



2015 Minerals Yearbook

MOROCCO AND WESTERN SAHARA [ADVANCE RELEASE]

THE MINERAL INDUSTRIES OF MOROCCO AND WESTERN SAHARA

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MOROCCO

In 2015, Morocco was the world's leading exporter of phosphate in all forms; it was the world's second-ranked producer of phosphate rock after China and accounted for about 13.5% of the world's phosphate rock output. Morocco also was the world's second-ranked producer of barite after China, and it accounted for more than 12.1% of world output. The country was the world's 17th-ranked and Africa's leading producer of silver and accounted for about 1.5% of world output. Additionally, Morocco produced a wide range of mineral commodities including arsenic trioxide, cement, clays [such as bentonite, fuller's earth, and montmorillonite (ghassoul)], copper, feldspar, fluorspar, iron ore, lead, natural dry gas, crude petroleum, refined petroleum products, salt, and zinc (table 1; OCP Group, 2016, p. 24; Silver Institute, The, 2016, p. 26; Jasinski, 2017; McRae, 2017a, b).

Minerals in the National Economy

Morocco's real gross domestic product (GDP) increased by 4.7% in 2015 compared with an increase of 2.4% in 2014. The value added by the mining sector to the GDP decreased by 5.1% in real terms in 2015 compared with a decrease of 3.6% in 2014 and 1.5% in 2013. The diversity and total value of the minerals produced enabled Morocco's mineral sector to play an important role in the national economy; it contributed 8% of the country's GDP and provided about 30% of total exports. Morocco's mineral industry was the leading foreign exchange earning sector for the Government, and the phosphate rock industry continued to be a major source of export earnings; it accounted for about 21% of Morocco's total exports (Bank Al-Magrib, 2016, p. 22; International Monetary Fund, 2016, p. 4, 25; OCP Group, 2016, p. 24; Office National des Hydrocarbures et des Mines, 2016a, p. 10).

Morocco was Africa's fifth-ranked recipient of foreign direct investment (FDI); the flow of FDI into Morocco decreased by 11% to \$3.2 billion in 2015 from \$3.6 billion in 2014, and the flow of FDI out of Morocco increased by about 49% to \$649 million from \$436 million in 2014. The value of FDI inward stock in Morocco at yearend 2015 was \$48.7 billion compared with \$45.1 billion at yearend 2010, and the value of FDI outward stock also increased to \$4.6 billion in 2015 from \$1.9 billion in 2010. The value of FDI inflows in announced greenfield projects decreased to \$4.5 billion in 2015 from \$5.2 billion in 2014. FDI went mainly to the real estate sector, then to the industry, tourism, trade, energy and mining, and infrastructure sectors. The major sources of the FDI inflows to Morocco were France (28.4%), the United Arab Emirates (13.5%), and Saudi Arabia (12.8%) (United Nations Conference on Trade and Development, 2016, p. 38, 196, 200, 210).

By the end of 2015, the Government had awarded 7,521 mining permits, 53% of which were granted to mining companies, 31% to individual operators, and 16% to the Office National des Hydrocarbures et des Mines (ONHYM) [National Office of Hydrocarbons and Mines]. In 2015, the ONHYM conducted 40 exploration studies throughout the country; 27 of which were ONHYM's own projects and 13 were in partnership with domestic and international mining companies. The ONHYM studies included 10 precious metals studies (gold, molybdenum, niobium, and rare-earth elements), 9 base metals and mineral fuels studies (cobalt, copper, iron ore, nickel, lead, zinc, and uranium), 3 industrial minerals studies, 2 mineral research studies (diatomite, magnesite, and metallurgical silica), and 1 geothermal study (Office National des Hydrocarbures et des Mines, 2016a, p. 12, 37; 2016c).

Government Policies and Programs

The Government's objective was to triple revenues from the mining industry by 2025, to increase the value of investment in mineral exploration tenfold, and to double the number of direct jobs in the sector to 30,000. The Government established targets for the mining industry (excluding phosphate rock and phosphate-based fertilizer and products sector) that included increasing the value of the industry's economic activity to more than \$2 billion, increasing investment in exploration to \$500 million, and creating 15,000 new jobs (Manar and Mankoub, 2014; Ministère de l'Énergie, des Mines, de l'Eau et de l'Environnement, 2016a; Office National des Hydrocarbures et des Mines, 2016c).

In February 2015, Morocco's legislative body, which includes the House of Representatives and the House of Councilors, approved the country's new mining law (Bill 33–13), which is an overhaul of the 1951 Mining Code and Code Bill No. 1–73–412 of August 13, 1973. The new law is designed to attract foreign investment, boost exports, and help ensure that companies respect the Government's labor and environmental laws.

The Directorate of Mines enforces the law through executive orders. Exploration permits are awarded for an initial 3-year period for an area that covers up to 16 square kilometers (km²). The permits are renewable for 4 additional years. Exploitation permits are awarded for 4-year periods, and are renewable for 12 years in 4-year increments. The Government provides incentives for mining companies that include tax exemptions on imported equipment for an investment that exceeds \$25 million and a reduced tax rate of 17.5% for companies that export their output and for companies that supply ores to mineral processing and beneficiation companies. The Government also contributes 5% of the project value to mining projects that invest more than \$25 million. The Government contribution goes to infrastructure development, such as building roads and supplying

electricity and water to the project areas (Office National des Hydrocarbures et des Mines, 2016c).

Ministère de l'Énergie, des Mines, de l'Eau et de l'Environnement (MEM), [Ministry of Energy, Mines, Water, and Environment] is the Government agency responsible for oversight of the energy and mining sector. Under the MEM, a wide range of central and regional agencies manage activities related to electricity consumption and production, geologic studies, hydrocarbon exploration and production, mining, and development of renewable energy. The Ministère de l'Équipement, du Transport et de la Logistique [Ministry of Equipment, Transport and Logistics] is responsible for regulating building materials activities, including quarrying. The ONHYM is the primary agency responsible for the exploration and promotion of investment in the country's mineral resources.

