

THE MINERAL INDUSTRY OF PAKISTAN

By Chin S. Kuo

Pakistan's mineral production in 1995 was essentially the output of its significant natural gas industry. The development and exploitation of exportable mineral commodities had been restricted by the lack of large mineral resources. There was no short supply of industrial minerals for domestic consumption.

The Government devalued the rupee by 7% against the U.S. dollar in an effort to bolster exports which had been stagnating. It also boosted domestic oil prices by the same margin and imposed a 10% surcharge on imports.

The Government was looking to achieve a breakthrough in investment in the mineral industry by attracting large-scale investment from the private sector, both local and overseas. The Geological Survey of Pakistan with the assistance of Asian Development Bank was formulating a 10-year mineral exploration program to cover 14 identified potential mineralized zones. One of the most significant targets was the Thar coalfield in Sind Province. An iron ore resource at Chiniot on the Punjab plains also was identified.

The fiscal scheme for investment was attractive in 1995. There are prominent tax exemptions and a reduction of development expenditures at 25% per year to enable recovery within a 4-year period. Custom duties on machinery and equipment will be only 5% until the beginning of commercial operation and 10% thereafter with no sales tax. Imported raw materials will have a 10% custom duty and 15% sales tax levied. There is also a prescribed timeframe for the granting of mineral titles. New ad valorem royalty rates were being introduced for precious stones and metals as well as semiprecious stone and base metals. After 1995, there will be no mandatory state participation and no ban on repatriation of profits. Also, tax withholding for corporate non-residents will be set at 7.5% and adjusted against the final tax liability.

The new import policy of 1995 banned the importation of gold by individuals. Only registered importers could import gold against their own foreign exchange resources. Any amount of gold could be imported subject to a 2% duty.

Under the 1994 petroleum policy, the Government has to decide, within 3 months of a commercial discovery being declared by an exploration company, the buyer to which the natural gas should be sold. The Government also removes import and other duties on machinery and materials brought in for exploration and makes credit easier. However, if

companies make a commercial discovery, they must pay 3% per year on the value of machinery imported. The petroleum policy was aimed at promoting private-sector investment and increasing oil and gas output.

The Government was drafting a hydroelectric power policy that was likely to offer a 25% return to private investors in projects with a capacity of 2,000 megawatts (MW). The policy also would offer a fixed net profit to investors for every kilowatt of power produced and a royalty to Provinces where the utility was located. In addition, investors would receive exemption from custom duty and sales tax on imports of equipment and machinery for projects. The country's hydroelectric potential was 50,000 MW with 10,000 MW easily obtainable from available water resources.

Pasminco Ltd. of Australia signed a joint-venture agreement with Pakistan Mineral Development Corp. and Baluchistan Development Authority in Quetta for further exploration (\$15 million) and possible development (\$15 million) of the Duddar zinc deposit. Initial investigations indicated a resource of 10.3 million metric tons (Mt) grading 11.4% zinc and 2.1% lead.² Pasminco would have the right to earn a 75% interest in the project. The company also would carry out other regional exploration drilling over an area of 3,000 square kilometers (km²) in the Mor Range and Piaro Ridge districts of Baluchistan.

The Baluchistan Provincial government signed an agreement for Petrie International Inc. of the United States to mine titanium in the Ziarat/Loralai area and explore for other minerals such as copper and gold in Dalbandin. Petrie would invest \$3 million initially for a period of 1 year. There was at least 15 Mt³ of titanium ore.

The Government attempted to sell the state-owned phosphate producers, Lyallpur Chemicals & Fertilizers and Hazara Phosphates. Lyallpur Chemicals produced 100,000 metric tons per year (t/yr) of single superphosphate (SSP) at Jaranwala. Hazara Phosphates operates a 90,000-t/yr SSP plant at Haripur, Abbottabad district.

FFC-Jordan Fertilizer Co., a joint venture of Fauji Fertilizer Co. (40%) and Jordan Phosphate Mines Co. (60%), secured a \$30-million loan from the Canadian Export Development Corp. for its planned fertilizer complex at Port Qasim. Kreditanstalt fur Wiederaufbau of Germany granted a loan of \$53 million. A consortium of French banks was to provide a loan of \$57 million, and the Export-Import Bank

of the United States agreed to a loan of \$40 million. The total cost of the project was estimated at \$300 million. The complex would produce 445,000 t/yr of diammonium phosphate (DAP), 551,000 t/yr of urea, and 460,000 t/yr of ammonia. The plants were scheduled for startup in late 1997 with the ammonia plant startup in 1996.

