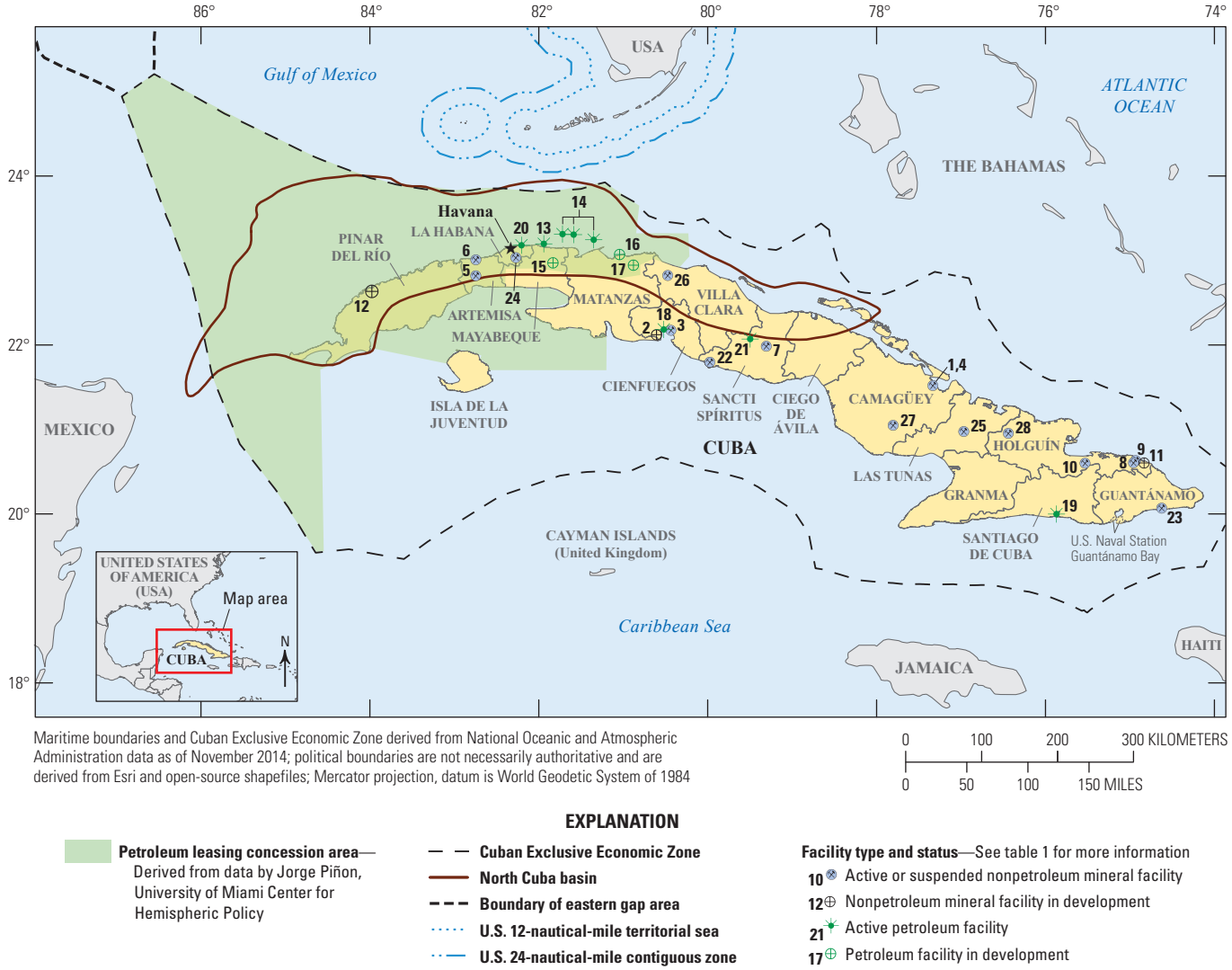
Recent Trends in Cuba's Mining and Petroleum Industries

On December 17, 2014, President Obama announced that the United States would begin discussions to restore diplomatic relations with the Government of Cuba and embark on a longer term process of normalization of relations between the two countries. The U.S. Government had officially severed diplomatic relations with Cuba in 1961 in response to political changes after the Cuban Revolution. In 1962, President Kennedy declared an embargo on all trade between the United States and Cuba, which was implemented through regulations published in 1963.

