



2005 Minerals Yearbook

GHANA

THE MINERAL INDUSTRY OF GHANA

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The Republic of Ghana is located in western Africa and is bordered to the south by the Gulf of Guinea, to the north by Burkina Faso, to the west by Côte d'Ivoire, and to the east by Togo. The country's 21.1 million inhabitants shared an area of about 238,500 square kilometers (km²) (World Bank Group, The, 2005¹). In 2005, real gross domestic product (GDP) growth was estimated to be 5.9% and was projected to increase to 6.1% in 2007 (Organisation for Economic Co-operation and Development, 2006, p. 283); the nominal GDP based on purchasing power parity was estimated to be about \$55.2 billion in 2005 compared with \$50.4 billion in 2004 (International Monetary Fund, 2006²). Ghana's economy was primarily based on agriculture, which accounted for about 50% of the GDP and 60% of total employment (Organisation for Economic Co-operation and Development, 2006, p. 284). Mineral commodities produced in the country were aluminum, bauxite, diamond, gold, manganese, natural gas, petroleum, salt, and silver.

Ghana's mineral industry had been stagnant for more than 30 years prior to the establishment of the 1984 Economic Recovery Program and the promulgation of the 1986 Minerals and Mining Law. According to the Ghana Chamber of Mines (2006, p. 6-12), the contribution of the mining sector to the country's GDP increased from 1.3% in 1991 to an average of about 5% in recent years, export earnings from minerals have averaged 35%, and the sector is one of the leading contributors to Government revenues through the payment of mineral royalties, employee income taxes, and corporate taxes. The Organisation for Economic Co-operation and Development (OECD) (2006, p. 284) reported, however, that although Ghana's industrial sector (which includes mining) had continued to show signs of recovery, industrial production was not growing rapidly enough to attain the Government's objective of having the industrial sector account for about 37% of the GDP by 2010. OECD estimated that the mining and quarrying subsectors had grown at a slower pace than that of the economy as a whole and that the growth rate of these subsectors had slowed to 3% in 2005 from 4.5% in 2004, and 4.7% in 2003. On the other hand, the World Bank, through the International Finance Corporation (2006³), estimated that in 2005 Ghana's mining sector accounted for about 5% of the country's GDP, 30% of exports, and 3% to 4% of Government fiscal revenues, and that gold production accounted for about 95% of total mining export proceeds.

Government Policies and Legislation

The Ministry of Mines and Energy oversaw all aspects of Ghana's minerals sector and was the entity responsible for

granting mining and exploration licenses. Ghana National Petroleum Corp. (GNPC) was the Government entity responsible for petroleum exploration and production. On December 15, 2005, the Ghanaian Parliament passed into law a new minerals and mining bill. Some of the provisions under the new Minerals and Mining Law, law No. 703, included access to mineral rights on a first-come, first-considered basis; a specific timeframe within which all applications are expected to be granted; the right for applicants to demand written reasons from the Minister if an application is rejected; the Government's right to acquire land or authorize its occupation and use if the land is required for mining purposes; the establishment of a cadastral system for the administration of mineral rights; a provision establishing the range of royalty rates, which is not to be less than 3% or exceed 6% of total mining revenues; the Government's right to obtain a 10% free-carried interest in mining leases; and the establishment of the period of duration of a mining lease, which is not to exceed 30 years and which may be renewed once for a period not to exceed an additional 30 years (Mining Journal, 2006; Ghanaian Chronicle, The, 2005⁴).

The Precious Minerals Marketing Corporation (PMMC) was the entity responsible for promoting the development of small-scale gold and diamond mining in Ghana. It was also responsible for purchasing the output of such mining, either directly or through licensed buyers.

Structure of the Mineral Industry

In the gold sector, Gold Fields Limited of South Africa held a 71.1% interest in the Tarkwa and the Damang gold mines in a joint venture with Toronto-based IAMGOLD Corp. (18.9%), and the Government of Ghana (10%) (U.S. Securities and Exchange Commission, 2005, p. 41). AngloGold Ashanti Ltd. of South Africa operated the Bibiani and the Iduapriem open pit gold mines and the Obuasi underground gold mine. The Bibiani and the Obuasi Mines were 100% owned by AngloGold Ashanti and the Iduapriem Mine was 80% owned by AngloGold Ashanti and 20% by the International Finance Corporation (AngloGold Ashanti Ltd., 2006a-c). Golden Star Resources Ltd. held a 90% interest in the Bogoso/Prestea and the Wassa open pit mines and a 90% interest in the idled Prestea underground mine. Newmont Mining Corp. of the United States held a 100% interest in the Ahafo gold property and an 85% interest in the Akyem gold property. Companies exploring for gold in Ghana included Adamus Resources Ltd., African Gold plc, Moydow Mines International Inc., and Pelangio Mines Inc.

