pipe and the adjoining area became a State park in 1972 through yearend 2011, 29,906 diamond stones with a total carat weight of 5,981.1 have been recovered (Margi Jenks, park interpreter, Crater of Diamonds State Park, written commun., January 22, 2013). Exploration has demonstrated that this diamond deposit contains about 78.5 million metric tons (Mt) of diamond-bearing rock (Howard, 1999, p. 62). An Arkansas law enacted early in 1999 prohibits commercial diamond mining in the park (Diamond Registry Bulletin, 1999).

A few companies have expressed interest in exploration for diamond deposits in areas of Alaska, Colorado, Minnesota, Montana, and Wyoming with geologic settings and terrain that are similar to Canadian diamond mining areas. Even though some exploration has taken place in these States, they remain largely unexplored for diamonds (Iron Range Resources & Rehabilitation Board, 2012). Although exploration and field studies have found many diamond indicators and a number of large diamond deposits, none have attracted long-term investors or been operated commercially.

In addition to natural gemstones, laboratory-created gemstones and gemstone simulants were produced in the United States in 2011. Laboratory-created or synthetic gemstones have the same chemical, optical, and physical properties as natural gemstones. Simulants have an appearance similar to that of a natural gemstone material, but they have different chemical, optical, and physical properties. Laboratory-created gemstones that have been produced in the United States include alexandrite, cubic zirconia, diamond, emerald, garnet, moissanite, ruby, sapphire, spinel, and turquoise. However, during 2011, only cubic zirconia, diamond, moissanite, and turquoise were produced commercially. Simulants of amber, chrysocolla, coral, lapis lazuli, malachite, travertine, and turquoise also were manufactured in the United States. In addition, certain colors of laboratory-created sapphire and spinel, used to represent other gemstones, are classified as simulants.

Laboratory-created gemstone production in the United States was valued at more than $31.9 million during 2011, which was a 4% increase compared with that of 2010. The value of U.S. simulant gemstone output was estimated to be more than $100 million. Five companies in five States, representing virtually the entire U.S. laboratory-created gemstone industry, reported production to the USGS. The States with reported laboratory-created gemstone production were, in descending order of production value, Florida, New York, Massachusetts, North Carolina, and Arizona.

Since the 1950s, when scientists manufactured the first laboratory-created bits of diamond grit using a high-pressure, high-temperature (HPHT) method, this method of growing diamonds has become relatively commonplace in the world as a technology for laboratory-created diamonds, so much so that thousands of small plants throughout China were using the HPHT method and producing laboratory-created diamonds suitable for cutting as gemstones. Gem-quality diamonds of 1 carat or more are harder to manufacture because at that size, it is difficult to consistently produce diamonds of high quality, even in the controlled environment of a laboratory using the HPHT method. After more than 50 years of development, that situation changed, and several laboratory-created diamond companies were able to produce high-quality diamonds that equaled those produced from mines (Park, 2007).

Gemesis Corp. (Sarasota, FL) consistently produced gem-quality laboratory-created diamond and reported production in 2011. The weight of the laboratory-created diamond stones ranges from 1½ to 2 carats, and most of the stones are brownish yellow, colorless, green, and yellow. Gemesis uses diamond-growing machines capable of growing 3-carat rough diamonds by generating HPHT conditions that recreate the conditions in the Earth's mantle where natural diamonds form (Davis, 2003). The prices of the Gemesis laboratory-created diamonds are 30% to 50% lower than those of comparable natural diamond but above the prices of simulated diamond (Gemesis Corp., 2010).

In the early 2000s, Apollo Diamond, Inc., near Boston, MA, developed and patented a method for growing single, extremely pure, gem-quality diamond crystals by chemical vapor deposition (CVD). The CVD technique transforms carbon into plasma, which is then precipitated onto a substrate as diamond. CVD had been used for more than a decade to cover large surfaces with microscopic diamond crystals, but in developing this process, Apollo Diamond discovered the temperature, gas composition, and pressure combination that resulted in the growth of a single diamond crystal. Apollo Diamond produced laboratory-created stones that ranged from 1 to 2 carats. Beginning in 2008, Apollo Diamond increased its production of large stones and sold the diamonds at prices that averaged 15% less than those of comparable natural diamonds (Apollo Diamond, Inc., 2008). Apollo Diamond and Gemesis prefer to call their diamonds "cultured" rather than laboratory-created, referring to the fact that the diamonds are grown much like a cultured pearl is grown.

During 2011, Apollo Diamond ceased manufacture of single-crystal CVD diamond for gemstone and industrial use. On August 31, 2011, SCIO Diamond Technology Corp. acquired the diamond growing machines and the related intellectual property rights from Apollo Diamond and on June 5, 2012, acquired the remainder of the assets including cultured diamond gemstone-related technology, inventory, and various intellectual property rights. SCIO Diamond Technology transferred all diamond growing equipment to their labs in Greenville, SC, and planned to begin manufacturing single-crystal CVD diamonds during 2012 (Yahoo Finance, 2012).

Charles & Colvard, Ltd. in North Carolina was the world's only manufacturer of moissanite, a gem-quality laboratory-created silicon carbide. Moissanite is an excellent diamond simulant, but it is being marketed for its own gem qualities. Moissanite exhibits a higher refractive index (brilliance) and higher luster than diamond. Its hardness is between those of corundum (ruby and sapphire) and diamond, which gives it durability (Charles & Colvard, Ltd., 2010). Charles & Colvard reported that moissanite sales increased by 26% to just more than $16 million in 2011 compared with $12.7 million in 2010 (Bracken, 2012).

U.S. mussel shells are used as a source of mother-of-pearl and as seed material for culturing pearls. U.S. shell production increased slightly in 2011 compared with that of 2010. This increase was in spite of decreased demands for U.S. shell materials caused by the use of manmade seed materials and seed materials from China and other sources by pearl producers in Japan. The popularity of darker and colored pearls and freshwater pearls that do not use U.S. seed material has also contributed decreased demands for U.S. shell materials. In some regions of the United States, shell from mussels was being used more as a gemstone based on its own merit rather than as seed material for pearls. This shell material was being processed into mother-of-pearl and used in beads, jewelry, and watch faces.

**Consumption**

Historically, diamond gemstones have proven to hold their value despite wars or economic depressions, but this did not hold true during the recent worldwide economic recession. Diamond and colored gemstones value and sales decreased during the economic downturn in 2008 and continued into 2009, but during 2010 and 2011 U.S. gemstone consumption and sales increased.

Although the United States accounted for little of the total global gemstone production, it was the world's leading diamond and nondiamond gemstone market. It was estimated that U.S. gemstone markets accounted for more than 35% of world gemstone demand in 2011. The U.S. market for unset gem-quality diamond during the year was estimated to be about $22.3 billion, an increase of 20% compared with that of 2010. Domestic markets for natural, unset nondiamond gemstones totaled approximately $1.19 billion in 2011, which was a 24% increase from that of 2010. These large increases in domestic markets were a reflection of the recovery from the impacts of the global recession on luxury spending.

In the United States, a majority of domestic consumers designate diamond as their favorite gemstone. This popularity of diamonds is evidenced by the U.S. diamond market making up 95% of the total U.S. gemstone market. Colored natural gemstones, colored laboratory-created gemstones, and "fancy" colored diamonds were popular in 2011, with the values of the domestic markets for almost all types of colored natural, unset nondiamond gemstones increased from the 2010 values (table 10), also owing to recovery from the impact of the recession on luxury spending.

The estimated U.S. retail jewelry sales were $68.3 billion in 2011, an increase of 11% from sales of $61.5 billion in 2010 (Gassman, 2012). Fifty-nine percent of all U.S. jewelers reported jewelry sales increased during the holiday shopping season from that of the previous year holiday shopping season (Graff, 2012).

**Prices**

Gemstone prices are governed by many factors and qualitative characteristics, including beauty, clarity, defects, demand, durability, and rarity. Diamond pricing, in particular, is complex; values can vary significantly depending on time, place, and the subjective valuations of buyers and sellers. More than 14,000 categories are used to assess rough diamond and more than 100,000 different combinations of carat, clarity, color, and cut values can be used to assess polished diamond.

Colored gemstone prices are generally influenced by market supply and demand considerations, and diamond prices are supported by producer controls on the quantity and quality of supply. Values and prices of gemstones produced and (or) sold in the United States are listed in tables 3 through 5. In addition, customs values for diamonds and other gemstones imported, exported, or reexported are listed in tables 6 through 10.

De Beers Group companies remain a significant force, influencing the price of gem-quality diamond sales worldwide during 2011 because the companies mine a significant portion of the world's gem-quality diamond produced each year. In 2011, De Beers production from its independently owned and joint-venture operations in Botswana, Canada, Namibia, and South Africa decreased 5% to 31.3 million carats (Mct), compared with that of 2010. De Beers companies also sorted and valuated a large portion (by value) of the world's annual supply of rough diamond through De Beers' subsidiary Diamond Trading Co. (DTC). DTC sales of rough diamonds increased 27% during 2011 compared with those of 2010 and totaled $6.5 billion during 2011. DTC rough diamond average prices increased by 29% from those of 2010. In 2011, De Beers had total diamond and jewelry sales of $7.4 billion, which was an increase of 26% compared with those of 2010 (DeMarco, 2012).

