

# 2005 Minerals Yearbook

# CUBA

#### By Omayra Bermúdez-Lugo

Cuba, which is located at about 150 kilometers (km) from Key West, Florida, is the largest island of the Greater Antilles island arc. Cuba's territory, which includes Isla de la Juventud and several other islets and cays, comprises a total land area of 110,860 square kilometers (km<sup>2</sup>). In 2005, the country's population was estimated to be about 11.2 million (Oficina Nacional de Estadísticas de Cuba, 2006§<sup>1</sup>). Nickel was the most important mineral commodity to the Cuban economy followed by cobalt, which was produced as a byproduct of the mining of nickel. Other minerals produced in the country included cement, clays, crushed stone, feldspar, salt, and silica sand (table 1). Cuba also produced ammonia, gold, natural gas, petroleum, petroleum products, and sulfur as a byproduct of the refining of petroleum.

In 2005, the country's estimated gross domestic product (GDP) based on purchasing power parity was about \$37.2 billion and the estimated per capita GDP based on purchasing power parity was about \$3,300. Exports, which consisted mainly of citrus, coffee, fish, medical products, nickel, sugar, and tobacco, were valued at about \$2.4 billion (U.S. Central Intelligence Agency, 2007§). According to Cuban Government statistics, mining accounted for about 1.1% of the GDP in 2005 compared with about 1.3% in 2004 (Oficina Nacional de Estadísticas de Cuba, 2006§).

The Ministerio de la Industria Básica was the Government entity responsible for the minerals and petroleum sectors. Unión Geológico Minera S.A. (Geominera) was the company in charge of prospecting and exploration for and mining of all metallic and nonmetallic minerals with the exception of nickel and cobalt, which were overseen by Unión del Níquel S.A. Cubapetróleo S.A. (CUPET) was the company in charge of petroleum prospecting, exploration, marketing, and refining. These companies were owned by the Government.

#### **Government Policies and Programs**

According to the U.S. Department of State (2005§), the Cuban economy continued to recover from a decline in the GDP of at least 35% between 1989 and 1993 following the disintegration of the Soviet Union and the loss of Soviet subsidies. Although Cuba has pulled back on some of the market reforms it had introduced in 1993 and 1994 and has once again embraced a policy of recentralization, the Government has signed a series of agreements in the mining sector in the past 5 years that might significantly aid the economy in the near future. Among these agreements is one signed in 2000 with Petróleos de Venezuela S.A. (PDVSA) under which Venezuela would supply Cuba with 53,000 barrels per day (bbl/d) of petroleum at preferential prices. According to a 2005 study performed by the Institute for Cuban and Cuban-American Studies (Mesa-Lago, 2005, p. 8-9), the 53,000 bbl/d of imports would supply about 30% of Cuba's domestic petroleum demand. Under the terms of the agreement signed with PDVSA, 80% of petroleum imports were to be paid within 90 days at prevailing market prices, and the remaining 20% was to be paid in 5 to 20 years at an average annual petroleum price, with the option of paying up to one-fifth of the 20% through educational, medical, and sport services to Venezuela. For the period between 2001 and 2003, Cuba's unpaid petroleum deliveries debt reportedly amounted to \$752 million and was estimated to be about 80% of the debt owed to PDVSA by its foreign clients.

In December 2004, the Governments of Cuba and Venezuela signed the Bolivarian Alternative for the Americas Agreement (ALBA), which arranged for cooperation and bilateral relations between the two countries. In 2005, under the ALBA, Venezuela would supply Cuba with up to 90,000 bbl/d of petroleum, for which Cuba agreed to pay a price of not less than \$27 per barrel. Other provisions under the agreement included allowing Venezuela to hold 100% ownership of its investments in the country, the opening of state bank subsidiaries in each other's country, the elimination of tariffs and import duties on Venezuelan imported goods, tax exemption for all Venezuelan capital in Cuba, and the financing of infrastructure projects (Canadian Foundation for the Americas, The, 2004§; Cuba.com, 2004§; Havana Journal, 2004§). In 2004, Venezuela supplied 78,000 bbl/d of petroleum to Cuba. Cuba, however, reportedly did not consume all the petroleum domestically but instead sold part of it, through negotiations with PDVSA, to Guatemala, Honduras, El Salvador, Nicaragua, and Panama. In 2005, Venezuela was to increase petroleum supplies to Cuba to meet all of the country's needs in excess of domestic production. In addition, Cuba was to provide 2,000 higher education fellowships to Venezuelans, while Venezuela was to transfer technology on energy to Cubans and to award fellowships in the field. As of October 2005, Cuba's petroleum debt to Venezuela was estimated to be \$2.5 billion (Mesa-Lago, 2005, p. 8-9).

