



2005 Minerals Yearbook

PAKISTAN

THE MINERAL INDUSTRY OF PAKISTAN

By Travis Q. Lyday and Staff

Pakistan is located in the northwestern section of the Indian subcontinent in South Asia and is slowly developing its mineral resources. Despite a major earthquake in 2005, the country's gross domestic product (GDP) grew at a rate of 7.0%. With a per capita GDP based on purchasing power parity of \$2,628, Pakistan was still a low-income country. Inflation remained high at 9.1% (International Monetary Fund, 2006¹). Agriculture accounted for about 21% of the GDP and the manufacturing sector accounted for about 25%. The mining, oil, and gas industries played a minor role (1% of the GDP) in the country's economy. Pakistan's mineral resources included coal, copper, iron ore, limestone, and salt. In addition to limited oil and extensive gas reserves, hydropower has great potential as an energy resource. The major mineral commodities mined in the country were barite, bauxite, chromium, coal, dolomite, gypsum, iron ore, limestone, magnesite, marble, natural gas, petroleum, salt, and sulfur. The country also produced other mineral commodities, including cement, lead, petroleum refinery products, and steel. Pakistan is endowed with valuable gemstone deposits.

Exploitation of energy resources has been slow owing to a shortage of capital and domestic political restraints. The Government was encouraging private firms, including foreign companies, to develop the country's production capacities. The Government also continued to seek reform and privatization of the state-held electric companies.

The Pakistan Government's plans for economic development have largely taken precedence over environmental issues. Air and water pollution has contributed to major environmental and health hazards. The widespread use of low-quality fuels combined with a substantial increase in the number of vehicles on the roads has led to significant air pollution problems. Industrial waste and agricultural runoff have contaminated drinking water supplies (U.S. Energy Information Administration, 2005[§]).

A large copper and gold deposit at Reko Diq in Balochistan in southwestern Pakistan was identified by BHP Billiton of Australia and the Geological Survey of Pakistan in the early 1990s. Tethyan Copper Co. of Australia took over the project from BHP Billiton in 2000. The company secured a 4,000-square-kilometer prospective area. The company estimated total indicated and inferred resources to be 855 million metric tons at grades of 0.65% copper and 0.3 grams per metric ton gold at the Western Porphyries project and Tethyan Copper's wholly owned H4 Starter project. The company had identified 14 or 15 areas of known porphyry copper-gold mineralization based on sampling and geophysics surrounding the Western Porphyries and H4 Starter projects. The company aimed to place the H4 Starter project into production and to position itself among the world's top 10 copper producers. The H4 Starter project's

feasibility study was scheduled to be completed in July 2005 when the company was expected to develop major infrastructure around the project, including a processing plant. The company qualified for Export Processing Zone status, the major benefits of which included tax breaks and duty-free plant and processing equipment (Australia's Paydirt, 2005).

A six-member task force was formed by the Government to privatize Pakistan Steel Mills by yearend 2005. Their mills had been planning to expand from 1.1 million metric tons per year (Mt/yr) of capacity to 1.5 Mt/yr at a cost of \$2.2 billion. Austria, China, Russia, and Ukraine were interested in taking part in the expansion. The Ministry of Industries and Production opposed the expansion before the privatization, however, and wanted to let a new private investor spend money on the company's expansion (Khaleej Times Online, 2005[§]).

A consortium of Chinese companies (MCC Duddar Minerals Development Co. (Pvt.) Ltd.) signed a contract to borrow \$54 million in loans from the China Development Bank to finance the development of the medium-sized Duddar lead and zinc mine, which is located 200 kilometers (km) north of Karachi. The bank loans made up about 80% of the total investment in the project of \$72.6 million. The consortium would fund the remaining 20% of the investment from its own capital. China Metallurgical Construction Group Corp. held a 51% interest in the consortium; Hunan Zhuzhou Nonferrous Metals Smelter Co. Ltd., 34%; and Hunan Huangshaping Lead and Zinc Mine Co., 15%. The project had a mining and concentrating capacity of 660,000 metric tons per year (t/yr) to produce 32,600 t/yr of lead concentrate and 100,400 t/yr of zinc concentrate. The project was to begin construction in April 2005 and would begin commercial production by the end of 2007 (China Daily, 2005[§]).

