



2017–2018 Minerals Yearbook

SUDAN [ADVANCE RELEASE]

THE MINERAL INDUSTRY OF SUDAN

By Mowafa Taib

Note: In this chapter, information for 2017 is followed by information for 2018

In 2017, Sudan exported mainly gold and modest quantities of chromite, crude petroleum, and petroleum products. Gold production, which was carried out primarily by artisanal miners, had been steadily increasing in Sudan since 2007. According to the Ministry of Minerals, the country had its largest gold rush of the past century and became one of the top 10 gold producers in Africa in 2017. Other mineral commodities produced in Sudan included cement, feldspar, gypsum, iron and steel, kaolin, manganese, marble, salt, and talc (Abu Fatima, 2018, p. 5, 7, 35).

In 2017, Sudan's gross domestic product (GDP), which amounted to \$42.2 billion¹ (823.9 billion Sudanese pounds), increased in real terms by 4.5% compared with an increase of 4.8% in 2016. The industrial sector, which included processing industries, handcrafts, mining and quarrying, accounted for 20.2% of the GDP compared with 20.0% of the GDP in 2016. During the year, the value of the industrial sector at constant prices increased by 5.0% compared with an increase of 3.3% in 2016. The increase was attributed to higher gold production and higher prices for petroleum products. In 2017, the value of the mining and quarrying activities, which accounted for 6.6% of the country's GDP at current prices, increased by 32.4% compared with an increase of 68.9% in 2016. The value of building and construction subsector activities, which contributed 3.7% to the GDP at current 2017 prices, increased by 23.5% compared with a decrease of 13.6% in 2016 (Central Bank of Sudan, 2018, p. 123–128).

Government Policies and Programs

The Mineral Wealth Development and Mining Act of 2015 states that the National Government has ownership and absolute rights of exploration for and mining of all mineral commodities in the country. The act defines traditional mining, also known as artisanal mining, as mining activities carried out by groups and individuals without the use of heavy machinery to a maximum depth of 20 meters (m). Artisanal mining is practiced directly by more than 1 million people in 14 out of the 18 States that make up Sudan and indirectly by more than 1 million people who work in associated services, such as ore milling and processing, tailings processing, and transportation. In 2017, Sudan had 119 proposed concessions for exploration and production of chromite, copper, gold, graphite, gypsum, iron ore, potash, salt, silver, and uranium (Abu Fatima, 2018, p. 30; Ministry of Minerals, 2018).

Presidential Decrees No. 22 of 2010, No. 22 of 2012, and No. 45 of 2013 designate the Ministry of Minerals (MOM) as the Government agency responsible for mineral exploration and geologic surveys in Sudan. The MOM implements Government

policies and programs and promotes investment in mining activities (Ibrahim, 2015, p. 5–6).

On October 12, 2017, citing improvement in fighting terrorism and human rights in the Darfur region, the U.S. Government lifted the sanctions against Sudan specified in sections 1 and 2 of Executive Order 13067 of November 3, 1997, and all of Executive Order 13412 of October 13, 2006. Executive Order 13067 imposed a trade embargo on Sudan and blocked selected assets of the Government of Sudan. Executive Order 13412 banned most of the transactions related, but not limited to, Sudan's petroleum and petrochemical industries by U.S. individuals and organizations, including, but not limited to, oilfield services and oil and gas pipelines (U.S. Department of the Treasury, 2013, 2017). The lifting of these sanctions is expected to enable U.S. companies in general and mining companies in particular to conduct business in Sudan (U.S. Department of Treasury, 2021).

Production

In 2017, production of chromium (gross weight of chromite) increased by 113% compared with that of 2016; refined gold, by an estimated 37%; manganese ore and manganese metal, by an estimated 24% and 22%, respectively; and mined gold, by 15%. The sharp increase of mined chromite was attributed to increased access to foreign markets. Production decreased most notably for feldspar, by 68%; naphtha, by 65%; jet fuel, by 47%; gasoline, by 46%; kerosene, by 33%; total refinery products, by 21%; petroleum coke, by 14%; and residual fuel oil, by 10%. Data on mineral production are in table 1.

