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The Mineral Industries of Morocco and Western Sahara

By Mowafa Taib

MOROCCO

Morocco was the world's leading exporter of phosphate rock, phosphoric acid, and phosphate fertilizers; it remained the world's second-ranked producer of phosphate rock after China and accounted for about 15.6% of the world's phosphate rock output in 2019. Morocco and Western Sahara held 50 billion metric tons of phosphate rock reserves, which represented about 70% of the world's reserves. The country also was the 2d-ranked producer of arsenic trioxide after China and accounted for 17.0% of world output; the 3d-ranked producer of barite after China and India and accounted for 11.3% of world output; the 7th-ranked producer of acid-grade fluorspar and accounted for 1.4% of world output; the10th-ranked producer of cobalt and accounted for 1.6% of world output; and the 15th-ranked producer of silver and accounted for 1.2% of the world output. Other mineral commodities produced in Morocco included cement, clays (bentonite, fuller's earth, and montmorillonite), crude petroleum (condensate), feldspar, gold, iron ore, lead, manganese, mercury, natural gas, nickel, raw steel, salt, and zinc (table 1; OCP Group, 2020, p. 6, 20–21; Silver Institute, The, 2020, p. 26; George, 2021; Jasinski, 2021; McRae, 2021a, b; Shedd, 2021).

Minerals in the National Economy

In 2019, Morocco's nominal gross domestic product (GDP) was $119.7 billion, and the country's real GDP increased by 2.5% compared with an increase of 3.1% in 2018. The mineral sector was the leading foreign exchange earner for the Government, and the phosphate rock mining and phosphate-based products industry continued to be a major source of exports, accounting for about 19% of the country's total value of exports. The value of phosphate rock and phosphate-based products' exports decreased to $5.1 billion in 2019 from $5.5 billion in 2018. The mining sector's contribution to the gross domestic product (GDP) was 3.0% in 2019 compared with 4.7% in 2018, and the value added by the mining sector to the GDP increased by 2.4% in real terms in 2019 compared with an increase of 4.4% in 2018. The mining sector employed 41,000 people (Bank Al-Maghrib, 2020, p. 206, 223–225; Office National des Hydrocarbures et des Mines, 2020, p. 10; International Monetary Fund, 2021, p. 26, 29; Ministry of Energy Transition and Sustainable Development, 2021b).

The flow of foreign direct investment (FDI) into Morocco decreased by 56% to $1.6 billion in 2019 from $3.6 billion in 2018, and the flow of FDI out of Morocco increased by 32% to more than $1.0 billion from $782 million in 2018. The sharp decrease in the FDI flows to Morocco in 2019 compared with those of 2018 was attributed to a "base effect," in which a large amount of funds were invested in the financial and insurance sectors. FDI flows to Morocco went mainly to the real estate sector (30%), the industry sector (28%), accommodation and food (14%), transportation and storage (12%), trade (10%), and financial and insurance activities (6%). The major sources of the FDI inflows to Morocco were France (14.8%), Luxembourg (9.9%), Saudi Arabia (5.5%), and the United States (3.3%) (Bank Al-Maghrib, 2020, p. 90; United Nations Conference on Trade and Development, 2020, p. 238).

Government Policies and Programs

Morocco's mining code is based on law No. 33–13 of August 6, 2015, which repealed the mining regulation of April 16, 1951. This law, which was implemented on May 23, 2016, is designed to attract foreign investment, boost exports, and help ensure that companies abide by the Government's labor and environmental laws. Morocco's hydrocarbon law is based on law No. 21–90 of April 15, 1992, and its amendment by law No. 27–99 of March 16, 2000, and supplements by Decree No. 2–93–786 of November 3, 1993. The law regulates crude petroleum and natural gas exploration and production activity at onshore and offshore locations. The Office National des Hydrocarbures et des Mines [National Office of Hydrocarbons and Mines] (ONHYM) is the primary agency responsible for the exploration for mineral resources in the country and the promotion of investment in the hydrocarbon and mining sectors. The Government encourages investment in the hydrocarbon sector by offering fiscal incentives that allow international petroleum and natural gas companies to acquire up to a 75% share of production in return for investing a portion of their profits in further exploration in the country's open areas onshore and offshore. The royalty on crude petroleum is 10%, and that on natural gas is 5%, and a corporate tax holiday for 10 years is given for crude petroleum and natural gas discoveries (Office National des Hydrocarbures et des Mines, 2019b, c).

The Directorate of Mines, which is under the Ministère de la Transition Énergétique et du Développement Durable [Ministry of Energy Transition and Sustainable Development] enforces the mining law through Executive orders. Exploration permits (research permits) are awarded for an initial 3-year period for an area that covers up to 16 square kilometers (km^2). The permits are renewable for 4 additional years. Mining permits are awarded for a 10-year period and are renewable for 10-year periods until reserves are exhausted. The Government provides incentives for mining companies that include tax exemptions on imported equipment for investment that exceeds

[1]As of December 10, 2020, the U.S. Government recognizes the sovereignty of Morocco over all the territory of former Western Sahara. The information in this chapter reflects the situation in 2019.

200 million Moroccan dirhams ($20.8 million)[2] and a reduced tax rate of 17.5% for companies that exported their output and for companies that supplied ores to domestic mineral processing and beneficiation companies. The Government also contributes 5% of the project value to mining projects that invest more than 200 million Moroccan dirhams ($20.8 million). The Government contribution goes towards infrastructure development, such as building roads and supplying electricity and water to the project areas (Office National des Hydrocarbures et des Mines, 2019c).

By the end of 2019, the Government had awarded 5,100 mining permits, 60% of which were granted to mining companies; 22%, to individual operators; and 18%, to the ONHYM. The ONHYM conducted 45 studies throughout Morocco, 31 of which were the ONHYM's own projects and 14 were partnerships between the ONHYM and domestic and international mining companies. The ONHYM studies included nine for exploration for base metals and uranium, eight for precious metals, six for mining prospection, and four each for industrial minerals and special projects (geothermal and hydrogen energy). The studies with partners included six for base metals and four each for industrial minerals and base metals. ONHYM partners included Emmerson PLC of the United Kingdom; Kasbah Resources Ltd. of Australia, Managem S.A., Maya Gold and Silver Inc. (Maya) of Canada, Metalex Ventures Ltd. of Canada, North America Nickel Inc. of Canada, and Office Chérifien des Phosphates [Office of Moroccan Phosphates] (OCP) (Office National des Hydrocarbures et des Mines, 2020, p. 12, 39, 41, 43).

