



2012 Minerals Yearbook

GHANA

THE MINERAL INDUSTRY OF GHANA

By Omayra Bermúdez-Lugo

The mineral sector continued to be a significant contributor to Ghana's economy. In 2012, it contributed 43% to total export earnings, represented about 37% of corporate tax earnings, and accounted for about \$1 billion in total investment inflows. Ghana was among the world's top 10 producers of gold and among the world's 20 leading producers of diamond, by volume. Other mineral commodities produced in the country included aluminum, bauxite, cement, crude petroleum, manganese, petroleum products, salt, and silver (Ghana Chamber of Mines, 2013, p. 4–5; George, 2013; Kimberley Process Rough Diamond Statistics, 2013b).

Minerals in the National Economy

Mineral commodity revenue generated by the members of the Ghana Chamber of Mines increased by 14% during the year to about \$5.4 billion from nearly \$4.8 billion in 2011. The increase in revenue was driven mostly by gold sales, which alone generated about 98% of all mineral commodity revenues. Member companies of the Chamber of Mines employed a total of 20,268 people, 1.5% of whom were expatriates (Ghana Chamber of Mines, 2013, p. 4–5, 6, 13).

Government Policies and Programs

The legislative framework for the mineral sector in Ghana is provided by the Minerals and Mining Act 703 of 2006. New tax measures for mining companies became effective in 2012, which included an increase in the corporate income tax for mining companies to 35% from 25%, the introduction of a windfall profits tax of 10%, a new capital allowance rate of 20% from the previous 80% deduction, and a fixed mineral royalty rate of 5%. During the year, the Government established a National Renegotiation Team to review all mining agreements in Ghana with a view to ensuring that the country benefits adequately and fairly from gains in the mineral sector (Ghana Web, 2012b).

The Government was also in the process of sourcing financing for the rehabilitation of Ghana's central, eastern, and western rail lines. The eastern rail line is linked to the Tema Port, the western line to the Takoradi Port, and the central line to both ports by means of the eastern and western rail lines. In March 2012, United States-based companies Conti Engineering and General Electric cosigned an agreement with the Government for the rehabilitation of Ghana's western rail line and the refurbishing of the capital city of Accra's drainage systems. The cost of the project was estimated to be \$795 million. About \$200 million was to be used in the rehabilitation of the western rail line. In addition, the Government was awaiting \$990 million in funding from the Investment and Commercial Bank of China (ICBC) for the rehabilitation of segments of the eastern rail line that connects Nsawam to Accra and Achimota to Tema. Other

funding, in the amount of \$1.95 million, was expected from China's Exim Bank for the rehabilitation of the rail segment that connects Nsawam to Kumasi. The Government also planned to extend railway services to northern Ghana and the Volta region (AllAfrica Global Media, 2012; Modern Ghana Media Communication Ltd., 2012; Railway-technology.com, 2012).

Production

In 2012, production of bauxite increased by 88% to 753,000 metric tons (t) from a revised 400,000 t in 2011, and petroleum production increased by about 9% to 26.4 million barrels (Mbbbl) from 24.2 Mbbbl. Production of gold (excluding gold mined by artisanal means) increased by 4.6% to about 86,700 kilograms (kg) during the year. Aluminum production was estimated to be 40,000 t, and cement production, about 3 million metric tons (Mt). Rough diamond production decreased by 22.9% to 233,000 carats from 302,000 carats in 2011, and estimated manganese production, by 28% to 348,000 t from 484,000 t. Data on mineral production are in table 1.

Structure of the Mineral Industry

The Ministry of Lands and Natural Resources (MLNR), through the Geological Survey Department (GSD), the Minerals Commission, and the Precious Minerals Marketing Co. Ltd. (PMMC), oversees all aspects of Ghana's mineral sector. The GSD is responsible for providing reliable and up-to-date geologic information and serves as the repository for the country's geoscientific data. The Minerals Commission is responsible for regulating and managing the use of Ghana's mineral resources and for coordinating Government policy related to them. Through its Inspectorate Division, the Minerals Commission institutes and enforces environmental, health, and safety standards in the country's mines and ensures that mining companies and all mining-related activities comply with Ghana's Mining and Mineral law. The PMMC is responsible for promoting the country's precious minerals and jewelry industry.