Projects were being planned in the energy sector for natural gas transport and supply and electricity generation. Sui Northern Gas Pipeline Ltd. and Sui Southern Gas Co. Ltd. signed a 15-year agreement for the transportation of natural gas from Hasan Gasfield to a compression station at Sui in the Province of Balochistan. Sui Southern Gas offered to construct a 270-km pipeline to carry gas from Nawabshah in the Province of Sindh to Sui. The transmission capacity would be 850,000 cubic meters per day. The transportation cost was estimated to be \$9.25 million per year (Pakistan Petroleum Ltd., 2005).

Of particular interest was the country's plan to build a \$7.4 billion natural gas pipeline that would span from Iran's massive reserves to Indian markets across Pakistani territory. Gazprom of Russia was interested and indicated its desire to invest in the project. Pakistan could earn about \$70 million per year in transit fees from the pipeline (U.S. Energy Information Administration, 2005[§]).

The Government granted Shenhua Group of China permission to build two coal-fired powerplants at Thar in the Province of Sindh to supply 600 megawatts of electricity. The plan was to exploit the large untapped coal reserves in Tharkparkar. Pakistan

¹References that include a section mark (§) are found in the Internet References Cited section.

sought the personal intervention of the Chinese prime minister to help start the project. About \$1.85 billion spent on the project would be wasted if Shenhua Group did not start work on the project in 2005 (Petroleum Economist, 2005).

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Major Source of Information

Ministry of Petroleum and Natural Resources
3rd Floor, A Block, Pak Secretariat
Islamabad, Pakistan
Telephone: 92 51 9208223
Fax: 92 51 9205437

TABLE 1
PAKISTAN: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity	2001	2002	2003	2004	2005
METALS					
Aluminum, bauxite, gross weight	3,728 ^f	12,233 ^f	4,098 ^f	4,847	6,504
Chromium ore:					
Gross weight	21,683 ^f	24,185 ^f	30,657 ^f	29,230 ^f	46,359
Cr ₂ O ₃ content ^c	9,800 ^f	10,900 ^f	13,800 ^f	13,200 ^f	20,900
Iron and steel:					
Iron ore, gross weight	24,765 ^f	4,942 ^f	11,773 ^f	84,946 ^f	104,278
Steel, crude ^c	500	550	550	600	700
Lead, refined, secondary ^c	2,000	2,100	2,330	3,000 ²	3,200
INDUSTRIAL MINERALS					
Abrasives, natural, emery ^c	150	150	150	150	150
Barite	28,289 ^f	21,451 ^f	40,745 ^f	44,207 ^f	42,087
Cement, hydraulic ^c	9,900	10,300	10,300	10,400	10,600
Chalk	7,630 ^f	7,881 ^f	7,752 ^f	7,735 ^f	8,146
Clays:					
Bentonite	13,935 ^f	11,476 ^f	11,290 ^f	6,316 ^f	15,671
Fire clay	163,723 ^f	174,429 ^f	120,243 ^f	192,728 ^f	253,501
Fuller's earth	12,426 ^f	15,521 ^f	16,670 ^f	13,986 ^f	17,001
Kaolin, china clay	46,574 ^f	53,542 ^f	39,575 ^f	25,204 ^f	37,732
Other ^c	200,000	209,000	210,000	212,000 ^f	215,000
Feldspar	41,275 ^f	35,071 ^f	37,344 ^f	30,373 ^f	25,032
Fluorspar ^c	1,000	1,000	1,000	1,026 ²	1,040
Gypsum, crude	399,097 ^f	401,748 ^f	424,107 ^f	467,065 ^f	552,496
Magnesite, crude	4,695 ^f	4,637 ^f	2,645 ^f	6,074 ^f	3,029
Nitrogen, N content of ammonia ^c	1,966,100 ²	2,050,000	2,050,000	2,050,000	2,100,000
Phosphate rock:					
Gross weight	2,385 ^f	1,362 ^f	2,562 ^f	4,614 ^f	2,687
P ₂ O ₅ content ^c	430 ^f	250 ^f	470 ^f	840 ^f	490
Pigments, mineral, natural, ochre ^c	4,800	5,000	5,000	5,000	5,500
Salt:					
Rock	1,394 ^f	1,423 ^f	1,426 ^f	1,640 ^f	1,648
Marine	15 ^f	14 ^f	17 ^f	12 ^f	14
Total	1,409 ^f	1,437 ^f	1,443 ^f	1,652 ^f	1,662
Sand:					
Bajir and common	13,580 ^f	-- ^f	-- ^f	-- ^f	--
Glass ^c	165,000	172,000	75,000 ^f	-- ^{r,2}	-- ²
Sodium compounds, n.e.s.: ^c					
Caustic soda	220,000	230,000	230,000	230,000	250,000
Soda ash, manufactured	230,000	240,000	240,000	240,000	260,000
Stone:					
Aragonite and marble	634,283 ^f	685,258 ^f	1,066,276 ^f	993,558 ^f	1,280,304
Dolomite	352,689 ^f	312,886 ^f	340,864 ^f	297,419 ^f	199,653
Limestone	13,108 ^f	10,820 ^f	11,880 ^f	13,150 ^f	14,857
Other, as "ordinary stone"	1 ^f	1 ^f	2 ^f	4 ^f	6
Strontium minerals, celestite	807 ^f	382 ^f	402 ^f	570 ^f	1,855
Sulfur:					
Native	17,428 ^f	22,580 ^f	19,402 ^f	23,873 ^f	24,158
Byproduct, all sources	-- ^f	-- ^f	-- ^f	-- ^f	--
Total	17,428 ^f	22,580 ^f	19,402 ^f	23,873 ^f	24,158
Talc and related materials, soapstone	46,989 ^f	53,573 ^f	65,813 ^f	52,483 ^f	20,564