**Foreign Trade**

During 2011, total U.S. gemstone trade with all countries and territories was valued at about $41.7 billion, which was an increase of 24% from that of 2010. Diamond accounted for about 97% of the 2011 gemstone trade total value. In 2011, U.S. exports and reexports of diamond were shipped to 92 countries and territories, and imports of all gemstones were received from 97 countries and territories (tables 6–10). In 2011, U.S. import quantities in cut diamond decreased slightly compared with those of 2010, and their value increased by 20%. U.S. import quantities in rough and unworked diamond increased by 81%, although their value increased by 20% (table 7). The United States remained the world's leading diamond importer and was a significant international diamond transit center as well as the world's leading gem-quality diamond market. In 2011, U.S. export and reexports quantities of gem-grade diamond decreased by 32% compared with those of 2010, and their value increased by 29%. The large volume of reexports revealed the significance of the United States in the world's diamond supply network (table 6).

Import values of laboratory-created gemstone increased by 27% for the United States in 2011 compared with those of 2010 (table 10). This increase in imports was owing to recovery from the impact of the recession on luxury spending.

Laboratory-created gemstone imports from Austria, Belgium, China, Germany, India, and Malaysia, with more than $33 million in imports, accounted for about 90% (by value) of the total domestic imports of laboratory-created gemstones during the year (table 9). The marketing of imported laboratory-created gemstones and enhanced gemstones as natural gemstones, and the mixing of laboratory-created materials with natural stones in imported parcels, continued to be problems for some domestic producers in 2011. Problems continued with some simulants being marketed as laboratory-created gemstones during the year.

**World Review**

The gemstone industry worldwide has two distinct sectors—diamond mining and marketing and colored gemstone production and sales. Most diamond supplies are controlled by a few major mining companies; prices are supported by managing the quality and quantity of the gemstones relative to demand, a function performed by De Beers through DTC. Unlike diamond, colored gemstones are primarily produced at relatively small, low-cost operations with few dominant producers; prices are influenced by consumer demand and supply availability.

In 2011, world natural diamond production totaled about 135 Mct—74.0 Mct gem quality and 60.5 Mct industrial grade (table 11). Most production was concentrated in a few regions—Africa [Angola, Botswana, Congo (Kinshasa), Namibia, and South Africa], Asia (northeastern Siberia and Yakutia in Russia), Australia, North America (Northwest Territories in Canada), and South America (Brazil and Venezuela). In 2011, Russia led the world in total natural diamond output quantity (combined gemstone and industrial) with 25% of the estimated world production. Botswana was the world's leading gemstone diamond producer with 34%; followed by Russia, 25%; Canada, 15%; Angola, 11%; Congo (Kinshasa), 5%; South Africa, 4%; Namibia, 2%; and Zimbabwe and Lesotho, with 1% each. These nine countries produced 98% (by quantity) of the world's gemstone diamond output in 2011.

In 2002, the international rough-diamond certification system, the Kimberley Process Certification Scheme (KPCS), was agreed upon by United Nations (UN) member nations, the diamond industry, and involved nongovernmental organizations to prevent the shipment and sale of conflict diamonds. Conflict diamonds are diamonds that originate from areas controlled by forces or factions opposed to legitimate and internationally recognized governments, and are used to fund military action in opposition to those governments, or in contravention of the decisions of the UN Security Council. The KPCS includes the following key elements: the use of forgery-resistant certificates and tamper-proof containers for shipments of rough diamonds; internal controls and procedures that provide credible assurance that conflict diamonds do not enter the legitimate diamond market; a certification process for all exports of rough diamonds; the gathering, organizing, and sharing of import and export data on rough diamonds with other participants of relevant production; credible monitoring and oversight of the international certification scheme for rough diamonds; effective enforcement of the provisions of the certification scheme through dissuasive and proportional penalties for violations; self regulation by the diamond industry that fulfills minimum requirements; and sharing information with all other participants on relevant rules, procedures, and legislation as well as examples of national certificates used to accompany shipments of rough diamonds. Congo (Kinshasa) assumed the chair of KPCS for January 1 through December 31, 2011, the ninth country or organization in succession to hold the chair after Israel, Namibia, India, South Africa, Canada, Russia, Botswana, and the European Commission. The 54 participants represented 80 nations (including the 27 member nations of the European Community) plus the rough diamond-trading entity of Taipei. During 2011, Côte d'Ivoire continued to be under UN sanctions and was not trading in rough diamonds, and Venezuela voluntarily suspended exports and imports of rough diamonds until further notice. The participating nations in the KPCS account for approximately 99.8% of the global production and trade of rough diamonds (Kimberley Process, undated).

Globally, the value of production of natural gemstones other than diamond was estimated to be more than $2.5 billion in 2011. Most nondiamond gemstone mines are small, low-cost, and widely dispersed operations in remote regions of developing nations. Foreign countries with major gemstone deposits other than diamond are Afghanistan (aquamarine, beryl, emerald, kunzite, lapis lazuli, ruby, and tourmaline), Australia (beryl, opal, and sapphire), Brazil (agate, amethyst, beryl, ruby, sapphire, topaz, and tourmaline), Burma (beryl, jade, ruby, sapphire, and topaz), Colombia (beryl, emerald, and sapphire), Kenya (beryl, garnet, and sapphire), Madagascar (beryl, rose quartz, sapphire, and tourmaline), Mexico (agate, opal, and topaz), Sri Lanka (beryl, ruby, sapphire, and topaz), Tanzania (garnet, ruby, sapphire, tanzanite, and tourmaline), and Zambia (amethyst and beryl). In addition, pearls are cultured throughout the South Pacific and in other equatorial waters; Australia, China, French Polynesia, and Japan were key producers in 2011.

Worldwide diamond exploration allocations increased in 2011 after 3 years of declines with 70 companies allocating $449 million, compared with 99 companies allocating $357 million during 2010. This made the diamond share of overall worldwide exploration spending 3%. Africa no longer was the most popular diamond exploration location, after 7 years in a row of being the leading exploration spending spot (Metals Economics Group, 2011).

Worldwide in 2011, average diamond values increased 10% to $97.67 per carat from the 2010 average value of $88.79 per carat. This increase was reflected in increases in the U.S. markets, which demonstrated increasing quantity and value of diamond imports in 2011 compared with those of 2010, and improved sales in North America overall (Metals Economics Group, 2012).

Despite higher diamond prices, only two new projects were commissioned in 2011. The Kao Mine in Lesotho began operation, and the expansion of the Williamson Mine in Tanzania was commissioned in December 2011 (Metals Economics Group, 2012).

***Canada.***—Canadian diamond production was about 10.8 Mct during 2011, a decrease of about 8% compared with that of 2010. Diamond exploration continued in Canada, with several commercial diamond projects and additional discoveries in Alberta, British Columbia, the Northwest Territories, the Nunavut Territory, Ontario, and Quebec. In 2011, Canada produced 8% of the world's combined natural gemstone and industrial diamond output.

The Ekati Diamond Mine, Canada's first operating commercial diamond mine, completed its 13th full year of production in 2011. Ekati produced 2.07 Mct of diamond from 4.60 Mt of ore. BHP Billiton Ltd. has an 80% controlling ownership in Ekati, which is in the Northwest Territories. Ekati has estimated remaining reserves of 33.9 Mt of ore in kimberlite pipes that contain 16.2 Mct of diamond. BHP Billiton projected the remaining mine life to be 11 years. Approximately 21% of the Ekati 2011 diamond production is industrial-grade material (Perron, 2011, p. 1; BHP Billiton Ltd., 2012, p. 10).

The Diavik Diamond Mine, Canada's second diamond mine, also located in the Northwest Territories, completed its ninth full year of production. Diavik produces an average of 2 million metric tons per year (Mt/yr), grading an average of 3.1 carats per ton. At yearend 2011, Diavik estimated the mine's remaining proven and probable reserves to be 18.9 Mt of ore in kimberlite pipes containing 58.9 Mct of diamond and projected the total mine life to be 16 to 22 years. Diavik began developing an underground mine and substantially completed construction on the project during 2009. The first ore was produced from the underground mine during the first quarter of 2010, with full production expected in 2013. The mine is an unincorporated joint venture between Diavik Diamond Mine Inc. (60%) and Harry Winston Diamond Mines Ltd. (40%) (Perron, 2011, p. 2; Diavik Diamond Mine Inc., 2012, p. 5).

