

THE MINERAL INDUSTRY OF

PAKISTAN

By Chin S. Kuo

The estimated increase in the gross domestic product (GDP) from the previous fiscal year was 5.1%. The country had a current account deficit of \$2.1 billion. In 1998, consumer prices rose 7.9% from those of 1997. The Government sought soft loans from friendly countries to alleviate a budget shortfall of \$1.5 billion caused by international sanctions imposed in response to Pakistan's nuclear tests. A \$1.5 billion International Monetary Fund (IMF) loan and new loans of around \$1 billion from the World Bank and the Asian Development Bank were suspended.

The Government increased gasoline prices to generate \$205 million in revenues, but prices of diesel, fuel oil, and kerosene were unchanged. In the trade policy, the Government reduced gold import duty to encourage gold imports and offered incentives for jewelry exporters with duty-free import of 400 troy ounces per year of gold.

In November, the IMF agreed to rescue Pakistan's shattered economy from default by approving a \$5.5 billion bailout package. The country owed \$32 billion to international creditors. The bailout package came with a number of conditions, including requirements that the Government undertake structural reforms in its banking sector, a tax overhaul to increase its tax base, and a program to reduce corruption.

The Government wanted to merge National Refinery Ltd. and Pakistan State Oil Corp. under the Ministry of Petroleum and Natural Resources. The Ministry owed National Refinery \$210 million for products bought for Pakistan State Oil.

Foreign investment in Pakistan came to a standstill after the Government actively opposed to a power purchase from 21 independent power producers. Total investment from these power producers was \$4.2 billion. The Government's action was driven by the imminent bankruptcy of the Water and Power Development Authority (WAPDA), which had debts of more than \$1.3 billion, or 2% of GDP. WAPDA could not purchase power from the independent power producers.

The Geological Survey of Pakistan completed regional mineral exploration for copper and gold in Balochistan. Five more sites consisting of 23 million metric tons (Mt) of copper ore were discovered in Chagai district (Metal Bulletin, 1998c). Two Australian companies entered joint ventures with the Balochistan Development Authority to explore for copper, gold, and zinc. One joint venture involved a total potential equity of \$1 billion and the other was for \$100 million. BHP Minerals Ltd. of Australia continued aerial and ground surveys in the area. The country lacks economic metallic resources but is in no short supply of industrial minerals. (See table 1.)

Pakistan Chrome Mines Ltd.'s leases were being mined by

several small contractors owned by local districts to supply chromite ore to mineral exporters such as Syndicate Mines & Minerals Ltd. Three main areas in Balochistan, Muslim Bagh, Wad, and Kharan, and an area in the Northwest Frontier Province were being mined for chromite ore. Syndicate Mines & Minerals operates a 20,000-metric-ton-per-year (t/yr) beneficiation plant in Karachi and exported lump and concentrates to the Far East and North America. Zhob Valley Materials Ltd. was another chromite concentrate exporter to Europe.

Saindak Metals Ltd. and China Metallurgical Construction Co. (CMCC) reached an agreement to restart production at the Saindak copper mine, 560 kilometers (km) west of Quetta, in Balochistan after a 2-year closure. It took 4 months to complete the work necessary to decommission the operation that began in July. The Government allocated \$12.7 million to the project. CMCC built the bulk of the facilities for the \$378 million mine under a \$194 million contract. The mine has a design capacity of 15,800 t/yr of copper, 1.5 t/yr of gold, and 2.8 t/yr of silver. Resources at Saindak were estimated to be 412 Mt at 0.4% copper (Mining Journal, 1998). Saindak Metals received a \$33 million working capital loan from a consortium of ABN Amro Bank and Bank of America. However, the company was unable to secure the loan from the banks unless previous loans were cleared by the Government.

Pakistan Steel Mills Corp. approved an exploration program after the Chinese offered a \$2.2 million research grant. The Chinese started work on assessing the minable reserves contained in the Pachinkoh and Chigendek iron ore deposits in Balochistan. The deposits were reported to contain 64% to 65% iron (Metal Bulletin, 1998b). The company also studied iron ore deposits at Dilband and Nokkundi in Balochistan and at Kirana Hills in Punjab.

