



2019 Minerals Yearbook

MAURITANIA [ADVANCE RELEASE]

THE MINERAL INDUSTRY OF MAURITANIA

By Mowafa Taib

The mineral sector was a major contributor to Mauritania's economy in 2019; it accounted for 15% of the gross domestic product (GDP) and 68% of the value of the country's total exports. Mauritania was Africa's 2d-ranked and the world's 12th-ranked exporter of iron ore, by value, in 2019. The country exported copper, gold, and gypsum. The country also produced modest quantities of cement, granite, iron and steel, marble, quartz, and salt. According to the Ministère du Pétrole, des Mines et de l'Énergie [Ministry of Petroleum, Mines, and Energy], Mauritania's mineral resources included 1.5 billion metric tons (Gt) of iron ore, 780 metric tons (t) (reported as 25 million troy ounces) of gold, 28 million metric tons (Mt) of copper ore grading 1.14% copper, 6 Gt of gypsum, 140 Mt of phosphate rock grading 21% phosphorus pentoxide (P₂O₅), and 245 Mt of salt (table 1; Banque Centrale de Mauritanie, 2020, p. 86, 88; Ministère du Pétrole, des Mines et de l'Énergie, 2020c; Workman, 2020).

Minerals in the National Economy

The Hydrocarbon Code (law No. 2010–33 of July 20, 2010, and its amendments—law No. 2011–044 of 2011 and law No. 2015–016 of 2015) constitute the legal framework for the country's hydrocarbon exploration and production. Mauritania's petroleum code requires foreign companies to be incorporated in the country before they may enter into production-sharing contracts with the Government. The Mining Code (law No. 2012–12 of February 12, 2012, and its amendments) provides the legal framework for mining exploration activities in Mauritania. Société Mauritanienne des Hydrocarbures et de Patrimoine Minier (SMHPM) represents the Government's interest in the hydrocarbon sector and in several mineral exploration projects, including for gold, iron ore, quartz, phosphate rock, titanium, and uranium (Ministère du Pétrole, des Mines et de l'Énergie, 2010; 2012; 2019, p. 3; Société Mauritanienne des Hydrocarbures et de Patrimoine Minier, 2018, 2020; CMS Cameron McKenna LLP, 2021).

Mauritania's nominal GDP, which amounted to \$7.6 billion¹ in 2019, increased by 5.9% in 2019 compared with an increase of 2.1% in 2018. Iron ore production contributed 6.9% of the GDP, and copper and gold production contributed 5.5% of the GDP. The value of mining sector activity increased in real terms by 27.0% in 2019 compared with a decrease of 9.5% in 2018. Net foreign direct investment (FDI) to Mauritania increased to \$884 million in 2019 from \$772 million in 2018. Most of the FDI (\$692 million) went to the hydrocarbon sector, including towards construction of the country's first natural gas project, and the remainder (\$192 million) went to completing the

building of the Friendship Port in Nouakchott (Banque Centrale de Mauritanie, 2020, p. 23–24, 81, 83, 86, 88–89).

The value of Mauritania's exports increased to \$2.3 billion in 2019 from \$1.9 billion in 2018. The quantity of Société Nationale Industrielle et Minières (SNIM's) iron ore exports increased to 12.0 Mt in 2019 from 11.3 Mt in 2018, and the value increased by 64% to \$831 million from \$508 million in 2018. Copper Mines S.A. (MCM) increased its iron ore (magnetite) concentrate exports to 541,560 t in 2019 from 425,389 t in 2018. The increase of Mauritania's iron ore exports in 2019 was attributed to increased prices on the world markets and a larger amount of iron ore exported. SNIM's iron exports went mainly to China, 54%; Italy, 10%; Japan, 9%; France and Germany, 8% each; and other countries, 11%. The value of gold exports increased to \$596 million in 2019 from \$420 million in 2018. The value of copper exports decreased to \$145 million in 2019 from \$148 million in 2018. The value of crude petroleum exports was zero in 2019 compared with \$12 million in 2018 (World Steel Association, 2019, p. 102; Banque Centrale de Mauritanie, 2020, p. 30–31, 88; First Quantum Minerals Ltd., 2020).

