

# THE MINERAL INDUSTRY OF

# OTHER CARIBBEAN AREAS

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The Caribbean Basin is a diverse area of island nations and European dependencies, with about 35 political entities and more than 55 million people speaking more than 5 languages. Long before the arrival of Columbus in the New World, the indigenous people had developed a metallurgy based on gold found in placer deposits or in vein outcrops. Bauxite is the most recent major mineral to be exploited in the 20th century. There also has been some limited production of oil and natural gas.

## **Antigua and Barbuda**

The volcanic Islands of Antigua and Barbuda are east of Puerto Rico. The Commonwealth's sand, gravel, and crushed stone industries supported the local construction industry. On Antigua Island, limestone crops out along the north and east coasts and was quarried for the construction industry. Barbuda produced a small amount of salt.

## **Aruba**

Aruba, also of volcanic origin, is northwest of Venezuela. Aruba has few natural resources; thus, mining and mineral production contributed little to the economy of the island. Coastal Aruba Refining Co. N.V., a subsidiary of Coastal Corp. of Houston, TX, produced asphalt, diesel fuel, feedstock for Coastal's other refineries, kerosene, and residual fuel oil at the 150-million barrels per year Lago refinery. Petroleum and other mineral products were shipped from the ports of Oranjestad and Sint Nicolaas.

## **The Bahamas**

The Bahama Islands are on the northern edge of the Caribbean Basin. The Bahamas comprise 20 major islands and thousands of small islands. The islands' coral base rests on the volcanic rim foundation, but most of the exposed rock is oolitic limestone.

Mineral production on The Bahama Islands was limited to aragonite, cement, petroleum products, salt, sand and gravel, and stone. Aragonite sand was dredged off the Great Bahamas Bank, south of the Biminis. Limestone and sand were produced by Freeport Aggregate Ltd., in Freeport, for the domestic construction industry. Marine salt was produced in evaporation pans on Great Inagua Island, the southernmost island in The Bahamas archipelago. The

Bahamas imported all of its oil for the domestic processing of petroleum products. The Bahamas' mineral exports included aragonite blocks, petroleum products, and salt. The United States continued to be The Bahamas' most significant trading partner.

## **Barbados**

Barbados is a relatively small island off the northeast coast of Venezuela. The mineral sector formed a minor part of the island's economy. Principal mineral commodities produced in Barbados were crude petroleum and natural gas. Industrial mineral production included cement, clays, limestone, sand and gravel, and road metal. The Arawak Cement Co. was the sole producer of cement on the island, exporting cement to regional markets. The Barbados National Oil Co. Ltd. was the only operating crude oil company on the island. The company also produced natural gas and liquid petroleum gas. The Mobil Oil Barbados Ltd. petroleum refinery is on the southwestern coast.

## **Bermuda**

Bermuda is an archipelago of 7 main islands and about 150 other islands and islets. Those islands are the tops of submerged volcanoes that became extinct before the first Ice Age. The islands have an insignificant mineral industry. All mineral requirements were imported, except for some local stone production, primarily coral limestone. Quarries were privately owned, with low employment. Lacking rivers and streams, fresh water was collected from rainwater and seawater desalinization plants. Petroleum was imported as a domestic fuel. Mineral exports consisted almost entirely of the re-export of fuel oil. The United States continued to be one of Bermuda's most important trading partners. Other significant partners included Canada, Italy, and the United Kingdom.

## **Dominica**

The volcanic Island of Dominica is 550 kilometers (km) southeast of Puerto Rico, between Guadeloupe and Martinique Islands. Dominica produced clay, limestone, pumice, volcanic ash, and sand and gravel, primarily for the construction industry. Dominica was the leading producer of fresh water with exports to the other Caribbean islands. The Government supported the use of geothermal energy and

drilled a number of test wells. Dominica was dependent on imports for oil and raw and semimanufactured materials. Dominica exported small quantities of sand and gravel and crushed stone, mostly to Guadeloupe and the Virgin Islands. In 1993, Dominica became a contracting party to the General Agreement on Tariffs and Trade.

### **Grenada**

The most southern of the Windward Island chain, or Lesser Antilles, Grenada consists of Grenada and several islands near the southern Grenadines off the northeast coast of Venezuela. There were no reported mineral industries in Grenada, although limestone, road metal, and sand and gravel were produced for the local construction industry.

### **Guadeloupe and Martinique**

Guadeloupe and Martinique are both Overseas Departments of France. Included are the islands of Basse-Terre, Grande-Terre, Iles des Saintes, La Desirade, Marie-Galante, St. Barthelemy, and the French side of Sint Maarten. Guadeloupe and Martinique, respectively, are 500 km and 625 km southeast of Puerto Rico, both northeast of the Venezuelan coastline. The Basse-Terre portion of Guadeloupe is volcanic in origin, and the Grand-Terre area is composed of limestone formations. Martinique is a dormant volcano.

