

# 2017–2018 Minerals Yearbook

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## PAKISTAN

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# THE MINERAL INDUSTRY OF PAKISTAN

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**Note: In this chapter, information for 2017 is followed by information for 2018.**

In 2017, Pakistan was one of the world's leading producers of iron oxide pigments (third-ranked world producer), graphite (eighth-ranked producer), and barite (ninth-ranked producer). Pakistan had an estimated 5% of world barite reserves. The country also produced other mineral commodities, such as cement, chromite, clay, coal, copper, crude petroleum, gold, gypsum, iron ore, lead, limestone, natural gas, and silver (table 1; McRae, 2018; Olson, 2018; Tanner, 2018).

## Minerals in the National Economy

In 2017, the growth rate of Pakistan's real gross domestic product (GDP) was 5.2% compared with 4.6% in 2016; this was the highest growth rate since 2008. The nominal GDP increased to \$305 billion<sup>1</sup> in 2017 from \$279 billion in 2016. In fiscal year 2017 (July 2016 through June 2017), the industrial sector accounted for 20.9% of the GDP, although its growth rate decreased to 5.0% in fiscal year 2017 from 5.8% in 2016. The industrial sector's decreased rate of growth in fiscal year 2017 was due to weakened growth in the mining and quarrying subsector, to 1.3% in fiscal year 2017 from 6.9% (revised) in fiscal year 2016. The mining and quarrying subsector accounted for 2.9% of the GDP and 13.9% of the industrial sector. The rate of growth in the construction subsector also decreased to 9.1% from 14.6% (Ministry of Finance, 2018, p. 8; State Bank of Pakistan, 2018a, p. 8; 2018b, p. 11; 2018c, p. 3; International Monetary Fund, 2019).

The Regulation of Mines and Oilfields and Mineral Development (Government Control) Act, which was enacted in 1948 and amended in 1955, 1964, and 1976 at the Federal level, and the Mining Concession Rules of the four Provinces enacted between 2002 and 2005, provide the basic framework for mining activities in Pakistan. The Ministry of Petroleum and Natural Resources regulates the mineral industry at the Federal level. The Government administers the act that concerns natural gas, nuclear energy, petroleum, and certain minerals that occur in special areas, such as the Federally Administered Tribal Area, the Islamabad Capital Territory, and the International Offshore Water Territory. Geologic or geophysical surveying and mapping, national and international coordination, and formulation of national policies and plans are responsibilities of the Federal Government. The Government and the Provinces published the amended National Mineral Policy 2013 (originally enacted in 1995), which protects the Province's ownership of minerals from other than special areas. Under the Constitution, the Federal and Provincial governments share responsibilities for the regulation, detailed exploration, and mineral

development of, and safety concerns with respect to mining operations (Maluka, 2017).

In 2017, significant increases in imports, including capital, raw materials, and machinery, increased the deficit of the national account. The total value of imports in 2017 was \$52.9 billion. The value of imported mineral products, such as salt, ore, and mineral fuels, was \$11.5 billion; base metals and articles of base metal, \$3.8 billion; articles of stone, plaster, cement, asbestos, mica, and similar materials, \$277 million; and natural and cultured pearls, precious and semiprecious stones, and precious metals, \$5 million.

The total value of exports in 2017 was \$20.4 billion. The value of exported mineral products was \$1.08 billion; base metals and articles of base metal, \$426 million; articles of industrial minerals, \$45 million; and natural and cultured pearls, precious and semiprecious stones, and precious metals, \$17 million. The country's reliance on imports of petroleum products increased in 2017 because domestic products could not meet the quality requirements established by the new regulations (State Bank of Pakistan, 2018b, p. 25; 2018d, p. 120, 123–124).

## Production

In 2017, the production of lead (mine, Pb content) increased by 154%; zinc (mine, Zn content) and bentonite, by 153% each; talc, by 52%; graphite and raw steel, by 40% each; fire clay, by 38%; iron ore (gross weight), by 31%; limestone, by 28%; liquefied petroleum gas, by 26%; pumice and quartz, by 19% each; gasoline, by 17%; marble (dimension), by 16%; bauxite, by 15%; sulfur (native), by 13%; and caustic soda and gypsum, by 11% each. In contrast, the production of secondary lead decreased by 88%; fluorspar, by 65%; fuller's earth, by 60%; dolomite, by 52%; copper (mined and smelter) and antimony, by 29% each; phosphate rock, (gross weight), by 26%; kaolin, by 25%; iron oxide pigment, by 21%; feldspar, by 17%; lubricants, by 14%; and sand and gravel (industrial, silica), by 13%. The production of natural gas remained the same as in 2016. Production of mineral fuels, including coal and crude petroleum, increased by 5.5% and 4.8%, respectively. Data on mineral production are in table 1.

## Structure of the Mineral Industry

Provincial governments, along with the Federal Government and domestic and foreign companies, participated in the mining of metallic and industrial minerals, including barite, copper, gold, and iron ore. The Federal Government, through the Ministry of Petroleum and Natural Resources and possession of high-percentage shares in public and international companies, was actively engaged in coal and petroleum production. Table 2 is a list of major mineral industry facilities.