Production

Notable increases in Mauritania's mineral production in 2019 compared with that in 2018 included that of gold, which increased by 57%; gypsum, by an estimated 25%; iron ore, by 14%; and cement, by an estimated 13%. The increase in gold production was attributed to increased production from the phase 1 expansion project at the Tasiast Mine and the inclusion of more than 1,000 kilograms (kg) of gold produced by artisanal miners. The increase in gypsum output was attributed to the increased demand by Mauritania's neighboring countries in West Africa. Crude petroleum production decreased to zero in 2019 from an estimated 1.5 million barrels in 2018. The decrease was attributed to the stoppage of crude petroleum production at the country's sole oilfield—the Chinguetti oilfield—during 2018 owing to the depletion of reserves. Data on mineral production are in table 1.

Structure of the Mineral Industry

The Ministry of Petroleum, Mines, and Energy is responsible for overseeing activity in the fuel and nonfuel mineral sectors. The Direction des Mines et de la Géologie [Department of Mines and Geology] implements the Government's policies to enhance foreign investment in the mining sector of Mauritania. As of the end of October, local and international companies held 20 mining operations permits, 78 exploration permits, 101 industrial minerals quarrying permits, and 4 artisanal mining permits. Major mining companies in Mauritania included Mauritanian Copper Mines S.A. (MCM; a wholly owned subsidiary of First Quantum Minerals Ltd. of Australia), which produced copper, gold, and iron ore concentrate; Tasiast

¹When necessary, values were converted from Mauritanian ouguiya (MRU) to U.S. dollars (US\$) at the annual average exchange rate of 36.7MRU=US\$1.00 for 2019.

Mauritanie Ltd. S.A. (a wholly owned subsidiary of Kinross Gold Corp. of Canada), which produced gold at the Tasiast Mine; and SNIM, which was a majority state-owned mining company (78.35% interest) that produced iron ore. SNIM also produced gypsum through its affiliate Société Arabe des Industries Métallurgiques S.A. (SAMIA) and steel through its subsidiary Société Arabe du Fer et de l'Acier S.A. (SAFA). Four companies produced cement—BSA Ciment S.A., Ciment de Mauritanie S.A., Mauritano-Française des Ciments S.A., and Société des Ciments du Nord. Mauritania Minerals Co. S.A. (MMC) and Quartz Inc. Mauritania S.A. produced quartz, and Société Mauritanienne des Industries du Sel (SOMISEL) produced salt (table 2 ; Ministère du Pétrole, des Mines et de l'Énergie, 2020a, b; Société Nationale Industrielle et Minière, 2020b).

Commodity Review

Metals

Copper.—MCM, which was the country's sole copper producer, increased its production at the Moghreïn Mine to 29,600 t in 2019 from 28,137 t in 2018. The total probable and proven reserves at the Guelb Moghreïn Mine, which include high- and low-grade stockpiled materials, were estimated to be 10.8 Mt grading 0.65% copper and 0.63 gram per metric ton gold. The company, which estimated the life of the mine to be 3 years in 2019, planned to produce 25,000 t of copper in 2020 (First Quantum Minerals Ltd., 2020).

OreCorp Mauritania S.A.R.L. (OreCorp), a subsidiary of OreCorp Ltd. of Australia, held three licenses (Nos. 1415, 1416, and 2259) at Akjoujt South to explore for cobalt, copper, and nickel in an area of 596 square kilometers (km²). The Akjoujt South project lies in the Proterozoic Mauritanide Belt and is located 60 kilometers (km) south of the Guelb Moghreïn Mine. OreCorp held a 100% interest in license No. 2259 and a 90% interest in license Nos. 1415 and 1416; the Government held the remaining 10% in these latter two licenses (OreCorp Ltd., 2020).