Canada's third diamond mine, the Jericho Diamond Mine in Nunavut, was originally owned by Tahera Diamond Corp. Tahera estimated the Jericho Diamond Mine's reserves to be about 5.5 Mt of ore grading 0.85 carats per ton. The Jericho Diamond Mine experienced startup problems related to ore mining and processing. The mine also suffered financial problems owing to the cost of transporting supplies to the mine site, high operational costs, high oil prices, and appreciation of the Canadian dollar versus the U.S. dollar. All of these problems combined to force the company to enter into protection under Canada's "Companies' Creditors Arrangement Act" on January 16, 2008, and the mine suspended production on February 6, 2008. At yearend 2009, Tahera was finalizing arrangements to sell all of its Jericho Diamond Mine assets (Perron, 2011, p. 2). In July 2010, Shear Minerals Ltd. (now known as Shear Diamonds Ltd.) announced that it had entered into a purchase agreement with Tahera and Benachee Resources Inc. to acquire a 100% interest in the Jericho Diamond Mine, the mine's processing facilities, and all supporting exploration assets in the Kitikmeot region of Nunavut (Shear Minerals Ltd., 2010). Shear Minerals completed the acquisition of the Jericho Diamond Mine in August 2010 with the intention of bringing the mine back into production during 2012 (Shear Minerals Ltd., 2011).

The Snap Lake Mine, in the Northwest Territories, is wholly owned by De Beers Canada Inc. The Snap Lake deposit is a tabular-shaped kimberlite dyke rather than the typical kimberlite pipe. The dyke is 2.5 meters thick and dips at an angle of 12° to 15°. The deposit was mined using a modified room and pillar underground mining method in 2011. The Snap Lake Mine started mining operations in October 2007, reached commercial production levels in the first quarter of 2008, and officially opened June 25, 2008. The mine was expected to produce 1.4 Mct per year of diamond, and the mine life was expected to be about 20 years. The mine's production for 2011 amounted to 881,000 carats for a recovered grade of 1.2 carats per ton (De Beers Canada Inc., 2011; Perron, 2011, p. 2–3; De Beers Group Inc., 2012).

The Victor Mine, in northern Ontario on the James Bay coast, also is wholly owned by De Beers Canada. The Victor kimberlite consists of two pipes with surface area of 15 hectares. The Victor Mine initiated mining operations at yearend 2007 and was officially opened on July 26, 2008. The Victor reportedly has 27.4 Mt of ore with average ore grade of 0.23 carats per ton estimated minable reserves. At full capacity, the open pit mine was expected to produce 600,000 carats per year, and the mine life was expected to be about 12 years. In 2011, the mine's production was 779,000 carats recovered from 2.67 Mt of ore (Perron, 2011, p. 3; De Beers Group Inc., 2012; De Beers Canada Inc., undated).

***Lesotho.***—The Kao Mine, owned by Namakwa Batla Diamonds Co., began processing kimberlite ore in late November 2011 and began commercial production in March 2012. Namakwa expected production of 170,000 carats for 2012 (Metals Economics Group, 2012).

***Tanzania.***—Refurbishing of the plant at the Williamson Mine began in December 2011. The Williamson Mine is 75% owned by Petra Diamond Ltd. and 25% by the Government of Tanzania. Petra began operating the newly rebuilt plant in March 2012, but was waiting for a secure electrical supply before committing to the full expansion to mining 10 Mt/yr of ore (Metals Economics Group, 2012, p. 24).

## Outlook

As the domestic and global economy improves, Internet sales of diamonds, gemstones, and jewelry were expected to continue to expand and increase in popularity, as were other forms of e-commerce that emerge to serve the diamond and gemstone industry. Internet sales are expected to add to and partially replace "brick-and-mortar" sales. This is likely to take place as the gemstone industry and its customers become more comfortable with and learn the applications of new e-commerce tools, such as sales Web sites and online social networking Web sites (Dayrit, 2011).

As more independent producers, such as Ekati and Diavik in Canada, come online they will bring a greater measure of competition to global markets that presumably will bring more supplies and lower prices. Further consolidation of diamond producers and larger quantities of rough diamond being sold outside DTC is expected to continue as the diamond industry adjusts to De Beers' reduced influence on the industry.

More laboratory-created gemstones, simulants, and treated gemstones are likely to enter the marketplace and necessitate more transparent trade industry standards to maintain customer confidence.

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TABLE 1
GUIDE TO SELECTED GEMSTONES AND GEM MATERIALS USED IN JEWELRY

| Name | Composition | Color | Practical size[1] | Cost[2] | Mohs | Specific gravity | Refraction | Refractive index | May be confused with | Recognition characteristics |
|---|---|---|---|---|---|---|---|---|---|---|
| Amber | Hydrocarbon | Yellow, red, green, blue | Any | Low to medium | 2.0–2.5 | 1.0–1.1 | Single | 1.54 | Synthetic or pressed plastics, kaurigum | Fossil resin, color, low density, soft, insects. |
| Apatite | Chlorocalcium phosphate | Colorless, pink, yellow, green, blue, violet | Small | Low | 5.0 | 3.16–3.23 | Double | 1.63–1.65 | Amblygonite, andalusite, brazilianite, precious beryl, titanite, topaz, tourmaline | Crystal habit, color, hardness, appearance. |
| Azurite | Copper carbonate hydroxide | Azure, dark blue, pale blue | Small to medium | do. | 3.5–4.0 | 3.7–3.9 | do. | 1.72–1.85 | Dumortierite, hauynite, lapis lazuli, lazulite, sodalite | Color, softness, crystal habits, associated minerals. |
| Benitoite | Barium titanium silicate | Blue, purple, pink, colorless | do. | High | 6.0–6.5 | 3.64–3.68 | do. | 1.76–1.80 | Sapphire, tanzanite, blue diamond, blue tourmaline, cordierite | Strong blue in ultraviolet light. |
| Beryl: | | | | | | | | | | |
| Aquamarine | Beryllium aluminum silicate | Blue-green to light blue | Any | Medium to high | 7.5–8.0 | 2.63–2.80 | do. | 1.58 | Synthetic spinel, blue topaz | Double refraction, refractive index. |
| Bixbite | do. | Red | Small | Very high | 7.5–8.0 | 2.63–2.80 | do. | 1.58 | Pressed plastics, tourmaline | Refractive index. |
| Emerald, natural | do. | Green | Medium | do. | 7.5 | 2.63–2.80 | do. | 1.58 | Fused emerald, glass, tourmaline, peridot, green garnet doublets | Emerald filter, dichroism, refractive index. |
| Emerald, synthetic | do. | do. | Small | High | 7.5–8.0 | 2.63–2.80 | do. | 1.58 | Genuine emerald | Lack of flaws, brilliant fluorescence in ultraviolet light. |
| Golden (heliodor) | do. | Yellow to golden | Any | Low to medium | 7.5–8.0 | 2.63–2.80 | do. | 1.58 | Citrine, topaz, glass, doublets | Weak-colored. |
| Goshenite | do. | Colorless | do. | Low | 7.5–8.0 | 2.63–2.80 | do. | 1.58 | Quartz, glass, white sapphire, white topaz | Refractive index. |
| Morganite | do. | Pink to rose | do. | do. | 7.5–8.0 | 2.63–2.80 | do. | 1.58 | Kunzite, tourmaline, pink sapphire | Do. |
| Calcite: | | | | | | | | | | |
| Marble | Calcium carbonate | White, pink, red, blue, green, or brown | do. | do. | 3.0 | 2.72 | Double (strong) | 1.49–1.66 | Silicates, banded agate, alabaster gypsum | Translucent. |
| Mexican onyx | do. | do. | do. | do. | 3.0 | 2.72 | do. | 1.60 | do. | Banded, translucent. |
| Charoite | Hydrated sodium calcium hydroxi-fluoro-silicate | Lilac, violet, or white | Small to medium | do. | 5.0–6.0 | 2.54–2.78 | XX | 1.55–1.56 | Purple marble | Color, locality. |
| Chrysoberyl: | | | | | | | | | | |
| Alexandrite | Beryllium aluminate | Green by direct sunlight, or incandescent light, red by indirect sunlight or fluorescent light | do. | High | 8.5 | 3.50–3.84 | Double | 1.75 | Synthetic | Strong dichroism, color varies from red to green, hardness. |
| Cat's eye | do. | Greenish to brownish | Small to large | do. | 8.5 | 3.50–3.84 | do. | 1.75 | Synthetic, shell | Density, translucence, chatoyance. |
| Chrysolite | do. | Yellow, green, and (or) brown | Medium | Medium | 8.5 | 3.50–3.84 | do. | 1.75 | Tourmaline, peridot | Refractive index, silky. |

See footnotes at end of table.