In 2005, the Cuban Government was also in negotiations with Corporación de Desarrollo de la Región Zuliana (Corpozulia) to import more than 500,000 metric tons per year (t/yr) of Venezuelan coal to Cuba, where it was to be used by a Chinese company (name not disclosed) to generate electricity for a ferronickel plant. Other projects included the creation of a joint-venture among China, Cuba, and Venezuela to produce stainless steel; the construction of a coal-fired thermoelectric plant in Mariel by Sherritt International Corp. of Canada and the Government of Venezuela; and the acquisition by Venezuela of a stake in the Cienfuegos petroleum refinery. Venezuela planned to use Cuban installations to store and distribute petroleum to Caribbean countries (Mesa-Lago, 2005, p. 9; Embassy of the Bolivarian Republic of Venezuela in the United Kingdom, 2005§; Venezuelanalysis.com, 2005§). The Government also signed a letter of intent with Venezuela for the creation of a strategic alliance to develop nickel and cobalt mining projects

THE MINERAL INDUSTRY OF CUBA

<sup>&</sup>lt;sup>1</sup>References that include a section mark (§) are found in the Internet References Cited section.

in the regions of Aragua, Carabobo, and Cojedes, and for the refurbishing of the Cienfuegos petroleum refinery, which included the refurbishing of an oil pipeline connecting the refinery to an oil tanker terminal in Matanzas (Agencia Cubana de Noticias, 2005§; Bilaterals.org, 2005§).

Also in 2004, the Government had signed a series of agreements with China, which included a credit of \$500 million from Chinese banks for the creation of a joint-venture company between the Government (51%) and China (49%) to resume construction of the Camariocas ferronickel plant. Upon completion, the plant would have a production capacity of 22,500 t/yr of nickel. The loan was to be paid in 15 years, upon completion of the plant facilities. Other agreements included the establishment of another Sino-Cuban joint venture for the development of a nickel deposit in San Felipe, Camaguey, which was expected to produce about 50,000 t/yr of nickel at a cost of \$1.3 billion, and a petroleum exploration contract with Sinopec Corp. (Mesa-Lago, 2005, p. 11-12; ADITAL Noticias de America Latina y Caribe, 2005§).

In February 2005, the Government signed economic and trade agreements on education, energy, health, and technology with Brazil, which included an agreement with Government-owned Petroleos Brasileiros S.A. to conduct petroleum exploration in the country and to examine the possibility of establishing a factory to produce lubricants in association with Venezuela's PDVSA (Mesa-Lago, 2005, p. 24-25).

#### Trade

According to Cuba's Ministry of Foreign Affairs, Venezuela continued to be Cuba's principal trading partner in 2005 followed by China (which displaced Spain as the second ranked trading partner), Spain, and Canada. Cuba's main exports were nickel, medicine, sugar, technology, and tobacco (Ministerio de Relaciones Exteriores de Cuba, 2006§). Nickel accounted for about 61% of Cuba's exports to China (Mesa-Lago, 2005, p. 11).

#### **Commodity Review**

#### Metals

**Cobalt.**—In 2005, production of cobalt, which included ammoniacal liquor precipitate, oxide, and sulfide, increased by about 4.7% to 4,247 metric tons (t) from 4,055 t in 2004 (table 1).

**Copper.**—Northern Orion Resources Inc. (Northern), through its subsidiary Minera Cobre S.A., held a 50% interest in the Mantua copper-gold deposit, which is located in Pinar del Rio Province about 240 km from Havana. Geominera S.A. held the remaining 50%. In early 2004, Northern had been in discussions with third parties (names not disclosed) regarding the sale of the Mantua project; however, according to company reports, no agreement to sell its interest in the project was reached during the year. In 2005, Northern reported that its ability to develop the copper phase of the project was dependent upon its obtaining third-party financing, and that between 2001 and 2004, the Mantua project was consecutively under option by two different companies, International Barytex Resources Ltd. and Newport Explorations Ltd. As partial consideration for the option, the companies had respectively assumed the carrying costs of the project and had made a commitment to attempt to arrange the necessary financing, but reportedly neither was successful (Northern Orion Resources Inc., 2006, p. 29).