Gold.—Mauritania's gold output increased by 57% to 14,484 kg in 2019 from 9,235 kg in 2018. Gold production was mainly from the Tasiast gold mine, the Guelb Moghreïn copper-gold mine, and artisanal mining. Gold production at the Guelb Moghreïn Mine was 1,389 kg (reported as 44,673 troy ounces). The mine was expected to produce more than 1,200 kg (reported as 40,000 troy ounces) in 2020. Artisanal or small-scale gold mining became legal in Mauritania following the 2016 Government Decree that granted small-scale mining permits to miners using metal detectors in a designated 1,791-km² zone in the Inchiri District. The District is located next to mining and exploration licenses held by Algold Resources Ltd. of Canada and Kinross. In 2019, artisanal miners sold 1,049 kg of gold directly to the Government (tables 1, 2; Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH, 2018, p. 30–32; First Quantum Minerals Ltd., 2020; Banque Centrale de Mauritanie, 2021, p. 46).

In 2018, Kinross completed phase 1 of its mill expansion for the Tasiast Mine, which increased the mill's throughput capacity to 12,000 metric tons per day (t/d) from 8,000-t/d capacity in 2017. Production at the Tasiast Mine was 12,164 kg (reported as

391,097 troy ounces) in 2019, which was a record output for the mine following a full year of operation since the completion of the phase 1 expansion. In 2019, Kinross started construction work for the phase 2 expansion project at the Tasiast Mine; the project was expected to double the mine's milling capacity to 24,000 t/d from the current 12,000 t/d by mid-2023. Gold output was expected to be 17,500 kilograms per year (kg/yr) in the period 2022–28 and 8,740 kg/yr in 2029–33. Kinross estimated the mine's probable and proved reserves at the end of 2019 to be about 211,000 kg of gold (reported as 6,783,000 troy ounces) and the life of the mine to be 14 years (Kinross Gold Corp., 2019, 2020).

Iron Ore.—Mauritania's iron ore concentrate production increased to 12.2 Mt in 2019 from 10.7 Mt in 2018 owing to favorable iron ore prices on the world market. SNIM operated three iron ore mines—the Guelb el Rhein Mine, the Kedia d'Idjill Mine, and the M'Haoudat Mine. The Guelb el Rhein deposit contained several hundred million metric tons of magnetite ore grading 37% iron. Production from the Guelb el Rhein Mine was concentrated at the Guelb el Rhein plants by dry magnetic separation to increase the iron content up to 66%. Hematite iron ore deposits are located at the Kedia d'Idjill and M'Haoudat areas, which accounted for 60% of SNIM's iron ore production. SNIM planned to increase its capacity to 40 million metric tons per year (Mt/yr) of iron ore by 2025 (tables 1, 2; Société Nationale Industrielle et Minière, 2020a).

In 2019, MCM increased its iron ore production in the form of wet magnetite concentrate at its Guelb Moghreïn Mine site to 541,560 t from 425,389 t in 2018. The company exported 86% of its concentrate output to Brazil and Mexico. MCM planned to produce 500,000 t of wet magnetite concentrate in 2020 (First Quantum Minerals Ltd., 2020).

Industrial Minerals

Phosphate Rock.—In December 2018, Mauritano-Saoudienne des Phosphates (MSP SA), which was a joint venture of private Saudi Arabian investors (80% interest) and the SMHPM (20% interest), announced that it planned to begin phosphate rock production from the Bofal and the Loubboira phosphate rock deposits in February 2019. In 2017, the Government awarded Mauritano-Saoudienne de Phosphate S.A. (MSP) a license to explore for phosphate rock in the areas of Bofal and Loubboira. Mauritania's probable reserves of phosphate rock were estimated to be between 140 Mt and 160 Mt, including 70 Mt grading 21% P₂O₅ at the Bofal deposit and 29 Mt grading 19% P₂O₅ at the Loubboira deposit. Both deposits occur in the outcrops of phosphatic sedimentary rocks of Eocene age along the northern bank of the Senegal River in southern Mauritania and are located 300 km east of the Atlantic coast (Taylor and others, 2012, p. 14–15; Financial Afrik, 2018; Ministère du Pétrole, des Mines et de l'Énergie, 2020).