The Ghana National Petroleum Corp. (GNPC), through the Petroleum Commission, was responsible for the exploration, development, and production of Ghana's hydrocarbon resources. The law that established the GNPC was under review, as the Government planned to focus on the GNPC's commercial role as an operator in the upstream petroleum sector. The Ghana National Gas Co. (GNGC) was responsible for the development of the country's natural gas resources as well as for processing and distributing natural gas from foreign sources. In 2012, the Ministry of Finance announced that a draft for a new Petroleum (Exploration and Production) bill had been developed and that it was undergoing stakeholder consultations. The bill was expected to be presented before Parliament by the end of the second quarter of 2013 (Ministry of Finance, 2013, p. 14–15).

Mineral Trade

Total merchandise export receipts amounted to \$13.5 billion in 2012; gold accounted for about 42% of these receipts, and petroleum, for 22%. The value of gold exports increased by 14.7% to \$5.6 billion. The revenue from crude oil exports was about \$3 billion. A total of 26.4 Mbbbl of petroleum were exported at a price of \$112.6 per barrel. Bauxite shipments totaled 752,771 t. Exports of manganese by Ghana Manganese Company Ltd. decreased by 18% to about 1.5 Mt from 1.8 Mt in 2011, and manganese revenues decreased to \$98.6 million from \$119.9 million in 2011 (Bank of Ghana, 2013, p. 21; Ghana Chamber of Mines, 2013, p. 11–12).

Based on statistics reported by the Kimberley Process Certification Scheme, a total of 225,867 carats of diamond worth about \$12 million was exported from Ghana in 2012; this is a decrease of 22.6% from the volume of diamond exports in 2011, but an increase in value of 25%. Ghana's total exports of all goods and services to the United States were valued at \$291.4 million in 2012 compared with about \$779 million in 2011; \$45.1 million of this export value was from petroleum products; \$2.2 million, from gold; \$1.3 million, from bauxite and aluminum; \$82,000, from sulfur and nonmetallic minerals; and \$7,000, from gem-quality rough diamond. Ghana's total imports from the United States were valued at about \$1.3 billion in 2012 compared with \$1.2 billion in 2011. This included \$115.7 million for excavating machinery, \$85.4 million for fuel oil, \$62.1 million for drilling and oilfield equipment, \$55.5 million for iron and steel mill products, \$12.8 million for natural gas liquids, \$10.2 million for specialized mining equipment, \$5.3 million for other iron and steel products, \$995,000 for petroleum products, and \$88,000 for aluminum and alumina products. Ghana was a member of the World Trade Organization and the Economic Community of West African States (Kimberley Process Rough Diamond Statistics, 2013a, b; U.S. Census Bureau, 2014a, b).

The trade of mineral commodities was conducted mainly at the Takoradi and the Tema deepwater ports, and, to a lesser extent, at the Ports of Akosombo, Buiepe, Debre, and Yapei. The Volta Lake Transport system was also used to transport petroleum products.

Commodity Review

Metals

Bauxite and Alumina and Aluminum.—Ghana Bauxite Company Ltd. (GBCL) operated Ghana's only bauxite mine, which is located in southwestern Ghana about 240 kilometers (km) from the Takoradi Port. GBCL was owned by Bosai Minerals Group Co. Ltd. of China (80%) and the Government of Ghana (20%). In 2012, GBCL opted for transporting its bauxite ore by road, as poor rail infrastructure continued to constrain the efficient transportation of the ore by train to the Takoradi Port. Ghana's Tema aluminum smelter, which was 100% owned by the Government, continued to operate at 20% of its installed capacity of 200,000 metric tons per year (t/yr) (Ghana Web, 2012a).