Structure of the Mineral Industry

The Government owned several mining and minerals-related companies: Ariab Mining Co., Ltd. (AMC), which operated Hassai gold mine in northern Sudan; Ingessana Hills Mining Corp. (a subsidiary of the Sudanese Mining Corp.), which produced chromite at Ingessana Hills; Sheriek Mica Mines Co. (another subsidiary of the Sudanese Mining Corp.), which produced mica at Sheriek; Sudanese Mining Corp., which produced gypsum; Sudan Gold Refinery Co. Ltd., which was the country's sole gold refinery; and Sudamin Co. Ltd., which was responsible for providing mining equipment, material, and services to miners. Sudamin had exclusive authority to import mercury (used in gold processing) and distribute it to retailers, who in turn sold it to artisanal miners and gold-mining companies. All cement plants were privately owned except for Sudanese Cement Factory, which was owned by the Government. Crude petroleum production in Sudan was carried out by joint ventures of state-owned companies and privately owned domestic companies as well as international companies from the British Virgin Islands, China, India, and Malaysia.

¹Where necessary, values have been converted from Sudanese pounds (SDG) to U.S. dollars (US\$) at an annual average exchange rate of SDG 19.50=US\$1.00 for 2017.

The Government also owned three small petroleum refineries; however, the country's largest refinery, which is located at Aljaili in northern Khartoum, was operated by Khartoum Oil Refinery Co. Ltd., which was a 50–50 joint venture of China National Petroleum Corp. International Ltd. (CNPC) and Sudan Petroleum Corp. Table 2 is a list of major mineral industry facilities.

In 2017, 178 domestic and foreign companies held 276 mining licenses for the production of metals and industrial mineral commodities in Sudan, including bentonite, chromite, copper, feldspar, fluorite, gold, gypsum, iron ore, kaolin, manganese, marble, mica, quartz, salt, talc, and white sand. The recent gold rush in the country created opportunities for several startup companies that provided services and supplies related to artisanal gold mining. In 2017, more than 400 mining and mining-related companies operated in Sudan, including 79 local companies engaged in extracting gold from tailings, 154 companies that held large-scale concessions [that is, ones more than 300 square kilometers (km²)], and 179 companies that operated small-scale concessions (that is, ones that are 1 to 5 km²). The Government established a 5% to 7% royalty on gold production, a 15% to 35% free-carried share, and a 15% corporate profit tax rate on mining companies operating in the country (Abu Fatima, 2018, p. 30, 37–38).

Mineral Trade

Sudan's exports increased in value by 32% to \$4.1 billion in 2017 from \$3.1 billion in 2016. Petroleum exports, which included crude petroleum and refinery products, increased by 24% to \$417 million in 2017 from \$336 million in 2016. Crude petroleum exports increased in value by 19% to \$322 million from \$271 million in 2016 and decreased in volume to 5.9 million barrels (Mbbbl) from 6.9 Mbbbl in 2016. Exports of refined petroleum products increased in value to \$96 million from \$65 million in 2016. Nonpetroleum exports increased by 29% to \$3.6 billion in 2017 from \$2.8 billion in 2016. Gold exports, which accounted for 38% of the country's total exports, increased in value by 46% to \$1.56 billion from \$1.07 billion in 2016 and increased in volume by 39% to 37,517 kilograms (kg) from 26,973 kg in 2016. Other unspecified mineral exports increased by 29% to \$36 million in 2017 from \$28 million in 2016. In 2017, the value of Sudan's exports to the United Arab Emirates was \$1.6 billion; China, \$614 million; Saudi Arabia, \$612 million; Egypt, \$450 million; India, \$91 million; and Turkey, \$67 million. Sudan's imports originated mainly from China (\$1.5 billion), the United Arab Emirates (\$1.1 billion), India (\$696 million), Saudi Arabia (\$638 million), Egypt (\$550 million), Turkey (\$379 million), and Russia (\$317 million) (Central Bank of Sudan, 2018, p. 5, 151–156, 160).