Quartz.—Quartz Inc. Mauritania S.A. had been in operation since 2016; however, information on the company's quartz production was not available in 2019. The company produced quartz blocks, grits, lumps, slabs, and other products at its mines, which covered a 40-km² area in Chami Province. Mauritania's quartz mines and the processing plant are located about 350 km northeast of Nouakchott and 150 km east of the port city of Nouadhibou. The mineral resources at the mines

were estimated to be 725,000 t of quartz reserves. Most of Quartz Inc.'s output was exported to China, countries of Europe, and the United States (Quartz Inc., 2020).

Mineral Fuels and Related Materials

Natural Gas and Petroleum.—Crude petroleum production at the Chinguetti offshore oilfield ceased in December 2017 owing to the depletion of reserves. The field was licensed by PETRONAS International Corporation Ltd. of Malaysia (the operator) and Tullow Oil plc of the United Kingdom. PETRONAS exported the last crude petroleum shipment of 197,000 barrels in the first quarter of 2018. In 2019, Kosmos Energy Ltd. of the United States carried out deepwater exploration for natural gas on Blocks C6, C8, C12, and C13 off the Atlantic coast of Mauritania and Senegal. The Tortue Phase 1 of the Greater Tortue Ahmeyim natural gas project was estimated to contain 425 billion cubic meters of recoverable gas resources. The total acreage under exploration, which comprised an area of 33,000 km², could contain an additional 1.4 billion cubic meters according to Kosmos Energy. The Mauritanian share of the project (Block C8) was owned by BP p.l.c. of the United Kingdom (operator, 62%), Kosmos (28%), and SMHPM (10%). In 2019, BP was constructing the Tortue floating liquefied natural gas (LNG) facility. The facility was to be a nearshore hub located on the Mauritania and Senegal maritime border and was expected to produce 2.5 Mt/yr of LNG in 2023. In October, a \$700 million loan was approved for the conversion of the LNG carrier owned by Gimi MS Corp. of the Marshall Islands into a vessel to serve the Greater Tortue Ahmeyim floating liquefied natural gas terminal. The loan was financed by ABN Amro Bank and the ING Group, both of the Netherlands; Morgan Stanley of the United States; Standard Chartered plc of the United Kingdom; and the Development Bank of Japan (table 2; Bouso, 2018; Banque Centrale de Mauritanie, 2019, p. 27–30; Kosmos Energy Ltd., 2019; Tullow Oil plc, 2019; Yahoo Finance, 2019; BP p.l.c., 2020; Patrini, 2020).

Uranium.—In July 2019, Aura Energy Ltd. of Australia completed a definitive feasibility study for the Tiris project aimed at further exploring the deposit and updating its estimated uranium mineral resources. The feasibility study supported the construction of an open pit uranium mine and a 1.25-Mt/yr uranium leaching and processing facility capable of producing 454,000 kg/yr of uranium oxide (U₃O₈) over a period of 15 years. In addition to uranium, Aura Energy began an exploration program to produce lithium and soda ash from nearby salt lakes, also known as sabkhas. Soda ash would be used for uranium leaching from the Tiris ore (Aura Energy Ltd., 2018; p. 7; 2019, p. 1).

Outlook

The Government of Mauritania is focused on developing the country's mining sector, and iron ore production in particular, by supporting its national mining company SNIM and increasing exports by expanding the port at Nouadhibou as well as the railway that connects the country's iron ore mines with the port. Kinross is projected to increase its gold production at the Tasiast gold mine to 17,500 kg/yr by 2023 following the

completion of phase 2 of its expansion project. Aura Energy expected to start uranium production in Mauritania for the first time at the Tiris uranium mine in 2020. Mauritania expected to become a producer and exporter of LNG by 2023 following the commissioning of the floating liquefied natural gas facility at the Greater Tortue Ameyim offshore gasfield.