<sup>1</sup>Where necessary, values have been converted from Pakistan rupees (PKR) to U.S. dollars (US\$) at an annual average exchange rate of PKR109.8444=US\$1.00 for 2018, PKR104.6971=US\$1.00 for 2017, and PKR104.2351=US\$1.00 for 2016.

*Metals*

**Copper and Gold.**—In October 2017, state-owned Saindak Metals Ltd. and the Metallurgical Corporation of China Ltd. (MCC) signed a 5-year extension of the mining license for the Saindak copper and gold mine until October 30, 2022. In 2017, copper production (concentrates, Cu content) from Saindak was 10,052 metric tons (t), which was a 28.9% decrease from the 14,136 t produced in 2016 (Metallurgical Corporation of China Ltd., 2017, p. 30; 2018, p. 28; Propakistani, 2017).

In 2011, Tethyan Copper Co. (TCC) submitted an arbitration claim to the World Bank's International Centre for Settlement of Investment Disputes (ICSID) regarding its prospecting license for the Reko Diq copper-gold project, which was revoked by the government of Balochistan Province in 2009. In July 2017, the ICSID ruled in favor of TCC. Pakistan could be penalized up to \$11.5 billion for not awarding the project. TCC completed the bankable feasibility study in August 2010 and submitted a mining lease application that included a proposed processing plant, with expectations of producing 200,000 metric tons per year of copper and 7,800 kilograms per year of gold during a period of 56 years (Ahmed, 2017; Bhutta, 2017; Tethyan Copper Co., 2020).

**Iron Ore.**—In 2017, Bolan Mining Enterprises (BME), which was a joint venture between the government of Balochistan Province and Pakistan Petroleum Ltd., completed a mine planning, designing, and detailed engineering study of the Nokkundi iron ore deposit in Chagai District. The Nokkundi deposit hosted an estimated 50 million metric tons (Mt) of inferred resources. BME also was working on an alternative technology to process low-grade ore from the Dilband deposit in the Kalat District economically. In 2016, Punjab Mineral Co. had completed the exploration phase of the first integrated iron ore project in the country and, in 2017, it entered the development phase, which included exploration and resource estimation and construction of the integrated iron ore mining, processing, and steel-mill complex at Chiniot. Iron ore resources at the Chiniot-Rajoa project were estimated to be approximately 150 Mt of iron ore at an average grade of 30.79% iron (Bolan Mining Enterprises, 2018a, b; Punjab Mineral Co., 2020).

**Lead and Zinc.**—The vertical mine restoration project for the Duddar lead-zinc mine was completed in December 2017. Lead concentrate and zinc concentrate production (gross weight) increased by approximately 150% each, to 5,097 t and 38,913 t, respectively, from 1,994 t and 15,403 t, respectively, in 2016 (Metallurgical Corporation of China Ltd., 2017, p. 28; 2018, p. 31).

An exploration license for a barite-lead-zinc deposit west of Khuzdar was granted to BME in March 2008, and DMT GmbH & Co. KG of Germany completed a bankable feasibility study. Interdrill Pty. Ltd. of Australia subsequently contracted with BME and completed additional resource drilling in September 2017. BME was awaiting the results of the metallurgical analysis from the drilling program; if the results are positive, the project was expected to commence production by 2020 or 2021 (Bolan Mining Enterprises, 2019).

*Industrial Minerals*

**Barite.**—A mining lease for barite was granted to BME in 1974; the proven reserves were 1.28 Mt. BME supplied approximately 90% of the barite required for oil and gas exploration in the country (Bolan Mining Enterprises, 2020).

**Cement.**—In 2017, 24 cement plants with a combined total capacity of 46.2 million metric tons per year (Mt/yr) produced 38.9 Mt of cement, which was a 5.1% increase from 37.0 Mt produced in 2016. Lucky Cement Ltd., which had a production capacity of 9.35 Mt/yr in 2017, became the leading cement producer in Pakistan. Bestway Cement Ltd. completed a 1.3-Mt/yr expansion of its production line at the Farooqia plant. To reduce dependence on the national grid and hedge against potential rises in heavy fuel oil prices and an undesirable shortage of natural gas, Maple Leaf Cement Factory Ltd. commenced the operation of a 40-megawatt (MW) coal-fired powerplant adjacent to its cement plant in October 2017. In February 2017, Pioneer Cement Ltd. signed a contract with Sinoma-Chengdu of China for installation of a 12-MW waste heat recovery power unit and a 24-MW coal-fired powerplant at its cement plant in Punjab Province (table 1; CemNet, 2017; Farooq, 2017; International Cement Review, 2017, p. 267–269; Zaheer, 2017).