TABLE 1—Continued
GUIDE TO SELECTED GEMSTONES AND GEM MATERIALS USED IN JEWELRY

| Name | Composition | Color | Practical size[1] | Cost[2] | Mohs | Specific gravity | Refraction | Refractive index | May be confused with | Recognition characteristics |
|---|---|---|---|---|---|---|---|---|---|---|
| Chrysocolla | Hydrated copper silicate | Green, blue | Any | Low | 2.0–4.0 | 2.0–2.4 | XX | 1.46–1.57 | Azurite, dyed chalcedony, malachite, turquoise, variscite | Lack of crystals, color, fracture, low density, softness. |
| Coral | Calcium carbonate | Orange, red, white, black, purple, or green | Branching, medium | do. | 3.5–4.0 | 2.6–2.7 | Double | 1.49–1.66 | False coral | Dull translucent. |
| Corundum: | | | | | | | | | | |
| Ruby | Aluminum oxide | Rose to deep purplish red | Small | Very high | 9.0 | 3.95–4.10 | do. | 1.78 | Synthetics, including spinel, garnet | Inclusions, fluorescence. |
| Sapphire, blue | do. | Blue | Medium | High | 9.0 | 3.95–4.10 | do. | 1.78 | do. | Inclusions, double refraction, dichroism. |
| Sapphire, fancy | do. | Yellow, pink, colorless, orange, green, or violet | Medium to large | Medium | 9.0 | 3.95–4.10 | do. | 1.78 | Synthetics, glass and doublets, morganite | Inclusions, double refraction, refractive index. |
| Sapphire or ruby, stars | do. | Red, pink, violet, blue, or gray | do. | High to low | 9.0 | 3.95–4.10 | do. | 1.78 | Star quartz, synthetic stars | Shows asterism, color side view. |
| Sapphire or ruby, synthetic | do. | Yellow, pink, blue, green, orange, violet, or red | Up to 20 carats | Low | 9.0 | 3.95–4.10 | do. | 1.78 | Synthetic spinel, glass | Curved striae, bubble inclusions. |
| Cubic zirconia | Zirconium and yttrium oxides | Colorless, pink, blue, lavender, yellow | Small | do. | 8.25–8.5 | 5.8 | Single | 2.17 | Diamond, zircon, titania, moissanite | Hardness, density, lack of flaws and inclusions, refractive index. |
| Diamond | Carbon | White, blue-white, yellow, brown, green, red, pink, blue | Any | Very high | 10.0 | 3.516–3.525 | do. | 2.42 | Zircon, titania, cubic zirconia, moissanite | High index, dispersion, hardness, luster. |
| Feldspar: | | | | | | | | | | |
| Amazonite | Alkali aluminum silicate | Green-blue | Large | Low | 6.0–6.5 | 2.56 | XX | 1.52 | Jade, turquoise | Cleavage, sheen, vitreous to pearly, opaque, grid. |
| Labradorite | do. | Gray with blue and bronze sheen color play (schiller) | do. | do. | 6.0–6.5 | 2.56 | XX | 1.56 | do. | Do. |
| Moonstone | do. | Colorless, white, gray, or yellow with white, blue, or bronze schiller | do. | do. | 6.0–6.5 | 2.77 | XX | 1.52–1.54 | Glass, chalcedony, opal | Pale sheen, opalescent. |
| Sunstone | do. | Orange, red brown, colorless with gold or red glittery schiller | Small to medium | do. | 6.0–6.5 | 2.77 | XX | 1.53–1.55 | Aventurine, glass | Red glittery schiller. |
| Garnet | Complex silicate | Brown, black, yellow, green, red, or orange | do. | Low to high | 6.5–7.5 | 3.15–4.30 | Single strained | 1.79–1.98 | Synthetics, spinel, glass | Single refraction, anomalous strain. |
| Hematite | Iron oxide | Black, black-gray, brown-red | Medium to large | Low | 5.5–6.5 | 5.12–5.28 | XX | 2.94–3.22 | Davidite, cassiterite, magnetite, neptunite, pyrolusite, wolframite | Crystal habit, streak, hardness. |

See footnotes at end of table.

TABLE 1—Continued
GUIDE TO SELECTED GEMSTONES AND GEM MATERIALS USED IN JEWELRY

| Name | Composition | Color | Practical size[1] | Cost[2] | Mohs | Specific gravity | Refraction | Refractive index | May be confused with | Recognition characteristics |
|---|---|---|---|---|---|---|---|---|---|---|
| Jade: | | | | | | | | | | |
| Jadeite | Complex silicate | Green, yellow, black, white, or mauve | Large | Low to very high | 6.5–7.0 | 3.3–3.5 | Crypto-crystalline | 1.65–1.68 | Nephrite, chalcedony, onyx, bowenite, vesuvianite, grossularite | Luster, spectrum, translucent to opaque. |
| Nephrite | Complex hydrous silicate | do. | do. | do. | 6.0–6.5 | 2.96–3.10 | do. | 1.61–1.63 | Jadeite, chalcedony, onyx, bowenite, vesuvianite, grossularite | Do. |
| Jet (gagate) | Lignite | Deep black, dark brown | do. | Low | 2.5–4.0 | 1.19–1.35 | XX | 1.64–1.68 | Anthracite, asphalt, cannel coal, onyx, schorl, glass, rubber | Luster, color. |
| Lapis lazuli | Sodium calcium aluminum silicate | Dark azure-blue to bright indigo blue or even a pale sky blue. | do. | do. | 5.0–6.0 | 2.50–3.0 | XX | 1.50 | Azurite, dumortierite, dyed howlite, lazulite, sodalite, glass | Color, crystal habit, associated minerals, luster, localities. |
| Malachite | Hydrated copper carbonate | Light to black-green banded | do. | do. | 3.5–4.0 | 3.25–4.10 | XX | 1.66–1.91 | Brochantite, chrysoprase, opaque green gemstones | Color banding, softness, associated minerals. |
| Moissanite | Silicon carbide | Colorless and pale shades of green, blue, yellow | Small | Low to medium | 9.25 | 3.21 | Double | 2.65–2.69 | Diamond, zircon, titania, cubic zirconia | Hardness, dispersion, lack of flaws and inclusions, refractive index. |
| Obsidian | Amorphous, variable (usually felsic) | Black, gray, brown, dark green, white, transparent | Large | Low | 5.0–5.5 | 2.35–2.60 | XX | 1.45–1.55 | Aegirine-augite, gadolinite, gagate, hematite, pyrolusite, wolframite | Color, conchoidal fracture, flow bubbles, softness, lack of crystal faces. |
| Opal | Hydrated silica | Reddish orange, colors flash in white gray, black, red, or yellow | do. | Low to high | 5.5–6.5 | 1.9–2.3 | Single | 1.45 | Glass, synthetics, triplets, chalcedony | Color play (opalescence). |
| Peridot | Iron magnesium silicate | Yellow and (or) green | Any | Medium | 6.5–7.0 | 3.27–3.37 | Double (strong) | 1.65–1.69 | Tourmaline, chrysoberyl | Strong double refraction, low dichroism. |
| Quartz: | | | | | | | | | | |
| Agate | Silicon dioxide | Any | Large | Low | 7.0 | 2.58–2.64 | XX | XX | Glass, plastic, Mexican onyx | Cryptocrystalline, irregularly banded, dendritic inclusions. |
| Amethyst | do. | Purple | do. | Medium | 7.0 | 2.65–2.66 | Double | 1.55 | Glass, plastic, fluorite | Macrocrystalline, color, refractive index, transparent, hardness. |
| Aventurine | do. | Green, red-brown, gold-brown, with metallic iridescent reflection | do. | Low | 7.0 | 2.64–2.69 | do. | 1.54–1.55 | Iridescent analcime, aventurine feldspar, emerald, aventurine glass | Macrocrystalline, color, metallic iridescent flake reflections, hardness. |
| Cairngorm | do. | Smoky orange or yellow | do. | do. | 7.0 | 2.65–2.66 | do. | 1.55 | do. | Macrocrystalline, color, refractive index, transparent, hardness. |

See footnotes at end of table.

