THE MINERAL INDUSTRY OF

OTHER LATIN AMERICA

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Belize

The mining industry of Belize, traditionally dominated by construction materials, contributed approximately 0.7% of the gross domestic product (GDP) in 1994. The economy of the country was dependent on the agricultural sector, accounting for 30% of GDP and more than 75% of export earnings. The GDP of Belize was estimated to be $550 million[2] in 1994.

The Mines and Minerals Act of 1988 regulated mining activities. The provisions of the act do not include petroleum. Clays, limestone, marble, and sand and gravel for the construction industry accounted for most of Belize's mineral production. *(See table 1.)*

Prior to 1988, much of the Nation's industrial minerals output was produced by private companies under contract to the Government's Department of Public Works. The Government's Geology and Petroleum Office has appraised and administered mineral concessions, licenses, and permits since 1988. Exclusive prospecting licenses for base metals, clay, and limestone ventures were held by three foreign companies as of 1991. Most of the nonfuel mineral operations were owned by Belgians, while a number of British and United States firms held petroleum concessions. Belize Minerals Ltd. operated a commercial mineral processing plant with a capacity of 20,000 metric tons per year (mt/a) that ground locally quarried dolomite for use as fertilizer in the country's agriculture sector.

Trucks were used to transport industrial minerals to consumers on a road system that was paved or gravel-surfaced. Belize continued to make efforts to obtain financing to repair its infrastructure because many major roads and bridges were deteriorating. The United Kingdom proposed partial funding to upgrade roads from Belize's ports to Guatemala.

The World Bank approved a $20 million loan for the "Belize City Infrastructure Project" in 1993 to support the Government's efforts to rehabilitate the infrastructure in its largest city, and to promote safety, health, and economic development.

Belize depended on imported oil, mostly supplied by Mexico under the San José Accord, to generate electricity Belize has a total electric generating capacity of 35 megawatts (MW), which is insufficient to supply electricity in most rural areas. The World Bank is currently preparing a power development project in support of the Government's plan to secure a reliable country-wide electricity supply through 2005 and to lower electricity costs. It would complement private sector investment in a hydroelectric project supported by the International Finance Corporation.

In keeping with its goal of ensuring a balance between development and the environment, Belize enacted the Environmental Protection Act of 1992. The Department of Environment has been given the mandate to monitor implementation of the Act. To carry out this mandate, the Department has been drafting Effluent Limitations Regulations and Environmental Impact Assessment (EIA) Regulations since early 1993.

Prospects for growth in the mineral industry are tied to industrial mineral development. Continued growth in the tourism industry will lead to increased demand for construction material in the future. The country's large deposits of limestone and granites are ideal sources of aggregate and crushed stones. The existence of gypsum resources has been reported.

El Salvador

El Salvador is mostly an agrarian economy. The GDP of El Salvador was estimated to be $14.2 billion[3] in 1994. Agriculture accounted for 24% of GDP and 45% of export earnings, manufacturing accounted for 19% of GDP, and the minerals industry accounted for less than 1% of GDP. Cement production was the leading activity in the mineral sector with limestone as the major source of its raw material. Other mineral-related products were aluminum, petroleum refining, phosphatic materials, and steel. Gypsum, and salt were also produced. *(See table 1.)*

The Mining Code of 1922, as amended by the complementary Mining Law, Decree 930 of 1953, governed the Salvadoran mineral industry.

Gold trade and mining activity have been reported in the San Sebastian area, a community near Santa Rosa de Lima bordering Honduras. A small group of miners in the area used the amalgamation process, in which gold is extracted from the ores by treatment with mercury. Most of the product was sold to local jewelers. A group of U.S. investors was interested in reactivating an old gold mine in the area.

The Salvadoran cement industry had an estimated capacity of 924,000 metric tons in 1994. The private sector controlled the industry. Cemento de El Salvador S.A. operated a 684,000-mt/a plant near Metapán. The Government sold its 240,000-mt/a Cemento Maya S.A. plant to the same group that owned the larger plant. It had been reported that ownership of both cement plants by the same group could lead to monopoly in the industry with its potential for output restriction and/or higher prices. Another mineral-related private sector operation included the 5.8-million-barrels-per-year (Mbbl/a) Refinería Petrólera Acajutla S.A., owned by Exxon Corp. (60%) and Royal Dutch/Shell (40%). The prices of petroleum products and locally produced portland grey cement were reportedly set by the Government.

El Salvador's transportation network consisted of 602 kilometers (km) of track and 10,000 km of road, a portion of which connected the two major ports, Acajutla on the Pacific and the La Unión and Cutuco complex, off the Golfo de Fonseca.

Installed electricity generating capacity in El Salvador was 669 MW, primarily from hydroelectricity. About 80% of exposed rock in the country is volcanic, with the prospect for exploiting perlite and pumice deposits being very good. As the country's infrastructure is rebuilt, demand for industrial minerals is expected to increase.

