



2006 Minerals Yearbook

GHANA

THE MINERAL INDUSTRY OF GHANA

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Ghana's economy continued to depend largely on exports of cocoa and gold. Despite shortages in electricity supply throughout the year, industrial activities grew by 7.3% in 2006 mostly owing to the production of gold (Organisation for Economic Co-operation and Development, 2007, p. 286, 291). Other mineral commodities produced in the country were aluminum, bauxite, diamond, manganese, natural gas, petroleum, salt, and silver.

Minerals in the National Economy

The contribution of Ghana's mining sector to the country's gross domestic product increased from 1.3% in 1991 to an average of about 5% in recent years. Export earnings from minerals averaged 35%, and the sector was one of the largest contributors to Government revenues through the payment of mineral royalties, employee income taxes, and corporate taxes. In 2005, gold production accounted for about 95% of total mining export proceeds (Ghana Chamber of Mines, 2006, p. 6-12).

Government Policies and Programs

The Ministry of Mines and Energy oversaw all aspects of Ghana's mineral sector and was responsible for granting mining and exploration licenses. Ghana National Petroleum Corp. (GNPC) was the Government entity responsible for petroleum exploration and production. The Precious Minerals Marketing Corp. (PMMC) was the Government entity responsible for promoting the development of small-scale gold and diamond mining in Ghana and for purchasing the output of such mining, either directly or through licensed buyers.

To help support the mineral industry, the Government planned to inject \$470 million into electricity generation projects during the next 3 years. About 60% of Ghana's electricity was supplied by hydroelectric plants. The lack of new power-generating capacity and low rainfall in recent years had lowered water levels at the country's main hydroelectric dam and caused electricity shortages (Mining Journal, 2006a, b).

Production

In 2006, bauxite production increased by 38.7% to 842,000 metric tons (t) compared with 607,000 t in 2005. Diamond and silver production decreased by 4% and 12% to 973,000 carats and 3,142 kilograms, respectively. Gold production decreased to 66,205 kilograms (kg) compared with 66,852 in 2005. Data on mineral production are provided in table 1.

Structure of the Mineral Industry

Table 2 is a list of major mineral industry facilities.

Mineral Trade

Ghana's exports to the United States were valued at about \$192.1 million in 2006 compared with about \$158.4 million in 2005 and \$145.4 million in 2004. Of these exports, petroleum products accounted for \$49 million; gem-quality diamond \$1.3 million; and gold, about \$2.2 million. Imports from the United States were valued at about \$290 million in 2006 compared with about \$338 million in 2005 and \$310 million in 2004. These included nearly \$32 million for excavating machinery; \$3.5 million for drilling and oilfield equipment; \$2.6 million in specialized mining equipment; and \$852,000 for petroleum products (U.S. Census Bureau, 2007a, b).

Commodity Review

Metals

Aluminum and Bauxite and Alumina.—Canada-based Alcan Inc. and Alcoa Inc. of the United States were the two companies that operated in the bauxite and alumina sector. During 2006, Alcoa continued to study the possibility of developing an integrated aluminum industry in Ghana that would include bauxite mining, alumina refining, aluminum production, and rail transportation infrastructure upgrades. Alcan, on the other hand, signed a Memorandum of Understanding with the Government for the creation of a joint venture to explore the feasibility of developing a bauxite mine and a 1.5- to 2.0-million-metric-ton-per-year (Mt/yr) alumina refinery in Ghana (Alcan Inc., 2007, p. 16).

Gold.—In the gold sector, Red Back Mining Inc. of Canada, [through its subsidiary Chirano Gold Mines Ltd. (CGML)] operated the Chirano gold mine; AngloGold Ashanti Ltd. of South Africa operated the Bibiani, the Iduapriem, and the Obuasi gold mines; Golden Star Resources Ltd. of Canada operated the Bogoso/Prestea, the Prestea Underground, and the Wassa gold mines; Gold Fields Ltd. of South Africa operated the Damang gold mine; and Denver-based Newmont Mining Corp. held interest in the Ahafo and the Akyem gold properties.

More-extensive coverage of the gold sector in Ghana can be found in the 2005 U.S. Geological Survey Minerals Yearbook, volume III, Area reports—International—Africa and the Middle East, which is available on the World Wide Web at <http://minerals.usgs.gov/minerals/pubs/country/africa.html>.

Manganese.—Of the 1.6 million metric tons (Mt) of manganese ore produced in 2006, about 52%, or 832,000 t, was shipped to Ukraine; 37%, or 584,000 t, was shipped to China; and the remaining 184,000 t was shipped to Norway. Manganese carbonate ore exported from Ghana has traditionally been used in China as raw material in the production of silico-manganese. Less than 100,000 metric tons per year (t/yr) of this ore material was used to produce electrolytic manganese metal in China, but China's demand for manganese metal was projected to increase

to 300,000 t in 2007. China's other supplier of manganese ore was Mexico. Privat Group of Ukraine, which also used manganese ore from Ghana, imported about 832,000 t in 2006. Privat Group acquired the right to manage Ghana Manganese Co. and, as its first order of business, indicated that it intended to amend all existing manganese contracts (Tex Report, The, 2007).

Industrial Minerals

Diamond.—Diamond 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).