In 2015, the ONHYM had several ongoing mining projects, including 60 drilling programs at Aghracha, Essarih, Imlily, and Lahjeyra P3 in Awsered Province; Iraouene-Mouzaref in Zagora Province; and Laayoune basin in Laayoune Province. ONHYM also partnered with several local and international mining companies for the development of a number of mining projects, including with Maya Gold and Silver Inc. of Canada (Maya Gold) for the exploration and development of the Boumadine polymetallic deposit, which is located in the Er Rachidia Province; with Managem, which was developing the Had Imwan gold project; with Metalex Ventures Ltd. of Canada, which was exploring for copper and gold at the Tichla Awsered area in southern Morocco; and with Newmont Mining Corp. of the United States, which was exploring for gold in central Morocco (Ministère de l'Énergie, des Mines, de l'Eau et de l'Environnement, 2016b; Office National des Hydrocarbures et des Mines, 2016a, p. 36–37).

In 2015, the Government was focused on reducing its fuel and electricity imports and on meeting the projected increase in power demand through conventional and renewable energy sources. Morocco was the leading importer of hydrocarbons in North Africa in 2015; its energy imports were valued at \$6.2 billion in 2015, which were 26% less than those of 2014 owing to a decrease in crude petroleum prices on the world market. Energy consumption had been increasing by 5.1% annually. Thus, the Government planned to expand the country's capacity for hydroelectric, solar, and wind power generation, which could increase the share of renewables in the energy mix to 42% by the year 2020 from the current share of 8%. The Government sought to install 2,000 megawatts (MW) of solar power generating capacity by 2020 by building large-scale solar powerplants using modern solar thermal, photovoltaic, and concentrated solar power techniques at five locations—the Ain Beni Mathar in central Morocco, the Boujdour in Western Sahara, the Laayoune in Western Sahara, the Ouarzazate, and the Tarfaya south of Agadir. These powerplants were expected to meet 20% of the country's electricity demand when completed in 2019. The Ouarzazate thermo-solar powerplant would have a total capacity of 580 MW by 2018. Construction on the 160-MW-capacity first phase of the Ouarzazate concentrated solar powerplant, Noor complex, began in 2013 and was completed in 2015. The first and second phases of the Ouarzazate thermo-solar powerplant were expected to

cover 3,000 hectares and to generate electricity that would power more than 1 million homes in the Ouarzazate area in southern Morocco by 2018 (Zafar, 2014; Office National des Hydrocarbures et des Mines, 2016b; Parke, 2016).

Production

Morocco extracted 30.3 million metric tons (Mt) of phosphate rock in 2015; commercial production, however, amounted to 26.3 Mt, which was 4% less than the 27.4 Mt produced in 2014. Notable increases in the quantity of mineral commodity production in 2015 compared with that of 2014 included montmorillonite (ghassoul), by 43%; gold, by 38%; cobalt metal and hot-rolled steel, by 24% each; salt, by 21%; barite and secondary lead, by 20%; lead and zinc metal content, by 18% each; zinc oxide, by 16%; fuller's earth, by 15%; nickel and silver, by 14% each; and arsenic trioxide and copper content of concentrates, by 10% each. Notable decreases in Morocco's mineral commodities output in 2015 compared with that of 2014 included petroleum refinery products, by 45%; mercury, by an estimated 38%; iron ore (gross weight and content), by 22%; manganese, by 21%; and phosphoric acid, by 10% (table 1; Office National des Hydrocarbures et des Mines, 2016a, p. 9).

Structure of the Mineral Industry

Managem S.A., also known as Groupe Managem, was a publicly listed company that produced base metals such as cobalt, copper, lead, nickel, and zinc; precious metals, such as gold and silver; and industrial minerals, such as arsenic, fluor spar, and sodium sulfate. Managem was the leading metal mining company in the country; it conducted mineral exploration, marketing, processing, and services through its subsidiaries. Managem operated mining development projects in Morocco and some other African countries and employed more than 5,660 people in 2015 (Managem S.A., 2016a, p. 13, 20, 52).

Artisanal or traditional mining has been practiced for many years in the Tafilalet and Figuig regions near Meknes. Artisanal mining for barite, lead, and zinc ores was permitted within the Central d'Achat et de Développement de la Région Minière du Tafilalet and Figuig (CADETAF), and mined products were sold to local collection centers, which were equipped with chemical analysis, storage, and weighing facilities. The Government took steps to support artisanal mining at CADETAF by improving working conditions and increasing productivity and safety (Ministère de l'Énergie, des Mines, de l'Eau et de l'Environnement, 2016c).

The Office Chérifien des Phosphates [Office of Moroccan Phosphates] (OCP), which is also known as OCP Group, was responsible for phosphate rock mining and phosphate-based fertilizer production in Morocco. OCP, which was wholly owned by the Government, was the country's sole producer of phosphate rock through its 27 subsidiaries and joint ventures. The company exported most of its output and used the revenues to help the Government reduce the country's trade deficit. In 2015, OCP's subsidiaries and joint ventures included Euro Maroc Phosphore (EMAPHOS), Indo Maroc Phosphore S.A. (IMACID), Jorf Fertilizer Co. V, Pakistan Maroc Phosphore, Paradeep Maroc Phosphates Ltd.,

Phosphates de Bou Craa S.A., Prayon, and Zuari Maroc Phosphates Ltd. (OCP Group, 2016, p. 25).

Phosphate rock mining and the phosphate fertilizer manufacturing sector accounted for about 5% of the country's GDP in 2015. OCP was planning to increase Morocco's share of the world's phosphate commodity market by increasing its exports to African countries, Brazil, and India (OCP Group, 2016, p. 10).

Mineral Trade

In 2015, Morocco's total exports decreased to \$18.5 billion from \$23.8 billion in 2014 and the value of imports decreased to \$32.5 billion from \$40.6 billion in 2014. Exports of phosphate rock and phosphate-based products decreased to \$4.3 billion from \$4.6 billion in 2014. The decrease in total exports was attributed to the lower value and quantity of fertilizer exports compared with those of the previous year. The value of hydrocarbon imports decreased for the second year to \$6.6 billion in 2015 from \$11.0 billion in 2014 and \$12.2 billion in 2013. The decrease in hydrocarbon imports was attributed to the decline in crude petroleum and natural gas prices on the world market (International Monetary Fund, 2016, p. 28; United Nations, 2016).

In 2015, Morocco exported 8.5 Mt of phosphate rock, which accounted for 29% of the world trade market, 2.0 Mt of phosphoric acid, and 4.3 Mt of phosphate fertilizer. The country imported 4.5 Mt of sulfur to produce 11.9 Mt of sulfuric acid and 1,000 metric tons (t) of potash for use in fertilizer manufacturing (OCP Group, 2016, p. 54).