The United Nations Industrial Development Organization sought foreign investment in a proposed project to explore, evaluate, and develop an iron ore mine in Chiniot area, Jhang district in Punjab. The iron ore would be used mainly by Pakistan Steel for producing direct reduction iron pellets. The proposed capacity of the mine would be 250,000 t/yr of iron ore. Initial total cost of the investment would be \$7.88 million. Punjab Mineral Development Corp. was responsible for enhancing exploration and development of mineral resources in Punjab Province.

Pakistan Steel imported pig iron from Ukraine and slab from Kazakhstan and Ukraine that proved unusable for the blast furnace. The company planned to organize an international tender to dispose of the material or sell it locally. Pakistan Steel used Russian technology in building its Karachi

steelworks. The company wanted to complete its \$90 million “build, modernize, and restructure” program, which was intended to raise the capacity of crude steel from 1.1 to 1.3 million metric tons per year (Mt/yr) with long-term goal of expanding to 3 Mt/yr. In 1998, production was at 60% of its design capacity, or 700,000 metric tons. Current steel consumption in Pakistan was 4 to 4.5 Mt/yr (Metal Bulletin, 1998a).

Metropolitan Steel Corp. resumed operation in Landhi, Karachi, in August after being idled for more than a year and was resurrected by a consortium led by National Development Finance Corp. of Pakistan. The reroller has a 75,000-t/yr bar and rod mill using billet from Pakistan Steel and a small sections mill. It could produce 7,000 t/yr of mild steel wire and 9,000 t/yr of special steel wire from imported high carbon wire rod.

The cement sector was experiencing falling cement prices and a lack of demand. The industry was facing a growing production surplus. In February 1998, major manufacturers imposed voluntary cutbacks of 30% to 40% in cement production. Cement producers attributed the situation to a 100% increase in the cost of furnace oil and the emergence of several companies with little or no experience of producing cement. The Asian economic crisis also affected the industry’s attempts to export cement. Cement consumption within the housing sector accounted for 70% of total demand, which was less than 10 Mt/yr.

The country’s total production capacity was 14.7 Mt/yr of clinker and 15.4 Mt/yr of cement. State Cement Corp. of Pakistan is the largest cement manufacturer in the country with a capacity of 1.85 Mt/yr. Bestway Cement Ltd. was expected to open a new 1.04-Mt/yr facility by the end of 1998. Saadi Cement Ltd. would have a 1.04-Mt/yr plant due for completion in 1999. Cement exports were insignificant at 56,000 t/yr to Bangladesh.

The Privatization Commission invited bids for a 90% stake in Pak Saudi Fertilizers Ltd. The remaining 10% would be offered to the employees of the company. Pak Saudi Fertilizers is the largest urea producer in the public sector with a capacity of 557,000 t/yr of urea and 320,000 t/yr of ammonia.

Mian Enterprises set up a plant in Quetta in Balochistan to produce high quality refractory magnesia. The plant would secure its ore from a number of quarries located closeby. A small amount of magnesite was mined in the Abbottabad district of the Northwest Frontier Province.

Pakistan’s reliance on oil and gas reached 80% of its primary energy supplies. The Government invited foreign investment in the oil and gas sectors and introduced production sharing with a number of incentives such as a royalty holiday and a lower tax rate. A new policy replaced a guaranteed rate of return on investments in refineries with a market-related price mechanism linked to mean petroleum prices in Singapore.

Shell Development Pakistan Ltd. signed a deepwater oil exploration license with the Government in March. The Government granted Tullow Pakistan and Pakistan Government Holdings an exploration license for the Nawabshah Khairpur district in Sind Province. Tullow would drill an exploratory well and conduct a 100 line-km seismic

survey during the \$4 million, 3-year contract.

The Government granted two licenses to a joint venture of Union Texas Pakistan Ltd. and Pakistan Government Holdings to explore for oil in the Zindapir block and the Nauroz Kalat block in Sind. The joint venture intended to invest \$3.5 million in an exploration program with the drilling of two wells during an initial 3-year term. A joint venture of Union Texas Pakistan, Occidental Petroleum Pakistan Ltd., Oil and Gas Development Corp. (OGDC), and Pakistan Government Holdings was granted exploration rights for the Badin-II block in Sind. The Government also granted an oil exploration license for the Talagang block in Punjab to OGDC and Pakistan Government Holdings. The \$7.1 million exploration program included the acquisition of 175 line-km of seismic data and the drilling of one well during an initial 3-year term.