French Guiana

French Guiana is an overseas Department of France. The mining laws and regulations of France prevailed in the country.

In 1994, more than 95% of the gold produced in French Guiana came from placer operations. However, across the extensive greenstone belts of French Guiana, there was some exploration activity. Guyanor Resources S.A., a French corporation wholly owned by Golden Star Resources Ltd. (GSRL) of Canada, was issued an "Autorisation Personnelle Minière (APM)" (Personalized Mining Authorization) to hold exploration permits, mining licenses, and mining concessions in the country. Guyanor and the Chamber of Commerce and Industry of French Guiana issued a "Declaration of Principle" to facilitate Guyanor's activities in the country, benefiting both interests.

Gold had been mined at a number of placer sites in the interior since 1853. Columbite, sand, and tantalite also were produced from alluvial deposits. Sand was dredged from the major rivers, in the western region of the country, primarily the Mahury and the Maroni. Stone was quarried at Cayenne and to the southeast of Kourou. *(See table 1.)*

According to GSRL, Guyanor acquired the mineral rights and exploration permits for the Yaou project located about 210 km southwest of Cayenne, near Maripasoula. In 1994, Guyanor budgeted $3.1 million for an aggressive exploration campaign, which included geochemical, airborne and ground geophysical surveys, trenching, drilling, and a baseline environmental study. The Dorlin project, located about 180 km southeast of Cayenne and 47 km east of Yaou, consisted of six exploration permits having an excellent potential for finding base metals and gold. Guyanor granted to Asarco Incorporated, of the United States, an option to acquire a 50% joint venture in the St. Elie mining concession, 120 km west of Cayenne. Asarco is required to spend up to $10 million on the property during a 5-year period to explore and evaluate the property, including a feasibility study. St. Elie's exploration plans included line cutting, topographical surveying, geological mapping, geochemical soil sampling, and airborne magnetic and radiometric surveys.

There are two additional important gold prospects, the Espérance in the extreme western part of French Guiana, 100 km south of St. Laurent-du-Maroni, and the Regina Est 80 km south-southeast of Cayenne.

France dominated French Guiana's trade, accounting for more than 50% of total imports and exports. Most of the gold produced was exported to France; however, some gold was mined and smuggled out of the country by the Brazilian "garimpeiros" (small-scale independent miners) along the southeastern border. Sand and stone were consumed by the local construction industry. The country depended on imports for its other mineral requirements, especially cement and fuels, which were shipped through the port at Cayenne.

Interest in gold mining was expected to continue to grow by an increasing number of companies and investors from Canada, France, and the United States, focusing on gold opportunities in adjacent Guyana and Venezuela. The demand for stone and sand and gravel should diminish, after the completion of large-scale public projects.

Paraguay

In 1994, the Paraguayan GDP grew by 3.5% to an estimated $7.1 billion,[4] compared with 4.1% in 1993. The mineral sector of Paraguay accounted for about 0.5% of GDP, compared with 25% for the agricultural sector. Export revenues were $728 million, representing a 4% increase from that of the previous year. Paraguay has $1 billion in international reserves and a public external debt of only $1.25 billion, equivalent to 17% of its GDP. Paraguay continued to offer attractive trade policies and a positive external financial profile in terms of its solvency, guarantee, and liquidity to attract foreign investors to explore for hydrocarbons, particularly in the northwestern Chaco, where it claimed the existence of gas.

Mineral production in Paraguay included clays, glass sand, gypsum, kaolin, limestone, pigments, small amounts of iron oxide, 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. These deposits provided high-grade raw materials for the cement industry, calcium carbide manufacture, precipitated calcium carbonate, lime, and other mineral-related products.

Mineral surveys have identified the presence of iron ore, uranium, and other minerals in Paraguay, particularly lateritic iron ore on the Paraná River, near Encarnación. Other minerals known to occur included azurite, barite, gypsum, lignite, malachite, mica, peat, pyrite, pyrolusite, and soapstone. Geophysical surveys have identified oil and natural gas potential in the El Palma Largo and Gran Boquerón Chaco regions in northwest Paraguay.

The Government-owned cement plants and petroleum refinery were the primary activities associated with the mineral sector. Cement was produced by Industria Nacional del Cemento (INC), which operated two plants: the Puerto Vallemí cement plant in Concepción Department with a 400,000-mt/a capacity, and the Itapucumi clinker plant in Villeta Department with a 600,000-mt/a capacity. 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 installed electric generating capacity at 5,257 MW, and the development of an alcohol fuel industry. In 1994, 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. Paraguay, Argentina, Brazil, Bolivia, 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 drop to about $10 from the current $29.