Gold.—Gold in Ghana was produced at both industrial and artisanal scales. In 2012, the Nzema Mine, which is located in southwestern Ghana about 280 km west of the capital city of Accra, produced about 3,400 kg of gold in 2012. A diesel-fueled powerplant was commissioned at the mine during the fourth quarter of 2012 and was expected to improve the electricity supply to the processing plants by lessening the frequency of supply interruptions. Endeavor Mining Corp. of Canada held a 90% interest in the Nzema Mine, and the Government held the remaining 10%. The mine was accessible by road to the Takoradi Port and the town of Tarkwa. Tarkwa is the capital of Ghana's Tarkwa-Nsuaem municipal district, which is located in western Ghana. Endeavor planned to increase production from the Nzema Mine in 2013 by processing higher grade ore and improving mining recovery rates. The Nzema Mine, which had been in operation since April 2011, employed a total 1,010 people, most of whom were reportedly Ghanaian nationals (Endeavor Mining Corp., 2013, p. 7, 10).

AngloGold Ashanti Ltd. of South Africa (100% interest) operated the Iduapriem and the Obuasi gold mines. The Iduapriem Mine, which is located about 70 km north of the city of Takoradi, produced a total of 5,599 kg of gold in 2012 compared with 6,190 kg in 2011. The 9.6% decrease in production was attributed to a decline in ore grade and a delay in bringing online the Ajopa pit. Stockpiled ore at the Iduapriem Mine was estimated to be 6.6 Mt at a grade of 0.84 gram per metric ton gold. AngloGold conducted a drilling program at Iduapriem in March 2012 and planned to conduct a prefeasibility study to expand production at the mine in 2013. The Iduapriem Mine employed a total of 1,549 people. Production from the Obuasi underground mine was 8,709 kg compared with 9,735 kg in 2011. The 10.5% decrease in production was attributed in part to power outages and a 25-day disruption in operations owing to a rope breakage that damaged the mine's shaft. In 2013, AngloGold planned to construct a new decline access from Obuasi's surface operations and from multiple staging points underground. The Obuasi Mine is located in southern Ghana about 60 km south of Kumasi. In addition to mining gold from underground resources at Obuasi, AngloGold also produced gold from surface mining and from tailings. The Obuasi Mine's processing plant had the capacity to treat 360,000 metric tons per month of sulfide ore. The mine employed a total of 5,373 people (AngloGold Ashanti Ltd., 2013a, p. 44; 2013b).

In March 2012, Noble Mineral Resources Ltd. of Australia announced that the Bibiani Mine had poured its first gold since the closing of the mine in 2009. The Bibiani Mine had been owned by Ashanti Goldfields Co. Ltd. during the 1990s and then was sold to Central African Gold Ltd. (CAGL) of the United Kingdom in 2006. CAGL operated the mine until January 2009, when it closed operations, reportedly as a result of problems in the execution of the mine plan, low metallurgical recoveries, and financial difficulties related to the 2008–2009 global financial crisis. Noble expected the mine to be fully commissioned during the first half of 2013 and to produce between about 4,600 and 4,700 kilograms per year (kg/yr) of gold. The remaining gold reserves at the Bibiani Mine were estimated to be about 30,000 kg (Noble Mineral Resources Ltd., 2013, p. 3, 5, 9).

Gold Fields Ltd. of South Africa operated the Damang and the Tarkwa gold mines. Gold production at Damang decreased by about 23% to 5,163 kg during the year, mostly as a result of operational safety restrictions at the mine's main pit, a decrease in throughput at the carbon-in-leach processing plant, and power supply interruptions. Gold Fields planned to upgrade the mine's processing facilities, to re-evaluate the mine's mineral resource estimates, and to recapitalize the mining operation. Gold production from the Damang Mine was to remain at about 5,300 kg/yr during the recapitalization process, which was expected to take 2 years (Gold Fields Ltd., 2013, p. 51, 77, 85).

Gold production at the Tarkwa Mine was 22,363 kg, or about the same level of production as in 2011. Gold Fields planned to stop production at the mine's high-cost south heap-leach operation and was looking into the possibility of replacing all or a part of the Tarkwa Mine's north heap-leach operation, which would reduce the Tarkwa Mine's gold output by 1,200 kg/yr. Gold Fields was considering replacing all or a part of the Tarkwa Mine's north heap-leach operation by expanding its carbon-in-leach processing capacity, which was thought to be a more efficient way to process harder ore (Gold Fields Ltd., 2013, p. 31).

