



# 2016 Minerals Yearbook

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## ISLANDS OF THE CARIBBEAN [ADVANCE RELEASE]

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# THE MINERAL INDUSTRIES OF THE ISLANDS OF THE CARIBBEAN

## ARUBA, DOMINICAN REPUBLIC, HAITI, JAMAICA, TRINIDAD AND TOBAGO, AND OTHER ISLANDS

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### ARUBA

Mining did not play a significant role in Aruba's economy. In June, United States-based CITGO Petroleum Corp., which was an indirect wholly owned subsidiary of Petróleos de Venezuela S.A., announced the signing of a commercial agreement with the Government for the restart of the country's sole petroleum refinery. The 209,000-barrel-per-day (bbl/d) refinery would be operated by the company's subsidiary, CITGO Aruba. Under the agreement, CITGO would lease the refinery for 15 years with a 10-year extension option. In September, the company announced that the refurbishing program would be completed within 18 months to 2 years. The refinery would convert extra heavy crude from Venezuela's Orinoco Belt into intermediate crude for processing at CITGO refineries in the United States (table 2; CITGO Petroleum Corp., 2016a, b).

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### DOMINICAN REPUBLIC

In 2016, the Dominican Republic's mineral industry was dominated by the production of copper, gold, nickel, silver, and zinc. Other mineral commodities produced in the country included cement, clay, gypsum, sand, and stone. The Dominican Republic resumed production of nickel and ferronickel in April owing to the restarting of operations at Falconbridge Dominicana S.A. (Falcondo), which had been placed on care-and-maintenance status in 2013. Until 2013, the country had been estimated to be the world's 13th-ranked nickel-producing country. In 2016, the Dominican Republic's real gross domestic product (GDP) increased by 6.6% compared with that of 2015. The increase in the country's GDP was mainly attributed to increased production in the mining and quarrying sector as a result of the restarting of the Falcondo nickel mine, as well as increased production of copper, gold, and silver.

The leading mining project in the Dominican Republic continued to be Pueblo Viejo Dominicana Corp.'s copper, gold, and silver mine (table 1; Banco Central de la República Dominicana, 2017a, p. 10).

### Minerals in the National Economy

During the year, the output of the mining and quarrying sector increased by about 27% compared with a decrease of 10% in 2015. The increase in the mining and quarrying sector was mostly attributable to the restart of nickel and ferronickel production and the increase in the production of copper (by 33%), silver (by 21%), and gold (by 14%). In 2016, the total value of the Dominican Republic's exports increased by 4.2% to about \$9.8 billion from about \$9.4 billion in 2015. The total value of gold exports accounted for about 16% of the country's total exports. The total value of mineral exports increased by 33% in 2016. The increase in the value of total mineral exports was attributed to the restart of ferronickel production and the increase in the export values of limestone, silver, gold, and copper by 262%, 37%, 28%, and 20%, respectively. In 2016, the country exported about \$91 million worth of ferronickel (about \$157 million in 2013). The Dominican Republic imported about 8.5 million barrels (Mbbbl), or about \$363 million worth of crude petroleum in 2016 and about \$168 million worth of natural gas (Banco Central de la República Dominicana, 2017a, p. 7, 10; 2018c, d).

The Oficina Nacional de Estadística reported that, of the total number of companies registered in the country, about 1% (43 companies) were involved in the mining and quarrying sector. A total of 7,842 people were employed in the sector compared with 10,954 people in 2015 (Oficina Nacional de Estadística, 2017a, p. 37; 2017b).

The legislative framework for the mineral sector in the Dominican Republic is provided by law No. 146 of June 4, 1971. According to the law, exploration concession licenses grant companies exclusive exploration rights for a maximum period of 3 years and mining concession rights for a maximum period of 75 years. The Ministerio de Energía y Minas (MEM) is responsible for setting national policy in the energy and mining sectors. The Viceministerio de Minas, which operates under the MEM, is the agency responsible for regulating, auditing, promoting, and developing the mining sector (Ministerio de Energía y Minas, 2017a, p. 1, 4; 2017b, c).

## Production

In 2016, production of several industrial minerals increased, including that of silica sand, clay and shale, and limestone, which increased by 174%, 68%, and 54%, respectively. Among the metallic minerals, mine production of copper, silver, and gold increased by 33%, 21%, and 14%, respectively. These increases were attributed to increases in the production at the Pueblo Viejo Mine, where production of copper increased by 221%; silver, by 36%; and gold, by 22%, and the Cerro de Maimón Mine and the Las Lagunas project, each of which increased copper production by about 20%. During the year, the country produced nearly 1.6 million metric tons (Mt) of nickel ore, an estimated 26,100 metric tons (t) of contained nickel, and 9,913 t of ferronickel. Production of bauxite decreased by 99.6% to 7,318 t from 1.72 Mt in 2015. The decrease in production was attributed to the decision by the MEM to halt all bauxite mining operations in the Las Mercedes deposit in June 2015. In November 2015, however, the MEM announced its decision to allow Dovemco S.A. (the sole producer of bauxite in the country) to continue its bauxite operations for an additional 11 months. Production of zinc was first reported by the Government in 2015. In 2016, the Government reported that 3,636 t of zinc had been produced during the year, which was a decrease of about 22% compared with that of 2015. Zinc was produced only at the Cerro de Maimón Mine (Ministerio de Energía y Minas, 2015a, b; Oficina Nacional de Estadística, 2018). Data on mineral production are in table 1.

