The Mineral Industries of the Islands of the Caribbean

Aruba, The Bahamas, Barbados, Cuba, Dominican Republic, Jamaica, Trinidad and Tobago, and Other Islands

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ARUBA

In 2003, the mining sector continued to play a minor role in the economy of Aruba. This island, which is located in the Caribbean Sea approximately 29 kilometers (km) off the Paraguana Peninsula of northern Venezuela, had a population of about 97,000. The main sector of the Aruban economy was tourism followed by offshore banking, oil refining, and storage. The country's per capita gross domestic product (GDP) in 2003 was $21,158. Exports, which were valued at $3.48 billion, included art and collectibles; animal products and live animals; electrical equipment; machinery; petroleum products, which included petroleum reexports; and transport equipment. The major markets for these exports were United States (40.4%), Venezuela, (19.9%), the Netherlands (10.2%), and the Netherlands Antilles (14.8%) (U.S. Department of State, 2004§[1]).

El Paso Energy Corp. of the United States, which had merged with Coastal Corp. in 2001 and acquired the 315,000-barrel-per-day (bbl/d) Aruba refinery, was planning to sell the refinery in 2003. The refinery was located to the south of the island about 32 km northeast of Venezuela and had access to key feedstock and product corridors, which included major U.S. Gulf Coast and Northeast markets. It processed heavy crude oil and produced a high yield of intermediate feedstock. It also included 2 deepwater marine docks with capacity for ultra-large crude carriers, 6 docks for refined products, 63 storage tanks with a storage capacity of about 12 million barrels (Mbbl), and a truck rack for local sales (Petroleum Economist, 2003; Valero Energy Corporation, 2004, p. 4; Rigzone.com, 2003§).

Outlook

According to the Central Bank van Aruba (2004, p. 6), real GDP is expected to grow by 3% in 2004 despite tourism possibly being adversely affected by geopolitical tensions, high oil prices, and current account and budgetary imbalances.

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THE BAHAMAS

In 2003, mining continued to play a minor role in the economy of The Bahamas. This group of islands, which are located in the Caribbean Sea to the southeast of Florida, had a population of about 317,000. The Bahamian economy was service oriented and based almost entirely on tourism and financial services. Tourism alone accounted for more than 60% of the GDP and employed about one-half of the country's workforce. The minerals produced in the country were aragonite, refined petroleum, salt, sand and gravel, and stone. The Bahamas' estimated GDP based on purchasing power parity was about $5.4 billion in 2003. Exports, which were valued at $617 million in 2002, included chemicals, fish and crawfish, fruit and vegetables, rum, and salt. The major markets for these exports were the United States (39.4%), Spain (10.8%), Germany (8.7%), France (8.6%), Peru (4.8%), Mexico (4.4%), and Switzerland (4.1%) (U.S. Central Intelligence Agency, 2004§; U.S. Department of State, 2004§).

The Bahamas Oil Refining Co. [a subsidiary of Petróleos de Venezuela S.A. (PDVSA)] remained mostly idle during the year. PDVSA used only about one-half of the refinery's crude oil storage tanks in 2003. The refinery had a fuel oil storage capacity of 8 Mbbl, a crude oil storage capacity of 6 Mbbl, and a refined storage capacity of 3.5 Mbbl.

AES Corp., El Paso, and Tractebel S.A. of Belgium planned to invest in natural gas storage facilities and the construction of a natural gas pipeline in The Bahamas. The companies proposed to transfer liquefied natural gas by tanker to The Bahamas from producers in Algeria, Nigeria, and Trinidad and Tobago and to reconvert and pipe the fuel to Florida to be used in powerplants. Although the Government of The Bahamas granted a provisional approval for the proposals by AES and El Paso, it was still studying Tractebel's proposal. Final approval

[1]References that include a section mark (§) are found in the Internet Reference(s) Cited sections.

by the United States Federal Energy Regulatory Commission and the Government of The Bahamas would be contingent upon the results of an environmental impact assessment. The AES proposal included the construction of a gas terminal on Ocean Cay with a pipeline capacity of about 22.7 million cubic meters per day (reported as 800 million cubic feet per day). El Paso, however, proposed the construction of a terminal on Grand Bahama Island with a pipeline capacity of about 28.3 million cubic meters per day (reported as 1 billion cubic feet per day) (Canute, 2003; Petroleum Economist, 2003a).

Through its wholly owned affiliates Kerr-McGee Bahamas Ltd. and Atlantic Exploration and Production Company, Kerr-McGee Corp. of the United States acquired a 100% interest in nine oil and gas licenses offshore The Bahamas in the Blake Plateau Basin north of Freeport, Grand Bahama Island. The first phase of the company's program included the acquisition and interpretation of seismic data (Kerr-McGee Corp., 2003; Petroleum Economist, 2003b).

Outlook

According to the Central Bank of The Bahamas (2004, p. 15), tourism is expected to strengthen throughout 2004 owing to the recent opening of new upscale resorts, the addition of room capacity in the hotel sector, and planned improvements throughout the year on several local airports. Likewise, the activities in the construction sector are expected to strengthen as the result of significant new foreign investment projects in the hotel sector.

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BARBADOS

In 2003, Barbados' economy was primarily based on manufacturing and tourism. The principal mineral fuels produced were natural gas and petroleum. Industrial mineral production included cement, clays, limestone, and sand. Barbados was located to the east of the main chain of the Lesser Antilles on the boundary between the Caribbean Sea and the Atlantic Ocean. The country's population was estimated to be about 271,000. The estimated GDP based on purchasing power parity was about $4.1 billion in 2003. Exports, which were valued at $206 million in 2002, included chemicals, electrical components, food and beverages, rum, and sugar. The major markets for these exports in 2003 were the United States (18.7%), Trinidad and Tobago (14.5%), the United Kingdom (14%), Jamaica (7.8%), Saint Lucia (6.2%), and Saint Vincent and the Grenadines (4.7%) (U.S. Central Intelligence Agency, 2004§).

Production of crude petroleum was estimated to be about 365,000 barrels in 2003 (table 1). Crude petroleum was produced by Barbados National Oil Company. Because Barbados had no refining capacity, crude petroleum was shipped to Trinidad and Tobago for refining and then returned to Barbados for domestic consumption. Natural gas production was estimated to be about 31 million cubic meters (U.S. Energy Information Administration, 2004§).

Cement production increased by about 11% to 330,000 metric tons (t), and production of clinker increased by about 7% to 303,000 t. Arawak Cement Company Limited [a wholly owned subsidiary of Trinidad Cement Limited (TCL)] was Barbados's sole cement producer. Cementos Mexicanos S.A. de C.V. of Mexico held a 20% interest in TCL. Construction projects in 2003 included the building of new tourism infrastructure; the ongoing renovation of the Hilton Hotel, which was due to be completed by the third quarter of 2004; and the ongoing expansion of the Grantley Adams International Airport, which was due for completion at the end of 2004 (Central Bank of Barbados, 2004, p. 2).

Outlook

According to the Central Bank of Barbados (2004, p. 6) economic activity is expected to expand between 3% and 3.5% in 2004 on the basis of the strength of increased growth in tourism, construction, and wholesale and retail activities.

