

THE MINERAL INDUSTRY OF

PARAGUAY

By Pablo Velasco

Paraguay's economy remained predominantly agricultural and dedicated mainly to livestock with a small minerals industry that accounted for less than 1% of gross domestic product (GDP). In 1995, the Paraguayan GDP grew by 4.4% to an estimated \$7.4 billion,¹ compared with 3.5% in 1994. Export revenues were \$646 million for the first 9 months of 1995, representing a 20.7% decrease from \$804 million for the same period of 1994. Paraguay had \$1.1 billion in international reserves and a public external debt of about \$1.3 billion, equivalent to 17.5% of its GDP. The inflation fell in 1995 to 10.35% and the fiscal surplus was \$141 million.

The strategic geographic location of Paraguay in the Southern Cone Common Market (MERCOSUR), in which the other participants are Argentina, Brazil, and Uruguay, and the abundant hydroelectric power available, made the country attractive for certain metallurgical industries. Paraguay continued to offer attractive trade policies and business opportunities in terms of its solvency, free market economy with equal guarantees, and liquidity to attract foreign investors to explore for hydrocarbons, particularly in the Chaco Region, where a local drilling company claimed to have discovered natural gas.

Mineral production in Paraguay was made up solely of industrial minerals including clays, glass sand, gypsum, kaolin, limestone, pigments, small amounts of iron oxide pigments, stone, and talc. Mineral-related activities included manufacture of cement and lime, production of pig iron and steel, and petroleum refining from imported raw materials. (See table 1.)

Known mineral deposits included high-grade limestone deposits along the Paraguay River which provided high-grade raw materials for the cement industry, calcium carbide manufacture, precipitated calcium carbonate, lime, and other mineral-related products. A wide variety of marbles, granites, and volcanic rock were produced, and sandstone was extracted for the manufacture of glass.

Geophysical surveys have identified oil and natural gas potential in the El Palmar Largo and Gran Boquerón Chaco Regions. Paraguay received relatively little attention from the mining community during the past years, however, in 1995 Yamana Resources from Canada was seeking ratification for a 150,000-hectares concession to explore for mineral resources and Taiwan China Steel Co. announced the commitment to establish a ferroalloy plant in Paraguay.

Cement was produced by Industria Nacional del Cemento (INC), a Government-owned company, which operated two plants: the Puerto Vallemí cement plant in Concepción Department with a 400,000-tons per year (t/yr) capacity, and the Itapucumi clinker plant in Villeta Department with a 600,000-t/yr capacity. The Government was selling a 20-year concession for the INC's plant at Vallemí, 45 kilometers up the river from Asunción. The new owner had to invest about \$50 million in two new furnaces and a clinker mill. Argentine, Brazilian, French, and New Zealand firms bid for the cement company, INC. The bids were scheduled to open in October 1995. Once the bids had been checked, and the bidders' financial viability assessed, the auction would go forward to a second round.

Aceros del Paraguay S.A. (ACEPAR), operated a steel plant at Villa Hayes, 20 km north of Asunción, as a joint Paraguayan-Brazilian venture estimated to have cost \$290 million, based on iron ore and coal imported from Brazil. The Government-owned company, Petróleos Paraguayos S.A. (PETROPAR), produced refined petroleum products for domestic consumption at its Santa Elisa refinery in Asunción.

Paraguay's oil needs continued to be met by imports from Algeria and Argentina, although dependency was reduced somewhat by the increased use of the country's large hydroelectric potential estimated at 56,000 megawatts, and the development of an alcohol fuel industry. In 1995, electricity was supplied mainly from the hydroelectric plants at the Itaipú Dam complex, a joint Brazilian-Paraguayan hydroelectric powerplant on the Paraná River; and the Yacyretá-Apipé Dam, a joint Argentinean-Paraguayan hydroelectric project 320 km downstream from Itaipú.

The transportation system in Paraguay comprised 28,300 km of highways, 970 km of railroads, and 3,100 km of inland waterways. Argentina, Bolivia, Brazil, Paraguay, and Uruguay moved closer to the integration of river transportation with the inauguration of two locks in the Tiete River in Brazil. After completion of this waterway, the cost per ton of transportation of Paraguayan minerals and goods reportedly will decrease from the current \$29 to about \$10.

¹Where necessary, values were converted from Paraguayan guaraníes (G) to U.S. dollars at the average market rate of G1,972.0=US\$1.00.

Major Sources of Information

Administración Nacional de Combustibles, Alcohol y
Portland Asunción, Paraguay
Palma 1084 y Hernanderías
Asunción, Paraguay
Dirección General de Recursos Minerales (DGRM)
Oliva y Alberdi
Asunción, Paraguay

Major Publications

Administración Nacional de Combustibles, Alcohol y
Portland, Asunción, Paraguay: Memoria y Balance
(annual report).
Banco Central del Paraguay, Asunción, Paraguay: Boletín
Estadístico (annual report).
Central Intelligence Agency, Washington, DC: The World
Factbook, annual.

TABLE 1
PARAGUAY: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity 2/	1991	1992	1993	1994	1995 e/
Cement, hydraulic e/ thousand tons	326	326	490 3/	570 3/	600
Clays: e/					
Kaolin	74,000	74,000	74,000	74,000	74,000
Other thousand tons	1,900	1,900	1,900	1,900	1,900
Gypsum e/	4,500	4,500	4,500	4,500	4,500
Iron and steel:					
Pig iron	67,642 r/	92,136 r/	81,233 r/	90,000 r/	103,000 3/
Steel, crude	61,000	86,000	86,000	85,000 r/	96,000 3/
Lime e/	100,000	100,000	100,000	100,000	100,000
Petroleum, refinery products: e/					
Liquefied petroleum gas thousand 42-gallon barrels	100	100	100	100	100
Gasoline do.	560	560	560	600	600
Jet fuel do.	160	160	160	200	200
Kerosene do.	40	40	40	50	50
Distillate fuel oil do.	740	740	740	800	800
Lubricants:					
Oil do.	20	20	20	20	20
Grease do.	5	5	5	5	5
Residual fuel oil do.	350	350	350	350	350
Refinery fuel and losses do.	25	25	25	25	25
Total do.	2,000	2,000	2,000	2,150	2,150
Pigments, mineral, natural, other e/	330	330	330	330	300
Sand, including glass sand e/ thousand tons	2,000	2,000	2,000	2,000	2,000
Stone: e/					
Dimension do.	70	70	70	70	70
Crushed and broken:					
Limestone (cement and lime) do.	600	600	600	600	600
Other do.	2,000	2,000	2,000	2,000	2,000
Marble	750	750	750	750	750
Talc, soapstone, pyrophyllite e/	200	200	200	200	200

e/ Estimated. r/ Revised.

1/ Includes data available through June 1996.

2/ In addition to commodities listed, construction materials (clays, gravel, miscellaneous rock, sand, and weathered tuffs) were presumably produced. Available information is inadequate to make reliable estimates of output levels of these commodities.

3/ Reported figure.