

CENTRAL AMERICA¹

BELIZE, COSTA RICA, EL SALVADOR, GUATEMALA, HONDURAS, NICARAGUA, AND PANAMA

By Pablo Velasco

Central America is made up of the long, tapering isthmus that forms a bridge between North America and South America. It has an area of about 521,500 square kilometers (km²) (about 201,300 square miles) and includes the countries of Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama.

In 2001, the region had an estimated population of approximately 36.5 million, its combined gross domestic product (GDP) was estimated to be \$143.6 billion at purchasing power parity, and the per capita GDP was estimated to be \$3,900 (U.S. Central Intelligence Agency, 2002a²-g§). Central America's economy was based primarily on agriculture, food processing, and merchandising. The region's small but diverse mining operations produced a variety of metals, industrial minerals, and mineral fuels. The metals sector continued to be limited to the mining of antimony, gold, lead, silver and zinc and the production of steel. Gold mining activity was centered primarily in Costa Rica, Guatemala, Honduras, Nicaragua, and Panama. Industrial minerals production included cement, limestone, gypsum, marble, pumice, salt, sand and gravel. In some countries of Central America, the mineral industry was dominated by cement production. Petroleum refineries operated in El Salvador and Guatemala. Guatemala and Panama produced crude oil.

Mineral exploration by a handful of companies continued throughout the area. Most of the countries were trying to promote and facilitate international investment to develop their mineral resources.

In 2000, 1.4% of U.S. exports (\$10.9 billion) went to Central America, and 1.0% of U.S. imports (\$12.2 billion) originated in Central America, which resulted in a trade deficit for the United States of \$1.3 billion (Central Intelligence Agency, 2001§).

BELIZE

Belize has been an independent member of the British Commonwealth since 1981. Its economic performance is highly susceptible to external market changes. Although moderate growth has been achieved in recent years, the achievements are vulnerable to world commodity price fluctuations and continuation of preferential trading agreements, especially with

the United States and the United Kingdom. Belize is on the Caribbean Sea between Guatemala and Mexico. It has an area of 22,966 km² and an estimated population of 256,100. GDP growth was estimated to be 4%, or \$700,000 million, and per capita GDP was estimated to be \$3,000 in 2000 (U.S. Central Intelligence Agency, 2002a§). Reconstruction continued in the aftermath of Hurricane Keith, which struck Belize between September 30 and October 1, 2000, and damaged facilities on the coast and caused extensive damage to roads and bridges in the north of the country. Consumer prices increased by 1% during the year after 3 years of moderate deflation (International Monetary Fund, 2001, p. 46).

The Ministry of Natural Resources is responsible for the administration of the mining sector in Belize. Mining activities were regulated by the Mines and Minerals Act of 1998, which covers all mining operations in Belize. The Fiscal Incentive Package for mining allows investors quick recovery of their investment; this program covers mines or quarries that have been shut down. A 3% ad valorem tax must be paid to restart industrial and construction mineral properties, and a 5% ad valorem tax, on all precious and semiprecious metal properties. It also provides for losses to be carried forward for 7 years after which only that amount which reduces the profit in that year to one-half of its value can be allowed. The Act also provides for exemption from payment of custom duty for mining equipment and supplies. Petroleum was not included.

Clays, limestone, marble, and sand and gravel for construction and civil works were the mainstay of Belize's mineral production. A very small amount of gold has been produced yearly by stream panning. No mineral commodities were known to have been exported, and the country was dependent on imports for its mineral and fuel requirements. The United States continued to be Belize's main trading partner.

COSTA RICA

Costa Rica is located in the middle of Central America, and borders the Caribbean Sea and the north Pacific Ocean between Nicaragua and Panama. It has an area of 51,100 km² and a population of approximately 3,773,100. Although still a largely agricultural country, it has achieved a relatively high standard of living. Costa Rica's economy depended on tourism and electronics exports. Foreign investors were attracted by the country's political stability and high education levels. Costa Rica's GDP was estimated to be \$25 billion, and GDP per capita

¹Revised on March 16, 2004.

²References that include a section twist (§) are found in the Internet References section.

was estimated to be \$6,700. Traditional exports (predominantly agricultural) amounted to \$6.1 billion [free on board (f.o.b.)], and total imports were valued at \$5.9 billion (f.o.b.) (U.S. Central Intelligence Agency, 2002b§).