Commodity Review

Metals

Copper, Silver, and Zinc.—In 2017, AMC completed a prefeasibility study to build a flotation plant to treat the volcanic massive sulfide (VMS) deposits underlying the current open pits at the Hassai Mine in the Red Sea Hills. The VMS project was expected to develop the mineral resources at the Hadal Awatib East, the Hadayamet, and the Hassai South properties,

which were reported to contain 1.3 million metric tons (Mt) of copper, 700,000 metric tons (t) of zinc, 3,000 t of silver, and 230 t of gold in 2016. AMC increased its copper and gold mineral resource estimates to 5 Mt and 460 t, respectively, in 2017. During the year, the company sought foreign investors to finance its VMS project (Elhoussein, 2017, p. 9–11; Ariab Mining Co., 2018a, c).

QMSD Mining Co. Ltd., a wholly owned subsidiary of Qatar Mining Co., explored for copper and gold in the Red Sea State. The company held mining permits in Blocks 62 and 62b, which cover a combined area of 5,110 km². Since 2015, QMSD had confirmed, using airborne and ground geophysical surveys, the presence of high-quality copper-gold mineralization at the Jebel Ohier site in Block 62. In 2016, QMSD advanced its exploration activity to full feasibility status through core and reverse-circulation drilling programs. At the Jebel Oheir site, a mineralized zone that contained 0.2% to 0.6% copper was identified along with an oxide mineralization zone that contained 1.81% copper and 0.62 gram per metric ton (g/t) gold. QMSD also identified artisanal gold workings at the Al Bashoom site in Block 62b. QMSD considered the presence of artisanal mining on the block as evidence of existing gold resources and expected that the Government would stop artisanal mining on the block by applying current regulations that disallow trespassing in mining concessions (QMSD Mining Co. Ltd., 2019).

Gold.—According to statistics from the Central Bank of Sudan, gold mine production increased to 107,300 kg of gold in 2017 from 93,400 kg in 2016 and 82,400 kg in 2015. In 2016 (the latest year for which comprehensive data were available), artisanal gold mining increased to 78,200 kg. Several mining companies held gold concessions in the country and produced a combined 5,800 kg. The concession companies included Alliance For Mining Co. Ltd. (Alliance), AMC, China-Africa Huakan Mining (Sudan), Delgo Mining Co. Ltd. of Turkey, Hagagia (Poly Red Sea) Gold Mining Co. Ltd., Manub Ltd. (a subsidiary of Managem Group of Morocco), Omdurman Mining Co. Ltd., and Sahari Company for Gold Mining. The remaining gold output of 9,400 kg was produced by tailings-processing companies, including the Alitimad Company for Iron Industry and Mining Ltd., Rida Mining Co., and Sudamin Co. Ltd. (Ministry of Minerals, 2017, p. 51–55; Central Bank of Sudan, 2018, p. 133).

AMC operated the Hassai Mine, which was the leading large-scale open pit gold mine in Sudan and had the capacity to produce 2,000 kilograms per year (kg/yr) of gold. The mine was built on Block 11, which was located 350 kilometers southwest of Port Sudan on the Red Sea. AMC was the first user of the heap-leach method to process gold in Sudan. AMC completed a definitive feasibility study in 2017 to build a carbon-in-leach (CIL) plant at Hassai; AMC treated more than 12 Mt of tailings accumulated during more than 30 years and produced 21,800 kg of gold (Ariab Mining Co., 2018b, d).