In the bauxite and alumina sector, Alcoa Inc. of the United States held a 10% interest in Volta Aluminum Company Ltd. (Valco); the remaining equity was owned by the Government. Alcan Aluminum Ltd. of Canada held an 80% interest in Ghana Bauxite Company Ltd.; the Government held the remaining 20% interest. Additional information on the structure of the mineral industry can be found in table 2.

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

Environmental Issues

The Ghanaian Environmental Protection Agency (EPA) was the Government entity responsible for the formulation of policies on all aspects of the environment. The agency's functions included acting in liaison and cooperating with other Government agencies; collaborating with foreign and international agencies, as necessary; conducting investigations into environmental issues; coordinating the activities of bodies concerned with the technical aspects of the environment for the purpose of controlling the generation, treatment, storage, transportation, and disposal of industrial waste; ensuring compliance with environmental impact assessment procedures; issuing environmental permits and pollution abatement notices; making recommendations to the Government for the protection of the environment; prescribing standards and guidelines related to the pollution of air, water, and land; protecting and improving the quality of the environment; and securing the control and prevention of discharge waste into the environment among several other functions (Environmental Protection Agency, 2006, p. 3-4).

In 2005, the Center for Public Interest Law and the Center for Environmental Law, two Accra-based nongovernmental organizations, sued Bonte Gold Mines Ltd. (an 85% owned subsidiary of Akrokeri-Ashanti Gold Mines Inc. of Canada), Ghana's Minerals Commission, and the EPA for the reclamation of the environment after the cessation of Bonte's gold mining operations along the Jeni River. Bonte closed its operations at Bonteso in the Ashanti region in March 2004, citing problems concerning low-grade ore, equipment unavailability, and a default of its financial obligations during 2003. The company allegedly did not follow the due process for mine decommissioning, such as by failing to post bonds to the EPA for the reclamation of lands, failing to notify workers of its intention to liquidate, not paying up-to-date wages to workers, and leaving a debt of about \$18 million owed to various state institutions and private companies. The EPA and the Minerals Commission were accused of failing to ensure Bonte's compliance to operate in a sustainable manner (Center for Public Interest Law, 2005§; Ghanaweb.com, 2005b§; Mining News, The, 2005§).

Trade

According to the U.S. Census Bureau, Ghana's exports to the United States were valued at about \$158.4 million in 2005 compared with about \$145.4 million in 2004 and \$81.9 million in 2003; \$57.7 million of these exports was from petroleum products; \$2.5 million, gem-quality diamond; and \$1.5 million, gold (U.S. Census Bureau, 2006b§). Imports from the United States were valued at about \$340 million in 2005 compared with about \$310 million in 2004 and \$209 million in 2003. These included nearly \$31 million for excavating machinery; \$4.7 million for drilling and oilfield equipment; \$3 million in specialized mining equipment; and \$780,000 for petroleum products (U.S. Census Bureau, 2006a§).

Commodity Review

Metals

Aluminum and Bauxite and Alumina.—In January 2005, Alcoa signed a memorandum of understanding (MOU) with the Government to develop an integrated aluminum industry in Ghana that would include bauxite mining, alumina refining, aluminum production, and rail transportation infrastructure upgrades. The MOU called for the restart of three of the five existing potlines at the idled Valco smelter, which would produce about 120,000 metric tons per year (t/yr) of aluminum; the designed capacity of the plant is 200,000 t/yr. The Government and Alcoa planned to restart the Valco smelter as soon as an interim power rate agreement is reached with the Volta River Authority. The Government (90%) was to be the managing owner of the smelter and Alcoa (10%), through its subsidiary, Alcoa World Alumina and Chemicals [a joint venture between Alcoa Inc. (60%) and Alumina Limited of Australia (40%)] was to supply alumina and serve as the distributor of export sales of aluminum. The Government had acquired Kaiser Aluminum Corp.'s 90% interest in Valco in 2004. Kaiser closed the Valco plant in 2003 after struggling with fluctuating operating levels for several years and dealing with restricted power allocations from the Volta River Authority (Alcoa Inc., 2005a, b).