The country has gas reserves of 566 billion cubic meters. Work on Unocal Corp.’s 1,500-km, \$1.9 billion gas pipeline from Turkmenistan’s Daultabad Gasfield to Pakistan’s Multan city in Punjab was proceeding and when completed in 2001, the pipeline would transport 42.5 million cubic meters per day (Mm³/d) of gas. However, the plan was put on hold indefinitely. Problems in arranging necessary financing and civil war in Afghanistan were the main reasons behind the decision. Delta Oil Co. of Saudi Arabia, Hyundai Corp. of the Republic of Korea, Inpex Ltd. of Indonesia, Itochu Corp. of Japan, the Turkmenistan Government, and the local Crescent Group are in the project.

Mari Gas Co. found a major gas reservoir near Sukkar in Ghotki district in Sind Province. Reserves were estimated at up to 28.3 billion cubic meters (Middle East Economic Digest, 1998c). A consortium led by BHP Petroleum of Australia found gas in the Dadu concession in Sind. The concession could hold up to 113.2 billion cubic meters of gas (Middle East Economic Digest, 1998a). Other partners are Monument Resources Co., Premier Exploration Pakistan Ltd., and Pakistan Government Holdings. Hardy Oil & Gas Co. of the United Kingdom discovered gas in the Sawan field in the southwest Miano block in Sind Province. Reserves were estimated at more than 28.3 billion cubic meters (Petroleum Economist, 1998). Partners in the venture are Hardy (30%), Pakistan Petroleum Limited (30%), OMV of Austria (25%), Moravske Naftove Doly (10%) of the Czech Republic, and the Government (5%).

The Uch Gasfield was developed by OGDC at a cost of \$200 million to supply a 584-megawatt (MW) combined cycle powerplant with 7.1 Mm³/d of gas. The \$600 million powerplant was capable of using the low heating-value gas from Uch.

Kuwait Petroleum Corp. was interested in investing a new 120,000-barrel-per-day (bbl/d) oil refinery and building a \$700 million oil pipeline from Karachi to Mahmood Kot in Punjab. Heavy Mechanical Complex signed a memorandum of understanding with Petroleum Refining & Petrochemical Corp. (Perac) for the supply of equipment worth \$150 million for the planned Pak-Iran Refinery Co. The \$1.1 billion refinery would be set up as a joint venture between Perac and National Iranian Oil Co. near Hub in Balochistan. It would process 6 Mt/yr of heavy Iranian crude oil. Completion was expected to be by

2002. Perac also planned to build an oil refinery in the Badin area, in collaboration with a Korean group. The \$90 million refinery would process 40,000 bbl/d of local crude oil.

Pak-Arab Refinery Co.'s (Parco) \$114 million, 360-km pipeline extension to transport petroleum products from Mahmood Kot to Machekay via Faisalabad was completed. Parco also planned to construct a \$866 million oil refinery, which was expected to be completed by 2000. The 100,000-bbl/d refinery was being built by JGC Corp. of Japan. Marubeni Corp. of Japan won the engineering, procurement, and construction contract for the refinery. Export-Import Bank of Japan provided \$360 million and a consortium of four banks provided \$240 million to complete a \$600 million loan. A letter of intent was issued by the Government to Asia Petroleum Ltd. of Pakistan for the construction of a 840-km, \$500 million pipeline to transport diesel from Karachi to Mahmood Kot on a build-own-operate basis (Middle East Economic Digest, 1998b). A joint venture of the local Zeeshan and Gulf Interstate Energy Services was awarded an engineering and design contract. The project was expected to come on-line by late 2000.

The completion of Parco's refinery would add 73,000 t/yr of liquefied petroleum gas (LPG) by the end of 2000 and the completion of a gas extraction plant by Parco would add 146,000 t/yr to the country's total LPG production capacity of 400,000 t/yr during the next 5 years. Domestic LPG consumption was estimated to be 250,000 t/yr, which was only 1% of total energy needs.

The Government's policy reviews and changes in the power sector were hindering foreign investment. Liberal policy in the past had enabled AES Corp. of the United States to start up two power projects. The Government also raised the tariff on power supplied by state-owned utilities by 12% and intended to privatize WAPDA and Karachi Electricity Supply Corp. (KESC). The Asian Development Bank and the World Bank pledged funding for restructuring of WAPDA. The U.S. Export-Import Bank would provide a \$292.8 million loan to support the purchase of U.S. power machinery by two private powerplants in Balochistan and Punjab Provinces.

