



2014 Minerals Yearbook

CUBA [ADVANCE RELEASE]

THE MINERAL INDUSTRY OF CUBA

By Yadira Soto-Viruet

In 2014, Cuba was estimated to rank 6th among the world's leading producers of cobalt (as a byproduct of nickel processing) and 10th among the world's leading producers of nickel. Other mineral commodities produced in the country included bentonite, cement, crushed stone, feldspar, gypsum, lime, limestone, marble, nitrogen, salt, silica sand, and sulfuric acid. Cuba also produced crude oil, natural gas, and petroleum refinery products. Cuba imported most of its oil supply from Venezuela; however, in 2013, Venezuela's oil exports to Cuba decreased by about 24%. The Government-owned Union Cuba-Petroleo (CUPET) is responsible for exploring, producing, refining, and marketing the country's oil and its derivatives (Kuck, 2015; Shedd, 2015; U.S. Central Intelligence Agency, 2015; U.S. Energy Information Administration, 2015).

On December 17, the President of the United States announced that the United States would begin discussions to restore diplomatic relations with Cuba and embark on a long-term process of normalization of relations between the two countries. The restoration of diplomatic relations with Cuba would include the re-establishment of the U.S. embassy in Havana and the resumption of high-level exchanges and visits between the two Governments as part of the normalization process. The U.S. Government imposed an embargo on all trade between the United States and Cuba in 1960 and officially severed diplomatic relations in 1961 (The White House, 2014; U.S. Department of State, 2015).

Minerals in the National Economy

In 2014, Cuba's real gross domestic product (GDP) increased by 1.0% compared with that of 2013. The industrial manufacturing sector (excluding the sugar industry) made up about 12.5% of the country's GDP; the construction sector, about 5.5%; the sector that included electricity, gas, and water, about 1.4%; and the mining and quarrying sector, about 0.6%. In 2014, employment in the mining and quarrying sector decreased by 16% to 27,700 workers compared with 33,000 workers in 2013. In 2014, about 345 enterprises operated in the industrial manufacturing sector and about 20 enterprises operated in the mining and quarrying sector. According to the Centro para la Promocion del Comercio Exterior y la Inversion Extranjera de Cuba [Center for Promotion of Foreign Trade and Investment] (CEPEC), the country had significant nickel reserves and the industrial capacities to process nickel. Nickel was the largest source of foreign exchange and exports earnings in the country (Jimenez, 2015, p. 14–16; Oficina Nacional de Estadística e Información 2015a, p. 13, 20; 2015b, p. 12; 2015d, p. 7; 2015e, p. 16–17).

According to the Portfolio of Opportunities for Foreign Investment (POFI), in 2013 (the latest year for which data were available), the energy and mining sector accounted for 13% of the foreign investments, followed by the industrial manufacturing sector (10%), and the construction sector

(6%). Joint ventures accounted for about 51% of the country's foreign investments in 2013. In 2014, the POFI announced 246 development projects for which it was seeking \$8.0 billion in foreign investment. The Government specifically stated that Cuba would remain a state-driven economy dominated by large Government holding companies and that Cuba would retain majority ownership of most foreign ventures. Of the 246 projects, 86 were in the oil sector, accounting for 35% of the prospective projects; 16 were in the manufacturing sector; 14 were in the renewable sector; and 10 were in the mining sector. In the energy sector, Cuba was offering joint ventures in petroleum extraction from onshore and offshore, including 52 offshore blocks located in the Exclusive Economic Zone in the Gulf of Mexico; 25 onshore blocks available throughout the country; and 8 shallow water blocks, which are located in the Provinces of Artemisa, Camaguey, Ciego de Avila, Granma, Matanzas, Mayabeque, Pinar del Rio, Sancti Spiritus, and Villa Clara. In the mining sector, the country was also offering international economic associations, including prospects for copper, gold, lead, silver, and zinc in the regions of Central Cuba, Ciego-Camaguey-Tunas, Holguin and Macizo-Baracoa, and Sierra Maestra. As of 2013, Cuba had produced more than 2.9 million metric tons (Mt) of nickel and cobalt and had about 43 identified deposits of nickel. The country offered investment opportunities for the development of the Cajalbana, Colas Rojas de Moa, and San Felipe laterite deposits, which are located in the Provinces of Pinar del Rio, Moa, and Camaguey, respectively (Centro para la Promocion del Comercio Exterior y la Inversion Extranjera de Cuba, 2014, p. 26, 70–74, 95–97; Feinberg, R.E., 2014).