Al-Noor Fertilizer Industries Ltd. completed financing agreements for its proposed DAP/urea complex at Dhabeji, 50 km from Karachi. The company obtained about \$126 million in foreign currency loans for the \$220 million project. The 390,000-t/yr DAP and 396,000-t/yr urea plants were scheduled to come on-stream at yearend 1997. A phosphoric acid-receiving terminal was to be built at Port Qasim, and ammonia would be supplied from a 320,000-t/yr unit.

More than half (60%) of the Baluchistan Province's 200 coal mines were shut down for more than 3 months, and the rest were operated on a limited basis because of competition and taxes. At stake were the jobs of 30,000 miners and 60,000 people in coal-related services as well as the Baluchistan coal mining industry. Baluchistan produced an average of 2 million metric tons per year (Mt/yr) of coal in the past few years, and its output was on the decline. The Provincial government of Baluchistan was trying to persuade local and foreign investors to set up power projects near coalfields to provide new markets. However, coal production from the southern Province of Sind had increased to 2.5 Mt/yr. The Thar coalfields were estimated to have reserves more than 175,000 Mt.⁴

The Thar Coal Board approved three integrated projects for coal mining and power generation in Sind Province. The three projects would require an estimated total investment of \$1.7 to \$2.1 billion and have a total capacity of 1,620 MW. The project planned by Hongpak United Power Generation joint venture would build two 660-MW coal-fired plants in Thar. BBI Power would construct a 200-MW plant based on the Lakhra Coalfield. Sind Coal Electric Power would build a 100-MW plant on the Jherruk-Sonda Coalfield in Thatta district.

A coal mine explosion in Baluchistan killed at least 27 miners in February 1995. The methane gas explosion and resultant fire occurred at a depth of between 700 and 900 meters at Gilani Coal Co.'s mine at Sinjadi, 80 km east of Quetta. A portion of the mine collapsed and hampered the rescue efforts.

Pakistan produced 60,000 barrels per day (bbl/d) of oil and 52.4 million cubic meters per day (m³/d) of gas. The target for 1998 was 123,000 bbl/d of oil. Output of liquefied petroleum gas would be 400 metric tons per day in the next 2 years. The Mari Gasfield supplied the natural gas to three major fertilizer plants and a powerplant. Lasmo Oil Pakistan's Kadanwari Oilfield in Sind Province was brought into production in May. Output would rise gradually to 2.83 million m³/d, and gas from the field would be sold to Sui Southern Gas Co. The country's demand for gas was expected to rise from the current 62.3 million to 169.8

million m³/d by the year 2000.

Pakistan and Turkmenistan planned to build a \$3-billion natural gas pipeline across Afghanistan linking Turkmenistan's Svetabad gasfields and the southwestern city of Quetta. The pipeline would supply up to 56.6 million m³/d of gas. The project was to be financed entirely by the private sector.

Pakistan and Iran planned to invite bids for an overland gas pipeline from Iran's southern oilfields to Sind Province in Pakistan. The 45.3 million m³/d pipeline, costing between \$3.5 and \$4 billion, was expected to be operational by the year 2001. The country's other pipeline project, the 45.3-million-m³/d offshore line from Qatar, would cost \$3.5 billion. The pipeline would link Ras Raffan in Qatar with Gadani in Pakistan. Construction of the 1,600-km pipeline was to start in early 1996 with completion scheduled for 1999. Brown & Root of the United States, Crescent Petroleum, Itochu of Japan, and TransCanada Pipelines are the partners in the project.

Unocal Corp. of the United States signed three agreements for exploration of oil in different areas of the country. Unocal would carry out seismic and gravity surveys and drill an exploratory well within 3 years with a minimum financial commitment of \$6 million. Union Texas Pakistan Inc. received an exploration license for a block in southern Sind Province covering 688,000 hectares for an initial 2 years. The company had discovered oil in the Badin block of southeastern Pakistan and had produced 19,500 bbl/d of oil and 4.58 million m³/d of natural gas. The partners in the block are Union Texas (30%), Occidental Petroleum (30%), both of the United States, and Oil and Gas Development Corp. (40%). The country produced 60,000 bbl/d of oil, one-fourth of its needs, and the rest was imported.