Alliance was created in 2014 by an agreement between the Government and Kush for Exploration and Production Co. Ltd. (Kush E&P) of Russia to develop gold resources in Block 30, which covered 4,426 km² and was located in the Red Sea State. In 2015, Alliance completed the construction of a new CIL plant that had the capacity to process 150,000 metric tons per year (t/yr) of ore. The plant's capacity increased to 500,000 t/yr in 2016.

Since 2013, the company invested about \$80 million into the exploration and development of its gold deposits in Sudan, and its total production has been about 2,500 kg of gold (Alliance for Mining Co. Ltd., 2018; Bell, The, 2018).

Manub Ltd., which was a joint venture of Managem Group of Morocco (78% interest) and a private operator (22% interest), increased its gold production from its pilot project at Wadi Gabgaba in Mining Block 15 in the River Nile State to 802 kg in 2017 from 513 kg in 2016. Managem continued to explore for gold at Blocks 9 and 15 and was constructing a new CIL plant on Block 15 that would double the company's gold production capacity. The plant was expected to be completed by yearend 2018. Managem set a production target of 5,000 kg by 2020 (Managem S.A., 2018).

Orca Gold Inc. of Canada announced the results of its second drilling program at the Galat Sufar South and the Wadi Doum prospects in the Block 14 gold project in northeastern Sudan. The company planned to develop a gold mine that would have the capacity to produce 2,347 kg/yr of gold for 16 years. Orca would own a 70% interest; the Sudanese Government, 20%; and an unnamed local partner, 10%. Orca's National Instrument (NI) 43-101 feasibility study of both the Galat Sufar South and Wadi Doum deposits included indicated resources of 79.9 Mt grading 1.30 g/t gold for a total of 104 t of contained gold and inferred resources of 18.5 Mt grading 1.2 g/t gold for a total of 22 t of contained gold (Orca Gold Inc., 2018a, p. 8-11; 2018b).

Sudamin produced more than 185 kg of gold in 2016 from processing 500,000 t of gold mine tailings at its two plants at the town of Abu Hamad in the River Nile State. The River Nile State was home to 70% of Sudan's gold production. Sudamin increased its gold production to 500 kg in 2017 (Mr. Mugaheid Bilal Taha, General Manager, Sudamin Co. Ltd., oral commun., March 27, 2018).

In March, the Government signed an agreement with Azimas Co., which is owned by Acropole Holdings Ltd. of the British Virgin Islands, to develop gold and other mineral commodities in the Red Sea State. In October, the Government also signed an agreement with Meroe Gold Co. Ltd. (a subsidiary of M Invest of Russia) to explore for gold and associated minerals in the Red Sea State. No additional information about these agreements was available as of the end of 2017 (AllAfrica, 2017).

Sudan's sole gold refinery, which is located in Khartoum and was completed in 2012, had the capacity to produce 270 t/yr of gold and 55 t/yr of silver. As of yearend 2017, Sudan Gold Refinery Co. Ltd., the owner of the Khartoum refinery, lacked international accreditation to issue its own bullion and had to send its refined gold abroad for accreditation (Abu Fatima, 2017).

Industrial Minerals

Cement.—In 2017, Sudan was self-sufficient in cement production; its output of cement increased by 8% to 4.3 Mt from about 4.0 Mt in 2016. Sudan had eight main cement plants in operation with a total capacity of 10.4 million metric tons per year. In 2017, Al-Shamal Cement Factory produced 1.48 Mt of cement; Atbara Cement Company Ltd., which was a subsidiary of Al-Rajhi Group of Saudi Arabia, produced 1.18 Mt; ASEC Cement Co. of Egypt (a subsidiary of Qalaa Holdings S.A.E. of Egypt), 781,100 t; Berber Cement Company Ltd., 597,100 t;

Al-Salam Cement Production Company Ltd., 172,100 t; Nile Cement Company Ltd., 76,800 t; and Aslan Cement Co. of Turkey, 43,100 t (Central Bank of Sudan, 2018, p. 136).