*Mineral Fuels and Related Materials*

**Coal.**—Coal production, including bituminous and lignite, increased by 5% to 4.2 Mt in 2017 from 4.0 Mt in 2016 owing to the China-Pakistan Economic Corridor (CPEC) project's investment in coal-fired powerplants. The Tharparkar coalfield in Sindh Province had reserves of 175 billion metric tons of coal, making it the seventh largest coal reserve in the world. Sindh Engro Coal Mining Co. Ltd. (SECMC), which was a joint-venture between the government of Sindh Province and Engro Energy Ltd., was developing a 1,320-MW coal-fired powerplant using 1.5 Mt/yr of coal from Thar Block II, which was expected to be completed by June 2019. In 2017, Sino-Sindh Resources Pvt. Ltd. was building four 350-MW coal-fired powerplants along with a 6.5-Mt/yr coal production project at Thar Block I (table 1; Hasan, 2015; Woods, 2017; Siddiqui, 2019; Engro Energy Ltd., 2020).

**MINERAL INDUSTRY HIGHLIGHTS IN 2018**

In 2018, the growth rate of Pakistan's GDP was 5.5% compared with 5.2% in 2017, and the nominal GDP increased to \$315 billion in 2018 from \$305 billion in 2017. The GDP growth in 2018 was driven by increases in large-scale manufacturing, primarily increases in the production of cement, iron, and steel products, which reflected higher demand from public infrastructure projects being constructed under the CPEC. In fiscal year 2018 (July 2017 through June 2018), the value of output in the industrial sector increased by 5.8% compared with that of fiscal year 2017, and the value of output in the mining and quarrying subsector increased by 3.0% (Asian Development Bank, 2018, p. 235–239; International Monetary Fund, 2019; State Bank of Pakistan, 2019a, p. 8).

In 2018, the production of fluorspar increased by 240%; chromite (gross weight), by 173%; magnesite, by 124%; sea salt, by 91%; antimony (mine, Sb content), by 87%;

lead (mine, Pb content), by 58%; fuller's earth, by 49%; dolomite, by 47%; liquefied petroleum gas, by 44%; marble (dimension), by 39%; zinc (mine, Zn content), by 38%; sand and gravel (industrial, silica), by 29%; iron oxide pigments, by 26%; copper (mine, Cu content) and limestone, by 25% each; gypsum, by 22%; copper (smelter), by 20%; gasoline, by 19%; caustic soda and soda ash, by 15% each; rock salt, 13%; and iron ore (gross weight), by 12%. In contrast, the production of bentonite decreased by 53%; feldspar, by 34%; talc by 31%; naphtha, by 23%; kaolin and pumice, by 19% each; coal (bituminous), by 18%; and kerosene, by 14% (table 1).

In 2018, the Saindak copper-gold mine project increased copper production (concentrate, Cu content) to 12,538 t, or by 25% compared with that of 2017. Punjab Mineral Co.'s Chiniot-Rajoa Saddat iron ore project commenced phase II for the extension of drilling on 15 new prospects after phase I resulted in 150 Mt of iron ore reserves, according to the government of Punjab Province. This deposit could satisfy Pakistan's iron ore requirements for 30 to 40 years, assuming that Pakistan continues to consume 2 Mt/yr of steel. Raw steel production decreased by 5.0% in 2018 owing at least in part to the ban on construction of high-rise buildings with more than six stories, which was enacted in March 2017. In November 2018, the Supreme Court retracted its earlier decision and ordered that new high-rise buildings may be erected in accordance with the law (table 1; Baloch, 2018; Mustafa, 2018; Ministry of Finance, 2019, p. 46; Mines and Minerals Department, 2020).

Cement production increased by 4.9% in 2018 compared with an increase of 5.1% in 2017. In 2018, cement production capacity increased by 6.6%, including the inauguration in August of Bestway Cement's sixth line, which increased its production capacity to 10.8 Mt/yr. The utilization rate of cement production capacity in Pakistan was at a record high of 93%. The growth of the cement industry was driven by CPEC-related projects and special economic zones under its umbrella (table 1; Bestway Cement Ltd., 2018; State Bank of Pakistan, 2019b, p. 21).

SECMC unearthed the first layer of coal in Thar Block II in June 2018 and expected to supply blended coal to companies with coal-fired powerplants, such as Engro Powergen Thar Ltd., which was expected to be operational in 2019 (the company that was to receive all production from the first phase of the project). Hub Power Co. and Thalnova Power Thar (Pvt.) Ltd. were to receive production from the second phase of the mining project; Lucky Energy (Pvt.) Ltd. and Siddiqsons Energy Ltd., from the third phase; and Liberty Power Tech Ltd. and Arif Habib Group, from the fourth phase. After commencement of new mega coal powerplants entirely depending on imported coal in Sahiwal (in May 2017) and Port Qasim (in April 2018), the Thar coal project was the first large power-generation project to use local lignite coal. In 2018, several gas explosions and collapses or landslides took place in coal mines at the Marwar and Surrang coalfields in the Quetta area of Balochistan Province (table 1; Ebrahim, 2018; Leotaud, 2018; Mirza, 2018; Yousafzai, 2018; Ministry of Finance, 2019, p. xv).

