

2015 Minerals Yearbook

IRAQ [ADVANCE RELEASE]

THE MINERAL INDUSTRY OF IRAQ

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In 2015, Iraq's mineral industry continued to be negatively affected by the ongoing armed conflict in the country. Although the country's economy was constrained by both the armed conflict and the decline in global petroleum prices, the country continued to be an important global producer and exporter of crude petroleum. In 2015, Iraq was the world's sixth-ranked crude petroleum producer and third-ranked crude petroleum exporter. The country produced 1.47 billion barrels (Gbbl) of crude petroleum in 2015. Iraq hosted the world's fifth-largest proven crude petroleum reserves, accounting for 8.4% of the world's total. Proved natural gas reserves were estimated to be 3.7 trillion cubic meters, or about 2% of the world's total. In 2015, Iraq continued to progress on several new processing projects that were expected to decrease flaring of natural gas in its southern oilfields. Historically, Iraq had produced modest volumes of bentonite, cement, clay, gypsum, limestone, nitrogen and phosphate fertilizers, phosphate rock, salt, sand and gravel, silica sand, and sulfur. Iraq did not mine any metallic minerals in 2015; mining activities in the northern region were disrupted by armed conflict (table 1; Lawrence, 2015; BP p.l.c., 2016, p. 6, 8, 20; Organization of the Petroleum Exporting Countries, 2016, p. 52).

As of yearend 2015, the Government maintained control of areas of southern Iraq, the capital city of Baghdad, and the cities of Ramadi and Fallujah. The self-proclaimed Islamic State or Islamic State of Iraq and the Levant (ISIL) (also known as ISIS) controlled areas of northern Iraq along the Syrian border in the Governorates of Al Anbar, Ninawa, and Salah ad Din, including the cities of Hawija and Mosul. Mineral operations located in these conflict areas included the Mishraq sulfur mine in Qaiyarah that was operated by the Mishraq Sulphur State Co., the Akashat phosphate mine, and the phosphoric acid and fertilizer plants operated by the General Company for Phosphate, as well as two nitrogen fertilizer plants in Baiji that were operated by the 1st Global Company for Chemical Fertilizers Production Ltd. and the State Company for Fertilizers Northern Area. Other operations that may have been located in the armed conflict area were those for cement, gypsum, and crude petroleum refining. Geosurv-Iraq reported mining of silica sand deposits in the Al Anbar Governorate and identified areas prospective for phosphate rock occurrences, such as the Swab and the Wadi Al Hiri deposits. The Kurdistan Regional Government (KRG), which was the ruling body of the semiautonomous Iraqi Kurdistan Region, controlled areas in the Governorates of Erbil, As Sulaymaniyah, and Dahuk. This region hosted multiple metallic mineral deposits along the border with Turkey and Iran, including chromium, copper, gold, iron, lead, manganese, and zinc. Western Iraq hosted low-grade deposits of bauxite and iron, as well as titanium and zirconium contained in deposits of black sands (Chmaytelli and Rasheed, 2015; Lawrence, 2015; Pecanha and Watkins, 2015).

Other mineral deposits within Iraq included the Lazzaga native sulfur deposits located in the Ninawa Governorate, feldspar deposits located in the An Najaf Governorate, and gypsum deposits located in the Governorates of Al Anbar, Ninawa, Salah ad Din, and Wasit. The Government was seeking investors to develop a feldspar mine and flotation plant to produce feldspar concentrate in the An Najaf Governorate. Geosurv-Iraq estimated that the country hosted resources of 330 million metric tons (Mt) of dolomite, 130 Mt of gypsum, 1,200 Mt of kaolinitic clay stones, 8,000 Mt of limestone, 600 Mt of native sulfur, 10,000 Mt of phosphate rock, and 50 Mt of salt (Gavin, 2014; Iraq Geological Survey, 2015; Jassim, 2015).

Minerals in the National Economy

In 2015, Iraq's real gross domestic product (GDP) decreased by 2.4% compared with a decrease of 0.4% in 2014. The country's nominal GDP was \$169 billion in 2015, which decreased by 24% from about \$224 billion in 2014. The hydrocarbon sector, which was the country's main economic sector, was estimated to have accounted for about 61% of the total GDP. Revenue from the hydrocarbon sector accounted for about 91% of Government revenue in 2015 compared with 94% in 2014. Exports of crude petroleum accounted for nearly 100% of the country's total export value, which decreased by 35% to \$55 billion from \$84 billion in 2014. In decreasing order of value, the country's top export destinations were China, India, and the Republic of Korea, which combined accounted for about 56% of the country's total exports (International Monetary Fund, 2016a, p. 13; 2016b; International Trade Center, 2016; Organization of the Petroleum Exporting Countries, 2016, p. 15–17).

