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The Mineral Industry of Egypt

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Egypt was a significant producer of cement, direct-reduced iron (DRI), and hydrocarbons in 2009. It was the leading African country in petroleum products output, the second ranked producer of natural gas in Africa after Algeria, and the fifth ranked producer of crude oil in Africa. Egypt was responsible for 2.1% of the world's total natural gas output and 0.9% of the world's crude oil supply. Egypt was the world's 11th ranked cement producer and accounted for 1.5% of the world's cement production. The country was the world's seventh ranked producer of DRI and accounted for 4.5% of the world's total production. Additionally, Egypt produced aluminum, barite, basalt, bentonite, coke, construction sand and gravel, dolomite, feldspar, ferroalloys, granite, gypsum, ilmenite, iron and steel, iron ore, kaolin, limestone, manganese, marble, phosphate rock, quartz, salt, sandstone, secondary copper, silica sand, talc, and vermiculite (BP p.l.c., 2010, p. 8, 24; Midrex Technologies, Inc., 2010, p, 7; Organization of the Petroleum Exporting Countries, 2010, p. 42; van Oss, 2011).

Minerals in the National Economy

In 2009, the Egyptian economy grew at a rate of 4.7% in real terms compared with 7.2% in 2008. The economic activity of the mining sector in Egypt was 14.9% of the country's gross domestic product (GDP) compared with 15.6% of the GDP in 2008 and 15.2% of the GDP in 2007. Construction and building activity increased by 20% in 2009 compared with that of 2008 because of large infrastructure projects that were developed by the Government in the housing, public works, and transportation sectors. Investment spending on natural gas projects increased by 41% and decreased by 50% on crude oil production projects compared with that of 2008 (Bank Audi S.A.L., 2010b, p. 3-4).

Net foreign direct investment (FDI) played an important role in Egypt's mineral industry. Net FDI increased by 53.4% to $3,781 million in 2009 from $2,464 million in 2008. The United Kingdom was the source of most of the FDI, followed by the United States, the United Arab Emirates, Saudi Arabia, and Italy (Bank Audi S.A.L., 2010b, p. 5).

Government Policies and Programs

The draft of the new mining law, which was prepared by the Egyptian Mineral Resources Authority (EMRA) with the help of the International Finance Corp. (IFC) of the World Bank Group in 2008, was still waiting for Parliamentary and Presidential approval as of yearend 2009. Investment law No. 8 of 1997, was the legal framework for several mining companies that were established in the country in the past decade. The law protects investments in the country against nationalization and provides incentives for investing in mining and the manufacturing of fertilizer and petrochemicals in the country's Free Zones.

The Government designated gold production and natural gas processing, treatment, and transportation projects as strategic projects for the development of the mineral sector. The Egyptian Mineral Resources Scientists Council of the Ministry of Petroleum developed a long-term mining strategy for the country. The national strategy was focused on developing the mineral resources of the Abu Tartur phosphate rock reserves, which are located in the Western Desert; the Al Wadi Al Gadid phosphate project, which is located in the southeastern part of the country; and the Sinai Peninsula. The Abu Tartur project was under the control of an investment production company owned by the Ministry of Petroleum, the Ministry of Finance, and the National Investment Bank (Ministry of Petroleum, 2010).

Egypt's fertilizer manufacturing industry, which produced about 10 million metric tons per year (Mt/yr) of nitrogen and phosphate fertilizers, attracted foreign investors because of the country's large mineral resources of phosphate rock, the availability of natural gas, and Egypt's proximity to world consumers in Africa, Europe, and South Asia. A consortium of local banks that included Arab African International Bank, Banque du Caire, Banque Misr, and National Bank of Egypt approved a $1,050 million 9-year loan to the Egyptian Nitrogen Products Co. (ENPC), which was a wholly owned subsidiary of Misr Fertilizer Production Co. S.A. (MOPCO). The loan would be used to triple MOPCO's fertilizer production at the Rehab Industrial Free Zone in Damietta (Bank Audi S.A.L., 2010a, p. 4).

Production

The mineral commodities for which production increased in 2009 compared with that of 2008 included cement, crude oil, DRI, ferrosilicon, granite, gypsum, ilmenite, iron ore, limestone, manganese, natural gas, phosphate rock, quartz, salt, sulfur, and vermiculite. Notable decreases in production compared with their respective levels of production in 2008 included that of ammonia, coal, coke, crude steel, dolomite, fluorspar, kaolin, lime, marble, pig iron, sandstone, total refined petroleum products, and urea (table 1).

Structure of the Mineral Industry

The Ministry of Petroleum was in charge of managing the country's metals, industrial minerals, and mineral fuel industries through five independently managed entities—the Egyptian General Petroleum Corp. (EGPC), the Egyptian Natural Gas Holding Co. (EGAS), the EMRA, Ganoube El Wadi Holding Co. (Ganope), and the Egyptian Petrochemical Holdings Co. (ECHEM). The EMRA was responsible for the exploration and exploitation for Egypt's mineral resources (excluding hydrocarbons), and the Egyptian Company for Mineral Resources (ECMR) was EMRA's production arm. The EGPC managed the exploration for and the production,

refining, marketing, and distribution of crude oil. The EGAS administered the country's natural gas activities, including the exploration for and the marketing, processing, production, treatment, and transportation of natural gas. Ganope was responsible for all natural gas and crude oil activities in Upper Egypt. The ECHEM carried out all the petrochemical operations in the country.

The Industrial Development Authority (IDA) of the Ministry of Trade and Industry (MTI) was responsible for issuing licenses for new cement and steel plants as well as for expanding the capacities of the existing plants. One of MTI's charges was to ensure the presence of a sufficient supply of cement, reinforcement bar (rebar), and other building materials in the local markets.

The Holding Company for Metallurgical Industries was an Egyptian joint stock holding company (E.J.S.C) organized to operate under the provisions of the public Enterprise law. Its affiliates included Aluminium Co. of Egypt (Egytalum), Delta Steel Mill Co., Egyptian Copper Works Co., Egyptian Ferroalloys Co., Egyptian Iron and Steel Co. (Hadisolb), Egyptian Co. for Metallic Construction, El Nasr Coke and Chemicals Co., El Nasr Forging Co., El Nasr Mining Co., El Nasr Pipes and Fittings Co., and the General Co. for Ceramics and Porcelain.