U.S. exports to Morocco decreased to \$1.6 billion in 2015 from \$2.1 billion in 2014. Major minerals and metal-related exports included fuel oil (\$312 million), natural gas liquids (\$110 million), petroleum products (\$56 million), chemicals and nonmetallic minerals (\$32 million each), metallurgical-grade coal (\$25 million), steelmaking materials (about \$15 million), coal and iron and steel mill products (\$6 million each), excavation machinery (\$5 million), and drilling and oilfield equipment (\$2 million). United States imports from Morocco increased slightly to \$1.0 billion in 2015 from \$995 million in 2014. This total included chemical fertilizers (\$268 million), nonmetallic minerals (\$83 million), inorganic chemicals (\$13 million), and other nonferrous metals (\$8 million) (U.S. Census Bureau, 2016a, b).

Commodity Review

Metals

Cobalt and Nickel.—Compagnie de Tifnout Tighanimine, a subsidiary of Managem, mined cobalt and nickel ore at the Bou-Azzer Mine. The Bou-Azzer underground mine is located 35 kilometers (km) south of Marrakech in southern Morocco within the central Anti-Atlas Mountain range. Managem discovered an additional 2,800 t of cobalt in 2015 and estimated cobalt reserves at the mine area to be more than 15,000 t (cobalt content). The mine had the capacity to produce 2,500 t of cobalt and employed 1,600 people. Nickel was produced as a byproduct of cobalt production at the Guemassa metal complex, where the nickel was produced as nickel hydroxide during

concentration processes. In 2015, nickel production increased by 14% to 250 t from 220 t in 2014 (table 1; Managem S.A., 2016a, p. 20, c).

Copper.—In 2015, Morocco's output of mined copper increased by 10% to 73,170 t from 66,480 t in 2014; this was attributed to a 46% increase in production by Société Minière de Bou Gaffer (SOMIFER), a 14% increase (each) by Akka Gold Mining Co. (AKG) and Compagnie Minière d'Oumjrane S.A. (CMO), and a 10% increase by Compagnie Minière de Guemassa (CMG). CMO operated the Oumjrane Mine, which was an underground mine located at Alnif in Er Rachidia Province. Managem completed a feasibility study for the Bouskour copper project, which is located 80 km southeast of Ouarzazate and had an estimated 9 Mt of ore grading 1.61% copper, and progressed in developing a feasibility study for the Tizert copper project, which is located 80 km east of the city of Agadir and had estimated combined mineral resources of 35 Mt. Managem, through its subsidiary SOMIFER, had been mining copper at the Blieda Mine, which is located in the central Anti-Atlas Mountain region and had estimated mineral resources of 21.4 Mt. AKG, a subsidiary of Managem, operated the Akka Mine, which is located 280 km southwest of Agadir in the Anti-Atlas Mountain region (Managem S.A., 2016a, p. 6, 40, 44, 46, 126).

Gold.—Gold production in Morocco increased to 292 kilograms (kg) in 2015 from 212 kg in 2014. Gold was produced as a byproduct of copper and zinc mining by Managem's subsidiaries. In May 2014, Managem ended gold production at the Akka Mine owing to depletion of ore reserves (table 1; El Yaakoubi, 2014; Managem S.A., 2016b).

In 2015, Maya Gold held both exploration and exploitation licenses for its 80-km² Amizmiz project in southwestern Marrakech Province, where it was exploring for high-grade gold deposits. The company confirmed the existence of polymetallic gold-bearing vein deposits in multiple zones within the property. The drilling at Amizmiz was focused on the AZ and the TRN zones to better define the information in the National Instrument (NI) 43-101 technical report, which stated that the estimated inferred resource was 10,574 kg of gold (Maya Gold and Silver Inc., 2016b).

In 2015, Archean Group of India carried out a feasibility study for the Tafrent gold deposit in Ouarzazate Province. Archean estimated the mineral resources at the Tafrent deposit to be 6.1 Mt grading 1.18 grams per metric ton (g/t) gold at a cutoff grade of 0.8 g/t. Newmont Mining Corp. of the United States completed a partnership agreement with ONHYM in which Newmont completed a geochemical survey to identify anomalies north of the Akka Mine in the Western High Atlas region, but no significant gold mineralization was intersected. In 2015, ONHYM and Metalex Ventures Ltd. continued their exploration program at the Tichla Awserd copper-gold project by digging trenches and small pits and collecting geochemical samples (Office National des Hydrocarbures et des Mines, 2016a, p. 35).

Silver.—Morocco's silver mine output increased by 14% to 216,383 kg in 2015 from 190,242 kg (revised) in 2014. In 2015, Société Métallurgique d'Imiter (SMI), in which Managem owned 75.72%, increased its silver production at the

Imiter Mine by 12% to 206,921 kg from 185,577 kg. Zgounder Millennium Silver Mining, which was owned by Maya Gold (85%) and ONHYM (15%), produced 9,462 kg of silver at the Zgounder Mine; 2015 was the company's first full year of production at the mine (table 1; Managem Group S.A., 2016a, p. 40–41; 2016e; Maya Gold and Silver Inc., 2016d, p. 3). The Zgounder Mine is located 150 km south of Marrakech and had an estimated historical (2004) reserve of 582,000 t with an average grade of 361 g/t silver. The mine also had an estimated additional 500,000 t of tailings at an average grade of 125 g/t silver. In 2014, Maya Gold submitted an NI 43–101 preliminary economic assessment report on the Zgounder silver deposit. The mineral reserves estimates for the mine were 152,000 t of proven reserves and 421,000 t of probable reserves. Maya Gold planned to produce about 27,500 kilograms per year (kg/yr) in 2016 and 2017 and to increase its production to about 28,400 kg/yr from 2018 to 2020 (Maya Gold and Silver Inc., 2016d, p. 7; 2016e).

Maya Gold held exploration and mining licenses for six properties in Morocco, including the Amizmiz property, the Azegour Mine, the Boumadine polymetallic mine, Permit 233263, the Touchkat property, and the Zgounder silver mine. The Boumadine Mine, which was owned by Maya Gold (85%) and ONHYM (15%), is located in western Morocco near Tinejad and had estimated historical (1992) polymetallic reserves of 3.8 Mt grading 3.9% zinc, 0.86% lead, 203 g/t silver, and 3.6 g/t gold. The Amizmiz silver property was wholly owned by Maya Gold and held 10.6 Mt of inferred resources; no grade was available. The 233263 Permit was owned by Maya Gold (100%) and is located near the Imiter Silver Mines. The Touchkat property was prospective for an extension to the Zgounder Mine and was wholly owned by Maya Gold. In 2015, Maya Gold continued exploration and development activity on the Boumadine polymetallic deposit, which includes prospects for copper, gold, lead, silver, and zinc mining (Maya Gold and Silver Inc., 2017).