Production

In 2019, production increased most notably for the following mineral commodities: refined cobalt, which increased by 33%; barite, by an estimated 22%; solid fertilizer and sulfuric acid, by 14% each; and phosphoric acid, by 10%. Production decreased most notably for mined gold (Au content), by 43%; mercury, by 33%; condensate, by 22%; refined lead, by an estimated 20%; mined copper (Cu content), by 14%; montmorillonite and mined copper (gross weight), by an estimated 12% each; mined zinc (Zn content), by 11%; and cement and mined zinc (gross weight), by an estimated 10% each. Data on mineral production are in table 1.

Structure of the Mineral Industry

The OCP, also known as the OCP Group, was responsible for phosphate rock mining and phosphate-based fertilizer and other products manufacturing in Morocco. The OCP, which was wholly owned by the Government, was the country's sole producer of phosphate rock and phosphate fertilizers through its more than 30 subsidiaries and joint ventures (OCP Group, 2020, p. 15).

Managem S.A. was an international mining and mineral processing company based in Morocco and was publicly listed on the Casablanca Stock Exchange. It operated 13 mines in nine countries in Africa and was owned by Al MADA-Positive Impact Fund (81.4%), free float (10.0%) and Interprofessional Moroccan Retirees Fund (CIMR) (8.3%). In Morocco, Managem produced metals, such as cobalt, copper, iron ore, lead, nickel, and zinc; precious metals, such as gold and silver; and industrial minerals, such as arsenic and fluorspar. Managem was the leading metal mining company in the country; it conducted mineral exploration, marketing, processing, and services through its subsidiaries. Managem's subsidiaires in Morocco included Akka Gold Mining Co. (AGM), Cie minière d'Oumjrane (CMO), Compagnie minière de Dadès, Compagnie minière de SAGHRO, Compagnie de Tifnout Tighanimine (CTT), Compagnie Minière des Guemassa (CMG), Société Anonyme d'entreprise Minière (SAMINE), Société Métallurgique d'Imiter (SMI), and Société Minière de Bou Gaffer (SOMIFER). In 2019, the company employed more than 6,000 people in Morocco and other countries (table 2; Managem S.A., 2020, p. 11–14).

Artisanal miners have been legally mining barite, kohl (eyeliner), lead, and zinc within an area of 60,000 km^2 at the Figuig and Tafilalet mining districts near Meknes City since 1960. Law of December 1 of 1960 created the Centrale d'Achat et de Développement de la Région Minière du Tafilalet et de Figuig [Central Purchasing and Development of the Mining Region of Tafilalet and Figuig] (CADETAF) as an independent public agency with financial and legal authority. The Ministry of Energy Transition and Sustainable Development is responsible for technical supervision of mining operations in the Figuig and Tafilalet mining districts. Artisanal miners sold ores to local collection centers, which were equipped with chemical analysis, storage, and weighing facilities. Prices were based on cost insurance and freight (c.i.f.) value after subtracting taxes. The taxes were 10 Moroccan dirham per metric ton (MAD/t) ($1.00/t) for barite, 300 MAD/t ($31/t) for kohl, 10% of the sale value of lead, and 15% of the sale value of zinc (Ministry of Energy Transition and Sustainable Development, 2017; Tahiri, 2018, p. 3–6; World Bank, The, 2019, p. 53–58).

Mineral Trade

The value of Morocco's total exports increased to $29.6 billion in 2019 from a revised $29.3 billion in 2018. The value of natural and chemical fertilizers exports decreased to $3.0 billion in 2019 from $3.1 billion in 2018; phosphoric acid exports, to $1.4 billion from about $1.5 billion; phosphate rock exports, to $760 million from $884 million in 2018; scrap metals exports, to $167.1 million from $177.2 million; mined copper exports, to $95.6 million from $124.6 million; lead ore exports, to $76.1 million from $86.9 million; and exports of other raw products of mineral origin, to $184.6 million from $202.5 million. The value of barite (barium sulfate) exports increased to $98.6 million in 2019 from $89.5 million in 2018, and raw and semifinished silver exports increased to $93.5 million from $70.5 million in 2018 (Bank Al-Maghrib, 2020, p. 240–241).

In terms of tonnage, Morocco exported 9.5 million metric tons (Mt) of phosphate rock in 2019 compared with 11.3 Mt in 2018, which accounted for 37% of the world's phosphate rock exports; The country also exported 9.1 Mt of phosphate fertilizers, 2.1 Mt of phosphoric acid, 1.1 Mt of barite, 117,000 metric tons (t) of

[2]Where necessary, values were converted from Moroccan dirhams (MAD) to U.S. dollars (US$) at the annual average exchange rates of 9.617 MAD=US$1.00 for 2019 and 9.386MAD=US$1.00 for 2018.

copper concentrate, 61,000 t of lead ore, and 2.4 Mt of other raw products of mineral origin (Bank Al-Maghrib, 2020, p. 237, 240–241).

Morocco's total imports decreased in value to $51.1 billion in 2019 from $51.3 billion in 2018. The value of hydrocarbons and other energy products imports decreased to $7.9 billion in 2019 from $8.8 billion in 2018. Morocco's coal imports increased to $945 million in 2019 from $922 million in 2018. Sulfur imports were valued at $724 million in 2019; they originated mainly in the United Arab Emirates (44%), Russia (18%), Poland (9%), and the United States (8%). Other mineral commodity imports included cobalt ore, which was valued at $30 million and originated in the Democratic Republic of the Congo [Congo (Kinshasa)] (Bank Al-Maghrib, 2020, p. 83–84, 237–239, 242).

In terms of tonnage, Morocco imported 11.4 Mt of coal briquets in 2019 compared with about 10.0 Mt in 2018. Coal imports came from Russia (42%), South Africa (37%), the United States (14%), Poland (4%), Colombia (2%), and Spain (1%). Other mineral-related imports included sulfur (6.7 Mt); scrap metals (468,000 t); other raw products of mineral origin (161,000 t); and clay, quartz, and sand (149,000 t) (Bank Al-Maghrib, 2020, p. 237–239, 242).

Morocco's exports to the United States increased slightly to $1.58 billion in 2019 from $1.55 billion in 2018. Major minerals and metal-related exports included, in descending order of value, chemical fertilizers ($729 million); inorganic chemicals ($49 million); barite ($32 million); other nonferrous metals ($12 million); iron and steel mill products ($11 million); and cement, sand, and stone ($5 million). Morocco's imports from the United States increased to $3.5 billion in 2019 from $3.0 billion in 2018. Major minerals and metal-related imports included, in descending order of value, fuel oil ($646 million), natural gas liquids ($426 million), coal and other fuels ($229 million), petroleum products ($63 million), other nonmetallic minerals ($32 million), and fertilizers and other chemicals ($13 million each) (U.S. Census Bureau, 2020a, b).