On January 15, 2015, the U.S. Departments of Commerce and the Treasury published regulatory amendments to the Cuba sanctions (U.S. Department of the Treasury, 2015) in accordance with President Obama's December 2014 policy announcement (The White House, 2014). These measures made changes in the implementation of the embargo but did not lift the embargo. Most transactions involving Cuba, including private and public investment in mineral production, continue to be prohibited. This Fact Sheet provides information regarding the current supply of and demand for mineral commodities produced in Cuba (fig.1).



Maritime boundaries and Cuban Exclusive Economic Zone derived from National Oceanic and Atmospheric Administration data as of November 2014; political boundaries are not necessarily authoritative and are derived from Esri and open-source shapefiles; Mercator projection, datum is World Geodetic System of 1984

Figure 1. Mines, mineral processing facilities, and petroleum facilities in Cuba in 2014. Information on individual facilities (1–28), including operational status, is shown in table 1. The term "in development" includes all operational statuses provided in table 1 except active and suspended.

Background

In 2014, Cuba had a population of more than 11 million people and a land area of about 111,000 square kilometers, which is comparable to the population and land area of the U.S. State of Ohio. In 2010 (the latest year for which data were available), Cuba's per capita gross domestic product (GDP) at purchasing power parity was $10,200; this amount was three times less than that of Mississippi, which was the U.S. State with the lowest per capita GDP (United Nations Economic Commission for Latin America and the Caribbean, 2014; U.S. Central Intelligence Agency, [2014]).

In 2013, Cuba was estimated to be among the world's top 10 producers of cobalt and nickel, which are the country's leading mineral exports. Cuba exports ammonia, nitrogenous fertilizer, and zeolites to Europe and to other Latin America and Caribbean (LAC) nations, but most other mineral commodities are consumed domestically. Production at most mineral processing facilities is significantly below those facilities' design capacities, and the quantity of output is not sufficient to support an export market (Kuck, 2014; Shedd, 2014; Soto-Viruet, Country Specialist, U.S. Geological Survey, unpub. data, February 2014).

About one-third of Cuba's domestic petroleum demand is met by near-offshore and onshore production of extra heavy crude oil. Since at least 2007, the remaining two-thirds of Cuba's petroleum demand has been met by imports from Venezuela. There is currently no deepwater production of hydrocarbons.

Cuba's Mineral Resources and Production Facilities

Cuba hosts a variety of fuel and non-fuel mineral resources in complex geologic terranes. Its mineral endowment includes chromite deposits in preserved fragments of oceanic crust known as ophiolites, and laterite soils that developed on top of the ophiolites; these laterite soils contain the country's most significant reserves of cobalt and nickel. In addition to cobalt and nickel, Cuba's metallic mineral resources include copper and zinc in volcanogenic massive sulfide deposits, copper in porphyry deposits, iron in laterite and skarn deposits, precious metals in epithermal deposits, manganese oxide in strata-bound deposits, and tungsten in vein deposits. The country's industrial mineral resources include currently mined, volcanically derived bentonite, feldspar, and high-purity zeolite minerals, as well as gypsum, kaolin, lime, high-grade limestone, marble, and sand from carbonate terranes. Manufactured industrial mineral products include ammonia, cement, sulfuric acid, steel, and urea. The leading mines, mineral processing facilities, and hydrocarbon concessions in Cuba are shown in figure 1 and table 1.