Tin.—In 2015, Kasbah Resources Ltd. of Australia completed the definitive feasibility study of the Achmmach tin project, which was located in the El Hajeb region, in the Central Hercynian Massif, about 140 km southeast of Rabat. The project was owned by Kasbah (75% interest), Toyota Tsusho Corp. of Japan (20%), and Nettetsu Mining Co. Ltd. of Japan (5%) and consisted of two exploitation permits (PE No 2912 and PE No 193172) that cover an area of about 32 km². In March 2015, Kasbah updated the total reserves at Achmmach to 9.22 Mt of ore at an average grade of 0.77% tin for about 71,000 t of contained tin, including 1.3 Mt of proven reserves grading 0.97% tin and about 8.0 Mt of probable reserves grading 0.74% tin. The company also wholly owned the Bou El Jaj tin project (BLJ), which is located about 15 km south of the Achmmach tin project; BLJ is the extension of a mineralized strip that is about 3 km wide and 12 km long (Kasbah Resources Ltd., 2016a, b).

Industrial Minerals

Barite.—Morocco's production of barite had doubled during the past 10 years, and the country had become the world's leading producer and exporter of barite after China and India.

Barite production increased by 20% to 1.2 Mt in 2015 from 1.0 Mt in 2014. Broychim S.A.R.L. was the country's leading producer and exporter of barite products; it held about 65% of market share. Broychim exported barite to 15 countries around the world, including the United States. The company expected a significant reduction in barite exports in 2016 owing to decreased worldwide demand by oil companies that use barite as an additive in oilfield drilling mud. Broychim operated six mines, including the Nkob and Touroug Mines. In 2015, the Touroug Mine had the capacity to produce 200,000 metric tons per year (t/yr) of barite. Other barite producers in Morocco included CADETAF, Compagnie Marocaine des Barytes S.A., Société Nord-Africaine de Recherches et d'Exploitation des Mines d'Argana, and Société Nouvelle Union des Métaux Maroc (tables 1, 2; Broychim S.A.R.L., 2016).

Cement.—In 2015, cement production increased to 16.0 Mt from 15.7 Mt in 2014. Morocco and Western Sahara's cement production capacity was more than 24 million metric tons per year (Mt/yr). The capacity included 1.9 Mt/yr of grinding capacity, of which 0.5 Mt was located in Laayoune in Western Sahara. Lafarge Maroc S.A., which was 50% owned by LafargeHolcim Ltd. of France (the country's leading producer of cement) held 38% of the country's total capacity. Holcim Maroc S.A., which was majority owned (61%) by Holcim Ltd. of Switzerland, held 22% of the country's total capacity; Ciments du Maroc S.A., which was majority owned (58.3%) by Italcementi Group of Italy, operated three cement plants at Ait Baha, Marrakech, and Safi; two grinding facilities at Jorf Lasfar and Laayoune; and three quarries for aggregates. Ciments du Maroc had the capacity to produce 3.3 Mt/yr of clinker and 5.5 Mt/yr of cement. Ciments de L'Atlas held a 13% share of the country's cement production capacity. In 2015, Ciments du Maroc and Italgen Maroc (a subsidiary of Italgen S.p.A. of Italy) were developing a method to use electricity generated by the solar powerplant at the Noor complex, which is located in the area of the Ait Baha plant, for cement production (table 2; International Cement Review, 2015, p. 238–239; Italcementi Group, 2016; Parke, 2016).

Fluorspar.—Société Anonyme d'Entreprises Minières (SAMINE), which was a subsidiary of Managem, produced acid-grade fluorite (CaF₂) from the El Hammam Mine, which was the only fluorite mine in Morocco; El Hammam was located at Khemisset, 63 km south of Meknes in the Middle Atlas region. The company, which had the capacity to produce 100,000 t/yr of fluorspar and employed 500 people, produced 73,879 t of acid-grade fluorspar in 2015 compared with 74,854 t in 2014 (Managem 2016a, p. 40; 2016d).

In 2015, the ONHYM, in partnership with Garrot Chaillac S.A. of France, was developing the fluorspar-lead-barium Zrahina deposit, which is located in the Western High Atlas region. In 2014, 100 t of ore from the Zrahina deposit was used in a pilot study to produce 97% acid-grade fluorite within specific metallurgical parameters and processing design (Office National des Hydrocarbures et des Mines, 2016a, p. 37).

Phosphate Rock.—In 2015, OCP produced 26.3 Mt of phosphate rock compared with 27.4 Mt in 2014, 4.5 Mt of phosphoric acid (P₂O₅), and 5.2 Mt of phosphate-based fertilizers. The company's capacity in 2015 was 36.6 Mt/yr

of phosphate rock, 7.4 Mt/yr (in terms of P₂O₅) of phosphate-based fertilizers, and 5.2 Mt/yr of phosphoric acid. The company's share in the phosphate rock trade market was 55% for phosphoric acid, 29% for phosphate rock, and 16% for phosphate-based fertilizers. OCP planned to increase its phosphate rock capacity to more than 60 Mt/yr by 2025. The company operated phosphate rock production and manufacturing plants at the Khouribga mining center, which included the Beni Amir, the Khouribga, the Merah El Ahrach, and the Sidi Chennane Mines; the Gantour mining center, which included the Beni Guerir, the Bouchane, and the Mzinda Mines; and the Bou Craa Mine, which is located in Western Sahara (OCP Group, 2016, p. 21, 24, 96).

Morocco held more than 50 billion metric tons (Gt) of phosphate rock reserves, which was about 73% of the world's phosphate rock reserves, including deposits in the disputed Western Sahara region. OCP, which employed 20,700 people, had committed to investing up to \$5 billion during the next decade to develop the infrastructure for new mines and washing plants and to shift the industry more towards beneficiation and fertilizer production (OCP Group, 2016, p. 24).