Nickel.—In 2005, production of mined nickel (nickel content of nickel oxide, nickel-cobalt sulfide, and nickelcobalt ammonium liquor) increased by about 2.5% to 73,753 t compared with 71,944 t in 2004 (table 1). Production of nickel and cobalt came from three operations-two produced nickel oxide, and one produced the intermediate product nickelcobalt sulfide. Cobalt and refined nickel were derived from the treatment of mixed sulfides from the Moa Nickel S.A. facilities. Moa Nickel was a mining and processing operation that was part of a vertically integrated joint-venture company between the Government of Cuba (50%) and Sherritt (50%). Mixed sulfides produced at Moa were shipped to Canada and then transported by rail to Sherritt's refinery in Fort Saskatchewan, Alberta, Canada, to produce refined nickel and cobalt. In 2005, Sherritt continued with its plans to increase production of mixed sulfides at Moa Mine by 16,000 t/yr to a total of 49,000 t/yr. Basic engineering for the expansion was scheduled for completion by the end of the first quarter of 2006 and construction at the mine and processing facilities was expected to begin during the second quarter of 2006, with commissioning scheduled for mid-2008. Sherritt expected nickel and cobalt production in 2006 to be comparable with that of 2005 and mixed sulfide production to be maintained at approximately 33,000 t (Sherritt International Corp., 2006b, p. 17).

#### Industrial Minerals

**Zeolite.**—Cuba had three deposits from which it extracted zeolite. In 2005, Geominera Oriente planned to export about 10,000 t of zeolite to Brazil and about 10,000 t to Colombia (Ahora.cu, 2005§).

#### Mineral Fuels

In 2005, the U.S. Geological Survey announced the completion of an assessment of undiscovered natural gas and petroleum resources of the North Cuba Basin in northwestern Cuba. The study yielded average estimates for undiscovered resources of 4.6 billion barrels of petroleum, 9.8 trillion cubic feet of natural gas (of which 8.6 trillion cubic feet was associated-dissolved gas and 1.2 trillion cubic feet was non-associated gas), and 0.9 billion barrels of natural gas liquids (U.S. Geological Survey, 2005).

**Natural Gas.**—Cuba's natural gas production was all associated gas. Sherritt supplied about 15% of all the electricity generated in Cuba from facilities located at Boca de Jaruco, Puerto Escondido, and Varadero, through its minority interest in Energas S.A., a Cuban Government entity. The associated gas produced from the Varadero fields had been flared for many years, thus creating considerable air pollution owing to the flared gas' hydrogen sulfide content. In 2005, however, gas that would previously hve been flared was being used by Sherritt to generate electricity. In 2004, Sherritt began the construction of an 85-megawatt (MW) expansion at its Cuban facilities that was expected to be commissioned in the first quarter of 2006. The electricity produced by Energas was supplied to a Cuban Government agency under long-term fixed price contracts, and gas was supplied to Energas at no cost. Sherritt planned to increase electricity production capacity to 376 MW from the existing 311 MW upon completion of an additional 65-MW expansion, which was expected to be completed during the second quarter of 2007 (Sherritt International Corp., 2006a, p. 5).

**Petroleum.**—Oil was produced by Sherritt from near-shore oil deposits, which were explored and developed from landbased drilling locations. The company held an indirect working interest that varied from 40% to 100% in 10 productionsharing contracts (PSCs) in Cuba. Most of Sherritt's Cuban oil production was derived from the Canasi, the Puerto Escondido, the Seboruco, the Varadero West, and the Yumuri oilfields. Other working interests included the exclusive exploration rights on four blocks in Cuba's deepwater economic zone off the north coast and 100% indirect working interests in four PCSs with the Government (Sherritt International Corp., 2006a, p. 20).

Sherritt sold its petroleum production to the Cuban Government, most of which was consumed by state-owned powerplants. In 2005, Sherritt reported that it had six active drilling rigs in Cuba as part of its petroleum exploration and development program. The company planned to continue with its exploration program in 2006 and planned to invest about \$140 million to maintain existing production levels and to extend reserve life. Exploration and appraisal efforts were to be focused on Majaguillar-Corajol, Playa Larga, and San Anton, (Sherritt International Corp., 2006a, p. 5, 14).

