



2008 Minerals Yearbook

MAURITANIA

THE MINERAL INDUSTRY OF MAURITANIA

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In 2008, Mauritania was ranked 2d in Africa after South Africa and 15th in the world in terms of the volume of its iron ore production. It was the world's seventh ranked iron ore exporting country, accounting for about 11 million metric tons (Mt) of iron ore exports. Mauritania produced modest quantities of cement, copper, gold, gypsum, and salt from its abundant mineral deposits, which also include cobalt, diamond, phosphate rock, sulfur, and uranium. In August 2008, a military coup d'état took place following national elections that started in November 2006 and ended with the inauguration of a new President in April 2007. The newly appointed Government planned to hold national elections again on June 6, 2009 (Ministry of Mines and Industry, 2008; U.S. Department of Commerce, U.S. Commercial Service, 2008, p. 14; Banque Centrale de Mauritanie, 2009, p. 49; Jorgenson, 2009, p. 81).

Minerals in the National Economy

The mineral sector's contribution to the Mauritanian economy had been about 12% of the gross domestic product (GDP) up to 2006 when oil production started. The contribution of the mineral sector jumped to 32% of the GDP in 2006 but declined to 14% in 2007 because of a 51% reduction in crude oil production in that year. In 2008, Mauritania's total exports were valued at about \$1,751 million compared with \$1,457 million in 2007. Iron ore exports were about 42%, by value, of total exports compared with 40% in 2007. The value of crude oil exports accounted for 19% of total exports, which was down from 23% in 2007. Gold exports composed about 10% of the country's total exports compared with 4% in 2007, and copper exports represented 10% of total exports compared with 13% in 2007. The destinations of Mauritania's iron ore exports, which in 2008 were 7.3% less by volume than those in 2007, were France (33%), Italy (14%), Germany (12%), Belgium (9%), the United Kingdom (4%), and other countries (26%) (Banque Centrale de Mauritanie, 2009).

Production

In 2008, there were notable increases in the production of gold (178%), crude steel (64%), salt (36%), and copper (5%) compared with production in 2007. There were also significant decreases in the production of cement (21%), crude oil (20%), gypsum (10%), and iron ore (7%) during the same time period. Data on mineral production are in table 1.

Structure of the Mineral Industry

The Ministère de l'Industrie et des Mines [Ministry of Mines and Industry] and the Ministère du Pétrole et de l'Énergie [Ministry of Petroleum and Energy] were the Government agencies responsible for regulating mineral industry activity. The Direction des Mines et de la Géologie (Department of

Mines and Geology) implemented the Government policies to enhance foreign investment in the mining sector of Mauritania. The incentives offered to foreign investors included exemption from customs duties for exploration and during the first 3 years of mining; a tax holiday for the first 3 years of production and a 25% corporate tax thereafter; and royalties that ranged from 1.5% to 5%, depending on the mineral or mineral-related commodity and the value of the final product. The Government, with the help of the French Cooperation Agency, the Islamic Development Bank, and the World Bank, developed a program that offers geophysical information on mineral deposits through the Project for Institutional Strengthening of the Mining Sector (PRISM). The first phase of the project (PRISM 1) was focused on conducting geologic surveys in the Central Zone, the Extreme South Zone, the Northern Zone, and the Northwest Zone. During the second phase, PRISM 2, which was started in 2007 and completed at yearend 2008, existing data were consolidated and compiled to produce geologic maps on the mineral potential of Mauritania by region. The data were released to international mining and exploration companies. L'Unité du Cadastre Minier [Mining Cadastre Unit] managed the exploration licensing and mining rights issuance process by offering four types of licenses: reconnaissance, exploration, small-scale mining, and mining. Mineral and mineral commodities were categorized into seven groups. Group 1 included chromium, iron, manganese, titanium, and vanadium; Group 2 included more than 30 mineral commodities, such as copper, gold, and nickel; Group 3 comprised coal and other combustible fossil fuels; Group 4 was made up of the radioactive elements, such as uranium; Group 5 included most of the industrial elements, such as bauxite, limestone, and phosphate rock; Group 6 consisted of precious and semiprecious stones, except diamond; and Group 7 consisted solely of diamond (Ministry of Mines and Industry, 2008).