Hydrocarbons produced in Cuba include natural gas, crude oil, and refinery products. Most Cuban hydrocarbon production comes from structural traps in carbonate reservoirs located both onshore and offshore in the North Cuba fold and thrust belt, although hydrocarbon seeps have been reported in every Province in Cuba. Current petroleum production in Cuba is centered east of Havana along the northern coastlines of the Provinces of Matanzas and Mayabeque, mostly at Sherritt International Corp. of Canada's three near-offshore facilities at Puerto Escondido, Varadero West, and Yumuri (fig. 1; table 1). The country's largest capacity refinery is the Ñico López refinery in Havana, which processes both domestic and imported petroleum. The second largest capacity refinery, the Cienfuegos refinery, processes only Venezuelan crude oil (Nerurkar and Sullivan, 2011; U.S. Energy Information Administration, 2013).

Historical Perspective on Cuba's Mineral Industries

Prior to the embargo in 1962, the U.S. Government offered financial incentives to private U.S. investors in Cuba that resulted in U.S. ownership of most Cuban utilities, and branches of U.S. banks held one-fourth of all bank deposits in Cuba. U.S. companies had large holdings in Cuban mining and hydrocarbon assets, including the Moa Bay nickel operation, and U.S. petroleum companies operated several refineries in Cuba. In the early 1900s, geologists from the United States documented Cuba's resources of minerals, such as its resources of chromium, iron ore, and manganese, and during World War I and World War II, U.S. geologists performed investigations into the island's strategic minerals (Hayes and others, 1901; Burchard, 1919; Park, 1942; Page and McAllister, 1944; Guild, 1947). From 1916 to 1940, the United States imported more than 720,000 metric tons of chromite ore from Cuba (Thayer, 1942).

After the Cuban Revolution, however, the Cuban Government reversed its policies toward foreign-owned and (or) -operated companies and passed legislation to cancel most foreign mining and petroleum claims. The Government of Cuba established trade agreements with the Union of Soviet Socialist Republics (U.S.S.R.), prompting U.S. companies to halt operations at their Cuban petroleum refineries owing to Cold War tensions between the United States and U.S.S.R. Subsequently, Cuba nationalized its petroleum refineries, expropriated U.S. property held within its territory, and began to develop its mineral industry independently. When the U.S.S.R. was dissolved in 1991, Cuba's economic growth plummeted and the mining industry suffered from a lack of investment. In 1958, Cuba had been the 3d-ranked nickel producing country in the world, but by 1963, it was ranked 6th, and in 2001, nickel production ceased. Cuba was the world's 8th-ranked chromite producer in 1958, but its ranking decreased to 12th by 1963, and chromite production also ceased in 2001. In 1959, Cuba accounted for 4% of the world's copper production, but since 2007, no copper production in Cuba has been reported (Johnson, 1964; Copeland and others, 2011).

In 2004, the USGS released an assessment of the North Cuba basin and its three subbasins. The assessment area covered the northern one-half of the island and the portion of Cuba's maritime Exclusive Economic Zone (EEZ) that extends into the Gulf of Mexico to the north, northwest, and west of the island (fig. 1). The total amount of undiscovered technically recoverable hydrocarbon resources was estimated to be 9.8 trillion cubic feet of natural gas, 4.6 billion barrels of crude oil, and 0.9 billion barrels of natural gas liquids (U.S. Geological Survey, 2004). About 70% of this oil was estimated to be located no more than 50 to 80 kilometers (km) offshore along the length of the western and northern coasts of the island. Petroleum leasing concession areas within Cuba's maritime EEZ (fig. 1) have been claimed by such companies as Petroleo Brasileiro S.A. (Brazil), Petroliam Nasional Berhad (Malaysia), JSC Zarubezhneft (Russia), Repsol S.A. (Spain), and Petroleos de Venezuela S.A. (Venezuela) (U.S. Energy Information Administration, 2013).

Table 1. Mines, mineral processing facilities, and petroleum facilities in Cuba in 2014.