OCP operated the Beni Amir plant, which treated 5.5 Mt of phosphate rock from the Beni Amir Mine and 5 Mt extracted from the Sidi Chennane Mine. The El Beni Amir plant was the world's largest phosphate washing plant and had the capacity to wash 12 Mt/yr of phosphate rock. In February, OCP commissioned a new fertilizer production unit to help meet the demand from African countries and doubled its fertilizer exports to the African region as of yearend 2015 (OCP Group, 2016, p. 23–24, 31, 100, 137).

In 2014, OCP inaugurated the phosphate slurry pipeline that would transport phosphate rock from the Khouribga phosphate mine to Jorf Lasfar, where it would be processed and later exported. The 235-km-long pipeline had the capacity to transfer 38 Mt/yr of phosphate ore, thus reducing the cost of delivery and of water consumption by maintaining the natural moisture of the rock. A 300-acre site was set aside for the construction of phosphate processing plants, factories, storage warehouses, and new harbor facilities to export phosphate-based products. OCP planned to build a second 155-km-long slurry pipeline from the Gantour region, which hosts the Benguerir, the Bouchane, and the Mzinda Mines, to the Safi processing plant and port on the Atlantic coast. The pipeline would have the capacity to transport 10 Mt/yr of phosphate ore (OCP Group, 2016, p. 56, 96, 104).

Mineral Fuels

As of yearend 2015, the Government had awarded 70 offshore exploration permits, 30 onshore exploration permits, 4 offshore prospecting zones, 2 onshore prospecting zones, and 9 mining concessions (two of which were awarded to the ONHYM). The Government also signed four memoranda of understanding (MOUs) for the development of oil shale in the country. The holders of onshore permits included such companies as Anadarko Petroleum Corp. of the United States, Cabre Maroc Ltd., Circle Oil Morocco Ltd., East West Petroleum of Canada, Genel Energy plc of Turkey and the United Kingdom, Longreach Oil of Australia, Petro Petroleum Inc. and PetroMaroc Corp. plc (both of Canada),

Repsol Exploration Atlas S.A. of Spain, and San Leon Energy Plc of the United Kingdom. The companies that held offshore permits were Capricorn Exploration and Development Co. Ltd. (a subsidiary of Cairn Energy Plc of the United Kingdom), Chariot Oil and Gas Ltd. of the United Kingdom, Chevron Morocco Exploration Ltd. (a subsidiary of Chevron Corp. of the United States), Genel Energy Plc of Turkey and the United Kingdom, Galp Energia of Portugal, Kosmos Energy Ltd. of the United States, and Total S.A. of France (Office National des Hydrocarbures et des Mines, 2016a, p. 13,18, 21).

Natural Gas.—Morocco produced modest quantities of natural gas—41 million cubic meters in 2015 compared with 44 million cubic meters in 2014. The entire production came from the onshore Sebou gasfield, operated by Circle Oil Maroc Ltd., which was a joint venture of Circle Oil PLC of Ireland (75%) and ONHYM (25%). Additionally, the country received royalties (in the form of natural gas) for transmitting 9.74 billion cubic meters of natural gas from Algeria to Spain across its land in 2015. The Europe-Maghreb Pipeline netted Morocco 650 million cubic meters of natural gas in 2015 compared with 697 million cubic meters in 2014 (Office National des Hydrocarbures et des Mines, 2016a, p. 28).

Petroleum.—The Government's energy strategy, which sought to reduce dependence on hydrocarbon imports, established financial terms for hydrocarbon exploration agreements that would attract investment in the hydrocarbon sector. These terms capped the Government's share in hydrocarbon projects at 25%, which was less than the 50% share held by other North African countries (Algeria and Libya). More than 40 international oil companies were involved in drilling operations for oil and gas in Morocco, with some licenses extending to 25 years, allowing the companies to acquire 75% of the value of extractions in return for the companies investing part of their revenues in additional exploration operations and paying fees. In 2015, ONHYM's activities in hydrocarbon exploration included the amendment of 11 existing agreements, the awarding of 4 new prospecting contracts, and the signing of 1 new petroleum agreement and 1 MOU (Office National des Hydrocarbures et des Mines, 2016a, p. 21–22).

No oil shale was produced in Morocco in 2015; the country, however, had 10 known oil shale deposits that contained an estimated 3.5% of the world's oil shale resources. According to U.S. Energy Information Administration estimates, the oil shale deposits in Morocco and Western Sahara contained 567 billion cubic meters of technically recoverable shale gas and 200 million barrels of shale oil in place. Projected production from shale oil deposits was estimated to be 50,000 barrels per day. The oil shale deposits include the Tadla basin in Central Morocco; the Tarfaya basin in southwestern Morocco; Timahdit, which is the second largest deposit in Morocco and is located in the Middle Atlas Mountains; and the Tindouf basin, which extends across Morocco and Western Sahara. In 2012, core drilling at the deposit had identified estimated reserves of 42 Gt of oil shale containing an estimated 15 billion barrels of oil in place (U.S. Energy Information Administration, 2013, p. XIV–1; Tar Sands World, 2014; Office National des Hydrocarbures et des Mines, 2016a, p. 27).

In August 2015, Morocco's sole refining company, Société Anonyme Marocaine de l'Industrie du Raffinage (SAMIR), which operated the country's refineries at Mohammedia and Sidi Kacem, was shut down owing to financial issues. The closure of the refinery and the liquidation of SAMIR made Morocco entirely dependent on imports of refined petroleum products. No information was available on the future for the refinery as of yearend 2015 (El Yaakoubi, 2016).

Outlook

The Government is likely to continue taking steps to attract foreign investors, including implementing the new mining law (Bill 33–13 of 2015), carrying out mineral exploration through the ONHYM, and making geologic information available to mining companies. Morocco's mineral production is expected to increase as the country receives more foreign direct investment for silver and tin production projects as well as for mineral fuel exploration. OCP is increasing its investment in the phosphate sector and plans to increase its share of the world market for phosphate fertilizer, including that of Africa. Morocco increased production of silver, and expected production of tin could increase its share of total exports. Kasbah, Managem, and Maya Gold continued to develop tin and silver resources. Broychim is expected to produce a lesser amount of barite in 2016 owing to lower demand on the world market. Managem is increasing its output of copper, fluorite, lead, and zinc by increasing proven reserves of these mineral commodities.