Commodity Review

Metals

Cobalt, Copper, and Nickel.—Managem was the sole cobalt, copper, and nickel producer in Morocco in 2019. The company mined 34,200 t of cobalt-nickel ore and produced an estimated 2,300 t of cobalt and 130 t of nickel at the Bou-Azzer Mine. Managem's production of refined cobalt (cobalt cathode) at the polymetallic mining complex in Guemassa near Marrakech increased by 33% to 2,397 t in 2019 from 1,806 t in 2018. Most of the cobalt raw materials used for cathode production came from mined cobalt at the Bou-Azzer Mine, and a small fraction came from a third party. Production of cobalt cathodes was expected to increase in 2020 with the anticipated supply of 5,000 metric tons per year (t/yr) of cobalt from the Pumpi cobalt project in Katanga Province of Congo (Kinshasa). Managem owned a 20% share in the Pumpi Mine and planned to process that share of the mine output at its polymetallic mining complex in Morocco (Managem S.A., 2020, p. 52, 59).

Morocco's copper concentrate (gross weight) output decreased by 12% to 101,623 t in 2019 from 115,442 t (revised) in 2018. AGM produced 40,640 t of copper concentrate from the Akka and the Ouansimi Mines; SOMIFER produced 38,005 t at the Bleida Mine; CMO produced 12,099 t at the Oumjrane Mine; and CMG produced 10,879 t at the Douar Hajar Mine. In 2019, Managem continued exploration for copper at six mining sites in Morocco. Proved and probable copper reserves (Cu content) at the Bouskoura exploration site were 144,900 t; the Bleida Mine, 60,700 t; the Douar Hajar Mine, 59,000 t; the Akka Mine, 45,914 t; and the Oumjrane Mine, 32,924 t. The measured and indicated mineral resources (Cu content) at the Tizert copper exploration site were 731,000 t (table 1; Managem S.A., 2020, p. 45; 2021, p. 155).

Lead, Silver, and Zinc.—In 2019, Morocco produced 61,100 t of lead concentrate, which was a 14% decrease from the 79,538 t produced in 2018. Morocco's silver production increased by 9% in 2019 to 251,000 kilograms (kg) from 230,000 kg (revised) in 2018. SMI produced silver from the Guemassa, the Imiter, and the Tizert Mines. Silver output by SMI increased by 22% to 176,504 kg in 2019 from 143,645 kg in 2018 owing to the commissioning of the silver tailings retreatment plant at the Imiter Mine in July. The plant had the capacity to produce 30,000 kilograms per year (kg/yr) of silver metal and produced 19,000 kg of silver metal in 2019. SMI held a total of 8.2 Mt of measured and indicated silver resources, including 5.1 Mt of proved and probable ore reserves at the Guemassa, Imiter, and Tizert Mine sites (table 1; Managem S.A., 2020, p. 45, 57, 60).

Maya started commercial silver production at the Zgounder Mine in 2019 with an ore extraction capacity of 500 metric tons per day for a targeted production of 44,000 kg/yr of silver in 2019 and 2020. The company planned to increase its ore extraction capacity to 730,000 t/yr for a targeted production of 149,000 kg/yr of silver in 2021–27 (table 1; Maya Gold and Silver Inc., 2020).

Compagnie Minière de Touissit (CMT), which became a 50–50 joint venture of Emerging Capital Partners of the United States and Truffle Capital of France in 2019, produced lead-silver and silver-zinc concentrates at the Tighza Mine. The mine is located in Draa-Tafilalet Region. As of 2019, CMT held 13 concessions, 18 mining licenses, and 35 exploration permits throughout Morocco. The company's lead-silver and silver-zinc concentrates production totaled 27,000 t in 2019 from four underground mining sites (Aoussar, Ighrem, Sidi Ahmed, and Signal) in the vicinity of the Tighza Mine (Compagnie Minière de Touissit, 2020, p. 4, 9–10).

Managem mined lead and zinc at the Douar Hajar, the Draa Sfar, and the Tighardine Mines. The company produced 11,364 t of lead concentrate (gross weight) compared with 12,665 t in 2018 at its Douar Hajar, Draa Sfar, and Tighardine Mines, which are located near Marrakech. The company held 136,000 t of proved and probable lead reserves. Managem's zinc gross weight production decreased to 61,763 t in 2019 from 75,951 t in 2018. The decrease was attributed to lower concentrate grade. The company held 413,000 t of proved and probable zinc reserves as of 2019. Managem's zinc oxide output was estimated to be 8,000 t in 2019 (table 2; Managem S.A., 2020, p.58, 60).

Tin.—In 2019, Kasbah Resources Ltd. of Australia completed the second definitive feasibility study for the Achmmach tin project, which was launched in 2018. At the project site, the study identified proved and probable reserves of 55,000 t of tin at the Meknes Trend and 3,000 t of tin at the Sidi Addi Trend for a total of 58,000 t of tin at a cutoff grade of 0.55% tin. The underground Achmmach project was expected to produce about 4,500 t of concentrate containing 60% tin during 10 years of mine life. The Achmmach project was owned by Kasbah (75%), Toyota Tsusho Corp. (20%), and Nittetsu Mining Co. Ltd. (5%); the latter two were headquartered in Japan. Kasbah was also developing the Bou El Jaj tin project, which is located 8 kilometers (km) southwest of the Achmmach project and was wholly owned by Kasbah. The Bou El Jaj project could provide supplementary feed to the planned tin-processing facility at the Achmmach project. The resources at Bou El Jaj included 500,000 t to 1 Mt grading between 0.30% and 0.50% tin for about 1,500 to 5,000 t of contained tin (Kasbah Resources Ltd., 2020, p. 5, 8–9, 11).

Industrial Minerals

Barite.—Morocco's barite production increased by 22% in 2019 to an estimated 1.1 Mt from about 900,000 t in 2018. The increase was attributed to increased worldwide demand for barite by petroleum companies that used barite as a water-based mud for oilfield drilling. CADETAF produced 470,000 t of barite ore in 2018 (the latest year for which comprehensive information was available). Broychim S.A.R.L., which purchased barite ore from CADETAF and mined barite at its own mines, was the country's leading exporter of barite products. The company exported 330,000 t of barite to the United States and other countries in 2019. Broychim owned six mines that had a combined estimated resource of 3 Mt. The Nkob and the Touroug Mines were the only two active mines, whereas the other four barite mines (names not disclosed) that were owned were closed in 2019. The Touroug Mine had the capacity to produce 200,000 t/yr of barite, and the Nkob Mine,100,000 t/yr. Other barite producers in Morocco included Compagnie Marocaine des Barytes S.A. (COMABAR), Société Nord-Africaine de Recherches et d'Exploitation des Mines d'Argana (SNAREMA), and Société Nouvelle Union des Métaux Maroc (SNUMM) (tables 1, 2; Tahiri, 2018, p. 7; Broychim S.A.R.L., 2020).