Colorado-based Newmont Mining Corp. operated the Ahafo and the Akyem Mines. In 2012, gold production from the Ahafo Mine decreased slightly to 17,449 kg from 17,605 kg in 2011, mostly as a result of lower ore throughput and lower grade recovery. The company also held interest in the Akyem gold project, which was expected to come online in late 2013 and to produce between 10,900 and 14,000 kg/yr of gold. The project is located about 125 km northwest of the capital city of Accra (Newmont Mining Corp., 2013, p. 33, 75).

Companies exploring for gold in Ghana included Australian companies Azumah Resources Ltd., Perseus Mining Ltd., PMI Gold Corp., and Signature Metals Ltd.; Canadian companies Abzu Gold Ltd., African Queen Mines Ltd., Edgewater Exploration Ltd., Pelangio Exploration, and Xtra-Gold Resources Corp.; LionGold Corp. Ltd. of Singapore; and Gold Stone Resources Ltd. of the United Kingdom.

Industrial Minerals

Cement.—Ghana had the following three domestic cement producers: Diamond Cement Ghana Ltd., Ghana Cement Company Ltd. (GHACEM), and Savanna Cement Co. Ltd. (SAVACEM). Diamond produced cement from a plant in Aflao, which had an annual production capacity of 600,000 t/yr; GHACEM produced cement from two plants—one at Takoradi and the other at Tema, with a total joint production capacity of about 3.4 million metric tons per year (Mt/yr); and SAVACEM produced cement from a plant in Buipe, which had a total production capacity of 350,000 t/yr. Limestone used in the production of cement was sourced locally from deposits in the northern, eastern, and western regions of the country. Ghana imported clinker and gypsum, which were also used in the production of cement. A new cement mill, which was commissioned in November 2012, was expected to increase the production capacity at GHACEM's Tema plant by 1 Mt/yr. HeidelbergCement AG of Germany, which was the majority owner of GHACEM, also planned to commission a new cement

mill with the capacity to produce about 800,000 t/yr of cement at the Takoradi plant by the end of 2014 (HeidelbergCement AG, 2013, p. 58–59, 116).

Diamond.—The majority of Ghana's diamond production was from small-scale and artisanal miners who operated in the Bonsa River valley near the town of Tarkwa and in the Birim River valley between the towns of Akwatia and Oda. Other small diamond occurrences had been reported elsewhere throughout the country. All diamond production in Ghana was from secondary deposits, and there were no known diamondiferous kimberlites in the country. Great Consolidated Diamonds Ghana Ltd. (GCDG) of Ghana continued with its plans to reopen the Akwatia diamond mine. GCDG took over the operation from Ghana Diamond Co. in 2011 and planned to invest more than \$100 million in a 5-year multiphase mine development program; the operation was expected to create about 2,000 jobs and produce about 1 million carats per year of diamond (Shor, 2013).

Mineral Fuels

Natural Gas.—The GNGC planned to develop a natural gas pipeline system under the Western Corridor Gas Infrastructure Development Project. The project would involve the construction of an onshore and offshore pipeline system, a natural gas processing plant, and natural gas liquids export facilities, among other related infrastructure. By yearend 2012, about 104 km out of the planned 111 km of onshore pipeline had been welded, 8 km out of the planned 45 km of offshore-shallow-water pipeline had been added to the existing offshore pipeline infrastructure, and the construction of the natural gas processing plant was at an advanced stage (Ministry of Finance, 2013, p. 14–15).

Petroleum.—In 2012, Ghana had two offshore producing petroleum fields; they were the Jubilee oilfield, which produced about 26.4 Mbbbl of crude petroleum during the year, and the Saltpond oilfield, which produced about 77,400 barrels. The Government expected production from Jubilee to increase to its peak target of 120,000 barrels per day in 2013. Ghana's only state-run petroleum refinery was idled in July 2012 because of a breakdown in critical equipment, which included both the main crude distillation unit and the residual fuel catalytic converter. The Tema refinery had undergone repeated shutdowns for the past several years, reportedly owing to a shortage of crude petroleum supply after its main lender, Ghana Commercial Bank (GCB), cut off support because of alleged unpaid debts (Western Publications Ltd., 2012; Ministry of Finance, 2013, p. 15).

