2010 Minerals Yearbook

BHUTAN AND NEPAL [ADVANCE RELEASE]

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The Mineral Industries of Bhutan and Nepal

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BHUTAN

Bhutan, which is a South Asian country located in the Himalayas between China and India, produced cement, coal, dolomite, ferrosilicon, gypsum, and limestone and exported cement, ferrosilicon, and gypsum. India was Bhutan's leading trade partner followed by Bangladesh. Hydroelectric power generation and construction were the two major growth industries in Bhutan, and the Government expected the existing plans for the construction of hydroelectric plants and other private sector development to aid in the country's economic development. The mineral industry was small and its contribution to the country's economy and exports was insignificant. According to Bhutan's National Statistics Bureau, the average consumer price index (CPI) for 2010 increased by 7.04% to 147.02 from 137.36 in 2009. The country had strong economic ties with India, and its rate of inflation reflected developments in India's consumer prices (National Statistics Bureau, 2011; World Bank, The, 2011).

Production

Industrial mineral products were the primary output of Bhutan's mineral industry and included dolomite, graphite, marble and slate, and sand and stone. The country produced about 200,000 metric tons (t) of cement in 2010. The production of a variety of stone materials and energy fuels had been increasing steadily in recent years and corresponded to the increased demand for these commodities in the construction sector. Bhutan also produced ferrosilicon (table 1).

Government Policies and Programs

The Department of Geology and Mines (DGM) has two divisions—the Geological Survey of Bhutan (GSB) and the Mining Division. The GSB's responsibilities include geologic mapping, geotechnical investigations, and mineral exploration. The GSB monitors the glaciers in the northern frontier on the Bhutan side of the Himalayas and assesses the risk of glacial lake outburst flooding; it also studies issues related to landslides and other geohazards. The Mining Division of the DGM is responsible for the inspection and regulation of mines in Bhutan. The Department of Energy is responsible for the country's hydroelectric power development, which has provided a base for the domestic economic growth (National Portal of Bhutan, 2011).

Structure of the Mineral Industry

Private companies produced cement, dolomite, granite, marble, and sandstone. Gemstone and salt were produced in artisanal and small-scale mines. Jigme Mining Corp. Ltd. operated a dolomite plant. Bhutan's leading private company—Bhutan Ferro Alloys Ltd. (BFAL), which was a joint venture of the Government of Bhutan, Marubeni Co., and Tashi Commercial Co.—produced ferrosilicon.

Commodity Review

Metals

Ferroalloys.—In 2010 and for the past several years, BFAL produced about 21,000 metric tons per year (t/yr) of ferrosilicon, about 4,200 t/yr of silica fume, and about 2,400 t/yr of magnesium ferrosilicon. BFAL had been the first established industrial venture in Bhutan. It utilized hydroelectric power and local minerals to produce various ferroalloys and supplied the markets in China, India, Japan, Singapore, and the United States (Bhutan Ferro Alloys Ltd., 2011).

Industrial Minerals

Sand and Gravel, Construction, and Stone, Dimension and Crushed.—Bhutan's Natural Resources Development Co. Ltd. (NRDCL) operated and marketed the output of the country's sand and stone quarries. The NRDCL located transportation facilities to control the cost of transporting sand and stone. Through the NRDCL, the Government regulated the prices of sand and stone (Natural Resources Development Co. Ltd., 2011).

Dolomite.—Jigme Mining leased the Chunaikhola dolomite mine for 15 years beginning on May 15, 2005, and was eligible to extend the lease for another 15 years based on the DGM's Mining Act, Rules & Regulations. Jigme Mining extracted dolomite, and its subsidiary Jigme Industries Pvt. Ltd. manufactured dolomite products. Jigme Industries increased its annual production capacity for dolomite products to 2 million metric tons (Mt) in 2010 (Lhaki Group of Companies, 2011).

Mineral Fuels and Other Sources of Energy

In 2010, owing to increased production costs and increased demand, the country's CPI for fuels and lubricants increased by 5.69%, on average, compared with that of 2009, and the CPI for electricity, gas, and other fuels increased by 3.72%, on average, compared with that of 2009. These increases reflected a rapid increase in the consumptions of fuels. Bhutan has abundant hydroelectric power resources, which are used to keep electricity prices relatively low (National Statistics Bureau, 2011).

References Cited

Bhutan Ferro Alloys Ltd., 2011, A project of partnership and promise: Bhutan Ferro Alloys Ltd. (Accessed May 18, 2011, at http://www.bhutanferroalloys.com/default1.htm.)

