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The Mineral Industries of Bhutan and Nepal

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BHUTAN

Although the mineral sector of Bhutan was small, and insignificant to the country's economy, Bhutan is endowed with rich mineral resources that have allowed the sustainable growth of a mineral-based industry and exports. Mining and value-added processing have helped generate employment and contributed to alleviating some of the country's poverty. Bhutan's mineral industry was characterized by the production of cement, coal, dolomite, ferrosilicon, graphite, and limestone. The exploitation of Bhutan's large hydroelectric power resources has enabled the development of several small local cement operations.

Production

The value of the country's mining sector grew at a rate of 23.3% in 2007 (the latest year for which data were available), which was the largest annual rate increase in the past 5 years. The increase was probably a result of the increased mineral commodity prices. Jigme Mining Corp. Ltd. mined dolomite at Gomtu, a graphite processing plant operated at Paro Dzong, and marble and slate were quarried for use as dimension stone. The output level of these mineral commodities remained steady in 2007 (table 1). Dolomite, ferrosilicon, and gypsum were exported mainly to India. Bhutan Ferro Alloys Ltd. (BFAL), which was a joint venture of the Government, Marubeni Corp. of Japan, and local Tashi Commercial Corp., produced ferrosilicon at Phuentsholing. Deposits of beryl, copper, lead, mica, pyrite, tin, tungsten, and zinc were reported to have been found in Bhutan (table 2; World Bank, The, 2009, p. 3).

Structure of the Mineral Industry

The manufacturing industry of Bhutan was dominated by a small number of major operators, including BFAL, Bhutan Agro Industries Ltd., Bhutan Board Products Ltd., Bhutan Carbide and Chemicals Ltd., and Penden Cement Plant. In addition, a number of other small manufacturing plants were operating in various parts of Bhutan (Bhutan 2008, 2008).

The Department of Geology and Mines has the primary responsibility for geologic mapping, exploring for additional mineral deposits, and managing the mineral resources of the country. It is also responsible for registering mineral titles and managing mineral and mining data. In addition, the Department conducts geologic investigations of slope stability, performs foundation risk assessments of 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. Energy production from Bhutan's abundant hydroelectric power resources has provided a significant boost to the country's economy in recent years (Ministry of Economic Affairs, 2009).

Commodity Review

Metals

Ferroalloys.—BFAL, which was the leading private company in Bhutan, consistently produced ferrosilicon at a rate of about 21,000 metric tons per year (t/yr); silica fume, at about 4,200 t/yr; and magnesium ferrosilicon, at about 2,400 t/yr. Most of these products were exported to India, but some quantities of ferrosilicon and micro silica were exported to China, Japan, Singapore, and the United States. India was Bhutan's leading trading partner and a major investor; the two countries' relationship was considered to be critical for the development of the Bhutan's economy. India imported an average of 30,000 t/yr of ferrosilicon from Bhutan, and demand for ferrosilicon continued to increase in India. BFAL took steps to market magnesium ferrosilicon (a value-added product) to the international market (Bhutan Ferro Alloys Ltd., 2009).

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NEPAL

Mining and quarrying contributed less than 1% of the Nepal's total real gross domestic product (GDP), and its mineral resources were mostly undeveloped. The country possesses some 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 (U.S. Department of State, 2009).

In 2008, the country voted in a Constituent Assembly, named a President, elected a Prime Minister, and formed a coalition government, which produced a draft development strategy to support the country's peace-building agenda for the next 3 years (U.S. Department of State, 2009).

Production

The growth rate of Nepal's real GDP in 2008 was 4.7%, compared with 3.2% in 2007 when the country returned to peace following a 10-year Maoist insurgency that resulted in the signing of a comprehensive peace agreement in 2006. In 2008, Nepal produced cement, red clay, coal, limestone, marble, quartz crystal and tourmaline, quartzite, salt, rolled steel, and talc. The production of some mineral commodities, such as lignite, lime,

marble, salt, and tourmaline, ceased or was only intermittent owing to exhaustion of reserves (table 1; U.S. Department of State, 2009).