Although the quantity of crude petroleum exports increased by 20% to about 3 million barrels per day (Mbbl/d) from about 2.5 Mbbl/d in 2014, the value of crude petroleum exports decreased by 35%. The decreased value of crude petroleum exports in 2015 was attributed to the decline in global petroleum prices. The annual average spot price of Iraq's Basrah Light crude petroleum decreased by 49% to \$47.87 per barrel in 2015 from \$94.45 per barrel in 2014 (Organization of the Petroleum Exporting Countries, 2016, p. 17, 52, 86).

In 2015, exports to and imports from the United States decreased by 68.5% and 6.4% to about \$4.4 billion and \$2.0 billion, respectively. The change in export value was attributed to the decreased value of crude petroleum exports, which decreased to about \$4.3 billion from about \$13.6 billion in 2014. In 2015, Iraq's imports from the United States included \$79.7 million of excavating machinery, \$75.1 million of drilling and oilfield equipment, \$14.3 million of iron and steel products, \$11.7 million of finished metal shapes, and \$8 million of natural gas liquids (U.S. Census Bureau, 2016a, b).

The armed conflict between the Government and the self-proclaimed ISIL disrupted petroleum production, exports, and refining activities in the northern oilfields in the Governorates of Kirkuk, Ninawa, and Wasit. The conflict did not affect crude petroleum exports or production from the southern oilfields, which produced nearly 85% of the country's petroleum in 2015. The country's nonhydrocarbon GDP was estimated to have decreased by 19% owing to the armed conflict and Government budget constraints (International Monetary Fund, 2016b; U.S. Energy Information Administration, 2016, p. 3).

Government Policies and Programs

The mining sector is regulated by the Ministry of Industry and Minerals (MIM) through law No. 38 of 2011. Article 3 of the law states that the MIM is responsible for regulating industrial and metallurgical activities and setting industrial policies and strategies. Investment in the country's mining sector was regulated under the Law for the Regulation of Mineral Investments No. 91 of 1988. The National Investment Commission, established under The Investment Law No. 13 of 2006 and its amendments, regulates investments and property rights. The hydrocarbon sector was regulated under Articles 111 and 112 of Iraq's Constitution. Under Article 111, petroleum and gas are owned by the Government. Under Article 112, the Federal Government and Governorate governments are tasked with formulating policies to develop hydrocarbon resources and with undertaking the management of crude petroleum and natural gas production. Law No. 84 of 1985 establishes regulations for the exploration, operations, production, refining, and transportation of crude petroleum. The Ministry of Oil (MOO), which is responsible for implementing hydrocarbon policies, oversees the development and production of crude petroleum and natural gas. International petroleum companies operate under technical service contracts implemented by the MOO (Ministry of Industry and Minerals, 2016; Ministry of Oil, 2016; National Investment Commission, 2016a, b).

The Kurdistan Regional Government (KRG) regulates petroleum activities by the KRG's Ministry of Natural Resources through the Oil and Gas Law of the Iraqi Kurdistan Region. In April 2015, the Kurdistan Parliament established the Oil and Gas Revenue Fund Law. The law authorizes the Council of Ministers to nominate a board to manage revenues from the hydrocarbon sector through public accounts. Public spending financed by revenues from the petroleum sector may be allocated to the KRG's annual budget, environmental protection, a "future generation's" wealth fund, investment spending, and petroleum infrastructure (Iraq Business News, 2015b; Ministry of Natural Resources of the Kurdistan Regional Government—Iraq, 2016a; U.S. Energy Information Administration, 2016, p. 9).

In September 2015, an agreement between the Federal Government and the KRG to allow the State Oil Marketing Organization (SOMO) to reclaim control over the country's northern crude petroleum exports, which was reached in December 2014, expired. In return for allowing the SOMO marketing control over crude petroleum exports in northern Iraq, the KRG was to receive 17% of the national budget and a payment of \$1 billion to the KRG military forces. Under the agreement, the KRG was to export 550,000 barrels per day

(bbl/d) of crude petroleum through the North Oil Co. (NOC) and SOMO. Of the 550,000 bbl/d of crude petroleum to be exported, 250,000 bbl/d was agreed to be produced and exported in KRG territory by NOC, and 300,000 bbl/d was agreed to be produced in Kirkuk oilfields and exported through SOMO at the Ceyhan terminal. In late June, the KRG exported crude petroleum independently of SOMO, resuming the direct sale of crude petroleum to international markets. The KRG had controlled the Kirkuk oilfields since mid-2014 (Ministry of Natural Resources of the Kurdistan Regional Government—Iraq, 2016b, p. 2; U.S. Energy Information Administration, 2016, p. 9–10).

The MIM continued to promote private sector investment in state-owned enterprises as a means of modernizing and rehabilitating industrial capital equipment. Joint-venture production-sharing agreements (PSAs) for terms between 10 to 20 years were offered for investment. In November 2015, the MIM issued a list of mining facilities open for private investment, including the Falwaka white cement plant, owned by the Iraqi Cement State Co.; multiple steel facilities, owned by the Al-Sumood State Company for Steel Industries; and the Abi Al-Khaseeb fertilizers plant, owned by the State Company for Southern Fertilizers (National Investment Commission, 2008, p. 68; Lee, 2015b).