Apart from minor coal deposits, no other sources of fossil fuel have been discovered. Water resources from abundant rainfall have permitted the construction of several hydroelectric powerplants, which have made Costa Rica self-sufficient in all energy needs except petroleum products for transportation. Costa Rica exported electricity to Nicaragua and has the potential to become a major exporter of electricity (U.S. Department of State, 2001§).

Canadian and U.S. companies were involved in a number of gold and silver exploration and mining operations in Costa Rica (table 2). Vancouver-based Ariel Resources Ltd., which was formerly the largest gold producer in Costa Rica, has sold its interests in several gold mines, which included Abece Griego S.A., Compañía de Asesoría y Administración Minera S.A., Minera El Silencio S.A., Minera Sierra Alta S.A., and El Valiente Ascari S.A. In 2001, Ariel Resources discontinued gold and silver production at El Rocío and the San Martín mines because of sustained operating losses (Ariel Resources Ltd., 2000; Steele & Co., 2001).

Metales Procesados (a wholly owned subsidiary of Wheaton River Minerals Ltd. of Canada) was granted free zone status by the Costa Rican Government. Metales owned and operated the open pit heap-leach Bellavista gold project, which became the first mining project to be approved as a Costa Rican free trade zone. Free trade zone tax benefits for Metales included a 100% exemption from import taxes and duties on raw materials, supplies, machinery, and equipment; a 100% exemption from income tax for 12 years and a 50% exemption for the following 6 years; a 100% exemption from export taxes; a 100% exemption from local sales, consumption, and excise taxes; a 100% exemption from withholding taxes on profit repatriation; and expediting of onsite customs inspections. The Bellavista project is located in a historic gold district about 20 kilometers (km) from Punta Arenas on the Golfo de Nicoya on Costa Rica's Pacific coast. Although Wheaton River had received the final environmental approval required to proceed with construction of the Bellavista gold mine, further development of the mine was on hold pending a more-favorable gold price. Wheaton River sought to hedge a significant portion of Bellavista gold production at a price of no less than \$350 per ounce before beginning construction. Construction costs at Bellavista, not including preproduction and financing costs and working capital, were estimated to be \$28 million, based on the feasibility study completed in April 1999. The Bellavista Mine is projected to produce an average of 1,866 kilograms per year (kg/yr) (60,000 ounces per year) of gold during its projected 7.3-year mine life with total cash operating costs, including royalties of \$179 per ounce. The feasibility study recommended that Bellavista be developed by open pit mining and grind agglomeration heap-leaching processing at the rate of 5,750 metric tons per day (t/d) of ore (Seaward and Coates, 2001).

Vannessa Ventures Ltd. was only one step away from completing the permitting that will bring its 74,700-kilogram (kg) (2.4-million-ounce) Cerro Crucitas gold project in

Costa Rica into production. The Vancouver-based company announced that it had obtained the exploitation permit for the project. Vannessa had 100% ownership of the Crucitas, which it had acquired from Lyon Lake Mines Ltd. almost 2 years previously at a price that it said represented less than \$1.00 per ounce of gold. Lyon Lake and Placer Dome Inc. had already spent about \$32 million on the project but estimated that they needed to spend \$125 million on development to produce gold at \$210 per ounce (Metals & Minerals Latin America, 2002). Most of the licensing of a 5,000-t/d, 2.8-metric-ton-per-year (t/yr) mine development was completed. The final license application (environmental) was in progress, a study was to be completed by January 15, 2002, and final approval was anticipated in spring 2002 (Vannessa Ventures Ltd., 2001§).

Industrial mineral production included cement, clays, diatomite, lime, pumice, salt, sand and gravel, and crushed stone (table 1). The operations in Costa Rica of CEMEX S.A. de C.V. were comprised a 850,000-t/yr-capacity cement plant northwest of the capital of San José, a grinding mill, and distribution centers on the Pacific and Caribbean coasts and in major cities. Cement production supplied a predominantly domestic retail market; more than 75% of the cement sales were bagged. In 2001, the CEMEX operations introduced pet-coke as fuel to reduce production costs by approximately 50% (CEMEX S.A. de C.V., 2001§).