Pakistan State Oil Co. Ltd. and Power Construction Corp. of China Ltd. initiated a feasibility study for a deep conversion petroleum refinery close to Lahore, including a crude petroleum pipeline. A joint venture of Pak-Arab Refinery Co. (PARCO)

and the United Arab Emirates planned to begin the construction of the Khalifa Point refinery with a 250,000-barrel-per-day capacity by the end of 2019 (Times of Islamabad, 2018; Frontier Post, The, 2019).

## Outlook

In 2019, the growth of real GDP is forecasted to decrease by 3.3%. The nominal GDP is expected to decrease to \$284 billion from \$305 billion in 2018 (International Monetary Fund, 2019).

Commercial production from the Dilband, Kalabagh, and Nokkundi iron deposits, which are currently being explored, is expected to contribute to the growth of the mineral industry. Arbitration of ICSID may result in the Pakistan Government and TCC negotiating to revive the Reko Diq copper-gold project. The Duddar lead-zinc mine increased production in 2017 and 2018 after the reactivation in 2016, and the mine is expected to continue to be a major producer of lead and zinc.

The Government of Pakistan is striving to solve the power shortage problem by constructing new coal-fired powerplants and developing alternative sources of energy. These projects will enhance the growth of the industrial mineral and mineral fuel industries. When in full operation, the Tharparkar coalfield, which was supported by the Government to increase the consumption of domestically available energy resources, will alleviate the power shortage by supplying blended coal to fuel powerplants.

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TABLE 1  
PAKISTAN: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Metric tons, gross weight, unless otherwise specified)

Commodity <sup>2</sup>	2014	2015	2016	2017	2018
<b>METALS</b>					
Antimony, mine, Sb content	127	114 <sup>r</sup>	21 <sup>r</sup>	15	28
Bauxite	30,175	31,092	90,193	103,412	121,438
Chromium, mine, chromite:					
Gross weight	71,861	100,155	81,250	88,781	242,356
Cr <sub>2</sub> O <sub>3</sub> content	38,000 <sup>r</sup>	53,000 <sup>r</sup>	43,000 <sup>r</sup>	47,000	130,000
Copper:					
Mine, concentrates, Cu content	13,122	13,056	14,136	10,052	12,538
Smelter <sup>e</sup>	13,000	13,000	14,000	10,000	12,000
Iron ore, mine:					
Gross weight                      thousand metric tons	255	439	471	616	690
Fe content                                      do.	82	140	151	197	221
Iron and steel:					
Pig iron                                      do.	142	163	--	--	--
Raw steel                                      do.	2,423	2,892	3,553	4,966	4,719
Lead:					
Mine, Pb content	--	--	1,280 <sup>e</sup>	3,250 <sup>e</sup>	5,140 <sup>e</sup>
Refinery, secondary	9,000 <sup>r</sup>	5,000 <sup>r</sup>	8,000 <sup>r</sup>	1,000	1,000
Silver, mine, Ag content                      kilograms	1,609	9,693	3,110	3,000 <sup>e</sup>	3,000 <sup>e</sup>
Zinc, mine, Zn content	--	--	7,700 <sup>e, r</sup>	19,500 <sup>e</sup>	27,000 <sup>e</sup>
<b>INDUSTRIAL MINERALS</b>					
Barite	153,808	121,575	107,224 <sup>r</sup>	105,554	108,837
Cement, hydraulic                      thousand metric tons	31,960	33,232 <sup>r</sup>	37,020	38,900	40,800
Clay:					
Bentonite	44,115	33,612	31,384	79,417	36,999
Fire clay	428,354	473,906	546,134	754,701	771,951
Fuller's earth	9,914	10,396	22,880	9,162	13,690
Kaolin	13,803	23,064	27,576	20,666	16,655
Feldspar	38,126	141,582	305,308	253,185	167,308
Fluorspar	8,961	7,692	6,625	2,298	7,818
Graphite, crystalline flake	14,300 <sup>r</sup>	2,900 <sup>r</sup>	10,000 <sup>r</sup>	14,000 <sup>e</sup>	14,000 <sup>e</sup>
Gypsum, mine	1,446,000	1,660,000	1,998,000	2,221,000	2,716,000
Iron oxide pigments, mineral, natural, ocher	27,507	51,534	90,424	71,779	90,619
Magnesite <sup>3</sup>	4,457	24,271	22,581	21,481	48,108
Nitrogen, ammonia, N content	2,700,000 <sup>r</sup>	3,100,000 <sup>r</sup>	3,300,000 <sup>r</sup>	3,100,000	3,100,000
Phosphate rock: <sup>e</sup>					
Gross weight	93,000 <sup>r</sup>	100,000 <sup>r</sup>	88,000 <sup>r</sup>	65,000	69,000
P <sub>2</sub> O <sub>5</sub> content	23,000 <sup>r</sup>	25,000 <sup>r</sup>	22,000 <sup>r</sup>	16,000	17,000
Pumice <sup>e</sup>	1,000	1,200	2,700	3,200	2,600
Quartz <sup>e</sup>	65,200	64,400	94,700	113,000	110,000
Salt:					
Rock salt                      thousand metric tons	2,243 <sup>r</sup>	2,779 <sup>r</sup>	3,535 <sup>r</sup>	3,493	3,959
Sea salt <sup>e</sup> do.	230 <sup>r</sup>	212 <sup>r</sup>	214 <sup>r</sup>	222	424
Sand and gravel, industrial, silica	237,000 <sup>r</sup>	359,000	395,000 <sup>r</sup>	345,000	445,000
Sodium compounds:					
Caustic soda                      thousand metric tons	166	227	218	241	277
Soda ash, synthetic                      do.	284	449	476	476	546
Stone:					
Crushed:					
Chalk	689	100	110	--	--
Dolomite                      thousand metric tons	676	271	691	332	489
Limestone                      do.	38,641	44,252	47,577	60,765	75,681
Dimension, marble                      do.	2,185	3,219	5,149	5,967	8,295
Sulfur, native, S content	31,559	14,888	20,243	22,787	20,836
Talc and related materials, soapstone	80,289	113,509	116,678	177,345	122,938