The Government offered a four-point formula to private power producers to reduce their tariffs by 20% to 25%, get payments from state-owned agencies rescheduled, and push back the completion date of their power projects. The Government would get their loans rescheduled from foreign donors. Six of 21 independent private power producers agreed to lower their tariffs from 6.5 cents to 4 cents per kilowatt hour. Hub Power Co. filed an appeal in the international court against the Government and WAPDA over tariff reduction and a power purchase agreement. The company operates the \$1.5 billion, 1,292-MW capacity powerplant near Karachi. Habibullah Coastal Power Co. and Saba Power Co. Ltd., both affiliated with Coastal Power Co. of the United States, received notices of intent by the Government to terminate their projects in Pakistan that had not renegotiated their existing contracts to lower the tariffs. AES Lal Pir Ltd., which operates a 351-MW oil-fired thermal powerplant in Punjab, and AES PakGen Co., which operates a 344-MW thermal powerplant nearby, also received notices of intent.

Under a new power policy, the Government would offer local coal reserves and hydroelectric resources to international private investors to set up power utilities. It withdrew all concessions available on the import of power generating machinery. Projects would be set up on build-own-operate-transfer basis. The Government would identify sites and conduct a feasibility study before offering the project for an international bidding to determine tariffs. It would guarantee all contractual obligations and extend specified political risk guarantee for all these projects. There would be no restriction on repatriation of equity and dividends.

The country's major power companies continued to delay payment to oil and gas suppliers and reached a breach of \$2 billion debt in July. WAPDA and KESC accounted for \$1.05 billion and three state-owned gas companies sought to terminate supplies to WAPDA and KESC. Losses and inefficiency at WAPDA and KESC also hurt state-owned oil exploration and marketing companies. The oil marketing company was in turn indebted to three oil refineries and OGDC.

The Government canceled a power purchase contract with BC Hydro's Southern Electric Power Co., which owns the \$112 million Raiwind private power project in Punjab, over electricity rates. Pakistan produced only 5,594 MW of electricity against the production capacity of 11,338 MW, creating power outages in 1998.

Synergies Energy Development Inc. planned to build a \$1.4 billion, 750-MW hydroelectric powerplant in Kashmir. The project could be ready in 5 years and the company would retain control of the project for 20 years after it became operational. The Government was to invite bids for 20 hydroelectric projects with a total capacity of 3,000 MW. Pakistan's hydroelectric potential was reported to be around 25,000 MW (Journal of Commerce, 1998).

The development of a 969-MW hydroelectric powerplant on a build-operate-transfer basis at Chattar Kalas in Kashmir would include a dam, a reservoir, and tunnel. Norconsult and Norplan, both of Norway, conducted feasibility and environmental impact studies for the project.

The Government was in the process of finalizing plans to sell up to 2,000 MW of power produced by private power producers to India. Two sites, Lahore and Sind Province, were being considered for connecting the two countries' grids. Pakistan has a total generating capacity of around 19,450 MW.

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Pakistan Statistical Yearbook, annual.
Statistical Bulletin, monthly.

TABLE 1
PAKISTAN: PRODUCTION OF MINERAL COMMODITIES 1/ 2/

(Metric tons unless otherwise specified)