Production

In 2015, production of crude petroleum and condensate increased by 23% to 1.47 Gbbl from 1.20 Gbbl in 2014 owing to improvements of both midstream infrastructure and the quality of the crude petroleum extracted. The MIM reported that limestone production increased by almost 200% to 7.36 Mt; the reason for the increase was not stated (Extractive Industries Transparency Initiative, 2016, p. 90). Significant decreases in mineral production were attributed to security concerns in the northern regions of Iraq. In 2015, notable estimated decreases in the output of mineral commodities included that of sulfur, by 73%; cement, 19%; gypsum, 17%; and salt, 10%. Output of refined petroleum products decreased by 15%, to 164 million barrels (Mbbbl) from 194 Mbbbl in 2014 owing to ongoing refinery rehabilitation projects and interruptions owing to the armed conflict between the Government and ISIL (tables 1, 2; Organization of the Petroleum Exporting Countries, 2016, p. 28, 37; U.S. Energy Information Administration, 2016, p. 3).

Structure of the Mineral Industry

The MIM administered the activities of the hard-rock mineral sector through several state-owned companies, including the General Company for Phosphate, Geosurv-Iraq, Iraqi Cement State Co., Mishraq Sulphur State Co., Northern Cement State Co., Southern Cement State Co., the State Company for Iron and Steel (SCIS), and the State Enterprise for Fertilizer and Petrochemical. Geosurv-Iraq conducted geologic studies, mapping, and mineral exploration activities (table 2).

The MOO managed hydrocarbon sector activity through a number of state-owned petroleum companies. In 2015, state-owned upstream companies included Iraq Drilling Co., Midland Oil Co., Missan Oil Co., NOC, Oil Exploration Co., Oil Project Co., and South Oil Co. (SOC). The KRG held PSAs, which

were administered through the KRG's Ministry of Natural Resources, with international petroleum companies. Publicly held petroleum companies managed by the KRG included the Kurdistan Exploration and Production Organization (KEPCO), the Kurdistan National Oil Company (KNOC), the Kurdistan Oil and Marketing Organization (KOMO), and the Kurdistan Organization for Downstream Operations (KODO) (table 2; Ministry of Natural Resources of the Kurdistan Regional Government—Iraq, 2016a, p. 6–8; U.S. Energy Information Administration, 2016, p. 3).

Commodity Review

Metals

Iron and Steel.—In recent years, Iraq had met increasing domestic demand for steel products through imports. In 2014, the country ranked fourth in the Middle East region in semifinished and finished steel imports. Iraq imported 3.12 Mt of semifinished and finished steel products in 2014 compared with 4.48 Mt and 4.03 Mt in 2013 and 2012, respectively. The trend of increased imports of steel products was attributed to demand from the construction and hydrocarbon sectors (World Steel Association, 2015, p. 57).

Mass Iraq Iron and Steel Industry Co., which was a subsidiary of Mass Group Holding Ltd. of Jordan, completed construction of a 1.25-million-metric-ton-per-year (Mt/yr) iron and steel plant located in the As Sulaymaniyah Governorate in the Iraqi Kurdistan Region. In 2015, the company continued to study the construction of a new 2-Mt/yr-capacity direct-reduced iron plant in As Sulaymaniyah Governorate (Mass Group Holding Ltd., 2015; Organisation for Economic Co-operation and Development, 2015, p. 30).

In 2015, UB Holding Ltd. of Turkey continued the \$700 million rehabilitation and upgrade of the SCIS steel complex at Khawr az Zubayr in Al Basrah Governorate. The project design included a melt shop and rebar and section mills and was expected to increase capacity to 1 Mt/yr from 440,000 metric tons per year (t/yr). The company also planned to construct a 1.2-Mt/yr direct-reduced-iron processing plant in the final project stage, as well as an onsite 350-megawatt (MW) powerplant to provide electricity for the facilities. The facilities were expected to create about 500 jobs. In January 2015, the Minister of Industry and Minerals tasked a committee to resolve issues that had delayed the start of the project. The project was expected to be completed in mid-2016 (Al Adwa News, 2015; Organisation for Economic Co-operation and Development, 2015, p. 30; UB Holding Ltd., 2016).

Industrial Minerals

Cement.—Demand for cement decreased in 2015 owing to the armed conflict. Iraq was estimated to have produced about 13 Mt of cement in 2015 and to have imported an estimated 8 to 10 Mt of cement, of which about 7 Mt was sourced from Iran. State-owned cement companies included the Iraqi Cement State Co., Northern Cement State Co., and Southern Cement State Co. (International Cement Review, 2015; Lawrence, 2015; Islamic Republic News Agency, 2016).