See footnotes at end of table.

TABLE 1—Continued  
PAKISTAN: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Metric tons, gross weight, unless otherwise specified)

Commodity <sup>2</sup>		2014	2015	2016	2017	2018
MINERAL FUELS AND RELATED MATERIALS						
Coal:						
Bituminous	thousand metric tons	2,474 <sup>r</sup>	2,324 <sup>r</sup>	2,827 <sup>r</sup>	2,982	2,445
Lignite	do.	1,212 <sup>r</sup>	951 <sup>r</sup>	1,157 <sup>r</sup>	1,221	1,227
Natural gas, marketable	million cubic meters	41,875 <sup>r</sup>	41,948 <sup>r</sup>	41,507 <sup>r</sup>	41,474	40,934
Petroleum:						
Crude	thousand 42-gallon barrels	34,232 <sup>r</sup>	32,996 <sup>r</sup>	31,285 <sup>r</sup>	32,799	32,630
Refinery:						
Distillate fuel oil	do.	48,776	55,333	52,607	56,421	59,141
Gasoline	do.	12,569	14,283	14,308	16,743	19,930
Jet fuel	do.	6,526	6,680	6,964	7,024	6,866
Kerosene	do.	1,224	1,290	1,021	986	844
Liquefied petroleum gas	do.	2,332	2,576	2,926	3,700	5,318
Lubricants	do.	1,348	1,378	1,445	1,238	1,361
Naphtha	do.	6,892	8,713	6,837	6,864	5,264
Other	do.	414	313	166	217	291
Total	do.	80,081	90,566	86,274	93,193	99,015
Uranium, mine, U content <sup>e</sup>		45 <sup>r</sup>	45 <sup>r</sup>	45 <sup>r</sup>	45	45

<sup>e</sup>Estimated. <sup>r</sup>Revised. do. Ditto. -- Zero.

<sup>1</sup>Table includes data available through October 7, 2019. All data are reported unless otherwise noted. Estimated data are rounded to no more than three significant digits.

<sup>2</sup>In addition to the commodities listed, secondary aluminum, emerald, and gold may have been produced, but available information was inadequate to make reliable estimates of output.

<sup>3</sup>Magnesite, dolomite, and brucite.