## Structure of the Mineral Industry

Pueblo Viejo, which was a joint venture between Canadian companies Barrick Gold Corp. (operator, 60%) and Goldcorp Inc. (40%), had the capacity to produce about 35,000 kilograms per year of gold. Las Lagunas, which was wholly owned by PanTerra Gold Ltd. of Australia, reprocessed high-grade gold and silver refractory tailings from the Pueblo Viejo Mine. Perilya Ltd. of Australia, through its subsidiary Corporación Minera Dominicana (CMD), owned Cerro de Maimón, located in Monseñor Nouel. In 2015, Americano Nickel Ltd., which was owned by Global Special Opportunities Ltd. of the Bahamas, acquired Glencore plc of Switzerland's interest in Falconbridge Dominicana S.A (Falcondo). Americano Nickel restarted operations at the Falcondo Mine and smelter, located in Lomas Las Peguera, Bonao, in the first quarter of 2016. Falcondo was jointly owned by Americano Nickel (85.3%), the Government (10%), Franco-Nevada Corp. of the United States (4.1%), and private interests (0.6%). Dovemco mined bauxite from the Las Mercedes deposit in Pedernales and transported the bauxite to the Cabo Rojo Port for export. Table 2 lists major mineral industry facilities in the country.

## Commodity Review

### Metals

**Bauxite and Alumina.**—On June 1, 2015, the MEM ratified a decision made on May 28, 2015, to cancel Dovemco's mining operations in the Pedernales area and stop the

company's bauxite exports effective on June 30. Dovemco was a contractor for Sierra Bauxita Dominicana S.R.L., which signed an \$80 million contract in 2006 to mine and export bauxite from the Pedernales area. The Government's decision to halt bauxite operations at Pedernales was based on a plan to develop the area for ecologic tourism, which was expected not only to benefit the environment but to improve the living conditions of the people of Pedernales. In November 2015, the MEM granted an 11-month extension to Dovemco to repair the company's main mining crane in order to complete final export commitments to China. The extension would also grant the Government additional time to better structure its development plan for Pedernales (Diario Libre, 2015; Ministerio de Energía y Minas, 2015a, b).

**Gold.**—GoldQuest Mining Corp. of Canada, through its subsidiary GoldQuest Dominicana SRL, owned 100% interest in the Romero gold-copper project, which included the Romero and the Romero South deposits. In September, the company reported its prefeasibility study results for the project, located in San Juan Province. Indicated and inferred mineral resources at Romero were reported to be 20.3 Mt at average grades of 2.67 grams per metric ton (g/t) gold, 4.0 g/t silver, 0.61% copper, and 0.30% zinc; and 3.0 Mt at average grades of 2.03 g/t gold, 2.9 g/t silver, 0.33% copper, and 0.32% zinc, respectively. GoldQuest Mining applied for a mining license to develop the Romero deposit in October 2015, and the application continued to be under review in 2016 (GoldQuest Mining Corp., 2017, p. 5, 11).

**Nickel.**—Falcondo, which had been placed on care-and-maintenance status in 2013 owing to low nickel prices, resumed its ferronickel operations in April. Mined ore was processed at Falcondo's smelter, which had the capacity to produce 32,000 metric tons per year of contained nickel in ferronickel. In 2016, the company produced 9,913 t of ferronickel. As of December 31, total nickel ore reserves were reported to be 71.2 Mt at an average grade of 1.31% nickel (tables 1, 2; Falconbridge Dominicana S.A., 2015; Franco-Nevada Corp., 2017, p. 18; 2018).

## Outlook

The GDP of the Dominican Republic is projected to increase by 4.6% in 2017. Gold and silver are likely to remain the country's leading mineral products and to continue to be a significant source of Government revenue. The output of the mining and quarrying sector, however, is expected to decrease by about 3.4% in 2017 as a result of a projected decrease of about 9% in the production of gold because of lower production in Pueblo Viejo, owing mainly to the mining of lower ore grades. Despite the projected decrease in output, gold is expected to continue to be the leading mineral export in the country in terms of value, accounting for about 80% of total mineral exports and about 14% of the country's total exports. Production of ferronickel is expected to increase by about 40%, and silver, by about 20% in 2017. Exports are also expected to increase for ferronickel (by about 70%) and for copper and silver (by about 20% each) in 2017. If international prices of nickel remain high, the restart of the Falcondo Mine is likely to

play a significant role in the country's economic growth (Banco Central de la República Dominicana, 2018a, p. 5, 11; 2018b, c; Oficina Nacional de Estadística, 2018).

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## HAITI

Haiti occupies the western part of the Island of Hispaniola in the Caribbean Sea and possesses similar economic mineral deposits as the Dominican Republic, but these resources remained largely undeveloped. The geology of northern Haiti hosts numerous copper, gold, and silver occurrences and prospects. The country remained the poorest country in the Western Hemisphere, with close to 60% of the population living beneath the national poverty line. In 2016, Haiti's real GDP increased by 1.4% compared with that of 2015. The mineral sector did not play a significant role in Haiti's economy and made only a minor contribution of about 0.1% to the country's GDP in 2016. Haiti is vulnerable to natural disasters. On October 4, Hurricane Matthew struck the south of the country, leaving widespread damage to infrastructure. Hurricane Matthew was the most devastating disaster since a 2010 earthquake (Institut Haïtien de Statistique et d'Informatique, 2016; EMX Royalty Corp., 2017; U.S. Central Intelligence Agency, 2017; World Bank, The, 2017).