By yearend 2015, Karbala Cement Manufacturing Ltd., which was a joint venture of LafargeHolcim Group of Switzerland (51%) and Merchant Bridge Co. of Iraq (49%), signed an agreement with the Government to lease the state-owned Karbala cement plant. Under the agreement, the plant was to be renovated with a target capacity of 1.8 Mt/yr of sulfate-resistant cement. LafargeHolcim operated two cement plants in As Sulaymaniyah Governorate. The Bazian Cement Co.—a subsidiary of LafargeHolcim Group (70%) and Faruk Group Holding of Iraq (30%)—operated a 2.5-Mt/yr cement plant in Bazian. United Cement Co.—a subsidiary of LafargeHolcim Group (60%) and Faruk Group Holding (40%)—operated a 2.3-Mt/yr cement plant in Tasluja (Lafarge Iraq, 2015, p. 4; LafargeHolcim Group, 2016).

Clay (Bentonite).—Beijing Trading and Development Co. of China and Geosurv-Iraq signed an agreement for the construction of a bentonite-activation plant at Fallujah in Al Anbar Governorate. At the beginning of 2014, the plant was reported to have been 85% complete; however, as of yearend 2015, the status of the project was unknown owing to limited information available because of the continued armed conflict. The plant was expected to convert calcium-based bentonite into sodium-based bentonite for use as drilling mud in domestic petroleum operations. The plant had a production capacity of 75,000 t/yr of sodium-based bentonite, which could be later expanded to 100,000 t/yr. The plant was expected to source bentonite from the deposits near Rutbah in the western desert of Iraq (National Iraqi News Agency, 2014; Allurentis Ltd., 2015, p. 114).

Nitrogen.—In October 2015, Iraqi security forces regained control of the Baiji fertilizer plant from ISIL. The fertilizer plant was located adjacent to the Baiji petroleum refinery in the Salah ad Din Governorate, and was operated by 1st Global Company for Chemical Fertilizers Production Ltd. of Jordan. The Government had lost control of the refinery in 2014 but had retaken the refinery several times throughout 2014 and 2015 before ultimately regaining control in October. By yearend, the majority of the petroleum refinery complex was reported to have been destroyed. In 2014, the company was reported to have been in the final stages of modernizing the plant (Mirza, 2014; Al Fathi, 2015; Lee, 2015a; International Monetary Fund, 2015, p. 7; Starr, 2015).

In early 2015, MIM signed an \$11 billion agreement with Royal Dutch Shell plc of the Netherlands to construct the Nibras Petrochemicals Complex in Al Basrah Governorate. The complex was expected to produce 1.8 Mt/yr of downstream petrochemical products, including fertilizers. The project was expected to be completed by 2020 and create about 50,000 jobs. By yearend, construction had not yet started (Ministry of Industry and Minerals, 2015; Watts, 2015).

Phosphate Rock.—By yearend 2015, phosphate rock mining activities at the Akashat Mine had been discontinued owing to security concerns resulting from the armed conflict. The Akashat Mine, located in the Al Anbar Governorate, had been operated by the state-owned General Company for Phosphate. MIM reported that the mine was not operating throughout 2014 owing to security concerns. It was unclear if the mine operated during 2015 (Extractive Industries Transparency Initiative, 2016, p. 90; International Fertilizer Industry Association, 2016, p. 41).

Sulfur.—At yearend 2015, the status of the Al Mishraq Mine, located 45 kilometers (km) north of the city of Mosul, was unknown owing to the armed conflict. In 2014, the mine had been operated by the state-owned Mishraq Sulphur State Co. (MSSC). The company had been implementing a project to modernize and rehabilitate the Al Mishraq Mine and facility under a \$78.6 million contract with Devco Corp. of the United States, which included the installation of a sulfur-purification facility. In April 2015, a shipment containing the plant equipment was reportedly held in Jordan owing to the armed conflict and security situation. By yearend 2014, MSSC had received \$53 million worth of equipment for the sulfur-purification facility. Once completed, the facility was expected to purify about 500,000 t/yr of sulfur with an option to increase capacity to 1 Mt/yr (Lee, 2014; Allurentis Ltd., 2015, p. 114–115; Devco Corp., 2015; Sulphur, 2015).

Mineral Fuels

Natural Gas.—In 2015, Basrah Gas Co. (BGC) continued work on projects to transport and process associated natural gas from the Rumaila, the West Qurna 1, and the Zubair oilfields in the Al Basrah Governorate. The company was a 25-year joint venture among the state-owned South Gas Co. (51%), Royal Dutch Shell (44%), and Mitsubishi Corp. of Japan (5%) established under the MOO in 2014. BGC processed gas supplied by upstream producers into dry gas and liquefied petroleum gas (LPG). Products were transported to the South Gas Co. for distribution to domestic powerplants (Basrah Gas Co., 2015b, c; U.S. Energy Information Administration, 2016, p. 12).