[The location of each facility is shown in figure 1. Location and distance information is based on publicly available information and may be approximate for some sites. Operational status: A, active production; E, exploration; N, negotiations; P, planned; S, suspended; UC, under construction. NA, not available]

Label on figure 1	Commodity	Facility name (if available) or facility description	Operator/ownership	Location	Operational status
1	Ammonia	Revolución de Octobre plant	NA	Nuevitas, Camagüey Province	A
2	Ammonia and urea	Calicito ammonia plant	Cuvenpeq S.A.	Calicito, Cienfuegos Province	P
3	Cement	Cienfuegos cement plant	Cementos Cienfuegos S.A. (Government, 50%; Holcim Ltd., 50%)	Cienfuegos, Cienfuegos Province	A
4		Nuevitas cement plant	Fábrica de Cemento 26 de julio	Nuevitas, Camagüey Province	A
5		Artemisa cement plant	Fábrica de Cemento Mártires de Artemisa	Artemisa, Artemisa Province	A
6		Mariel cement plant	Cementos Curazao N.V.	Barrio Mujica, Mariel, Artemisa Province	A
7		Siguaney cement plant	Fábrica de Cemento Siguaney	Siguaney, Sancti Spíritus Province	A
8	Nickel-cobalt	Ernesto Che Guevara Mine and processing plant	Empresa Niquelífera Ernesto Che Guevara (Government, 100%)	Punta Gorda, Holguín Province	A
9		Moa Bay Mine and processing plant	Moa Nickel S.A. (Government, 50%; Sherritt International Corp., 50%)	Moa, Holguín Province	A
10		René Ramos Latour Mine and processing plant	Empresa Niquelífera Comandante René Ramos Latour (Government, 100%)	Nicaro, Holguín Province	S
11		Las Camariocas Mine and processing plant	Empresa Mixta Ferroniquel S.A. (Cubaniquel, 50%; Government of Venezuela, 50%)	Cupey, Holguín Province	UC
12	Lead-zinc	Castellanos and Santa Lucia plant	NA	Near Santa Lucia, Pinar del Rio Province	UC
13	Petroleum (crude)	Northern coast operations	Empresa de Perforación y Extracción de Petróleo del Centro	Northern coast between Havana and Cardenas, primarily in Mayabeque Province	A
14		Puerto Escondido, Varadero West, and Yumuri operations	Sherritt International Corp. (gross working interests of 40–100% in various production-sharing contracts with the Government)	Puerto Escondido, Varadero West, and Yumuri	A
15, 16		Block 8A (offshore) and Block 10 (onshore)	Sherritt International Corp. (production-sharing contract with the Government)	Northern coasts of Mayabeque and Matanzas Provinces	E
17		Block 9 (onshore)	MEO Australia Ltd. (100% in a production sharing contract with the Government)	North of Colón, Matanzas Province	N
18	Petroleum (refinery products)	Cienfuegos refinery	PDV–Cupet S.A. (Government, 51%; Petroleos de Venezuela SA, 49%)	Cienfuegos, Cienfuegos Province	A
19		Hermanos Díaz refinery	Government, 100%	Santiago de Cuba, Santiago de Cuba Province	A
20		Ñico López refinery	Government, 100%	City of Havana	A
21		Sergio Soto refinery	Government, 100%	Cabaiguan, Sancti Spíritus Province	A
22	Sand	Algaba quarry	NA	Near Trinidad, Sancti Spíritus Province	A
23		Cajobabo operations	NA	Imias, Guantánamo Province	A
24	Steel products	Cotorro steel mill	Antillana de Acero, Grupo Metalúrgico Acinox (Government, 100%)	Cotorro, La Habana Province	A
25		Las Tunas steel mill	Empresa de Aceros Inoxidables, Grupo Metalúrgico Acinox (Government, 100%)	Las Tunas, Las Tunas Province	A
26	Zeolites	Tasajeras plant	Empresa Geominera Holguín	Villa Clara Province	A
27		El Chorillo plant	Empresa Geominera Holguín	Camagüey Province	A
28		San Andrés plant	Empresa Geominera Holguín	Holguín Province	A

