

THE MINERAL INDUSTRY OF

CUBA

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In 1998, Cuba's gross domestic product increased by about 1% (Cuba Economic News, December 22, 1998, Cuban economy grows 1.2 percent in 1998, December 22, 1998, accessed on January 7, 2000, at http://www.cubabiz.com/archives/dec22_98.htm). The industrial sector increased by about 3%, but agriculture decreased as a result of a 24% decrease in the sugar crop (Financial Times, 1998). In recent years, tourism has increased and has become Cuba's main source of revenue (Cuba Economic News, Canadian tourists rank first, December 7, 1998, accessed on January 7, 2000, at http://www.cubabiz.com/archives/dec7_98.htm).

The mining sector is also very important to Cuba's economy because of its significant contribution to the country's revenue and its increased potential as a result of interest shown by foreign investors in recent years. Nickel production and trade has dominated this sector for years, and the size of Cuba's nickel reserves, second largest in the world after Russia (Kuck, 1999), has piqued the interest of international nickel producers. In 1998, Cuba was the sixth leading world producer of mined nickel. Production of cobalt as a byproduct of nickel operations has also been important to Cuba's mineral sector. In 1998, Cuba was the fifth leading world producer of cobalt, with an output of about 9% of the total world mine production. In addition, Cuba produced moderate amounts of ammonia, cement, chromite, gypsum, petroleum and petroleum products, salt, silica sand, steel, and sulfur as a byproduct of petroleum, and other construction materials. (See *table 1.*) In 1994, Cuba began producing small quantities of gold.

Mining activity in Cuba is regulated by the constitution, the mining law (law No. 76), the foreign investment law (law No. 77), and the environmental law (law No. 81).

The Ministerio de Industria Básica (Ministry of Basic Industry) is the Government entity responsible for oversight of most minerals, cement, and the petroleum sectors in Cuba. Geominera S.A., UNION NICKEL, Corporación Cemento Cubano, and CUPET with their producing and marketing companies reported to this ministry. Cuba's clay, marble, and other construction material producers report to the Ministerio de Construcción (Ministry of Construction) (Otero Costafreda, 1999). Although mineral production is dominated by the Government, recent changes in mining and foreign investment legislation have changed the nature of the industry. As a result, the Government and the foreign private sector have formed joint corporations (mixed enterprises) with foreign capital. Foreign companies may enter into exploration and production contracts with the Government with shared risk or with risk assumed by the foreign company. In 1993, Geominera S.A. was formed as a private company operating with Government

capital. Geominera has worked with the foreign sector in joint ventures and with association agreements to prospect and explore for metals other than nickel. The company's involvement included technical research, feasibility studies, and all other aspects of the projects. Geominera's main interest was gold, followed by copper and other metals. Most of the foreign investment in Cuba was by Canadian companies.

In the mineral sector, the most important mixed enterprise that was formed as the result of changes in foreign investment legislation was the Metals Enterprise S.A. This company was formed by the association between the Government through General Nickel Co. and Sherritt International Corporation of Canada. Sherritt held significant indirect interest in the nickel sector of Cuba through Metals Enterprise, a 50-50 vertically integrated company with facilities in Cuba, Canada, and the Bahamas. Metals Enterprise operated the nickel mining and processing operations in Moa (Moa S.A.). The company's estimated geologic nickeliferous resources were 59.9 million tons (Mt), 55.6 million tons of which are measured (Sherritt International Corporation, 1999, p. 6). Production from Moa's operations totaled 27,066 tons (t) of nickel and cobalt contained in mixed sulfide, the highest production ever achieved at that facility, but because of lower commodity prices, revenue and operating earnings decreased by 16% and 66%, respectively (Sherritt International Corporation, 1999, p. 19).

The Government produced nickel oxide and sinter from two operations in Punta Gorda and Nicaro in Holguín Province, with a combined production capacity of 60,000 t. Production of nickel (nickel content of oxide and sinter) from these two operations was about 38,700 t. The Government had plans to expand the capacity at the Punta Gorda plant to 40,000 metric tons per year (t/yr) (Otero Costafreda, 1999).

Cuba's nickel-cobalt sulfide was refined in Canada by Metals Enterprise, the vertically integrated nickel cobalt company owned jointly by Sherritt and General Nickel. About 79% of nickel oxide produced from the other two Cuban nickel operations in Nicaro and Punta Gorda was exported to Europe, and almost 20% was exported to Asia (International Nickel Study Group, 1999).