In 2015, BGC continued work repairing 1,800 km of pipeline and nine compressor stations at the Rumaila field. The company planned to construct an additional nine compressor stations and expand pipeline capacity. At the West Qurna 1 field, BGC continued work to repair the pipeline and to construct three permanent compressor stations in an effort to connect the field to the North Rumaila processing plant. By March, BGC had completed the construction of three temporary compressors, which increased production to 14.7 million cubic meters per day of natural gas. BGC continued rehabilitation work on the North Rumaila and Khor Al Zubair processing plants. The company completed construction of a 17-MW powerplant at the Khor Al Zubair gas-processing facility. The powerplant, which was operational in June, supplied the processing facility with electricity. Planned and ongoing rehabilitation work was expected to increase BGC's processing capacity to 36.8 million cubic meters per day of natural gas (Basrah Gas Co., 2015a–c).

Joint-venture companies operating the Rumaila, the West Qurna 1, and the Zubair oilfields were responsible for building and operating equipment to capture flared gas. Exxon Mobil Corp. of the United States (ExxonMobil) signed a contract with SNC-Lavalin Group of Canada to construct a 100,000-bbl/d petroleum-processing facility, designed to capture associated gas, at the West Qurna 1 oilfield. The facility was expected to be completed in November 2018. The West Qurna 1 oilfield was operated under a PSA by ExxonMobil (60%), Royal Dutch Shell (15%), and state-owned Oil Exploration Co. (25%). By yearend 2015, Eni SpA of Italy had completed the first redevelopment phase of the Zubair oilfield, which included the construction of

three degassing facilities. The Zubair oilfield was operated by Eni (41.56%), Occidental Petroleum Corp. of the United States (29.69%), Korea Gas Corporation (KOGAS) of the Republic of Korea (23.75%), and Missan Oil Co. (5%) (Basrah Gas Co., 2015c; Iraq Business News, 2015a; Oil and Gas Journal, 2015; Eni SpA, 2016, p. 47).

Petroleum.—In 2015, production of crude petroleum reached a 5-year high. Increased production was attributed to midstream infrastructure upgrades and developments in crude petroleum marketing. In June 2015, the country began marketing Basrah heavy-grade crude petroleum instead of exclusively marketing Basrah Light, which was reported to have failed contract specifications for quality in 2015. Previously, Iraq had limited the production of the heavy-grade crude petroleum in an effort to maintain the minimum quality standards of Basrah Light. The MOO announced that two of the three export facilities in southern Iraq would export Basrah heavy-grade petroleum exclusively (International Monetary Fund, 2015, p. 5; U.S. Energy Information Administration, 2016, p. 3).

Government spending on petroleum sector expansion decreased in 2015. Existing and planned development projects progressed at a slower rate, were suspended, or were canceled owing to the armed conflict and declining Government budgets. The Government reduced target production levels for 2018 to 6 Mbbl/d from 12 Mbbl/d (MEED, 2016).

In 2015, the KRG reported increased crude petroleum production of 210.7 Mbbl compared with 114.1 Mbbl in 2014. Crude petroleum exported through the Kirkuk-Ceyhan pipeline increased by about 390% to 179.6 Mbbl in 2015 from 36.9 Mbbl in 2014. The increase in exports was because of the additional 41.9 Mbbl of crude petroleum exported from NOC's Kirkuk oilfield, which accounted for 23% of the total crude petroleum exported through the pipeline. In April, the KRG began exporting crude petroleum from NOC's Kirkuk oilfield. The KRG had controlled the Kirkuk oilfield since June 2014. From January to late June, the KRG exported 72.1 Mbbl under the crude petroleum export agreement with the Iraqi Federal Government. Direct crude petroleum sales for the remainder of the year totaled 107.5 Mbbl, of which 27.8 Mbbl, or about 26%, was produced from the Kirkuk oilfield. Although the armed conflict did not affect crude petroleum production in the Iraqi Kurdistan Region, multiple attacks on the Kirkuk-Ceyhan pipeline in mid-2015 intermittently affected the KRG's ability to export crude petroleum (Iraq Business News, 2015c; International Monetary Fund, 2015, p. 6–7; Ministry of Natural Resources of the Kurdistan Regional Government—Iraq, 2015, p. 4–5; 2016b, p. 4–6; U.S. Energy Information Administration, 2016, p. 4).

In April, the MOO contracted Technip S.A. of France and UNICO International Corp. of Japan for the refurbishment of the 135,000-bbl/d Basrah refinery. The project, which was part of the Government's plan to meet expected increased demand for refinery products, was designed to increase the refinery's capacity to produce gasoline. In 2015, construction work continued at the Karbala refinery in South Karbala. The 140,000-bbl/d refinery was expected to be operational in 2019. In October, Iraqi security forces reclaimed control of the Baiji refinery from ISIL. The refinery was reported to

have been damaged beyond repair (Lee, 2015a; Technip S.A., 2015; U.S. Energy Information Administration, 2016, p. 8; Hydrocarbons Technology, undated).