Industrial minerals, such as cement, clays, lime, pumice, salt, sand and gravel, and stone, were the only commodities produced. All mineral products, except for some cement and sand and gravel, were used domestically. Petroleum products were refined on Martinique from imported crude oil.

### **Haiti**

Haiti is part of the western area of the Island of Hispaniola, which it shares with the Dominican Republic. Economic activity remained depressed owing to the political unrest in Haiti. Refined petroleum products were all imported, and Exxon, Royal Dutch Shell, and Texaco oil companies operated gasoline stations in Haiti. The small mineral industry in Haiti was involved in the production of cement, the mining of clays and limestone for cement production, quarrying a small quantity of marble, production of marine salt, dredging for sand and gravel, and other minerals used in the construction industry. In northern Haiti, there were small undeveloped deposits of chromite, copper, gold, iron ore, lead, manganese, silver, sulfur, tin, and zinc.

### **Montserrat**

Montserrat, a dormant volcanic island, is just south of the Antigua and Barbuda. Small quantities of sand and gravel and other quarry products constituted its mineral industries.

The island's mineral requirements were imported through the port of Plymouth.

### **Netherlands Antilles**

The two major islands of the Netherlands Antilles, Bonaire and Curacao, are northwest of the coastline of Venezuela. The rest of the country, the Saba Islands, Sint Eustatius, and Sint Maarten, are east of Puerto Rico, 800 km to the north. All of the islands are of volcanic origin. Mining and mineral production contributed little to the economy of the Netherlands Antilles. The Netherlands Antilles produced on Curacao limestone, phosphate rock, solar salt, and refined petroleum products. Salt was exported to other Caribbean islands, New Zealand, and the United States from the port of Willemstad on Curacao. Refined petroleum products also were exported to the Netherlands and other countries. Refineria Isa S.A. on Curacao, a Petroleos de Venezuela S.A. (PDVSA) subsidiary, leased the 113-million barrels per year oil refinery at Willemstad from the Government of the Netherlands Antilles. PDVSA also recovered about 20,000 metric tons of sulfur at its refinery. The ocean terminal and facilities on Bonaire, owned by PDVSA, were used for storage and transshipment. Salt has been produced on Bonaire since the 16th century. AKZO Salt Antilles N.V. operated a 2,226-hectare, 360,000 metric tons per year solar salt facility on the southern end of Bonaire.

A stone-crushing plant was operating on the Saba Island. Aggregate was quarried on Sint Maarten by Bouwwbedrijf Bowne Winden N.V., a subsidiary of Devcon International Corp., of Deerfield Beach, FL. Production was consumed primarily by the local construction industry. A petroleum transshipment terminal was operating on Sint Eustatius.

### **Saint Kitts and Nevis**

Saint Kitts and Nevis are volcanic islands southeast of Puerto Rico. The Federation of Saint Kitts and Nevis consist of Saint Christopher and Nevis islands. Mining and mineral production contributed little to their economies. Although Saint Kitts' and Nevis mineral industry produced some construction materials and salt, most basic mineral requirements were imported. Beach sand mining was proscribed under the 1987 National Conservation and Environmental Protection Act.

### **Saint Lucia**

The volcanic island of Saint Lucia is 150 km north of Grenada in the Lesser Antilles. Gravel and sand pits and pumice quarries supplied the island's construction sector, which was tied to hotel expansion. Hess Oil St. Lucia Ltd. maintained a petroleum storage and transshipment terminal near Castries, the island's capital. Geothermal energy studies were conducted at the boiling volcanic sulfur springs near

Soufriere on the southwest coast. In 1993, Saint Lucia became a contracting party to the General Agreement on Tariffs and Trade.

### **Saint Vincent and The Grenadines**

The small volcanic islands of Saint Vincent and the Grenadines are sandwiched between the islands of Saint Lucia in the north and Grenada in the south. A small industrial mineral production supplied sand and gravel and road material needed by the construction industry. Small quantities of salt were privately produced.

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<sup>1</sup>Text prepared Apr. 1995.

### **Major Sources of Information**

#### **Antigua**

Ministry of Economic Development and Energy  
Queen Elizabeth Highway  
Saint John's, Antigua  
Phone: (809) 462-1960

#### **Aruba**

Central Bureau Voor de Statistiek  
Windstraat 21  
Oranjestad, Aruba

#### **The Bahamas**

Ministry of Agriculture, Trade and Industry  
Nassau, The Bahamas

#### **Barbados**

Ministry of Trade Industry, and Commerce  
Bridgetown, Barbados West Indies

#### **Grenada**

Ministry of Communications Young St.  
Saint George's, Grenada  
Phone: (809) 440-3598