Structure of the Mineral Industry

The Department of Mines and Geology under 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. Hetauda Cement Industries Ltd., which was located at Makawanpur, and Himal Cement Co. Ltd., which was located at Chobhar, were the country's primery cement producers (table 2).

Commodity Review

Mineral Fuels and Other Sources of Energy

Renewable Energy.—Only about 1% of Nepal's hydroelectric potential was currently being tapped. The Department of Electricity Development had invited global tenders for the 600-megawatt (MW) Budhi Gandi project in December 2007, but the invitation failed to attract investors. In March 2008, the 402-MW Arun III hydroelectric project was awarded to India's state-owned Sutlej Jal Vidyut Nigam (SJVN). The domestic demand for electricity was increasing at a rate of 8% to 10% per year (U.S. Department of State, 2009).

Reference Cited

U.S. Department of State, 2009, Nepal: U.S. Department of State background note, January. (Accessed July 1, 2009, at http://www.state.gov/r/pa/ei/bgn/5283.htm.)

TABLE 1
BHUTAN AND NEPAL: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons unless otherwise specified)

Country and commodity[2]		2004	2005	2006[e]	2007	2008[e]
BHUTAN						
Cement[e]		170,000	170,000	180,000	180,000	180,000
Coal, bituminous		29,631	85,279	82,000	105,261 [r]	123,704 [3]
Dolomite		452,336	388,711	410,000	578,552 [r]	1,247,568 [3]
Ferrosilicon[e]		21,147 [3]	20,000	20,000	21,000	36,600
Granite	square meters	200	877	900	1,341 [r]	199 [3]
Gypsum		131,236	150,585	160,000	189,198 [r]	248,445 [3]
Iron ore, gross weight		--	5,679	5,300	-- [r]	-- [3]
Limestone		560,807	536,030	550,000	543,964 [r]	583,707 [3]
Marble	square meters	314	372	480	1,121 [r]	1,143 [3]
Quartzite		42,599	52,694	50,000	64,049 [r]	94,688 [3]
Shale, green and pink		--	363	450	-- [r]	-- [3]
Slate	square meters	11,779	270	560	7,256 [r]	764 [3]
Stone		246,508	146,767	120,000	388,721 [r]	408,945 [3]
Talc		39,797	42,791	45,000	62,015 [r]	56,077 [3]
NEPAL						
Cement[e]		285,000	290,000	295,000	300,000	295,000
Clay, red		29,234	35,484	34,000	35,000 [e]	34,000
Coal:						
Bituminous		10,459	9,259	11,963 [3]	16,274	16,300
Lignite		58	30	--	98	--
Total		10,517	9,289	11,963 [3]	16,372	16,300
Gemstones:						
Quartz	kilograms	1,215	1,092	1,100	1,110 [e]	1,110
Tourmaline	do.	--	7	7	5 [e]	--
Total	do.	1,215	1,099	1,107 [3]	1,115	1,110
Magnesia, dead-burned		50	56	--	--	--
Salt	thousand metric tons	4	2	--	2 [e]	--
Steel, rolled[e]		95,000	90,000	90,000	85,000	85,000
Stone:						
Limestone		388,109	263,701	402,130 [3]	822,042	822,000
Marble:						
Chips		481	436	384 [3]	954	954
Slab, cut	square meters	56,014	23,850	28,110 [3]	22,110	22,100
Craggy	do.	728	--	--	--	--
Quartzite[e]		2,900	3,000	3,000	3,100	3,000
Talc		3,435	5,832	6,648 [3]	9,043	9,040

[e]Estimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. [r]Revised. do. Ditto. -- Zero.
[1]Table includes data available through July 1, 2009.
[2]In 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.
[3]Reported figure.

TABLE 2
BHUTAN AND NEPAL: STRUCTURE OF THE MINERAL INDUSTRIES IN 2008

(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		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.	Makawanpur	260
Do.		Himal Cement Co. Ltd.	Chobhar	130
Lead and zinc		Nepal Metal Co. Ltd.	Lari	NA
Magnesite	metric tons	Nepal Orind Magnesite Ltd.	Dolkha	50
Marble		Godavari Marble Industries Ltd.	Latitpur	NA

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