Mineral Fuels

Petroleum.—Sudan's production of crude petroleum decreased by about 9% to 34.7 Mbbl in 2017 from 38.0 Mbbl in 2016. Production of refined petroleum products decreased by 15% to 3.5 Mt (27.7 Mbbl) in 2017 from 4.1 Mt (35.0 Mbbl) in 2016. The Greater Nile Petroleum Operating Co. (GNPOC) is composed of multiple international companies: (CNPC, 40%; Petronas Carigali Overseas Shd. Bhd. of Malaysia, 30%; ONGC Videsh Ltd. of India, 25%; and Sudan Petroleum Company Ltd. (Sudapet), 5%. GNPOC produced 45,000 barrels per day (bbl/d) of crude petroleum at the Hegig and the Bamboo fields in Block 2A and 2B, and the Diffra, and the Neem fields in Block 4 in Unity State. Sudapet became the sole operator of the Al-Barasaya oilfield in Block 17 in 2016 (after purchasing 66% of Ansan Wikfs Investments Ltd. of Yemen Star Oil Operation Co. Ltd.) and produced 6,000 bbl/d. Petro Energy E&P of the British Virgin Islands produced crude petroleum from the Fula and Hadida oilfields in Block 6 at a rate of 48,000 bbl/d. The company was a joint venture of CNPC (95%) and Sudapet (5%) (tables 1, 2; Ministry of Petroleum and Gas, 2018; Petro Energy E&P, 2018; U.S. Energy Information Administration, 2019, p. 6).

MINERAL INDUSTRY HIGHLIGHTS IN 2018

Sudan's economy grew, in real terms, at a rate of 2.8% in 2018 compared with a growth rate of 4.7% in 2017. The industrial sector, which accounted for 21% of the GDP in 2018 and 2017, increased by 2.7% at constant prices in 2018 compared with an increase of 4.2% in 2017. The share of the mining and quarrying subsector was 1.4% of the GDP in 2018 (Central Bank of Sudan, 2019, p. 126).

Compared with that of 2017, production increased most notably for the following mineral commodities: naphtha, by 127%; steel products, by 85%; kerosene, by 37%; and distilled fuel oil, by 11%. Production of jet fuel decreased by 54%; refined gold, by 46%; gypsum, by 32%; chromium, by 16%; and gasoline and mined gold, by 13% each (table 1).

Sudan's total exports decreased by 15% to \$3.5 billion in 2018. Petroleum exports, which included crude petroleum and refinery products, increased by 24% to \$520 million. Nonpetroleum exports, which included mainly gold and other mineral commodities, decreased by 19% to \$3.0 billion. Gold exports, which accounted for 24% of total exports by value, decreased in value by 47% to \$832 million and decreased in volume by 46% to 20,176 kg. The decrease in gold exports was attributed to decreased gold production in 2018 compared with that of 2017 and to continued illegal smuggling of gold by artisanal miners and traders to other countries, mainly the United Arab Emirates. Crude petroleum exports increased in value by 37% to \$440 million in 2018 and increased in volume by 8.4% to 6.4 Mbbl. Exports of refined petroleum products decreased to \$79 million. Other unspecified mineral exports decreased by 30% to \$25 million in 2018 (Central Bank of Sudan, 2019, p. 175-79; Fanack.com, 2019).

Domestic and foreign companies continued exploration for copper and gold in Sudan in 2018. QMSD explored for copper and gold in Blocks 62 and 62b at the Jebel Ohier site in the Red Sea State. The company started a 133,000-m drilling program in October and planned to use the results of this program in the prefeasibility study scheduled to commence in late 2020. QMSD also explored for copper at the Copper Wadi site (also known as the Huftrat al-Nuhas), the Jebel Ghazal, the Jebel Sabarah, and the Jebel Vulcan areas) as well as for gold at the Al Bashoom, the Al Dabib, the BM2 Anomaly, the Red and White Wadi, and the Shannon properties (QMSD Mining Co. Ltd., 2019).