Outlook

The emergence of the hydrocarbon sector is likely to enhance Ghana's position as a world mineral producer, but in the short run, gold will probably continue to be the country's leading mineral export earner. Changes to Ghana's tax law are expected to further increase Government receipts from royalties and dividends but could deter future foreign direct investment in the mineral sector. Furthermore, the significant number of mining companies engaged in gold exploration suggests that gold will

continue to play a leading role in Ghana's economy in the long run. Illegal artisanal gold mining, however, is likely to continue to be a challenge for the Government, and, if left unaddressed, has the potential to have adverse economic and environmental implications as illegal miners continue to encroach upon operating mining concessions and to pollute bodies of water in their search for gold. The need for skilled labor in the mineral sector, in particular for the petroleum industry, was becoming a challenge and is likely to increase as senior staff near the age of retirement. A successful effort to refurbish Ghana's railroad system will likely benefit the bauxite and manganese industries by providing a less expensive option to transport ore. The development of the railway projects, however, will depend on the Government's ability to secure the necessary funding.

References Cited

- AllAfrica Global Media, 2012, Ghana—Funding required for Ghana's rail rehabilitation project: Claremont, South Africa, AllAfrica Global Media, July 25. (Accessed February 21, 2013, at <http://allafrica.com/stories/201207250406.html>.)
- AngloGold Ashanti Ltd., 2013a, 2012 annual integrated report: Marshalltown, South Africa, AngloGold Ashanti Ltd., 117 p. (Accessed December 5, 2013, at <http://www.aga-reports.com/12/download-manager>.)
- AngloGold Ashanti Ltd., 2013b, 2012 country fact sheet—Ghana: Marshalltown, South Africa, AngloGold Ashanti Ltd., 6 p. (Accessed December 5, 2013, at <http://www.aga-reports.com/12/downloads/AGA-IR12-country-fs-ghana.pdf>.)
- Bank of Ghana, 2013, 2012 annual report: Accra, Ghana, Bank of Ghana, 95 p. (Accessed November 21, 2013, at [http://www.bog.gov.gh/privatecontent/Publications/Annual_Reports/Bog annual report_2012.pdf](http://www.bog.gov.gh/privatecontent/Publications/Annual_Reports/Bog%20annual%20report_2012.pdf).)
- Endeavor Mining Corp., 2013, Management's discussion and analysis of results of operations and financial condition for the year ended December 31, 2012: Vancouver, British Columbia, Canada, Endeavor Mining Corp., 127 p. (Accessed November 21, 2013, at <http://www.endeavourmining.com/i/pdf/Financials/2012YE.pdf>.)
- George, M. W., 2013, Gold: U.S. Geological Survey Mineral Commodity Summaries 2013, p. 66–67.
- Ghana Chamber of Mines, 2013, Performance of the Ghana mining industry in 2012: Ghana Chamber of Mines, 19 p. (Accessed November 21, 2013, at http://ghanachamberofmines.org/media/publications/Performance_of_the_Ghana_Mining_Industry_in_2012.pdf.)
- Ghana Web, 2012a, Ghana's bauxite under threat: Ghana Web, June 16. (Accessed February 21, 2013, at <http://www.ghanaweb.com/GhanaHomePage/business/artikel.php?ID=242109>.)
- Ghana Web, 2012b, Government renegotiates mining agreements: Ghana Web, June 16. (Accessed February 21, 2013, at <http://www.ghanaweb.com/GhanaHomePage/NewsArchive/artikel.php?ID=237401>.)
- Gold Fields Ltd., 2013, Integrated annual review for the year ended December 31, 2012: Johannesburg, South Africa, Gold Fields Ltd., 166 p. (Accessed October 3, 2013, at http://www.goldfields.co.za/reports/annual_report_2012/pdf/integrated.pdf.)
- HeidelbergCement AG, 2013, 2012 annual report: Heidelberg, Germany, HeidelbergCement AG, 2013, 252 p.
- Kimberley Process Rough Diamond Statistics, 2013a, Annual global summary—2011 production, imports, exports, and KPC counts: Kimberley Process Rough Diamond Statistics, June 19, 1 p. (Accessed October 10, 2013, at https://kimberleyprocessstatistics.org/static/pdfs/public_statistics/2011/2011GlobalSummary.pdf.)
- Kimberley Process Rough Diamond Statistics, 2013b, Annual global summary—2012 production, imports, exports, and KPC counts: Kimberley Process Rough Diamond Statistics, June 19, 1 p. (Accessed October 10, 2013, at https://kimberleyprocessstatistics.org/static/pdfs/public_statistics/2012/2012GlobalSummary.pdf.)
- Ministry of Finance, 2013, 2012 annual report on petroleum funds: Accra, Ghana, Ministry of Finance, March 5, 27 p. (Accessed January 22, 2014, at http://www.mofep.gov.gh/sites/default/files/reports/Petroleum_Annual_Report_2012_.pdf.)
- Modern Ghana Media Communication Ltd., 2012, Ghana gets \$795m to reconstruct Accra drains—Western Rail Lines: Accra, Ghana, Modern Ghana Media Communication Ltd., March 10. (Accessed February 21, 2013, at <http://www.modernghana.com/news/382780/1/ghana-gets-795m-to-reconstruct-accra-drains-wester.html>.)
- Newmont Mining Corp., 2013, Annual report 2012: Greenwood Village, Colorado, Newmont Mining Corp., 181 p.
- Noble Mineral Resources Ltd., 2013, Annual report 2012: Perth, Western Australia, Australia, Noble Mineral Resources Ltd., 93 p.
- Railway-technology.com, 2012, ICBC to fund Eastern Rail lines project in Ghana: Railway-technology.com, May 23. (Accessed February 21, 2013, at <http://www.railway-technology.com/news/newsicbc-fund-eastern-rail-lines-project-ghana>.)
- Shor, Russell, 2013, Diamond digging in Ghana: Carlsbad, California, Gemological Institute of America Inc., June 13. (Accessed June 25, 2014, at <http://www.gia.edu/gia-news-research-diamonds-Ghana>.)
- U.S. Census Bureau, 2014a, U.S. exports to Ghana from 2004 to 2013 by 5-digit end-use code: U.S. Census Bureau. (Accessed January 10, 2014, at <http://www.census.gov/foreign-trade/statistics/product/enduse/exports/c7490.html>.)
- U.S. Census Bureau, 2014b, U.S. imports from Ghana from 2004 to 2013 by 5-digit end-use code: U.S. Census Bureau. (Accessed January 10, 2014, at <http://www.census.gov/foreign-trade/statistics/product/enduse/imports/c7490.html>.)
- Western Publications Ltd., 2012, TOR idle after breakdown: Western Publications Ltd. business guide, September 4. (Accessed May 8, 2013, at <http://www.businessguideghana.com/?p=6439>.)