El Nasr Mining produced several mineral commodities, including barite, clay, feldspar, gypsum, ilmenite, iron ore (iron oxide), kaolin, magnesite, phosphate rock, quartz, and talc. TAS Flowrance Group was a private company that produced and exported dolomite, feldspar, fluorite, granite, limestone, marble, phosphate rock, quartz, sandstone, silica sand, and talc from its mines at Aswan, El Minya, and the Red Sea coast (El Nasr Mining Co., 2009; TAS Flowrance Group, 2010).

The ECMR, which was corporate entity of the EMRA, produced 15 mineral commodities in 2009, including bentonite, calcium carbonate, feldspar, fluorspar, granite, gypsum, ilmenite, iron ore (oxide pigments), marble, phosphate rock, quartz, talc, tantalum, white sand, and vermiculite. ECMR was also a partner with Gippsland Ltd. of Australia to develop Abu Dabbab's tantalum-tin-feldspar deposit and Wadi Allaqi's gold-copper-nickel deposit. The company also created a joint venture, Quartz Misr, with local investors to exploit marketable quartz deposits in the Eastern Desert of Egypt (Egyptian Company for Mineral Resources, 2010).

EMRA was also a 50-50 partner with Centamin Egypt Ltd. of Australia in the development of the Sukari Gold Mine project. The cement and steel markets had both state-owned and private producers, but were dominated by private companies. MTI was responsible for issuing licenses to build cement, fertilizer, and steel plants and for regulating the cement and steel markets. MTI issued 8 permits for new cement plants and 2 for the expansion of existing plants and announced plans to offer 12 permits to build cement plants in 2010 to meet the country's increasing demand for cement (Hasan and others, 2009, p. 44; Thomson Reuters, 2010).

Mineral Trade

In 2009, Egypt's total exports were valued at $23.1 billion, which was a decrease of 18% compared with $29.8 billion in 2008. The value of petroleum products exports decreased by 30% to $6.3 billion in 2009 from $9.0 billion in 2008. The value of mineral industry exports, which included crude oil and natural gas, iron and steel products, petroleum products, and unalloyed aluminum, was 45.6% of total exports compared with 26.8% of total exports in 2008. The value of petroleum products exports was 23.7% of total exports, including crude oil exports, which was 19.7% of total exports. The value of articles of iron and steel exports was l.2%, and that of unalloyed aluminum was 0.2% of total exports. The volume of cement exports decreased to about 900,000 metric tons (t) from about 1.7 million metric tons (Mt) in 2008 and 4.7 Mt in 2007. The sharp decrease in cement exports was attributed to the Government's ban on exports for most of 2008 and 2009 and to the increased demand for cement in the local market (Bank Audi S.A.L, 2010a, p. 5; 2010b, p. 3-5).

The value of Egyptian imports decreased by about 19% to $45.6 billion in 2009 from $56.6 billion in 2008. The value of petroleum products imports was 7.5% of the total value of imports compared with 9.3% in 2008 and 14.4% in 2007. The value of imports of iron and steel products was 6.7% of the total value of imports in 2009 compared with 8.7% in 2008 and 10.4% in 2007. The value of crude oil imports was 3.1% of the total value of imports in 2009 compared with 7.5% in 2008 and 11.6% in 2007 (Bank Audi S.A.L., 2010b, p. 3-4).

In 2009, the trade balance in Egypt shifted for finished and semifinished steel as the country became a net importer of manufactured steel. Egypt was the second ranked importer of rebar in the Middle East and North Africa region after the United Arab Emirates. The volume of Egypt's exports of finished and semifinished steel products decreased to 337,000 t from 1,065,000 t in 2008. The volume of finished and semifinished steel products imports, however, increased to more than 5.5 Mt in 2009 from about 3.1 Mt in 2008. The majority of steel rebar imports (90%) was from Turkey. Imports of flat steel products were mainly from Russia and Ukraine combined (29%), Saudi Arabia (25%), Libya (13%) and others (21%). Steel imports from Turkey triggered the Government to accuse the Turkish steel exporters of dumping. Hadisolb was among the companies that filed a dumping complaint against Turkish steel exporters. Hadisolb sold only 60% of its steel products, which the company attributed to alleged Turkish steel dumping in Egypt's steel market. Egypt scrap imports decreased by 46% to 1.3 Mt compared with 2.4 Mt in 2008 (Arab Steel, 2009; 2010; World Steel Association, 2010, p. 64, 66, 118).

Commodity Review

Metals

Aluminum.—Egyptalum, which was a majority state-owned company (80% interest), was the main producer of primary aluminum in Egypt from its aluminum smelter at Nag Hammady, which was located 100 kilometers (km) north of Luxor. It continued with work on its capacity expansion project, which aimed to increase production of aluminum to 320,000 metric tons per year (t/yr) from 266,000 t/yr by yearend 2010. The expansion plan called for adding a sixth potline

and converting the existing Soderberg cells into anode cells. Other primary and secondary aluminum producers included Al Saad Aluminium Co., Arab Aluminium Co. S.A.E., Egyptian Aluminium Products Co. (Alumisr), Egyptian Copper Co. (a subsidiary of Metallurgical Industries Co. E.J.S.C.), General Metals Co., and Helwan Company for Non-Ferrous Industries (Aluminium International Today, 2009).

Copper.—Gippsland completed drilling operations at the Abu Swayel prospect, which was a copper-nickel prospect located 160 km southeast of Aswan. The company identified a copper-nickel mineralization zone, including chalcopyrite, which varied in thickness from 4 to 18 meters (m) alongside historical sites that were mined by the ancient Egyptians (Gippsland Ltd., 2010, p. 7).

Gold.—In June, the Sukari Gold Mine Co. poured its first gold bar, and in December, the company achieved an optimal design throughput at the Sukari gold project and began exporting gold to an overseas gold refinery in January 2010. The Sukari Gold Mine is located about 23 km southwest of Marsa Alam in Egypt's eastern desert and was the first modern large-scale operating open pit gold mine in Egypt. The mineral resources of the mine as of yearend 2009 were estimated to include measured reserves of 78.3 Mt of ore at a cutoff grade of 1.48 grams per metric ton (g/t) gold; indicated reserves of 131.9 Mt of ore at a cutoff grade of 1.52 g/t gold; and inferred reserves of 66.3 Mt of ore at a cutoff grade of 1.60 g/t gold. Centamin planned to produce 6,200 kilograms per year (200,000 troy ounces per year) of gold starting in 2010 (Centamin Egypt Ltd., 2010; Mbendi Information Service (Pty) Ltd., 2010).