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TABLE 1
MAURITANIA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons, gross weight, unless otherwise specified)

Commodity ²	2015	2016	2017	2018	2019	
METALS						
Copper, mine, concentrates, Cu content	45,001	32,818	28,791	28,137	29,600	
Gold, mine, Au content	8,804 kilograms	7,127	9,096	9,235	14,484	
Iron ore, mine, concentrate:						
Gross weight	thousand metric tons	11,607	13,268	11,714	10,711	12,200
Fe content	do.	7,250	8,290	7,320	6,694	7,625
INDUSTRIAL MINERALS						
Cement, hydraulic	860,000	790,000 ^r	850,000 ^r	920,000 ^{r,c}	1,040,000 ^e	
Gypsum	70,000 ^e	70,000 ^e	200,000	200,000 ^e	250,000 ^e	
Salt ^e	700	1,000	1,000	1,000	1,000	
MINERAL FUELS AND RELATED MATERIALS						
Petroleum, crude	thousand 42-gallon barrels	1,933	1,727	1,191	1,460 ^{r,c}	--

^eEstimated. ^rRevised. do. Ditto. -- Zero.

¹Table includes data available through July 21, 2020. All data are reported unless otherwise noted. Estimated data are rounded to no more than three significant digits.

²In addition to the commodities listed, crude construction materials (clay, sand and gravel, and stone), phosphate rock, quartz, and raw steel may have been produced, but available information was inadequate to make reliable estimates of output.

TABLE 2
MAURITANIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2019

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Cement		BSA Ciment S.A. (Vicat Group, 65%)	Plant at Nouakchott	450
Do.		Ciment de Mauritanie S.A.	do.	900
Do.		Mauritano-Française des Ciments S.A.	do.	450
Do.		Société des Ciments du Nord (Ciments du Maroc)	Plant at Nouadhibou	100
Copper, mine, Cu content		Mauritanian Copper Mines S.A. (MCM) (First Quantum Minerals Ltd., 100%)	Guelb Moghrein Mine, Akjoujt, Inchiri District	30
Gold, mine, Au content	kilograms	Artisanal and small-scale miners	Inchiri District	NA
Do.	do.	Mauritanian Copper Mines S.A. (MCM) (First Quantum Minerals Ltd., 100%)	Guelb Moghrein Mine, Akjoujt, Inchiri District	1,500
Do.	do.	Tasiast Mauritanie Ltd. S.A. (Kinross Gold Corp., 100%)	Tasiast gold mine, 300 kilometers north of Nouakchott	8,000
Gypsum		Société Arabe des Industries Métallurgiques S.A. (SAMIA) [Industrial Bank of Kuwait, 50%, and Société Nationale Industrielle et Minière (SNIM), 50%]	Mine at Sebkhia N'dramcha, Nouakchott	300
Iron ore:				
Crude ore		Société Nationale Industrielle et Minière (SNIM) (Government, 78.35%; Industrial Bank of Kuwait K.S.C, 7.17%; Arab Mining Co., 5.66%; Iraq Foreign Development Fund, 4.59%; Office National des Hydrocarbures et des Mines, 2.30%; Islamic Development Bank, 1.79%; private investors, 0.14%)	Guelb el Rhein, Kedia d'Idjill, and M'Haoudat Mines, Tiris Zemmour region	16,000
Concentrated		do.	Guelb el Rhein plant 1 Tiris Zemmour region	5,000
Do.		do.	Guelb el Rhein plant 2 Tiris Zemmour region	4,000
Do.		Mauritanian Copper Mines S.A. (MCM) (First Quantum Minerals Ltd., 100%)	Guelb Moghrein Mine, Akjoujt, Inchiri District	600
Iron and steel, raw steel		Société Arabe du Fer et de l'Acier S.A. (SAFA) [Société Nationale Industrielle et Minière (SNIM), 100%]	Plant at Nouadhibou	10
Petroleum, crude	thousand 42-gallon barrels	PETRONAS International Corporation Ltd. (Petroliam Nasional Berhad, operator)	Chinguetti oilfield ¹	--
Quartz		Mauritania Minerals Co. S.A. (MMC), 90%, and Government, 10%	Mine at Oum Agueineina	300
Do.		Quartz Inc. Mauritania S.A. (Quartz Inc., 90%, and Government, 10%)	Mine and plant in Chami Province, 150 kilometers east of Nouadhibou	200
Salt		Société Mauritanienne des Industries du Sel (SOMISEL)	Sebkhia de N'Terert and Sebkhiet ej Jill brine pits, southwest	10

Do., do. Ditto. NA Not available. -- Zero.

¹Production from the Chinguetti oilfield ceased in 2018.