Government Policies and Programs

Cuba's mining sector is regulated by the Ley de Minas (mining law, law No. 76 of January 23, 1995). The law establishes the mining policy and legal regulations, which guarantee the protection, development, and rational use of the mineral resources. The Ministerio de Energía y Minas (Ministry of Energy and Mines; Law Decree No. 301) is the entity responsible for establishing Government policy for the energy and mining sectors. In March 2014, Cuba's National Peoples' Power Assembly approved the new Ley de Inversion Extranjera (Law of Foreign Investment, law No. 118). The law establishes the new legal framework for foreign investment in the country. The types of businesses that can be adopted within foreign investment include joint ventures, international economic association agreements, and companies with 100% foreign capital investment. The law states that a 15% tax on net profits shall be paid by joint ventures, domestic and foreign investors, and partners in international economic association agreements. Joint ventures and partners in international economic association contracts shall be exempt from paying taxes on profits for a period of 8 years from the date of their incorporation,

but the Council of Ministers shall be entitled to extend the tax exemption period. The exploitation of natural resources, whether renewable or nonrenewable, could have the profit tax rate increased by up to 50% (Centro para la Promocion del Comercio Exterior y la Inversion Extranjera de Cuba, 2014, p. 5; Gaceta Oficial de la Republica de Cuba, 2014, p. 177, 179, 185).

Production

In 2014, bentonite production increased by 109% to 700 metric tons (t) from 335 t in 2013. Gypsum production increased by 13% to 98,000 t from 87,000 t; feldspar, by 13% to 3,600 t from 3,200 t; marble by 11% to 10,700 cubic meters from 9,600 cubic meters; and silica sand, by 11% to 29,100 cubic meters from 26,100 cubic meters. Production of natural gas increased by 13% to about 1.2 billion cubic meters in 2014 compared with about 1.1 billion in 2013. Volcanic ash production decreased by 55% to 126,800 t from 278,900 t; kaolin, by 53% to 1,700 t from 3,600 t; limestone, by 29% to 2.0 Mt from 2.8 Mt; estimated nickel, by 24% to 50,400 t from 66,000 t; and cobalt (estimated) and nitrogen, by 11% each. Data on mineral production are in table 1.

Structure of the Mineral Industry

Petroleum refinery products were produced by CUPET at the Hermanos Diaz, the Nico Lopez, and the Sergio Soto refineries, and by PDV-CUPET S.A. at the Cienfuegos refinery. Nico Lopez, which was the largest refinery in the country, is located in the city of Havana and had the capacity to produce about 121,800 barrels per day (bbl/d). Nico Lopez processed domestic and imported petroleum. The Cienfuegos refinery, which was the second largest refinery in Cuba, had the capacity to produce about 76,000 bbl/d and processed only Venezuelan crude oil (U.S. Energy Information Administration, 2015). Nickel was produced by the Government-owned Empresa Niquelifera Ernesto Che Guevara refinery and the Moa Nickel S.A. refinery, which was a joint venture between Sherritt International Corp. of Canada and the Government (50% each). Table 2 is a list of major mineral industry facilities.

Mineral Trade

In 2014, the total value of Cuba's exports was about \$210 million¹ compared with \$228 million in 2013. Mining products accounted for about 15% of Cuba's total exports. The country's major export partners were, in descending order of the percentage of Cuba's total exports received, Venezuela (43%), Canada (11%), the Netherlands (10%), China (6%), and Spain (3%). The total value of Cuba's imports was about \$563 million compared with \$635 million in 2013. Its major import trade partners were, in descending order of the percentage of Cuba's total imports supplied, Venezuela (40%), China (10%), and Spain (8%). In 2013 (the latest year for which data were available), Cuba imported about 30.8 million barrels (Mbbbl) of petroleum and 3.1 Mt of coal, and also imported petroleum refinery products such as fuel oil (about 10.1 Mbbbl),

¹Where necessary, values have been converted from Cuban peso (CUP) to U.S. dollars (US\$) at an average exchange rate of CUP0.0432=US\$1.00 for 2014 and 2013.

gasoline (about 2.3 Mbbbl), and liquefied petroleum gas (about 754,000 bbl) (Oficina Nacional de Estadística e Información, 2015c, p. 14–15, 2015e, p. 12–18; 2015f, p. 33).