Fluorspar.—In 2019, Morocco's production of acid-grade fluorspar was estimated to be 69,000 t, which was unchanged from that of 2018. Fluorite production by SAMINE, a Managem subsidiary, increased by 3% in 2019 to 50,397 t from 48,751 t in 2018. SAMINE was the main producer of fluorspar in Morocco and owned the El Hammam Mine, which had the capacity to produce 80,000 t/yr of acid-grade fluorspar. The mine had 205,000 t of proved and probable reserves at the end of 2019. Most of SAMINE's production was exported by way of Casablanca Port. GFL GM Fluorspar S.A. (a subsidiary of Gujarat Fluorochemicals Ltd. of India) began fluorspar mining at the Taourirt Mine in 2018, which is located 95 km south of Nador Port in northeastern Morocco. The Taourirt Mine had the capacity to produce 40,000 t/yr of acid-grade fluorspar in 2019 and the company planned to increase the capacity to 60,000 t/yr by mid-2020. Almost all fluorspar mined by GFL was exported by way of Nador Port (table 2; O'Driscoll, 2019; Managem S.A., 2020, p. 45).

Phosphate Rock.—In 2019, OCP produced 35.5 Mt of phosphate rock compared with 34.4 Mt (revised) in 2018. The company also produced 6.7 Mt of phosphoric acid (P_2O_5 content) and 10.0 Mt of solid fertilizers. OCP planned to increase its phosphate rock production capacity to 60 million metric tons per year (Mt/yr) by 2025 from the current capacity of 36.6 Mt/yr. The company's share of global phosphate exports in 2019 was 49% for phosphoric acid, 34% for phosphate rock, and 24% for phosphate-based fertilizers. OCP operated four phosphate rock mining sites: the Khouribga mining center, which held 43% of the country's phosphate rock reserves; the Youssofia Mine, 37%; the Ben Guerir Mine, 18%; and the Bou Craa mining center, 2%. The company also operated two phosphate fertilizer manufacturing complexes at Jorf Lasfar and Safi, and four phosphate export ports at Casablanca, Jorf Lasfar, Laayoune, and Safi. In 2019, OCP employed 19,865 people (OCP Group, 2020, p. 10–12).

Potash.—Emmerson PLC of the United Kingdom was developing the Khemisset potash project as a low-capital-cost potash mine in Morocco. The project is located southeast of Rabat. When completed, the project would be the first active potash mine in Morocco and North Africa. Khemisset's Joint Ore Reserves Committee (JORC)-compliant resource totaled 537 Mt containing 9.34% potassium oxide (K_2O) as of 2019. Emmerson commissioned Golder Associates of Canada to carry out a scoping study, which confirmed a production potential of 810,000 t/yr of potash at a grade of 60% K_2O for the first 19 years of the mine's life (Emmerson PLC, 2020).

Mineral Fuels

Morocco was dependent on mineral fuel imports in 2019. The country produced 25,000 barrels (bbl) of petroleum condensate in 2019, which was a 22% decrease compared with the 33,000 bbl (revised) produced in 2018. The country's natural gas output in 2019 increased by 4% to 47 million cubic meters from a revised 46 million cubic meters in 2018. The Mohammedia refinery, which was the sole refinery in the country, continued to be idle throughout 2019 owing to financial and legal problems. Thirty-four petroleum companies were involved in hydrocarbon exploration in Morocco in 2019 covering an area of 153,000 km^2. The Government issued 70 exploration permits, including 34 offshore locations, and awarded the following two natural gas production concessions: (1) the Sidi Al Harati Ouest (Sebu Central) concession, which was awarded to the joint venture of SDX Energy Morocco Ltd. (subsidiary of SDX Energy) (75% interest) and ONHYM (25% interest), and (2) the Grand Tendrara concession, which was awarded to the joint venture of Sound Energy Meridja Ltd. (a subsidiary of Sound Energy; 75% interest) and ONHYM (25% interest). ONHYM signed exploration and production-sharing agreements with Eni Maroc B.V. for the Tarafaya Offshore Shallow area; with Repsol Exploration Tanfit S.L, and Shell Exploration et Production du Maroc GmbH for the Tanfit area; with Sound Energy Morocco East Ltd. and Sound Energy Morocco South Ltd. (subsidiaries of Sound Energy) for the Sidi Mokhtar Onshore area; and with Schlumberger Silk Rout Service Ltd. of the United States for the

Grand Tendrara area (table 1; Office National des Hydrocarbures et des Mines, 2019a, p. 21–22; 2020, p. 21–22; 24; Ministry of Energy Transition and Sustainable Development, 2021a).

Outlook

Morocco is expected to remain the world's leading supplier of phosphate rock and phosphate-based fertilizers for the next decade as OCP continues to invest in expanding capacity at existing mines, adding new mines, and adding new concentrating, floating, and washing units at the Gantour and Khouribga mining centers by 2030. Managem's cobalt cathode output at the Guemassa complex is expected to increase in 2020 as the complex begins to receive and process cobalt from the company's share at the Pumpi Mine in Congo (Kinshasa). Managem is expected to increase its output of copper concentrate by developing its mineral resources in Morocco. Morocco's standing as a significant world supplier of acid-grade fluorspar is being further solidified with the entry of GFL GM Fluorspar into Morocco's fluorite production in Taourirt Province and export by way of Nador Port. Silver production by Maya is expected to increase at the Zgounder Mine following the increase in the mine's capacity to 73,000 t/yr. Morocco is expected to become a tin producer once Kasbah completes its work at the Achmmach project. Morocco's natural gas production is expected to increase in the next 5 years following Sound Energy's commencement of production at the Tendrara concession in eastern Morocco and the completion of exploration and development work by SDX Energy at the Gharb basin in northern Morocco.