Commodity Review

Metals

Copper.—Mauritania's first open pit copper mine was inaugurated in 2007. The Guelb Moghrein Mine, which is located near Akjouj about 350 kilometers (km) northeast of Nouakchott, commenced commercial production in October 2006. The mine was operated by the newly established company Mauritanian Copper Mines, which was a partnership between First Quantum Minerals Ltd. of Canada (80% interest), Wadi el Rawda Industrial Investments LLC of the United Arab Emirates (19% interest), and General Gold International of Australia (1% interest). First Quantum produced 33,073 metric tons (t) of copper in concentrate in 2008, which was an increase from the 31,956 t produced in 2007. The plant employed 863 workers, and the mine had a remaining life of 9 years.

The company planned to increase copper production to 38,000 t in 2009 by increasing the plant's production capacity to 3.8 million metric tons per year (Mt/yr) from 3.2 Mt/yr in 2008 and 2.3 Mt/yr in 2007. The expansion, which was expected to be completed in the third quarter of 2009, would allow for the processing of lower grade ore, which would increase the reserves at the mine. The 2008 yearend estimates of copper reserves at the Guelb Moghrein Mine were 19 million metric tons (Mt) of proven reserves and 11 Mt of probable reserves with a cutoff grade of 0.65% copper (First Quantum Minerals Ltd., 2009, p. 5, 8, 32).

Gold.—Red Back Mining Inc. of Canada acquired the Tasiast gold mine from Lundin Mining Corp. of Canada in August 2007 at a total cost of \$278 million. Earlier that year, Lundin Mining had acquired Rio Narcea Gold Mines Ltd. With this acquisition, Red Back's holdings in Mauritania comprised three permits that cover 16,222 square kilometers (km²), including the Ahmeyim-Tijirit, the Karet, and the Tasiast permits. The Tasiast gold mine, which was 100% owned by Red Back, was officially inaugurated on July 18, 2007. Tasiast produced 4,070 kilograms (kg) of gold in 2007 and 4,342 kg of gold in 2008 and was expected to produce 7,360 kg of gold in 2009 (Red Back Mining Inc., 2009). Estimates of ore reserves at the Tasiast were upgraded to more than 31,100 kg (1 million troy ounces) of gold from the 27,435 kg (885,000 troy ounces) that was previously reported. The yearly output of the mine was expected to be 3 Mt during the 11 years of mine life (North Africa Times, 2007). As of December 2008, the total proven ore reserves of the Tasiast gold mine were reported to be 27.2 Mt at a grade of 1.48 grams per metric ton (g/t) gold; probable reserves were 21.1 Mt at a grade of 1.46 g/t gold; and stockpile reserves were 1.7 Mt at a grade of 0.89 g/t gold (Stuart, 2009, p. 11).

First Quantum continued producing gold at the Guelb Moghrein Mine. In 2008, First Quantum sold 1,912 kg of gold, which was slightly less than the 1,916 kg provided in 2007. The company expected to increase gold production at the Guelb Moghrein Mine to 3,200 kg in 2009 (First Quantum Minerals Ltd., 2009, p. 5, 8, 32).

Iron Ore.—Qatar Steel Corp., which had previously confirmed its intention to acquire up to 49.9% interest in the \$2.2 billion Guelb el Aouj iron ore project in northern Mauritania in 2007, announced in August 2008 that it was abandoning its plan to acquire an interest in the project owing to unresolved differences concerning the terms and conditions of the investment agreement with Société Nationale Industrielle et Minière S.A. (SNIM) and Sphere Investments Ltd. of Australia. Qatar Steel was the second company after Saudi Basic Industries Corp. (SABIC) to opt out of the project. The pullout of Qatar Steel came shortly after the military coup in Mauritania, but the coup was not reported as being a significant factor in the decision (Gulf News, 2008; Mining Weekly, 2008).

The Guelb El Aouj definitive feasibility study conducted by Sphere between 2006 and 2008 was completed and reportedly demonstrated the quality of the iron ore at the Guelb El Aouj deposit and the viability of developing a 7-Mt/yr direct-reduction iron ore pellet plant. On April 28, 2008, the mining license, which extends for 30 years and covers a

520-km² area, was issued to El Aouj Mining Co. S.A., which was a 50-50 joint venture of SNIM and Sphere.