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CUBA

In 2003, Cuba continued to rank among the world's top 10 producers of cobalt and nickel (Kuck, 2004; Shedd, 2004). The country, which is located about 150 km from Key West, Florida, is the largest island of the Greater Antilles island arc. Cuba's territory, which includes Isla de la Juventud and several other

islets and keys, had a population of about 11.3 million in 2003 (U.S. Central Intelligence Agency, 2003§). Most of Cuba's means of production were owned and run by the Government. About 75% of the labor force was estimated to be employed by the State. Other metals produced in Cuba were chromite, gold, iron, and steel. Cobalt was produced as a byproduct of the mining of nickel. Nickel was the country's second largest source of foreign exchange in 2002. Nickel export earnings were estimated to average about $600 million per year (Frank, 2003§). Industrial minerals produced included cement, clays, crushed stone, feldspar, salt, and silica sand. In addition, Cuba produced moderate amounts of ammonia, petroleum and petroleum products, and sulfur as a byproduct of the refining of petroleum. In 2003, the country's estimated GDP based on purchasing power parity was about $32 billion. Exports, which consisted of citrus, coffee, fish, medical products, nickel, sugar, and tobacco, were valued at about $1.5 billion (U.S. Central Intelligence Agency, 2004§).

During the 1990s, the Government introduced new market reforms to alleviate the economic crisis that resulted from the loss of Soviet subsidies. In 1995, the new legal framework, which included opening to foreign investment and legalizing the dollar, allowed for foreign ownership in joint ventures with the Cuban Government. In July 2003, the Government restricted certain dollar transactions by ordering state firms to deal only in convertible pesos. The convertible peso was introduced in 1994 by the Cuban National Bank as a proxy for the dollar after legalization of the use of foreign currency in 1993 (Havana Journal, 2003c§). Although the Cuban Government encouraged foreign investment, the number of joint ventures and economic associations that operated with foreign capital in Cuba declined to 342 in 2003 from 397 (revised) in 2002 (Investment Promotion Center of the Ministry for Foreign Investment and Economic Cooperation, 2004§; U.S. Department of State, 2004§). The Cuban Ministry of Economic Cooperation and Investment signed a cooperation agreement with the South African Ministry of Minerals and Energy to enable the collaboration between the two countries in the electricity, energy, and mining sectors. In addition, the Cuban Government signed a memorandum of understanding with the South African electricity utility Eskom Enterprises (Pty.) Ltd. and initiated talks with the Petroleum, Oil, and Gas Corporation of South Africa regarding a possible partnership (Alexander's Gas & Oil Connections, 2003b§).

Commodity Review

Metals

Chromium.—In 2003, Cuba produced 34,000 t of chromite (table 1). Chromite was produced by Government-owned Cromo Moa S.A. from the following deposits: Amores and Las Merceditas, which are located in Moa; La Albertina, which is located in Sagua de Tanamo; and Los Naranjos, which is located near Baracoa. The Government planned to make technological improvements to the Las Merceditas plant to be able to export chromite to markets in Asia, particularly those in China (Havana Journal, 2003d§; Trabajadores Digital, 2003§).

Copper.—Copper was not produced in Cuba in 2003. The last operating copper mine was Mina Grande el Cobre, which was shut down in 2001 as a result of low copper prices and high operational costs. A new copper project, Mina Mantua, was being studied during the year. The project is located in Pinar del Rio Province. Measured and indicated resources at Mina Mantua were estimated to be about 12 million metric tons (Mt) at an average grade of 2% copper. Newport Exploration Ltd. of Canada entered into an option agreement to acquire a 50% interest in the Mantua Copper Project from Northern Orion Resources Inc. of Canada; the remaining 50% interest in the project was held by Government-owned Geominera S.A. To maintain the option and as part of a bankable feasibility study, Newport planned to complete a sampling and metallurgical test program during the year at a cost of $750,000 (Newport Exploration Ltd., 2003, p. 8, 12-13, 19).

Gold.—Production of gold in 2003 was 547 kilograms (kg) (table1). Gold was produced at the Castellanos Mine, which was the country's only gold-producing mine; it is located on the northern coast of the Pinar del Rio Province. On the basis of a 90% recovery and a daily throughput of about 50 metric tons per day (t/d), reserves were expected to sustain production for at least 8 years. An open pit and underground operation was envisioned for a gold deposit on Isla de la Juventud. Exploration was being conducted on several gold deposits in the Provinces of Camaguey, Holguin, Pinar del Rio, and Santiago de Cuba (Mining Engineering, 2003).

Nickel.—Production of mined nickel (nickel content of nickel oxide, nickel-cobalt sulfide, and nickel-cobalt ammonium liquor) was 74,018 t in 2003. Production of nickel and cobalt came from three operations—two produced nickel oxide and one produced the intermediate product nickel-cobalt sulfide. Cobalt and refined nickel were derived from the treatment of mixed sulfides from the Moa Nickel S.A. facilities. Moa Nickel was a mining and processing operation that was part of a vertically integrated joint-venture company between the Government of Cuba (50%) and Sherritt International Corp. of Canada (50%). Mixed sulfides produced at Moa were shipped to Canada and then transported by rail to Sherritt's refinery in Fort Saskatchewan, Alberta, to produce refined nickel and cobalt. Production of nickel oxide was 42,282 t. Nickel in ammonium liquor was about 2,116 t. Nickel in ammonium liquor was produced at the nickel oxide plants in Nicaro and Punta Gorda (Sherritt International, 2004, p. 4, 21-23; Sitio del Gobierno de la República de Cuba, 2004§).

The Cuban Government planned to increase nickel plus cobalt production to a total of 100,000 t for 3 years beginning in 2004 and to increase production once again to up to 150,000 t during the following 7 to 10 years. The plan was to increase capacity by 36,000 t each at the Pedro Soto Alba plant and the Che Guevara plant during the first phase of the project and by 80,000 t and 55,000 t, respectively, during the second phase. The Government planned to build a nickel refinery and a plant to produce nickel and cobalt salts in Punta Gorda and also a ferronickel plant at Las Camariocas in Holguin Province. The Government was seeking financing for the development of the project. In January, Cubaníquel S.A. signed a sales agreement and two other letters of intent with China's Minmetals Group to

invest in the industry (Mining Journal, 2003b; Diario Granma, 2003§; Frank, 2003§).

In August, Empresa Ernesto Che Guevara awarded a contract to Aker Kværner ASA of Norway to modify the Moa nickel-processing plant at Punta Gorda. The company was to provide design and procurement management for a sulfide concentrate drying system and a sulfur dioxide and soot-removal/gas-cleaning system and services during installation and commissioning (Mining Journal, 2003a).

Silver.—Holmer Gold Mines Ltd. of Canada held a 50% interest in the Loma Hierro Silver Project, which was located about 200 km from Havana in Pinar del Rio Province. Geominera S.A. held the remaining 50%. Between 1994 and 1997, Holmer conducted an extensive drilling program, which consisted of 164 diamond drill holes and 345 t of bulk sampling for silver. The company completed a bankable feasibility study for the project in 1999 and was awaiting Government approval and seeking financing to develop the project in 2003 (Holmer Gold Mines Ltd., 2004§).

Industrial Minerals

Cement.—Cuba had six cement plants. Plans to increase total production were underway in 2003. About one-half of the cement produced in Cuba was consumed domestically, and the remainder was sold to the international market (Mining Engineering, 2003).

Mineral Fuels

Petroleum.—Mining activities in 2003 were concentrated around the exploration of petroleum. In 1999, Cuba divided its 112,000 square kilometers (km^2) in the Gulf of Mexico into 59 deepwater blocks for exploration and development. Sherritt, Petróleo Brasileiro S.A. (Petrobras) of Brazil, and Repsol YPF S.A. of Spain were among the first companies granted exploration rights in the area. Sherrit and Pebercan Inc. of Canada operated in Cuba under joint-venture production-sharing agreements (PSA) with the Government. The Government also offered for exploration an additional 26 blocks, 16 of which were onshore (Embajada de Cuba en España, 2003§).