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WESTERN SAHARA

Western Sahara is a desert area bordering the Atlantic Ocean between Mauritania and Morocco. In 2019, about 75% of the Western Saharan territory was administered by the Government of Morocco and the remaining 25% was under the administration of the Popular Front for the Liberation of the Saguia el Hamra and Rio de Oro (Polisario). The issue of sovereignty for Western Sahara, which was claimed by the Government of Morocco, the Saharawi Arab Democratic Republic (SADR), and the Polisario, remained unresolved as of yearend 2019. Western Sahara's economy is dependent on fishing, pastoral nomadism, and phosphate rock mining. Cement and phosphate rock production, and offshore crude petroleum and natural gas exploration were the main mining activities that were carried out in the territory (U.S. Central Intelligence Agency, 2020).

Phosphate de Bou Craa S.A. (Phosboucraa), which was a wholly owned subsidiary of OCP, operated the Bou Craa phosphate mining center. The center had 800 Mt of phosphate rock reserves, which accounted for 2% of Morocco and West Africa's phosphate rock reserves. It had the capacity to produce 2.6 Mt/yr of phosphate rock and was the main mineral production facility in Western Sahara engaged in mining, beneficiation, transportation, and marketing of phosphate rock from the Bou Craa Mine. In 2019, Phosboucraa exported 1.0 Mt of phosphate rock compared with 1.9 Mt in 2018, which was the lowest amount of phosphate rock exported in recent years. The decrease was attributed to the political conflict related to the sovereignty of Western Sahara. Phosphate rock exports went to India (49%), New Zealand (32%), China (12%), and Brazil (7%). In 2019, OCP began a $2.2 billion expansion project at the Bou Craa mining center. The project included expansion of the mine site itself, construction of a phosphate fertilizer plant, and improvement of the port infrastructure. The fertilizer plant would have a production capacity of 1 Mt/yr and include a sulfuric acid production unit, a phosphoric acid unit, and a granulation unit. Additionally, the company planned to build a new washing unit and storage facilities, a sheltered port, and a wharf. The Bou Craa phosphate mine center expansion project was expected to be completed by 2022 (table 2; OCP Group, 2020, p. 6; Western Sahara Resources Watch, 2020, p. 9–11).

Ciments du Maroc S.A. owned and operated a clinker mill at Laayoune. Clinker was sourced from the Safi cement plant in Morocco. The mill had the capacity to produce 500,000/t/yr of cement. Other cement components, such as limestone, gypsum, and pozzolan, were sourced from nearby quarries in Western Sahara (Ciments du Maroc S.A., 2020).

ONHYM carried out several exploration studies for metals in southern Western Sahara in 2019; these studies were located at Al Warma (copper and gold), Awark (rare-earth elements and uranium), Chenna (copper and gold), Tlayha (gold and uranium), and Twihinate-Center (nubium, rare-earth elements, and uranium). Metalex Ventures Ltd. of Canada conducted exploration studies for copper and gold at Tichla in Aousserd Province in partnership with ONHYM (Office National des Hydrocarbures et des Mines, 2020, p. 43).

Several petroleum and natural gas companies were exploring for crude petroleum and natural gas offshore and onshore Western Sahara. They included Eni Maroc B.V. of Italy, which was exploring for petroleum at the Tarafaya Offshore Shallow and Teredo Morocco Ltd. of the United Kingdom and Kosmos Energy Ltd. of the United States, which were exploring at the Boujdour Maritime Block and onshore Boujdour (Office National des Hydrocarbures et des Mines, 2020, p. 22–23).

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TABLE 1

MOROCCO AND WESTERN SAHARA: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons, gross weight, unless otherwise specified)

Commodity[2]		2015	2016	2017	2018	2019
METALS						
Cobalt:						
Mine, nickel-cobalt ore:						
Gross weight		22,460	23,900	32,000 e	35,390	34,200
Co content[e, 3]		1,500	1,600	2,300	2,300 r	2,300
Refinery, metal		1,982	2,081	1,924	1,806	2,397
Copper, mine, concentrate:						
Gross weight		95,542	113,219	126,060 r	115,442 r	101,623
Cu content[e]		24,000	28,000	30,000	29,000	25,000
Gold, mine, Au content	kilograms	292	174	220	386 r	221
Iron ore, mine:						
Gross weight		17,860	15,300	100,300	51,440 r	51,000 e
Fe content		9,644	5,490 r	55,000	28,300 r	28,300 e
Iron and steel:						
Raw steel		516,000	520,000	550,000	600,000	600,000 e
Products, hot rolled[e]		1,200,000	1,200,000	950,000	1,000,000	1,000,000
Lead:						
Mine, concentrate:						
Gross weight		45,650	40,690	53,990	70,962	61,100
Pb content		32,165	28,670	38,041	30,382 r	30,000 e
Refinery, primary[e]		14,000	11,000	8,000	10,000	8,000
Manganese, mine, ore:						
Gross weight		71,700	68,330	99,000	79,538 r	80,000
Mn content[e]		38,000	36,200	59,000	42,000 r	42,000
Mercury, Hg content		5 e	5 e	14 r	3 r	2
Nickel, Ni content, chemicals, nickel hydroxide		203	188	196	126 r	125 e
Silver, mine, Ag content	kilograms	272,000 r	295,000 r	306,000 r	230,000 r	251,000
Zinc:						
Mine, concentrate:						
Gross weight		106,010	84,850	101,900	113,812 r	102,000 e
Zn content[e]		53,000	42,000	51,000	57,000 r	51,000
Products, zinc oxide		4,890	5,180	7,594	8,128 r	8,000 e
INDUSTRIAL MINERALS						
Arsenic trioxide		7,566	7,600 r	6,879	5,578 r	5,500
Barite, crude		1,212,130	668,500	818,010	899,365 r	1,100,000 e
Cement, hydraulic	thousand metric tons	14,460	14,260	14,850	15,300	13,730
Clay:						
Bentonite, crude		92,290	103,230	174,546	172,749 r	170,000 e
Fuller's earth, smectite		84,570	141,760	119,070	99,256 r	100,000 e
Montmorillonite, ghassoul, crude		1,160	910	420	1,133 r	1,000 e
Feldspar[e]		45,000	35,000	40,000	40,000	40,000
Fertilizers, solid	thousand metric tons	5,210	6,960	8,600	8,800	10,000
Fluorspar:						
Acid grade		73,879	66,584	56,395	69,000 r, e	69,000 e
Metallurgical grade		7,011	7,336	19,105	19,000 e	19,000 e
Phosphate:						
Phosphate rock:[4]						
Gross weight	thousand metric tons	26,264	26,900	32,800	34,400 r	35,500
P_2O_5 content	do.	8,404	8,607	10,300	11,000	11,400
Phosphoric acid, P_2O_5	do.	4,500	4,930	5,700	6,100	6,700
Salt, rock		555,760	634,610	659,260	691,637 r	700,000 e
Sulfur:						
Byproduct from hydrocarbon processing, S content		40,000 e	--	--	--	--
Compounds, sulfuric acid	thousand metric tons	15,000 e	14,823	16,905	17,900 r	20,400

See footnotes at end of table.