In 1995, Pakistan State Oil expected to signed an agreement with Hyundai Engineering and Construction of the Republic of Korea to build an \$800-million, 90,000-bbl/d refinery at Badin, Sind Province. Construction would begin within 30 months of the signing of the agreement. Also in 1995, Pakistan and Iran completed an agreement to build jointly an oil refinery in Karachi at a cost of \$1 billion. The refinery would have a capacity of 120,000 bbl/d.

The country has about 10,800 MW of installed electric capacity, but demand for power has grown at 10% to 12% per year for the last 20 years. Pakistan Suzuki Cement and China International Water and Electric signed an initial contract for two 25-MW powerplants to be built at Haripur, near Islamabad. The Chinese would provide all equipment and technology for the turnkey project. Smith Cogeneration Development Ltd. of the United States signed an agreement to build a 200-MW coal-fired utility near the Lakhra Mine in Sind Province which produced high-sulfur lignite. The mining and power generation of the \$250-million project would be totally funded from overseas. The mine was to operate at 1 Mt/yr with equipment imported from China. Completion was expected by the end of 1996.

AES Lal Pir Ltd. of Pakistan was to build two 362-MW oil-fired plants in the district of Muzaffargarh, Punjab Province, with investment of \$700 million. Loans arranged by Bank of Tokyo, Sanwa Bank, and Deutsche Bank would provide \$240 million of the financing for the first plant's \$375 million cost. International Finance Corp. signed an agreement to provide up to \$49.5 million in loans and investments. AES Corp. of the United States would fund the rest. The project would have a single fuel-oil boiler and a single steam-turbine generator. Mitsubishi Heavy Industries of Japan would deliver the plant on a turnkey basis, and commercial operations were expected to start in December 1997. The Water and Power Development Authority was to buy the project's energy under a 30-year power purchase agreement.

In 1995, a joint venture involving Habibullah Energy Ltd., ABB Energy ventures, and Ogden Projects Inc., all of the United States, to build a \$110-million, 140-MW combined cycle plant was formed. However, the lack of a firm gas supply commitment from the Government could delay the project. In another development, Consolidated Electric Power Asia of Hong Kong was expected to build a \$5.5-billion, 5,280-MW coal-fired plant and associated transmission lines and infrastructure on the southern Sind coast. There would be eight 660-MW units with the first to come into operation by December 1997 and the last by mid-2000. The plant would need between 30 and 35 Mt/yr of coal, which was expected to come first from imports and later from the Thar coalfields in Sind Province. The Provincial government objected to the period of 8 to 10 years proposed for the switch from imported to local coal.

Construction of a 300-MW nuclear powerplant by Chinese at Chashma in northern Punjab Province was proceeding

according to schedule and would be completed in 1998. The country was in the final stage of negotiations to buy another 300-MW plant from China to be built also at Chashma. The objective was to generate 4,600 MW from nuclear plants by the year 2006.

¹Where necessary, values have been converted from Pakistani rupees (R) to U.S. dollars at the rate of R31.50=US\$1.00 for 1995.

²American Metal Market. May 31, 1995, p. 2.

³Mining Journal. June 30, 1995, p. 481.

⁴Journal of Commerce. Feb. 27, 1995, p. 4B.

Major Sources of Information

Balochistan Development Authority
Quetta, Pakistan
Geological Survey of Pakistan
Quetta, Pakistan
Oil and Gas Development Corp.
Islamabad, Pakistan
Pakistan Mineral Development Corp.
Karachi, Pakistan
Pakistan Petroleum Limited
Islamabad, Pakistan
Water and Power Development Authority
Lahore, Pakistan

Major Publications

Federal Bureau of Statistics, Karachi:
Foreign Trade, monthly.
Pakistan Statistical Yearbook, annual.
Statistical Bulletin, monthly.