In 2002, Sherritt acquired the exclusive exploration rights for four blocks in the deepwater economic zone off the northern coast of Cuba and 100% indirect interest in four enhanced PSAs with the Government (Sherritt International Ltd., 2004, p. 25; Alexander's Gas & Oil Connections, 2003a§; U.S. Energy Information Administration, 2004§).

Pebercan began its operations in Cuba in 1993. The company held five onshore PSA contracts—blocks 7, 12, 13, 15, and Varadero Profundo. During 2003, a two-dimensional seismic study for blocks 12, 13, and 15 was completed as was a three-dimensional (3D) marine seismic study for block 7. During the second half of 2004, the company planned to drill two exploratory wells to study further the oil potential of three of the targets yielded by the 3D study—Guanabo, Santa Cruz, and Tarara. In 2003, the company invested about $26.5 million in Cuba for exploration and development (Pebercan Inc., 2004, p. 5).

In 2003, the Canasi 9 and the Canasi 65 wells were drilled and brought into production. Each well produced about 1,000 bbl/d. The wells were connected by pipeline to the Canasi field production facilities for the separation of oil and gas and then transported through a pipeline to an oil terminal in Matanzas. The construction of the facilities, which had begun in October 2002, was completed in June. The plant had the capacity to treat 1 million cubic meters per day of gas and 3,200 cubic meters per day of liquid. The total cost of the facilities was $16.5 million. At yearend, Pebercan began a second investment phase at the plant to modify the facilities following an unexpected increase of a mix of gas and water at Canasi shortly after production began. The company planned to enhance the gas treatment capacity and to build a 20-inch-diameter pipeline to a compression station in Puerto Escondido. Pebercan had 15 petroleum-producing wells in Cuba in 2003. Total proven and probable reserves of petroleum on block 7 were estimated to be 66.6 Mbbl. Pebercan surrendered 1,130 km^2 of the block in 2003. The company held a 52.5% interest in the block; the remaining 47.5% was held by Sherritt (Pebercan Inc., 2004, p. 5-8).

In 2002, Repsol was granted the mining rights for exploration blocks N25, N26, N27, N28, N29, and N36 off the northwestern coast of Cuba. The company conducted seismic appraisal activities at their concessions and identified the Yamagua-1 prospect, which it planned to drill for petroleum in 2004. The company contracted the Eirik Raude oil rig, which was owned by Ocean Rig ASA of Norway, to drill the well at a cost of $195,000 per day (Havana Journal, 2003e§; Repsol YPF S.A., 2003§).

In mid-2003, Petrobras was studying an offer from the Cuban Government to drill for petroleum in the Gulf of Mexico. Petrobras, which had invested about $15 million in exploration off the northern coast of Cuba during the 1990s, abandoned the exploration efforts in the area in 2001 following disappointing results. In November, the company signed a new agreement with the Cuban Government to drill in 10 blocks in the Gulf (Alexander's Gas & Oil Connections, 2003a§; Havana Journal, 2003b§; U.S. Energy Information Administration, 2004§).

Production of petroleum reached about 20.3 Mbbl (table 1). Most of the crude petroleum produced domestically had a high sulfur content and was used mostly for the generation of electricity. The country's refineries processed imported petroleum from Venezuela (U.S. Energy Information Administration, 2004§).

Infrastructure

Works for the construction of a new hydroelectric plant in the Zaza Dam began in November. The plant will be constructed with the help of the Chinese Government, which signed a cooperation agreement with the Cuban Government to construct an additional five hydroelectric plants in central and eastern Cuba (Havana Journal, 2003a§).

Outlook

According to the Cuban Ministry of Foreign Affairs (2004§), with the opening of the country's Gulf waters to foreign

investors, petroleum production is expected to grow by 8% in 2004. Likewise, nickel and cobalt production is also expected to increase owing to new investments aimed at increasing production capacity and acquiring new technologies.

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DOMINICAN REPUBLIC

In 2003, the Dominican Republic, which is located on the eastern portion of the Caribbean island of Hispaniola, remained a regional producer of cement, ferronickel, gypsum, salt, and steel. Limestone, marble, and sand and gravel were also produced solely for domestic consumption. Amber, limestone, and pectolite (larimar) were produced in modest amounts by six small artisanal mining associations. The country had a population of about 8.7 million (World Bank, 2004§). The GDP based on purchasing power parity was about $54 billion in 2003 (International Monetary Fund, 2004§).

Mineral production in the Dominican Republic was by the Government and the private sector. In 2003, mining activities were focused around gold exploration. The Canadian companies Energold Mining Ltd., GlobeStar Mining Corp., Impact Minerals International Inc., Linear Gold Corp., Placer Dome Inc., and Unigold Inc. and the Irish company Minmet plc were actively exploring in the country.

Energold's portfolio in the Dominican Republic included the following properties: Athena, Bacco y Ofir, Baritina, El Brujo/La Bruja, El Centenario, Josefina, La Comadreja, La Culebra, Longyear, Los Pedregones, Majagual, Rey Midas, Rey Salomon, and San Antonio. The company operated in the country through its 100% owned subsidiary Actividades Mineras S.A. and held a controlling interest in Impact, which, in turn, owned 100% of the Athena, the Baritina, El Brujo/La Bruja, and La Culebra concessions. In 2003, Impact reported that it was continuing to advance its property portfolio through minimizing internally funded exploration expenditures and to encourage third parties to participate in exploration campaigns. The company announced in 2003 that an 800-meter (m) drilling program at El Brujo concession had confirmed the presence of porphyry copper-gold mineralization (Impact Minerals International Inc., 2004, p. 1).

Minmet had been active in the Dominican Republic since May 2001 when Energold and Impact signed an agreement with Exploration & Discovery Latin America (Panama) Inc. (EDLA) for a joint regional exploration program in Los Ranchos and the Maimon Formations. EDLA was a 100% owned subsidiary of Minmet (Energold Mining Ltd., 2001).

The Athena concession was located between the Baritina and La Bruja concessions. Although prospecting had identified a weak anomalous zone in the west-central part of the concession, as of 2003, no report indicated any further exploration on the property (Energold Mining Ltd., 2003§).

The Bacco y Ofir concession was located in the Provinces of Monte Plata and Hato Mayor near Santo Domingo. In June, 327 samples that yielded maximum rock geochemical values of 9.56 grams per ton (g/t) gold, 326 g/t silver, 6.63% copper, and 2.7% zinc were studied. Geochemical work at the property was followed by a 500-m drill program, but results failed to show any depth extent to the geochemistry identified at the surface. The company reported that no immediate work was planned for the concession. Minmetals earned a 51% interest in the property during the year (Energold Mining Ltd. 2004, p. 7; 2003§).

The Baritina concession was located about 10 km south of El Brujo. When Energold conducted limited regional reconnaissance on the property in the late 1990s, it discovered several gold-silver-zinc mineralization zones. No further work on the property was reported in 2003 (Impact Minerals International Inc., 2004, p. 2; Energold Mining Ltd., 2003§).

El Brujo/La Bruja concession was located in the eastern Dominican Republic on the southern shore of the Samana Bay about 100 km from the Pueblo Viejo gold mine. In February, an 800-m diamond drilling program confirmed the existence of porphyry copper-gold mineralization in the property. Minmet undertook extensive work, which included soil sampling, trenching, and geologic mapping, at the concession during the year (Energold Mining Ltd., 2003§).

El Centenario concession was located in the central Dominican Republic about 30 km west of the Pueblo Viejo Mine and 77 km northwest of Santo Domingo. Exploration campaigns at the property between 1990 and 1997 included channel sampling, mapping, soil sampling, magnetometer and IP resistivity surveys, and diamond drilling. Drilling of the high-grade zones yielded intersections of up to 9.18 g/t gold over 23.1 m, which included an interval of 13.8 g/t gold over 10.5 m (Energold Mining Ltd. 2004, p. 5; Energold Mining Ltd., 2003§).