TABLE 1

MOROCCO AND WESTERN SAHARA: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons, gross weight, unless otherwise specified)

Commodity[2]		2015	2016	2017	2018	2019
MINERAL FUELS AND RELATED MATERIALS						
Natural gas, dry basis	million cubic meters	41	44	44	46 r	47 e
Petroleum:						
Condensate	thousand 42-gallon barrels	36	35	31	33 r	25
Refinery:						
Distillate fuel oil	do.	9,044	--	--	--	--
Gasoline	do.	1,582	--	--	--	--
Jet fuel	do.	3,952	--	--	--	--
Liquefied petroleum gas	do.	5,453	--	--	--	--
Residual fuel oil	do.	5,514	--	--	--	--
Other	do.	855	--	--	--	--
Total	do.	26,400	--	--	--	--

[e]Estimated. [r]Revised. do. Ditto. -- Zero.

[1]Table includes data available through December 15, 2020. 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.

[2]In addition to the commodities listed, construction materials, gypsum, lime, perlite, pozzolan, pyrophyllite, secondary lead, and talc may have been produced, but available information was inadequate to make reliable estimates of output.

[3]Cobalt content of concentrate estimated from reported gross weight.

[4]Includes production from Western Sahara.

*Note: As of December 10, 2020, the U.S. Government has recognized the sovereignty of Morocco over all the territory of former Western Sahara. The information in this chapter reflects the situation during 2019.

TABLE 2
MOROCCO AND WESTERN SAHARA: STRUCTURE OF THE MINERAL INDUSTRIES IN 2019

(Metric tons unless otherwise specified)

Country and commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
MOROCCO			
Arsenic trioxide	Compagnie de Tifnout Tighanimine (CTT) (Managem S.A., 99.77%)	Mine at Guemassa, Marrakech	6,100
Barite:			
Chemical grade	Central d'Achat et de Développement de la Région Minière duTafilalet et de Figuig (CADETAF) (artisanal miners)	Mines in Errachidia Province, Figuig and Tafilalet mining districts, Draa-Tafilalet Region	500,000
Do.	Broychim S.A.R.L.	Plant at Casablanca	120,000
Do.	do.	Plant at Safi, Safi Province, Marrakesh-Safi Region	30,000
Do.	do.	Nkob Mine, Ouarzazate Province	100,000
Do.	do.	Touroug Mine, Errachidia Province	200,000
Do.	Compagnie Marocaine des Barytes S.A. (COMABAR) [Norbar Minerals AS, 55%, and Office National des Hydrocarbures et des Mines (ONHYM), 45%]	Mine at Tlet Ighoud, Safi, Marrakesh-Safi Region	160,000
Do.	do.	Mine at Zelmou, Figuig mining district, Draa-Tafilalet Region	110,000
Do.	North African Industrial Minerals Exploration S.A.R.L.	Trebia Mine, Nadur Region	NA
Do.	Société Nord Africaine de Recherches et d'Exploitation des Mines d'Argana (SNAREMA)	Mine at Seksaoua, Marrakech	120,000
Do.	do.	Mine at Argana, Taroudant Province, Souss-Massa Region	30,000
Do.	Société Nouvelle Union des Metaux Maroc (SNUMM)	Mine at Jbel Sidi Abdellah, Tangier-Tetouan-Al Hoceima Region	12,000
Grade unspecified	Central d'Achat et de Développement de la Région Minière duTafilalet et de Figuig (CADETAF) (artisanal miners)	Errachidia, Figuig and Tafilalet mining districts, Draa-Tafilalet Region	6,000
Do.	Compagnie Marocaine des Barytes (COMABAR) [Norbar Minerals AS, 55%, and Office National des Hydrocarbures et des Mines (ONHYM), 45%]	Mine at Azzouzet-Tidiennit, Nador Province	5,000
Do.	North African Industrial Minerals Exploration S.A.R.L.	Trebia Mine, Nador Province	NA
Cement, hydraulic	Asment de Temara (Cimentos Asment EAA, 63%; PROCIMAR, 21%; Cement Francais, 16%)	Kiln and mill at Temara, Rabat-Sale-Kenitra Region	1,900,000
Do.	Ciments de L'Atlas (CIMAT)	Beni Mellal kiln and mill, Beni Mellal, Beni Mellal-Khenifra Region	1,600,000
Do.	do.	Settat kiln and mill in Settat Province	1,600,000
Do.	Ciments du Maroc S.A. (HeidelbergCement AG, 58.3%)	Kiln and mill in Ait Baha Province	2,200,000
Do.	do.	Kiln and mill at M'Zouda, Marrakech-Safi Province	1,300,000
Do.	do.	Kiln and mill in Safi Province	1,000,000
Do.	do.	El Jadida clinker mill, El Jadida Province, Casablanca-Settat Region	450,000
Do.	do.	Jorf Lasfar clinker mill, 15 kilometers south of Jorf Lasfar city	450,000

See footnotes at end of table.

TABLE 2—Continued
MOROCCO AND WESTERN SAHARA: STRUCTURE OF THE MINERAL INDUSTRIES IN 2019

(Metric tons unless otherwise specified)

