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# 2019 Minerals Yearbook

## BHUTAN AND NEPAL [ADVANCE RELEASE]

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# The Mineral Industries of Bhutan and Nepal

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## BHUTAN

Bhutan was the ninth-ranked producer of silicon (silicon content of combined totals for ferrosilicon and silicon metal), accounting for 1.1% of the world's production. Other mineral commodities produced in the country included cement, coal, dolomite, granite, gypsum, limestone, marble, quartzite, and talc (table 1; Schnebele, 2021).

In 2019, the real gross domestic product (GDP) increased by 5.5% compared with 3.1% in 2018. The nominal GDP in 2019 was $2.53 billion (BTN178 billion).[1] The revenue of the mining and quarrying sector increased by 33.1% in 2019 compared with a 37.6% increase in 2018. The mining and quarrying sector contributed 4.8% to the country's total GDP in 2019. The electricity and water supply sector and the construction sector accounted for 12.7% and 11.5% of the total GDP, respectively. In 2019, the mining and quarrying sector employed 1,393 people compared with 1,178 people in 2018, accounting for less than 0.5% of the total labor force (National Statistics Bureau, 2019, p. 97; 2020, p. 102, 348–350).

The value of Bhutan's total exports increased to $675 million in 2019 from $605 million in 2018. In 2019, exports of mineral products accounted for 73.6% of total goods exports, by value, including silicon-related products (33.5% of total goods exports); various kinds of stone, including boulders, pebbles, gravel, and dolomite (26.0%); cement (6.5%); iron and steel (5.2%); and gypsum (2.5%). In 2019, the value of total imports decreased to $982 million from $1.05 billion in 2018. Imports of mineral fuels—including light oils and refined products, such as gasoline, aviation fuel, coke, and semicoke—accounted for 16.8% of Bhutan's total goods imports; ferrous products accounted for 4.6%. India was Bhutan's main trade partner, receiving 83.8% of Bhutan's total goods exports and supplying 82.0% of its total goods imports (National Statistics Bureau, 2020, p. 266, 267).

### Production

In 2019, the production of cement increased by an estimated 26%; crushed limestone, by 16%; ferrosilicon, by 15%; and gypsum, by 11%. The production of crushed marble decreased by 50%; crushed granite, by 44%; talc, by 33%; and crushed stone (unspecified), by 11%. Data on mineral production are in table 1.

### Structure of the Mineral Industry

Among 920 companies, including mineral companies, in Bhutan's industrial sector as of 2017 (the latest year for which comprehensive information was available), single proprietorships or partnerships accounted for 85% of the ownership; private limited companies, 11%; and foreign direct investment, state-owned enterprises, public limited companies, and project authorities, less than 1% each. As of June 2019, Bhutan had 103 medium- and large-scale mineral companies compared with 92 in June 2018; of all companies at these scales, mineral companies accounted for 4.5% of the total. In the same period, Bhutan had 207 cottage-scale and small-scale mineral companies compared with 182 in 2018, accounting for 0.9% of all the companies at these scales. Table 2 is a list of major mineral industry facilities (National Statistics Bureau, 2020, p. 198, 199, 203, 204, 209).

### Commodity Review

#### *Industrial Minerals*

**Cement**.—Production of cement in Bhutan increased to an estimated 1.19 million metric tons (Mt) in 2019 from 941,000 metric tons (t) in 2018. Dungsam Cement Corp. Ltd. produced 604,936 t of cement in 2019, which was a 4.5% decrease compared with that in 2018. The company also produced 375,870 t of clinker. Penden Cement Authority Ltd. produced 301,492 t of cement, which was a 2.1% decrease compared with that in 2018 (table 1; Druk Holding & Investments Ltd., 2020, p. 47; Penden Cement Authority Ltd., 2020, p. 11).