The Josefina concession was located in Sanchez Ramirez Province near Santo Domingo and at about 18 km northwest of the Pueblo Viejo Mine. Activities in 2003 included rock, soil, and stream sediment sampling. Minmet had a 51% interest in the property (Energold Mining Ltd., 2003§).

The Longyear concession was located in the central Dominican Republic about 55 km northwest of Santo Domingo and bordering the Pueblo Viejo Mine. In late 2003, Minmet optioned the property from Energold for a 60% interest at a cost of $1.5 million and the commitment to drill 1,000 m within 6 months of the agreement. Soil sampling, trenching, and drilling on the Loma La Mina target identified low-grade oxide and sulfide gold mineralization, which included 2.83 g/t gold, 29.73 g/t silver, and 0.96% copper over 3 m and 1.5 g/t gold, 19.5 g/t silver, and 1.49% copper over 16 m (Energold Mining Ltd. 2004, p. 5; 2003§).

Los Pedregones concession also was located in the central Dominican Republic. Previous work on the property identified zones of hydrothermal alteration and gold/silver mineralization at the Cabirma Clara, the Loma Prieta, El Palo, and El Palo Sur zones (Energold Mining Ltd., 2004, p. 5; 2003§).

The Rey Midas and the Rey Salomon concessions were located about 55 km of Pueblo Viejo. Surface samples at Rey Midas graded up to 6.9 g/t gold, 163 g/t silver, and 0.19% copper (Energold Mining Ltd., 2004, p. 7).

The San Antonio concession was located in the central Dominican Republic about 30 km northwest of Santo Domingo. In 2003, four new trenches were excavated, and two existing trenches were resampled in the vicinity of previous drilling to study the oxide gold potential of the Copper, the Parcela, and the 1100 W zones (Energold Mining Ltd., 2003).

Linear's exploration properties in the Dominican Republic included the Ampliacion Pueblo Viejo, the Loma Hueca, and the Loma El Mate concessions. Ampliacion Pueblo Viejo had been a fiscal reserve until 2001 when Linear won the rights to the property; a fiscal reserve is an area with proven or potential mineral resources set aside by the Government and not available to investors. In March 2002, the company was granted an exploration license. The property hosted the Lechoza prospect. In November 2003, a trench and surface-sampling program that indicated an extension of near-surface gold mineralization was completed at Lechoza. In December, the company announced that it had reached an agreement with Placer Dome Exploration Inc. for the exploration and possible development of the Ampliacion Pueblo Viejo property. Under the terms of the agreement, Placer Dome Exploration would be able to acquire a 52.5% interest by paying $775,000 and undertaking $4 million of exploration during a period of 3½ years (Linear Gold Corp., 2003b). In December 2003, Everton Resources Inc. of Canada entered into a joint-venture agreement with Linear to acquire a 50% interest in the Loma El Mate concession by spending $500,000 during a 2-year period. Everton was to issue 200,000 common shares to Linear and pay option fees that totaled $70,000 during the option period (Linear Gold Corp., 2003a).

Placer Dome, which had been awarded a special lease agreement by the Government to operate the Pueblo Viejo gold mine in 2002, continued to work on a feasibility study for the property in 2003. The company expected to complete the study in early 2005 (Unigold Inc., 2004, p. 3).

Unigold held the exploration rights for Los Gandules, the Neita, and the Sabaneta properties. The company acquired Los Gandules in 2003 by signing an option agreement with a private Dominican Republic company to acquire 100% interest in the property. Los Gandules was located on the southern boundary of the Neita property and on the western boundary of the Sabaneta property. Exploration at Neita was ongoing and included diamond drilling, geochemistry, geology, and geophysics. Work at Sabaneta included geologic mapping and soil sampling and a mineral potential evaluation that was funded by the European Union and carried out by the Bureau de Recherches Geologiques et Minières (BRGM) of France and the Instituto Geológico y Minero of Spain (Unigold Inc., 2004, p. 6-7).

In November, Unigold signed a letter of intent with the Government for the acquisition of 100% of the future revenues up to $175 million to be received by the Government from the net smelter return royalty held by the Goverment on the Pueblo Viejo gold deposit. Above the $175 million, the revenue was to be split 60/40 between the Government and Unigold, respectively. In return, Unigold was to make payments to the Goverment in the amount of about $42.7 million (Unigold Inc., 2003).

Through its 100% owned Dominican subsidiary Corporación Minera Dominicana, GlobeStar continued to develop the Cerro de Maimon deposit, which was located in the municipality of Maimon in the Monsenor Nouel Province about 70 km northwest of Santo Domingo. The deposit and exploration rights, which had been owned by Falconbridge Dominicana C por A (Falcondo), were acquired by GlobeStar in early 2002. The deposit was characterized by three types of mineralization that consisted of a gold/silver-rich oxide cap, a supergene copper-enriched sulfide zone, and unaltered massive sulfide with a copper to zinc ratio of 1 to 1. As of July 15, 2003, measured and indicated resources in the oxide were estimated to be 664,000 t at grades of 2.54 g/t gold and 63.8 g/t silver at a cutoff of 1.0 g/t gold. Measured and indicated resources in the sulfide were estimated to be 4.1 Mt at grades of 2.93% copper, 1.75% zinc, 0.98 g/t gold, and 35 g/t silver at a cutoff of 1.0% copper (GlobeStar Mining Corporation, 2003b). In November, GlobeStar announced that it had entered into a $5 million financing arrangement to develop an open pit operation at Cerro de Maimon with the Canadian companies Canaccord Capital Corp. and Dundee Securities Corp. Pincock, Allen, and Holt, which was an independent engineering group, was in charge of completing a bankable feasibility study on the project. Commissioning of the mine and mill was scheduled for late 2004 (GlobeStar Mining Corporation, 2003c).

GlobeStar held substantial land that covered much of the Maimon Formation, which hosted the Cerro de Maimon deposit, and other properties within Los Ranchos Formation, which hosted the Pueblo Viejo gold mine. These properties included the Bayaguana Project, which hosted the Cerro Kiosko, the Dona Amanda, and the Trinidad gold targets. In September, the company announced that a trenching program at the Trinidad target had yielded gold mineralization. A 50% interest in the Bayaguana group of properties was optioned to Everton Resources Inc. at a cost of $1.5 million. Previous exploration at Cerro Kiosko had established resources of 4.9 Mt at grades of 2.0 g/t gold, 5.06 g/t silver, and 1% copper. Resources at Dona Amada were estimated to be 45.5 Mt at grades of 0.45% copper and 0.22 g/t gold (GlobeStar Mining Corporation, 2003a).

Ferronickel was produced by Falcondo. The company mined, milled, and smelted its own nickel laterite ores. Production of nickel in ferronickel was about 27,200 t in 2003 (table 1). As of December 31, 2003, Falcondo's total proven and probable reserves were estimated to be 60.9 Mt and were expected to last about 18 years at existing operating rates. The company expected to produce about 27,000 t of nickel in ferronickel in 2004 (Falconbridge Ltd., 2004, p. 19). Falcondo, which was the only nickel producer in the country, was a subsidiary of Falconbridge Ltd. of Canada (85.26%); the remaining equity was owned by Redstone Resources Inc. (4.1%), and the Government of the Dominican Republic (10.64%). The company comprised surface-mining areas in Caribe, Fraser, Guardarraya, Larga, Ortega, Peguera, and Taina. The facilities included a metallurgical treatment plant, a crude oil processor, and a 200-megawatt thermal powerplant.