Exploring for or mining mineral and energy resources requires authorization from the Bureau des Mines et de l'Énergie [Bureau of Mining and Energy], which is under the Ministère des Travaux Publics, Transports et Communications [Ministry of Public Works and Communications]. Mining, prospecting, and operating permits may be granted only to companies established in Haiti. In 2012, for the first time in more than 30 years, the Government awarded mining permits to companies to mine openly for gold and copper; the companies included Société Minière du Nord-Est S.A. and Delta Société Minière S.A. In 2013, however, the Government suspended all mining permits in the country while it began working on a new mining code, which continued to be under review in 2016 (Jamaica Observer, 2012; U.S. Department of State, 2016; EMX Royalty Corp. 2017, p. 53).



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## JAMAICA

Jamaica's mineral industry continued to be dominated by bauxite and alumina production. Bauxite and alumina continued to be the main sources of foreign trade, accounting for about 45% of the country's total export revenue. Industrial minerals produced in the country included cement, gypsum, lime, limestone, pozzolan, sand and gravel, and silica sand. The country also produced petroleum refinery products (Bank of Jamaica, 2017b).

### Minerals in the National Economy

Jamaica's real GDP increased by 1.1% in 2016 compared with that of 2015. In 2016, the mining and quarrying sector's contribution to the GDP decreased by 4.4% compared with that of 2015. In terms of GDP growth, the mining and quarrying sector's contribution decreased by 2.7% compared with that of 2015; the decrease was attributed to a decrease of about 12% in bauxite production. During the year, employment in the mining, quarrying, and refining industries decreased to 5,600 people from 5,800 people in 2015 (table 1; Bank of Jamaica, 2017a, p. 21, 23–24; 2017b).

The total value of goods exported from Jamaica was about \$1.2 billion in 2016 compared with about \$1.3 billion in 2015. In 2016, the value of bauxite exports was about \$92 million compared with about \$123 million in 2015, which was a decrease of 25%, and the value of alumina exports was about \$444 million compared with about \$519 million in 2015, which was a decrease of 14%. The decrease in the value of both bauxite and alumina exports was attributed to lower prices of alumina and bauxite during the year. According to the Jamaica Bauxite Institute, the country exported 8.3 Mt of bauxite (including bauxite equivalent of alumina and crude bauxite) in 2016 compared with 9.6 Mt in 2015 and 1.8 Mt of alumina compared with 1.9 Mt in 2015 (Bank of Jamaica, 2017b; Jamaica Bauxite Institute, 2018).

## Production

In 2016, production of limestone, silica sand, pozzolan, gypsum, and cement increased by 54%, 27%, 19%, 16%, and 13%, respectively. Production of construction sand and gravel decreased by 20%, and petroleum refinery production decreased by 12% owing to an unplanned temporary shutdown of the country's refinery. Jamaica produced 8.5 Mt of bauxite in 2016, which was a decrease of 11% compared with that of 2015. Data on mineral production are in table 1.

### Structure of the Mineral Industry

In October, New Day Aluminum LLC acquired Noranda Bauxite Ltd. and formed New Day Jamaica Bauxite Ltd. The new company was jointly owned by the Government (51%) and New Day Aluminum. (49%). New Day Jamaica Bauxite had the capacity to produce 5.3 million metric tons per year (Mt/yr) of bauxite. Noranda Alumina Holding Corp. filed for bankruptcy protection in February. United Company RUSAL Plc (RUSAL) of Russia sold its 100% stake in the Alumina Partners of Jamaica (Alpart) company to Jiquan Iron & Steel (Group) Co., Ltd. of China in November. Operations at Alpart were suspended in 2009 owing to the low market metal prices. Alpart was located in Nain, St. Elizabeth, and had the capacity to produce about 4.9 Mt/yr of bauxite and 1.7 Mt/yr of alumina. The company's plans to restart Alpart were underway (table 2; Alumina Insider, 2016; United Company RUSAL plc, 2016; 2017, p. 66; Jamaica Bauxite Institute, 2017).

### Commodity Review

#### *Industrial Minerals*

**Cement.**—In December, CEMEX, S.A.B. de C.V., through its indirect subsidiary Sierra Trading, presented an offer and takeover bid to Trinidad Cement Ltd. to increase Sierra's ownership in Trinidad Cement to 74.9% from 39.5%. According to CEMEX, the offer was to expire on January 10, 2017. Trinidad Cement, through its subsidiary Caribbean Cement Co. Ltd., was the country's only cement producer and had the capacity to produce 2.2 Mt/yr of cement. Trinidad Cement had operations in Barbados, Jamaica, and Trinidad and Tobago (table 2; CEMEX, S.A.B. de C.V., 2017a, p. 127; 2017b).