Gippsland moved forward with exploration works at eight gold prospects and one copper-nickel prospect at the Wadi Allaqi region, which is located 250 km southeast of Aswan in the Eastern Desert. Gippsland's drilling program identified several mineralization areas, including at Seiga, which had an estimated inferred gold resource of 2,635 kilograms (kg) (Gippsland Ltd., 2010, p. 7).

Hamash Gold Mine, which was located 100 km west of Marsa Alam in southeastern Egypt, produced 60 kg of gold in 2009. The mine, which produced its first gold alloy in 2007, was a heap-leach production operated by Hamash Egypt for Gold Mines, which was a 50-50 joint venture company of Cypriot Matz Holdings of Cyprus and EMRA (Mineweb, 2009; Ministry of Petroleum, 2010).

Iron and Steel.—The apparent consumption of steel products in Egypt had been increasing steadily since 2006. It increased by 96% to 9,154 Mt in 2009 from 4,663 Mt in 2006 and it was projected to increase to 9,703 Mt in 2010. In January, the Egyptian Competition Authority (ECA) ruled that there was no monopoly in Egypt's steel market. The ruling followed a 30-month investigation by ECA. The investigation, which was requested by the MTI, found no evidence that Al Ezz Steel Rebars (Ezz Steel), which had a 58% share of the steel market, or other steel companies violated Article 6 of the country's anti-monopoly law. In 2009, Ezz Steel had a production capacity of 5.8 Mt/yr of flat steel, rebar, and wire steel products at its four plants, which were located in Al Asher Ramadan, Alexandria, Sadat City, and Suez. The remaining 22 steel producers had a combined capacity of about 6 Mt of finished steel products (El Madany, 2009; Al Ezz Steel Rebars, 2010).

Tantalum and Tin.—Tantalum Egypt J.S.C., which was a 50-50 joint venture of EMRA and Tantalum International Pty Ltd. (a wholly owned subsidiary of Gippsland), continued its preparation work to begin tantalum production at the Abu Dabbab and the Nuweibi tantalum-tin-feldspar deposits, which are located in southeastern Egypt near the Red Sea coast. The two deposits have combined Joint Ore Reserves Committee (JORC)-compliant resource of 142.5 Mt of ore at a cutoff rate of 100 g/t of tantalum pentoxide (Ta_2O_5). In December 2008, Gippsland announced its intention to produce SynCon, which is a tantalum concentrate that contains 55% Ta_2O_5. Gippsland signed an offtake agreement with H.C. Starck GmbH of Germany for the supply of 600,000 t/yr of Ta_2O_5 for 10 years from the Abu Dabbab project. In addition to Ta_2O_5, the Abu Dabbab Mine was expected to produce 1,530 t/yr of tin metal in concentrate, which would be sold on the open market. Commissioning of production at the Abu Dabbab Mine was scheduled for 2012. The Nuweibi site contained 98 Mt of tantalum-tin-feldspar mineral resources, which was double that of the Abu Dabbab deposit, but the metal grade of Ta_2O_5 was 40% lower than that of the Abu Dabbab. Given the size of identified resources of 142.5 Mt from the Abu Dabbab and the Nuweibi deposits, Gippsland expected to become the world's leading producer of tantalum for many years to come (Mining in Africa, 2009, p. 4; Gippsland Ltd., 2010, p. 5).

Industrial Minerals

Cement.—Production of cement increased by about 17% in 2009 compared with that of 2008. Most of the increase was because of the entry of new cement plants into production as well as the capacity expansions of the existing plants. The country was expected to add a total of 13.5 Mt/yr of cement production capacity in 2010 and 2011 because of the expected commencement of seven 1.5-Mt/yr-capacity greenfield cement plants and two 1.5-Mt/yr expansion lines. MTI, which estimated a 25% to 30% increase in demand for cement in 2009, predicted that Egypt's production capacity of cement would be 77 Mt/yr in 2020 compared with 58 Mt/yr at yearend 2009 (Hasan and others, 2009, p. 44; Thomson Reuters, 2010).

In April, MTI banned exports of clinker and portland cement, as it had from July through October 2008, to address the scarcity of cement in the local market, which was attributed to the rush to complete construction projects to take advantage of the up-to-50% reduction in the prices of rebar. In July, MTI renewed the ban on cement exports until October 2010. Arabian Cement Co., which was a joint venture of Cementos La Union S.A. of Spain and local investors that had a clinker plant at Ain Al Sokhna, revised its mission from producing clinker for export only to cement production for sale to the local market (Alrroya, 2009; Dziadosz, 2009; World Cement, 2010, p. 23).

Nitrogen.—The combined urea production capacity of six Egyptian fertilizer companies was about 5 Mt/yr. The companies produced more than 4.6 Mt of urea in 2008 and exported more than one-half (2.6 Mt) of their production. MOPCO, which completed the construction of a 675,000-t/yr-capacity urea

plant at the Rehab Industrial Free Zone in Damietta, moved forward with building two additional urea trains to increase urea production. MOPCO's wholly owned subsidiary ENPC obtained a $1.05 billion loan from a consortium of local banks to finance its expansion plan that aimed to triple urea production capacity to 1.95 Mt/yr by 2012. Agrium Inc. of Canada, which held 26% interest in MOPCO in 2008 following the Government cancelation of the EAgrium nitrogen project, expected to have 507,000 t/yr of urea output and 39,000 t/yr of MOPCO's production after the expansion work is completed (Agrium Inc., 2009; Arab Fertilizers Association, 2009, p. 31).