TABLE 2  
PAKISTAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2018

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity <sup>e</sup>
Aluminum smelters, secondary	metric tons	Alpha Aluminum Co.	Lahore, Punjab Province	1,000.
Do.	do.	Aluminum Co. of Pakistan Industries (Pvt) Ltd. (ALCOP)	Karachi, Sindh Province, and Lahore, Punjab Province	2,700.
Do.	do.	Chawla Chemical & Metal Industries (Pvt) Ltd.	Lahore, Punjab Province	NA.
Do.	do.	Japan Metal Industries	Karachi, Sindh Province	1,500.
Do.	do.	Khan Aluminum Industries	do.	2,700.
Do.	do.	Lucky Industries (Pvt.) Ltd.	do.	1,200.
Do.	do.	Pakistan Cables Ltd.	do.	2,500.
Do.	do.	Pakistan Metal Industries	do.	4,000.
Do.	do.	Sun Metal Industries (Pvt.) Ltd.	do.	10,800.
Antimony	do.	MTEQ Pakistan (Pvt.) Ltd.	Vashouk and Dalbadin, Balochistan Province	100.
Barite		Bolan Mining Enterprises (BME) (government of Balochistan, 50%, and Pakistan Petroleum Ltd., 50%)	Khuzdar, Balochistan Province	120.
Do.		Razvi Mining (Pvt.) Ltd.	Gandori, Kalan, and Retri, Khyber Pakhtunkhwa Province	30.
Bauxite		NA	Chhoi-Akhori deposit, Haripur, Khyber Pakhtunkhwa Province	NA.
Do.		NA	Katha-Pail desposit, Khushab, Punjab Province	NA.
Cement		Askari Cement Co. Ltd.	Wah, Rawalpindi, Punjab Province, and Nizampur, Nowshera, Khyber Pakhtunkhwa Province	1,190.
Do.		Attock Cement Pakistan Ltd. (Pharaon Group)	Hub, Lasbela District, Balochistan Province	3,000.
Do.		Bestway Cement Ltd.	Hattar, Haripur, Khyber Pakhtunkhwa Province	1,250.
Do.		do.	Tatral, Chakwal District, Punjab Province	3,600.
Do.		do.	Farooqia, Haripur, Khyber Pakhtunkhwa Province	3,420.
Do.		do.	Kallar Kahar, Chakwal District, Punjab Province	2,500.
Do.		Cherat Cement Co. Ltd.	Lakrai, Nowshera, Khyber Pakhtunkhwa Province	1,090.
Do.		Dadabhoi Cement Industries Ltd. (Popular Group)	Kalu Kohar, Dadu District, Sindh Province	657.
Do.		Dandot Cement Co. Ltd. (Three Stars Cement Pvt. Ltd., 49.5%; Rasheed Family, 31.6%; others, 18.9%)	Dandot, Chakwal District, Punjab Province	504.
Do.		Dewan Cement Ltd. (A Yousuf Dewan Co.)	Kamilpur, Khyber Pakhtunkhwa Province, and Deh Dhand, Malir, Karachi, Sindh Province	3,140.
Do.		D.G. Khan Cement Co. Ltd.	Dera Ghazi Khan, Punjab Province	2,110.
Do.		do.	Khairpur Districts, Sindh Province	2,110.
Do.		do.	Hub, Lasbela District, Balochistan Province	2,840.
Do.		Fauji Cement Co. Ltd.	Pateh Jang, Attock District, Punjab Province	3,430.
Do.		Fecto Cement Ltd.	Hattar, Haripur, Khyber Pakhtunkhwa Province	900.
Do.		Flying Cement Co. Ltd.	Mangowal, Khushab District, Punjab Province	1,190.
Do.		Gharibwal Cement Ltd.	Pind Dadan Khan, Chakwal, Punjab Province	2,210.
Do.		Kohat Cement Co. Ltd. (white and gray cement)	Kohat, Khyber Pakhtunkhwa Province	2,700.
Do.		Lucky Cement Ltd.	Pezu, Lakki Marwat, Khyber Pakhtunkhwa Province	12,200.
Do.		Maple Leaf Cement Factory Ltd. (Kohinoor Maple Leaf Group)	Daudkhel, Mianwali District, Punjab Province	3,370.
Do.		Pioneer Cement Ltd.	Chenki, Khushab District, Punjab Province	2,030.
Do.		Power Cement Ltd. (Arif Habib Group)	Kalo Kohar, Jamshoro District, Sindh Province	950.
Do.		Thatta Cement Co. Ltd. (Arif Habib Group)	Makli, Thatta District, Sindh Province	490.
Do.		Zeal Pak Cement Factory Ltd.	Hyderabad, Hyderabad District, Sindh Province	528.
Chromite		MTEQ Pakistan (Pvt.) Ltd.	Dargai and Malakand, Khyber Pakhtunkhwa Province	120.
Do.		Mughne Group	NA	NA.
Do.		Svah Resources Inc.	Muslim Bagh and Khanozai, Balochistan Province	180.

See footnotes at end of table.



TABLE 2—Continued  
PAKISTAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2018