TABLE 1
GHANA: PRODUCTION OF MINERAL COMMODITIES¹

(Thousand metric tons unless otherwise specified)

Commodity ²		2008 ^e	2009 ^e	2010	2011	2012
Aluminum, primary		--	--	--	40 ^{r, e}	40 ^e
Bauxite, gross weight ³		796	490	595	400 ^r	753
Cement, hydraulic ⁴		1,800	1,800	2,100 ^e	2,550	3,000 ^e
Diamond ⁵	thousand carats	643	376	334	302	233
Gold, mine output, Au content ^{6, 7}	kilograms	72,980	79,883	76,332	82,920 ^r	86,699
Manganese: ⁸						
Gross weight		914 ⁶	882 ⁶	1,529	1,729	1,244
Mn content ^e		256 ⁶	248 ⁶	426	484	348
Petroleum:						
Crude	thousand 42-gallon barrels	--	--	2,050 ^e	24,196 ^r	26,429
Refinery products ^e	do.	8,200 ^r	8,000 ^r	10,000 ^r	10,000 ^r	10,000
Salt		239 ⁶	250	85	100 ^e	100 ^e
Silver, Ag content of exported dore	kilograms	3,200	3,928 ⁶	3,313	3,088	3,100 ^e

^eEstimated; estimated data are rounded to no more than three significant digits. ^rRevised. do Ditto. -- Zero.

¹Table includes data available through January 23, 2014.

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

³Figure based on bauxite shipments as reported by the Ghana Chamber of Mines.