Egypt Basic Industries Corp. (EBIC) completed the construction of a new ammonia plant at Ain Al-Sokhna near the city of Suez. Commissioning of the plant was scheduled for the third quarter of 2009 but it was delayed until January 2010. The plant, which was majority (60%) owned by Orascom Construction Industries (OCI), would have the capacity to produce 670,000 to 700,000 t/yr of ammonia for export. The plant received a $229 million long-term guarantee from the Export-Import Bank of the United States. Egyptian Fertilizer Co.'s plant at the Ain Al Sokhna Port in the Gulf of Suez was undergoing a debottlenecking project, which was expected to increase the production capacity of urea to 1.6 Mt/yr from 1.3 Mt/yr by 2012. Egyptian Fertilizer was wholly owned by OCI (U.S. Trade and Development Agency, 2009, p. 13; Orascom Construction Industries, 2009, 2010).

Phosphate Rock.—In 2009, Egypt's output of phosphate rock increased by 13% to 6.2 Mt from 5.5 Mt in 2008. El Nasr Mining produced rock phosphate at the East Sebaya Mine, the West Sebaya Mine, the Red Sea Mine at El Qusier, and the Abu Tartur Mine in the Western Desert. Phosphate rock was transported by railway to Safaga Port on the Red Sea. El Nasr Mining owned two export ports on the Red Sea: Hamrawein Port, which had the capacity to load vessels of up to 35,000 t, and Abu Ghusun Port, which had the capacity to load vessels of up to 12,000 t. The New Valley phosphate project was one the projects under development. It is located on the Abu Tartur plateau at equal distance (650 km) from Cairo and the Port of Safaga on the Red Sea. Geologic explorations by EMRA indicated the presence of about 715 Mt of proven fresh phosphate rock reserves under an overburden 150 m thick, on average, that could be exploited underground using a fully mechanized long wall technique, as well as 20 Mt of weathered phosphate reserves that could be exploited using an open cast technique. Current production of phosphate rock at the Abu Tartur project was 1 Mt/yr of weathered phosphate (Arab Fertilizers Association, 2010).

In 2009, seven public and private companies signed a memorandum of understanding to establish the Egyptian Company for Phosphate and Compound Fertilizers (Egyphos) as a joint venture to build a $680 million nitrogen, phosphate, and potassium fertilizer plant at Idfu, which is located in Aswan Governorate. The companies included Abu Qir Fertilizer and Chemical Industries Co. (25% interest); El Nasr Mining, Polyserve for Fertilizers and Chemical Co., Egyptian Financial and Industrial Co., and Egyphos (18% interest each); Helwan Fertilizer Co. (11% interest); and Agrifos Fertilizer Inc. of the United States and Indargo S.A. of Greece (5% interest each). WorleyParsons was awarded the bankable feasibility study for the first phase of the project, which would include a 2,250-metric-ton-per-day (t/d)-capacity sulfuric acid plant, a 750-t/d-capacity phosphoric acid plant, and two granulation units with the capacity to produce triple superphosphate, diammonium phosphate (DAP), and monoammonium phosphate (MAP). The second phase would involve doubling the production capacity for sulfuric acid; building an additional unit for DAP, MAP, and other fertilizer products, and additional shipping and handling facilities; and, depending on the local availability of natural gas, building a 1,000-t/d-ammonia plant, and a 600-t/d urea plant (DKL Engineering Inc., 2010; Egyptian Financial and Industrial Co., 2010).

In 2009, Egyptian Financial and Industrial Co. (EFIC) was a major phosphate fertilizer company that had a 70% share of the Egyptian market and had plants at Assiut, Kafr El-Zayat, and Suez. EFIC increased its ammonium sulfate production capacity to 300,000 t/yr from 150,000 t/yr and began producing dicalcium phosphate at a rate of 20,000 t/yr. The company produced 646,000 t of granular and powder single superphosphate, 131,000 t of ammonium sulfate, and 33 t of dicalcium phosphate (Egyptian Financial and Industrial Co., 2010).

Indian-Egyptian Fertilizer Co., which was a joint venture of Indian Farmers Fertilizer Cooperative Ltd. (IFFCO) of India (76% interest) and El Nasr Mining (24% interest), was granted a "private free-zone" status by the General Authority for Investment and Free Zones. The company planned to build a 500,000-t/yr-capacity phosphoric acid plant. El Nasr Mining agreed to supply about 2 Mt/yr of phosphate rock from the Sebaya Mine, and IFFCO agreed to offtake the plant's entire production of phosphoric acid under a long-term agreement. The IFC approved an $80 million loan for the $526 million project (DKL Engineering Inc., 2009; MEED, 2009, p. 18; Egyptian Financial and Industrial Co., 2010).

Mineral Fuels, Related Materials, and Other Sources of Energy

Natural Gas and Petroleum.—In 2009, the combined production of crude oil and natural gas liquids averaged 731,500 barrels per day (bbl/d), which was slightly more than that in 2008 of 729,200 bbl/d. Crude oil production averaged 661,500 bbl/d in 2009, which was slightly more than that of 2008, which averaged 659,200 bbl/d. The volume of marketed natural gas increased by 6.2% to 62.7 billion cubic meters from 59.0 billion cubic meters in 2008. The volume of Egypt's crude oil exports increased by more than twofold to 102,300 bbl/d compared with 45,000 bbl/d in 2008. Egypt's crude oil production came from the Eastern Desert, the Gulf of Suez, the Mediterranean Sea, the Nile Delta, the Sinai Peninsula, and the Western Desert. Egypt, which had the capacity to process 975,000 bbl/d from its 10 petroleum refineries, planned to increase its petroleum refining capacity by an additional 600,000 bbl/d by year 2016 (Organization of Arab Petroleum Exporting Countries, 2010, p. 18, 19, 57; U.S. Energy Information Administration, 2010).