At least one company, Paramount Mining Corporation Ltd., explored for diamond at two properties in Ghana in 2006. In February 2006, the company entered into a joint-venture agreement with Leo Shield Exploration Ghana Ltd. to earn interest in the Osenase project, which covers an area of 330 square kilometers (km²) located about 25 kilometers (km) south of the Akwatia Diamond Project. Field work began in March 2006. A number of pits were dug in both alluvial and hard rock deposits. A total of 83 diamonds, which together weighed more than 3.3 carats and the largest of which was 0.56 carat, were recovered from the gravel of alluvial deposits. The project area also contained gold and columbite-tantalite minerals in the alluvial material. The other property, which was known as Ochinso, covers an area of 37 km² within the Birim Diamond Field of southern Ghana. Paramount, through a farm-in arrangement with Aurion Resources Ltd. of Ghana, would be entitled to acquire 85% of the equity interest in the concession. At least 72 diamonds and 325 small gold grains from 20 small test pits were recovered from the property in 2006. The pits were situated in a number of different river systems throughout the Ochinso project area. Most of the diamonds recovered were reportedly of commercial size ranging between 1 to 2 millimeters (mm), with an average stone size of 0.036 carat (Paramount Mining Corporation Ltd., 2007, p. 1-12).

Mineral Fuels

Petroleum.—Petroleum exploration activities have been conducted in Ghana since the late 1800s; no significant commercially sustainable deposits of petroleum or natural gas have been discovered to date, with the exception of the Saltpond oilfield, which produced a total of 294,430 barrels when it reopened in 2002 to its closing in 2004. Gas flared at Saltpond averaged 2 million cubic feet per day. The Tema Oil Refinery refined all the crude petroleum imported into the country, with the exception of consignments going to the Takoradi thermal powerplant (Energy Commission, 2006, p. 6-7).

At least two companies were exploring for petroleum in the country in 2006. These included Dallas-based Kosmos Energy LLC, which was conducting exploration offshore at West Cape Three Points Block, and Vanco Energy Co. of the United States, which explored for petroleum at the Cape Three Points Deepwater Block (CTPD) in the Tano-Ivorian Basin.

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TABLE 1
GHANA: PRODUCTION OF MINERAL COMMODITIES¹

(Thousand metric tons unless otherwise specified)

Commodity ²	2002	2003	2004 ^c	2005 ^c	2006 ^c
Aluminum:					
Bauxite, gross weight	684	495	498 ³	607 ^{r,4}	842 ⁴
Metal, smelter, primary	117	16	--	13	36 ^e
Cement, hydraulic ^{e,5}	1,900	1,900	1,900	1,900	1,900
Diamond:					
Gem ^c thousand carats	770	724	740 ^r	810 ^r	780
Industrial ^c do.	193	180	180	200 ^r	190
Total do.	963 ⁶	904 ⁶	920 ^{r,7}	1,013 ^{r,7}	973 ^{3,7}
Gold ⁸ kilograms	69,271	70,749	63,139 ³	66,852 ³	66,205 ³
Manganese:					
Ore, processed	1,136	1,509	1,597 ³	1,715 ³	1,600 ^p
Mn content ^c	363	528	559 ³	600	560
Natural gas ^{9,10} million cubic meters	9 ^r	9 ^r	9 ^r	-- ^r	--
Petroleum:					
Crude ⁹ thousand 42-gallon barrels	400 ^r	400 ^r	400 ^r	-- ^r	--
Refinery products ^c do.	16,000	16,000	16,000	16,000	16,000
Salt ^c	99	250	265 ³	250 ^{r,4}	250 ⁴
Silver, content of exported dore kilograms	2,129	3,379	3,329 ³	3,571 ^{r,4}	3,142 ⁴
Steel, secondary, rebar ^c	75	75	75	75	75

^cEstimated. ^pPreliminary. -- Zero.

¹Table includes data available through November 2007.

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.

⁴Reported by Ghana Minerals Commission.

⁵All from imported clinker.

⁶Production, in thousand carats, includes that of Akwatia Mine: 2002—268, and 2003—240 (estimated). The remainder is artisanal sales to the Precious Metals Marketing Corp. Estimates of unreported artisanal production are not included.

⁷Kimberley Process Certification Scheme.

⁸Does not include estimate of smuggled or undocumented production.

⁹Ghana did not produce natural gas nor petroleum in commercially sustainable quantities.

¹⁰Reported by Ghana Energy Commission.

TABLE 2
GHANA: STRUCTURE OF THE MINERAL INDUSTRY IN 2006

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 Company 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 Ltd.	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 Corp., 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 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 Ltd., 90%, and Government, 10%)	Prestea underground mine (not operating)	1,100.
Do.	do.	Bonte Gold Mining Ltd. (Akrokeri-Ashanti Gold Mines Inc., 85%; Government, 10%; Buosiako Co. Ltd., 5%)	Placer mine at Jeni River, 40 kilometers southwest of Kumasi (closed in 2004)	2,000.
Do.	thousand metric tons	Gold Fields Ltd., 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.	do.	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 Ltd. (Ghana International Manganese Co., 90%, and Government 10%)	Open pit mine at Nsuta- Wassaw, Western region	1,500.
Petroleum products	thousand barrels	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.