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WESTERN SAHARA

In 2015, the main mining activities in Western Sahara included cement and phosphate rock production and offshore crude petroleum and natural gas exploration. The issue of sovereignty for Western Sahara, which was claimed by the Government of Morocco, the Saharawi Arab Democratic Republic (SADR), and the Popular Front for the Liberation of the Saguia el Hamra and the Rio de Oro (the Polisario), remained unresolved at yearend 2015. About 85% of the Western Saharan territory was administered by the Government of Morocco and the remaining 15% was under the administration of the Polisario. The territory is a desert area bordering the Atlantic Ocean between Mauritania and Morocco. Western Sahara's economy was dependent on fishing, pastoral nomadism, and phosphate rock mining (U.S. Central Intelligence Agency, 2016).

The Bou Craa phosphate rock mine, which was owned by Phosphate de Boucraa S.A. (Phosboucraa), was the main mineral production facility in Western Sahara. Phosboucraa was a majority owned subsidiary of OCP responsible for mining, beneficiation, transportation, and marketing of phosphate rock at the Bou Craa Mine. The company extracted 1.6 Mt of phosphate rock in 2015 compared with 1.8 Mt in 2014. Phosboucraa had the capacity to produce 3 Mt/yr at the mine. The mine had the world's longest conveyor belt, employed 2,200 people, and held 800 Mt of phosphate rock ore, which accounted for about 2% of Morocco and Western Sahara's reserves. Phosphate rock mined in Western Sahara was moved by the conveyor belt for a distance of more than 100 km to the Laayoune Wharf. The wharf contained a docking terminal for loading ships with phosphate ore and an intermediate dock for unloading ships carrying fuel oil to supply the phosphate processing plant. In 2015, Phosboucraa was building a new phosphate ore drying plant dedicated to phosphate rock exploration, along with a

new washing plant with an integrated flotation unit, and a new storage-and-handling facility. According to Western Sahara Resource Watch, 1.4 Mt of phosphate rock valued at \$168 million was exported by vessels in 2015 compared with 2.1 Mt valued at \$234 million in 2014. Phosphate rock exports went to the United States (34%), Canada (31%), New Zealand (14%), Lithuania (8%), and others (13%) (OCP Group, 2016, p. 96, 106, 185; Western Sahara Resource Watch, 2016, p. 10, 11).

The country's clinker mill, which was located in Laayoune city in Western Sahara and operated by Ciments du Maroc, had the capacity to produce 500,000 t/yr of cement. The mill used electricity that was generated by a wind farm built by Italgem S.p.A. of Italy at the mill site (Italcementi Group, 2016).

In 2015, several companies explored for crude petroleum and natural gas offshore and onshore of Western Sahara. They included San Leon Energy p.l.c. of Ireland, which operated the Tarfaya onshore block and the Zag offshore block; Glencore p.l.c. of Switzerland, which held an exploration license at the Boujdour Offshore Shallow Block; Cairn Energy p.l.c. New Age (African Global Energy) Ltd., PetroMaroc Corp., Teredo Oils Ltd., and Xplorer p.l.c. (all of the United Kingdom); Kosmos Energy Ltd. of the United States, which was exploring at the Boujdour Maritime Block; and Total S.A. of France (Kosmos Energy Ltd., 2016; Office National des Hydrocarbures et des Mines, 2016, p. 18–19, 21, 24).

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TABLE 1
MOROCCO AND WESTERN SAHARA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity ²	2011	2012	2013	2014	2015
METALS					
Antimony, antimony oxide	15,700	7,100	-- ^r	-- ^r	--
Cobalt:					
Concentrates, gross weight	21,587	20,100 ^r	20,330	21,500 ^r	22,460
Metal ³	1,718	1,314	1,353	1,391	1,722
Copper, mine, concentrate:					
Gross weight	43,000	59,000	46,320	66,480	73,170
Cu content	12,893	17,700	10,172	16,579	18,292
Gold, mine, Au content kilograms	520	519	320 ^r	212 ^r	292
Iron and steel:					
Iron ore:					
Gross weight	78,926	260,700	301,100	22,910	17,860
Fe content (54%)	43,000	140,000	160,000	12,000	10,000
Metal:					
Steel, crude	654,000	539,000	558,000	501,000 ^r	516,000
Hot rolled ^c	1,090,000	855,000	1,035,000	970,000	1,200,000
Lead:					
Concentrate:					
Gross weight	43,821	39,100	43,700	39,070	45,650
Pb content	36,500	15,600	17,435	13,812 ^r	16,325
Cuprous matte, Pb content	470	600	600	600	--
Metal, refined:					
Primary	36,469	38,000	38,000	38,000	40,000
Secondary ^c	3,000	2,500	2,500	2,500	3,000
Total ^c	39,500	40,500	40,500	40,500	43,000
Manganese ore, largely chemical-grade	58,000	90,200	110,970	91,271	71,700
Mercury ^c	9	8	8	8	5
Nickel content of nickel sulfate	217	288	175	220	250
Silver, mine, Ag content kilograms	186,090	173,400	194,008 ^r	190,242 ^r	216,383
Zinc:					
Mine, concentrate:					
Gross weight	90,129	92,000	82,500	89,570	106,010
Zn content	45,065	45,800	47,600	45,000	53,260
Zinc oxide	7,200	6,889	1,941 ^r	4,201 ^r	4,890
INDUSTRIAL MINERALS					
Arsenic trioxide	8,154	8,820	8,968	6,860 ^r	7,567
Barite, crude	769,504	1,021,400	1,094,470	1,006,600	1,212,130
Cement, hydraulic thousand metric tons	14,000	16,270	16,870	15,710	16,000
Clay, crude:					
Bentonite	97,071	91,200	105,240	98,757	92,290
Fuller's earth (smectite)	103,682	81,800	59,000	73,500	84,570
Montmorillonite (ghassoul)	1,419	1,900	1,990	810	1,160
Feldspar ^c	43,889 ⁴	45,000	45,000	45,000	45,000
Fertilizers (solid) thousand metric tons	4,350	4,500	4,659 ^r	4,800 ^r	5,210
Fluorspar, acid-grade	79,207	79,300	73,900	74,854	80,890
Phosphate rock, mine:					
Gross weight thousand metric tons	28,052	27,060	26,400	27,390	26,264
P ₂ O ₅ content do.	8,977	8,659	8,448	8,640	8,404
Phosphoric acid do.	4,888	4,158	4,700	5,000	4,500
Pyrophyllite	4,600	--	--	--	--
Salt:					
Rock	720,814	730,000	488,920	439,160	535,760
Marine	25,000	25,000	20,000	20,000	20,000
Total	745,814	755,000	508,920	459,160	555,760
Sulfur, refinery byproduct	53,000	62,000	60,000	60,000	60,000
Sulfuric acid ^c thousand metric tons	14,500	12,500	14,000	15,000	15,000
Talc	500	200	--	--	--

See footnotes at end of table.