Orca Gold completed its feasibility study for the Block 14 gold project in November, which outlined an approximately 14-year mine life at a production rate of 7,090 kilograms per year (kg/yr) (228,000 troy ounces per year) for years 1 through 7 and 5,350 kg/yr (172,000 troy ounces per year) for the remaining life of the mine (Orca Gold Inc., 2019, p. 11).

Managem produced 596 kg of gold from its Wadi Gabgaba pilot project on Block 15 in 2018 compared with 802 kg in 2017. The 26% decrease in production was attributed to the political unrest in the country during the year. Gold resources at Block 15 were reported to be 87,090 kg (2.8 million troy ounces) of contained gold, of which 49,770 kg (1.6 million troy ounces) were proven reserves (Managem S.A., 2019, p. 12).

Outlook

The Government of Sudan is likely to continue its focus on the development of gold mining throughout the country to offset lost revenue from petroleum production following the independence of South Sudan in 2011, which had accounted for about three-quarters of the country's petroleum production in 2010. The Government was pursuing a policy that would increase the mining sector's contribution to the economy. Sudan's gold resources have attracted several mining companies from Canada, China, Morocco, Qatar, Russia, and Turkey. Production of copper, gold, silver, and zinc from Ariab's Hassai South deposit could commence within 2 years once funding for the project is secured from foreign banks, investors, or mining companies.

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TABLE 1
SUDAN: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons, gross weight, unless otherwise specified)

Commodity ²	2014	2015	2016	2017	2018
METALS					
Chromium, mine, chromite:					
Gross weight	60,000	60,000	15,000 ^r	32,000	27,000
Cr ₂ O ₃ content, 25% to 58% Cr ₂ O ₃	25,760	15,143	3,862	8,000	6,750
Gold:					
Mine, Au content kilograms	73,300	82,400	93,400	107,300	93,600
Refinery ³ do.	30,000	20,000	27,000	37,000 ^e	20,000 ^e
Iron and steel, products, semimanufactured	430,000	624,000	360,000 ^r	539,000	997,000
Manganese, mine:					
Gross weight	20,000	31,400	33,800	42,000 ^e	NA
Mn content	5,800	9,106	9,800	12,000 ^e	NA
Zinc, mine	46	NA ^r	NA ^r	NA	NA
INDUSTRIAL MINERALS					
Cement, hydraulic thousand metric tons	3,478	3,708	4,013	4,326	4,053
Clay, kaolin	33,770	14,490	15,000 ^r	6,000	11,000
Feldspar	50,680	94,354	92,172	29,000	36,000
Gypsum, mine	111,271	180,000	355,000 ^r	333,000	226,000
Mica	1,000 ^r	NA ^r	NA ^r	NA	NA
Salt	37,295	70,000	223,397	235,000	267,000
Stone, sand, and gravel, construction:					
Sand and gravel, iron sand	46,579	70,000	70,000	NA	NA
Stone, dimension, marble	2,304 ^r	2,560	2,500 ^e	NA	NA
Talc	--	3,000	4,200	NA	NA
MINERAL FUELS AND RELATED MATERIALS					
Petroleum:					
Crude, including condensate thousand 42-gallon barrels	43,800	39,785	37,960	34,675	36,500
Refinery:					
Distillate fuel oil do.	10,760	11,477	10,168	11,517	12,810
Gasoline do.	12,259	13,077	16,660	9,037	7,865
Jet fuel do.	857	876	1,247	658	304
Kerosene do.	131	135	85	57	78
Liquefied petroleum gas do.	3,729	3,462	3,169	3,224	3,218
Naphtha do.	139	147	94 ^r	33	75
Petroleum coke do.	1,299	1,575	1,647	1,421	1,317
Residual fuel oil do.	1,954	1,954	1,957	1,753	1,848
Total do.	31,100 ^r	32,700 ^r	35,000 ^r	27,700	27,500

^eEstimated. ^rRevised. do. Ditto. NA Not available. -- Zero.