Country and commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
MOROCCO—Continued			
Cement, hydraulic—Continued	LafargeHolcim Maroc S.A. (LafargeHolcim Group, 50%)	Plant at Bouskoura, Casablanca-Settat Region	3,000,000
Do.	do.	Plant at Tetouan,Tangier-Tetouan-Al Hoceima Region	2,500,000
Do.	do.	Cadem clinker mill at Meknes, Fes-Meknes Region	1,750,000
Do.	do.	Tamuda kiln and mill at Tetouan, Tanger-Tetouan-Al Hoceima Region	800,000
Do.	do.	Grinding unit at Tangier, Tangier-Tanger-Tetouan-Al Hoceima Region	1,000,000
Do.	do.	Kiln and mill at Oujda, Oriental Region	1,300,000
Do.	do.	Settat kiln and mill, Casablanca-Settat Region	1,700,000
Do.	do.	Kiln and mill at Ras El Ma, Fes Fes-Meknes Region	1,300,000
Do.	do.	Clinker mill at Doukkarat, Fes Fes-Meknes Region	600,000
Do.	do.	Clinker mill at Nador, Nador Province	400,000
Clay:			
Bentonite	Antonio Reyes Mina Providencia S.A.R.L. (ARMIPRO)	Mine and plant at Haddou Ammar, Nador Province	60,000
Do.	Mabensa (Morocco) (Tosla S.A., 100%)	Processing plant in Nador Province	200,000
Do.	NAIMEX Co.	Trebia Mine, Nador Province	NA
Do.	Société d'Exploitation des Mines du Rif (SEFERIF) [Office National des Hydrocarbures et des Mines (ONHYM), 100%]	Mine at Bou Hoed, near Ouixane	15,000
Do.	Société Miniere Bentonite d'Afarha S.A. [Grupo Tolsa, 80%, and Office National des Hydrocarbures et des Mines (ONHYM), 20%]	Mine at Afarha, Nador Province	9,200
Ghassoul	Société du Ghassoul et de ses Derives SEFRIOUI S.A.	Mine at Jebel Rhassoul, Jebel Tamdafelt	2,900
Cobalt:			
Ore, gross weight	Compagnie de Tifnout Tighanimine (CTT) (Managem S.A., 99.77%)	Bou-Azzer Mine, Ouarzazate Province	34,000
Metal	do.	Guemassa polymetallic plant, Marrakech	2,500
Copper, mine, concentrate	Akka Gold Mining Co. (AGM) [Managem S.A., 50.02%, and Office National des Hydrocarbures et des Mines (ONHYM), 16.07%]	Akka Mine at Iourim, Tiznit Province, Souss-Massa Region	40,000
Do.	do.	Ouansimi Mine, Rabat	10,000
Do.	Compagnie Minière de Guemassa (CMG) [Managem S.A., 70.77%, and Office National des Hydrocarbures et des Mines, (ONHYM), 29.23%]	Douar Hajar Mine, Guemassa, Marrakech	18,000
Do.	Compagnie Miniere de Oumjrane S.A. (CMO) (Managem S.A., 100%)	Oumjrane Mine, Errachidia Province	20,000
Do.	Société Minière de Bou Gaffer (SOMIFER) (Managem S.A., 100%)	Bleida Mine, Zagora Province, Draa-Tafilalet Region	50,000

See footnotes at end of table.

TABLE 2—Continued

MOROCCO AND WESTERN SAHARA: STRUCTURE OF THE MINERAL INDUSTRIES IN 2019

(Metric tons unless otherwise specified)

Country and commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
MOROCCO—Continued				
Fluorspar, concentrate		GFL GM Fluorspar S.A. (Gujarat Fluorochemicals Ltd., 100%)	Mine at Taourirt Province	40,000
Do.		Société Anonyme d'Entreprises Minières (SAMINE) (Managem S.A., 100%)	El Hammam Mine, Khemisset Province	80,000
Gold, mine, Au content	kilograms	Compagnie de Tifnout Tighanimine (CTT) (Managem S.A., 99.77%)	Mine at Guemassa, Marrakech	250
Iron ore:				
Crude ore		Société d'Exploitation des Mines du Rif (SEFERIF) [Office National des Hydrocarbures et des Mines (ONHYM), 100%]	Mine at Bouhoua, Nador Province	120,000
Concentrate		Compagnie Minière de Guemassa (CMG) [Managem S.A., 70.77%, and Bureau de Recherches de Participations Minières (BRPM), 29.23%]	Bou Azzer Mine, Guemassa	29,900
Do.		Compagnie Minière de Touissit (CMT) (Emerging Capital Partners, 50%, and Truffle Capital, 50%)	Mine at Touissit, Jerada Province	73,000
Lead:				
Mine, concentrate		Central d'Achat et de Développement de la Région Minière du Tafilalet et de Figuig (CADETAF) (artisanal miners)	Figuig and Tafilalet mining districts, Draa-Tafilalet Region	6,000
Do.		Compagnie Minière de Guemassa (CMG) [Managem S.A., 70.77%, and Bureau de Recherches de Participations Minières (BRPM), 29.23%]	Douar Hajar, Draa Sfar, Tighardine, Polymetallic Mines, Marrakech-Safi Region	15,000
Do.		Compagnie Minière de Touissit (CMT) (Emerging Capital Partners, 50%, and Truffle Capital, 50%)	Mine at Tighza, Fes-Meknes Province	15,000
Metal:				
Refinery		Compagnie de Tifnout Tighanimine (CTT) (Managem S.A., 99.77%)	Guemassa polymetal complex, Marrakech	8,000
Secondary		Société des Fonderies de Plomb de Zellidja (SFPZ)[1] (Zellidja S.A., 50.4%)	Plant at Oued El Heimer, Oujda, Oriental Region	70,000
Lime		Lafarge Calincor Maroc (LafargeHolcim Group, 100%)	Two kilns at Tlad Loulad	180,000
Manganese, concentrate		Société Anonyme Chérifienne d'Etudes Minières (SACEM) [Bureau de Recherches de Participations Minières (BRPM), 43%, and Compagnie Minière de l'Ogooué S.A. (COMILOG), 30%]	Mine at Imini, Ouarzazate Province	14,000
Natural gas	million cubic meters	Joint venture of SDX Energy PLC, 75%, and Office National des Hydrocarbons et des Mines (ONHYM), 25%	Sebou and Oulad N'Zala gasfield, onshore	64
Do.	do.	Joint venture Sound Energy PLC, 75%, and Office National des Hydrocarbons et des Mines (ONHYM), 25%	Greater Tendrara gasfield, onshore	45
Nickel hydroxide		Compagnie de Tifnout Tighanimine (CTT) (Managem S.A., 99.77%)	Guemassa polymetal complex Marrakech	250
Petroleum:				
Condensate	thousand 42-gallon barrels	Joint venture of SDX Energy PLC, 75%, and Office National des Hydrocarbons et des Mines (ONHYM), 25%	Sebou and Oulad N'Zala gasfield, onshore	30
Refinery products	do.	Société Anonyme Marocaine de l'Industrie du Raffinage (SAMIR) (Group Corral Petroleum, 64.7%, and general public, 35.3%)	Refinery at Mohammedia,[2] Casablanca-Settat Region	75,000
Phosphate:				
Phosphate rock		Office Chérifien des Phosphates (OCP) (Government, 100%)	Khouribga mining center (Beni Amir, Khouribga, Merah El ahrach, Sidi Chennane mining sites), Beni Mellal-Khenifra Region	22,600,000

See footnotes at end of table.