Lhaki Group of Companies, 2011, Jigme Mining Corporation Limited: Lhaki Group of Companies. (Accessed May 18, 2011, at http://www.lhakigroup.com/our-companies/jigme-mining-corporation-limited.)

National Portal of Bhutan, 2011, Government A to Z agency index: Bhutan, Department of Information Technology. (Accessed March 18, 2011, at http://www.bhutan.gov.bt/government/azIndexGov.php?azid=2.)
Natural Resources Development Co. Ltd., 2011, Mineral management, sand and stone: Natural Resources Development Co. Ltd. (Accessed March 17, 2011, at http://www.nrdcl.bt/index.php/mineral-management.)
National Statistics Bureau, 2011, Consumer price index (CPI) for quarter ending 31st December 2010: Bhutan, National Statistics Bureau. (Accessed March 17, 2011, at http://www.nsb.gov.bt.)
World Bank, The, 2011, 2010 Bhutan economic update: The World Bank, May 11. (Accessed May 16, 2011, at http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/SOUTHASIAEXT/BHUTANEXTN/0,,menuPK:306154~pagePK:141159~piPK:141110~theSitePK:306149,00.html.)

NEPAL

Nepal, which is a South Asian country located in the Himalaya Mountains between China and India, has 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 of the steep mountain terrain, exploitation in Nepal is difficult. As a result, the country's mineral resources were mostly unexploited, and mining and quarrying contributed less than 1% of the country's gross domestic product (GDP).

Production

Nepal's real GDP growth rate in 2010 increased to 4.6% from 3% in 2009, and the CPI was 9.3. Although the country produced cement, red clay, coal, limestone, marble, and rolled steel, production of mineral commodities was insignificant compared with regional and world production levels. 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, 2011).

Government Policies and Programs

The Department of Mines and Geology (DMG) was mainly responsible for conducting geologic scientific research and mineral exploration. Nepal's DMG also evaluated mineral and energy resources and promoted mineral-based industries.

Structure of the Mineral Industry

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. The Governments of China, India, and Nepal were involved in several hydroelectric projects, along with private companies 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.

Commodity Review

Metals

Gold.—According to the Nepal Gold and Silver Dealer's Association, the country's gold transaction volume decreased in 2010 owing to the Government's increased tax rate on gold and silver. Under the new tax policy, the tax on gold and silver trading profits is 15% or more. The prices of domestic gold and silver also increased as a result of price increases on the international markets. These price increases led to an increase in illegal gold and silver trading in Nepal (Himalayan Times, The, 2010a).

Industrial Minerals

Cement and Stone, Crushed and Dimension.—Limestone is the main raw material for cement production. Pendent Cement Authority Ltd. had a cement plant at Gelephu that produced about 548,000 t/yr of cement and consumed about 420,000 t/yr of limestone. The company's limestone mines, which were located in Pugil and Uttaray, were showing signs of exhaustion, and Pendent started to explore new limestone deposits in Gomtu, which is located about 250 kilometers from Gelephu. Pendent's cement products sold in the domestic market and were exported to India. Lhaki Cement Pvt. Ltd., which had limestone deposits east of Bhawani Khola, increased its cement production capacity to 256,000 t/yr in 2010. Ghorahi Cement Industry was planning to start operation of its 660,000-t/yr-capacity cement plant at Dang in 2011 and would initially produce 402,000 t/yr of cement. The company planned to increase the plant's production capacity to 730,000 t/yr. Ghorahi had installed machinery from Germany and planned to use coal available in Dang. Ghorahi's cement production was expected to reduce or completely replace cement imported from India in the future (Himalayan Times, The, 2010b; Kuensel Online, 2010).

Mineral Fuels and Other Sources of Energy

Hydroelectric Power.—The Upper Tamakoshi Hydro Electricity Project (UTHEP) was Nepal's first hydroelectric project being constructed with domestic resources, and upon completion by 2015, the country would have an additional 456 megawatts (MW) of electricity generating capacity. Upper Tamakoshi Hydro Power Ltd. (UTHPL) had formally completed the financial closure for the project, which was located at Lamabagar in Dolakha district near the border towns of Kuti and Phalek in the Tibetan Autonomous Region of China (HydroWorld.com, 2011).

Almost all the electricity generated in Nepal was from hydroelectric power resources. The country had a hydroelectric power development potential of more than 80,000 MW. In 2010, Nepal's hydroelectric power generating capacity was only 700 MW, and its operational capacity was 556 MW.