TABLE 1
PAKISTAN: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity	1991	1992	1993	1994	1995 e/
METALS					
Aluminum, bauxite, gross weight	4,324	3,461	4,845	4,570 r/	8,000
Antimony ore:					
Gross weight	75	83	--	--	40
Sb content e/	11	12	--	--	6 2/
Chromium, chromite:					
Gross weight	31,474	22,852	22,154	6,240 r/	17,000
Cr content e/	10,380	7,500	7,400	2,810 r/	7,650
Iron and steel: e/					
Pig iron	1,100	1,100	1,200	1,045 r/ 2/	1,100
Steel, crude	1,000	1,000	1,100	344 r/ 2/	409 2/
Lead, refined, secondary e/	2,500	3,000	3,000	3,000	2,500
INDUSTRIAL MINERALS					
Abrasives, natural, emery	10,819	298	666	178 r/	132 2/
Barite	28,751	32,432	26,336	20,320 r/	15,360
Cement, hydraulic	7,762	7,793	8,321	8,100 r/	8,586 2/
Chalk	5,428	4,280	4,770	5,597 r/	7,170
Clays:					
Bentonite	5,106	6,057	7,991	11,180 r/	5,759 2/
Fire clay	136,184	123,034	132,278	133,643 r/	139,548 2/
Fuller's earth	22,075	22,042	20,941	15,335 r/	12,862 2/
Kaolin (china clay)	44,738	37,444	37,179	47,894 r/	30,746 2/
Other	1,855,013	1,268,968	1,728,380	647,324 r/	198,199 2/
Feldspar	10,210	19,166	17,034	15,335 r/	21,163 2/
Fluorspar e/	5,300	5,000	5,100	13,351 r/	2,753 2/
Gypsum, crude	521,891	462,002	534,565	607,279 r/	313,868 2/
Magnesite, crude	5,191	6,484	4,157	4,464 r/	16,891 2/
Nitrogen, N content of ammonia	1,153,600	1,144,200	1,445,700	1,450,000 e/	1,450,000
Phosphate rock:					
Gross weight	18,985	19,828	13,822	15,042	10,460
P2O5 content e/	5,930 2/	6,000	4,300	2,560 r/	1,780
Pigments, mineral, natural, ocher	1,889	5,126	6,196	6,000 e/	6,000
Salt:					
Rock	769	853	895	847 r/	935 2/
Marine	12	10	14	13	17 2/
Total	781	863	909	860 r/	952 2/
Sand:					
Bajri and common	220,000 e/	237,676	377,859	490,623 r/	175,572 2/
Glass	151,070	135,101	167,644	170,000 e/	170,000
Sodium compounds, n.e.s.:					
Caustic soda	78,500	60,000	81,381	93,600 r/	100,000
Soda ash, manufactured	147,000	146,000	186,216	184,636 r/	200,000
Stone:					
Aragonite and marble	331,820	330,570	384,553	389,741	471,761 2/
Dolomite	213,117	153,324	192,575	225,697 r/	198,051 2/
Limestone	8,432	8,759	9,074	9,096 r/	9,769 2/
Other (reported as "ordinary stone")	46	50 e/	50 e/	4 r/	6 2/
Strontium minerals, celestite	1,472	1,448	1,684	2,320 r/	1,625 2/
Sulfur:					
Native	255	140	410	545 r/	195 2/
Byproduct, all sources e/	26,000	26,000	27,000	27,000	27,000
Total e/	26,255	26,140	27,410	27,545 r/	27,195
Talc and related materials, soapstone	33,643	23,676	46,846	37,151 r/	35,043 2/
MINERAL FUELS AND RELATED MATERIALS					
Coal, all grades	3,040	2,751	3,305	3,082 r/	2,997 2/
Coke e/	650	650	670	701 r/ 2/	720
Gas, natural:					
Gross production	518,483	550,715	583,545	590,000	595,000
Marketed production (sales) e/	450,000	450,000	500,000	500,000	500,000
Natural gas liquids e/	80	85	85	85	80
Petroleum:					
Crude	23,027	22,686	21,467	22,000	23,000

See footnotes at end of table.

TABLE 1--Continued
 PAKISTAN: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity	1991	1992	1993	1994	1995 e/	
MINERAL FUELS AND RELATED MATERIALS--Continued						
Petroleum--Continued:						
Refinery products: e/						
Gasoline	thousand 42-gallon barrels	7,200	7,300	7,300	7,400	7,500
Jet fuel	do.	4,200	4,200	4,500	4,500	4,500
Kerosene	do.	3,200	3,200	3,300	3,300	3,300
Distillate fuel oil	do.	13,500	13,600	13,600	13,800	14,000
Residual fuel oil	do.	12,200	12,300	12,300	12,400	12,500
Lubricants	do.	1,200	1,200	1,300	1,300	1,300
Other	do.	4,100	4,200	4,200	4,300	4,300
Total	do.	45,600	46,000	46,500	47,000	47,400

e/ Estimated. r/ Revised.

1/ Table includes data available through Aug. 19, 1996.

2/ Reported figure.