Gold.—In October 2005, Red Back Mining Inc. of Canada [through its subsidiary Chirano Gold Mines Limited (CGML)] commissioned a new mine in Ghana. The mine, known as the Chirano gold mine, was an open pit operation located about 21 kilometers (km) to the south of AngloGold Ashanti's Bibiani gold mine in western Ghana. The Chirano gold mine produced 941 kilograms (kg) (reported as 30,247 troy ounces) in 2005 and was 100% owned by Red Back; the Government had the option to exercise its right to back into a 10% ownership in CGML. Chirano was scheduled to produce an average of about 3,800 kg (reported as 123,000 troy ounces) per year during a period of 8½ years. The designed capacity of the processing plant was 2.1 million metric tons per year (Mt/yr). A revised resource and reserve estimate for the Chirano Mine was underway in 2005. The economic potential of the Akwaaba deposit, a high-grade deposit within the Chirano mining concession, was being evaluated in 2005, and a resource estimate of the deposit was scheduled for completion in October 2006 (Red Back Mining Inc., 2006, p. 4-6; 2006§).

In 2005, gold production at the Bibiani Mine came from the processing of ore from the mine's remaining pits, stockpiled ore, and tailings. Satellite pits were depleted in December 2005, and AngloGold Ashanti expected stockpiled ore to be depleted by January 2006. Beginning in February, the mill was to process only old tailings. The Bibiani Mine, which had operated between 1903 and 1968 as an underground mine, was reopened in 1998 as an open pit mine with a carbon-in-leach (CIL) plant. The mine included old tailings dumps, which were reclaimed in December 2004. These tailings were expected to yield about 3.9 million metric tons (Mt) of ore at an estimated recovery grade of 0.60 gram per metric ton (g/t) gold during a period of 18 months. The company was studying the viability of restarting production from its main pit to a depth of about 60 meters below

the current pit floor. Underground exploration was suspended in July 2005 and the underground mine continued to be on care-and-maintenance status. Gold production was expected to decrease to 1,700 kg in 2006 from 3,580 kg (reported as 115,000 troy ounces) in 2005 (AngloGold Ashanti Ltd., 2006a).

Gold production at the Iduapriem open pit mine increased to 6,380 kg in 2005 (reported as 205,000 troy ounces) from 4,570 kg in 2004 owing to an increase in throughput at the processing plant. AngloGold Ashanti held an 80% interest in the Iduapriem Mine; the remaining 20% was held by the International Finance Corporation. The company also held a 90% interest in the Teberbie Mine, which is adjacent to the Iduapriem Mine; the Government held the remaining 10% interest (AngloGold Ashanti Ltd., 2006b).

In 2005, gold production at the Obuasi underground mine was hindered by a breakdown at the main processing plant during the first quarter of 2005 and the failure of a primary crusher during the third quarter; production, however, increased to 12,200 kg (reported as 391,000 troy ounces) from 7,930 kg in 2004 mostly owing to the start of mining from the Kubi surface oxide deposit. In terms of growth prospects, the company planned to develop the deep-level ore deposits at Obuasi known as the Obuasi Deeps, which were expected to extend the project's mine life to 2040. The development of Obuasi Deeps will require an initial investment of \$44 million during the next 4 years to conduct further exploration and feasibility studies. The total capital expenditure for the development of the Obuasi Deeps was estimated to be about \$570 million. AngloGold Ashanti held a 100% interest in the Obuasi Mine (AngloGold Ashanti Ltd., 2006c).

The Wassa open pit gold mine produced 2,149 kg of gold in 2005. The mine, which is located about 150 km west of Accra, was owned by Golden Star (90%) and the Government (10%). The mine had been in operation as an open pit heap-leach mine in the 1990s but was closed in 2001. Golden Star acquired the mine in 2002 after determining that conventional CIL processing was economically feasible. Plant feed in 2005 was a mixture of newly mined ore from the Wassa pit blended with material from the heap-leach pads left by the previous operation. Golden Star's planned to increase production at Wassa to about 3,700 kg (reported as 120,000 troy ounces) in 2006 and to produce about 4,000 kg (reported as 130,000 troy ounces) in 2007 as higher grade ores are reached at deeper levels. As of December 31, 2005, total probable mineral reserves at Wassa were reported to be 21.9 Mt at a grade of 1.34 g/t gold (Golden Star Resources Ltd., 2006, p. 32).