Commodity Review

Metals

Cobalt and Nickel.—In 2014, Moa Nickel produced a total of 32,909 t of nickel and 3,210 t of cobalt compared with 33,542 t of nickel and 3,319 t of cobalt in 2013. Moa Nickel is located in Holguin Province and had an annual capacity of about 37,000 t of mixed sulfides (nickel and cobalt). The joint venture continued with its plans to construct a 2,000-metric-ton-per-day sulfuric acid plant at Moa, which was expected to be completed by the second quarter of 2016. Sherritt reported that the new plant would provide the necessary sulfuric acid production capacity to eliminate all the company's purchases of sulfuric acid. Sherritt planned to produce between 33,000 t and 34,000 t of nickel and between 3,500 t and 4,000 t of cobalt in 2015 (Sherritt International Corp., 2014, p. 12, 26; 2015, p. 12, 36).

In February, Empresa Niquelifera Ernesto Che Guevara announced that it would reduce nickel output at its 100%-owned Ernesto Che Guevara plant, owing to maintenance work and capital improvements to make the plant competitive at low international prices. The renovation would be the largest in the plant's 28-year history. The plant was located in Punta Gorda, Holguin Province, and was expected to produce about 14,700 t of unrefined nickel plus cobalt during the renovation period; however, details as to when the company expected to resume nickel output were not available. In 2013, the Government authorized Empresa Mixta Ferroniquel Minera S.A. to suspend mining operations at Proyecto Ferroniquel Moa Occidental for 3 years and to postpone the start of mineral processing for 4 years, owing to changes in the initial conditions of the project. The project was expected to increase the country's nickel production to more than 100,000 metric tons per year (t/yr); however, no further details concerning the progress of the project were available (El Universal, 2013; Thomson Reuters, 2014).

Lead and Zinc.—Empresa Minera del Caribe planned the development of the Castellanos and Santa Lucia lead-zinc deposit, which is located in Minas de Matahambre, Pinar del Rio Province. According to Wardell Armstrong Ltd. of the United Kingdom, the company was commissioned to conduct a feasibility study for the deposit, which included extensive metallurgical testing and acid and metalliferous drainage tests. The project included the construction of a plant with the capacity to produce about 95,000 t of zinc concentrates and 50,000 t of lead (Garcia, 2013; Wardell Armstrong Ltd., 2015a–b).

Mineral Fuels

Petroleum.—As of 2014, the country's proven crude oil reserves were estimated to be about 124 Mbbbl and natural gas reserves were estimated to be 70.7 billion cubic meters. Sherritt held working interests (ranging from 40% to 100%) in various petroleum production-sharing contracts (PSCs) with CUPET. Sherritt operated the Puerto Escondido, the Varadero West, and the Yumuri oilfields, which are located on the northern coast

between Havana and Cardenas. The company's share of the oil produced from these three fields combined (based on the percentage of its working interest) was 19,456 bbl/d in 2014, all of which the company sold to the Government. In May, Sherrit completed an amendment agreement with the Government for a 10-year extension (until March 2028) of its Puerto Escondido and Yumuri PSCs. The extension of the PSCs applied to all new wells drilled in the development area. The PSCs for the existing wells would expire by March 2018. Under the agreement, the company was required to drill a minimum of seven wells in the development area, of which three were completed in 2014 and the remaining four were expected to be drilled in 2015. During the year, Sherrit mobilized a second drilling ring to support its target of increased drilling on existing and extension acreage. The company drilled six development wells, all of which were in production. Sherrit expected its share of oil production to increase to 20,000 bbl/d of oil owing to the company's plans to increase drilling. In December, the company also signed two new PSCs with the Government for Block 8A, located in Central Cuba, and Block 10, located in Cardenas Bay on the north coast of Cuba. Blocks 8A and 10, cover an area of about 967 square kilometers (km²) and 261 km², respectively. The 25-year PSCs included the review and reprocessing of existing seismic data and the acquisition of new seismic data within a 2-year period. After completion and evaluation of the seismic data, the company had the option to continue the exploration drilling phase or to relinquish the PSCs (Sherrit International Corp., 2015, p. 15–16, 26, 28; U.S. Central Intelligence Agency, 2015).

In May, CUPET signed a memorandum of cooperation with OJSC Rosneft Oil Co. (Rosneft) for joint project implementation in the country and a memorandum of understanding with Rosneft and JSC Zarubezhneft (Zarubezhneft) of Russia for the development of offshore Block 37. Work was underway on the reinterpretation and the reprocessing of two-dimensional seismic data for the block, which was expected to be completed by the second quarter of 2015.

In July, CUPET also signed an agreement on cooperation in the area of enhanced oil recovery at the country's brownfields with Rosneft. The agreement included comprehensive studies of field development and well production conditions in Cuba (OJSC Rosneft Oil Co., 2014a–b; 2015, p. 74, 95).