References Cited

Himalayan Times, The, 2010a, Call to change taxation policy: The Himalayan Times, May 9. (Accessed May 10, 2010, at http://www.thehimalayantimes.com/fullNews.php?headline=Meddlesome+diplomacy&NewsID=243585.)
Himalayan Times, The, 2010b, Ghorahi cement plant to start operation: The Himalayan Times, April 4. (Accessed May 20, 2011, at http://www.thehimalayantimes.com/fullNews.php?headline=Ghorahi+cement+plant+to+start+operation&NewsID=237177.)
HydroWorld.com, 2011, Financial closure of 456 MW Upper Tamakoshi completed: PennWell Corp., May 13. (Accessed May 20, 2011, at http://www.hydroworld.com/index.html.)

International Monetary Fund, 2011, Nepal and the IMF: International Monetary Fund. (Accessed May 20, 2011, at http://www.imf.org/external/country/NPL/index.htm.)

Kuensel Online, 2010, Pendent cement seeks new limestone deposits: Kuensel Corp., February 21. (Accessed February 23, 2010, at http://www.kuenselonline.com/modules.php?name=News&file=artical&sid=14788.)

TABLE 1

BHUTAN AND NEPAL: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons unless otherwise specified)

Country and commodity[2]		2006	2007	2008	2009	2010[e]
BHUTAN						
Cement[e]	thousand metric tons	180	180	180	180	200
Coal, bituminous		82,000	105,261	123,704	48,545 [r, 3]	87,814 [3]
Dolomite		410,000	578,552	1,247,568	1,028,993 [r, 3]	1,192,374 [3]
Ferrosilicon[e]		20,000	21,000	36,600	34,000 [r]	276,000
Granite	square meters	900	1,341	199	217 [r, 3]	18,731 [3]
Gypsum		160,000	189,198	248,445	299,735 [r, 3]	344,034 [3]
Iron ore, gross weight		5,300	--	--	-- [r, 3]	-- [3]
Limestone		550,000	543,964	583,707	591,027 [r, 3]	715,956 [3]
Marble	square meters	480	1,121	1,143	31 [r, 3]	-- [3]
Quartzite		50,000	64,049	94,688	82,578 [r, 3]	104,580 [3]
Shale, green and pink		450	--	--	-- [r, 3]	-- [3]
Slate	square meters	560	7,256	764	1,765 [r, 3]	-- [3]
Stone		120,000	388,721	408,945	475,614 [r, 3]	716,760 [3]
Talc		45,000	62,015	56,077	64,381 [r, 3]	26,302 [3]
NEPAL						
Cement[e]	thousand metric tons	295	300	295	295	295
Clay, red		34,000	35,000 [e]	14,135 [r]	8,950 [r]	9,000
Coal:						
Bituminous		11,963	16,274	13,845 [r]	14,819 [r, 3]	16,000
Lignite		--	98	60 [r]	NA [r]	--
Total		11,963	16,372	13,905 [r]	14,819 [r, 3]	16,000
Gemstones:						
Quartz	kilograms	1,100	1,110 [e]	930 [r]	826 [r, 3]	1,000
Tourmaline	do.	7	5 [e]	--	--	--
Total	do.	1,107	1,115	930 [r]	826 [r, 3]	1,000
Salt	thousand metric tons	--	2 [e]	--	--	--
Steel, rolled[e]	do.	90	85	85	85	85
Stone:						
Limestone		402,130	822,042	701,950 [r]	582,999 [r, 3]	580,000
Marble:						
Chips		384	954	441 [r]	1,047 [r, 3]	900
Slab, cut	cubic meters	28,110	22,110	1,781 [r]	426 [r, 3]	500
Craggy	do.	--	--	NA [r]	8,062 [r, 3]	NA
Quartzite[e]		3,000	3,100	-- [r]	-- [r]	3,000
Talc		6,648	9,043	7,996 [r]	6,601 [r, 3]	9,000

[e]Estimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. [r]Revised. do. Ditto. NA Not available. -- Zero.

[1]Table includes data available through July 14, 2011.

[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 2010

(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	348
Dolomite	Jigme Mining Corp. Ltd.	do.	2,000
Ferrosilicon	Bhutan Ferro Alloys Ltd. (Government of Bhutan, Marubeni Co., and Tashi Commercial Co.)	Phuentsholing	34
NEPAL			
Cement	Lhaki Cement Pvt. Ltd	Bhawani Khola	660
Do.	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

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