TABLE 1—Continued
MOROCCO AND WESTERN SAHARA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity ²	2011	2012	2013	2014	2015
MINERAL FUELS AND RELATED MATERIALS					
Natural gas, dry million cubic meters	60	43	45	44	41
Petroleum:					
Crude thousand 42-gallon barrels	1,500	1,600	1,847	1,847	1,781
Refinery products:					
Liquefied petroleum gas do.	429	1,322	1,114	9,915	5,453
Gasoline do.	3,284	3,472	3,310	2,876	1,582
Jet fuel do.	4,219	6,955	8,406	7,185	3,952
Distillate fuel oil do.	17,374	19,722	16,121	16,443	9,044
Residual fuel oil do.	17,962	14,106	13,054	10,026	5,514
Other ³ do.	8,732	3,423	1,995	1,555	855
Total do.	52,000	49,000	44,000	48,000	26,400

⁶Estimated; estimated data are rounded to no more than three significant digits. ¹Revised. do. Ditto. -- Zero.

¹Table includes data available through January 5, 2017.

²In addition to the commodities listed, gypsum, perlite, and a variety of crude construction materials were produced, but available information was inadequate to make reliable estimates of output.

³Cobalt electrowon from cobalt concentrates and tailings from the Bou-Azzer Mine.

⁴Reported figure.

TABLE 2
MOROCCO AND WESTERN SAHARA: STRUCTURE OF THE MINERAL INDUSTRIES IN 2015

(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 Managem S.A. (CTT Managem) (Managem S.A., 55.2%, and Société Metallurgique d'Imiter, 20%)	Guemassa, Marrakech	6,100
Barite	Central d'Achat et de Développement de la Région Minière du Tafilalet et de Figuig (CADETAF) (artisanal miners)	Errachidia, Figuig, and Ouarzazate	16,000
Do.	Broychim S.A.R.L.	Casablanca	120,000
Do.	do.	Safi	30,000
Do.	do.	Nkob Mine, Ouarzazate	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%]	Tlet Ighoud, Safi	160,000
Do.	do.	Zelmou, Figuig	110,000
Do.	Société Nord Africaine de Recherches et d'Exploitation des Mines d'Argana (SNAREMA)	Seksoua, Marrakech	120,000
Do.	Société Nouvelle Union des Metaux Maroc (SNUMM)	Jbel Abdallah, Errachidia	12,000
Barite, chemical grade	Société Nord Africaine de Recherches et d'Exploitation des Mines d'Argana (SNAREMA)	Argana	30,000
Cement, portland	Asment de Temara S.A. (Cimentos Asment EAA, 63%; PROCIMAR, 21%; Cement Francais, 16%)	Kiln and mill at Temara	1,250,000
Do.	Ciments de L'Atlas (CIMAT)	Beni Mellal kiln and mill	1,600,000
Do.	do.	Settat kiln and mill	1,600,000
Do.	Lafarge Maroc S.A. (Lafarge Group, 50%)	Bouskoura, near Casablanca	3,000,000
Do.	do.	Tetouan, south of Casablanca	2,500,000
Do.	do.	Cadem clinker mill at Meknes	1,750,000
Do.	do.	Tamuda kiln and mill, Tetouan	800,000
Do.	do.	Grinding unit at Tangier	1,000,000
Do.	Holcim Maroc S.A. (Holcim AG., 61%)	Kiln and mill at Oujda	1,300,000
Do.	do.	Settat kiln and mill	1,700,000
Do.	do.	Fes, Ras El Ma kiln and mill	1,300,000
Do.	do.	Fes, Doukkarat clinker mill	600,000
Do.	do.	Nador clinker mill	400,000

See footnotes at end of table.

TABLE 2—Continued
MOROCCO AND WESTERN SAHARA: STRUCTURE OF THE MINERAL INDUSTRIES IN 2015

(Metric tons unless otherwise specified)

Country and commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
MOROCCO—Continued			
Cement, portland—Continued	Ciments du Maroc S.A. (Italcementi Group, 58.3%)	Kiln and mill at Ait Baha	2,200,000
Do.	do.	Kiln and mill at Marrakech	1,300,000
Do.	do.	Kiln and mill at Safi	1,000,000
Do.	do.	Jorf Lasfar clinker mill	500,000
Clay:			
Bentonite	Société Minière Bentonite d'Afarha S.A. [Grupo Tolsa, 80%, and Office National des Hydrocarbures et des Mines (ONHYM), 20%]	Aferha	9,200
Do.	Société d'Exploitation des Mines du Rif (SEFERIF) [Office National des Hydrocarbures et des Mines (ONHYM), 100%]	Bou Hoed, near Ouixane	15,000
Do.	Compagnie Marocaine des Barytes (COMABAR) [Norbar Minerals AS, 55%, and Office National des Hydrocarbures et des Mines (ONHYM), 45%]	Azzouzet-Tidiennit	5,000
Do.	North African Industrial Minerals Exploration S.A.R.L. (S&B Group)	Trebia Mine	NA
Common	Société du Ghassoul et de ses Dérivés Sefrioui SA	Tamdafelt	NA
Do.	Antonio Reyes Mines S.A.	Haddou Ammar, Nador	NA
Cobalt:			
Ore, gross weight	Compagnie de Tifnout Tighanimine (Managem Group S.A.)	Bou-Azzer, Ouarzazate	200,000
Metal	do.	Guemassa, Marrakech	2,500
Copper, concentrate	Société Minière de Bou Gaffer (SOMIFER) (Managem S.A., 100%)	Bleida. central Anti-Atlas	50,000
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.	Akka Gold Mining Company [Managem S.A., 50.02%, and Office National des Hydrocarbures et des Mines (ONHYM), 16.07%]	Iourim, Tiznit	30,000
Do.	Compagnie Minière d'Oumjrane S.A. (Managem S.A., 100%)	Oumjrane, Errachidia	20,000
Fluorspar, concentrate	Société Anonyme d'Entreprises Minières (SAMINE) (Managem S.A., 100%)	El Hammam, Khemisset	100,000
Iron and steel:			
Iron ore	Société d'Exploitation des Mines du Rif (SEFERIF) [Office National des Hydrocarbures et des Mines (ONHYM), 100%]	Bouhoua, Nador	120,000
Do.	Compagnie Minière de Guemassa (CMG) [Managem S.A., 74%, and Bureau de Recherches de Participations Minières (BRPM), 23.08%]	Douar Hajar Mine, Guemassa, Marrakech	29,900
Steel:			
Bars	Société Nationale de Sidérurgie (Sonasid) (Nouvelles Sidérurgies Industrielles, 64.86%, and other investors, 35.14%)	Mill at Jorf Lasfar	300,000
Do.	Univers Acier S.A.	Mill at Sidi Hajjaj Oued Hassar, Casablanca	720,000
Crude	Société Nationale de Sidérurgie (Sonasid) (Nouvelles Sidérurgies Industrielles, 64.86%, and other investors, 35.14%)	Jorf Lasfar	500,000
Do.	Univers Acier S.A.	Plant at Sidi Hajjaj Oued Hassar, Casablanca	140,000
Wire rod	do.	Titmellil, Casablanca	300,000
Do.	Société Nationale de Sidérurgie (Sonasid) (Nouvelles Sidérurgies Industrielles, 64.86%, and other investors, 35.14%)	Mill at Nador, Nodor Province	650,000