In December 2004, a petroleum deposit with an estimated 100-million-barrel reserve, was discovered at the Santa Cruz field, which is located off the east coast of Havana, by Pebercan Inc. and Sherritt. The petroleum had a gravity of 18° API and contained less than 5% sulfur, which was of better quality than the petroleum used in Cuba for power generation, which had an average gravity of 16° API and a sulfur content of 8%. In 2005, Sherritt continued with its appraisal program for the Santa Cruz field to determine the commercial viability of the discovery. The first Santa Cruz appraisal well was completed in July 2005, but work at the well was suspended owing to high water production rates. A declaration of commerciality was expected to be made following the completion of the appraisal of the well. In 2006, the company planned to drill an exploration well on Block 10 at Playa Larga, appraise the Majaguillar-Corajol deposit, and follow up on the results of the 2005 exploration wells (Sherritt International Corp., 2006b, p. 20; 2006c, p. 21).

In April 2005, PDVSA opened a branch in Havana, known as PDVSA-Cuba, to undertake the exploration, production, and refining of petroleum in association with CUPET (Agencia Cubana de Noticias, 2005§; Bilaterals.org, 2005§).

Pebercan Inc. held interest in five blocks in Cuba; these included Block 7, Block 12, Block 13, Block 15, and Varadero Profundo, and together cover an area of 6,055 km<sup>2</sup>. During 2005, the company drilled at least 11 wells at a cost of \$59.5 million. As a result, output was increased at Seboruco and a new deposit was discovered at the Tarara prospect (Pebercan Inc., 2006, p. 6).

#### Outlook

The signing of the ALBA, which arranges for cooperation and bilateral relations between Cuba and Venezuela and allows for an increasing number of Venezuelan subsidies to Cuba, will perhaps become one of the most significant contributors to the country's economic development in the coming years. The Institute for Cuban and Cuban-American Studies estimates that Venezuela is rapidly approaching the amount of free aid that the former Soviet Union used to provide Cuba before the Soviet Union's collapse. The subsidy from Venezuelan petroleum alone was estimated to be \$800 million in 2005. The Institute's report estimates that if Chinese investments in the nickel sector materialize, in addition to Sherritt's expansion plans at Moa, the result would be a significant expansion in Cuba's installed nickel capacity; the timeframe for the commissioning of these projects is still uncertain, however, and questions remain regarding the adequacy of the technology that will be used at the Camariocas plant. The report also indicates that Chinese investors intend only to finish the work started by the Soviets at the Camariocas plant. This would imply the use of old technology and the commissioning of an energy-intensive nickel plant, which, according to the Institute for Cuban and Cuban American Studies, would consume about 18 t of petroleum for each ton of nickel produced. If this is the case, then the Chinese, as the Soviets did in the past, would end up subsidizing nickel prices.

#### **References Cited**

- Mesa-Lago, 2005, The Cuban economy today—Salvation or damnation?: Miami, Florida, Institute for Cuban and Cuban-American Studies, Cuba Transition Project, University of Miami, 51 p.
- Northern Orion Resources Inc., 2006, Renewal annual information form for the fiscal year ended December 31, 2005: Vancouver, British Coulmbia, Canada, Northern Orion Resources Inc., 48 p.
- Pebercan Inc., 2006, 2005 annual report: Montreal, Quebec, Canada, Pebercan Inc., 34 p.
- Sherritt International Corp., 2006a, 2005 annual report: Toronto, Ontario, Canada, Sherritt International Corp., 20 p.
- Sherritt International Corp., 2006b, 2005 Management's discussion and analysis and financial statements: Toronto, Ontario, Canada, Sherritt International Corp., 48 p.
- Sherritt International Corp., 2006c, 2005 Management's discussion and analysis for the third quarter ended September 30, 2005: Toronto, Ontario, Canada, Sherritt International Corp., 33 p.
- U.S. Geological Survey, 2005, Assessment of undiscovered oil and gas resources of the North Cuba Basin, Cuba, 2004, *in* World assessment of oil and gas fact sheet: Reston, Virginia, U.S. Geological Survey Fact Sheet 2005-3009, February, 2 p.