The SOC continued development plans for the delayed Common Seawater Supply Project (CSSP), which consisted of treating and transporting 12 Mbbl/d of seawater from the Persian Gulf to southern oilfields for injection. Targeted increases in crude petroleum production require water injection to maintain reservoir pressure and recovery rates. The project aimed to increase crude petroleum production at the country's southern oilfields, including Majnoon, Rumaila, West Qurna 1 and 2, and Zubair. In February, Parsons Corp. of the United States was awarded a contract for the front-end design of the CSSP. Design plans included a 12.5-Mbbl/d seawater treatment facility and a natural gas powerplant. In November, the MOO was reported to have offered ExxonMobil and PetroChina (a subsidiary of China National Petroleum Corp. of China) access to the undeveloped Omar oilfield in exchange for financing. The project was not expected to be completed before 2020 (Bradley, 2015; Kent, 2015; Lando, 2015; Parsons Corp., 2015; U.S. Energy Information Administration, 2016, p. 5–6).

Outlook

Although Iraq's economy has been constrained by the armed conflict and the global decline in petroleum prices, the economy was expected to grow in the short term as the Government's economic reform program was funded by the International Monetary Fund (IMF) in July 2015. The IMF agreed to provide \$5.34 billion to the country during 3 years to support Government spending, which has been hampered owing to decreased economic activity and low oil prices, as well as being diverted for security spending. As Iraq attempts to rehabilitate its mineral sector by garnering foreign direct investment through public-private joint ventures, external and internal pressures are likely to constrain progress. Externally, regional security issues and the decline in global commodity prices, specifically in crude petroleum prices, are likely to limit foreign direct investment. Internally, the armed conflict and depleted fiscal budgets constrain Government expenditures on necessary investment projects. In the short term, damage to the country's critical infrastructure in the northern region will likely prevent industrial development (International Monetary Fund, 2016b).

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TABLE 1
IRAQ: PRODUCTION OF MINERAL COMMODITIES¹

(Thousand metric tons unless otherwise specified)

Commodity	2011	2012	2013	2014	2015
METALS					
Iron and steel, steel, crude	--	--	--	1,015	1,000 ^e
INDUSTRIAL MINERALS					
Bauxite metric tons	--	--	--	--	--
Cement, hydraulic ^e	10,000	10,000	12,000	16,000	13,000
Clay:					
Bentonite metric tons	6,452 ^r	6,530	6,288	255 ^r	-- ^e
Common	33,013	33,380	34,000 ^e	34,000 ^e	34,000 ^e
Kaolin metric tons	3,000 ^r	3,000 ^r	--	--	-- ^e
Gypsum	713 ²	1,369 ²	1,400 ^e	1,200 ^e	1,000 ^e
Iron oxide pigments metric tons	--	--	--	--	--
Limestone:					
For cement	4,086	4,648	5,000 ^e	2,460 ³	7,360 ³
For construction	585	326	500 ^e	400 ^{r, e}	400 ^e
Nitrogen:					
N content of ammonia	143	143	146	182 ^r	165 ^e
N content of urea	129	129	135	142 ^r	130 ^e
Phosphate rock					
Gross weight	185	250	213	34	-- ^e
P ₂ O ₅ content	46	44	64	7	-- ^e
Phosphate fertilizer	59	80	68	64	0 ^e
Salt	136	143	182	200 ^r	180 ^e
Sand and gravel ⁴	21,300	23,181	24,000 ^e	24,000 ^e	24,000 ^e
Silica sand metric tons	173 ³	1,439 ³	12,900 ^r	3,100 ^r	3,000 ^e
Sulfur ^e	20	20	38 ^r	37 ^r	10
MINERAL FUELS AND RELATED MATERIALS					
Natural gas:					
Gross million cubic meters	18,691 ^r	20,496	21,390	21,853	23,458
Dry do.	876 ^r	646	1,179	904 ^r	1,002
Natural gas plant liquids	16,400	16,400	16,400 ^e	16,000 ^e	16,000 ^e
Petroleum:					
Crude, including condensate thousand 42-gallon barrels	1,022,365	1,137,340 ^r	1,146,465	1,199,025	1,471,315
Refinery products:					
Liquefied petroleum gas do.	3,285	3,614	3,066 ^r	1,679 ^r	1,830 ^e
Gasoline do.	27,521	27,886	31,354	24,163 ^r	20,440
Kerosene and jet fuel do.	31,901	16,243 ^r	15,184	11,279 ^r	10,147
Distillate fuels do.	47,486	46,574	48,326	38,070 ^r	26,390
Residual fuels do.	79,278	103,076	106,945	90,958 ^r	80,957
Other do.	37,668 ^r	18,068 ^r	17,666 ^r	26,353 ^r	24,346
Total do.	227,000 ^r	215,000 ^r	223,000 ^r	193,000 ^r	164,000 ^e

^eEstimated; estimated data are rounded to no more than three significant digits. ^rRevised. do. Ditto. -- Zero.