The Dominican Republic did not produce petroleum. The country imported petroleum and refined products from Mexico and Venezuela. Liquefied natural gas (LNG) was imported from Trinidad and Tobago for power generation. Petroleum was refined at Bonao by Falcondo and at Haina by Refinería Dominicana de Petróleo.

Outlook

The signing of a technical cooperation agreement with the United Nations Economic Commission for Latin America and the Caribbean to provide the Government with the technical expertise to design a plan to develop the mineral industry and the granting in 2004 of at least 20 exploration and mining licenses suggest the Government will continue to move forward with its policy to develop the country's mineral resources. This undertaking, and the interest of several foreign companies to conduct gold exploration in the country indicate that the mineral industry is set to continue to grow in the near future.

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JAMAICA

Jamaica, which is the third largest island of the Greater Antilles, is located about 150 km south of Cuba and about 160 km west of Haiti. The country continued to rank among the world's leading producers of bauxite and alumina. According to the Planning Institute of Jamaica (2004§), real GDP grew by 2.1%, and mining and quarrying grew by an estimated 4.8%. Growth in the mining sector was attributed to higher production levels at the country's alumina plants, which were operating at near full capacity throughout the year following the completion of expansion work at Jamaica Aluminum Company (Jamalco) and ongoing work at Alumina Partners of Jamaica (Alpart). With the exception of marble, production of industrial minerals increased during the year. The performance of the sector was attributed to an increase in construction activities mostly as a result of road works associated with the construction of the Highway 2000 Project and Segment II of the Northern Coastal Highway Improvement Project (Planning Institute of Jamaica, 2004§). Jamaica's estimated GDP based on purchasing power parity was about $10.4 billion in 2003 (International Monetary Fund, 2004§). Exports, which consisted mainly of alumina, bananas, bauxite, beverages, chemicals, coffee, rum, and sugar were valued at about $1.4 billion (U.S. Central Intelligence Agency, 2004§). Population was estimated to be about 2.6 million in 2003 (U.S. Central Intelligence Agency, 2003§; World Bank, 2004§).

The Ministry of Mines and Energy was the Government agency responsible for the mining sector in Jamaica. The Mines and Geology Division supported the Ministry through research and ensured compliance with the mining laws. The Jamaica Bauxite Institute was responsible for monitoring and regulating the bauxite industry and served as the Government adviser in all matters concerning the industry.

Production of minerals in Jamaica was by the Government and the private sector. In 2003, bauxite and alumina production amounted to 13.4 Mt and 3.8 Mt, respectively (table 1). Jamalco, which was a joint venture between Alcoa World Alumina and Chemicals (AWAC) (50%) and the Jamaican Government (50%), owned and managed bauxite mines, an alumina refinery, and port facilities in Jamaica. AWAC and the Government had signed an agreement to invest $115 million to expand the Jamalco alumina refinery in 2002. The 250,000-t expansion and modernization of the plant were completed in November 2003. The expansion was expected to increase Jamalco's refining capacity by 25% and produce about 1.25 million metric tons per year (Mt/yr) (Alumina Limited, 2003).

In February 2003, West Indies Alumina Company (Windalco), which was a joint venture between Glencore International AG of Switzerland (93%) and the Government of Jamaica (7%), awarded a full-service contract to Henry Walker Eltin Group Ltd. (HWEG) of Australia to operate the Kirkvine Mines and related facilities. HWEG was responsible for conveyor operations, exploration, mining and quarrying, stockpile management, and the limestone operation. Kirkvine's limestone quarry supplied limestone aggregate for the production of burnt lime used in the alumina process. Bauxite was also mined at the Ewarton Works. The bauxite was transported from the Ewarton open pit operation by truck to a loading station at Schwallenburgh, St. Ann Parish, which is located about 9 km from the mine, and was transported to the plant by an aerial cable system that is located about 7 km from the mine. The system had a delivering capacity of up to 420 metric tons per hour (t/hr) of bauxite. Average delivery was estimated to be between 380 and 400 t/hr. All bauxite mined by Windalco was used for the production of hydrate, most of which was calcined into alumina (West Indies Alumina Company, 2003§).

Jamaica produced about 277 kg (reported as 8,906 troy ounces) of gold and 98 kg of silver (reported as 3,166 troy ounces) in 2003. Gold and silver were produced by Ausjam Mining Limited of Australia at the Pennants gold mine in Clarendon Parish. In December 2003, Ausjam shut down operations at the Pennants Mine citing financial constraints as a result of low ore grades and unreasonable demands from the United Union of Jamaica, which was a Jamaican labor union that represented Ausjam's employees (Jamaica Gleaner, 2003a§, b§; Jamaica Observer, The, 2003§).

Jamaica depended on imported petroleum for most of its energy needs. Most of the crude oil was imported from Mexico and Venezuela under the San Jose Accord. The petroleum sector was shared by the Government and the private sector. The Petroleum Corporation of Jamaica (PCJ), which was a statutory corporation under the Ministry of Mining and Energy, had the exclusive right to explore for oil, to develop petroleum resources, to negotiate import contracts, to operate refineries, and to sell petroleum and petroleum products in Jamaica. PCJ's subsidiaries were Petrojam Limited, which operated the only petroleum refinery in the country, and Petcom Limited, which was a marketing and retailing company. Petrojam processed crude oil into such finished products as asphalt, automobile diesel oil, heavy fuel oil, liquefied petroleum gas, turbo fuel, and unleaded gasoline (Petroleum Corporation of Jamaica, 2004§).

Outlook

The growth potential of Jamaica's mining sector will probably rely on the further development of the bauxite and alumina sectors. Government initiatives, such as the replacement in 2002 of the 28-year-old bauxite levy on production with a new system that aims to tax profits, have created incentives for companies to expand existing capacity and to modernize their plants. Other companies will likely follow Jamalco's steps in further increasing production capacity.

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TRINIDAD AND TOBAGO

Trinidad and Tobago, which forms the southernmost islands of the Caribbean archipelago, is located northeast of Venezuela and northwest of Guyana. In 2003, the population was estimated to be about 1.3 million (World Bank, 2004§). The leading industries in the country were chemicals, natural gas, petroleum, and tourism. According to the Central Bank of Trinidad and Tobago (2004, p. 1), real GDP grew by 4.1% compared with 2.7% (revised) in 2002 following a trend of 10 consecutive years of economic growth. The energy sector continued to be the major contributor to this growth. The energy sector grew by 11.4%, and construction, by 4.8%. The positive growth of the energy sector was attributed, in part, to growth in the production of LNG following the commissioning of a third LNG plant during the year and to an increase in the production of fertilizers and methanol, which use natural gas as feed and fuel. Growth in the construction sector was attributed to ongoing investments in infrastructure for the energy sector, which included the construction of a fourth LNG plant, two methanol plants, and the N2000 ammonia plant, and to the Government's public sector investment program for housing (Central Bank of Trinidad and Tobago, 2004, p. 1). Total exports were valued at about $4.9 billion, $3.4 billion of which came from the export of mineral fuels and lubricants (Central Bank of Trinidad and Tobago, 2004, p. 29, 86). Besides natural gas and petroleum, Trinidad also produced andesite, argillite, asphalt, cement, clay, direct-reduced iron, limestone, natural gas liquids, plastering sands, porcellanite, quartzitic sand and gravel, steel, and tar sands.

The Ministry of Energy and Energy Industries is the Government agency responsible for the management and development of the petroleum and mineral resources of Trinidad and Tobago. The Ministry's major functions are the leasing and licensing of areas for petroleum exploration and production, the regulation and management of all oil and gas activities, the administration of domestic marketing of petroleum products, natural gas transmission and sales, petrochemical manufacture, and other natural-gas-based industries. The Ministry is also responsible for the formulation and implementation of legal instruments for the petroleum industry. It shares responsibilities for the collection of petroleum revenues that accrue to the State and for the administration and management of the minerals sector with the Ministry of Finance.