#### **Internet References Cited**

- ADITAL Noticias de America Latina y Caribe, 2005, Economia Cubana en 2004 y perspectivas en 2005 (Parte 2), accessed January 8, 2007, at URL http://www.adital.org.br/site/noticia.asp?lang=ES&cod=15513.
- Agencia Cubana de Noticias, 2005 (April 28), Declaración final de la primera reunion Cuba-Venezuela para la aplicación de la Alternativa Bolivariana para las Américas, accessed May 5, 2005, at URL http://www.ain.cu/2005/abril/29eddeclaracion.htm.
- Ahora.cu, 2005, Exportara empresa de Holguin zeolita hacia Colombia, accessed October 7, 2005, at URL http://www.ahora.cu/SECCIONES/holguin/2005/ Febrero/01-02-2005.htm.

- Bilaterals.org, 2005, Cuba and Venezuela sign millionaire bilateral trade agreement (April 28, 2005), accessed January 8, 2007, at URL http://www.bilaterals.org/article-print.php3?id\_article=1835.
- Canadian Foundation for the Americas, The, 2004 (December 14), Cubasource, Chronicle on Cuba, accessed February 22, 2005, at URL http://cubasource.org/publications/chronicles/coc200412ec\_e.asp.
- Cuba.com, 2004, Agreement between the Bolivarian Republic of Venezuela and the President of the Council of State of the Republic of Cuba for the implementation of the Bolivarian Alternative for the Americas, accessed September 8, 2005, at URL http://www.cuba.cu/gobierno/discursos/2004/ing/ a141204i.html.
- Embassy of the Bolivarian Republic of Venezuela in the United Kingdom, 2005, Oxford analytica—Venezuela/Cuba, Newsletter No. 29, accessed January 8, 2007, at URL http://www.venezlon.co.uk/newsletter/05/ja/jan/ vene\_cuba.htm.
- Havana Journal, 2004 (March 29), Hugo Chavez—Venezuela oil to Cuba, accessed November 18, 2004, at URL http://www.havanajournal.com/ business/entry/hugo\_chavez\_venezuela\_oil\_to\_Cuba.

- Ministerio de Relaciones Exteriores de Cuba, 2006, Pronostican mayor nivel del comercio exterior de bienes en Cuba para 2006, accessed January 12, 2007, at URL http://www.cubaminrex.cu/Mirar\_Cuba/Economia/2006/Pronostican. htm.
- Oficina Nacional de Estadísticas de Cuba, 2006, Estadísticas seleccionadas— Cuba 2005, accessed January 8, 2007, at URL http://www.cubagob.cu/ otras\_info/publicaciones/estadisticass/estadisticas.pdf.
- U.S. Central Intelligence Agency, 2007, Cuba, World Factbook 2006, accessed March 30, 2007, at URL http://www.theodore.com/wfb2006/cuba/ cuba\_economy.html.
- U.S. Department of State, 2005 (December), Cuba Background Note, accessed September 19, 2005, at URL http://www.state.gov/r/pa/ei/bgn/2886.htm.
- Venezuelaanalysis.com, 2005, It's a strategic plan—The Cuban-Venezuelan accord, accessed January 8, 2007, at URL http://www.venezuelanalysis.com/ articles.php?artno=1347.