In 2009, 75 companies were working on mineral fuels exploration and production in Egypt; 50 companies were

operators and 25 were partners with the Ministry of Petroleum. Among these companies, eight were local operators (Gharib Oil Services, Glob Oil, General Petroleum Corp., Masawa Co., Petzed Investment and Project Management Ltd. Co., Pico International Petroleum, Sahara Petroleum Services Co. S.A, Tharwa Petroleum Co., and Trident Petroleum Egypt). The U.S. companies that had active exploration programs for hydrocarbons in Egypt included Apache Egypt Co., El Paso Corp., Hess Corp., Merlon International, and The Improved Petroleum Recovery Group of Companies. The list of the United Kingdom companies that were conducting oil and gas exploration activities included Aminex plc, BG Egypt S.A., BP Egypt, Burren Energy plc, Dana Petroleum plc, Europa Oil and Gas plc, Melrose Petroleum Resources plc, and Perenco North Sinai Petroleum Co. Ltd. The Canadian companies were Dover Petroleum Corp., Dublin International Petroleum (Egypt) Ltd., and Transglobe Energy Corp. Other companies included Al Thani Investments Group and Dana Gas P.J.S.C. (both of the United Arab Emirates); Arabian Oil Co. and Egyptian Petroleum Development Co. (both of Japan); CEPSA Egypt S.A. B.V. of Spain; Edison S.p.A. and Eni S.p.A. (both of Italy); ENAP Sipetrol S.A. of Chile; Gaz de France; Grey Stone Petroleum of Switzerland; Gujarat State Petroleum Corp. Ltd. of India; Ina Industrial Nafta D.D. Zagreb/Naftaplin of Croatia; Hellenic Petroleum S.A.; Kriti Oil and Gas. S.A., and Vegas Oil and Gas S.A. (all of Greece); Lukoil Co. of Russia; National JSC Naftogaz Ukrainy of Ukraine; Oil and Gas Corp. of South Africa (Pty) Ltd. (PetroSA); O.M.V. Aktiengesellschaft and Pan Pacific Petroleum N.L. of Australia; Petrocorp Exploration Ltd. of New Zealand; Petroliam Nasional Berhard (Petronas) of Malaysia; PGNiG S.A. of Poland; RWE-Dea A.G. of Germany; Shell Egypt N.V. of the Netherlands; Statoil ASA of Norway; and United Oil Inc. of Syria (Ministry of Petroleum, 2010).

Three-fourths of Egypt's natural gas production came from Mediterranean Sea blocks where 78% of the country's gas reserves are located. The remaining reserves are located in the Western Desert (10%), the Gulf of Suez (8%), and the Nile Delta (4%). The Government's policy of intensifying gas and oil exploration activity during the past 5 years paid off. Egypt's proved natural gas reserves at the end of 2009 were estimated to be close to 2.2 trillion cubic meters. In May, the EGAS awarded three of the Mediterranean Sea offshore blocks to six companies as part of the EGAS 2008 International Bid Round (Alexander's Gas & Oil Connections, 2010a).

In 2009, Egypt had three liquefied natural gas (LNG) trains operating in Egypt. The first train was in Damietta in the Eastern Nile Delta and was operated by CEPSA. The second train was located in Idku in the Western Nile Delta and was operated by Egyptian LNG (a joint venture of BG Egypt, EGAS, EGPC, Gaz de France, and Petronas). The third LNG train was located in the Mediterranean Gas Complex at Port Said and was jointly operated by BP Egypt and Eni (U.S. Department of State, 2010).

RWE and BP announced a joint investment of $9 billion for the development of the North Alexandria and West Mediterranean Deep Water gasfields, which were operated by BP. Production at the project, which would be owned by BP (60% interest) and RWE (40% interest), was expected to commence in 2014 (Hromadko, 2010).

Dana Gas Egypt was the sole operator of two exploration concessions, and nine development leases in the Nile Delta and was a 50-50 operator (with Kuwait International Oil & Environment Co.) of an exploration concession and a development lease in Upper Egypt. The company moved forward with its successful exploration program, which had netted 12 natural gas discoveries in the Nile Delta in the past 3 years. The company was focused on bringing the recently discovered fields into production by 2010 (Dana Gas P.J.S.C., 2010, p. 18-20).

The Egyptian Refining Co. was a partnership company of Cairo Oil Refining Company Refinery (CORC) (40%), G.S. Engineering and Construction Corp. of the Republic of Korea (30%), and Mitsui and Co. of Japan (30%) that was created to build a $3.7 billion hydrocracking and coking refinery. The new refinery would be located next to the existing state-owned refinery, which was located in the Greater Cairo District of Mostorod; the new refinery would produce lighter petroleum products, such as diesel and liquefied petroleum gas (LPG) in a more efficient fashion and emit less sulfur dioxide to the environment. Refinery products from both the new refinery and the upgraded existing refineries would be offtaken by EGPC and delivered to consumption points in Cairo. The private equity company of Citadel Group was a majority stakeholder (85% interest) and EGPC held the remaining share (15% interest). The IFC approved a $120 million investment in the proposed Egyptian Refinery Co. project (Alexander's Gas & Oil Connections, 2010d).

EGPC signed a memorandum of understanding with Rong Chang Chemical Co. Ltd. of China and an unnamed Chinese Government-owned company to construct a new oil refinery in Egypt that would produce 15 Mt/yr of refined petroleum products during the first stage of the project with an option to double production at the end of the second stage. The $2 billion oil refinery would be funded, built, operated, and owned by the two Chinese companies for 25 years, and the ownership and operation would be gradually transferred to EGPC (Alexander's Gas & Oil Connections, 2010c).

Nuclear Energy.—In May, the Egyptian Ministry of Electricity ended a 10-year contract, which was signed in 2008 with Bechtel Group Inc. of the United States to consult on and help design Egypt's first nuclear powerplant. The Ministry selected Worley Parsons Ltd. of Australia to evaluate and choose the best nuclear energy technology available on the international market and to select a site to build up to 11 nuclear reactors during the next decade (World Tribune.com, 2009).

Renewable Energy.—The Government had a set goal to meet 80% of the country's future energy demand from conventional energy sources and 20% from renewable energy sources (including 12% from wind energy) by the year 2020. Orascom Construction Industries S.A.E. was building the 150-megawatt (MW)-capacity powerplant at Kureimat, which is located 95 km south of Cairo. The Kureimat Integrated Solar Combined Cycle Power Project was expected to commence production in 2013. It would use both natural gas and solar energy to generate electricity. The Government announced a plan to build another solar plant in the Kureimat area and to develop wind power along the Red Sea coast. The Government

expected that the World Bank and the African Development Bank would finance at least some of the $700 million that the solar powerplant would cost. The Zafarana Windfarm, which was Egypt's first wind-energy facility, had a total capacity of 360 MW by yearend 2008. The farm, which was built by Gamesa Corporación Tecnológica S.A. of Spain, Nordex A.G. of Germany, and Vestas Wind Systems A/S of Denmark, was undergoing a capacity expansion to increase capacity to 545 MW by 2010. The World Bank allocated a $220 million loan for building 250-MW wind powerplants near the Gulf of Suez. In June 2010, the World Bank approved a $600 million loan for establishing a natural gas powerplant north of Giza (Alexander's Gas & Oil Connections, 2010b, e; Wind Power Works, 2010).