Commodity	1994	1995	1996	1997	1998
METALS					
Aluminum, bauxite, gross weight	4,570	3,057	4,056	4,934 r/	4,954
Antimony ore:					
Gross weight	--	40 e/	--	--	--
Sb content e/	--	6 3/	--	--	--
Chromium, chromite:					
Gross weight	6,240	17,000 e/	27,987	23,763 r/	8,885
Cr content	2,810 e/	7,650 e/	12,594	10,693 r/	3,998
Iron and steel:					
Pig iron e/	1,045 3/	1,100	1,500	1,400	1,500
Steel, crude	344	409	416	479 r/	494
Lead, refined, secondary e/	3,000	2,500	2,000	2,000	2,000
INDUSTRIAL MINERALS					
Abrasives, natural, emery	178	132	135	150 e/	150 e/
Barite	20,320	15,360	18,582	23,390 r/	20,657
Cement, hydraulic	8,100	8,586	8,900 e/	9,001 r/	8,901
Chalk	5,597	7,170	6,545	5,350 r/	4,357
Clays:					
Bentonite	11,180	5,759	15,290	16,450 r/	14,196
Fire clay	133,643	139,548	122,936	111,145 r/	66,672
Fuller's earth	15,335	12,862	13,415	12,307 r/	14,659
Kaolin (china clay)	47,894	30,746	54,860	66,235 r/	70,777
Other	647,324	198,199	200,525	200,000 e/	200,000 e/
Feldspar	15,335	21,163	32,572	25,169 r/	31,191
Fluorspar	13,351	2,753	363	1,050 r/	1,000 e/
Gypsum, crude	607,279	313,868	503,915	464,942 r/	243,978
Magnesite, crude	4,464	16,891	3,202	4,057 r/	3,157
Nitrogen, N content of ammonia	1,505,100	1,492,500	1,606,200	1,548,600	1,797,200
Phosphate rock:					
Gross weight	15,042	10,460	10,000 e/	11,045 r/	11,000 e/
P ₂ O ₅ content e/	2,560	1,780	1,700	1,880 r/	1,870
Pigments, mineral, natural, ocher e/	6,000	6,000	6,100	2,600 r/	3,180 3/
Salt:					
Rock	847	935	940 e/	1,042 r/	1,038
Marine	13	17	18 e/	19 r/	15
Total	860	952	958 e/	1,061 r/	1,053
Sand:					
Bajri and common	490,623	175,572	166,380	170,000 e/	175,000 e/
Glass e/	170,000	170,000	165,000	165,000	122,000 3/
Sodium compounds, n.e.s.:					
Caustic soda	93,600	100,000 e/	108,900	263,300 r/	216,000
Soda ash, manufactured e/	184,636 3/	200,000	215,400 3/	220,000	220,000
Stone:					
Aragonite and marble	389,741	471,761	571,765	314,309 r/	354,818
Dolomite	225,697	198,051	161,754	176,096 r/	99,741
Limestone	9,096	9,769	14,870	9,016 r/	8,749
Other (reported as "ordinary stone") e/	4 3/	6 3/	7	10	15
Strontium minerals, celestite	2,320	1,625	2,500 e/	3,000 r/ e/	598
Sulfur:					
Native	545	195	200 e/	150 e/	100 e/
Byproduct, all sources	27,000 e/	27,000 e/	27,000 e/	22,002 r/	18,988
Total e/	27,500	27,200	27,200	22,200 r/	19,100
Talc and related materials, soapstone	37,151	35,043	34,095	45,414 r/	48,927
MINERAL FUELS AND RELATED MATERIALS					
Coal, all grades	3,082	2,997	3,345	3,102 r/	3,164
Coke	701	720	735	720 e/	850
Gas, natural: e/					
Gross production	590,000	595,000	598,000	600,000	714,142 3/
Marketed production (sales)	500,000	500,000	500,000	500,000	600,000
Natural gas liquids e/	1,080 r/	1,800 r/	1,080 r/	1,080 r/	1,080
Petroleum:					
Crude e/	22,000	23,000	23,500	24,000	16,885 3/

See footnotes at end of table.

TABLE 1--Continued
 PAKISTAN: PRODUCTION OF MINERAL COMMODITIES 1/ 2/

(Metric tons unless otherwise specified)

Commodity	1994	1995	1996	1997	1998
MINERAL FUELS AND RELATED MATERIALS--Continued					
Petroleum--Continued:					
Refinery products: e/					
Gasoline	7,400	7,500	8,760 r/ 3/	8,800 r/	8,900
Jet fuel	4,500	4,500	4,745 r/ 3/	4,600	4,700
Kerosene	3,300	3,300	4,015 r/ 3/	4,000 r/	4,000
Distillate fuel oil	13,800	14,000	12,775 r/ 3/	13,000 r/	13,500
Residual fuel oil	12,400	12,500	13,505 r/ 3/	13,500 r/	13,600
Lubricants	1,300	1,300	1,400	1,400	1,400
Other	4,300	4,300	5,110 r/ 3/	5,100 r/	5,000
Total	47,000	47,400	50,310 r/	50,400 r/	51,100

e/ Estimated. r/ Revised.

1/ Estimated data are rounded to three significant digits; may not add to totals shown.

2/ Table includes data available through June 24, 1999.

3/ Reported figure.