In July, Methanol Holdings (Trinidad) Limited (MHTL) announced the beginning of construction of their M5000 methanol plant, which will be located at Point Lisas. The plant was to produce 5,000 t/d of methanol. In addition, a modification to the plant design will allow it to process purged gas streams from MHTL's existing methanol plants to produce an additional 400 t/d for a total production of 5,400 t/d. The output from M5000 will almost double the 2.1 Mt/yr produced by MHTL from its four other methanol plants. The estimated cost of the plant was more than $500 million. The engineering, procurement, and construction contract was granted to MAN Ferrostaal Ag of Germany; the subcontractor was Proman Ag. The commissioning of the plant was scheduled for the first quarter of 2005. MHTL was formed in 1999 to consolidate the shareholding and overall management of Trinidad and Tobago Methanol Company Limited, Caribbean Methanol Company Limited, and Methanol IV Company Limited (Methanol Holdings (Trinidad) Limited, 2003).

Construction work on the N2000 ammonia plant continued in 2003. Startup was scheduled for the second half of 2004. The plant was expected to produce 640,000 metric tons per year of ammonia. N2000 was owned by MAN Ferrostaal, EOG Resources Inc. of the United States, Halliburton Company of the United States, Koch Industries Inc. of the United States, and CL Financial Ltd. of Trinidad and Tobago, which was part of the Trinidadian insurance group Colonial Life Insurance Company (Trinidad) Limited. EOG planned to supply 1.7 million cubic meters per day gross (reported as 60 million cubic feet per day gross) and 1.3 million cubic meters per day net (reported as 47 million cubic feet per day net) of natural gas under a 15-year contract. In addition, EOG signed a 15-year contract to supply natural gas to the M5000 methanol plant. EOG anticipated supplying about 2.7 million cubic meters per day gross (reported as 95 million cubic feet per day gross) of natural gas during the first 4 years and approximately 3.5 million cubic meters per day gross (reported as 125 million cubic feet per day gross) of natural gas during the remaining 11 years of the contract and an average of 1.9 million cubic meters per day net (reported as 67 million cubic feet per day net) during the first 4 years and 2.5 million cubic meters per day net (reported as 87 million cubic feet per day net) during the remaining 11 years (EOG Resources Inc., 2004, p. 2, 11).

The Government continued to focus its efforts on attracting foreign direct investment to the country's energy sector. In July, the Ministry of Energy and Energy Industries offered through

a competitive bidding round nine blocks for exploration off the western, eastern, and northern coasts of the country (Ministry of Energy and Energy Industries, 2003c).

In 2003, production of natural gas increased by about 39.8% to 26.8 billion cubic meters compared with the 19.2 billion cubic meters produced in 2002 (table 1). Trinidad and Tobago's revised proven, possible and probable natural gas reserves were estimated to be about 9.9 billion cubic meters (reported as 34.8 trillion cubic feet) (Ministry of Energy and Energy Industries, 2003b). Atlantic LNG Company of Trinidad and Tobago was formed in 1995 to develop an LNG plant at Point Fortin. As of 2003, the facilities at Point Fortin consisted of three operational trains or liquefaction units and included a port area that consisted of a 700-m jetty, a channel used by LNG carriers to arrive at the jetty, and a turning basin. LNG was exported to markets in the Dominican Republic, Puerto Rico, Spain, and the United States.

Train 1 was owned by Atlantic LNG, which was a joint venture among BP Trinidad (LNG) B.V. (BP) (34%), British Gas Trinidad LNG Limited (26%), Repsol LNG Port Spain B.V. (20%), Tractebel Trinidad LNG Limited S.A. (10%), and National Gas Company of Trinidad and Tobago LNG Limited (10%). The train, which began operating in 1999, had a production capacity of 3.3 Mt/yr of LNG. LNG was supplied to Spain and the United States. BP supplied all feed gas for Train 1. Trains 2 and 3 were owned by Atlantic LNG 2/3 Company of Trinidad and Tobago Unlimited, which was a joint venture among Amoco Trinidad LNG LLC (42.5%), British Gas Global Investments B.V. (32.5%), and Repsol Overzee Financien B.V. (25%). Trains 2 and 3 each had a capacity of 3.3 Mt/yr. All three represented a total investment of more than $2 billion.

An additional investment of $1.1 billion to produce and pipe the gas to Point Fortin was expected to triple production and exports of LNG. The expansion consisted of the construction of one additional storage tank with a capacity of 160,000 cubic meters and one loading arm to be added to the existing three on Atlantic LNG's 700-m jetty. The expansion was expected to consume about 28.3 million cubic meters per day of gas (reported as 1 billion cubic feet per day of gas) and would be supplied by BP (62.5%) and BG/North Coast Marine Area Partners (37.5%). BG was to lay a new line to supply gas to Train 2 from its northern coast blocks and to Train 3 from its east coast fields. BP planned to transport gas to the facilities by existing pipelines. About 62% of production was committed to Spain, and the remaining 38% was scheduled to be sold to the United States. The expansion project began in the first quarter of 2000. Train 2 exported its first cargo in August 2002, and Train 3 began operations in April 2003. Feed gas for Trains 2 and 3 was supplied by BP and British Gas. In addition to producing LNG, Trains 2 and 3 supplied about 12,000 barrels of natural gas liquids to Phoenix Park Gas Processors Ltd. under a 20-year agreement. The owners of the three trains used the facilities at Point Fortin jointly by means of an operating agreement and shared assets and costs (Atlantic LNG Company of Trinidad and Tobago, 2003b; Ministry of Energy and Energy Industries, 2003a).

In June, the Government approved the construction of a fourth train at Point Fortin. The train, which was scheduled to be commissioned in 2005, was owned by Atlantic LNG 4 Company of Trinidad and Tobago Unlimited, which was a joint venture among BP (Barbados) Holding SRL (about 38%), British Gas Trinidad LNG Limited (about 29%), Repsol Overzee (about 22%), and National Gas Company of Trinidad and Tobago LNG (Train 4) Limited (about 11%). The estimated cost of the project was $1.2 billion. The planned 5.2-Mt/yr train was designed to process about 22.7 million cubic meters per day (reported as 800 million cubic feet per day) of gas and will be located south of Atlantic LNG's three existing trains. Construction plans included a second jetty and a fourth 160,000-cubic-meter storage tank. National Gas was to construct a new 56-inch pipeline for the supply of gas from Train 4. The addition of Train 4 was expected to increase total production at Point Fortin to almost 15 Mt/yr (Atlantic LNG Company of Trinidad and Tobago, 2003a).

Production of petroleum in Trinidad and Tobago was by Government-owned Petrotin and the private sector. In 2003, production of petroleum increased by about 2.6% to 48.9 Mbbl from 47.7 Mbbl in 2002 (table 1). Petroleum Company of Trinidad and Tobago operated the country's sole refinery in Point-a-Pierre. The refinery's capacity was 160,000 bbl/d.

Outlook

According to the Central Bank of Trinidad and Tobago (2004), the energy sector will continue to dictate the pace of expansion of the country's economy. The commissioning of two petrochemical plants during the year is expected to contribute to the further development of the energy sector.

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OTHER ISLANDS OF THE CARIBBEAN

The mineral industries of other islands of the Caribbean (Antigua and Barbuda, Bermuda, Dominica, Grenada, Guadeloupe and Martinique, Haiti, Montserrat, the Netherlands Antilles, Saint Kitts and Nevis, Saint Lucia, and Saint Vincent and the Grenadines) were small. Mineral production was limited mostly to cement, construction materials for domestic consumption, and salt. Petroleum refinery products are produced in Martinique and the Netherlands Antilles.