Outlook

The Egyptian mineral industry has enormous growth potential during the next decade owing to the country's abundant mineral resources, especially gold, natural gas, phosphate rock, and tantalum. Egypt expects to be a major producer of gold and tantalum in the next 5 years. The passage by Parliament of a new mining law, which was drafted with the help of the World Bank, could reduce bureaucracy, enhance transparency, and facilitate financing to mineral industry projects. The country is planning to meet the projected increase in demand for energy by diversifying its energy production capabilities, including developing renewable energy with the financial support of international and regional organizations. Production of cement and rebar is likely to continue to increase in the next 5 years to meet the increased demand for residential housing units, which is estimated to increase by 1 million units per year for the next 10 to 15 years (Arab Steel, 2010).

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TABLE 1
EGYPT: PRODUCTION OF MINERAL COMMODITIES[1]

(Thousand metric tons unless otherwise specified)

Commodity[2]		2005	2006	2007	2008	2009
METALS						
Aluminum metal						
Primary[e]		180 [r]	200 [r]	220 [r]	220 [r]	220
Secondary[e]		65	50	110 [r]	170 [r]	180
Copper, refined, secondary		14	14	2 [r]	3 [r]	3
Gold	kilograms	--	--	--	--	60
Iron and steel:						
Iron ore and concentrate, gross weight		1,599	1,600	665 [r]	773 [r]	1,780 [3]
Metal:						
Pig iron		1,100	1,100	1,000 [r]	900 [r]	800
Direct-reduced iron		2,900	3,100	2,800	2,600	3,000
Steel, crude		5,565	6,004	6,224	6,198	4,777 [3]
Ferroalloys:						
Ferromanganese[e]		30	30	30	30	30
Ferrosilicon[e]		55	50	48 [r]	59 [r]	78
Manganese ore, gross weight		17	17	21 [r]	17 [r]	130
Titanium, ilmenite		120	120	108	88	120
INDUSTRIAL MINERALS						
Barite	metric tons	500 [e]	500 [e]	504 [r]	1,556 [r]	1,587 [3]
Cement, hydraulic, all types		29,000	36,100	38,469	39,800 [r]	46,500
Clays:						
Bentonite[e]		30	30	30	32	35
Fire clay[e]		300	300	300	300	300
Kaolin		415	416	332	523	295
Feldspar, crude		357	360	135	169	178
Fluorspar	metric tons	549	550	11,588 [r]	9,115 [r]	4,343
Gypsum		3,290	3,300 [e]	94 [r]	95 [r]	456
Iron oxide pigments		NA	NA	39	26	30
Lime[e]		800	800	1,000	1,000	800
Mica	cubic meters	NA	NA	395	100	100
Nitrogen:						
Ammonia, N content[e]		1,750	2,000	2,000	2,500	1,800
Urea, N content[e]		1,110	1,300	1,500	2,000	1,120
Phosphate:						
Phosphate rock		3,371	2,177	3,890	5,523	6,227 [3]
P_2O_5 content		1,011	653	1,167	1,657	1,868
Sodium compounds:						
Salt		1,200	1,200	1,214 [r]	1,879 [r]	2,952
Soda ash[e]		50	50	50	50	50
Sodium sulfate[e]	metric tons	2,500	2,500	2,500	2,500	2,500
Stone, sand and gravel:						
Basalt	thousand cubic meters	249	250	150	235	243 [3]
Dolomite	do.	1,371	1,400	4,000	3,750 [r]	949 [3]
Granite, dimension stone	do.	15,083	15,000	8,651	19,461	22,155 [3]
Limestone and similar	do.	25,000 [e]	25,000	28,103	35,569	50,000
Marble (includes alabaster) blocks		401	400	427	420	401 [3]
Quartz		NA	NA	169	235	250
Sand:[e]						
Industrial sand (glass sand)	thousand cubic meters	650	650	690	645	650
Sand and gravel	do.	21	21	76	63	63
Sandstone	do.	1,125	1,100	174	162	60
Sulfur:						
Elemental, byproduct		20	20	20	15 [r]	29
Sulfuric acid, S content[e]		220	200	200	200	220
Talc, soapstone, pyrophyllite		39	40 [e]	67 [r]	69 [r]	72 [3]
Vermiculite		12 [e]	12 [e]	6	8	12

See footnotes at end of table.

TABLE 1—Continued
EGYPT: PRODUCTION OF MINERAL COMMODITIES[1]

(Thousand metric tons unless otherwise specified)

Commodity[2]		2005	2006	2007	2008	2009
MINERAL FUELS AND RELATED MATERIALS						
Coal[e]		300	300	360	360	300
Coke		1,400 [e]	1,400 [e]	1,074 [r]	1,469	1,423
Gas, natural:						
Gross production	million cubic meters	42,500	54,700	55,700	59,000 [r]	62,700 [3]
Dry[e]	do.	23,000	23,700	37,000	40,000	43,059 [3]
Petroleum:						
Crude, including condensate	thousand 42-gallon barrels	254,040 [r]	254,405 [r]	259,450 [r]	263,530 [r]	270,830 [3]
Refinery products:						
Liquefied petroleum gas	do.	5,220	5,037	6,345	7,053	5,256
Gasoline and naphtha	do.	60,417	60,000	55,912	58,428	58,772
Kerosene and jet fuel	do.	13,724	11,461	19,024	20,223	12,884
Distillate fuel oil	do.	43,982	45,808	63,723	67,125	45,260
Residual fuel oil	do.	77,782	70,774	68,255	69,935	69,642
Lubricants	do.	2,576	2,600	1,792	1,862	2,590
Asphalt	do.	5,800	5,800	5,563	5,266	5,800
Other	do.	2,200	2,200	2,066	1,970	2,200
Total	do.	211,701	204,000	222,680	231,862	202,404

Estimated data are rounded to no more than three significant digits; may not add to totals shown. [r]Revised. do. Ditto. NA Not available. -- Zero.