#### **Outlook**

According to the Bank of Jamaica, the country's economy was forecast to grow by between 1.5% and 2.5% in 2017. Mining and quarrying is expected to be one of the main sectors contributing to the country's output growth in 2017. Bauxite and alumina are likely to remain the leading mineral products in terms of generating Government revenues, and they are expected to continue to be the country's main sources of foreign trade (Bank of Jamaica, 2017a, p. 34).

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## TRINIDAD AND TOBAGO

Trinidad and Tobago continued to be the leading petroleum and natural gas producer in the Caribbean region. Other minerals produced in the country included cement, fertilizers, and such mineral fuels as methanol, natural gas liquids, and petroleum refinery products. According to the BP Statistical Review of World Energy, the proven crude petroleum reserves of Trinidad and Tobago were estimated to be 200 Mbbbl, and its natural gas reserves were estimated to be 0.3 trillion cubic meters. In 2016, the country was the world's seventh-ranked liquefied natural gas (LNG) exporter and the leading supplier of LNG to the United States, accounting for about 92% of U.S. LNG imports. The country housed one of the Western Hemisphere's largest natural gas processing facilities—the Phoenix Park Gas Processors Ltd. natural gas liquids complex (U.S. Department of Energy, 2016; BP p.l.c., 2017a, p. 12, 26, 34).

### Minerals in the National Economy

Trinidad and Tobago's real GDP decreased by 2.3% (preliminary) in 2016 compared with that of 2015. The decrease was mainly attributed to a decrease in the country's energy sector by 9.6% in 2016 (preliminary). The mineral fuels industry, which accounted for about 19% (preliminary) of the country's GDP, was mainly affected by low production from maturing oilfields, natural gas shortages, and the decline in the

international price of fuel minerals. During the year, natural gas output was affected by major disruptions, which included the shutdown of Australia-based BHP Billiton Ltd.'s facilities to facilitate the company's startup of its Greater Angostura Phase 3 project and by BP Trinidad and Tobago (BPTT) to tie in the Juniper project. As a result, shortages of natural gas negatively affected the country's output of natural gas liquids and petrochemicals. The manufacturing sector (including mining and quarrying) decreased by 5.7% (preliminary), which was attributed to the closure in 2015 of the steel plant at Port Lisas that was operated by ArcelorMittal Steel Point Lisas Ltd.; ArcelorMittal S.A. of Luxembourg had closed the facility owing mainly to the decline in the international prices of iron and steel. In 2016, 48,300 people were employed in the manufacturing sector, which accounted for about 8% of the total labor force in the country. Employment in the petroleum and natural gas sector decreased by 10% to 18,400 workers in 2016 (Central Bank of Trinidad and Tobago, 2017a, p. 3, 8–9, 10; 2017c).

In 2016, exports of crude petroleum totaled 10.3 Mbbbl compared with 11.3 Mbbbl in 2015; natural gas liquids, 8.0 Mbbbl compared with 10.2 Mbbbl in 2015; fertilizers, 5.1 Mt compared with 4.9 Mt; and methanol, 4.6 Mt compared with 5.5 Mt. The country also exported 192,700 t of cement compared with 186,000 t in 2015 (Central Bank of Trinidad and Tobago, 2017b, p. 8–10).

The Ministry of Energy and Energy Affairs (MEEA) is the Government entity responsible for the monitoring, enforcement, and regulation of the energy and mineral sectors. The state-owned Petroleum Company of Trinidad and Tobago Ltd. (Petrotrin) is engaged in the exploration, development, and production of hydrocarbons and the manufacturing and marketing of petroleum products (Ministry of Energy and Energy Affairs, 2017; Petroleum Company of Trinidad and Tobago Ltd., 2017).

### Production

In 2016, production of sulfur increased by 60% to 16 t from 10 t in 2015; petroleum refinery products increased by 19% to 54.3 Mbbbl from 45.8 Mbbbl; and urea, by 11% to 607,367 t from 547,400 t. The increase in the output of petroleum refinery products was attributed to the completion of extensive renovations at Petrotrin's Pointe-a-Pierre refinery in 2015. In 2016, production of natural gas liquids decreased by 16% compared with that of 2015, and natural gas, by 13%. All four liquefied natural gas plants in the country operated below capacity in 2016 owing to shortages in natural gas feedstock supplies. Methanol production decreased by 16%, which was attributed to the 6-month shutdown of the Trinidad and Tobago Methanol Co. Ltd. Plant 1, which was owned by Methanol Holdings (Trinidad) Ltd. The plant shut down because of the limited availability of natural gas feedstock. Cement production decreased by 14%, which was attributed to a slowdown in the construction sector (table 2: Central Bank of Trinidad and Tobago, 2017a, p. 7, 8–9).

## Structure of the Mineral Industry

Table 2 lists major mineral industry facilities in the country.