TABLE 1—Continued
GUIDE TO SELECTED GEMSTONES AND GEM MATERIALS USED IN JEWELRY

| Name | Composition | Color | Practical size[1] | Cost[2] | Mohs | Specific gravity | Refraction | Refractive index | May be confused with | Recognition characteristics |
|---|---|---|---|---|---|---|---|---|---|---|
| Carnelian | Silicon dioxide | Flesh red to brown red | Large | Low | 6.5–7.0 | 2.58–2.64 | Double | 1.53–1.54 | Jasper | Cryptocrystalline, color, hardness. |
| Chalcedony | do. | Bluish, white, gray | do. | do. | 6.5–7.0 | 2.58–2.64 | do. | 1.53–1.54 | Tanzanite | Do. |
| Chrysoprase | do. | Green, apple-green | do. | do. | 6.5–7.0 | 2.58-2.64 | do. | 1.53–1.54 | Chrome chalcedony, jade, prase opal, prehnite, smithsonite, variscite, artificially colored green chalcedony | Do. |
| Citrine | do. | Yellow | do. | do. | 7.0 | 2.65–2.66 | do. | 1.55 | do. | Macrocrystalline, color, refractive index, transparent, hardness. |
| Jasper | do. | Any, striped, spotted, or sometimes uniform | do. | do. | 7.0 | 2.58–2.66 | XX | XX | do. | Cryptocrystalline, opaque, vitreous luster, hardness. |
| Onyx | do. | Many colors | do. | do. | 7.0 | 2.58–2.64 | XX | XX | do. | Cryptocrystalline, uniformly banded, hardness. |
| Petrified wood | do. | Brown, gray, red, yellow | do. | do. | 6.5–7.0 | 2.58–2.91 | Double | 1.54 | Agate, jasper | Color, hardness, wood grain. |
| Rock crystal | do. | Colorless | do. | do. | 7.0 | 2.65–2.66 | do. | 1.55 | Topaz, colorless sapphire | Do. |
| Rose | do. | Pink, rose red | do. | do. | 7.0 | 2.65–2.66 | do. | 1.55 | do. | Macrocrystalline, color, refractive index, transparent, hardness. |
| Tiger's eye | do. | Golden yellow, brown, red, blue-black | do. | do. | 6.5-7.0 | 2.58–2.64 | XX | 1.53–1.54 | XX | Macrocrystalline, color, hardness, chatoyancy. |
| Rhodochrosite | Manganese carbonate | Rose-red to yellowish, stripped | do. | do. | 4.0 | 3.45–3.7 | Double | 1.6–1.82 | Fire opal, rhodonite, tugtupite, tourmaline | Color, crystal habit, reaction to acid, perfect rhombohedral cleavage. |
| Rhodonite | Manganese iron calcium silicate | Dark red, flesh red, with dendritic inclusions of black manganese oxide | do. | do. | 5.5–6.5 | 3.40–3.74 | do. | 1.72–1.75 | Rhodochrosite, thulite, hessonite, spinel, pyroxmangite, spessartine, tourmaline | Color, black inclusions, lack of reaction to acid, hardness. |
| Shell: | | | | | | | | | | |
| Mother-of-pearl | Calcium carbonate | White, cream, green, blue-green, with iridescent play of color | Small | do. | 3.5 | 2.6–2.85 | XX | XX | Glass and plastic imitation | Luster, iridescent play of color. |
| Pearl | do. | White, cream to black, sometimes with hint of pink, green, purple | do. | Low to high | 2.5–4.5 | 2.6–2.85 | XX | XX | Cultured and glass or plastic imitation | Luster, iridescence, x-structure, ray. |

See footnotes at end of table.

TABLE 1—Continued
GUIDE TO SELECTED GEMSTONES AND GEM MATERIALS USED IN JEWELRY

| Name | Composition | Color | Practical size[1] | Cost[2] | Mohs | Specific gravity | Refraction | Refractive index | May be confused with | Recognition characteristics |
|---|---|---|---|---|---|---|---|---|---|---|
| Spinel, natural | Magnesium aluminum oxide | Any | Small to medium | Medium | 8.0 | 3.5–3.7 | Single | 1.72 | Synthetic, garnet | Refractive index, single refraction, inclusions. |
| Spinel, synthetic | do. | do. | Up to 40 carats | Low | 8.0 | 3.5–3.7 | Double | 1.73 | Spinel, corundum, beryl, topaz, alexandrite | Weak double refraction, curved striae, bubbles. |
| Spodumene: | | | | | | | | | | |
| Hiddenite | Lithium aluminum silicate | Yellow to green | Medium | Medium | 6.5–7.0 | 3.13–3.20 | do. | 1.66 | Synthetic spinel | Refractive index, color, pleochroism. |
| Kunzite | do. | Pink to lilac | do. | do. | 6.5–7.0 | 3.13–3.20 | do. | 1.66 | Amethyst, morganite | Do. |
| Tanzanite | Complex silicate | Blue to lavender | Small | High | 6.0–7.0 | 3.30 | do. | 1.69 | Sapphire, synthetics | Strong trichroism, color. |
| Topaz | do. | White, blue, green, pink, yellow, gold | Medium | Low to medium | 8.0 | 3.4–3.6 | do. | 1.62 | Beryl, quartz | Color, density, hardness, refractive index, perfect in basal cleavage. |
| Tourmaline | do. | Any, including mixed | do. | do. | 7.0–7.5 | 2.98–3.20 | do. | 1.63 | Peridot, beryl, garnet corundum, glass | Double refraction, color, refractive index. |
| Turquoise | Copper aluminum phosphate | Blue to green with black, brown-red inclusions | Large | Low | 6.0 | 2.60–2.83 | do. | 1.63 | Chrysocolla, dyed howlite, dumortierite, glass, plastics, variscite | Difficult if matrix not present, matrix usually limonitic. |
| Unakite | Granitic rock, feldspar, epidote, quartz | Olive green, pink, and blue-gray | do. | do. | 6.0–7.0 | 2.60–3.20 | XX | XX | XX | Olive green, pink, gray-blue colors. |
| Zircon | Zirconium silicate | White, blue, brown, yellow, or green | Small to medium | Low to medium | 6.0–7.5 | 4.0–4.8 | Double (strong) | 1.79–1.98 | Diamond, synthetics, topaz, aquamarine | Double refraction, strongly dichroic, wear on facet edges. |

Do., do. Ditto. XX Not applicable.

[1]Small: up to 5 carats; medium: 5 to 50 carats; large: more than 50 carats.

[2]Low: up to $25 per carat; medium: up to $200 per carat; high: more than $200 per carat.

TABLE 2
LABORATORY-CREATED GEMSTONE PRODUCTION METHODS

| Gemstone | Production method | Company/producer | Date of first production |
|---|---|---|---|
| Alexandrite | Flux | Creative Crystals Inc. | 1970s. |
| Do. | Melt pulling | J.O. Crystal Co., Inc. | 1990s. |
| Do. | do. | Kyocera Corp. | 1980s. |
| Do. | Zone melt | Seiko Corp. | Do. |
| Cubic zirconia | Skull melt | Various producers | 1970s. |
| Emerald | Flux | Chatham Created Gems | 1930s. |
| Do. | do. | Gilson | 1960s. |
| Do. | do. | Kyocera Corp. | 1970s. |
| Do. | do. | Lennix | 1980s. |
| Do. | do. | Russia | Do. |
| Do. | do. | Seiko Corp. | Do. |
| Do. | Hydrothermal | Biron Corp. | Do. |
| Do. | do. | Lechleitner | 1960s. |
| Do. | do. | Regency | 1980s. |
| Do. | do. | Russia | Do. |
| Ruby | Flux | Chatham Created Gems | 1950s. |
| Do. | do. | Douras | 1990s. |
| Do. | do. | J.O. Crystal Co., Inc. | 1980s. |
| Do. | do. | Kashan Created Ruby | 1960s. |
| Do. | Melt pulling | Kyocera Corp. | 1970s. |
| Do. | Verneuil | Various producers | 1900s. |
| Do. | Zone melt | Seiko Corp. | 1980s. |
| Sapphire | Flux | Chatham Created Gems | 1970s. |
| Do. | Melt pulling | Kyocera Corp. | 1980s. |
| Do. | Verneuil | Various producers | 1900s. |
| Do. | Zone melt | Seiko Corp. | 1980s. |
| Star ruby | Melt pulling | Kyocera Corp. | Do. |
| Do. | do. | Nakazumi Earth Crystals Co. | Do. |
| Do. | Verneuil | Linde Air Products Co. | 1940s. |
| Star sapphire | do. | do. | Do. |

Do., do. Ditto.

TABLE 3
ESTIMATED VALUE OF U.S. NATURAL GEMSTONE PRODUCTION,
BY GEM TYPE[1]

(Thousand dollars)

| Gem materials | 2010 | 2011 |
|---|---|---|
| Beryl | 1,700 | 1,740 |
| Coral, all types | 150 | 150 |
| Diamond | (2) | (2) |
| Garnet | 149 | 110 |
| Gem feldspar | 693 | 756 |
| Geode/nodules | 110 | 110 |
| Opal | 189 | 71 |
| Quartz: | | |
| Macrocrystalline[3] | 273 | 333 |
| Cryptocrystalline[4] | 208 | 248 |
| Sapphire/ruby | 344 | 343 |
| Shell | 821 | 832 |
| Topaz | (2) | (2) |
| Tourmaline | 95 | 73 |
| Turquoise | 449 | 1,330 |
| Other | 4,840 | 4,950 |
| Total | 10,000 | 11,000 |

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

[2]Less than ½ unit.

[3]Macrocrystalline quartz (crystals recognizable with the naked eye) includes amethyst, aventurine, blue quartz, citrine, hawk's eye, pasiolite, prase, quartz cat's eye, rock crystal, rose quartz, smoky quartz, and tiger's eye.

[4]Cryptocrystalline quartz (microscopically small crystals) includes agate, carnelian, chalcedony, chrysoprase, fossilized wood, heliotrope, jasper, moss agate, onyx, and sard.