More-extensive coverage of the mineral industries of Other Islands of the Caribbean, can be found in the 2000, 2001, and 2002 Minerals Yearbooks, Volume III, International Review of Latin America and Canada.

TABLE 1
ISLANDS OF THE CARIBBEAN: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons unless otherwise specified)

Country and commodity		1999	2000	2001	2002	2003[e]
ARUBA[e, 2]						
Petroleum refinery products	thousand 42-gallon barrels	65,000	100,000	100,000	100,000	100,375 [3]
Sulfur, byproduct of petroleum		50,000	77,000	77,000	77,000	77,300
BAHAMAS, THE[e, 4]						
Salt		900,000	900,000	900,000	900,000	900,000
Stone, argonite		1,200,000	1,200,000	1,200,000	1,200,000	1,200,000
BARBADOS[4, 5]						
Cement:						
Hydraulic		252,959	267,659	249,544 [6]	297,667 [6]	330,000 [p]
Clinker		NA	NA	241,899 [6]	284,009 [6]	303,000 [p]
Clay and shale		150,000	150,000	132,000 [6]	132,000 [6]	132,000
Limestone[e]		1,500,000	1,500,000	1,730,000 [6]	1,230,000 [6]	1,230,000
Liquefied petroleum gas[e]	42-gallon barrels	20,000	20,000	17,587 [3, 6]	11,011 [3, 6]	11,000
Natural gas:						
Gross	million cubic meters	47	38	32 [6]	29 [6]	31 [3, 7]
Marketed[e]	do.	15	15	16 [6]	14 [6]	16
Petroleum, crude	thousand 42-gallon barrels	708	560	464	391	365 [3, 7]
Sand[e]		200,000	200,000	550,000	500,000	500,000
CUBA[4, 8]						
Asphalt		73,300	69,000	70,000 [e]	70,000	70,000
Cement, hydraulic[9]		1,784,600	1,632,700	1,324,100 [10]	1,326,900 [10]	1,700,000
Chromite		52,000	56,300	50,000	46,000	34,000 [p]
Cobalt, mine output, Co content:[9, 11]						
Oxide, oxide sinter, sulfide, ammonical liquor precipitate		3,001 [r]	3,336 [r]	3,915 [r]	3,858 [r]	3,982 [3, 12]
Sulfide and ammonical liquor precipitate		2,535 [r]	2,852 [r]	3,417 [r]	3,384 [r]	3,465 [3, 12]
Copper, mine output, Cu content		1,090	1,346	1,000 [e]	1,000 [e]	--
Feldspar		4,800	6,700	7,000 [e]	7,000 [e]	7,000
Gold[e]	kilograms	1,000	1,000	1,000	1,000	547 [3]
Gypsum[e]	thousand tons	130	130	130	130	130
Iron and steel, steel, crude		302,662	327,300	269,600 [10]	264,100 [10]	268,000
Kaolin clay		10,400	9,700	10,000 [e]	10,000 [e]	10,000
Lime	thousand tons	92	82	80 [e]	80 [e]	80
Natural gas, marketed	thousand cubic meters	460,000	574,100	594,600 [10]	584,700 [10]	585,000
Nickel, Ni content:						
Mine output, oxide, oxide sinter, sulfide, ammonical liquor precipitate		64,308 [r]	68,064 [r]	72,585 [r]	71,342 [r]	74,018 [3, 12]
Metallurgical products:[11]						
Granular oxide, oxide sinter, powder		38,339 [r]	39,516 [r]	40,701 [r]	38,738 [r]	42,282 [3, 12]
Sulfide		24,977 [r]	27,288 [r]	29,914 [r, 12]	30,858 [r, 12]	29,620 [3, 12]
Ammonical liquor		992 [r]	1,260 [r]	1,970 [r]	1,746 [r]	2,116 [3, 12]
Total		64,308 [r]	68,064 [r]	72,585 [r]	71,342 [r]	74,018 [3, 12]

See footnotes at end of table.

TABLE 1--Continued
ISLANDS OF THE CARIBBEAN: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons unless otherwise specified)

Country and commodity		1999	2000	2001	2002	2003[e]
CUBA[4, 8]--Continued						
Nitrogen, N content of ammonia[e]	thousand tons	135	135	135	135	135
Petroleum:						
Crude[13]	thousand 42-gallon barrels	13,777	17,382 [r]	18,609 [r, 10]	17,995 [r, 7]	20,294 [3, 7]
Refinery products	do.	60,000	60,000	60,000	60,000 [e]	60,000
Salt		159,100	177,000	180,000 [e]	180,000 [e]	180,000
Sand		1,775,700	1,989,300	2,000,000 [e]	2,000,000 [e]	2,000,000
Silica sand		91,200	52,400	50,000 [e]	50,000 [e]	50,000
Stone, crushed		2,950,300	3,301,300	3,300,000	3,300,000 [e]	3,300,000
Sulfur, byproduct of petroleum[e]		5,000	5,000	5,000	5,000	5,000
Zeolites		37,000	37,400	37,500 [e]	37,500 [e]	37,500
DOMINICAN REPUBLIC[14]						
Cement, hydraulic[15]		2,283,290 [r]	2,505,461 [r]	2,745,980 [r]	3,050,430 [r]	2,906,699 [p]
Clay		NA	NA	NA	314 [15]	401 [15]
Gold	kilograms	651	--	--	--	--
Gypsum[15]		81,249	110,044	175,553 [16]	163,026 [r]	230,632 [3]
Iron and steel:						
Ferroalloys, ferronickel		85,000	84,900	60,654 [15]	58,101 [r, 15]	66,328 [3, 15]
Steel, crude		42,893	35,801	32,521 [15]	60,956 [15]	61,000
Lime	thousand tons	NA	NA	NA	113 [15]	102 [3, 15]
Limestone	do.	605	703	530 [16]	1,115 [r, 15]	906 [3, 15]
Marble[15]	cubic meters	2,700	4,057	5,420 [16]	6,333 [r]	7,283 [3]
Nickel, Ni content:						
Mine output, laterite ore		39,997	39,943	39,120 [15]	38,859 [15]	45,400 [3, 17]
Metal, ferronickel:						
Smelter		24,455	27,829	21,661 [r, 15]	23,303 [15]	27,227 [3, 17]
Shipments		24,012	27,226	23,411 [15]	22,945 [15]	26,700
Petroleum refinery products:[e]						
Liquefied petroleum gas	thousand 42-gallon barrels	433 [3]	450	450	450	450
Gasoline, motor	do.	1,906 [3]	1,900	1,900	1,900	1,900
Kerosene	do.	71 [3]	90	90	90	90
Jet fuel	do.	1,788 [3]	1,800	1,800	1,800	1,800
Distillate fuel oil	do.	2,656 [3]	2,700	2,700	2,700	2,700
Residual fuel oil	do.	4,408 [3]	4,400	4,400	4,400	4,400
Total	do.	11,262 [3]	11,300	11,300	11,300	11,300
Salt:						
Marine[e]		50,000	50,000	50,000	50,000	-- [3, 15]
Rock		304,937	162,851 [r]	189,595 [r]	157,278 [r, 15]	106,988 [3, 15]
Total		354,937	212,851 [r]	239,595 [r]	207,278 [r]	106,988 [3, 15]
Sand and gravel[15]	thousand cubic meters	15,398	16,246	15,486	13,589 [r]	12,230 [3]
Silver	kilograms	3,140	--	--	--	-- [15]
GUADELOUPE[e, 4, 18]						
Cement		230,000	265,200 [r, 3]	265,200 [r, 3]	229,500 [r, 3]	229,500 [3]
Limestone		5,000	5,000	5,000	5,000	5,000
Pumice		210,000	210,000	210,000	210,000	210,000
Salt		50,000	49,000	49,000	49,000	49,000
HAITI[e, 19]						
Cement		--	--	203,768 [3]	290,298 [3]	290,300 [3]
Sand and gravel:						
Gravel	cubic meters	427,300 [3]	450,000	450,000	450,000	450,000
Sand	do.	2,053,500 [3]	2,000,000	2,000,000	2,000,000	2,000,000
Stone, marble	do.	100	131 [3]	131	131	131

See footnotes at end of table.