EL SALVADOR

Despite the fact that El Salvador was rocked by several severe earthquakes in early 2001, the economy and political situation remained stable. The GDP was estimated to be about \$24 billion; the economy depended on services (about 60% of GDP), manufacturing (about 28%), and agriculture (about 12%). With a population estimated to be 6.2 million, the GDP per capita was calculated to be about \$3,850 (U.S. Central Intelligence Agency, 2002c§). As of 1 January 2001, the U.S. dollar joined the Colon as legal tender in Costa Rica.

Mineral production contributed less than 1% to the GDP. In the past, the 21,040-km² country had produced gold and silver; more-recent activity has been limited to exploration by a few mining companies. From a mining perspective, repatriation of capital is not restricted, and corporate tax is maximized at 25%.

Dayton Mining Corp. of Canada continued to evaluate El Dorado gold and silver property. Indicated resources at El Dorado were estimated to be about 23,100 kg (742,100 ounces) of gold and about 172,000 kg (5.53 million ounces) of silver (Metals & Minerals Latin America, 2001).

Intrepid Minerals Corp. of Canada and ASC Central America (ASC) (a wholly owned subsidiary of Apex Silver Mines Ltd.) completed a 1,050-meter (m) diamond drill program on the Aldea Zapote project (Intrepid Minerals Corp., 2002). Montana Gold Corp. (a subsidiary of Francisco Gold Corp.) withdrew from its joint venture with Intrepid on the San Cristobal project to the west of San Sebastian.

Brett Resources Inc. of Canada continued the evaluation of its exploration licences in eastern El Salvador. Following disappointing results on the Tinta Amarilla concession in the company's eastern block license area, Brett retained only two

exploration licenses in the area. The joint venture on the eastern block with Barrick Gold Corp. was terminated in 2000. In 2001, Brett received an exploration license that covered 50 km² in the Horcones-Cerro Pedernal area, and Brett reapplied under the new mining law for exploration rights to a 48-km² license in El Potosi area; this district, which is 90 km east of the capital city of San Salvador, had past gold production.

El Salvador's sole cement producer Cemento de El Salvador S.A. de C.V. (CESSA), which was privately owned and the largest industrial mineral enterprise in the region, mined about 1,200 t/d of limestone at Aldea Zapote. CESSA and Intrepid had created an alliance to cooperate on any future mining development of the Aldea Zapote property.

Another significant private sector operation was the Refinería Petrolera Acajutla S.A., which had a charge capacity of 22,000 barrels per day (bbl/d); the company was owned by ExxonMobil Corp. (65%) and Royal Dutch/Shell Group (35%) (ExxonMobil Corp., 2002, p. 77).

GUATEMALA

Guatemala has a diverse regional geology and the largest economy in the region. Its mineral production included small amounts of gold, iron ore, and lead. The GDP was estimated to be about \$47.9 billion in 2001. GDP per capita was about \$3,700 for the estimated population of 12,974,000 (U.S. Central Intelligence Agency, 2000d§). The Ministerio de Energía y Minas is responsible for the administration of the mining sector in Guatemala.

Exploration interest in the 108,890-km² country has been growing during the past decade. Nickel laterite deposits occur within an east-west belt of ultramafic intrusives in the southeast of the country. One of the deposits near El Estor had been developed by Inco Ltd. and was in production briefly for 2 years in the late 1970s. Minera Maya America S.A. [a joint venture of Chesbar Resources Inc. of Canada (70% equity interest) and Intrepid (30%)] continued the evaluation of the Sechol deposit on the Buena Vista nickel project, about 140 km northeast of Guatemala City.

Radius Explorations Ltd. of Canada continued its exploration program in eastern Guatemala where it evaluated the Holly Project, which was a large epithermal precious metal system.

In 2001, Radius negotiated a joint venture with Gold Fields Ltd. of South Africa on the Motagua Gold Belt in central Guatemala. Gold Fields became a significant shareholder of Radius, which was the operator of the Bella Vista, the Tambor, and the Tierra Blanca prospects of the Motagua Gold Belt project, and also entered into a letter of intent concerning a joint venture on other Radius land holdings in central Guatemala. The joint venture will enable Gold Fields to earn a 55% interest in the Tambor Properties through the expenditure of \$5 million within 3½ years (Radius Explorations Ltd., 2002).

Industrial minerals production in Guatemala varies greatly from year to year. Such industrial minerals as barite, clays, feldspar, gypsum, lime, pumice, and construction materials were produced, primarily for domestic use. Rough marble, which ranges in color from white through green, was exported. National cement consumption tended to exceed the output of the

two plants of Cementos Progreso S.A., which required imports of 40,000 t/yr to meet demand (Harris, 2001).