TABLE 4
PRICES PER CARAT OF U.S. CUT ROUND DIAMONDS, BY SIZE AND QUALITY IN 2011

| Carat weight | Description, color[1] | Clarity[2] (GIA terms) | Representative prices | | |
|---|---|---|---|---|---|
| | | | January[3] | June[4] | December[5] |
| 0.25 | G | VS1 | $1,400 | $1,650 | $1,650 |
| Do. | G | VS2 | 1,300 | 1,600 | 1,600 |
| Do. | G | SI1 | 1,200 | 1,250 | 1,250 |
| Do. | H | VS1 | 1,350 | 1,600 | 1,600 |
| Do. | H | VS2 | 1,250 | 1,500 | 1,500 |
| Do. | H | SI1 | 1,150 | 1,200 | 1,200 |
| 0.50 | G | VS1 | 2,650 | 3,600 | 3,600 |
| Do. | G | VS2 | 2,200 | 3,100 | 3,100 |
| Do. | G | SI1 | 1,900 | 2,500 | 2,500 |
| Do. | H | VS1 | 2,350 | 3,170 | 3,170 |
| Do. | H | VS2 | 2,150 | 2,750 | 2,750 |
| Do. | H | SI1 | 1,800 | 2,250 | 2,250 |
| 1.00 | G | VS1 | 6,400 | 8,500 | 8,500 |
| Do. | G | VS2 | 5,450 | 8,000 | 8,000 |
| Do. | G | SI1 | 4,650 | 6,500 | 6,500 |
| Do. | H | VS1 | 5,300 | 7,700 | 7,700 |
| Do. | H | VS2 | 4,800 | 7,200 | 7,200 |
| Do. | H | SI1 | 4,225 | 5,900 | 5,900 |
| 2.00 | G | VS1 | 12,100 | 15,500 | 15,500 |
| Do. | G | VS2 | 11,500 | 13,200 | 13,200 |
| Do. | G | SI1 | 9,100 | 11,200 | 11,200 |
| Do. | H | VS1 | 9,500 | 13,300 | 13,300 |
| Do. | H | VS2 | 9,100 | 11,700 | 11,700 |
| Do. | H | SI1 | 8,250 | 10,300 | 10,300 |

Do. Ditto.

[1]Gemological Institute of America (GIA) color grades: D—colorless; E—rare white; G, H, I—traces of color.

[2]Clarity: IF—no blemishes; VVS1—very, very slightly included; VS1—very slightly included; VS2—very slightly included, but not visible; SI1—slightly included.

[3]Source: The Gem Guide, v. 30, no. 1, January/February 2011, p. 20–22.

[4]Source: The Gem Guide, v. 30, no. 4, July/August 2011, p. 20–22.

[5]Source: The Gem Guide, v. 30, no. 6, November/December 2011, p. 20–22.

TABLE 5
PRICES PER CARAT OF U.S. CUT COLORED GEMSTONES IN 2011

| Gemstone | Price range per carat | |
|---|---|---|
| | January[1] | December[2] |
| Amethyst | $10–25 | $10–25 |
| Blue sapphire | 950–1,800 | 950–1,900 |
| Blue topaz | 5–10 | 5–10 |
| Emerald | 2,400–4,000 | 2,600–4,400 |
| Green tourmaline | 50–70 | 50–70 |
| Cultured saltwater pearl[3] | 5 | 5 |
| Pink tourmaline | 70–150 | 65–170 |
| Rhodolite garnet | 22–45 | 22–45 |
| Ruby | 1,850–2,200 | 2,200–2,600 |
| Tanzanite | 300–375 | 300–375 |

[1]Source: The Gem Guide, v. 30, no. 1, January/February 2011, p. 50, 53, 57, 61, 63, 65, and 68–71. These figures are approximate wholesale purchase prices paid by retail jewelers on a per stone basis for 1-to-less than 1 carat, fine-quality stones.

[2]Source: The Gem Guide, v. 30, no. 6, November/December 2011, p. 50, 53, 57, 61, 63, 65, and 68–71. These figures are approximate wholesale purchase prices paid by retail jewelers on a per-stone basis for 1-to-less than 1 carat, fine-quality stones.

[3]Prices are per 4.5 to 5-millimeter pearl.

TABLE 6
U.S. EXPORTS AND REEXPORTS OF DIAMOND (EXCLUSIVE OF INDUSTRIAL DIAMOND), BY COUNTRY[1]

| Country | 2010 Quantity (carats) | 2010 Value[2] (millions) | 2011 Quantity (carats) | 2011 Value[2] (millions) |
|---|---|---|---|---|
| Exports: | | | | |
| Aruba | 5,460 | $9 | 3,390 | $11 |
| Australia | 33,000 | 34 | 11,700 | 25 |
| Austria | 440 | 2 | 544 | 1 |
| Bahamas, The | 870 | 3 | 852 | 5 |
| Belgium | 346,000 | 396 | 269,000 | 370 |
| Belize | 371 | 1 | 142 | (3) |
| Brazil | 20,200 | 3 | 7,130 | 2 |
| Canada | 52,000 | 87 | 52,400 | 96 |
| Cayman Islands | 1,240 | 5 | 1,190 | 6 |
| China | 23,300 | 34 | 13,900 | 39 |
| Costa Rica | 9,430 | 2 | 7,760 | 1 |
| Curacao | -- | -- | 6,150 | 17 |
| Denmark | 368 | 1 | 190 | (3) |
| Dominican Republic | 1,680,000 | 10 | 44,300 | 11 |
| France | 33,000 | 94 | 1,200 | 34 |
| Germany | 3,720 | 4 | 22,500 | 4 |
| Honduras | 300 | 1 | 113 | (3) |
| Hong Kong | 1,910,000 | 448 | 2,320,000 | 522 |
| India | 1,300,000 | 825 | 768,000 | 579 |
| Ireland | 10,000 | 39 | 895 | 5 |
| Israel | 419,000 | 365 | 293,000 | 756 |
| Italy | 1,600 | 3 | 3,020 | 15 |
| Jamaica | 179 | (3) | 440 | 2 |
| Japan | 3,400 | 9 | 6,830 | 3 |
| Lebanon | 1,410 | 2 | 4,800 | 5 |
| Malaysia | 505 | 2 | 255 | (3) |
| Mexico | 561,000 | 84 | 604,000 | 97 |
| Netherlands | 1,150 | 9 | 474 | 1 |
| Netherlands Antilles (former) | 12,700 | 34 | 5,860 | 15 |
| New Zealand | 630 | 2 | 429 | 2 |
| Panama | 443 | (3) | 609 | 2 |
| Qatar | 4,370 | 7 | -- | -- |
| Russia | 460,000 | 2 | 639 | 3 |
| Singapore | 8,690 | 10 | 6,050 | 3 |
| South Africa | 636 | 7 | 510 | 4 |
| Sweden | 145 | (3) | 2,510 | 7 |
| Switzerland | 147,000 | 177 | 190,000 | 257 |
| Taiwan | 9,080 | 4 | 497 | 2 |
| Thailand | 92,500 | 14 | 168,000 | 22 |
| United Arab Emirates | 193,000 | 68 | 131,000 | 66 |
| United Kingdom | 325,000 | 58 | 492,000 | 76 |
| Vietnam | 2,610 | 2 | 564 | (3) |
| Other | 27,500 r | 7 r | 12,500 | 5 |
| Total | 7,710,000 | 2,860 | 5,450,000 | 3,070 |
| Reexports: | | | | |
| Armenia | 1,880 | (3) | 11,000 | 5 |
| Aruba | 3,320 | 3 | 2,290 | 4 |
| Australia | 16,300 | 16 | 2,980 | 18 |
| Austria | 4,500 | (3) | 301 | 3 |
| Belgium | 2,410,000 | 1,600 | 956,000 | 2,240 |
| Botswana | 370 | 2 | 7 | (3) |
| Canada | 143,000 | 144 | 129,000 | 150 |
| China | 28,700 | 18 | 32,900 | 43 |
| France | 47,900 | 78 | 6,560 | 126 |
| Germany | 5,820 | 2 | 2,230 | 3 |
| Guatemala | 46,000 | 5 | 52,600 | 4 |
| Hong Kong | 4,340,000 | 1,820 | 2,830,000 | 2,470 |
| India | 2,730,000 | 1,900 | 3,510,000 | 2,940 |

See footnotes at end of table.