Recent Developments in Cuba's Mineral Industries

Cuba's current crude oil and associated natural gas production from onshore and shallow water coastal reservoirs is approximately 50,000 barrels per day of liquids and about 20,000 barrels per day oil equivalent of natural gas. Venezuela is a business partner in most of Cuba's downstream petroleum industry through the joint venture (JV) Cuvenpetrol S.A. In 2010, China won a bid from the Government of Cuba to construct a refinery at Matanzas and upgrade the receiving terminal that processes and stores shipments of crude oil from Venezuela, but as of yearend 2014, no known start date had been announced. A Soviet-built petroleum pipeline connecting the Matanzas production fields to the Cienfuegos refinery has not been operational since initial performance tests were conducted in 1991. In 2011, Cuba's hydrocarbon imports included refinery products (which accounted for about 60% of total hydrocarbon imports) and crude petroleum (about 40%) (Nerurkar and Sullivan, 2011; Jorge Piñon, 2015, written commun.).

As of 2015, deepwater drilling by such foreign companies as Repsol S.A. of Spain and JSC Zarubezhneft of Russia has resulted in no discovery of commercial quantities of oil or gas. The country's extreme northwestern maritime boundary with the United States and Mexico—an area referred to as the eastern gap—remains to be legally delimited. The current claim nearest to this area is located approximately 150 km to the southeast, although no exploratory drilling has yet taken place in the westernmost portions of Cuba's EEZ (fig. 1). This area is beyond the U.S. EEZ but is in waters determined to be within the U.S. extended continental shelf and is potentially able to be leased for development of seabed mineral resources (U.S. Department of State, [2014]).

In 2010, Ferroníquel S.A. (a joint venture between Cubaniquel and the Government of Venezuela) began work to complete construction and commence ferronickel production at the Las Camariocas project in Cupey. Construction of the plant at Las Camariocas started in the 1980s but was only about two-thirds complete when its financing was lost with the breakup of the U.S.S.R. Startup of the plant had been expected in 2013, but no information indicating progress on the project was available at that time. Since at least 2010, the Government of Cuba has been seeking to expand the country's capacity to produce ammonia and urea. Construction at several projects, including an ammonia and urea production facility at Calicito in Cienfuegos Province announced in 2010 by Cuvenpeq S.A., has yet to begin (Apodaca, 2011). The Revolución de Octobre plant in Nuevitas reported production of 65,000 metric tons of nitrogenous fertilizer and ammonium nitrate production at yearend 2014, with the majority of the ammonium nitrate intended for export (Cuban News Agency, 2014). Cuba has imported an average of 8,000 metric tons per year of ammonia and phosphatic fertilizers from countries in North Africa, including Egypt, Libya, and Morocco, from 2010 through 2013. Lime was produced at seven small commercial plants throughout the country using outdated technology and very limited automation of production processes. Exports of zeolites have been reported since at least 2006; in 2013, an estimated 4,500 metric tons of zeolite were exported to Europe and Latin American countries.

Foreign Direct Investment Trends in Cuba

Cuba's real GDP was $70 billion in 2013, which was relatively low compared with larger LAC economies, but greater than LAC countries of similar area, GDP, and (or) population, including Bolivia, the Dominican Republic, and Guatemala. Among these countries, Cuba had the highest GDP each year from 1990 through 2013 (fig. 2). The Government of Cuba passed law No. 77 (Foreign Investment Act) in 1995, which allows for foreign direct investment (FDI) in the country. Economic growth rebounded as a result of this change and followed a positive trajectory similar to that of the other small economy countries in the region. Excluding Bolivia, mining and quarrying activities of the smaller countries in the region accounted for less than 3% of their GDP, and manufacturing decreased overall in each country from 1990 to 2013 (fig. 3). Economic growth remained constrained in Cuba owing partly to the limitations of its small economy, but even more so to Government controls on FDI, pricing, and the labor market (United Nations Economic Commission for Latin America and the Caribbean, 2014).