In July, CUPET and China National Petroleum Corp. (CNPC) signed a framework agreement to increase crude output and production sharing and a cooperation agreement for drilling services. Under the agreements, CNPC would provide support to CUPET to lower operating costs and to enhance crude oil production and recovery at some existing oilfields. Also, under the agreements, CNPC would provide 9,000-meter drilling rigs and supporting services to facilitate exploration and development of the country's offshore oilfields (Energy-pedia news, 2014).

In December, MEO Australia Ltd. (MEO) completed negotiations for 100% participating interest in an onshore exploration PSC (block 9) with CUPET. MEO announced that detailed terms of the PSC had been agreed to with CUPET and that final documents had been initiated between the company and CUPET; however, the award of the block was subject to

final regulatory approval. Block 9 is located on the northern coast of Cuba, about 130 kilometers (km) east of Havana, and covers an area of 2,380 km². The block is also located near the Valero oilfield and contained the Motembo field, which was the first Cuban oilfield, discovered in 1881. The exploration phase of the PSC was divided into four subperiods totaling 8.5 years with a withdrawal option at the end of each subperiod. The exploration phase included an initial period of 18 months during which existing exploration data would be evaluated and reprocessed before MEO decided whether to continue with a 24-month exploration subperiod, which would include the acquisition of new 2D seismic data (MEO Australia Ltd., 2014).

Outlook

Cuba's GDP was forecasted to grow by 4.0% in 2015 (Havana Times.org, 2014; Fox News Network, LLC, 2015; Frank, 2015). The announcement of the beginning of discussions to restore diplomatic relations between the United States and Cuba started a new chapter in their relations and started on the long-term process of normalization of relations between the two countries (The White House, 2014; U.S. Department of State, 2015). Cuba continues to seek foreign investment for further development of its hydrocarbons and mineral resources, such as copper, gold, lead, silver, and zinc (Wacaster and others, 2015).

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TABLE 1
CUBA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity ^{2,3}	2010	2011	2012	2013	2014	
METALS						
Cobalt, mine output, Co content ^c	4,800	5,100	4,900	4,200	3,700	
Nickel, mine output, recoverable laterite (limonitic and serpentinic), Ni content ^c	69,700	72,500	68,200	66,000	50,400	
Steel, crude	277,600	282,100	277,000	267,200 ^r	257,700	
INDUSTRIAL MINERALS						
Cement, hydraulic	1,631,400	1,736,300	1,824,800	1,659,000	1,579,900	
Clays:						
Bentonite	228	1,244	670	335	700	
Kaolin	100	3,000 ^r	4,000 ^r	3,600 ^r	1,700	
Feldspar	2,800	3,100	3,800	3,200	3,600	
Gypsum	thousand metric tons	111	131	87	98	
Lime	49,700	38,000	54,100	52,400	50,900	
Nitrogen, N content of ammonia	36,000	45,200	59,200	63,700	56,600	
Salt	thousand metric tons	272	281	216	222	243
Sand:						
Calcareous	thousand cubic meters	1,686	1,785	1,811	1,732	1,702
Silica	cubic meters	11,100	20,400	24,700	26,100	29,100
Stone:						
Crushed	thousand cubic meters	3,234	3,542	3,943	4,196	4,226
Limestone	thousand metric tons	2,600	2,700	2,800	2,800	2,000
Marble	cubic meters	4,300	6,700	7,800	9,600	10,700
Sulfuric acid	thousand metric tons	423	417	399	409	404
Volcanic ash	72,300	96,500	256,000	278,900	126,800	
Zeolites	30,900	44,600	41,900	43,800	43,100	
MINERAL FUELS						
Natural gas, marketed	thousand cubic meters	1,072,500	1,019,800	1,034,500	1,066,000	1,199,900
Petroleum: ⁴						
Crude	thousand 42-gallon barrels	19,507	19,422	19,340	18,683 ^r	18,300 ^e
Refinery products: ⁵						
Asphalt		86,900	79,600	81,100	83,000 ^r	83,000 ^e
Petroleum coke	thousand 42-gallon barrels	41	37	7 ^r	99 ^r	100 ^e
Gasoline, motor	do.	4,844	4,286	3,539	5,729 ^r	5,700 ^e
Fuel oil	do.	18,172	17,321	18,802	17,548 ^r	17,500 ^e
Kerosene	do.	2	28	236 ^r	223 ^r	220 ^e
Liquefied petroleum gas	do.	691	585	483	857 ^r	860 ^e
Lubricants	do.	330 ^r	340 ^r	330 ^r	333 ^r	330 ^e
Naphtha	do.	736	1,341	2,106 ^r	1,425 ^r	1,400 ^e
Total	do.	24,816 ^r	23,938 ^r	25,502 ^r	26,214 ^r	26,100 ^e

^eEstimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. ^rRevised. do. Ditto.