## Commodity Review

### *Mineral Fuels*

**Petroleum and Natural Gas.**—Greater Angostura had the capacity to produce 100,000 bbl/d of crude petroleum and about 9.6 million cubic meters per day of natural gas. BHP Billiton held 45% interest and was the operator of the field located offshore 40 kilometers (km) east of Trinidad. The remaining interest was owned by the Government (30%) and Chaoyang Petroleum (25%). During the year, the company completed phase 3 of its development plan for the Greater Angostura field and was expected to begin production in 2017. BPTT continued with the development of the Juniper project. Juniper would be the company's first subsea field development in the country with an investment cost of about \$2 billion. The facility would produce natural gas from the Corallita and the Lantana fields using the Juniper platform, which was located 80 km offshore southeast Trinidad. Natural gas would be exported to the existing Mahogany Bravo offshore hub through a new 10-km-long pipeline. In August, the company announced that it planned scheduled power outages (spanning about 33 days) at the Mahogany Bravo hub to facilitate the tie-in of the Juniper export line, which would facilitate the startup of Juniper in August 2017. The project would have the capacity to produce about 16.7 million cubic meters per day of natural gas. BPTT was owned by BP p.l.c. of the United Kingdom, which was the operator and owned 70% interest, and Repsol S.A. of Spain, which owned 30%. BPTT also planned the startup of the Trinidad Onshore Compression project, which would increase production from low-pressure wells in the Columbus Basin. The company expected to deliver about 5.7 million cubic meters per day of natural gas with the project. During the year, EOG Resources Inc. of the United States and BPTT entered into a joint-venture agreement to develop the Sercan field located offshore Trinidad. The field was expected to produce about 7.1 million cubic meters per day of natural gas and to begin production in 2017 (BP p.l.c., 2016a–c; 2017b; Williams, 2016; BHP Billiton Ltd., 2017, p. 202, 243; Ministry of Energy and Energy Affairs, 2018).

### **Outlook**

According to the Central Bank of Trinidad and Tobago, the country's economy is likely to improve marginally in 2017. The energy sector was expected to remain important to the long-term economic growth of the country. Growth in the energy sector is expected to increase in the short run if planned natural gas projects, such as the Juniper, the Trinidad Onshore Compression, and the Sercan field, come to fruition. Plans to increase the country's natural gas production is likely to cause fewer supply disruptions to the downstream LNG and petrochemical industries (Central Bank of Trinidad and Tobago, 2017a, p. 5).

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## **THE BAHAMAS, BARBADOS, GUADELOUPE, MARTINIQUE, AND OTHER ISLANDS OF THE CARIBBEAN**

Mining did not play a significant role in the economies of The Bahamas, Barbados, Guadeloupe, Martinique, and other islands of the Caribbean. In many cases, mining was limited to the production of industrial minerals for domestic consumption, such as those used for construction. Barbados, Guadeloupe,

and Martinique produced cement. Trinidad Cement, through its subsidiary Arawak Cement Company Ltd., held 100% interest in the Arawak Cement plant located in Checker Hall, Barbados. LafargeHolcim Ltd. of Switzerland held a 69.7% interest in Société des Ciments Antillais, which operated two cement plants in Baie Mahault, Guadeloupe, and Fort-de-France Bay, Martinique. Buckeye Bahamas Hub Ltd. (formerly known as Bahamas Oil Refining Company International Ltd.) owned by Buckeye Partners L.P. of Houston, Texas, served as storage

facility in Freeport, Grand Bahama Island. Buckeye Bahamas Hub storage included capacity for crude petroleum, fuel oil, and diesel fuel and gasoline and had a storage capacity of about 26.2 Mbbl (table 2; Buckeye Partners L.P., 2017).

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TABLE 1  
ISLANDS OF THE CARIBBEAN: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Metric tons, gross weight, unless otherwise specified)

