



2009 Minerals Yearbook

BHUTAN AND NEPAL

THE MINERAL INDUSTRIES OF BHUTAN AND NEPAL

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BHUTAN

Bhutan produced cement, coal, dolomite, ferrosilicon, gypsum, and limestone and exported cement, ferrosilicon, and gypsum. India was Bhutan's leading trade partner followed by Bangladesh. Power generation (hydroelectric) and construction were the two major industries of growth in Bhutan; the mineral sector was small and insignificant to the country's economy.

Production

In 2009, Bhutan's real gross domestic product (GDP) growth rate was about 6%, which was below the rates in the two previous years, and the country had decreased revenue owing to cyclone damage, earthquakes, and decreased tourism. The Government expected hydroelectric power development plans and private sector development promotions to aid in economic recovery, as several hydroelectric power projects and small local mineral industry activities had helped generate employment and added value to the country's economy. Industrial mineral production was the primary output of Bhutan's mineral industry, which included the mining of dolomite, the processing of graphite, and the quarrying of marble and slate. Bhutan also produced ferrosilicon. Mineral occurrences of beryl, copper, lead, mica, pyrite, tin, tungsten, and zinc are known (World Bank, The, 2010).

Structure of the Mineral Industry

The Department of Geology and Mines has the primary responsibility for geologic mapping, mineral exploration, and the management of the country's mineral resources, including establishment of the mineral titles registry, management of mineral and mining data, and environmental regulation of mineral operations. In addition, the Department conducts geologic investigations for slope and foundation stability, undertakes risk assessments from glacial lake outburst floods, monitors glaciers and glacial lakes, and carries out seismic studies. The Department of Energy is responsible for the country's hydroelectric power development. Hydroelectric energy production is a comparative advantage for Bhutan's economy and has provided a base for economic growth (World Bank, The, 2009, p.105-106).

The global financial turmoil had only a small effect on Bhutan's economy owing to Bhutan's limited integration with the global economy. The country had strong economic ties with India, and its rate of inflation reflected developments in India's consumer prices, which averaged just above 7% in 2009 (International Monetary Fund, 2009).

Commodity Review

According to Association of Bhutanese Industries, the country's steel industry had an operational capacity of more

than 0.5 million metric tons per year. Because of delays in the delivery of some imported primary raw materials, including charcoal and iron sponge from India to Bhutan, however, Bhutan steelmakers, such as Bhutan Concast Pvt. Ltd., Bhutan Steel, Bhutan Rolling Mills, and the steel and rolling mills at Lhaki, received insufficient supplies, which resulted in frequent plant shutdowns (Kuenselonline.com, 2010).

Mineral Fuels and Other Sources of Energy

Hydroelectric Power.—Hydroelectric power is a major engine of Bhutan's growth and public revenue, and the Government had plans to expand hydroelectric power production. The country had the potential to develop hydroelectric power generator stations with a combined capacity of about 24 gigawatts (GW). Under the year 2009 plan, the installed hydroelectric power generation capacity was projected to increase to 1,602 megawatts (MW) in 2013 from 1,488 MW in 2007 following the planned commissioning of the 114-MW Dagachu hydroelectric power project. Construction work on the Punatsangchhu I hydroelectric power project was under way, and construction on the Mangdechhu and the Punatsangchhu II hydroelectric power projects would commence shortly. In addition, the Government proposed to add 10 GW of capacity by 2020. Bhutan and India have agreed to develop 10 hydroelectric power projects together (World Bank, The, 2010).

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NEPAL

Mineral surveys of Nepal have found small deposits of cobalt, copper, iron ore, lead, limestone, magnesite, mica, and zinc. A lead and zinc deposit is located near Lari in the Ganesh Himal region. Because steep mountain terrain makes exploitation difficult, however, the country's mineral resources were mostly unexploited, and mining and quarrying contributed less than 1% of the GDP.

The country officially became the Federal Democratic Republic of Nepal and reelected the Prime Minister in May 2009. The

new Government drafted a development strategy to address the country's return to peace and economic restructuring for the next few years (U.S. Department of State, 2010).

Production

Nepal's GDP growth rate in 2009 decreased to 3% from 4.7% in 2008 owing to adverse weather conditions, power shortages, and tighter monetary conditions. The country's mining and quarrying sector produced red clay, coal, limestone, and marble, and the processing industry produced cement and rolled steel. The production of some mineral commodities, such as lignite, lime, craggy marble, salt, and tourmaline, ceased or took place only intermittently owing to the depletion of reserves (International Monetary Fund, 2010).

Structure of the Mineral Industry

The Department of Mines and Geology of the Ministry of Industry, Commerce, and Supplies is responsible for conducting geoscientific research, carrying out exploration, evaluating mineral and energy resources, and promoting mineral-based industries. Cement production and the generation of hydroelectric power were the two main industries in Nepal. One state-owned company and several private-sector companies controlled the country's cement operations. Nepal and foreign Governments, especially those of China and India, were involved in several hydroelectric projects along with private companies, which were mainly from Australia and India. Nepal received a significant amount of external assistance from Germany, India, Japan, the Scandinavian countries, the United Kingdom, and the United States. India was the major supplier of manufactured goods to Nepal and the primary customer for hydroelectric power from Nepal (table 2; U.S. Department of State, 2010).