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity <sup>c</sup>
Coal	Al-Muhandus Corp. [Ghani Mines (Pvt.) Ltd.]	Quaidabad, Khushab District, Punjab Province	NA.
Do.	Ghani Corp. [Ghani Mines (Pvt.) Ltd.]	NA	NA.
Do.	Ghani Mines (Pvt.) Ltd.	Quaidabad, Khushab District, Punjab Province	NA.
Do.	Lakhra Coal Development Co. Ltd. [Pakistan Mineral Development Corp. (PMDC), 50%; government of Sindh Province, 25%; Water and Power Development Authority, 25%]	Latifabad, Hyderabad, Sindh Province (a powerplant at Khanote, Jamshoro District, Sindh Province)	NA.
Do.	Nara Minerals [Ghani Mines (Pvt.) Ltd.]	Jogi Tilla, Jhelum District, Punjab Province	NA.
Do.	Pakistan Mineral Development Corp. (PMDC) (Ministry of Petroleum and Natural Resources, Government of Pakistan)	Degari Coalfield, Mastung District, Balochistan Province	17.
Do.	do.	Lakhra Coalfields, Latifabad and Hyderabad, Sindh Province	285.
Do.	do.	Shahrig-Khost-Harnai Coalfield, Sibi, Balochistan Province	221.
Do.	Pakistan Mineral Development Corp. (PMDC) (Ministry of Petroleum and Natural Resources, Government of Pakistan)	Sor-Range Coalfield, 16 kilometers east of Quetta, Balochistan Province	60.
Do.	Sindh Carbon Energy Ltd. (Oracle Power Plc.)	Thar Coalfield, Block VI, Tharparkar District, Sindh Province	4,000.
Do.	Sindh Coal Authority (Energy Department, government of Sindh Province)	Dadu, Sindh Province	4,000.
Do.	do.	Tharparkar, Sindh Province	NA.
Do.	Sindh Engro Coal Mining Co. (government of Sindh Province and Engro Powergen Ltd.)	Thar Coalfield, Block II, Tharparkar District, Sindh Province	3,800.
<b>Copper:</b>			
Mine, Cu content	MTEQ Pakistan (Pvt.) Ltd. (mining and manufacturing)	NA	NA.
Do.	Saindak Metals Pvt. Ltd. (Metallurgical Corporation of China, Ltd., 50%; government of Balochistan Province, 35%; Government of Pakistan, 15%)	Saindak Mine, Balochistan Province	15.
Smelter, primary	do.	Smelting plant, Saindak, Balochistan Province	20.
Fertilizer	Engro Fertilizer Ltd. (Engro Corp., 56.3%; financial institutes, 14.5%; public, 13.1%; others, 16.1%)	Daharki, Ghotki District, Sindh Province	2,000.
Do.	Fatima Fertilizer Co. Ltd. (Directors and affiliates, 27.3%; Fatima Holding Ltd., 22.9%; Arif Habib Group, 17.8%; others, 32%)	Calcium ammonium nitrate plant, Integrated complex in Sadiqabad, Rahim Yar Khan, Punjab Province	420.
Do.	do.	Nitrophosphate plant, Integrated complex in Sadiqabad, Rahim Yar Khan, Punjab Province	360.
Do.	do.	Urea plant, Integrated complex in Sadiqabad, Rahim Yar Khan, Punjab Province	500.
Do.	Fauji Fertilizer Bin Qasim Ltd. (Fauji Fertilizer Co., 49.9%; Fauji Foundation, 18.3%; others, 31.8%)	Diammonium phosphate plant, Bin Qasim Eastern Industrial Zone, Karachi, Sindh Province	815.
Do.	do.	Urea plant, Bin Qasim Eastern Industrial Zone, Karachi, Sindh Province	700.
Do.	Pakarab Fertilizer Ltd. (Fatima Group)	Calcium ammonium nitrate plant, Multan City, Punjab Province	450.
Do.	do.	Nitrophosphate plant, Multan City, Punjab Province	305.
Do.	do.	Urea plant, Multan City, Punjab Province	100.

See footnotes at end of table.

TABLE 2—Continued  
PAKISTAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2018

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity <sup>c</sup>
Gas, natural	million cubic meters	Mari Petroleum Co. Ltd.	Mari gasfield, Daharki and 14 oilfields and gasfields	6,900.
Do.	do.	MOL Pakistan Oil and Gas Co. (MOL Group)	Tal, Margala, Karak, Ghauri, DG Khan Blocks	530.
Do.	do.	Ocean Pakistan Ltd. (Hashoo Group)	Dhurnal, Bhangali, and Ratana oilfields and gasfields in Punjab Province	70.
Do.	do.	Oil and Gas Development Co. Ltd. (OGDCL)	37 oilfields and gasfields, including Mari, Sindh Province	10,900.
Do.	do.	Pakistan Oilfields Ltd. (POL)	15 oilfields and gasfields	810.
Do.	do.	Pakistan Petroleum Ltd. (PPL) (Government, 68%; PPL Employees Empowerment Trust, 7%; private investors, 25%)	Adhi, Punjab Province; Kandhkot and Mazarani, Sindh Province; and Sui, Balochistan Province	9,300.
Gold, metal		Saindak Metals Pvt. Ltd. (Metallurgical Corporation of China, Ltd., 50%; government of Balochistan Province, 35%; Government of Pakistan, 15%)	Saindak Mine, Chaghi District, Balochistan Province	NA.
Gemstone		Azad Kashmir Mineral Industrial Development Corp.	Chitta Katha and Nungi Mali, Azad Kashmir Territory	NA.
Iron ore		Mines and Minerals Enterprise	Sargodha, Punjab Province	4.
Do.		Small-scale local mines	NA	1,000.
Lead and zinc, ore, gross weight		China Huaye Group Co. Ltd. [Metallurgical Corporation of China Ltd. (MCC), 75%, and Pakistan Mineral Development Corp. (PMDC) and the government of Balochistan Province, 25%]	Duddar Lead-Zinc Mine Project, Duddar, Balochistan Province	500.
Petroleum:				
Crude, including condensate	thousand 42-gallon barrels	Mari Petroleum Co. Ltd.	Sindh Province	600.
Do.	do.	MOL Pakistan Oil and Gas Co. (MOL Group)	Tal block, Kohat, Khyber Pakhtunkhwa Province	900.
Do.	do.	Ocean Pakistan Ltd. (Hashoo Group)	Dhurnal, Bhangali, and Ratana oil and gas fields in Punjab Province	180.
Do.	do.	Oil and Gas Development Co. Ltd. (OGDCL) (Government, 74.97%, and private investor, 25.03%)	Kunnar, Nashpa, Pasakhi, Rajian, and Sinjhor Fields	16,600.
Do.	do.	Pakistan Oilfields Ltd. (POL)	Balochistan Province	2,470.
Do.	do.	Pakistan Petroleum Ltd. (PPL) (Government, 68%; PPL Employees Empowerment Trust, 7%; private investors, 25%)	Adhi, Punjab Province (additional 10 blocks)	6,000.
Refined	42-gallon barrels per day	Attock Refinery Ltd.	Rawalpindi, Punjab Province	53,400.
Do.	do.	Byco Petroleum Pakistan Ltd.	Mouza Kund, Tehsil Gadani, Lasbela District, Balochistan Province	155,000.
Do.	do.	National Refinery Ltd. [(Attock) Pharaon Group, 51%, and Government of Pakistan, 49%]	NA	59,000.
Do.	do.	Pak-Arab Refinery Co. Ltd. (Government of Pakistan and government of the Emirate of Abu Dhabi, United Arab Emirates)	Mahmood Kot, Punjab Province	100,000.
Do.	do.	Pakistan Refinery Ltd. (Shell Petroleum Co. Ltd., 32.1%; Pakistan State Oil Co. Ltd., 24.1%; public, 20.1%; Hascol Petroleum Ltd., 14.7%; others, 9.0%)	Karachi District, Sindh Province	55,000.
Phosphate rock		Al-Muhandus Corp. [Ghani Mines (Pvt.) Ltd.]	Salt Range, near village Choa, Warcha, Quaidabad, Khushab District, Punjab Province	NA.
Do.		Ghani Mines (Pvt.) Ltd.	Quaidabad, Khushab District, Punjab Province	90.
Do.		Pakistan Mining Co. Ltd.	NA	90.

