

THE MINERAL INDUSTRY OF

NEPAL

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Nepal's mineral resources include beryl, clays, coal, cobalt, copper, dolomite, gemstones, gold, natural gas, graphite, iron ore, kaolin, lead, limestone, magnesite, mica, nickel, petroleum, phosphate, pyrite, quartzite, salt, silica sand, dimension stone, talc, tin, tungsten, uranium, and zinc. Only red clay, coal, copper, construction aggregates, limestone, marble, magnesite, quartz, quartzite, salt, slate, and talc, however, were produced. (*See table 1.*) Other minerals produced in small quantities during the past 5 years, were beryl; gemstones, such as tourmaline, aquamarine, garnet, and ruby; and natural gas.

Limestone is by far the most important mineral resource in Nepal, followed by magnesite, lead and zinc, and marble. Proven reserves of limestone were estimated to be 193 million metric tons (Mt), proven reserves of magnesite were estimated to be 189 Mt, proven and probable reserves of lead and zinc were estimated to be more than 1 Mt, and probable reserves of marble were estimated to be 625,000 cubic meters. Other potentially exploitable minerals include copper, dolomite, gold, gemstones, and natural gas (United Nations, 1993). In addition, according to information provided by the Ministry of Industry, other economically viable mineral deposits include those of iron ore, polymetallic (copper-lead-zinc) sulfides, and silica sand (The Government of Nepal, Ministry of Industry, Mineral Resources, accessed March 16, 1998, at URL <http://www.info-nepal.com/fips/index.html>).

The mining sector, comprising numerous small-scale industrial minerals mining companies, was the smallest sector of Nepal's economy. The output of the mining sector contributed only about 0.5% to Nepal's gross domestic product, which was estimated to be \$4.8 billion in 1997 (Far Eastern Economic Review, 1998). Most of Nepal's mineral production was for domestic consumption. Exports of mineral commodities (mainly cement) accounted for about 8% of the country's export earnings. Imports of mineral commodities (mainly petroleum products) accounted for 9% of Nepal's import bills.

Mining of various industrial minerals was mostly by small, privately owned mining firms. Limestone was mined for the production of cement and lime, as well as for construction materials. Boulders, clay, marble, quartz, quartzite, and sand were mined for domestic consumption, as well as for export. Nepal produced a small amount of coal and salt, but most of these requirements were met by imports from India.

According to the Ministry of Industry, production of coal was mostly from the Dang District and lignite, from the Kathmandu Valley. Production of salt and brine water was from the Narsing-Khola and the Mustang areas. Small-scale talc mining was in the Chiwan, the Dolkha, the Gorkha, the Kaski, the Syangja, and the Sindupalchok areas. Limestone mining at the Jogimara and the Beldanda areas in the Dhading District of the Bagmati Zone was for production of lime by the Agriculture Lime Industries Ltd., as well

as for the production of cement by two small, privately owned cement companies, Tribeni Cements Ltd. and Annapurna Cement Ltd. Limestone mining in the Bhainse-Dobhan and the Okhare areas in the Makawanpur District of the Narayani Zone was for production of cement by Hetauda Cement Industries Ltd. Limestone mining in the Chobhar area in the Lalitpur District of the Bagmati Zone was for production of cement by Himal Cement Company Ltd. Limestone mining at the Sindhali area in the Udaipur District of the Sagarmatha Zone was for production of cement by Udaipur Cement Industries Ltd. The Chaukune limestone deposit with 30 Mt of proven reserves in the Surkhet District and the Nigale limestone deposit with 10 Mt of proven reserves in the Dhankuta District had been proposed for development as raw material sources for two proposed cement plants in 1994, but the proposals were not implemented in 1997.

Nepal's cement industry consisted of three medium-sized and three small-sized cement companies. Hetauda Cement Industries Ltd., a state-owned company, operated a 260,000-metric ton-per-year (t/yr) cement plant at Hetauda in the Makawanpur District with 18 Mt of proven reserves of limestone. Himal Cement Co. Ltd. operated a 130,000-t/yr cement plant at Chobhar in the Lalitpur District with 15.3 Mt of proven reserves of limestone. Udaipur Cement Industries Ltd. operated a 270,000-t/yr cement plant at Jaljale in the Udaipur District with 70 Mt of mineable reserves. Annapurna Cement Ltd. operated a 11,000-t/yr cement plant at Abu Kahairani in the Parbat District, about 180 kilometers west of Kathmandu. Triveni Cements Ltd. operated a 15,000-t/yr cement plant at Gaighat in the Jalibire Region. Maruti Cement Ltd. operated a 20,000-t/yr cement plant at Jhakri Khola in the Sindhuli District.