The leading sectors to receive FDI in Cuba have been agriculture, natural resources, and tourism. From 1990 through 2009, Cuba received about $3.5 billion in FDI, of which 86% was received from only 20 of about 250 foreign investors. In the 1990s, the Government of Cuba granted foreign partners majority control, but starting in 2011, the Government has sought a 51% or more share in joint ventures. In Cuba, law No. 77 allows for 100% foreign ownership of businesses, but as of 2011, only six wholly foreign-owned firms were operating in the country. The average maximum share of foreign ownership allowed in mining and oil and gas for LAC countries as of 2010 was about 96% and 86%, respectively. In Cuba, foreign joint venture investors are granted dominant market shares and the Government restricts competition and profit margins. Also, FDI firms in Cuba must pay wages to an employment agency in hard currency, but the agency compensates workers in local currency, which essentially devalues the wages by as much as 90% (Feinberg, 2012).

From 1990 through 1999, the mining sector was the 2d-ranked sector for FDI, receiving on average 15% to 20% of the total. Europe was Cuba's leading trade partner with 47% of total trade, followed by countries from North America and South America (37%) and Asia (14%). Sherritt International was the second largest foreign investor in the country through its production of nickel and cobalt at Moa Bay and its investments in agriculture, oil and gas development, power generation, telecommunications, and tourism. In 2014, the company continued to be the largest independent energy producer in Cuba through nationwide petroleum and power operations.

By 2000, the value of mining and quarrying had increased by 127% to $614 million, or by 1.4% of the GDP, from that of 1993, when it accounted for 0.9% of the GDP; the value decreased again to $396 million in 2002 and remained flat through 2013, when the value was $434 million (0.6% of the GDP) (fig. 3). During the same period, the value of Cuba's industrial manufacturing sector increased to $10.9 billion in 2013 from $5.8 billion in 1993. The percent share of industrial manufacturing in the GDP, however, decreased to 15.6% in 2013 from 18.3% in 1993, reflecting growth in other sectors (fig. 3) (Torres, 2001; United Nations Economic Commission for Latin America and the Caribbean, 2014).

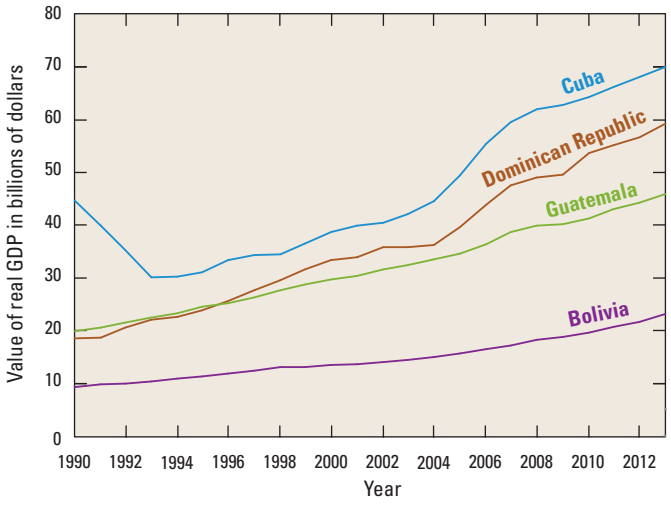


Figure 2. Annual gross domestic product (GDP) for Cuba and selected other countries of Latin America and the Caribbean from 1990 to 2013. Data from United Nations Economic Commission for Latin America and the Caribbean, 2014.