In addition to the Wassa Mine, Golden Star operated the Bogoso/Prestea open pit mine, which is located about 300 km west of Accra. Bogoso/Prestea produced 4,103 kg of gold in 2005. Golden Star held a 90% interest in the property, and the Government of Ghana held the remaining 10%. About 75% of the remaining ore reserve at Bogoso/Prestea is sulfide. Because this type of ore cannot be processed using the company's existing CIL plant, the company decided in June 2005 to build a new 3.5-Mt/yr processing plant which will use biooxidation to treat the remaining sulfide ore. The new processing plant was scheduled to be completed in late 2006 (Golden Star Resources Ltd., 2006, p. 31).

The Prestea Underground gold mine, which is also 90% owned by Golden Star, remained idle during the year. Prestea Underground was closed in early 2002 owing to low gold prices. During 2005, a total of 8,096 meters of underground exploration drilling was completed at the mine; drilling was to continue in 2006. Golden Star planned to complete a prefeasibility study by the end of 2006 to evaluate the economic potential of restarting production at Prestea Underground. As of December 31, 2005, inferred mineral resources at the mine were estimated to be 6.1 Mt at an average grade of 8.1 g/t (Golden Star Resources Ltd., 2006, p. 33).

In 2005, Newmont announced the company was advancing the Ahafo and the Akyem gold properties to production. The Ahafo property, which is located about 300 km northwest of Accra between the towns of Kenyase and Ntotroso, was expected to begin production during the second half of 2006. Production of gold was expected to be about 17,100 kilograms per year (kg/yr) (reported as 550,000 troy ounces), with a mine life estimated to be more than 20 years. The company was awaiting the issuance of a mining license for the development of the Akyem property, which is located in Ghana's eastern region, about 130 km northwest of Accra between the towns of New Abirem and Ntronang. Newmont expected to begin production at Akyem in 2008 and to produce about 15,500 kg/yr of gold (reported as 500,000 troy ounces) (Newmont Mining Corp., 2006, p. 17).

About 19.6 Mt of ore was processed at Tarkwa in 2005 from which 21,051 kg of gold was produced (Gold Fields Limited, 2006§). In November 2005, a new semiautogenous grinding (SAG) mill and CIL plant were commissioned at the Tarkwa Mine. The Tarkwa Mine, which is located in southwestern Ghana about 300 km west of Accra, consists of several open pit operations, one CIL plant, and two heap-leach facilities. Some underground mining had been conducted in the past, but underground operations ended in 1999. As of June 30, 2005, proven and probable reserves at Tarkwa were estimated to be about 417,000 kg of gold (reported as 13.4 million troy ounces) and to last until 2025 at current production rates (U.S. Securities and Exchange Commission, 2005, p. 41-43).

The Damang Mine, which is located in the Wassa West District in southwestern Ghana about 360 km west of Accra and 30 km northeast of Tarkwa Mine, consists of an open pit operation, a SAG mill, and a CIL plant. The mine processed about 5.2 Mt of ore in 2005 and produced about 7,700 kg of gold. Owing to the depletion of the high-grade ore in the main Damang pit, an exploration program to seek for alternative ore sources was launched during the year. The exploration program resulted in the establishment of the Amoanda, the Rex, and the Tomento pits, and the extension of an old pit at Kwesie-Lima. Gold Fields and its partners reported that production from the new pits was to be processed along with stockpiles of lower grade ore. Mining of the Tomento pit began in July 2005 and mining of the Amoanda pit began during the fourth quarter of 2005; production from the Rex pit was scheduled to begin in 2007. As of June 30, 2005, proven and probable reserves at Damang were estimated to be about 40,000 kg of gold (reported as 1.3 million troy ounces) and were projected to last until 2010 at current production rates (U.S. Securities and Exchange Commission, 2005, p. 44-45; Gold Fields Limited, 2006§).