Private investment in 1994 alone amounted to $500 million, 52% of which was the foreign share. Large Government projects might offer opportunities for U.S. firms in the country, including a hydroelectric project at Corpus to be built as a joint venture between Argentina and Paraguay; the "hidrovia" transportation project financed by the Inter-American Development Bank; the Ypacarai Lake Basin and Asunción Bay recuperation project; and plans for privatizing the Paraguayan Airline, the state-owned steel company; the state merchant fleet, and the national railroad. Another important sector of the Paraguayan economy is its ample and inexpensive electricity for energy-intensive industries, such as aluminum and alloy manufacturing.

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[1]Text prepared May 1995.

[2]Where necessary, values were converted from Belizean dollars (Bz$) to U.S. dollars at the fixed rate of Bz$2.00=US$1.00.

[3]Where necessary, values were converted from Salvadoran colones (C) to U.S. dollars at the fixed rate of C8.770=US$1.00.

[4]Where necessary, values were converted from Paraguayan guaraníes (G) to U.S. dollars at the average market rate of G1,915.0=US$1.00.

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Geology and Petroleum Office
Ministry of Natural Resources
84-36 Unity Blvd.
Belmopan, Belize
Dirección de Recursos Mineros
Ministerio de Economía
4a Avenida Norte No. 233
San Salvador, El Salvador
Direction Regional de l'Industrie, de la Recherche et l'Environnement
B.P. 7001
97307 Cayenne, French Guiana
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
Industria Nacional del Cemento (INC)
Humaitá 357, Edificio Humaitá[5] to Piso
Asunción, Paraguay
Ministerio de Industria y Comercio
Ave. España 477 (Esq. Estados Unidos)
Asunción, Paraguay

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TABLE 1
OTHER COUNTRIES OF LATIN AMERICA: PRODUCTION OF MINERAL COMMODITIES 1/ 2/

(Metric tons unless otherwise specified)

Commodity		1990	1991	1992	1993	1994
BELIZE						
Clays		2,080,000 r/	2,000,000 e/	2,000,000 e/	2,000,000	2,100,000
Dolomite e/		28,000 r/ 3/	28,000 r/	28,000 r/	28,000	30,000
Gold e/	kilograms	1 3/	5	5	2	5
Lime e/		936 3/	1,000	1,000	1,000	1,000
Limestone		237,000 r/	300,000 e/	300,000 e/	250,000	300,000
Marl	thousand tons	991 r/	1,000 e/	1,000 e/	1,000	1,050
Sand and gravel		158,000 r/	200,000 e/	300,000 e/	200,000	300,000
EL SALVADOR 4/						
Aluminum: Metal including alloys, semimanufactures		2,000	1,612	2,301 r/	2,000	2,400
Cement		641,000	680,000	419,000 r/	861,000 2/	924,000
Fertilizer materials:						
Phosphatic		8,000	8,000 r/ e/	11,000 r/	10,000	12,000
Other mixed chemical		53,000	49,000	48,000 r/	48,000	54,000
Gypsum e/		4,500	4,500 r/	4,500 r/	5,000	5,000
Iron and steel: Metal:						
Steel, crude e/		12,000	11,000	11,000	12,000	12,000
Semimanufactures		38,000	41,000	45,000 r/	56,000 3/	56,100
Limestone	thousand tons	1,700	1,900	2,200 r/	2,600 3/	2,600
Petroleum refinery products	thousand 42-gallon barrels	4,900	6,000	6,000 r/	6,000	6,100
Salt, marine		8,000	15,000	20,000 r/ e/	30,000 3/	30,000
FRENCH GUIANA						
Clays e/		5,000	6,000	5,000	5,000	5,000
Columbite and tantalite	kilograms	1,100	1,100 e/	1,100 e/	1,100	1,100
Gold, mine output, Au content	do.	870	1,417	2,140 r/	2,500	2,500
Sand	thousand tons	1,500	1,500 e/	1,000 e/	1,000	1,500
Stone, crushed	do.	1,300	1,500 e/	1,400 e/	1,400	1,500
PARAGUAY4/						
Cement, hydraulic e/	thousand tons	326	326	326	326	400
Clays: e/						
Kaolin		4,000	74,000	74,000	74,000	75,000
Other	thousand tons	1,900	1,900	1,900	1,900	2,000
Gypsum e/		4,500	4,500	4,500	4,500	5,000
Iron and steel:						
Pig iron		61,000	60,000	60,000 e/	60,000	65,000
Steel, crude		48,000	61,000	86,000	86,000	100,000
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	560	600
Jet fuel	do.	160	160	160	160	200
Kerosene	do.	40	40	40	40	50
Distillate fuel oil	do.	740	740	740	740	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	2,000	2,150
Pigments, mineral: Natural, ocher e/		330	330	330	330	350
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/ Previously published and 1994 data are rounded by the U.S. Bureau of Mines to three significant digits; may not add to totals shown.

2/ Includes data available through Dec. 1994.

3/ Reported figure.

4/ 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.