Production of dead-burned magnesite was by Nepal Orind Magnesite Ltd. In 1994, a minor plant modification had been undertaken by the company with Government funds and technical assistance of the Refractories Consulting & Engineering GmbH of Austria. The raw material feed (crude magnesite) was mined from the Kharidhunga deposit in the Dolkha District of the Bagmati Zone, where about 32 Mt of high-grade reserves had been proven. The production status of the 50,000-t/yr processing plant in the Mankha Village, near Lamosangu in the Shindhupalchowk District, was not known in 1997.

After completion of a detailed feasibility study with the technical and financial assistance of United Nations Development Programme, an underground mine and concentrator at the Ganesh Himal lead-zinc deposit in the Rasuwa District of the Bagmati Zone was still being developed by the Nepal Metal Co. Ltd. in 1997. The planned capacity of the mine and mill was to mine and process 400 metric tons per day of ore and to produce 25,000 t/yr of lead-zinc concentrate. According to the Ministry of Industry, the estimated proven reserves of the Ganesh Himal deposit were about 1 Mt, grading 15.6% of combined lead and zinc and 27 grams of silver per ton of ore. The development project employed 80 people.

References Cited

- Far Eastern Economic Review, 1998, Nepal: Far Eastern Economic Review Asia 1998 Yearbook, p. 170.
- United Nations, Economic and Social Commission for Asia and the Pacific, 1993, Geology and mineral resources of Nepal—Explanatory brochure: Bangkok, Atlas of Mineral Resources of the ESCAP Region, v. 9, p. 79, 82-84.

Major Source of Information

Ministry of Industry, Department of Mines and Geology Lainchaur, Kathmandu, Nepal.

TABLE 1
NEPAL: ESTIMATED PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity 2/	1993	1994	1995	1996	1997
Cement	273,532 3/	315,514 3/	326,839 3/	309,466 r/ 3/	360,000
Clay, red	8,950 3/	8,000	9,000	1,000 r/ 3/	5,129 3/
Coal:					
Bituminous	1,150 3/	1,200	1,200	5,979 r/ 3/	8,163 3/
Lignite	3,810 3/	4,000	4,000	200 r/ 3/	785 3/
Total	4,960 3/	5,200	5,200	6,179 r/ 3/	8,948 3/
Copper ore:					
Gross weight	23 3/	22	20	20	20
Cu content	2 3/	2	2	2	2
Gemstones:					
Quartz kilograms	5,000	5,000	5,000	1,500 r/ 3/	3,000 3/
Tourmaline do.	(4/)	--	--	(4/)	(4/)
Total do.	5,000	5,000	5,000	1,500 r/ 3/	3,000 3/
Lime, agricultural	24,000	25,000	25,000	13,000 r/ 3/	26,000
Magnesia, dead-burned	--	--	15,000	25,000	25,000
Salt	7 r/ 3/	7 r/ 3/	7 r/ 3/	7 r/ 3/	7 3/
Stone					
Limestone	296,000 3/	350,000	370,000	488,800 r/ 3/	368,666 3/
Marble:					
Chips	292 3/	300	500	548 r/ 3/	636 3/
Slab, cut square meters	27,900 3/	28,000	25,000	688,841 r/ 3/	769,400 3/
Craggy do.	2,940 3/	3,000	3,000	2,690 r/ 3/	5,400 3/
Quartzite do.	2,550 3/	2,500	2,600	2,600	2,600
Talc	1,340 3/	1,500	1,500	5,323 r/ 3/	6,809 3/

r/ Revised.

1/ Table includes data available through June 18, 1998.

2/ In addition to the commodities listed, construction materials such as sand and gravel and other varieties of stone presumably are produced, but available information is inadequate to make reliable estimates of output levels.

3/ Reported figure.

4/ Less than 1/2 unit.

Sources: Ministry of Industry, Department of Mines and Geology (Kathmandu). Minerals and Mineral-Based Industries in Nepal, December 1994.