Commodity <sup>2</sup>	2012	2013	2014	2015	2016
<b>BARBADOS</b>					
Cement, hydraulic	175,553	160,000 <sup>e</sup>	160,000 <sup>e</sup>	160,000 <sup>e</sup>	160,000 <sup>e</sup>
<b>DOMINICAN REPUBLIC<sup>3</sup></b>					
Bauxite, dry basis	10,522	769,530	1,446,311	1,724,162	7,318
Cement, hydraulic	4,130,000	4,245,720	5,018,313	5,180,931 <sup>r</sup>	5,171,069
Clay and shale <sup>4</sup>	260,000	420,000	200,000	150,000	250,000
Copper, mine, Cu content	11,737	10,379	9,262	7,324	9,725
Gold, mine, Au content kilograms	4,106	26,084	35,081	30,454	34,574
Gypsum <sup>4</sup>	190,000 <sup>r</sup>	140,000 <sup>r</sup>	240,000 <sup>r</sup>	240,000 <sup>r</sup>	140,000
Nickel:					
Mine, laterite ore:					
Gross weight	1,301,694	1,100,000	--	--	1,557,847
Ni content <sup>e</sup>	40,000 <sup>r</sup>	24,700 <sup>r</sup>	--	--	26,100
Ferronickel, smelter output, Ni content	15,186	9,400	--	--	9,913
Silver, mine, Ag content kilograms	27,296	78,228	127,712	91,928	110,969
Stone, sand, and gravel: <sup>4</sup>					
Sand and gravel, construction, sand, calcareous	52,000	--	--	--	--
Sand and gravel, industrial, silica sand	41,000 <sup>r</sup>	16,000 <sup>r</sup>	--	27,000 <sup>r</sup>	74,000
Stone, crushed:					
Dolomite	4,400 <sup>r</sup>	5,900 <sup>r</sup>	4,400 <sup>r</sup>	13,000 <sup>r</sup>	4,400
Limestone	7,500,000 <sup>r</sup>	5,300,000 <sup>r</sup>	2,700,000 <sup>r</sup>	2,800,000 <sup>r</sup>	4,300,000
Stone, dimension, travertine	5,400 <sup>r</sup>	7,700 <sup>r</sup>	5,700 <sup>r</sup>	17,000 <sup>r</sup>	13,000
Stone, size and shape unspecified:					
Marble	10,000 <sup>r</sup>	4,100 <sup>r</sup>	5,200 <sup>r</sup>	2,000 <sup>r</sup>	1,600
Pozzolan	130,000 <sup>r</sup>	59,000 <sup>r</sup>	46,000 <sup>r</sup>	61,000 <sup>r</sup>	53,000
Zinc, mine, Zn content	--	--	--	4,655	3,636
<b>GUADALOUPE</b>					
Cement, hydraulic <sup>e</sup>	300,000	300,000	300,000	300,000	300,000
<b>HAITI</b>					
Cement, hydraulic <sup>e</sup>	75,000	100,000	200,000	200,000	200,000
<b>JAMAICA<sup>5</sup></b>					
Aluminum:					
Bauxite, dry basis thousand metric tons	9,339 <sup>r</sup>	9,435 <sup>r</sup>	9,677 <sup>r</sup>	9,629 <sup>r</sup>	8,540
Alumina do.	1,758	1,855	1,851	1,865	1,866
Cement, hydraulic	760,300	824,893	830,061	808,000	911,325
Gypsum	64,753	48,322	45,201	42,883 <sup>r</sup>	49,703
Lime	84,264	106,281	104,140	105,000 <sup>e,r</sup>	105,000 <sup>e</sup>
Petroleum, refinery thousand 42-gallon barrels	8,515 <sup>r</sup>	8,056 <sup>r</sup>	6,585 <sup>r</sup>	8,239 <sup>r</sup>	7,263
Stone, sand, and gravel:					
Sand and gravel, construction, unspecified thousand metric tons	2,599	1,902	2,118	2,208 <sup>r</sup>	1,766
Silica, mine production, unspecified	13,945	15,824	15,833	15,554 <sup>r</sup>	19,757
Stone, dimension, limestone thousand metric tons	2,233	1,949	2,138	1,782 <sup>r</sup>	2,748
Stone, size and shape unspecified, pozzolan do.	107	112	129	108 <sup>r</sup>	129
<b>MARTINIQUE</b>					
Cement, hydraulic <sup>e</sup>	150,000	150,000	150,000	150,000	150,000
<b>TRINIDAD AND TOBAGO<sup>6</sup></b>					
Cement, hydraulic	654,100	801,600	836,500	840,100	721,200
Fertilizers thousand metric tons	5,453	5,129	5,172	5,453	5,422
Iron and steel:					
Direct-reduced iron	1,493,000 <sup>r</sup>	1,295,000 <sup>r</sup>	1,612,000 <sup>r</sup>	1,125,000 <sup>r</sup>	--
Raw steel	623,800 <sup>r</sup>	615,800	483,300	266,500	--
Methanol thousand metric tons	5,491	5,633	5,481	5,516	4,655
Natural gas million cubic meters	42,705	42,244	42,085	39,603	34,418

See footnotes at end of table.

TABLE 1—Continued  
ISLANDS OF THE CARIBBEAN: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Metric tons, gross weight, unless otherwise specified)

Commodity <sup>2</sup>	2012	2013	2014	2015	2016	
TRINIDAD AND TOBAGO—Continued <sup>6</sup>						
Nitrogen, N content:						
Ammonia, anhydrous	4,466,000	4,640,000	4,730,447	4,905,320	4,914,322	
Urea	521,000	490,000	441,817	547,400	607,367	
Petroleum:						
Crude	thousand 42-gallon barrels	29,915	29,617	29,659	28,700	26,092
Natural gas liquids	do.	12,890	12,573	11,992	10,992	9,214
Refinery	do.	39,060	48,177	38,212	45,766	54,256
Sulfur, S content		2	10	5	10	16

<sup>6</sup>Estimated. <sup>1</sup>Revised. do. Ditto. -- Zero.

<sup>1</sup>Table includes data available through January 18, 2018. All data are reported unless otherwise noted. Estimated data are rounded to no more than three significant digits.

<sup>2</sup>The countries of Aruba, The Bahamas, Barbados, Dominica, Martinique, and St. Kitts and Nevis are known to have production of such mineral commodities as aragonite, lime, limestone, petroleum refinery products, pumice, salt, sand and gravel, stone, and sulfur, but available information was inadequate to make reliable estimates of output.

<sup>3</sup>In addition to the commodities listed, the Dominican Republic also produced petroleum refinery products, but available information was inadequate to make reliable estimates of output.

<sup>4</sup>Units of measurement were converted to metric tons from cubic meters. Data are rounded to no more than two significant digits.

<sup>5</sup>In addition to the commodities listed, Jamaica also produced clay, marble, marl, and shale, but available information was inadequate to make reliable estimates of output.

<sup>6</sup>In addition to the commodities listed, Trinidad and Tobago also produced clay, limestone, and sand and gravel, but available information was inadequate to make reliable estimates of output.