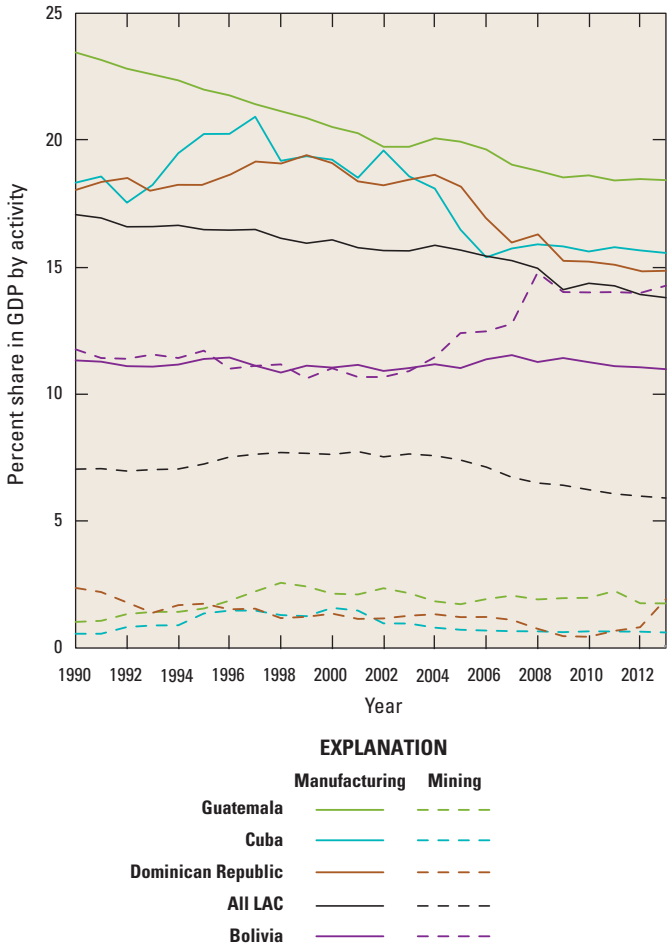


Figure 3. The percentage share of mining and manufacturing in the annual gross domestic product (GDP) for Cuba, selected other countries of Latin America and the Caribbean (LAC), and all LAC countries from 1990 to 2013. Data from United Nations Economic Commission for Latin America and the Caribbean, 2014.

In the 2000s, the Government of Cuba focused on state-backed projects involving China and Venezuela, the latter of which primarily involved the trade of Venezuelan crude petroleum in exchange for Cuban medical personnel. In 2013, China and Venezuela each received between 10% and 20% of Cuba's exported goods. From 2009 through 2013, the annual growth rate in the value of mineral exports from Cuba was about 9%; China, Belize, and Estonia were the top three recipients of Cuba's mineral exports, together accounting for a 90.6% of the total. In 2013, China, the United Kingdom, and Belgium together received 73.3% of Cuba's total mineral exports. The annual percentage growth rate in the value of exported basic manufactures was 29.5%. In 2009, the Dominican Republic, Brazil, and Honduras together received 62.1% of Cuba's basic manufactures, and in 2013, Togo, Venezuela, and the Dominican Republic together received 66.5% of Cuba's basic manufactures (Feinberg, 2012).

As the productivity of Cuba's manufacturing and mining sectors decreased steadily, the country's current level of industrial production as a whole, which included the agricultural sector, has been estimated to be operating at about 50% of that prior to 1990. Merchandise exports were reported to be less than 10% of national output in 2010 (the last year data were available) and agricultural imports are reported to consume a large, but unspecified, share of Cuba's limited export earnings (Feinberg, 2012).

In November 2014, Cuba's Ministry of Foreign Trade and Investment announced 246 development projects for which it was seeking $8 billion in foreign investment. The Government of Cuba specifically stated that Cuba will remain a state-driven economy dominated by large Government holding companies and that most foreign ventures will retain a majority Cuban ownership. Among the portfolio of projects, 86 are in the petroleum sector (the sector with the greatest number of prospective projects) and 10 projects each are in the manufacturing and mining sectors. In the energy sector, the country is offering joint ventures in petroleum extraction from onshore and offshore blocks, but also reported that it hopes to increase the share of electricity produced by renewable sources to 24% by 2030 from 4% in 2014. Foreign investment opportunities are being offered in biomass and solar energy production and hydroelectric power, and the Government announced that it will allow 100% foreign ownership in wind farms. Regardless of whether energy ventures are partially or fully foreign owned, output will be required to be sold at predetermined prices to state distribution systems. Included in the guidelines released by the Cuban Government, joint-venture firms will be required to provide business plans that make projections for their potential impact on the country's balance of payments. The guidelines prevent the privatization of state held businesses, but allow foreign investment entities to partner with domestic business cooperatives. Small-scale private enterprises, however, will not be allowed to partner with foreign investment entities (Feinberg, 2014).

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