Industrial Minerals

Cement.—The Building and Road Institute of the Council for Scientific and Industrial Research of Ghana was conducting laboratory tests to evaluate the possibility of producing pozzolana cement from bauxite mining waste (known as red mud or clay). The two companies that produced cement in Ghana, Ghana Cement Works Ltd. and Diamond Cement Ghana Limited, used imported clinker, gypsum, and limestone for the manufacturing of cement. About 2 Mt of clinker was imported in 2003 for the production of portland cement (Ghanaweb.com, 2005a§).

Diamond.—Ghana produced about 1 million carats of diamond in 2005 (table 1). Diamond production was recovered by artisanal miners from alluvial and in situ diamond deposits near Akwatia in the Birim Valley. The only formal commercial production came from a diamond placer mine in Akwatia, which was operated by Government-owned Ghana Consolidated Diamonds Ltd. (GCD).

According to a 2004 report by Partnership Africa Canada and Global Witness Publishing Inc. (2004, p. 3-4), prior to the creation of the PMMC in 1989, as much as 70% of Ghana's diamond was smuggled out of the country. Following the creation of PMMC, diamond was initially shipped to a PMMC office in Antwerp, Belgium, for sale; currently, an open market has been established in Ghana in which registered buyers can operate from offices within the country and in which licensed diamond traders are allowed to operate. All buyers (exclusively Ghanaian nationals) must transfer U.S. dollars through the Central Bank in advance for the purchase of diamond. Only about 200 of the 1,000 registered buyers were thought to be active during 2004. Purchased diamond was kept under lock in the custody of the PMMC and subject to inspection before being exported. According to the report, Ghana was fully implementing the Kimberley Process but the country lacked the resources to monitor and control illicit diamond mining and buying, especially from the artisanal mining areas. In Akwatia, for example, an informal diamond market existed where no paperwork was required to buy or sell diamond; this market was known locally as the "Belgian market." The report also indicated the possibility of diamond being smuggled from Côte d'Ivoire, especially following the sanctions on diamond exports imposed on this country in 2004 (Partnership Africa Canada and Global Witness Publishing Inc., 2004, p. 3-5).

It was reported that while annual diamond production from GCD continued to decline, diamond production from artisanal miners was increasing and that there was a possibility for the privatization of GCD. Foreign companies (not identified) were said to be interested in the Akwatia alluvial diamond field in the upper Birim River catchment area (Mining Journal, 2005).

Mineral Fuels

Dallas-based Kosmos Energy LLC held an 86.5% working interest in the West Cape Three Points (WCTP) Block in the Gulf of Guinea's Tano Basin. In 2005, the company conducted a 1,075-km² three-dimensional (3-D) survey to evaluate the potential of the block. The WCTP Block is located about 8 km

from the Ghanaian coastline and 95 km southwest of the city of Takoradi. The remaining interest in WCTP was held by GNPC (10%) and E.O. Group of Ghana (3.5%) (Kosmos Energy LLC, 2005§).

Final environmental impact assessment permits were granted in Benin, Ghana, and Togo for the West African Gas Pipeline (WAGP) between March and April 2005. The West African Gas Pipeline Company Limited (WAGPCo) was granted a license to construct the pipeline in April, and the first shipload of about 8,000 pipes was delivered to the Tema Port in May. In September, Chevron Corporation, which is the WAGP project manager, announced that WAGPCo had begun the installation of the 569-km main offshore segment of the pipeline. The WAGP was expected to be operational by December 2006 and to deliver gas to powerplants and industries in Benin, Ghana, Nigeria, and Togo (Chevron Corporation, 2005; West African Gas Pipeline Company Limited, 2006§).

Vanco Energy Company explored for petroleum at the Cape Three Points Deepwater Block (CTPD), which is located in the Tano-Ivorian Basin. The company had signed an exploration agreement with the Government in 2002 at which time it conducted a two-dimensional (2-D) seismic program to evaluate the block. In 2005, the company carried out a 1,500-km² 3-D seismic program to further define the structural and stratigraphic prospects in the block. The first well in the CTPD Block was planned for 2007 (Vanco Energy Company, 2006§).