TABLE 2  
ISLANDS OF THE CARIBBEAN: STRUCTURE OF THE MINERAL INDUSTRIES IN 2016

(Metric tons unless otherwise specified)

Country and commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity <sup>e</sup>
<b>ARUBA</b>				
Petroleum, refined	42-gallon barrels per day	Citgo Aruba (Citgo Petroleum Corp., 100%)	Southern Aruba	209,000 <sup>1</sup>
<b>BAHAMAS, THE</b>				
Petroleum, refined	thousand 42-gallon barrels	Buckeye Partners L.P.	Storage facilities, Freeport	26,200 <sup>2</sup>
<b>BARBADOS</b>				
Cement		Arawak Cement Company Ltd. (Trinidad Cement Ltd.)	Checker Hall, Saint Lucy	360,000
<b>DOMINICAN REPUBLIC</b>				
Bauxite		Dovemco S.A.	Mercedes, Pedernales	NA
Copper		Corporación Minera Dominicana (CMD) (Perilya Ltd., 100%)	Maimon, Monseñor Nouel	15,000
Gold	kilograms	do.	do.	600
Do.	do.	Pueblo Viejo Dominicana Corp. (Barrick Gold Corp., 60%, and Goldcorp Inc., 40%)	Pueblo Viejo	35,000
Do.	do.	Las Lagunas project (PanTerra Gold Ltd., 100%)	Las Lagunas	1,600 <sup>3</sup>
Nickel		Falconbridge Dominicana S.A (Americano Nickel Ltd., 85.3%; Government, 10%; Franco-Nevada Corp., 4.1%; private interests, 0.6%)	Falcon Mine, Loma Las Peguera, Bonao	NA
Nickel, Ni content of ferronickel		do.	Falcon smelter, Loma Las Peguera, Bonao	32,000
Petroleum, refined	42-gallon barrels per day	Refinería Dominicana de Petróleo S.A. (Government, 51%, and Petróleos Venezuela S.A., 49%)	Haina Port	34,000
Silver	kilograms	Corporación Minera Dominicana (CMD) (Perilya Ltd., 100%)	Maimon, Monseñor Nouel	15,000
Do.	do.	Las Lagunas Project (PanTerra Gold Ltd., 100%)	Las Lagunas	14,000 <sup>3</sup>
Do.	do.	Pueblo Viejo Dominicana Corp. (Barrick Gold Corp., 60%, and Goldcorp Inc., 40%)	Pueblo Viejo	110,000
Zinc		Corporación Minera Dominicana (CMD) (Perilya Ltd., 100%)	Maimon, Monseñor Nouel	NA
<b>GUADALOUPE</b>				
Cement		Société des Ciments Antillais (LafargeHolcim Ltd., 69.7%)	Baie Mahault	NA
<b>HAITI</b>				
Cement		Cimenterie Nationale S.E.M. (Cementos Argos S.A., 65%)	Cabaret	850,000
<b>JAMAICA</b>				
Alumina		Alumina Partners of Jamaica (Alpart) (Jiquan Iron & Steel (Group) Co., Ltd., 100%)	Nain, St. Elizabeth	1,650,000 <sup>4</sup>
Do.		Jamaica Aluminum Co. (Jamalco) (Noble Group Ltd., 55% and Government, 45%)	Halse Hall, Clarendon	1,400,000
Do.		West Indies Alumina Co. (Winalco) (United Company RUSAL Plc, 100%)	Ewarton Works, St. Catherine and Kirkvine Works, Manchester	1,210,000 <sup>5</sup>
Bauxite		Alumina Partners of Jamaica (Alpart) (Jiquan Iron & Steel (Group) Co., Ltd., 100%)	Nain, St. Elizabeth	4,900,000 <sup>4</sup>
Do.		Jamaica Aluminum Co. (Jamalco) (Noble Group Ltd., 55%, and Government, 45%)	Manchester	1,800,000
Do.		New Day Jamaica Bauxite Ltd. (Government., 51%, and New Day Aluminum LLC, 49%)	St. Ann	5,300,000
Do.		West Indies Alumina Co. (Winalco) (United Company RUSAL Plc, 100%)	Russell Place and Schwallenburgh	4,000,000
Cement		Caribbean Cement Co. Ltd. (Trinidad Cement Ltd., 74%)	Rockfort, Kingston	2,200,000
Petroleum, refined	42-gallon barrels per day	Petrojam Ltd. (Government, 51%, and Petróleos de Venezuela S.A., 49%)	Kingston Port	30,000
<b>MARTINIQUE</b>				
Cement		Société des Ciments Antillais (LafargeHolcim Ltd., 69.7%)	Fort-de-France Bay	NA

See footnotes at end of table.