**Gypsum**.—Production of mined gypsum increased by 11% in 2019 compared with that in 2018. In October 2018, the Government granted to State Mining Corp. Ltd. (SMCL) an interim operation lease for the Khothakpa gypsum mines for 2 years starting on January 1, 2019, after the previous lease owned by Druk Satair Corp. Ltd. expired. SMCL achieved the highest profit after tax, $3.5 million, in the history of Bhutan's gypsum business. Bhutan's gypsum industry had major regional markets in Bangladesh, India, and Nepal, whereas Oman and Thailand continued to increase market share with the high purity of gypsum and low production cost (table 1; Rinzin, 2016; State Mining Corp. Ltd., 2020, p. 10).

#### *Mineral Fuels*

**Coal.**—Production of coal decreased by 1% in 2019 compared with a 16% increase in 2018. The Habrang and the Tshophangma coal mines, which were owned by SMCL, faced challenging operating conditions. The Habrang Mine, which had 660,000 t of coal reserves, had the issue of greater overburden height given deeper extraction depth. The coal beds of the Tshophangma Mine, which had 150,000 t of coal reserves, occur between hard sandstones, against which rock breakers and jackhammers were not effective. SMCL produced 77,670 t of coal, which accounted for 42% of Bhutan's total coal production in 2019 (table 1; State Mining Corp. Ltd., 2020, p. 10; 2021).

[1]Where necessary, values have been converted from Bhutanese Ngultrum (BTN) to U.S. dollars (US$) at the rate of BTN70.35=US$1.00 for 2019 and BTN68.40=US$1.00 for 2018.

### Outlook

Bhutan's GDP is expected to increase by less than 1% in 2020 owing to the effects of the coronavirus disease 2019 (COVID-19) pandemic (International Monetary Fund, 2020). Based on the increased growth rate of the mining and quarrying sector and the establishment of new mineral companies during the past 2 years, the sector is expected to continue to grow in the coming years, albeit more slowly than previously estimated owing to the effects of the ongoing pandemic.

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## NEPAL

In 2019, Nepal produced coal and a variety of industrial minerals, including cement, clay, limestone, marble, quartzite, and talc. The mineral industry represented only a minor part of the economy of Nepal. The growth rate of the GDP was 7.0% during fiscal year (FY) 2019, which began on July 16, 2018, and ended on July 15, 2019, compared with 6.7% in FY 2018. The GDP growth rate of the mining and quarrying sector was 8.91% in FY 2019 compared with 8.88% in FY 2018. The mining and quarrying sector contributed less than 0.5% of Nepal's GDP. In FY 2019, the value of Nepal's total exports of goods was \$995 million (NPR113 billion),[2] which was a 20.6% increase compared with that in FY 2018. The country's total imports of goods were valued at \$12.3 billion (NPR1,397 billion), which was a 13.5% increase compared with that in FY 2018 (table 1; Central Bureau of Statistics, 2020).

In Nepal, all mineral resources that occur in the country are owned by the state. The legislative framework for the mineral sector in Nepal is provided by the Mines and Mineral Act 1985 and its amendment in 1993; the Mines and Mineral Rules 1999 and its amendments in 2003, 2015, and 2016; the Nepal Petroleum Act 1983; and the Petroleum Regulation 1984 and its amendments in 1985, 1989, 1994, and 2018 (Investment Board Nepal, 2020, p. 21; Kaphle, 2020, p. 3).

### Production

Nepal's mineral industry was dominated by the production of industrial minerals. In 2019, quartzite slab (dimension) production increased by 107% (estimated); crushed limestone, by 20% (estimated); and cement, by 10% (estimated). Crushed marble (including aggregates) production decreased by 51% (estimated); red clay, by 31% (estimated); and bituminous coal, by 13% (estimated). Gemstones were not produced in FY 2019. Data on mineral production are in table 1.