Infrastructure

Improving transport infrastructure remained a focal point of Ghana's development agenda, especially with the advent of the civil conflict in Côte d'Ivoire, which has increased the importance of Ghana's roads as a transit corridor for neighboring land-locked countries (Organisation for Economic Co-operation and Development, 2006, p. 290). Road transport accounted for about 98% of freight moved in the country. The country's basic road infrastructure consisted of 50,000 km of roads, 40% of which the Government estimated to be in good condition, 30% in fair condition, and 30% in poor condition. The country's infrastructure also included the Ports of Tema and Takoradi and a smaller port on Lake Volta, which handles inland water transport; one international airport at Accra and four other regional airports; and a 1,300-km-long railway system in the southern part of the country, which connects Accra, Kumasi, and Sekondi-Tekoradi. OECD reported that, given the railway's poor condition, the Government had launched a program to privatize the entire railway system with the assistance of the World Bank and that, since 2000, the Government had collaborated with multinational mining companies to maintain vulnerable sections of the railway network. In 2005, a bidding round was opened to operate the railway lines under a concession arrangement (Organisation for Economic Co-operation and Development, 2006, p. 291).

Outlook

The gold sector is likely to continue to lead Ghana's mineral industry. The passing into law of the new mineral bill as

well as other developments in 2005, which included plans to develop an integrated aluminum industry, rail transportation infrastructure upgrades, the restarting of the Volta aluminum smelter, and the likelihood of the WAGP coming onstream in 2006, suggest that the Government is interested in continuing to develop the country's mineral industry. In the short run, additional production that will result from the commissioning of the Chirano gold mine in 2005, increased production at the Wassa Mine in 2006 and 2007, and the coming online of gold production from the Ahafo Mine in 2006 and the Akyem Mine in 2008, are likely to counterbalance the loss in production that will result from the eventual depletion of satellite pits at the Bibiani Mine.

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TABLE 1
GHANA: PRODUCTION OF MINERAL COMMODITIES¹

(Thousand metric tons unless otherwise specified)

Commodity ²	2001	2002	2003	2004 ^e	2005 ^e
Aluminum:					
Bauxite, gross weight	678	684	495	498 ³	726 ³
Metal, smelter, primary	144	117	16	--	13
Cement, hydraulic ^{e,4}	1,900	1,900	1,900	1,900	1,900
Diamond:					
Gem ^e thousand carats	936	770	724	725	850
Industrial ^e do.	234	193	180	180	213
Total ⁵ do.	1,170	963	904	905 ³	1,063 ³
Gold ⁶ kilograms	68,341	69,271	70,749	63,139 ³	66,852 ³
Manganese:					
Ore, processed	1,077	1,136	1,509	1,597 ³	1,715 ³
Mn content ^e	344	363	528	559 ³	600
Natural gas million cubic meters	--	--	112	112	100
Petroleum:					
Crude thousand 42-gallon barrels	3,285	2,555	3,000 ^e	3,000	2,190
Refinery products:⁶					
Liquefied petroleum gas do.	-- ³	625	625	625	625
Gasoline do.	2,445 ³	5,850	5,850	5,850	5,850
Jet fuel do.	511 ³	625	625	625	625
Kerosene do.	767 ³	1,950	1,950	1,950	1,950
Distillate fuel oil do.	2,628 ³	4,450	4,450	4,450	4,450
Residual fuel oil do.	1,862 ³	1,250	1,250	1,250	1,250
Other, including refinery fuel and loss do.	767 ³	1,250	1,250	1,250	1,250
Total do.	8,980 ³	16,000	16,000	16,000	16,000
Salt ^e	68	99	250	265 ³	300
Silver, content of exported doré kilograms	1,945	2,129	3,379	3,329 ³	3,300
Steel, secondary, rebar ^e	75	75	75	75	75

^eEstimated. -- Zero.

¹Table includes data available through December 2006.

²In addition to the commodities listed, a variety of crude construction materials (clays, sand and gravel, and stone) are produced, as are limestone and lime for the processing of some gold ore and salt. Output of these commodities is not reported, however, and information is inadequate to make reliable estimates of output.

³Reported figure.

⁴All from imported clinker.

⁵Production, in thousand carats, includes that of Akwatia Mine: 2001--300 (estimated); 2002--268; and 2003--240 (estimated).

The remainder is artisanal sales to the Precious Metals Marketing Corporation. Estimates of unreported artisanal production are not included.

⁶Does not include estimate of smuggled or undocumented production.