Sphere continued exploration and drilling using two diamond drill rigs at the Lebtheinia iron ore project located east of the country's iron ore port at Noundhibou and 48 km south of the iron ore railway that was operated by SNIM. The drilling program was completed by yearend 2008. Sphere had set a target for its exploration at the portion of the mine known as Libtheinia Center of 2.0 to 2.3 billion metric tons (Gt) of in situ magnitude banded iron formation (BIF) mineralization grading from 32% to 33% iron. Sphere estimated that iron ore deposits at Libtheinia Center, Libtheinia East, and Libtheinia South would supply enough iron for a 30-Mt/yr-capacity blast furnace pellet plant (Sphere Investments Ltd., 2008).

In January, ArcelorMittal of Luxembourg and SNIM concluded a memorandum of understanding to develop iron ore resources in the El Agareb iron ore deposit located northeast of the Zouerate mining province of Mauritania, which had more than 1 Gt of high-grade magnetite iron. ArcelorMittal could increase its stake in the project to 70% from 30% after the exploration and prospecting phase is completed and could produce 25 Mt/yr of iron ore from this project if the outcome of the feasibility study supports such a target (ArcelorMittal, 2008).

Industrial Minerals

Cement.—The production capacity of the two cement producers in Mauritania—Ciment de Mauritanie and Mauritano-Française des Ciments S.A.—was 850,000 t/yr, and the actual production had been about 38% of the capacity with the exception of 2007, when it reached 48%. The local cement consumption of 250,000 metric tons per year (t/yr), which averaged 75 kilograms per capita, was considered weak when compared with that of neighboring countries. Excess cement could be exported to Mali, but the lack of good transportation routes was an obstacle that would need to be overcome before additional material could be exported (Arab Union for Cement and Building Materials, 2009).

Mineral Fuels and Related Materials

Petroleum.—Mauritania produced 11.2 million barrels (Mbbbl) of crude petroleum in 2006. However, the quantity was decreased to 5.5 Mbbbl in 2007 and to 4.4 Mbbbl in 2008. In 2007, Petroliaam Nasional Berhad (Petronas) of Malaysia acquired Woodside Mauritania Pty Ltd. and WEL Mauritania B.V., which included the Chinguetti oilfield, at a cost of \$418 million. In 2008, Petronas and its partners (ROC OIL Ltd. of Australia and Tullow Oil plc of the United Kingdom) reported an oil and gas discovery in the Banda offshore field, which is located northwest of Mauritania. The Government and Baraka Petroleum Ltd. of Australia signed a memorandum of understanding to construct an oil and gas pipeline system in the country to speed up the development of Mauritania's gas and oil reserves (Alexander's Gas & Oil Connections, 2008; Tullow Oil plc, 2009, p. 7).

Uranium.—In 2008, several companies prospected for uranium and conducted exploration activities in Mauritania.

Forte Energy NL of Australia, which changed its name from Murchison United N.L. in November, had nine permits to explore for uranium in an area that covers 11,895 km². The results of the drilling that was conducted at the Bir En Nar area in the Zednes region indicated several high-grade uranium intersections, including four holes with intercepts of greater than 5,000 parts per million (ppm) eU₃O₈ (Murchison United NL, 2008).

Mauritania Ventures Ltd., which was a subsidiary of Alba Mineral Resources p.l.c. of the United Kingdom, was granted two more uranium exploration permits in northern Mauritania. The company collected airborne and remote sensing geophysical data to identify primary uranium targets; conducted ground-based exploration in February; performed laboratory analysis at French and Irish laboratories; identified a uranium-bearing mineral from the tyuyamunite group; and concluded the presence of uranium mineralization at Dahmane (0.092% U₃O₈), Moutal (0.0262% U₃O₈), and T75W (0.019% U₃O₈) (Alba Mineral Resources p.l.c., 2008).

Aura Energy Ltd. of Australia was awarded three uranium exploration areas. GCM Resources p.l.c. of the United Kingdom bought 13% of Aura Energy, and the two companies formed Aura-GCM Africa Alliance. In December 2008, the Aura-GCM Africa Alliance conducted ground-based radiometric surveying across eight target areas at its Oued el Foule Est exploration permit located in the north of the country to determine the scope of uranium mineralization. Uranium mineralization was confirmed up to 2,217 ppm U₃O₈. The Aura-GCM Africa Alliance planned to perform similar followup sampling on the other two licenses that it held in Mauritania (GCM Resources p.l.c., 2008, p. 5; Aura Energy Ltd., 2009).