¹Table includes data available through August 6, 2019. All data are reported unless otherwise noted. Totals and estimated data are rounded to no more than three significant digits; may not add to totals shown.

²In addition to the commodities listed, common clay, iron ore, lime, shale, and other construction materials may have been produced, but available information was inadequate to make reliable estimates of output.

³Based on exports reported by the Central Bank of Sudan.

TABLE 2
SUDAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2018

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Cement		Al-Salam Cement Production Co. Ltd.	Plant at Atbara	2,000,000
Do.		Al-Shamal Cement Factory (Mass Global Investment Co.)	do.	1,500,000
Do.		ASEC Cement Co. (Qalaa Holdings S.A.E., 100%)	do.	1,600,000
Do.		Atbara Cement Co. Ltd. (Al-Rajhi Group, 100%)	do.	1,700,000
Do.		Aslan Cement Co.	Plant at Wadi Madani	1,000,000
Do.		Berber Cement Co. Ltd.	Plant at Berber	1,500,000
Do.		Nile Cement Co. Ltd.	Plant at Rabak	1,000,000
Do.		Sudanese Cement Factory (Government, 100%)	Plant in Nile State	100,000
Chromite		Ingessana Hills Mining Corp. [Sudanese Mining Corp. (Government, 100%)]	Mine at Ingessana Hills, Blue Nile State	70,000
Do.		More than 40 small-scale mining companies	Mines in Blue Nile State	NA
Gold:				
Mine, Au content	kilograms	Alitimid Company for Iron Industry and Mining Ltd.	Tailings-processing plants at Dongola and Wadi Halfa, Northern State, and at Abu Jubeiha, South Kordofan State	1,000 ^e
Do.	do.	Alliance For Mining Co. Ltd. (Alliance) (Kush for Exploration and Production Co. Ltd., and Government)	Mine on Block 30 at Wadi Ushar, Red Sea State	2,500
Do.	do.	Ariab Mining Co. Ltd. (AMC) (Government, 95%, and Islamic Development Bank, 5%)	Mine at Hassai	2,000
Do.	do.	Artisanal miners	Jebel Amir Mines in North Darfur State	40,000 ^e
Do.	do.	do.	Various locations	30,000 ^e
Do.	do.	China-Africa HuaKan Mining (Sudan) Government, 55%, and China Africa Hukan Investment Co., 45%)	Mine on Block 20 in Nile River State	NA
Do.	do.	Delgo Mining Co. Ltd.	Mine on Block 17 at Abu Sara	NA
Do.	do.	Hagagia (Poly Red Sea) Gold Mining Co. Ltd. (China-Africa Development Fund, 70%, and Government 30%)	Mine on Block 21 at Bayuda Red Sea State	NA
Do.	do.	Manub Ltd. (Managem Group, 78%, and private operator, 22%)	Mine on Block 15 at Wadi Gabgaba, River Nile State	800
Do.	do.	Rida Mining Co. (Golden United Group)	Mine on Block 23, Abidiya, River Nile State	2,500
Do.	do.	Sahari Company for Gold Mining	Berber, River Nile State	NA
Do.	do.	Sudamin Co. Ltd. (Government, 100%)	Tailings-processing plant at Abu Hamad, River Nile State	500
Refined	do.	Sudan Gold Refinery Co. Ltd. (Government, 100%)	Refinery at Khartoum	270,000
Feldspar		Bahri Ceramics Co.	Mine in River Nile State	NA
Do.		Salomi Ceramics Co.	Plant at Industrial zone, Khartoum	NA
Gypsum		Sudanese Mining Corp. (Government, 100%)	Bir Eit Mine, Red Sea State	15,000
Do.		Yarmouk Industrial Services Co. Ltd.	Quarries at Bir Eit, Red Sea State	220,000
Iron ore		Baasher Works for Mining	Mine in Red Sea State	NA
Do.		Nawati International Co.	Mine in Red Sea State	NA
Do.		Yarmouk Industrial Services Co.	Mines at Durdaib and Fodikwan in Red Sea State	720,000
Iron and steel, steel, products		Al-Assad Steel Bar Factory	Plant at Khartoum	394,000
Do.		Giad Industrial Group	Plant at Giad Industrial Zone, Khartoum	200,000
Do.		Sudanese Malaysian Factory	do.	100,000
Do.		Sudanese Steel Products Ltd. (subsidiary of Hafez Elsayad Barbary Ltd., 100%)	do.	150,000

See footnotes at end of table.