Another joint venture or mixed enterprise between General Nickel and WMC Resources Ltd. (WMC) of Australia, Empresa Mixta Pinares S.A., was established to develop the Pinares de Mayarí Oeste deposit in Holguín Province. WMC held 65% of Empresa Mixta Pinares (Otero Costafreda, 1999). The project had a planned capacity of 35,000 t of nickel and cobalt. At midyear 1998, a prefeasibility study for a mine and a processing plant was being conducted for the project (Metallurgical & Processing Developments, 1998). The

evaluation was aimed at producing a bankable feasibility study by 2001 (WMC Quarterly Review, [undated], Quarter ended 31 December 1998, accessed June 16, 1999, at <http://www.wmc.com.au/qproddec98.htm>). By yearend, the first part of the drilling program, geophysical test, metallurgical testing, and preliminary cost study were completed.

Another nickel project in Holguín Province, Proyecto Cupey, formerly known as “Las Camariocas,” was designed to produce 32,000 tons of nickel and 1,300 t/yr of cobalt. The plant, which was being built with the assistance of the former Council for Mutual Economic Assistance countries in 1992, was incomplete. In 1998, the Government was seeking an international partner to complete the project (Otero Costafreda, 1999).

In early 1998, gold production began at the leach facility at the Mantúa mine in Pinar del Río Province, a joint venture or mixed association between Northern Orion Explorations Ltd. and Geominera S.A. Gold production sold from Mantúa was “16,323 ounces” (508 kilograms) (Northern Orion Explorations, Ltd., 1999, p. 7). Lower-than-anticipated production and higher cost were attributed to higher leach times and overall lower recovery because of the high content of clays and fines (Northern Orion Explorations, Ltd., p. 5). Mantúa, a high-grade copper deposit that lies under the gold deposit, had yearend 1998 estimated reserves of 7.5 t of ore with a grade of 2.74% copper and gold reserves of 319,000 t of ore with a grade of 2.16 grams per metric ton gold (g/t) (Northern Orion Explorations, Ltd., 1999, p. 5-6). During the year, evaluation of the copper phase continued and Northern Orion selected Bateman Engineering Co. to prepare a prefeasibility study.

Northern Orion and Geominera were also partners in other projects in Western Cuba. The Delita project, a refractory gold deposit in the Isla de Juventud, was being evaluated by Northern Orion during 1998, but because of low gold prices, the partners agreed to defer the work (Northern Orion, [undated], Property information, accessed on August 27, 1999, at <http://www.northernorion.com/s/Properties.asp?PropertyInfoID=190>). Yearend 1998 resources at Delita were estimated to be 13.3 Mt with 3.27 g/t of gold ore (Northern Orion Explorations, Ltd., 1999, p. 6).

Other companies, such as CaribGold Resources Inc., Holmer Gold Mines Ltd., and McDonalds Mine Exploration continued to explore Cuba for gold and basic metals. CaribGold announced that it had calculated “an inferred geological resource of 13,400 kilograms (430,000 ounces) of gold consisting of 2,300,000 t grading 5.83 g/t (uncut and undiluted)” in its joint-venture property in Camagüey as result

of exploration conducted at yearend 1998 (CaribGold, February 1, 1999, CaribGold announces 430,000 ounces of gold near Camaguey, Cuba, press release, accessed on February 2, 1999, at http://bizyahoo.com/bw/990201/caribgold_1.html).

Cuba continued to depend heavily on imports for its petroleum requirements. In recent years, private foreign companies have begun exploration programs in association with the Cuban Government. Sherritt, through a subsidiary, produced crude from existing oilfields by rehabilitating old wells or drilling new ones, and continued its exploration program offshore and onshore (Sherritt International Corporation, 1999, p. 8). Sherritt’s Cuba production increased by 76% to 7,781 barrels per day (Sherritt International Corporation, 1999, p. 21). This output was from two workover wells, three development wells, one appraisal well, and one successful exploratory well. Two blocks, which began production in 1998, one in Puerto Escondido and the other in Varadero West, were responsible for 20% of Sherritt’s increased output in Cuba.

In November, Brazil’s Petroleo Brasileiro S.A., through its international subsidiary, Braspetro, signed an exploration and production contract with Cuba Petróleo S.A. (Oil & Gas Journal, 1998). The exploration block, on the northern coast, is 300 kilometers from the capital. During the first 9 months of the 6-year contract, geologic studies and seismic data reprocessing would be conducted. Depending upon the results, 18 months of exploratory drilling, estimated to cost \$23 million, could follow. The third stage of the contract would cover unspecified investment. Any resulting production would be shared by the two companies.

References Cited

- Financial Times, 1998, Bad sugar harvest hits Cuba growth, Financial Times, December 23, p. 3.
- International Nickel Study Group, 1999, INSG World Nickel Statistics Monthly Bulletin, International Nickel Study Group, v. IX, no. 12, p. 31.
- Kuck, P.H., 1999, Nickel: U.S. Geological Survey Mineral Commodity Summaries 1999, p. 118-119.
- Metallurgical & Processing Developments, 1998, Nickel project tables: Metallurgical & Processing Developments, no. 2, June, p. 17.
- Northern Orion Explorations, Ltd., 1999, 1998 annual report: Vancouver, Northern Orion Explorations, Ltd., 15 p.
- Oil & Gas Journal, 1998, Petrobras unit to explore block off Cuba: Oil & Gas Journal, v. 96, no. 48, November 30, p. 32.
- Otero Costafreda, 1999, Los negocios mineros en Cuba [The mining business in Cuba]: Simposio los recursos minerales como factor estratégico del desarrollo [Mineral resources as a factor of strategic development symposium], Caracas, Venezuela, October 25-27, 1999, presentation, unpaginated.
- Sherritt International Corporation, 1999, 1998 annual report: Toronto, Sherritt International Corporation, 42 p.