[1]Table includes data available through November 30, 2010.

[2]In addition to those listed, Egypt produced a number of commodities for which data were unavailable, including gemstones; a number of metals, such as lead (which was produced from recycled material), and zinc; and manufactured mineral commodities, such as carbon black and glass.

[3]Reported figure.

TABLE 2
EGYPT: STRUCTURE OF THE MINERAL INDUSTRY IN 2009

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Aluminum:			
Primary	Aluminium Co. of Egypt (Egyptalum) (Government, 80%, and private interests, 20%)	Nag Hammadi	266.
Secondary	The Egyptian Copper Co. (Holding Company for Metallurgical Industries)	Alexandria	50.
Do.	Arab Aluminium Co. S.A.E.	Ismaelia	15.
Do.	Egyptian Aluminium Products Co. (Alumisr)	Cairo	12.
Do.	Egyptian Metal Works	do.	NA.
Do.	General Metals Co.	do.	6.
Do.	Helwan Company for Non-Ferrous Industries	Helwan	45.
Do.	Al Saad Aluminium Co.	Mostorod	10.
Do.	Al Qantara for Ferrous Metals Co.	Suez	25.
Carbon black	Alexandria Carbon Black Co. (Egyptian Holding Co. for the Chemical Industry, 49%; Inco-Bharat, 36%; Grasim Industries 15%)	do.	20.
Cement	Egyptian Cement Co. (Lafarge S.A., 54%; private interests, 26%; Holcim Ltd., 20%)	70 kilometers east of Cairo	10,000.
Do.	Amirya Cement Co. (Cimpor)	do.	4,450.
Do.	Assuit Cement Co. (Cemex Egypt)	Assiut	4,752.
Do.	Arab Swiss Engineering Co. (ASEC) (Suez Cement Co., 68.7%)	Helwan	3,615.
Do.	TITAN Cement Egypt (TITAN Cement Co., 100%)	Alexanderia and Beni Suef	3,300.
Do.	Suez Cement Co. (Cements Français S.A., 54.2%)	Suez	4,200.
Do.	Helwan Cement Co. (Suez Cement Co., 98.69%)	Helwan	4,500.
Do.	Torah Portland Cement Co. (Suez Cement, Co., 66.12%)	Torah	4,625.
Do.	Alexandria Portland Cement Co. (Government, 77%, and private interests, 23%)	El Mex	800.
Do.	National Cement Co. (Government, 77%, and private interests, 23%)	El Tabbin	3,100.
Do.	Misr Beni Suef Cement Co.	Beni Suef	2,800.
Do.	Misr Cement Co. (Qena)	Qena	1,400.
Do.	Sinai Cement Co. (Vicat)	Sinai	1,500.
Do.	South Valley Cement Co.	do.	1,400.
Do.	Sinai White Cement Co.	do.	410.
Do.	Arabian Cement Co.	El Ain El Sokhna	1,778 clinker.
Coke	El Nasr Coke and Chemical Co. (Government, 100%)	Helwan	1,400.
Ferrosilion	Egyptian Ferroalloys Co.	Idfo, Aswan	50.
Fertilizer, nitrogenous	Abu Qir Fertilizer & Chemical Industries Co. [Private and public interests, 80.9%, and Egyptian General Petroleum Corp. (EGPC), 19.1%]	Abu Qir A	565 (ammonia); 365 (urea).
Do.	do.	Abu Qir B	876 (urea).
Do.	do.	Abu Qir C	330 (ammonia); 640 (urea).
Do.	Alexandria Fertilizer Co. (Alexfert) (private, 80%, and Abu Qir Fertilizer & Chemical Industries Co., 20%)	Alexanderia	730 (ammonia); 720 (urea).
Do.	El Nasr Fertilizers and Chemicals Co. (SEMADCO) (Government, 100%)	Attaka, Suez	132 (ammonia); 193 (nitric acid); 200 (ammonia nitrate).
Do.	Egyptian Chemical Industries KIMA ASWAN (Chemical Industries Holding Co., 55.7%; public organizations, 39.2%; private investors, 5.5%)	Aswan	330 (ammonia); 600 (nitric acid); 800 (ammonium nitrate).
Do.	Egyptian Fertilizers Co. (Orascom Construction Industries, 100%)	Ain Al Sokhna, Suez	800 (ammonia); 1,300 (urea).
Do.	EL Delta Company for Fertilizers and Chemical Industries (ASMEDA) (Government, 100%)	Talkha, Mansoura	400 (ammonia); 297 (nitric acid); 570 (urea).

See footnotes at end of table.