Guatemala had proven oil reserves estimated to be 526 million barrels, mainly concentrated in the northern Peten jungle region, and the Government has been opening areas for bidding. Although some significant natural gas reserves may exist, proven ones were small (3.1 billion cubic meters of estimated natural gas reserves) and had not been exploited. Petroleum refining capacity was about 8.03 million barrels per year, which Guatemala wanted to increase in anticipation of increased crude production (Perenco Group, 2001; Shell, 2001). In 2001, Guatemalan and Mexican officials discussed the proposed sale of Mexican natural gas in Central America via a pipeline through Guatemala. Guatemalan and Mexican Government officials indicated that they were open to importation of liquefied natural gas or an even more ambitious plan of building a pipeline through Central America to carry gas supplies from Colombia or Venezuela.

In 2001, the Perenco Group of France and the United Kingdom acquired Basic Resources International Ltd. of the Bahamas from Andarko Petroleum Corp. of the United States. Anadarko had acquired Basic, which operated oilfields that produced about 20,000 bbl/d in the Rubelsanto and the Xan regions in northern Guatemala, when it purchased Union Pacific Resources Co. in 2000 (Perenco Group, 2001).

HONDURAS

Located in the middle of Central America, Honduras borders the Caribbean Sea between Guatemala and Nicaragua and the North Pacific Ocean between El Salvador and Nicaragua. In 2001, the performance of the Honduran economy returned to pre-Hurricane Mitch (1988) levels with the GDP estimated to be about \$17 billion; the real growth rate was about 5%. GDP per capita was about \$2,650 for the estimated population of 6,406,000. Overall, economic growth was expected to continue in 2002 (U.S. Central Intelligence Agency, 2000e§). As reconstruction from 1998s Hurricane Mitch was completed, Honduras, which is one of the poorest countries in the Western Hemisphere, anticipated additional economic assistance under the United States' Enhanced Caribbean Basin Initiative and debt relief under the World Bank Group's Initiative for Heavily Indebted Poor Countries.

Mineral production in the 112,090-km² country included gold, lead, and zinc; byproduct silver; and minor amounts of cadmium. The Dirección Ejecutiva de Fomento a la Minería is responsible for the administration of the mining sector.

Although El Mochito Mine reported record-high production in 2001, its owner Breakwater Resources Ltd. of Canada suffered a \$111.06 million corporate loss owing to record-low zinc prices. At the end of November 2001, El Mochito's proven and probable reserves stood at 3.4 million tons (Mt) at an average grade of 6.8% zinc, 1.9% lead, and 78 grams per metric ton (g/t) silver; this was an increase of 18% compared with that of 2000. Another 5.9 Mt (up 26%) at an average grade of 7.8% zinc, 2.7% lead, and 115 g/t silver was classified as measured and indicated resources. In the inferred category were 800,000 metric tons (t) at a grade of 7.3% zinc, 4.3% lead, and 102 g/t silver (Northern Miner, 2002).

BHP Billiton Ltd. withdrew from a joint-venture exploration agreement with Maya Gold Ltd. on El Triunfo gold concession in southern Honduras. Maya Gold continued exploration the Los Lirios gold-copper porphyry deposits and the nearby Los Coyotes deposit. Maya Gold also held the Casas Viejas concession.

First Point Minerals Corp. of Canada continued exploration on the Cacamuya gold-silver project for its joint-venture partner Breakwater. First Point agreed to purchase Breakwater's equity interest in the project, which included the Cerro Chachagua vein system, the disseminated gold Fila Lapa gold deposit, and the Hilo Libre vein target.

In 2001, Nevada-based Glamis Gold Ltd.'s San Martin Mine produced about 3,553 kg (114,216 ounces) of gold during its first full year of operation at a total cash cost of \$120 per ounce. Following an expansion completed in the third quarter of 2001, Glamis increased the production capacity of the San Martin Mine to 3,730 kg/yr from the startup capacity of about 2,490 kg/yr (Glamis Gold Ltd., 2000, 2002).