Shield Mining Ltd. of Australia was awarded 10 exploration licenses for mineral exploration (all minerals, including uranium) in Tijirt near the Tasiast gold mine; in Akjoujt, which is located near the Guelb Moghrein Mine; in Saboussiri, which is located in the south of Mauritania; and in Conchita Florence, which is located in the north of Mauritania (Shield Mining Ltd. 2009, p. 4)

Outlook

The short-term future of Mauritania's mineral industry looked brighter by yearend 2008 because the coup had little or no effect on the country's mineral industry activity. Despite the 20% reduction in production in 2008, the hydrocarbon sector is expected to revive in the upcoming years as evidenced by the interest of international investors in the exploration for gas and oil in both offshore and onshore blocks in Mauritania. The prospects of increasing the output of iron ore in Mauritania remain high given the vast hematite and magnetite reserves present in several parts of the country. Copper and gold production is expected to increase upon the completion of expansion projects. Uranium production could commence in the near future.

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TABLE 1
MAURITANIA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity ²		2004	2005	2006	2007	2008
METALS						
Copper in concentrate		--	--	5,031	31,956 [†]	33,073
Gold	kilograms	--	--	322 [†]	2,251 [†]	6,254
Iron ore:						
Gross weight	thousand metric tons	10,505	11,133	10,658 [†]	11,817 [†]	10,950
Iron content ^e	do.	6,900	7,000	6,928 ³	7,680	7,120
Steel, crude	do.	5,000	1,263	1,065 [†]	974 [†]	1,598
INDUSTRIAL MINERALS						
Cement		300,000	300,000	273,963 [†]	409,513	322,419
Gypsum		38,940	43,266	45,222	49,229	44,428
Salt		20 ^e	20 ^e	310	420	570
MINERAL FUELS AND RELATED MATERIALS						
Petroleum, crude	thousand 42-gallon barrels	--	--	11,168	5,517 [†]	4,422

^eEstimated; estimated data are rounded to no more than three significant digits. [†]Revised. do. Ditto. -- Zero.

¹Table includes data available through August 31, 2009.

²In addition to the commodities listed, modest quantities of crude construction materials (clays, sand and gravel, and stone) presumably were produced, but output was not reported quantitatively. The minimill of Société Arabe de Fer et d'Acier en Mauritanie produced rebar and wire, but available information is inadequate to make reliable estimates of output.

³Reported figure.

TABLE 2
MAURITANIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2008

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Cement		Ciment de Mauritanie (Private Mauritanian investors, 90%, and Compañía Valenciana de Cementos, 10%)	Nouakchott	400.
Do.		Mauritano-Française des Ciments S.A.	do.	450.
Copper		Mauritanian Copper Mines (First Quantum Minerals Ltd., 80%; Wadi el Rawda Industrial Investments LLC, 19%; General Gold International, 1%)	Guelb Moghrein copper-gold mine, 350 kilometers northeast Nouakchott	380.
Gold	kilograms	First Quantum Minerals Ltd., 80%, and Guelb Moghrein Mines d' Akjoujt S.A, 20%	do.	2,200.
Do.	do.	Red Back Mining Inc., 100%	Tasiast, 300 kilometers north of Nouakchott	7,300.
Gypsum		Société Arabe des Industries Métallurgiques Mauritano-Koweitiennes (SAMIA)	Sebkhia N'dramcha, between Nouakchott and Akjoujt	50.
Iron ore		Société Nationale Industrielle et Minière (SNIM) (Government, 78.4%; Industrial Bank of Kuwait K.S.C, 7.2%; Arab Mining Co., 5.7%; Iraq Foreign Development Fund, 4.6%; National Office for Carbohydrates and Minerals, 2.3%; Islamic Development Bank, 1.7%)	Guelb El Rhein, Kedia d'Idjill, and M'Haoudat Mines, Tris Zemmour	12,000.
Do.		El Aouj Mining Co. S.A. [Sphere Investments Ltd., 50%, and Société Nationale Industrielle et Minière (SNIM), 50%]	Guelb el Aouj Mine, Zouerate	17,000 ore; 7,000 direct-reduced iron. ¹
Petroleum, crude	thousand 42-gallon barrels	Petroliam Nasional Berhad (Petronas)	Chinguetti oilfield, 80 kilometers offshore	5,000.
Salt	metric tons	Société Mauritanienne des Industries du Sel (SOMISEL)	Sabkha de N'terert and d'Idjill brine pits, in the southwestern part of the country	500.

Do, do. Ditto.

¹Under development. First production expected during the second half of 2010.