See footnotes at end of table.

TABLE 2—Continued  
PAKISTAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2018

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity <sup>c</sup>
Salt	Hub-Pak Salt Refinery	Hub, Ankerio, and Mukhai plants	Rock salt, 2,000; sea salt, 400.
Do.	Pakistan Mineral Development Corp. (PMDC) (Ministry of Petroleum and Natural Resources, Government of Pakistan)	Khewra Salt Mine, Salt Ranges, Jhelum, Punjab Province	435.
Do.	do.	Warcha Salt Mines, Mianwali, Punjab Province	613.
Do.	do.	Kalabagh Salt Mines, Mianwali, Punjab Province	80.
Do.	do.	Jatta Salt Mines, Khyber-Pakhtunkhwa Province	73.
Do.	do.	Bahadur Khel–Karak Salt Mines, Karak, Khyber Pakhtunkhwa Province	NA.
Silica sand	Ghani Corp. [Ghani Mines (Pvt.) Ltd.]	NA	NA.
Do.	MTEQ Pakistan (Pvt.) Ltd.	NA	120.
Soda ash	ICI Pakistan Ltd.	Khewra, Punjab Province	350.
Steel:			
Raw steel	Ittefaq Iron Industries Ltd.	Kasur, Punjab Province	120.
Do.	Mughal Iron & Steel Industries Ltd. (MISIL)	Lahore, Punjab Province	688.
Do.	Pakistan Steel Mills Corp. (Pvt) Ltd. (Ministry of Industries and Production, Government of Pakistan)	Bin Qasim, Karachi, Sindh Province	1,100.
Products	Abbas Steel Group	Karachi, Sindh Province and Lahore, Punjab Province	200.
Do.	Agha Steel Industries Ltd.	Port Qasim Authority, Karachi, Sindh Province	Billet, 240; rebar, 150.
Do.	Aisha Steel Mills Ltd. (Arif Habib Group, 45.7%; Mr. Arif Habib, 19.6%; Jubilee Life Insurance Co. Ltd., 8.0%; others, 26.7%)	Bin Qasim, Karachi, Sindh Province	700.
Do.	Amreli Steels (Pvt) Ltd.	Karachi, Sindh Province	Billet, 200; rebar, 300.
Do.	International Steels Ltd.	Landhi Industrial Area, Karachi, Sindh Province	Coil, 1,010.
Do.	Peoples Steel Mills Ltd.	Karachi, Sindh Province	70.
Stone, marble	Azeem Marble & Onyx Industries	do.	NA.
Sulfur	Oil and Gas Development Co. Ltd. (OGDCL)	Dakhni Field	23.
Do. metric tons	Pakistan Oilfields Ltd. (POL)	15 oilfields and gasfields	566.
Talc	Mughne Group	NA	NA.
Do.	Omar Minerals (Omar Associates Pvt. Ltd.)	Khyber Pakhtunkhwa Province	NA.
Do.	SKZ Mining Co. Pvt. Ltd.	do.	NA.

<sup>c</sup>Estimated. Do., do. Ditto. NA Not available.