TABLE 1
CUBA: ESTIMATED PRODUCTION OF MINERAL COMMODITIES 1/ 2/

(Metric tons unless otherwise specified)

Commodity 3/	1994	1995	1996	1997	1998
Cement, hydraulic	1,081,100 4/	1,469,700 4/	1,453,100 4/	1,712,800 4/	1,800,000
Chromite	20,000	30,693 4/	37,300 4/	44,000 4/	49,044 4/
Cobalt 5/	1,140 r/	1,850 r/	2,340 r/	2,490 r/	2,660
Copper, mine output, Cu content	2,900	2,000	2,000	1,000	1,000
Gas, natural:					
Gross	thousand cubic meters	37,000	37,000	37,000	37,000
Marketed	do.	4,000	4,000	4,000	4,000
Gold	kilograms	45 4/	184 4/	250	250
Gypsum	thousand tons	125	130	130	130
Iron and steel; steel, crude	do.	131 4/	207 4/	231 4/	342 r/ 4/
Lime	do.	170	180	180	180
Nickel:					
Mine output, Ni-Co content of oxide and sulfide		26,926 r/ 4/	42,700 r/ 6/	53,600 r/ 6/	61,900 r/ 6/
Metallurgical products, Ni content: 5/					
Granular oxide, oxide sinter, and powder		13,900 r/	21,400 r/	26,700	34,000 r/
Sulfide		11,900 r/	19,500 r/	24,600 r/	25,500 r/
Total		25,800 r/	40,900 r/	51,300 r/	59,500 r/
Nitrogen, N content of anhydrous ammonia	thousand tons	130	135	135	135
Petroleum:					
Crude	thousand 42-gallon barrels	9,320	10,200	10,500	10,800
Refinery products	do.	55,500	60,000	60,000	60,000
Salt	thousand tons	175	180	180	180
Silica (industrial sand and gravel)	do.	300	300	300	300
Sulfur, byproduct of petroleum	do.	4	5	5	5

r/ Revised.

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

2/ Table includes data available through January 19, 2000.

3/ In addition to commodities listed, crude construction materials (marble, sand and gravel, stone, etc.) may also be produced, but data on such production are not available, and information is inadequate to make reliable estimates of output levels.

4/ Reported figure.

5/ The Government of Cuba reports figures of nickel-cobalt content of granular and powder oxide, oxide sinter, and sulfide production. By using an average cobalt content in these products of 0.9% in total granular and powder oxide, 1.1% in total oxide sinter, and 4.5% in total sulfide, the cobalt content of reported nickel-cobalt production was determined to be 1.16% of granular and powder oxide, 1.21% of oxide sinter, and 7.56% of sulfide. The remainder of reported figures would represent the nickel content.

6/ Derived from data reported to the International Nickel Study Group.

TABLE 2
CUBA: STRUCTURE OF THE MINERAL INDUSTRY IN 1998

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Cement	Empresa del Cemento (Government, 100%)	Mariel, Pinar del Río Province; Cienfuegos, Cienfuegos Province	3,500
Chromite	Ministerio de Industria Básica (Government, 100%)	Mercedita Mine and plant, Holguín Province	60
Copper	Empresa Minera de Occidente (Government, 100%)	Mantúa and Júcaro Mines, Pinar del Río Province Mina Grande, Santiago de Cuba Province	3
Nickel	Empresa Niquelífera Ernesto Ché Guevara (Government, 100%)	Punta Gorda, Holguín Province	30
Do.	Metals Enterprise S.A. (Government, 50%, Sherritt International Corporation, 50%)	Moa, Holguín Province	24
Do.	Empresa Niquelífera Comandante René Ramos Latour (Government, 100%)	Nicaró, Holguín Province	30
Petroleum:			
Crude	Empresa de Perforación y Extracción de Petróleo (Government, 100%)	Northern coast area between Havana and Cárdenas	12,000 1/
Refinery products	Instituto Cubano del Petróleo (Government, 100%)	Refineries at Cienfuegos, Havana, and Santiago de Cuba	160 1/
Steel	Antillana de Acero (Acinox, 100%)	Cotorro, Havana Province	600
Do.	Acinox (Government, 100%)	Las Tunas, Las Tunas Province	150

1/ Thousand barrels per year.