TABLE 2—Continued
SUDAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2018

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Manganese		Al Wadi minerals & Commercial Co. Ltd.	Ingessana Hills Mine, Red Sea State	NA
Do.		Ingessana Hills Mining Corp. [Sudanese Mining Corp. (Government, 100%)]	do.	NA
Do.		Yarmouk Industrial Services Co. Ltd.	Tilco Mine, Red Sea State	NA
Mica		Sheriek Mica Mines Co. [Sudanese Mining Corp. (Government, 100%)]	Mines at Sheriek ¹	1,800
Petroleum:				
Crude	thousand 42-gallon barrels	Greater Nile Petroleum Operating Co.(GNPOC) [China National Petroleum Corp. International Ltd. (CNPC), 40% Petronas Carigali Overseas Shd. Bhd., 30%; ONGC Videsh Ltd., 25%; Sudan Petroleum Co. Ltd. (Sudapet), 5%]	Bamboo and Helgig fields in Blocks 2A and 2B, Diffra and Neem oilfields in Block 4, Unity State	16,000
Do.	do.	Petro Energy Operating Co. (PEOC) [China National Petroleum Corp. International Ltd., 95%, and Sudan Petroleum Co. Ltd. (Sudapet), 5%]	Fula and Hadida oilfields in Block 6 near Muglad	17,500
Do.	do.	Sudan Petroleum Co. Ltd. (Sudapet) (Government, 100%)	Al-Barasaya oilfield in Block 17 in South Kordofan State	3,000
Do.	do.	do.	Rawat Central and Wateesh oilfields in Block 25.	NA
Refined	do.	Abu Jabra Refinery Co. [Sudan Petroleum Corp. (Government, 100%)]	Refinery at Abu Jabra ²	730
Do.	do.	Concorp Petroleum Ltd.	Refinery at Shajirah ²	3,650
Do.	do.	El-Obeid Refinery Co. (Government, 100%)	Refinery at El-Obeid	3,650
Do.	do.	Khartoum Refinery Co. Ltd. [Sudan Petroleum Corp., 50%, and China National Petroleum Corp. International Ltd. (CNPC), 50%]	Refinery at Aljailia, Khartoum	36,500
Do.	do.	Port Sudan Refining Ltd. (Government, 100%)	Refinery at Port Sudan	7,920
Salt		Bittar Salt Co. Ltd. (El-Nilein Holding Co., 100%)	Mines at Port Sudan, Red State	100,000
Do.		25 small-scale mining companies	do.	NA
Silver, refined	kilograms	The Sudan Gold Refinery Co. (Government, 100%)	Refinery at Khartoum	55,000
Stone:				
Limestone		Al-Rahji Group	Mine at Atbara, River Nile State	500,000
Do.		Al-Salam Cement Production Co. Ltd.	Mine in River Nile State	730,000
Do.		Nile Cement Co. Ltd.	Mine at Rabak	200,000
Marble		Yarmouk Industrial Services Co. Ltd.	Mine at Atbara, River Nile State	480,000
Talc		Al Wadi Minerals & Commercial Co. Ltd.	Mine in Red Sea State	35,000
Do.		Yarmouk Industrial Services Co. Ltd.	Red Sea Hills, Halayeb Province	100,000

^cEstimated. Do., do. Ditto. NA Not available.

¹Closed in 2013.

²No production in 2016–2018.