TABLE 6—Continued

U.S. EXPORTS AND REEXPORTS OF DIAMOND (EXCLUSIVE OF INDUSTRIAL DIAMOND), BY COUNTRY[1]

| | 2010 | | 2011 | |
|---|---|---|---|---|
| Country | Quantity (carats) | Value[2] (millions) | Quantity (carats) | Value[2] (millions) |
| Israel | 4,390,000 | $4,110 | 2,000,000 | $5,140 |
| Italy | 24,900 | 5 | 7,270 | 3 |
| Japan | 98,200 | 32 | 47,200 | 34 |
| Laos | 4,260 | 1 | 4,850 | 3 |
| Lebanon | 7,860 | 5 | 3,040 | 5 |
| Malaysia | 2,480 | 2 | 376 | 4 |
| Mexico | 5,780 | 1 | 2,900 | 3 |
| Namibia | 6,180 | 10 | 4,450 | 11 |
| Netherlands | 458,000 | 304 | 108,000 | 365 |
| Netherlands Antilles (former) | 16,100 | 38 | 4,360 | 16 |
| Saint Kitts and Nevis | 424 | 1 | 333 | (3) |
| Singapore | 65,500 | 24 | 5,080 | 41 |
| South Africa | 29,300 | 45 | 8,040 | 76 |
| Spain | 2,600 | 3 | 207 | (3) |
| Switzerland | 429,000 | 565 | 83,500 | 604 |
| Taiwan | 17,900 | 6 | 18,000 | 15 |
| Thailand | 160,000 | 31 | 178,000 | 60 |
| United Arab Emirates | 338,000 | 188 | 511,000 | 322 |
| United Kingdom | 166,000 | 269 | 31,500 | 399 |
| Other | 27,300 r | 10 r | 17,300 | 24 |
| Total | 16,000,000 | 11,200 | 10,600,000 | 15,100 |
| Grand total | 23,700,000 | 14,100 | 16,000,000 | 18,200 |

[r]Revised. -- Zero.

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

[2]Customs value.

[3]Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 7

U.S. IMPORTS FOR CONSUMPTION OF DIAMOND, BY KIND, WEIGHT, AND COUNTRY[1]

| Kind, range, and country of origin | 2010 Quantity (carats) | 2010 Value[2] (millions) | 2011 Quantity (carats) | 2011 Value[2] (millions) |
|---|---|---|---|---|
| Rough or uncut, natural:[3] | | | | |
| Angola | 67,000 | $132 | 26,700 | $168 |
| Belgium | 114 | (4) | 2,640 | 4 |
| Botswana | 81,500 | 68 | 84,100 | 159 |
| Brazil | -- | -- | 110 | 2 |
| Canada | 35,300 | 43 | 20,100 | 37 |
| Central African Republic | 669 | 3 | 394 | (4) |
| Congo (Kinshasa) | 6,650 | 7 | 6,460 | 8 |
| India | 12,900 | 1 | 170,000 | 2 |
| Israel | 10,000 | 2 | 1,030 | 2 |
| Lesotho | 488 | 18 | 932 | 40 |
| Namibia | 7,450 | 9 | 3,820 | 4 |
| Russia | 37,500 | 8 | 118,000 | 18 |
| Sierra Leone | 4,100 | 4 | 3,180 | 10 |
| South Africa | 102,000 | 223 | 199,000 | 173 |
| Other | 22,700 r | 27 r | 68,200 | 3 |
| Total | 389,000 | 524 r | 704,000 | 630 |
| Cut but unset, not more than 0.5 carat: | | | | |
| Australia | 5,690 | 3 | 4,110 | 4 |
| Belgium | 281,000 | 106 | 277,000 | 102 |
| Botswana | 8,240 | 13 | 6,890 | 18 |
| Brazil | 238 | (4) | 4,470 | 1 |
| Canada | 13,000 | 9 | 23,600 | 8 |
| China | 37,500 | 21 | 34,300 | 31 |
| Dominican Republic | 7,250 | 2 | 3,430 | 1 |
| Hong Kong | 180,000 | 25 | 197,000 | 30 |
| India | 7,310,000 | 1,560 | 6,990,000 | 1,850 |
| Israel | 433,000 | 207 | 414,000 | 236 |
| Mauritius | 5,780 | 15 | 6,220 | 17 |
| Mexico | 92,300 | 21 | 76,300 | 21 |
| Namibia | 3,220 | 7 | 2,060 | 5 |
| Russia | 2,470 | 2 | 585 | 1 |
| South Africa | 9,440 | 13 | 4,910 | 7 |
| Sri Lanka | 1,020 | (4) | 2,980 | 1 |
| Switzerland | 807 | (4) | 40,600 | 2 |
| Thailand | 93,400 | 14 | 93,000 | 13 |
| United Arab Emirates | 77,100 | 17 | 112,000 | 42 |
| United Kingdom | 2,790 | 1 | 24,700 | 4 |
| Vietnam | 27,100 | 21 | 30,400 | 29 |
| Other | 12,400 r | 2 r | 11,600 | 3 |
| Total | 8,610,000 | 2,060 | 8,360,000 | 2,430 |
| Cut but unset, more than 0.5 carat: | | | | |
| Armenia | 430 | (4) | 3,170 | 3 |
| Australia | 6,600 | 37 | 4,710 | 41 |
| Belgium | 706,000 | 2,900 | 733,000 | 3,550 |
| Botswana | 12,500 | 54 | 11,200 | 63 |
| Brazil | 424 | 4 | 294 | 7 |
| Canada | 23,300 | 83 | 16,200 | 67 |
| Central African Republic | 4 | (4) | 35 | 2 |
| China | 19,300 | 60 | 35,000 | 102 |
| Costa Rica | 31 | 1 | 5 | (4) |
| France | 1,650 | 26 | 1,240 | 23 |
| Germany | 662 | 8 | 3,050 | 13 |
| Hong Kong | 42,200 | 102 | 48,500 | 107 |
| India | 1,900,000 | 3,610 | 1,970,000 | 4,410 |
| Indonesia | 44 | 3 | 41 | 1 |
| Israel | 2,000,000 | 7,530 | 1,970,000 | 8,950 |
| Italy | 5,260 | 16 | 3,320 | 11 |
| Japan | 595 | 2 | 1,380 | 2 |
| Lebanon | 1,150 | 2 | 1,470 | 3 |

See footnotes at end of table.

TABLE 7—Continued

U.S. IMPORTS FOR CONSUMPTION OF DIAMOND, BY KIND, WEIGHT, AND COUNTRY[1]

| | 2010 | | 2011 | |
|---|---|---|---|---|
| Kind, range, and country of origin | Quantity (carats) | Value[2] (millions) | Quantity (carats) | Value[2] (millions) |
| Lesotho | -- | -- | 136 | $28 |
| Madagascar | 55 | $1 | -- | -- |
| Mauritius | 3,220 | 18 | 2,720 | 16 |
| Mexico | 1,250 | 1 | 465 | 2 |
| Namibia | 9,620 | 35 | 16,800 | 89 |
| Netherlands | 244 | 3 | 284 | 5 |
| Philippines | 868 | 1 | 145 | 1 |
| Russia | 25,300 | 98 | 17,100 | 100 |
| Singapore | 1,710 | 2 | 245 | 1 |
| South Africa | 63,000 | 892 | 42,700 | 900 |
| Sri Lanka | 1,130 | 8 | 3,920 | 4 |
| Switzerland | 11,300 | 391 | 18,900 | 541 |
| Tanzania | 66 | 1 | -- | -- |
| Thailand | 5,910 | 13 | 11,200 | 26 |
| United Arab Emirates | 10,100 | 42 | 38,400 | 100 |
| United Kingdom | 3,550 | 53 | 3,880 | 85 |
| Vietnam | 3,410 | 4 | 1,920 | 2 |
| Other | 1,260 r | 137 r | 1,750 | 7 |
| Total | 4,860,000 | 16,000 | 4,970,000 | 19,300 |

[r]Revised. -- Zero.

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

[2]Customs value.

[3]Includes some natural advanced diamond.

[4]Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 8
U.S. IMPORTS FOR CONSUMPTION OF GEMSTONES, OTHER THAN DIAMOND, BY KIND AND COUNTRY[1]