### Structure of the Mineral Industry

In FY 2019, Nepal had 388 prospecting licenses to explore for 16 minerals and 143 mining licenses to mine 17 mineral commodities. The licenses were issued by the Department of Mines and Geology (DMG) under the Ministry of Industry. Only some industrial minerals and coal mines were in operation, whereas no copper, iron ore, lead, magnesite, or zinc mines were in operation or still under development. The DMG is the Government agency responsible for conducting geologic mapping and mineral and petroleum exploration activities; administrating mining laws and regulations; issuing prospecting and mining licenses; and signing petroleum agreements with national and international investors and companies. Table 2 is a list of major mineral industry facilities (Kaphle, 2020, p. 1–3).

### Commodity Review

#### *Industrial Minerals*

**Cement.**—Nepal produced 9.86 Mt (estimated) of cement in 2019 and became a self-sufficient cement producer with a production capacity of 13 million metric tons per year. The country had 114 registered cement factories, of which 68 factories were in operation in 2019. The Government planned to promote the export of cement above that needed to satisfy domestic demand. The IME Group planned to build a \$90 million cement plant in Nawalparasi District that was scheduled to be commissioned in 2024; the plant would be supplied from a quarry in Palpa District that had 18.7 Mt of limestone reserves. In 2019, Udayapur Cement Industry Ltd. started a capacity expansion project to increase its cement production capacity to 400,000 metric tons per year (t/yr) from 260,000 t/yr. In February Huaxin Cement Narayani Pvt. Ltd., a Nepali-Chinese joint venture, started to build a cement plant with the capacity to produce approximately 900,000-t/yr of cement. In November, the company resumed plant construction after a flood in July (tables 1, 2; GlobalCement.com, 2019a–f; Subedi, 2019).

[2]Where necessary, values have been converted from Nepal rupees (NPR) to U.S. dollars (US\$) at the annual average exchange rate of NPR113.58=US\$1.00 for 2019.

**Gemstones.**—Nepal had precious stone deposits of ruby and sapphire, and semiprecious stone deposits of aquamarine, beryl, garnet, kyanite, quartz, and tourmaline. The Government maintained the export ban on raw gemstones first set in place in 2014 to minimize the export of precious stones at low prices. The Government required a minimum 1% added value by processing over the values of raw precious stones and permitted only domestic companies to extract precious and semiprecious stones. A total of nine mines were licensed for tourmaline, six for kyanite, and three for quartz. As of 2018, approximately 15% of the raw gemstone produced was processed and private entrepreneurs pursued new applications for the remaining unprocessed raw material for industrial use and export (Khanal, 2019; Nepal24Hours.com, 2019; Kaphle, 2020, p. 11, 12).

### *Mineral Fuels*

**Petroleum.**—In February 2019, DMG signed the Implementation Agreement of China-Aid on Oil and Gas Resource Project in Nepal with the China Geological Survey (CGS) to start the first phase of petroleum exploration in the Dailekh and Palpa Districts. In June, after it had completed a detailed report of the Butwal-Palpa, Chatara-Barahachhetra, and Surkhet-Dailekh areas, the CGS started a drilling operation for one selected area to a depth of at least 4 kilometers to locate petroleum reserves. The CGS conducted a feasibility study in the Dailekh, Palpa, Suekhet, and Sunsari Districts in April 2018. In 2014 and 2015, the Government canceled the working licenses of all foreign companies owing to their slow progress, including Texana Resources Co. of the United States for Blocks 3 and 5 in Banke and Chitwan; BBB Champion of the United States for Block 10 in Biratnagar; Cairn Energy Plc. of United Kingdom for Blocks 1, 2, 4, 6, and 7 in Dhangadhi, Karnali, Lumbini, Birgunj and Malangawa, respectively; and Emirates Associated Business Group of the United Arab Emirates for Blocks 8 and 9 in Janakpur and Rajbiraj (Nepal Energy Forum, 2015; Himalayan Times, The, 2019; Kathmandu Post, The, 2019).

## Outlook

The economy of Nepal is expected to be slow in the short term owing to the effects of the COVID-19 pandemic. Competition in the cement industry is likely to increase. Production of gemstones will not resume if the export ban on non-value-added raw materials remains in place. If exploration for natural gas and petroleum is successful, the country may become a natural gas and petroleum producer in the future.