¹Table includes data available through August 26, 2016. Totals are rounded to no more than three significant digits

²Reported in cubic meters and converted to metric tons; includes only primary gypsum.

³Reported in cubic meters and converted to metric tons.

⁴Reported by the Extractive Industries Transparency Initiative

TABLE 2
IRAQ: STRUCTURE OF THE MINERAL INDUSTRY IN 2015

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Cement:				
Portland		Southern Cement State Co. (Government, 100%)	Five plants: Al Basrah plant An Najaf Al plant Kufa plant Muthena Nora plant As Samawa plant	7,500,000.
Do.		Iraqi Cement State Co. (Government, 100%)	Five plants: Al Qaim plant Al Maamil plant (Baghdad) Kirkuk plant Al Fallujah plant Kubaisa plant	5,200,000.
Do.		Northern Cement State Co. (Government, 100%)	Seven plants: Al Tamin plant Badoosh I, II, and III plants (Mosul) Hammam Al Aleel I and II plants (Mosul) Sinjar plant (Mosul)	3,740,000.
Do.		Bazian Cement Co. (LafargeHolcim Group, 70%, and Faruk Group Holding, 30%)	Bazian plant at Sarchinar, near Hayasi 40 kilometers west of Sulaymaniyah	2,500,000.
Do.		United Cement Co. (LafargeHolcim Group, 60%, and Faruk Group Holding, 40%)	Tasluja plant, near Sulaymaniyah	2,300,000.
Do.		Karbala Cement Manufacturing Ltd. (LafargeHolcim Group, 51%, and Merchant Bridge Co., 49%)	Karbala plant, Karbala Governorate	1,000,000.
Do.		Lucky Cement Co. (Lucky Cement of Pakistan, 50%, and Al Shawi family, 50%)	Al Basrah plant	1,100,000.
Do.		Mass Group Holding Ltd., 100%	Bazian plant 35 kilometers west of Sulaymaniyah	6,000,000.
Do.		do.	Al Shamal cement factory, Atbara	1,500,000.
White		Iraqi Cement Co. (Government, 100%)	Fallujah white cement plant, Fallujah	300,000.
Gypsum		Five companies: Al Ahlia Gypsum Industrial Co. Ltd. Al Ameen Gypsum Production Co. Ltd. Al Ma'moon Building Materials Co. Ltd. Al Rashid Gypsum Co. Ltd Al Shemal Gypsum Industries Co. Ltd.	Baghdad	1,368,750.
Iron and steel	thousand metric tons	Al Anmaa Co. for Constructional Material Production [Al Tanmiya Co. for Steel Industries of Jordan (100%)]	Plant at Khawr az Zubayr, Al Basrah Governorate	450.
Do.	do.	FF Steel Co., 100%	Erbil plant	580.
Do.	do.	Mass Iraq Iron and Steel Industry Co. (Mass Group Holding Ltd., 100%)	As Sulaymaniyah Governorate	1,250.
Do.	do.	State Company for Iron and Steel (SCIS) (Government, 100%)	Khawr az Zubayr, Al Basrah Governorate	NA.
Natural gas	million cubic meters	Basrah Gas Co. (BGC) (South Gas Co., 51%; Royal Dutch Shell plc, 44%; Mitsubishi Corp., 5%)	Hammar Mishrif and Rafidhiya facilities, Al Basrah Governorate	310.
Do.	do.	DNO International ASA, 40%; Genel Enerji A.S., 40%; Kurdistan Regional Government (KRG), 20%	Summail gasfield, Dahuk Iraqi Kurdistan Region	2,044.
Do.	do.	Pearl Petroleum Co. Ltd. (PPCL) [Crescent Petroleum, 40%; Dana Gas PJSC, 40%; MOL Hungarian Oil and Gas Co. p.l.c. (MOL), 10%; OMV Aktiengesellschaft, 10%]	Chemchamal and the Khor Mor fields, Iraqi Kurdistan Region	350.
Nitrogen	thousand metric tons	State Enterprise for Fertilizer and Petrochemical (South) (Government, 100%)	Plant at Abu Al-khasib, Al Basrah Governorate	230 ammonia; 350 urea.
Do.	do.	State Company for Fertilizers Northern Area (Government, 100%)	Plant at Baiji, Salah ad Din Governorate	231 ammonia; 202 urea.
Do.	do.	1st Global Company for Chemical Fertilizers Production Ltd., 100%	do.	365 ammonia; 525 urea.

See footnotes at end of table.