TABLE 2
GHANA: STRUCTURE OF THE MINERAL INDUSTRY IN 2005

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Aluminum	thousand metric tons	Volta Aluminum Co. Ltd. (Valco) (Government, 90%, and Alcoa Inc., 10%)	Aluminum smelter at Tema (to restart in 2006)	200.
Bauxite	do.	Ghana Bauxite Co. Ltd. (Alcan Aluminum Ltd., 80%, and Government, 20%)	Bauxite mine at Awaso	1,000.
Cement	do.	Ghana Cement Works Ltd. (Heidelberg Zement AG of Germany, 94.5%)	Clinker grinding plant at Takoradi	1,200.
Do.	do.	do.	Clinker grinding plant at Tema	1,200.
Do.	do.	Diamond Cement Ghana Limited	Cement plant at Aflao; uses imported clinker	600.
Diamond	thousand carats	Ghana Consolidated Diamonds Ltd. (Government, 100%)	Placer mine at Akwatia Birim Valley	360.
Do.	do.	Artisanal diamond miners	Birim Valley	500 to 900.
Gold	kilograms	AngloGold Ashanti Ltd., 100%	Obuasi underground mine, Ashanti region	17,000.
Do.	do.	AngloGold Ashanti Ltd., 80%, and International Finance Corporation, 20%	Iduapriem/Teberebie Mine	8,800.
Do.	do.	AngloGold Ashanti Ltd., 100%	Bibiani Mine	7,000.
Do.	thousand metric tons	Bogoso Gold Ltd. (Golden Star Resources Ltd., 90%, and Government, 10%)	Bogoso processing carbon- in-leach plant	1,500 ore.
Do.	kilograms	do.	Bogoso/Prestea open pit	5,400.
Do.	thousand metric tons	Wexford Goldfields Ltd. (Golden Star Resources, Ltd., 90%, and Government, 10%)	Wassa carbon-in-leach processing plant	3,500 ore.
Do.	do.	Wexford Goldfields Ltd. (Golden Star Resources, Ltd., 90%, and Government, 10%)	Wassa biooxidation processing plant	3,500 ore.
Do.	kilograms	Wexford Goldfields Ltd. (Golden Star Resources, Ltd., 90%, and Government, 10%)	Wassa Mine, 30 kilometers northwest of Tarkwa	5,200.
Do.	do.	Bogoso Gold Ltd. (Golden Star Resources, 90%, and Government, 10%)	Prestea underground mine (not operating)	1,100.
Do.	do.	Bonte Gold Mining Ltd. (Akrokeri-Ashanti Gold Mines Inc., Canada, 85%; Government, 10%; Buosiako Co. Ltd., Ghana, 5%)	Placer mine at Jeni River, 40 kilometers southwest of Kumasi (closed in 2004)	2,000.
Do.	thousand metric tons	Gold Fields Limited, 71.1%; IAMGOLD Corp., 18.9%; Government, 10%	Tarkwa open pit mine and carbon-in-leach and heap- leach plants, 300 kilometers west of Accra	20,000 ore.
Do.	do.	Gold Fields Limited, 71.1%; IAMGOLD Corp., 18.9%; Government, 10%	Damang Mine and carbon- in-leach plant, 360 kilometers west of Accra	4,600 ore.
Do.	kilograms	Newmont Mining Corp., 100%	Ahafo (Yamfo-Sefwi) deposit, near Kenyasi (2006 startup)	17,100.
Do.	do.	do.	Akyem deposit, west of Kibi (2008 startup)	15,500.
Do.	thousand metric tons	Red Back Mining Inc., 100%	Chirano Mine, 100 kilometers from Kumasi, southwest Ghana	2,100 ore
Do.	kilograms	do.	do.	3,800.
Limestone and lime		Carmeuse Lime Products (Ghana) Ltd. (Carmeuse SA of Belgium)	Takoradi	NA.
Manganese ore	thousand metric tons	Ghana Manganese Company Limited (Ghana International Manganese Co., 90%, and Government 10%).	Open pit mine at Nsuta- Wassaw, Western region	1,500.
Petroleum, crude	thousand barrels	Ghana National Petroleum Corp. (Government, 100%)	Saltpond and Tano Fields	3,500.
Petroleum products	do.	Tema Oil Refinery (Government, 100%)	Refinery at Tema	16,425.
Salt	do.	Panbros Salt Industry Ltd.	Salt pan at Mendskrom, near Accra	NA.
Do.	do.	Elmina Salt Producers Association	Artisanal salt pan mining near Elmina	NA.

NA Not available.