| Kind and country | 2010 Quantity (carats) | 2010 Value[2] (millions) | 2011 Quantity (carats) | 2011 Value[2] (millions) |
|---|---|---|---|---|
| Emerald: | | | | |
| Belgium | 1,340 | (3) | 737 | $1 |
| Brazil | 120,000 | $7 | 186,000 | 9 |
| Canada | 4 | (3) | 1,390 | -- |
| China | 13,800 | 1 | 34,100 | -- |
| Colombia | 406,000 | 131 | 365,000 | 161 |
| France | 1,480 | 2 | 152 | 2 |
| Germany | 54,000 | 2 | 9,940 | 3 |
| Hong Kong | 246,000 | 17 | 118,000 | 11 |
| India | 1,810,000 | 37 | 1,400,000 | 57 |
| Israel | 172,000 | 17 | 138,000 | 15 |
| Italy | 2,880 | (3) | 9,050 | 6 |
| Switzerland | 6,290 | 13 | 71,900 | 61 |
| Thailand | 487,000 | 10 | 374,000 | 11 |
| United Kingdom | 1,550 | 2 | 760 | 1 |
| Other | 89,400 | 15 | 43,400 | 10 |
| Total | 3,410,000 | 254 | 2,760,000 | 348 |
| Ruby: | | | | |
| Belgium | 16 | (3) | 41 | (3) |
| China | 19,200 | (3) | 730 | (3) |
| France | 1,730 | (3) | 15 | 1 |
| Germany | 10,900 | (3) | 14,000 | (3) |
| Hong Kong | 201,000 | 1 | 137,000 | 4 |
| India | 2,310,000 | 6 | 2,020,000 | 4 |
| Israel | 22,300 | (3) | 4,570 | (3) |
| Italy | 4,300 | (3) | 9,910 | 1 |
| Kenya | 1,810 | (3) | 1,050 | (3) |
| Sri Lanka | 3,800 | (3) | 633 | (3) |
| Switzerland | 129 | 2 | 55,900 | 4 |
| Thailand | 1,880,000 | 22 | 1,640,000 | 23 |
| United Arab Emirates | 210 | (3) | -- | -- |
| Other | 168,000 | 11 r | 45,100 | 7 |
| Total | 4,630,000 | 42 | 3,920,000 | 45 |
| Sapphire: | | | | |
| Belgium | 2,420 | 1 | 1,720 | 2 |
| China | 56,700 | 3 | 163,000 | 5 |
| France | 1,160 | 2 | 2,460 | 2 |
| Germany | 123,000 | 4 | 32,200 | 11 |
| Hong Kong | 536,000 | 9 | 237,000 | 15 |
| India | 2,570,000 | 20 | 2,970,000 | 18 |
| Israel | 19,300 | 2 | 13,000 | 3 |
| Italy | 5,440 | 1 | 93,200 | 6 |
| Madagascar | 2,940 | 4 | 31,700 | 3 |
| South Africa | 33,700 | 1 | 3,680 | 1 |
| Sri Lanka | 309,000 | 66 | 256,000 | 77 |
| Switzerland | 13,700 | 20 | 91,800 | 26 |
| Thailand | 2,630,000 | 78 | 3,050,000 | 109 |
| United Kingdom | 610 | 1 | 1,040 | 3 |
| Other | 11,900 r | 2 r | 40,500 | 1 |
| Total | 6,320,000 | 214 | 6,980,000 | 282 |
| Other: | | | | |
| Rough, uncut, all countries | NA | 15 | NA | 23 |
| Cut, set and unset, all countries | NA | 32 | NA | 37 |

r Revised. NA Not available. -- Zero.

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

[2]Customs value.

[3]Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 9
VALUE OF U.S. IMPORTS OF LABORATORY-CREATED AND IMITATION GEMSTONES, BY COUNTRY[1, 2]

(Thousand dollars)

| Country | 2010 | 2011 |
|---|---|---|
| Laboratory-created, cut but unset: | | |
| Austria | 1,950 | 2,340 |
| Belgium | 1,320 | 882 |
| China | 5,700 | 4,770 |
| Germany | 10,100 | 9,970 |
| India | 9,870 | 11,900 |
| Malaysia | (3) | 3,120 |
| Other | 3,350 r | 3,710 |
| Total | 32,300 | 36,700 |
| Imitation:[4] | | |
| Austria | 51,400 | 48,300 |
| China | 13,300 | 19,500 |
| Czech Republic | 5,070 | 5,540 |
| Other | 1,920 r | 2,010 |
| Total | 71,700 | 75,400 |

[r]Revised.
[1]Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Customs value.
[3]Less than ½ unit.
[4]Includes pearls.

Source: U.S. Census Bureau.

TABLE 10
U.S. IMPORTS FOR CONSUMPTION OF GEMSTONES[1]

(Thousand carats and thousand dollars)

| | 2010 | | 2011 | |
|---|---|---|---|---|
| Stones | Quantity | Value[2] | Quantity | Value[2] |
| Coral and similar materials, unworked | 5,760 | 12,000 | 5,370 | 11,800 |
| Diamonds: | | | | |
| Cut but unset | 13,500 | 18,100,000 | 13,300 | 21,700,000 |
| Rough or uncut | 389 | 524,000 | 704 | 630,000 |
| Emeralds, cut but unset | 3,140 | 254,000 | 2,760 | 348,000 |
| Pearls: | | | | |
| Cultured | NA | 15,800 | NA | 27,300 |
| Imitation | NA | 5,100 | NA | 5,930 |
| Natural | NA | 22,900 | NA | 18,600 |
| Rubies and sapphires, cut but unset | 10,900 | 256,000 | 10,900 | 328,000 |
| Other precious and semiprecious stones: | | | | |
| Rough, uncut | 1,400,000 | 30,700 | 1,670,000 | 15,000 |
| Cut, set and unset | NA | 276,000 | NA | 301,000 |
| Other | 78,100 | 11,300 | 33,600 | 7,240 |
| Laboratory-created: | | | | |
| Cut but unset | 6,800 | 32,300 | 6,230 | 36,700 |
| Other | NA | 14,600 | NA | 22,800 |
| Imitation gemstone[3] | NA | 66,600 | NA | 69,400 |
| Total | 1,520,000 | 19,600,000 | 1,740,000 | 23,500,000 |

NA Not available.
[1]Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Customs value.
[3]Does not include pearls.

Source: U.S. Census Bureau.

TABLE 11

NATURAL DIAMOND: WORLD PRODUCTION, BY COUNTRY AND TYPE[1, 2, 3]

(Thousand carats)

| Country and type[4] | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|
| Gemstones: | | | | | |
| Angola | 8,732 | 8,016 | 12,445 | 7,600 r | 8,100 |
| Armenia | 123 | 101 | 50 | 50 e | 80 |
| Australia | 231 | 273 | 220 e | 100 e | 86 |
| Botswana[e] | 25,000 | 25,000 | 24,000 | 25,000 | 25,000 |
| Brazil | 182 e | 71 r | 21 r | 25 r | 25 p |
| Canada | 17,144 | 14,803 | 10,946 | 11,773 | 10,795 |
| Central African Republic[e] | 370 | 302 5 | 249 5 | 240 r | 250 |
| China[e] | 100 | 100 | 100 | 100 | 100 |
| Congo (Kinshasa) | 5,700 | 4,200 | 3,700 | 3,400 r | 3,900 |
| Ghana | 671 | 478 | 301 | 267 r | 300 e |
| Guinea | 815 | 2,500 | 557 | 280 r | 300 e |
| Guyana | 269 | 169 r | 144 | 50 e | 50 |
| Lesotho[e] | 454 5 | 450 | 450 | 460 | 450 |
| Namibia | 2,266 | 2,435 | 1,192 | 1,693 r | 1,700 e |
| Russia[e] | 23,300 | 21,925 5 | 17,791 5 | 17,800 | 18,500 |
| Sierra Leone | 362 | 223 | 241 | 306 r | 280 e |
| South Africa[e] | 6,100 | 5,200 | 2,500 | 3,500 | 2,800 |
| Tanzania[e] | 239 | 202 | 155 | 77 | 51 |
| Venezuela[e] | 45 | 45 | 45 | 45 | 45 |
| Zimbabwe[e] | 100 | 100 | 100 | 900 r | 1,000 |
| Other[6] | 75 | 121 | 79 | 221 r | 221 |
| Total | 92,300 | 86,700 r | 75,300 r | 73,900 r | 74,000 |
| Industrial: | | | | | |
| Angola[e] | 970 | 900 | 1,383 5 | 900 r | 900 |
| Australia | 18,960 | 15,397 | 10,700 | 9,900 e | 7,500 e |
| Botswana[e] | 8,000 | 8,000 | 7,000 | 7,000 | 7,000 |
| Brazil[e] | 600 | 600 | 600 | 600 | 600 |
| Central African Republic[e] | 93 | 74 5 | 62 5 | 62 r | 62 |
| China[e] | 970 | 1,000 | 1,000 | 1,000 | 1,000 |
| Congo (Kinshasa) | 22,600 | 16,700 | 14,600 | 13,400 r | 15,600 |
| Ghana | 168 | 120 | 75 | 67 r | 67 e |
| Guinea | 200 | 600 | 139 | 94 r | 95 e |
| Russia[e] | 15,000 | 15,000 | 15,000 | 15,000 | 15,000 |
| Sierra Leone | 241 | 149 | 160 | 131 r | 120 e |
| South Africa[e] | 9,100 | 7,700 | 3,600 | 5,400 | 4,200 |
| Tanzania[e] | 44 | 36 | 27 | 14 | 9 |
| Venezuela[e] | 70 | 70 | 70 | 70 | 70 |
| Zimbabwe[e] | 600 | 700 | 850 | 7,500 | 8,000 |
| Other[7] | 84 | 145 | 115 | 285 r | 285 |
| Total | 77,700 | 67,200 | 55,400 | 61,400 r | 60,500 |
| Grand total | 170,000 | 154,000 | 131,000 | 135,000 r | 135,000 |

[e]Estimated. [p]Preliminary. [r]Revised.

[1]World totals and estimated data are rounded to no more than three significant digits; may not add to totals shown.

[2]Table includes data available through June 2, 2012.

[3]In addition to the countries listed, Nigeria and the Republic of Korea produce natural diamond, but information is inadequate to formulate reliable estimates of output levels.

[4]Includes near-gem and cheap-gem qualities.

[5]Reported figure.

[6]Includes Cameroon, Congo (Brazzaville), Gabon (unspecified), India, Indonesia, Liberia, and Togo (unspecified).

[7]Includes Congo (Brazzaville), India, Indonesia, and Liberia.