TABLE 2—Continued
IRAQ: STRUCTURE OF THE MINERAL INDUSTRY IN 2015

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Petroleum:				
Crude	thousand 42-gallon barrels per day	BP p.l.c., 47.6%; China National Petroleum Corp. (CNPC), 46.4%; South Oil Co., 6%	Rumaila, Al Basrah Governorate	1,350.
Do.	do.	China National Petroleum Corp. (CNPC), 75%, and North Oil Co., 25%	Al-Ahdab, Wasit Governorate	140.
Do.	do.	China National Petroleum Corp. (CNPC), 37.5%; South Oil Co., 25%; Petronas Carigali International Sdn Bhd, 18.75%; Total S.A., 18.75%	Halfaya, Maysan Governorate	70.
Do.	do.	CNOOC Ltd., 63.75%; Iraq Drilling Co., 25%; Türkiye Petrolleri Anonim Ortaklığı (TPAO), 11.25%	Maysan, Maysan Governorate	450.
Do.	do.	DNO International ASA, 55%; Genel Enerji A.S., 25%; Kurdistan National Oil Co., 20%	Tawke, Iraqi Kurdistan Region	100.
Do.	do.	Exxon Mobil Corp., 60%; Oil Exploration Co., 25%; Royal Dutch Shell plc, 15%	West Qurna 1, Al Basrah Governorate	400.
Do.	do.	Eni SpA, 41.56%; Occidental Petroleum Corp., 26.69%; Korean Gas Corp. (Kogas), 23.75%; Missan Oil Co., 5%	Zubair, Al Basrah Governorate	270.
Do.	do.	Gazprom OAO, 30%; Oil Exploration Co., 25%; Korean Gas Corp. (Kogas) 22.5%; Petronas Carigali International Sdn Bhd, 15%; Türkiye Petrolleri Anonim Ortaklığı (TPAO), 7.5%	Badra, Wasit Governorate	170.
Do.	do.	Lukoil Oil Co., 56.25%; South Oil Co., 25%; Statoil ASA, 18.75%	West Qurna 2, Al Basrah Governorate	NA.
Do.	do.	North Oil Co. (Government, 100%)	Kirkuk, Kirkuk Governorate	280.
	do.	Petronas Carigali International Sdn Bhd, 45%; Japex, Misan Oil Co. Corp., 30%; South Oil Co., 25%	Garraff, Dhi Qar Governorate	35.
Do.	do.	Royal Dutch Shell plc, 45%; Petronas Carigali International Sdn Bhd, 30%; Missan Oil Co., 25%	Majnoon, Al Basrah Governorate	18.
Do.	do.	Sociedade Nacional de Petróleos de Angola (Sonagol), 75%, and South Oil Co., 25%	Qaiyarah, Ninawa Governorate	120.
Do.	do.	Sociedade Nacional de Petróleos de Angola (Sonagol), 75%, and North Oil Co., 25%	Najmah, Ninawa Governorate	110.
Do.	do.	Taq Taq Operating Co. Ltd. (Genel Enerji A.S., 55%, and Addax Petroleum Corp., 45%)	Taq Taq, Iraqi Kurdistan Region	105.
Refinery products	do.	Midland Refineries Co. (Government, 100%)	Daura refinery at Daura	140,000.
Do.	do.	do.	An Najaf Governorate	30,000.
Do.	do.	do.	Samawah	30,000.
Do.	do.	do.	Diwanya	20,000.
Do.	do.	North Refineries Co. (Government, 100%)	Baiji	230,000.
Do.	do.	do.	Kirkuk	30,000.
Do.	do.	do.	Haditha	16,000.
Do.	do.	do.	Qaiyarah	16,000.
Do.	do.	do.	Kasak	10,000.
Do.	do.	South Refineries Co. (Government, 100%)	Al Basrah Governorate	135,000.
Do.	do.	do.	Nassiriyah-Samawah	30,000.
Do.	do.	do.	Missan	20,000.
Do.	do.	Kar Oil & Gas Co. (private)	Kalak, Erbil	80,000.
Do.	do.	Bazian refinery (Qaiwan Group, 100%)	Sulaymaniyah	20,000.

See footnotes at end of table.

TABLE 2—Continued
IRAQ: STRUCTURE OF THE MINERAL INDUSTRY IN 2015

(Metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Phosphate rock	General Company for Phosphate (Government, 100%)	Mines at Akashat, Al Anbar Governorate	3,400,000.
Phosphoric acid ¹	do.	Plant at Al-Qaim	400,000.
Phosphatic fertilizer ^{2,3}	do.	do.	600,000 TSP; 280,000 MAP; 650,000 NPK.
Sulfur	Mishraq Sulphur State Co. (MSSC) (Government, 100%)	Qaiyarah	820,000.
Sulfuric acid ¹	do.	do.	500,000.
Do.	General Company for Phosphate (Government, 100%)	Phosphatic fertilizer plant at Al-Qaim	1,500,000.

Do., do.Ditto. NA Not available.

¹No production has been reported since 2003.

²The fertilizer production unit U400 produces triple superphosphate (TSP), monoammonium phosphate (MAP), and compound fertilizer (NPK).

³Fluoride salts production unit U500, which had the capacity to produce 11,000 metric tons per year of aluminum fluoride, was idle for technical problems but was being used to produce unknown quantities of ammonium chloride, pure silica, silica gel, sodium fluorosilicate, sodium phosphate, and zeolites.