TABLE 2—Continued
MOROCCO AND WESTERN SAHARA: STRUCTURE OF THE MINERAL INDUSTRIES IN 2019

(Metric tons unless otherwise specified)

Country and commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
MOROCCO—Continued				
Phosphate:—Continued				
Phosphate rock—Continued		Office Chérifien des Phosphates (OCP) (Government, 100%)	Khouribga mining center	22,600,000
Do.		do.	Gantour mining center (Ben Guerir, Bouchane, Mzinda), Saft Province	14,000,000
Do.		do.	Youssofia Mine, Safi Province, Marrackech-Safi Region	3,000,000
Phosphoric acid, P_2O_5		Bunge Maroc Phosphore [Office Chérifien des Phosphates (OCP), 50%, and Bung Brasil, 50%]	do.	375,000
Do.		Indo Maroc Phosphore S.A. [Office Chérifien des Phosphates (OCP), 33.33%; Chambal Fertilizers and Chemicals Ltd., 33.33%; Tata Chemicals Ltd., 33.33%]	Plant at Jorf Lasfar	430,000
Do.		Jorf Fertilizer Co. V [Office Chérifien des Phosphates (OCP), 100%]	do.	375,000
Do.		Pakistan Maroc Phosphore [Office Chérifien des Phosphates (OCP), 50%, and Fauji Pakistani Group, 50%]	do.	375,000
Do.		Office Chérifien des Phosphates (OCP) (Government, 100%)	Maroc Phosphore I and II plants, Safi Province	1,150,000
Do.		do.	Maroc Phosphore III, IV plants, Safi Province	1,500,000
Do.		do.	Maroc Chimie I and II plants, Safi Province	500,000
Phosphoric acid, P_2O_5 (purified)		Euro-Maroc Phosphore Co. [Office Chérifien des Phosphates (OCP), 33%; Société Chimique Prayon-Rupel, 33%; Chemische Frabrik Budenheim KG, 33%)]	Plant at Jorf Lasfar	150,000
Pozzolan		Minerals Leading	Processing plant at Nador Port, Nador Province	300,000
Salt:				
Rock salt		Société de Sel de Mohammedia (SSM) [Office National des Hydrocarbures et des Mines (ONHYM), 100%]	Mine at Ain Tekki, Mohammedia	226,500
Marine salt		Société Chérifienne des Sels (SCS) [Government, 50%, and Société Nouvelle des Salins du Sine Saloum (SNSSS), 50%]	Lac Zima, Safi	30,000
Silver, mine, Ag content	kilograms	Compagnie Minière de Touissit (CMT) (Emerging Capital Partners, 50%, and Truffle Capital, 50%)	Tighza Mining Center, M'rirt, Draa-Tafilalet Region	15,000
Do.	do.	Société Metallurgique d'Imiter (SMI) (Managem S.A., 75.72%, and general public, 24.28%)	Guemassa Mine, Marrakech-Safi Province; Imiter Mine, Ouarzazate Province; Tirzet Mine, Taroudant Province, Souss-Massa Region	230,140
Do.	do.	do.	Plant at Ouarzazate Province	30,000
Do.	do.	Zgounder Millennium Silver Mining [Maya Gold and Silver Inc., 85%, and Office National des Hydrocarbures et des Mines (ONHYM), 15%]	Zgounder Mine, south of Marrakech	17,727
Steel:				
Raw steel		Univers Acier S.A.	Plant at Sidi Hajjaj, Casablanca	500,000
Steel products:				
Bars and sections		Société Nationale de Sidérurgie (Sonasid) (Nouvelles Siderurgies Industrielles, 64.86%, and other investors, 35.14%)	Plant at Jorf Lasfar	300,000

See footnotes at end of table.

TABLE 2—Continued
MOROCCO AND WESTERN SAHARA: STRUCTURE OF THE MINERAL INDUSTRIES IN 2019

(Metric tons unless otherwise specified)

Country and commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
MOROCCO—Continued			
Steel:—Continued			
Steel products:—Continued			
Rebar and wire rod	Société Nationale de Sidérurgie (Sonasid) (Nouvelles Siderurgies Industrielles, 64.86%, and other investors, 35.14%)	Plant at Nadur City	650,000
Do.	Univers Acier S.A.	Plant at Sidi Hajjaj, Casablanca	1,000,000
Do.	do.	do.	80,000
Cold-rolled sheet	Maghreb Steel S.A.	do.	250,000
Sulfuric acid	Bunge Maroc Phosphore S.A.	Plant at Jorf Lasfar	1,250,000
Do.	Indo Maroc Phosphore S.A. (IMACID)	do.	1,200,000
Do.	Maroc Phosphore III-IV [Office Chérifien des Phosphates (OCP)]	do.	5,800,000
Do.	Maroc Chemei [Office Chérifien des Phosphates (OCP)]	Plant at Safi	1,600,000
Do.	Maroc Phosphore I [Office Chérifien des Phosphates (OCP)]	do.	2,500,000
Do.	Maroc Phosphore II [Office Chérifien des Phosphates (OCP)]	do.	1,900,000
Do.	Office Chérifien des Phosphates Group (OCP)	do.	3,200,000
Do.	Pakistan Maroc Phosphore S.A. (PMP)	Plant at Jorf Lasfar	1,300,000
Talc and pyrophyllite:			
Pyrophyllite	Société Industrie Minière Marocaine (IMM)	Mine at Khenifra	NA
Talc	Société Zenaga	Mine at Tinjdad, Errachidia	NA
Do.	do.	Mine at Taliouine, Ouarzazate	NA
Zinc:			
Concentrate	Compagnie Minière de Guemassa (CMG) [Managem S.A., 70.77%, and Office National des Hydrocarbures et des Mines (ONHYM), 29.23%]	Douar Hajar, Draa Sfar, Tighardine Polymetallic Mines, Marrakech-Safi Region	170,000
Do.	Compagnie Minière de Touissit (CMT) (Emerging Capital Partners, 50%, and Truffle Capital, 50%)	Tighza Mining Center, M'rirt, Draa-Tafilalet Region	5,000
Do.	Société Mineral et Substances	Mine at Lalla Mimouna, Taza	NA
Ore	Central d'Achat et de Développement de la Région Minière du Tafilalet et de Figuig (CADETAF) (artisanal miners)	Mine at Errachidia, Figuig and Tafilalet mining districts, Draa-Tafilalet Region	10,000
WESTERN SAHARA			
Cement	Ciments du Maroc S.A. (HeidelbergCement AG, 58.3%)	Grinding unit at Laayoune	500,000
Phosphate rock	Phosphates de Bou Craa S.A. [Office Chérifien des Phosphates (OCP), 100%]	Mine and mining center at Bou Craa	2,600,000

Do., do. Ditto. NA Not available.

[1]Société des Fonderies de Plomb de Zellidja also refines silver and produces copper matte and sodium antimonate.

[2]Shut down since August 2015.