TABLE 2—Continued
EGYPT: STRUCTURE OF THE MINERAL INDUSTRY IN 2009

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Fertilizer, nitrogenous—Continued		Helwan Fertilizer Co. (private)	Free Zone, Helwan	400 (ammonia); 650 (urea).
Do.		Misr Fertilizer Production Co. S.A. (MOPCO) [Egyptian Petrochemical Holding Co. (ECHEM), 30.75%; Agrium Inc., 26%; National Investment Bank, 12,82%; Egyptian Natural Gas Holding Co. (EGAS), 7.62%; Egyptian Natural Gas Co. (GASCO), 5.72%; Egyptian Insurance Co., 4.28%; Arab Petroleum Investment Co. (APICORP), 3.03%; Al Ahli Bank, 2.56%; Naser Bank, 2.56%; individual investers, 4.66%]	Free Zone, Damietta	876 (ammonia); 1425 (urea).
Fertilizer, phosphatic		Abu Zaabal Fertilizers and Chemicals (private, 100%)	Qalyubiyah	550 (superphosphate); 180 (triple superphosphate); 60 (phosphoric acid).
Do.		Egyptian Financial and Industrial Co. (private, 100%)	Kafr El Zayat	900 (superphosphate).
Do.		do.	Assuit	750 (superphosphate).
Do.		Polyserve for Fertilizers and Chemicals (private, 100%)	Cairo	320 (superphosphate).
Do.		Suez Company for Fertilizers Production (Egyptian Financial and Industrial Co., 99.8%)	Ain Al-Sokhna	300 (superphosphate); 20 (dicalcium phosphate).
Gold		Cypriot Matz Holdings, 50%, and Egyptian Mineral Resources Authority, 50%	Hamash	60.
Do.		Centamin Egypt Ltd.	Sukari Hill	5,270.
Ilmenite		El Nasr Mining Co. (Holding Company for Metallurgical Industries, 100%)	NA	120.
Do.		Misr Qurries Development Co.	NA	NA.
Do.		Egyptian Company for Mineral Resources (ECMR)	NA	NA.
Iron:				
Ore		Egyptian Iron and Steel Co. (Government, 100%)	El-Gedida Mine, El Bahariya	1,200.
Oxide		El Nasr Mining Co. (Holding Company for Metallurgical Industries, 100%)	Mines near Sinai and Aswan	150.
Methanol		El Delta Co. for Fertilizers & Chemical Industries	Talkha	24.
Natural gas	million cubic meters	Egyptian General Petroleum Corp. (EGPC) (Government, 100%)	Abu Madi	3,800.
Do.	do.	do.	Badreddin-3	3,000.
Do.	do.	do.	Abu Qir/Naf	1,900.
Do.	do.	do.	Ras Shukheir	1,600.
Do.	do.	Grupo Khalda (Repsol YPF, S.A., 50%; Apache Oil Co., 40%; Samsung Corp., 10%)	Khalda	24.
Petroleum:				
Crude	million 42-gallon barrels	Gulf of Suez Oil Co. [Egyptian General Petroleum Corp. (EGPC), 50%, and BP Amoco, 50%]	October, Suez Gulf	45.
Do.	do.	do.	El Morgan, Suez Gulf	27.
Do.	do.	Belayim Petroleum Co. [Egyptian General Petroleum Corp. (EGPC), 50%, and International Egyptian Oil Co., 50%]	Belayim, Suez Gulf	65.
Do.	do.	Suez Oil Company [Egyptian General Petroleum Corp. (EGPC), 50%; Deminex SA, 25%; Repsol YPF S.A., 25%]	Ras Budran, Suez Gulf	15.
Pipeline	do.	Arab Petroleum Pipeline Co. (Governments of Egypt, 50%; Saudi Arabia, 15%; Kuwait, 15%; United Arab Emirates, 15%; Qatar, 5%)	Ain al-Sokhna to Sidi Kir	875.
Refined	do.	Cairo Petroleum Refining Co. (Government, 100%)	Mostorod	52.
Do.	do.	do.	Tanta	12.
Do.	do.	Alexandria Petroleum Co. (Government, 100%)	Alexandria	46.
Do.	do.	El Nasr Petroleum Refining Co. (Government, 100%)	Suez	25.
Do.	do.	do.	Wadi Feiran, Sinai	4.
Do.	do.	Ameriya Petroleum Refining Co. (Government, 100%)	Ameriya	27.

See footnotes at end of table.

TABLE 2—Continued
EGYPT: STRUCTURE OF THE MINERAL INDUSTRY IN 2009

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Petroleum—Continued:				
Refined—Continued	million 42-gallon barrels	Middle East Oil Refinery [Egyptian General Petroleum Corp. (EGPC), 78%; Petroleum Projects and Technical Consultations Co. (Petrojet), 10%; Engineering for Petroleum & Process Industries (ENPPI), 10%; Suez Canal Bank, 2%]	Sidi Kerir	36.
Do.	do.	Suez Petroleum Processing Co. (Government, 100%)	Suez	25.
Do.	do.	Asyut Petroleum Refining Co. (Government, 100%)	Asyut	27.
Phosphate rock		El Nasr Mining Co. (Holding Company for Metallurgical Industries, 100%)	Mines at East Sabaiya, West Sabaiya, and El Qusier	2,500.
Do.		National Company for Mining and Quarries (Elwataneya)	Aswan	400.
Do.		El Nasr Mining Co. (Holding Company for Metallurgical Industries, 100%)	Abu Tarture, Western Desert	2,250.
Quartz		do.	NA	235.
Do.		Misr Qurried Development Co.	Attaka Mountain	NA.
Do.		Egyptian Company for Mineral Resources (ECMR)	Branice near Marsa Alam	NA.
Steel				
Crude		Ezz El-Dekheila Steel Co. (EZDK) (Al Ezz Steel Rebars S.A., 53.2%)	Alexandria	2,200.
Do.		Egyptian Iron and Steel Co., Hadisolb (Government, 100%)	Helwan steel plant	600.
Manufactured		Ezz El-Dekheila Steel Co. (EZDK) (Al Ezz Steel Rebars S.A., 53.2%)	Alexandria	3,000.
Do.		Beshay Steel Group	Sadat City	2,000.
Do.		Al Ezz Flat Steel Co.	Suez	1,000.
Do.		Egyptian Iron and Steel Co., Hadisolb (Government, 100%)	Helwan steel plant	1,000.
Do.		Al Ezz Steel Rebars S.A.	Sadat City	1,000.
Do.		Al Ezz Rolling Mills	Tenth of Ramadan City	500.
Do.		Delta Steel Mill Co.	Qalyubiya	200.
Do.		Kandil Steel	Tenth of Ramadan City	1,000.
Do.		Suez Steel Co.	Suez	500.
Do.		National Port Said Steel	Port Said	400.
Do.		Misr National Steel Co.	Heliopolis	360.
Do.		Kouta Steel Group	Port Said	360.
Sulfuric acid		Abu Zaabal Fertilizers and Chemicals (private, 100%)	Qalyubiyah	350.
Do.		Egyptian Financial and Industrial Co. (private, 100%)	Kafr El Zayat	175.
Do.		do.	Assuit	210.
Do.		Suez Company for Fertilizers Production (Egyptian Financial and Industrial Co., 99.8%)	Ain Al-Sokhna	425.
Do.		El-Nasr Co. for Fertilizer & Chemical Industries (SEMADCO)	Attaka	90.
Do.		Middle East Oil Refinery (MIDOR)	Amreya Free Zone	65.
Talc		El Nasr Mining Co. (Holding Company for Metallurgical Industries, 100%)	Aswan	50.
Do.		TAS Flowrance Group	do.	NA.
Do.		Egyptian Company for Mineral Resources (ECMR)	South Eastern Desert	NA.

Do., do. Ditto. NA Not available.