¹Table includes data available through September 28, 2015.

²In addition to the commodities listed, Cuba also produces crude construction materials, but data on production are not available, and information is inadequate to make reliable estimates of output.

³Source: Oficina Nacional de Estadística e Información, Anuario Estadístico de Cuba 2014 [Statistical Yearbook of Cuba 2014].

⁴Production 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 (bbl/t) of crude petroleum.

⁵Production has been converted from metric tons to barrels by using the U.S. Energy Information Administration's factor of 5.51 bbl/t for petroleum coke; 8.53 bbl/t for motor gasoline; 7.46 bbl/t for distillate fuel oil; 7.73 bbl/t for kerosene; 11.63 bbl/t for liquefied petroleum gas; 7.00 bbl/t for lubricants; and 8.22 bbl/t for naphtha.

TABLE 2
CUBA: STRUCTURE OF THE MINERAL INDUSTRY IN 2014

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity ^e
Ammonia		NA	Revolucion de Octubre plant, Nuevitas, Camaguey Province	200
Cement		Cementos Cienfuegos S.A. (Government, 50%, and Holcim Ltd., 50%)	Cienfuegos, Cienfuegos Province	1,500
Do.		Fábrica de Cemento	Nuevitas, Camaguey Province	600
Do.		Fábrica de Cemento Mártires de Artemisa	Artemisa, Artemisa Province	600
Do.		Cementos Curazao N.V.	Barrio Mujica, Mariel, Artemisa Province	1,110
Do.		Fábrica de Cemento Siguaney	Siguaney, Sancti Spiritus Province	300
Cobalt		Moa Nickel S.A. (Government, 50%, and Sherritt International Corp., 50%)	Moa Bay Mine and processing plant, Moa, Holguin Province	4
Gypsum		Empresa de Materiales de la Construcción de Ciego de Avila	Punta Alegre, Ciego de Avila Province	NA
Nickel		Empresa Niquelífera Ernesto Che Guevara (Government, 100%)	Ernesto Che Guevara Mine and processing plant, Punta Gorda, Holguin Province	34
Do.		Moa Nickel S.A. (Government, 50%, and Sherritt International Corp., 50%)	Moa Bay Mine and processing plant, Moa, Holguin Province	37
Do.		Empresa Niquelífera Comandante René Ramos Latour (Government, 100%)	René Ramos Latour Mine and processing plant, Nicaro, Holguin Province	12 ¹
Petroleum:				
Crude	thousand 42-gallon barrels	Empresa de Perforación y Extracción de Petróleo del Centro	Northern coast between Havana and Cardenas, primarily Mayabeque Province	12
Do.	do.	Sherritt International Corp. (gross working interests of 40% to 100% in various production-sharing contracts with the Government)	Puerto Escondido, Varadero West, and Yumuri	7,100
Refinery products	do.	PDV-CUPET S.A. (Government, 51%, and Petróleos de Venezuela S.A., 49%)	Cienfuegos, Cienfuegos Province	23,700
Do.	do.	Hermanos Díaz refinery (Government, 100%)	Santiago de Cuba, Santiago de Cuba Province	8,000
Do.	do.	Ñico López refinery (Government, 100%)	City of Havana	44,500
Do.	do.	Sergio Soto refinery (Government, 100%)	Cabaiguan, Sancti Spiritus Province	NA
Sand		Algaba quarry	Near Trinidad, Sancti Spiritus Province	50
Do.		Malabe quarry	NA	30
Do.		Cajobabo	Imias, Guantanamo Province	NA
Steel		Grupo Metalúrgico Acinox (Government, 100%), including:	Cotorro, La Havana Province	
		Antillana de Acero		600
Do.		Camagüey	Las Tunas, Las Tunas Province	370
Do.		Four other steel plants	NA	NA
Zeolites		Empresa Geominera Holguin	San Andres plant, Holguin Province	75
Do.		do.	El Chorillo plant, Camaguey Province; Tasajeras plant, Villa Clara Province	NA

^eEstimated. Do., do. Ditto. NA Not available.

¹Operations suspended in March 2012.