TABLE 1--Continued
ISLANDS OF THE CARIBBEAN: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons unless otherwise specified)

Country and commodity		1999	2000	2001	2002	2003[e]
JAMAICA						
Aluminum:[20]						
Bauxite, dry equivalent, gross weight	thousand tons	11,688	11,127	12,370	13,119 [21]	13,444 [3, 21]
Alumina	do.	3,570	3,600	3,542 [21]	3,631 [21]	3,844 [3, 21]
Cement, hydraulic[20]		503,713	521,343	596,247 [21]	613,981 [21]	607,682 [3, 21]
Clay[20]		--	--	91	66 [21]	81 [3, 21]
Gold[20]	kilograms	--	--	214	328 [21]	277 [3, 21]
Gypsum[20]		235,900	330,441	320,323	164,880 [21]	248,558 [3, 21]
Lead, refined, secondary[20]		800 [e]	--	--	--	--
Lime[20]		226,882	267,215	281,853	255,266 [21]	275,763 [3, 21]
Petroleum refinery products	thousand 42-gallon barrels	3,607	3,600	3,600 [e]	3,600 [e]	3,600
Salt		19,090	19,068	19,070	19,000 [e]	19,000
Silica sand[20]		9,400	6,700	8,244	9,367 [21]	12,825 [3, 21]
Silver	kilograms	--	--	95	174 [21]	98 [3, 21]
Stone:[19]						
Limestone	thousand tons	3,300	3,420	3,488	3,522 [21]	3,593 [3, 21]
Marble, cut and/or polished		375	150	150 [21]	155 [21]	155 [3, 21]
Marl and fill	thousand tons	4,490	4,720	5,422	5,693 [21]	6,376 [3, 21]
Sand and gravel	do.	1,580	2,100	2,205	2,249 [21]	2,316 [3, 21]
Shale, for cement		NA	NA	151,277 [21]	144,205 [21]	217,005 [3, 21]
MARTINIQUE[e, 4, 18]						
Cement, hydraulic		220,000	254,800 [r, 3]	255,000 [r]	220,500 [r, 3]	221,000
Lime		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		130,000	130,000	130,000	130,000	130,000
Salt		200,000	200,000	200,000	200,000	200,000
NETHERLANDS ANTILLES[e, 2]						
Petroleum refinery products	thousand 42-gallon barrels	80,000	80,000	80,000	80,000	80,000
Salt		500,000	500,000	500,000	500,000	500,000
Sulfur, byproduct of petroleum		30,000	30,000	30,000	30,000	30,000
SAINT KITTS AND NEVIS						
Sand and gravel		211,849	214,700	215,000 [e]	222,700	223,000
Stone, crushed		105,000	121,266	121,270	130,800	131,000
TRINIDAD AND TOBAGO						
Asphalt, natural[22]		12,600 [23]	9,900 [r]	16,216	16,203	16,200
Cement, hydraulic[22]		688,400 [23]	742,645	696,800 [r]	743,700	765,600 [3, 23]
Iron and steel:[23]						
Direct-reduced iron		1,379,000 [24]	1,530,000	2,186,382	2,316,300 [23]	2,275,000 [3, 23]
Steel, crude		762,199	753,125	696,111	838,900	923,000
Semimanufactures, billets		723,900	723,000	668,267	816,900	896,000 [3, 23]
Lead, refined, secondary[e]		1,600	1,600	1,600	1,600	1,000 [3,18]
Natural gas:[24]						
Gross	million cubic meters	13,240	15,483	16,599	19,172 [22]	26,810 [3]
Marketed	do.	11,917	14,170	15,173	17,777 [22]	26,046 [3]
Natural gas liquids[22]	thousand 42-gallon barrels	5,753 [24]	6,932	7,521	8,505	10,500
Nitrogen, N content of anhydrous ammonia[22]		2,720,300 [25]	2,679,669	3,036,307	3,258,619	3,529,000 [3]
Petroleum:[22]						
Crude	thousand 42-gallon barrels	45,662 [24]	43,593	41,374	47,684	48,947 [3, 24]
Refinery products	do.	53,320 [24]	57,533	55,870	53,422	54,093 [3,24]
Stone, limestone[22]	thousand tons	1,100 [e, 26]	1,815	975	851	850
Sulfur, byproduct of petroleum[e, 27]		15,000	15,000	15,000	15,000	15,000

See footnotes at end of table.

TABLE 1--Continued
ISLANDS OF THE CARIBBEAN: PRODUCTION OF MINERAL COMMODITIES[1]

[e]Estimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. [p]Preliminary. [r]Revised. NA Not available. -- Zero.

[1]Table includes data available through October 2004.

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

[3]Reported figure.

[4]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.

[5]Barbados also produced stone, but data on such production are not available, and information is inadequate to make reliable estimates of output levels.

[6]Ministry of Energy and Public Utilities of Barbados.

[7]Source: U.S. Energy Information Administration.

[8]Cuba also produced marble and stone, but data on such production are not available, and information is inadequate to make reliable estimates of output levels.

[9]Source: Anuario Estadistico de Cuba.

[10]Source: Sitio del Gobierno de la República de Cuba at URL http://www.cubagob.cu.

[11]The Government of Cuba reports figures of nickel-cobalt content of granular and powder oxide, oxide sinter, and sulfide production. The cobalt content of reported nickel-cobalt production was determined to be 1.16% of granular and powder oxide, 1.21% of oxide sinter, 7.56% of sulfide, and 33% of ammonical liquor. The remainder of reported figures would represent the nickel content.

[12]Sources: Cuba Web, International Nickel Study Group (INSG), and Sherritt International Corp. Cuba Web: Sitio del Gobierno de la República de Cuba at URL http://www.cubagob.cu.

[13]Production has been converted from metric tons to barrels using the U.S. Department of Energy's Energy Information Administration's factor of 6.449 barrels per metric ton of crude petroleum.

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

[15]Source: Banco Central de la República Dominicana.

[16]Source: Direccón General de Minería de la República Dominicana.

[17]Source: Falconbridge Dominicana C. por A.

[18]Guadeloupe and Martinique also produced stone, but data on such production are not available, and information is inadequate to make reliable estimates of output levels.

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

[20]Source: Ministry of Mining and Energy of Jamaica.

[21]Source: Ministry of Land and Environment of Jamaica.

[22]Source: Ministry of Energy and Energy Industries of Trinidad and Tobago.

[23]Source: Central Bank of Trinidad and Tobago Annual Economic Survey.

[24]Source: Caribbean Ispat Limited.

[25]Source: International Fertilizer Industry Association.

[26]Reported, in cubic meters, as: in 2000, blue limestone, 415; and yellow limestone, 616; and in 2001, blue limestone, 481; and yellow limestone, 73. Low density limestone conversion factor of 1.76 tons/cubic meters.

[27]Sulfur as a byproduct of natural gas may be produced, but information is inadequate for reliable output estimates.