⁴All from imported clinker.

⁵Reported by Kimberley Process Certification Scheme.

⁶Reported figure.

⁷Does not include artisanal mining output, which in 2010 and 2011 was estimated to be more than 25,000 kilograms, respectively.

⁸Reported by the International Manganese Institute.

TABLE 2
GHANA: STRUCTURE OF THE MINERAL INDUSTRY IN 2012

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Aluminum		Volta Aluminum Co. Ltd. (VALCO) (Government, 100%)	Aluminum smelter at Tema	200.
Bauxite		Ghana Bauxite Company Ltd. (GBCL) (Bosai Minerals Group Co. Ltd., 80%, and Government, 20%)	Bauxite mine at Awaso	600.
Cement		Ghana Cement Company Ltd. (GHACEM) (HeidelbergCement AG, 93.1%)	Clinker grinding plant at Takoradi	1,200.
Do.		do.	Clinker grinding plant at Tema	2,200.
Do.		Diamond Cement Ghana Ltd.	Cement plant at Aflao	600.
Do.		Savanna Cement Company Ltd. (SAVACEM) and Diamond Cement Ghana Ltd.	Town of Buipe, Central Gonja District	350. ¹
Diamond	thousand carats	Great Consolidated Diamond Ghana 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 surface and underground mine, 60 kilometers south of Kumasi	17,000.
Do.	do.	do.	Iduapriem Mine, 70 kilometers north of Takoradi	8,800.
Do.	do.	Noble Mineral Resources Ltd., 100%	Bibiani Mine, 250 kilometers northwest of Accra	3,400.
Do.	do.	Golden Star (Bogoso/Prestea) Ltd. (Golden Star Resources Ltd., 90%, and Government, 10%)	Bogoso/Prestea open pit mine, 300 kilometers west of Accra	7,300.
Do.	do.	Golden Star (Wassa) Ltd. (GSWL) (Golden Star Resources Ltd., 90%, and Government, 10%)	Wassa Mine, 30 kilometers northwest of Tarkwa	7,000.
Do.	do.	Gold Fields Ltd., 90%, and Government, 10%	Tarkwa open pit mine and carbon-in-leach and heap-leach plants, 300 kilometers west of Accra	21,800.
Do.	do.	do.	Damang Mine and carbon-in-leach plant, 360 kilometers west of Accra	6,000.
Do.	do.	Newmont Mining Corp., 100%	Ahafo Mine, 290 kilometers northwest of Accra, Brong Ahafo Region	17,100.
Do.	do.	Endeavour Mining Corp., 90%, and Government, 10%	Nzema Mine, 280 kilometers west of Accra, East municipal district	3,100.
Do.	do.	Chirano Gold Mine Ltd. (Kinross Gold Corp., 90%, and Government, 10%)	Chirano Mine, 100 kilometers from Kumasi, southwestern Ghana	8,000.
Do.	do.	do.	do.	3,800.
Do.	do.	Artisanal gold miners	Throughout Ghana	4,000 to 8,000.
Limestone and lime	metric tons	Carmeuse Lime Products (Ghana) Ltd. (Carmeuse SA)	Takoradi	NA.
Manganese ore		Ghana Manganese Company Ltd. (Ghana International Manganese Co., 90%, and Government, 10%)	Open pit mine at Nsuta-Wassaw, Western Region	1,500.
Petroleum, crude	thousand barrels	Tullow Oil plc, 34.71%; Anadarko Petroleum Corp., 23.49%; Kosmos Energy LLC, 23.49%; Ghana National Petroleum Corp. (GNPC), 13.75%; Sabre Oil & Gas Holdings Ltd., 2.81%; E.O. Group Ltd., 1.75%	Jubilee oilfield, 60 kilometers offshore	43,800.
Petroleum products	do.	Tema Oil Refinery (Government, 100%)	Refinery at Tema	16,425.
Salt	metric tons	Panbros Salt Industry Ltd.	Salt pan at Mendskrom, near Accra	250,000.
Do.	do.	Elmina Salt Producers Association	Artisanal salt pan mining near Elmina	NA.

Do., do. Ditto. NA Not available.

¹Under construction.