Commodity Review

Metals

Gold.—According to Nepal Gold and Silver Dealer's Association, Nepal's gold price in the domestic market increased significantly in the fourth quarter of 2009, and the transaction volume of gold jewelry decreased by almost 50% during the country's traditional wedding season. The Government had allowed gold importers to import gold to the country through hand-carry bags to stabilize the gold price and transaction volume. Because of the decreased value of the U.S. dollar in the international market against other prime currencies, worldwide investors turned to gold as an alternative investment source, which led to increases in the demand for and price of gold, and a decrease in the supply of gold in the world market (Rising Nepal, The, 2009a).

Industrial Minerals

Cement.—According to the Kathmandu Post, Udayapur Cement Factory (the country's largest state-owned cement

factory in terms of output), was on the verge of closure as it lacked essential supplies of materials, such as coal, limestone, and bags for packing cement. The stock of coal in the factory was reportedly sufficient for just 2 or 3 days, and the supply of packing sacks was only 1.4 million sacks instead of the 2 million sacks that were needed (Kathmandu Post, The, 2010).

Manasa Cement Industry, which is a new facility located in Chandragadhi-3 of Jhapa, began production in November with a capacity to produce 100 metric tons per day (t/d) of cement at a grade of 55. The Century Cement Factories, the Gorakhkali, and the Pashupati were also operating in the district (Republic.com, 2009).

Mineral Fuels and Other Sources of Energy

Hydroelectric Power.—Almost all the electricity generated in Nepal is from hydroelectric power resources. The country has a hydroelectric power development potential of more than 80,000 MW, a current capacity of only 700 MW, and an operational capacity of 556 MW (International Finance Corp., 2010, p. 2).

The Upper Tamakoshi 456-MW hydroelectric power project, which is located at Lamabagar in Dolakha district (near the border towns of Kuti and Phalek in the Tibetan Autonomous Region of China), was used as a model for the country's hydroelectric power sector. Upon its completion, the Upper Tamakoshi project would become the largest hydroelectric powerplant in Nepal and the only major plant constructed by domestic investment (Nepalnews.com, 2009; Rising Nepal, The, 2009b; eKantipur.com, 2010).

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TABLE 1
BHUTAN AND NEPAL: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Country and commodity ²	2005	2006 ^c	2007	2008 ^c	2009 ^c
BHUTAN					
Cement ^e	170,000	180,000	180,000	180,000	180,000
Coal, bituminous	85,279	82,000	105,261	123,704 ³	124,000
Dolomite	388,711	410,000	578,552	1,247,568 ³	1,250,000
Ferrosilicon ^e	20,000	20,000	21,000	36,600	36,600
Granite square meters	877	900	1,341	199 ³	200
Gypsum	150,585	160,000	189,198	248,445 ³	248,000
Iron ore, gross weight	5,679	5,300	--	-- ³	--
Limestone	536,030	550,000	543,964	583,707 ³	584,000
Marble square meters	372	480	1,121	1,143 ³	1,000
Quartzite	52,694	50,000	64,049	94,688 ³	95,000
Shale, green and pink	363	450	--	-- ³	--
Slate square meters	270	560	7,256	764 ³	700
Stone	146,767	120,000	388,721	408,945 ³	410,000
Talc	42,791	45,000	62,015	56,077 ³	56,000
NEPAL					
Cement ^e	290,000	295,000	300,000	295,000	295,000
Clay, red	35,484	34,000	35,000 ^e	34,000	34,000
Coal:					
Bituminous	9,259	11,963 ³	16,274	16,300	16,000
Lignite	30	--	98	--	--
Total	9,289	11,963 ³	16,372	16,300	16,000
Gemstones:					
Quartz kilograms	1,092	1,100	1,110 ^e	1,110	1,000
Tourmaline do.	7	7	5 ^e	--	--
Total do.	1,099	1,107 ³	1,115	1,110	1,000
Magnesia, dead-burned	56	--	--	--	--
Salt thousand metric tons	2	--	2 ^e	--	--
Steel, rolled ^e	90,000	90,000	85,000	85,000	85,000
Stone:					
Limestone	263,701	402,130 ³	822,042	822,000	822,000
Marble:					
Chips	436	384 ³	954	954	900
Slab, cut square meters	23,850	28,110 ³	22,110	22,100	22,000
Craggy do.	--	--	--	--	--
Quartzite ^e	3,000	3,000	3,100	3,000	3,000
Talc	5,832	6,648 ³	9,043	9,040	9,000

^eEstimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. ^fRevised. do. Ditto. -- Zero.

¹Table includes data available through May 12, 2010.

²In addition to the commodities listed, crude construction materials, such as sand and gravel and a variety of stone, presumably are produced in Bhutan and Nepal, but information is inadequate to make reliable estimates of output.

³Reported figure.

TABLE 2
BHUTAN AND NEPAL: STRUCTURE OF THE MINERAL INDUSTRIES IN 2009

(Thousand metric tons unless otherwise specified)

Country and commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity ^c
BHUTAN			
Cement	Penden Cement Authority Ltd.	Gomtu, Samtse District	100
Dolomite	Jigme Mining Corp. Ltd.	do.	900
Ferrosilicon	Bhutan Ferro Alloys Ltd.	Phuentsholing	34
NEPAL			
Cement	Hetauda Cement Industries Ltd.	Hetauda	260
Do.	Himal Cement Co. Ltd.	Chobhar	130
Do.	Manasa Cement Industry	Chandragadhi, Jhapa	37
Lead and zinc	Nepal Metal Co. Ltd.	Lari	NA
Magnesite	metric tons Nepal Orind Magnesite Ltd.	Dolkha	50
Marble	Godavari Marble Industries Ltd.	Latitpur	1

^cEstimated. Do., do. Ditto. NA Not available.