In March 2001, Geomaque Explorations Ltd. of Canada poured the first gold from its Vueltas del Rio Mine, which was a gold heap-leach operation. Mining had begun in December 2000. Approximately 740,000 t of ore was mined and placed on the leach pad until November 2001 when mining was stopped owing to lower-than-expected recoveries. Geomaque had recovered to 842 kg (27,077 ounces) of gold. Construction of a second leach pad started in the fourth quarter of 2001 and was completed in early 2002; mining resumed in February, 2002 (Geomaque Exploration Ltd., 2002§).

Honduras also produced a number of industrial minerals that included gypsum and marble largely for export and salt from the Choluteca district. Local limestone was used by Cementos del Norte S.A. de C.V. [formerly Cementos de Honduras S.A. (a Holcim affiliate)] and Industria Cementera Hondureña S.A. de C.V. (Incehsa) (in which Lafarge Group of France had a majority stake) with clinker capacities of 600,000 and 450,000 t/yr, respectively. Incehsa proposed to expand its clinker capacity to 657,000 t/yr (El Herald, 2002§).

NICARAGUA

Nicaragua was one of the Central America's poorest countries with a population of 4,918,393 and a per capita GDP of \$2,700 in 2000. The GDP was estimated to be \$13.1 billion in 2000 for this 129,494-km² country (U.S. Central Intelligence Agency, 2002f§).

In June, Nicaragua's Congress passed the country's new Mining Code despite opposition from groups that included small-scale miners and environmentalists who argued that it will unduly benefit multinational companies and will lead to environmental damage. One of the small-scale miners' major concerns was that the Code sets no limit on the amount of land that can be held under a mining or exploration claim. Small-scale miners fear that claims by multinationals could supersede those of small-scale miners; Congress was investigating ways to incorporate legislation to protect the interests of the small-scale miners (Mining Journal Ltd., 2001). Submission of environmental impact statements would be mandatory under

the new Code. The Corporacion Nicaraguense de Minas is responsible for the administration of the mining sector in Nicaragua.

Toronto, Ontario, Canada-based Black Hawk Mining Inc. operated El Limon gold mine in northwestern Nicaragua. Black Hawk had acquired its 95% interest in the mine in 1998. Inversiones Mineras S.A., which was a holding company that represented the unionized mine workers in Nicaragua, held the remaining 5%. El Limon Mine produced 2,188 kg (70,351 ounces) of gold from 349,415 t of ore milled in 2001 compared with production of 2,825 kg (90,829 ounces) of gold from 348,930 t of ore milled in 2000 (Black Hawk Mining Inc., 2002a).

Black Hawk completed about 14,800 m of underground and surface exploration drilling around the El Limon Mine, which included a vein south of Talavera Sur. Black Hawk proposed surface mapping, prospecting, and additional drill testing of the area. In 2001, Newmont Overseas Exploration Ltd. was exploring Black Hawk's adjacent Nicaragua Mineral Concessions (formerly the Limon-La India exploration concession) (Black Hawk Mining Inc., 2002b).

Cementos de Nicaragua S.A. (Cemenic) was a Nicaraguan cement company whose capital was distributed mainly between Union Maritima International, S.A., of Spain and a minority group of Nicaraguan investors. By initiating operations in Nicaragua in March 1999 with an initial investment of \$15 million, Cemenic obtained a 3% market share in less than 1 year. Nicaragua's cement demand was steadily increasing with double-digit growth. Although the Nicaraguan cement production base gained 350,000-t capacity in 1999, clinker-grinding imports were expected to remain part of the national cement scene for some time to come (Cementos de Nicaragua S.A., undated§).

In June 2000, the Government of Nicaragua announced that it was considering three dam sites for a 10-megawatt hydroelectric project that would supply 80,000 inhabitants of the Siuna-Rosita-Bonanza "mining triangle."

PANAMA

Because of Panama's strategic location, its economy was based primarily on a well-developed services sector that accounted for three-fourths of the GDP. Services included the Colón Duty Free Zone, international banking and insurance services, the Panama Canal, ship registry, and tourism. Such industries as brewing, cement and other construction materials, construction, petroleum refining, and sugar milling accounted for about 16.5% of the GDP, which was estimated to be \$16.6 billion in 2001. Panama's GDP continued to expand as a result of the Government's aggressive free trade negotiations and modernization of the national economy (U.S. Central Intelligence Agency, 2002g§).