### TABLE 1 CUBA: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

#### (Metric tons unless otherwise specified)

Commodity <sup>2, 3</sup>	2001	2002	2003	2004	2005
Asphalt <sup>4</sup>	75,800 <sup>r</sup>	50,700 <sup>r</sup>	44,800 <sup>r</sup>	47,400 <sup>r</sup>	43,300 4
Cement, hydraulic	1,324,100 5	1,326,900 5	1,345,500 5	1,401,300 <sup>r, 4</sup>	1,566,900 4
Chromite <sup>4</sup>	49,500 <sup>r</sup>	20,400 <sup>r</sup>	33,300 <sup>r</sup>	40,300 <sup>r</sup>	34,000
Cobalt, mine output, Co content: <sup>4, 6</sup>					
Oxide, oxide sinter, sulfide, ammoniacal liquor precipitate	3,915	3,858	3,982 7,8	4,055 7,8	4,247 7,8
Sulfide and ammoniacal liquor precipitate	3,417	3,384	3,465 7,8	3,580 7,8	3,768 7,8
Copper, mine output, Cu content	321 <sup>r, 4</sup>	r, 4			4
Feldspar <sup>4</sup>	6,400 <sup>r</sup>	4,700 <sup>r</sup>	7,200 <sup>r</sup>	10,500 <sup>r</sup>	8,000
Gold <sup>e</sup> kilograms	1,000	1,000	547 8,9	500 <sup>r</sup>	500 <sup>e</sup>
Gypsum <sup>e</sup> thousand metric tons	130	130	130	130	4
Iron ore <sup>4</sup>	35,600	19,400	18,400	19,700	18,900
Kaolin clay <sup>4</sup>	8,100 <sup>r</sup>	2,400 r	2,900 r	4,100 <sup>r</sup>	3,500
Lime <sup>4</sup>	86,300 r	69,600 <sup>r</sup>	64,700 <sup>r</sup>	53,600 <sup>r</sup>	34,000
Natural gas, marketed thousand cubic meters	594,600 <sup>5</sup>	584,700 <sup>5</sup>	658,000 <sup>5</sup>	704,200 4	743,300 4
Nickel, Ni content:					
Mine output, oxide, oxide sinter, sulfide, ammoniacal					
liquor precipitate	72,585	71,342	74,018 7,8	71,944 7,8	73,753 7,8
Metallurgical products: <sup>6</sup>					
Granular oxide, oxide sinter, powder	40,701	38,738	42,282 7,8	38,824 7,8	39,121 7,8
Sulfide <sup>7</sup>	29,914	30,858	29,620 8	30,999 <sup>8</sup>	32,354 <sup>8</sup>
Ammoniacal liquor	1,970	1,746	2,116 7,8	2,121 7,8	2,278 7,8
Total	72,585	71,342	74,018 7,8	71,944 7,8	73,753 <sup>7,8</sup>
Nitrogen, N content of ammonia <sup>4</sup>	22,000 r	15,100 <sup>r</sup>	21,400 <sup>r</sup>	51,300 <sup>r</sup>	27,900
Petroleum:					
Crude thousand 42-gallon barrels	17,886 <sup>5,9</sup>	22,787 5,9	23,803 5,9	20,538 <sup>r</sup>	26,400 <sup>e</sup>
Refinery products:					
Petroleum coke do.	101 4	79 <sup>4</sup>	99 <sup>4</sup>	72 4	72 <sup>e</sup>
Gasoline, motor do.	3,467 4	2,719 4	3,517 4	2,826 4	2,800 e
Kerosene do.	1,340 4	857 4	1,477 4	1,691 4	1,700 <sup>e</sup>
Liquefied petroleum gas do.	1,030 4	762 4	1,066 4	729 4	729 <sup>e</sup>
Lubricants do.	354 4	281 4	335 <sup>4</sup>	342	300 <sup>e</sup>
Naphtha do.	1,348 4	507 4	902 4	721 4	700 <sup>e</sup>
Total do.	7,639 <sup>r</sup>	5,206 <sup>r</sup>	7,396 <sup>r</sup>	6,380 <sup>r</sup>	6,300
Salt <sup>4</sup>	163,400 <sup>r</sup>	176,100 <sup>r</sup>	175,700 <sup>r</sup>	205,600 <sup>r</sup>	172,600
Sand, calcareous <sup>4</sup> thousand cubic meters	1,781 <sup>r</sup>	1,691 <sup>r</sup>	1,629 <sup>r</sup>	1,643 <sup>r</sup>	1,651
Silica sand do.	64 <sup>r, 5</sup>	21 <sup>r, 5</sup>	31 <sup>r, 5</sup>	33 <sup>r, 5</sup>	14 4
Stone, crushed <sup>4</sup> do.	3,059 <sup>r</sup>	2,485 <sup>r</sup>	2,430 <sup>r</sup>	2,400 <sup>r</sup>	2,437
Steel <sup>4</sup>	269,600	264,100	209,800	193,200	245,100
Sulfur, byproduct of petroleum <sup>4</sup>	419,000 r	436,800 r	438,700 <sup>r</sup>	448,700 <sup>r</sup>	426,700
Zeolites <sup>4</sup>	19,800 <sup>r</sup>	19,200 <sup>r</sup>	27,600 <sup>r</sup>	28,600 <sup>r</sup>	17,200

<sup>e</sup>Estimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. <sup>r</sup>Revised. -- Zero.

<sup>1</sup>Table includes data available through November 27, 2006.