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TABLE 1

BHUTAN AND NEPAL: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons, gross weight, unless otherwise specified)

| Country and commodity | | 2015 | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|---|---|
| BHUTAN[2] | | | | | | |
| Cement, hydraulic | thousand metric tons | 791 | 940 | 895 | 941 | 1,190 e |
| Coal, bituminous | | 85,164 | 117,783 | 161,527 | 186,824 | 184,785 |
| Ferroalloys, ferrosilicon | | 104,406 | 106,234 | 108,410 r | 120,857 r | 138,616 |
| Gypsum, mine | | 389,265 | 317,597 | 328,128 | 461,128 | 512,218 |
| Iron ore, mine: | | | | | | |
| Gross weight | | 43,202 | 28,065 | 32,974 | 37,843 | 36,864 |
| Fe content | | 26,800 | 17,400 | 20,400 | 23,500 | 22,900 |
| Stone, crushed: | | | | | | |
| Dolomite | | 2,662,310 | 2,367,659 | 2,536,693 | 2,821,166 | 3,027,518 |
| Granite | | 3,889 | -- | 26,364 | 6,080 | 3,391 |
| Limestone | | 850,431 | 1,257,101 | 1,235,162 | 1,334,038 | 1,546,302 |
| Marble | | 97,648 | 75,031 | 96,567 | 188,901 | 94,318 |
| Quartzite | | 79,819 | 92,770 | 175,501 | 145,714 | 141,066 |
| Unspecified | | 2,203,065 | 3,414,215 | 3,828,254 | 3,730,975 | 3,325,419 |
| Talc | | 5,807 | 2,261 | 1,293 | 2,042 | 1,375 |
| NEPAL[3] | | | | | | |
| Cement, hydraulic | thousand metric tons | 3,910 | 5,000 e | 6,000 e | 9,000 e | 9,860 e |
| Clay, red clay[e] | | 16,500 r | 13,200 r | 17,000 r | 14,300 r | 9,900 |
| Coal, bituminous[e] | | 4,830 r | 5,090 r | 6,600 r | 6,560 r | 5,730 |
| Gemstones:[4] | | | | | | |
| Kyanite | kilograms | 105 | 23 | 10 | 40 r | -- |
| Quartz | do. | 1,044 | 521 | -- | 135 r | -- |
| Tourmaline | do. | 50 | -- | -- | 40 r | -- |
| Stone: | | | | | | |
| Crushed: | | | | | | |
| Limestone[e] | thousand metric tons | 4,080 r | 4,800 r | 4,760 r | 7,210 r | 8,680 |
| Marble[e] | | 10,000 r | 15,200 r | 10,900 r | 5,850 r | 2,850 |
| Dimension, quartzite, slab[e] | | 670 r | 690 r | 880 r | 1,410 r | 2,920 |
| Talc[e] | | 3,560 r | 2,430 r | 3,940 r | 4,740 r | 4,600 |

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

[1]Table includes data available through January 6, 2021. All data are reported unless otherwise noted. Estimated data are rounded to no more than three significant digits.

[2]In addition to the commodities listed, manganese alloys and steel products may have been produced in Bhutan, but available information was inadequate to make reliable estimates of output.

[3]In addition to the commodities listed, iron ore, lead, magnesite, steel products, and zinc may have been produced in Nepal, but available information was inadequate to make reliable estimates of output.

[4]Production is based on fiscal year, which began on July 16 of the stated year and ended on July 15 of the following year.