#### **Guadeloupe and Martinique**

Bureau de Recherches Geologiques et Minieres  
Abymes, Guadeloupe, French West Indies  
Bureau de Recherches Geologiques et Minieres  
Fort-de-France, Martinique, French West Indies  
Service des Mines et de L'Industrie  
Point-a-Pitre, Guadeloupe, French West Indies  
Service des Mines et de L'Industries  
Fort-de-France, Martinique French West Indies

#### **Haiti**

Bureau des Mines et des Ressources Energetiques Port- au-Prince, Haiti

#### **Saint Lucia**

Ministry of Trade, Industry, and Agriculture  
Castries, Saint Lucia  
Telephone: (809) 452-2611

#### **Saint Vincent and the Grenadines**

Ministry of Trade, Industry, and Agriculture  
Kingstown, Saint Vincent  
Telephone: (809) 456-1223

TABLE 1  
ARUBA, NETHERLANDS ANTILLES, AND SAINT KITTS AND NEVIS  
ESTIMATED PRODUCTION OF MINERAL COMMODITIES 1/

(Thousand metric tons unless otherwise specified)

Commodity 2/	1990	1991	1992	1993	1994
<u>Aruba:</u>					
Petroleum refinery products      thousand 42-gallon barrels	70,000	115,000	115,000	115,000	120,000
Sulfur, byproduct of petroleum	60	100	100	100	120
<u>Netherlands Antilles:</u>					
Phosphate rock	15	15	15	10	15
Salt 3/	350	350	350	300	350

e/ Estimated.

1/ Table includes data available through Mar. 31, 1995.

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

3/ Primarily in Netherlands Antilles, with some in Saint Kitts and Nevis .

TABLE 2  
THE BAHAMAS: PRODUCTION OF MINERAL COMMODITIES 1/ 2/

(Thousand metric tons)

Commodity 3/	1990	1991	1992	1993 e/	1994 e/
Salt	828	1,100	809	850	900
Stone: Aragonite	807	1,210	871	1,100	1,200

e/ Estimated.

1/ Previously published and 1994 data are rounded by the U.S. Bureau of Mines to three significant digits.

2/ Table includes data available through Mar. 31, 1995.

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

TABLE 3  
 BARBADOS: ESTIMATED PRODUCTION OF MINERAL COMMODITIES 1/ 2/

(Thousand metric tons unless otherwise specified)

Commodity 3/	1990	1991	1992	1993	1994
Cement, hydraulic thousand metric tons	200	200	175	175	200
Gas, liquefied petroleum 42-gallon barrels	18,000	18,900 4/	18,900 4/	18,000	20,000
Gas, natural:					
Gross million cubic meters	33 4/	35	33	33	35
Marketed do.	15	17	15	15	15
Petroleum:					
Crude thousand 42-gallon barrels	454 4/	470	470	460	475
Refinery products do.	2130 4/	2,200	2,120	2,200	2,250

e/ Estimated.

1/ Previously published and 1994 data are rounded by the U.S. Bureau of Mines to three significant digits.

2/ Table includes data available through Mar. 31, 1995.

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

4/ Reported figure.

TABLE 4  
 GUADELOUPE AND MARTINIQUE: ESTIMATED PRODUCTION OF MINERAL COMMODITIES 1/

(Thousand metric tons unless otherwise specified)

Commodity 2/	1990	1991	1992	1993	1994
Guadeloupe:					
Abrasives, natural: Pumice	220	230	220	210	210
Cement	225	240	235	230	230
Martinique:					
Cement, hydraulic	250	245	240	220	220
Lime metric tons	5,000	5,000	5,000	5,000	5,000
Petroleum refinery products thousand 42-gallon barrels	4,800	4,800	4,800	4,800	4,800
Pumice	140	150	140	130	130
Salt	200	200	200	200	200

e/ Estimated.

1/ Table includes data available through Mar. 31, 1995.

2/ In addition to commodities listed, crude construction materials (sand and gravel, stone, etc.) may also be produced, but information is inadequate to make estimates of output levels.

TABLE 5  
HAITI: ESTIMATED PRODUCTION OF MINERAL COMMODITIES 1/ 2/

(Metric tons unless otherwise specified)

Commodity 3/	1990	1991	1992	1993	1994
Cement, hydraulic	200,000	250,000	200,000	100,000	75,000
Clays, for cement	48,000	40,000	30,000	10,000	10,000
Sand and gravel:					
Gravel                      cubic meters	3,970,000 4/	3,900,000	3,000,000	1,000,000	750,000
Sand                              do.	2,260,000 4/	2,200,000	2,000,000	500,000	250,000
Stone:					
Limestone, for cement	287,000 4/	250,000	220,000	100,000	75,000
Marble                              cubic meters	595 4/	600	500	200	100

e/ Estimated.

1/ Previously published and 1994 data are rounded by the U.S. Bureau of Mines to three significant digits.

2/ Table includes data available through Mar. 31, 1995.

3/ In addition to commodities listed, asphalt, lime, and salt may also be produced, but data on such production are not available, and information is inadequate to make reliable estimates of output levels.