See footnotes at end of table.

TABLE 2—Continued
MOROCCO AND WESTERN SAHARA: STRUCTURE OF THE MINERAL INDUSTRIES IN 2015

(Metric tons unless otherwise specified)

Country and commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
MOROCCO—Continued				
Lead, metal ¹		Société des Fonderies de Plomb de Zellidja (SFPZ) (Zellidja S.A., 50.4%)	Oued El Heimer	70,000
Lime		Lafarge Calincor Maroc (Lafarge Group)	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 SA (COMILOG), 30%]	Imini, Ouarzazate	14,000
Natural gas	million cubic meters	Circle Oil Maroc Ltd. (COML), 75%, and Office National des Hydrocarbures et des Mines (ONHYM), 25%	Sebou gasfield	72
Nickel, metal		Compagnie de Tifnout Tighanimine (Managem Group S.A.)	Bou-Azzer, Ouarzazate	250
Petroleum, refinery products	thousand 42-gallon barrels	Société Anonyme Marocaine de l'Industrie du Raffinage (SAMIR) (Group Corral Petroleum, 64.7%, and general public, 35.3%)	Mohammedia ²	75,000
Do.	do.	do.	Sidi Kacem ³	9,500
Phosphate rock		Office Chérifien des Phosphates (OCP) (Government, 100%)	Khouribga mining center (Beni Amir, Khouribga Mine, Merah El Ahrach, Sidi Chennane)	22,600,000
Do.		do.	Gantour mining center (Ben Guerir, Bouchane, Mzinda)	14,000,000
Phosphoric acid, P ₂ O ₅		Office Chérifien des Phosphates (OCP)	Maroc Chimie I and II, Safi	500,000
Do.		do.	Maroc Phosphore I and II, Safi	1,150,000
Do.		do.	Maroc Phosphore III, IV, Jorf Lasfar	1,500,000
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%]	Jorf Lasfar	430,000
Do.		Bunge Maroc Phosphore (Office Chérifien des Phosphates (OCP), 50%, and Bung Brasil, 50%)	do.	375,000
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
Phosphoric acid, P ₂ O ₅ (purified)		Euro-Maroc Phosphore Co. [Office Chérifien des Phosphates (OCP), 33%; Société Chimique Prayon-Rupel, 33%; Chemische Frabrik Budenheim KG, 33%]	do.	150,000
Salt:				
Rock		Société de Sel de Mohammedia (SSM) [Office National des Hydrocarbures et des Mines (ONHYM), 100%]	Ain Tekki, Mohammedia	226,500
Marine		Société Chérifienne des Sels (SCS) [Government, 50%, and Société Nouvelle des Salins du Sine Saloum (SNSSS), 50%]	Lac Zima, Safi	30,000
Silver	kilograms	Société Metallurgique d'Imiter (SMI) (Managem S.A., 75.72%, and general public, 24.28%)	Imiter Mine, Imiter	230,140
Do.	do.	Zgounder Millenium 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
Cold-rolled sheet		Maghreb Steel S.A.	do.	250,000
Sulfuric acid		Bunge Maroc Phosphore S.A.	Jorf Lasfar	1,250,000
Do.		Indo Maroc Phosphore SA (IMACID)	do.	1,200,000
Do.		Maroc Phosphore III-IV [Office Chérifien des Phosphates (OCP)]	do.	5,800,000
Do.		Pakistan Maroc Phosphore S.A (PMP)	do.	1,300,000
Do.		Office Chérifien des Phosphates Group (OCP)	do.	3,200,000
Do.		Maroc Chemei [Office Chérifien des Phosphates (OCP)]	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

See footnotes at end of table.

TABLE 2—Continued
MOROCCO AND WESTERN SAHARA: STRUCTURE OF THE MINERAL INDUSTRIES IN 2015

(Metric tons unless otherwise specified)

Country and commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
<u>MOROCCO—Continued</u>			
<u>Talc and pyrophyllite:</u>			
Pyrophyllite	Société Industrielle Minière Marocaine (IMM)	Khenifra	NA
Talc	Société Zenaga	Tinjdad, Errachidia	NA
Do.	do.	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 Mine, Guemassa, Marrakech	170,000
Do.	do.	Draa Sfar	NA
Do.	Société des Mines de Tennous (SOMITE)	Aguerd N'Tazoult, Azilal	NA
Do.	Société Mineral et Substances	Lalla Mimouna, Taza	NA
<u>WESTERN SAHARA</u>			
Cement	Ciments du Maroc S.A. (CIMAR) (Italcementi Group, 58.3%)	Laayoune, grinding	500,000
Phosphate rock	Phosphates de Bou Craa S.A. [Office Chérifien des Phosphates (OCP), 65%]	Open pit mine, Bou Craa mining center	2,000,000

Do., do. Ditto. NA Not available.

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

²Shut down in August 2015.

³Shut down in 2008.