TABLE 2
BHUTAN AND NEPAL: STRUCTURE OF THE MINERAL INDUSTRIES IN 2019

(Thousand metric tons unless otherwise specified)

| Country and commodity | Major operating companies and major equity owners | Location of main facilities | Annual capacity[e] |
|---|---|---|---|
| BHUTAN | | | |
| Cement | Dungsam Cement Corp. Ltd. (Druk Holding & Investments Ltd., 80%, and others, 20%) | Plant in Nganglam, Pemagatshel District | 1,200 |
| Do. | Lhaki Cement Pvt. Ltd. | Plant in Gomtu, Samtse District | 220 |
| Do. | Penden Cement Authority Ltd. (Druk Holding & Investments Ltd., 40.4%; His Majesty's Kidu Fund & Sunchob Fund, 11.0%; others, 48.6%) | do. | 550 |
| Do. | Yangzom Cement Industry Pvt. Ltd. | Plant in Tashicholing, Samtse District | 33 |
| Coal | SD Eastern Bhutan Coal Co. (Sonam Drukpa and family, 70%, and public, 30%) | Eastern Bhutan coalfields, Samdrup Jongkhar District | 120 |
| Do. | State Mining Corp. Ltd. (SMCL) (Druk Holding & Investments Ltd., 100%) | Habrang Mine, Khatoethang, Samdrup Jongkhar District | 30 |
| Do. | do. | Tshophangma Mine, Bhangtar District | NA |
| Ferroalloys, ferrosilicon | Bhutan Ferro Alloys Ltd. (Government, Marubeni Corp., and Tashi Commercial Corp.) | Plant in Phuentsholing, Chukha District | 100 |
| Do. | Druk Ferro Alloys Ltd. | do. | 15 |
| Do. | SD Eastern Bhutan Ferro Silicon Pvt. Ltd. | Plant in Motanga Industrial Estate, Dewathang, Samdrup Jongkhar District | NA |
| Gypsum | State Mining Corp. Ltd. (SMCL) (Government, 100%) | Khothakpa Mine, Pemagatshel District | 520 |
| Iron and steel: | | | |
| Raw steel | Druk Metallurgy Ltd. (joint venture of Druk Holding & Investments Ltd. and Mr. Dilip Kumar Goenka) | Billet plant, Motanga Industrial Park, Samdrup Jongkhar District | 200 |
| Products | do. | Bar plant, Motanga Industrial Park, Samdrup Jongkhar District | 200 |
| Do. | Lhaki Steels & Rolling Pvt. Ltd. | Plant in Phuentsholing, Chukha District | 120 |
| Stone: | | | |
| Dolomite | Jigme Industries Pvt. Ltd. (a subsidiary of Jigme Mining Corp. Ltd. of Lhaki Group) | Chunaikhola Mine, Samtse District | 2,000 |
| Limestone | Bhutan Coal Co. Ltd. | Haurikhola Mine, Samtse District | NA |
| Do. | Dungsam Cement Corp. Ltd. (Druk Holding & Investments Ltd., 100%) | Kangrezi Mine and Marung Ri Mine, Pemagatshel District | NA |
| Do. | Penden Cement Authority Ltd. | Penden Mine and Uttare Mine, Samtse District | NA |
| Quartzite | Bhutan Ferro Alloys Ltd. (Government of Bhutan, Marubeni Corp., and Tashi Commercial Corp.) | Pakchina Mine, Chukha District and Tintale Mine, Samtse District | 71 |
| Do. | Druk Mining Pvt. Ltd. | Quarry 30 kilometers from Phuentsholing, Chukha District | NA |
| Other | Natural Resources Development Corp. Ltd. | Homdhar quarry, Zhemgang District | NA |
| Do. | do | Ngangsing quarry, Pemagatshel District | NA |
| Do. | do. | Tsangkhar quarry, Monggar District | NA |
| NEPAL | | | |
| Cement | Agni Cement Industries Pvt. Ltd. | Plant in Gurwaniya, Rupandehi District | 100 |
| Do. | Araniko Anbukhaireni Cement Industries Pvt. Ltd. (Advance Group) | Plant in Anbukhaireni, Tanahun District | 330 |
| Do. | Araniko Cement Industries Pvt. Ltd. (Advance Group) | Jitpur factory, Bara District, and Abu khaireni plant, Dhankuta District | 330 |
| Do. | Arghakhanchi Cement Pvt. Ltd. | Plants in Birpur, Kapilvastu District, and Mainahiya, Rupandehi District | 330 |
| Do. | Chaudhary Group Cement Industries Pvt. Ltd. | Plant in Dumkibas, Nawalparasi District | 1,320 |
| Do. | Cosmos Cement Industries Pvt. Ltd. | Plant in Janakpur, Dhanusha District | 132 |