<sup>2</sup>In addition to commodities listed, crude construction materials (sand and gravel, and so forth) may be also produced, but data on such production are not available, and information is inadequate to make reliable estimates of output.

<sup>3</sup>Cuba also produced marble and stone, but data on such production are not available, and information is inadequate to make reliable estimates of output. <sup>4</sup>Source: Anuario Estadistico de Cuba.

<sup>5</sup>Source: Sitio del Gobierno de la República de Cuba, which is available online at URL http://www.cubagob.cu.

<sup>6</sup>The Government of Cuba reports figures of nickel-cobalt content of granular and powder oxide, oxide sinter, and sulfide production. The cobalt content of reported nickel-cobalt production was determined to be 1.16% of granular and powder oxide, 1.21% of oxide sinter, 7.56% of sulfide, and 33% of ammoniacal liquor. The remainder of reported figures would represent the nickel content.

<sup>7</sup>Sources: International Nickel Study Group (INSG), and Sherritt International Corp. Sitio del Gobierno de la República de Cuba, which is available online at URL http://www.cubagob.cu.

<sup>8</sup>Reported figure.

<sup>9</sup>Production has been converted from metric tons to barrels by using the U.S. Energy Information Administration's factor of 6.449 barrels per metric ton of crude petroleum.

## TABLE 2 CUBA: STRUCTURE OF THE MINERAL INDUSTRY IN 2005

#### (Thousand metric tons unless otherwise specified)

				Annual
C	Commodity	Major operating companies and major equity owners	Location of main facilities	capacity
Cement		Cementos Cienfuegos S.A. (Government, 50%, and	Cienfuegos, Cuba	1,500.
		Las Pailas de Cemento S.A., 50%)		
Do.		Fábrica de Cemento 26 de julio	Nuevitas, Cuba	600.
Do.		Fábrica de Cemento Mártires de Artemisa	Artemisa, Cuba	600.
Do.		Cementos Curazao N.V.	Barrio Mujica, Mariel Province	1,110.
Do.		Fábrica de Cemento Siguaney	Sancti Spiritus	300.
Chromite		Grupo Empresarial Cubaníquel S.A. (Government,		
		100%)	Moa, Holguin Province	30.
Cobalt		Metals Enterprise S.A. (Government, 50%, and Sherritt	do.	3.
		International Corporation, 50%)		
Copper		Mina Grande El Cobre (Government, 100%)	Santiago de Cuba Province	Closed in 2001.
Do.		Matahambre Mine (Government, 100%)	Pinar del Rio Province	Closed in 1997.
Gold	kilograms	Castellanos Gold Mine	Santa Lucia, Pinar del Rio	550.
			Province	
Do.	do.	Gold Mine	Isla de la Juventud	Closed.
Nickel		Empresa Niquelífera Ernesto Che Guevara	Punta Gorda plant, Holguin	31.5.
			Province	
Do.		Moa Nickel S.A. (Government, 50%, and Sherritt	Moa plant, Holguin Province	33.
		International Corporation, 50%)		
Do.		Empresa Niquelífera Comandante René Ramos Latour	Nicaro, Holguin Province	12.4.
		(Government, 100%)		
Petroleum:				
Crude:	thousand	Empresa de Perforación y Extracción	Northern coast between	12.
	42-gallon barrels	de Petróleo del Centro (Government, 100%)	Havana and Cardenas	
Do.		Sherrit International (indirect working interests	Near shore oilfields located at	7,000.
		varying from 40% to 100% in 10 production-sharing	Yumuri, Varadero, Canasi,	
		contracts with the Government)	and Puerto Escondido	
Refinery prod	ucts thousand	Cienfuegos (not operating)	Cienfuegos	27,740.
	42-gallon barrels			
Do.		Hermanos Díaz	Santiago	37,048.
Do.		Ñico López	Havana	44,457.
Do.		Sergio Soto	Cabaiguan	767.
Sand		Algaba quarry	Sancti Spiritus	50.
Do.		Malabe quarry	NA	32.
Do.		Cajobabo	Imias	NA.
Steel		Grupo Metalúrgico Acinox (Government, 100%):	Cotorro, Havana Province	600.
		Antillana de Acero		
Do.		Empresa de Aceros Inoxidables	Las Tunas, Las Tunas Province	370.
Do.		4 other steel plants	NA	NA.
Zeolite		Empresa Geominera Oriente	Holguin Province	58.

NA Not available.