See footnotes at end of table.

TABLE 1--Continued
 PAKISTAN: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity	2001	2002	2003	2004	2005	
MINERAL FUELS AND RELATED MATERIALS						
Coal, all grades	thousand metric tons	3,286 ^r	3,512 ^r	3,609 ^r	3,325 ^r	3,367
Coke ^c	do.	900	950	500 ^r	-- ^{r,2}	-- ²
Gas, natural:						
Gross production	million cubic meters	24,793 ^r	26,161 ^r	28,111 ^r	34,063 ^r	38,089
Marketed production, sales ^c	do.	21,000	22,000	24,000 ^r	30,000 ^r	34,000
Natural gas liquids ^c	thousand 42-gallon barrels	600	650	650	650	700
Petroleum:						
Crude	do.	21,084 ^r	23,195 ^r	23,458 ^r	22,625 ^r	24,119
Refinery products:						
Gasoline	do.	8,818 ^r	9,809 ^r	8,013 ^r	9,616 ^r	9,959
Jet fuel	do.	5,463 ^r	5,747 ^r	6,388 ^r	7,432 ^r	8,833
Kerosene	do.	3,210 ^r	2,704 ^r	2,118 ^r	1,794 ^r	1,511
Distillate fuel oil	do.	18,456 ^r	20,610 ^r	21,893 ^r	24,315 ^r	26,857
Residual fuel oil	do.	22,399 ^r	23,495 ^r	22,832 ^r	22,794 ^r	23,346
Lubricants	do.	1,326 ^r	1,379 ^r	1,319 ^r	1,334 ^r	1,401
Other	do.	5,583 ^r	6,395 ^r	7,066 ^r	9,251 ^r	10,264
Total	do.	65,255 ^r	70,139 ^r	69,629 ^r	76,536 ^r	82,171

^cEstimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. ^rRevised. --Zero.

¹Table includes data available through January 11, 2007.

²Reported figure.