See footnotes at end of table

TABLE 2—Continued
BHUTAN AND NEPAL: STRUCTURE OF THE MINERAL INDUSTRIES IN 2019

(Thousand metric tons unless otherwise specified)

| Country and commodity | | Major operating companies and major equity owners | Location of main facilities | Annual capacity[e] |
|---|---|---|---|---|
| NEPAL—Continued | | | | |
| Cement—Continued | | Dang Cement Industries Pvt. Ltd. (Ambuja Cement Ltd., 91.6%, and others, 8.4%) | Plant in Purandhara, Dang Deokhuri District | 400 |
| Do. | | Ghorahi Cement Industry Pvt. Ltd. | Plant in Laxmipur, Dang Deokhuri District | 250 |
| Do. | | Hetauda Cement Industries Ltd. | Plant in Hetauda, Makwanpur District | 260 |
| Do. | | Hongshi Shivam Cement Pvt. Ltd. [Hong Kong Red Lion Cement No. 3 (Hongshi Group), 70%, and Shivam Holding, 30%] | Dumkibass plant, Sardi, Nawalparasi District | 2,000 |
| Do. | | Jagdamba Cement Industries Pvt. Ltd. (Saurabh Group) | Plant in Bhairahawa, Rupandehi District | 300 |
| Do. | | do. | Plant in Birgunj, Parsa District | 300 |
| Do. | | Kepy Cement Industries Pvt. Ltd. | Plant in Naubise, Dhading District | 54 |
| Do. | | Manasa Cement Industry | Plant in Chandragadhi, Jhapa District | 33 |
| Do. | | Maruti Cements Ltd. | Plant in Chandraudaipur, Siraha District | 158 |
| Do. | | Rolpa Cement Pvt. Ltd. (Advance Group) | Plant in Budhagaon, Rolpa District | 330 |
| Do. | | Sarbottam Cement Pvt. Ltd. (Saurabh Group) | Plant in Sunwal, Nawalparasi District | 400 |
| Do. | | Shivam Cement Public Ltd. Co. | Plant in Hetauda, Makwanpur District | 1,000 |
| Do. | | Shubha Shree Jagdamba Cement Mills Pvt. Ltd. (Saurabh Group) | Plant in Birgunj, Parsa District | 500 |
| Do. | | Sonapur Minerals & Oil Pvt. Ltd. | Plant in Bijauri, Dang Deokhuri District | 410 |
| Do. | | Udayapur Cement Industry Ltd. | Plant in Jaljale, Udayapur District | 260 |
| Lead and zinc, mine | | Nepal Metal Co. Ltd. (Ministry of Industry, 71%, and Khetan Group, 13%) | Mine in Ganesh Himal, Dhading District[1] | NA |
| Magnesite | metric tons | Nepal Orind Magnesite Ltd. (Government, 75%; Khetan Group, 12.5%; Orissa Industries Ltd., 12.5%) | Mine in Lakuridada, Dolakha District[1] | 30 |
| Stone, marble | | Godawari Marble Industries Ltd. (MC Group) | Quarry in Godawari, Latitpur District | 8 |
| Steel, products | | Hama Iron and Steel Industries Pvt. Ltd. (Hamasteel) | Bar and wire plant in Simara, Bara District | 150 |
| Do. | | Hulas Steel Industries Ltd. (joint venture of RH Golchha, and Comcraft Asia Pacific Pte. Ltd.) | Plants in Simara, Bara District | NA |
| Do. | | Laxmi Steels Pvt. Ltd. | Rebar plant in Sunwal, Nawalparasi District | 120 |

[e]Estimated. Do., do. Ditto. NA Not available.

[1]Not in operation in 2019.