TABLE 2—Continued  
ISLANDS OF THE CARIBBEAN: STRUCTURE OF THE MINERAL INDUSTRIES IN 2016

(Metric tons unless otherwise specified)

Country and commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity <sup>e</sup>
<b>TRINIDAD AND TOBAGO</b>			
Ammonia	Ammonia Urea Nitrate Melamine (AUM) complex (Methanol Holdings (Trinidad) Ltd.)	Point Lisas Industrial Estate	650,000
Do.	Caribbean Nitrogen Co. (a consortium of EOG Resources Trinidad Ltd., KOCH Industries, Man Ferrostaal, and Proman Group)	do.	650,000
Do.	Nitrogen (2000) Unlimited (a consortium of EOG Resources Trinidad Ltd., KOCH Industries, Man Ferrostaal, and Proman Group)	do.	650,000
Do.	PCS Nitrogen Trinidad Ltd. (Potash Corporation of Saskatchewan, Inc., 100%)	do.	2,200,000
Do.	Point Lisas Nitrogen Ltd. (CF Industries Holdings Inc, 50%, and KOCH Fertilizer LLC, 50%)	do.	650,000
Do.	Trinidad Nitrogen Co. Ltd. (Tringen I and II) (Government, 51%, and Yara International ASA, 49%)	do.	1,000,000
Do.	Yara Trinidad Ltd. (Yara International ASA, 100%)	do.	300,000
Cement	Trinidad Cement Ltd.	Claxton Bay	1,200,000
Clay	Trinidad Aggregate Products Ltd.	Depot Road, Longdenville	NA
Iron and steel (direct-reduced iron pellets, billets, and wire rods)	ArcelorMittal Steel Point Lisas Ltd. (ArcelorMittal, 100%)	Point Lisas Industrial Estate	2,700,000 <sup>6</sup>
Liquefied natural gas	Train 1 (BP (Barbados) Holding SRL, 34%; BG Atlantic 1 Holding Ltd., 26%; Shell LNG Port Spain BV, 20%; NGC Trinidad and Tobago LNG Ltd., 10%; Summer Soca LNG, 10%)	Point Fortin	3,000,000
Do.	Trains 2 and 3 (BP Train 2/3 Holding SRL, 42.5%; BG 2/3 Investment Ltd., 32.5%; Shell LNG Port Spain BV, 25%)	do.	6,600,000
Do.	Trains 4 (BP (Barbados) Holding SRL, 37.78%; BG Atlantic 4 Holdings Ltd., 28.89%; Shell LNG Port Spain BV, 22.22%; Trinidad and Tobago LNG, 11.11%)	do.	5,200,000
Methanol	Atlas plant (Methanex Corp., 63.1%)	Point Lisas Industrial Estate	1,700,000
Do.	Titan plant (Methanex Corp., 100%)	do.	850
Do.	Methanol Holdings (Trinidad) Ltd., of which: Caribbean Methanol Company Plant Trinidad and Tobago Methanol Co. Ltd. Plant I Trinidad and Tobago Methanol Co. Ltd. Plant II Methanol IV Company Ltd. Plant M5000 Methanol Plant	do.	4,800,000 (550,000) (480,000) (570,000) (580,000) (1,900,000)
Natural gas	cubic meters per day Greater Angostura (BHP Billiton Ltd., 45%; Government, 30%; Chaoyang Petroleum, 25%)	Greater Angostura oilfield	9,600,000
Natural gas liquids	42-gallon barrels per day Phoenix Park Gas Processors Ltd. (National Gas Company of Trinidad and Tobago, 51%)	Port of Savonetta	70,000
<b>Petroleum:</b>			
Crude	do. Greater Angostura (BHP Billiton Ltd., 45%; Government, 30%; Chaoyang Petroleum, 25%)	Greater Angostura oilfield	100,000
Refined	do. Petroleum Company of Trinidad and Tobago Ltd. (Government, 100%)	Pointe-a-Pierre	168,000
Sand and gravel	29 quarries	Matura, Sangre Grande, Turure, and Valencia	NA

See footnotes at end of table.



TABLE 2—Continued  
ISLANDS OF THE CARIBBEAN: STRUCTURE OF THE MINERAL INDUSTRIES IN 2016

(Metric tons unless otherwise specified)

Country and commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity <sup>e</sup>
TRINIDAD AND TOBAGO—				
Continued				
Stone, limestone, blue		Cumaca Blue Limestone Products Ltd.	Cumaca Road, Valencia	NA
Do.		Cumana Enterprise Ltd.	Toco Road, Cumana	NA
Do.		Harripersad Dookeran	Quarry Road, Guaracara	NA
Do.		Hermitage Limestone Ltd.	Tumbason Road, Arima	NA
Do.		Saiscon Ltd.	Corosal Road, Mayo	NA
Do.		Springbank Quarry Ltd.	Heights of Guanapo, Arima	NA
Do.		St. Alban's Sand and Gravel Co. Ltd.	Cumaca Road, Cumaca	NA
Do.		RRJ Ltd.	Tabaquite Road, Guaracara	NA
Urea	metric tons	PCS Nitrogen Trinidad Ltd. (Potash Corporation of Saskatchewan, Inc., 100%)	Point Lisas Industrial Estate	748,000
Do.	do.	Ammonia Urea Nitrate Melamine complex (Methanol Holdings Ltd.)	do.	NA

<sup>e</sup>Estimated. Do., do. Ditto. NA Not available.

<sup>1</sup>CITGO Petroleum Corp. announced a commercial agreement with the Government for the restart of the refinery by 2018.

<sup>2</sup>Storage facilities.

<sup>3</sup>Las Lagunas project involves the reprocessing of gold and silver refractory tailings from previous operations at the Pueblo Viejo Mine.

<sup>4</sup>Placed on care-and-maintenance status.

<sup>5</sup>Operations at Kirkvine Works were suspended since 2009.

<sup>6</sup>Closed at yearend 2015.