The Dirección General de Recursos Minerales is responsible for the mining sector in Panama, a nation of 78,200 km². Panama had only a small-to-moderate mineral sector by world standards; several properties, however, were reconsidered to be prospective. Panama produced cement, clays, lime, limestone, marine salt, and sand and gravel in small operations. The

country was home to two cement companies, each of which had cement plants near the capital of Panama City—CEMEX-owned Cementos Bayano at Calzada Larga and the Cemento Panama, S.A., works at Quebrancha.

Tiomin Resources Inc. of Canada transferred the ownership of PanaCobre S.A. (its wholly owned subsidiary) to Aur Resources Inc. PanaCobre held the Cerro Colorado copper project, which has been dormant since 1998; the project was considered to be uneconomic with the early 2001 price of copper about \$0.80 per pound (Tiomin Resources Inc., 2001). In September, Glamis finished its drilling program on the Viento Frio property (Glamis Gold Ltd., 2001§).

Panama was significant to world energy markets because its Panama Canal was a major transit center for oil shipments and a potential choke point. The country also was key to plans to connect the electricity and natural gas grids of North America and South America. Most of the country's petroleum demand was met by imports. Domestic crude oil production was minor, and in-ground petroleum reserves were negligible. In 2000, the Colombian Senate debated allowing natural gas exports (which had been banned), and Enron Corp. of the United States proposed to build a gas pipeline from Cartagena, Colombia, to the Bahia Las Minas powerplant outside Colón, Panama (U.S. Energy Information Administration, undated§). Crude oil for Panama's refineries was imported from Ecuador, Mexico, Saudi Arabia, and Venezuela. Electricity generation accounted for most of Panama's domestic energy production; hydroelectric generation accounted for 75% of the country's total energy production (U.S. Energy Information Administration, 2000§).

References Cited

- Ariel Resources Ltd., 2000, Mineral property interests 2000—Tres Hermanos, San Martin and El Recio mines, Costa Rica: Vancouver, British Columbia, Canada, Ariel Resources Ltd., September 30, unpaginated.
- Black Hawk Mining Inc., 2002a, Black Hawk Mining Inc. reports financial results for the year ended December 31, 2001: Toronto, Ontario, Canada, Black Hawk Mining Inc., May 16, unpaginated.
- Black Hawk Mining Inc., 2002b, Nicaragua—Annual information form: Toronto, Ontario, Canada, Black Hawk Mining Inc., May 21, 23 p.
- ExxonMobil Corp., 2002, 2001 financial and operating review: Irving, Texas, ExxonMobil Corp., 92 p.
- Glamis Gold Ltd., 2000, Glamis Gold reports third quarter results: Reno, Nevada, Glamis Gold Ltd. news release, November 13, 7 p.
- Glamis Gold Ltd., 2002, Glamis Gold Ltd. reports record production and return to profitability: Reno, Nevada, Glamis Gold Ltd. news release, February 25, 8 p.
- Harris, J.M., 2001, Guatemala, *in* Mining annual review: London, United Kingdom, Mining Journal Ltd. CD-ROM.
- International Monetary Fund, 2001, Belize—Selected issues and statistical appendix: Washington, DC, International Monetary Fund Country Report 01/151, August, 96 p.
- Intrepid Minerals Corp., 2002, 2001 Second quarter report—Guatemala: Toronto, Ontario, Canada, Intrepid Minerals Corp., June 30, unpaginated.
- Metals & Minerals Latin America, 2001, Companies hail mining law changes in El Salvador: Metals and Minerals Latin America, v. 6, no. 36, September 3, p. 1-2.
- Metals & Minerals Latin America, 2002, Vanessa awaits all-important environmental approval at Crucitas: Metals & Minerals Latin America, v. 7, no. 5, January 28, p. 3.
- Mining Journal Ltd., 2001, Nicaragua, *in* Mining annual review: London, United Kingdom, Mining Journal Ltd. CD-ROM.
- Northern Miner, 2002, Breakwater boost reserves: Northern Miner, v. 87, no. 47, p. 3.
- Perenco Group, 2001, Perenco acquires Guatemala operations: London, United Kingdom, Perenco Group news release, July 26, 1 p.
- Radius Explorations Ltd., 2002, New gold zones in Guatemala: Vancouver, British Columbia, Canada, Radius Explorations Ltd. news release, April 2, 2 p.
- Seaward, Michael, and Coates, Tim, 2001, Costa Rica, *in* Mining annual review: London, United Kingdom, Mining Journal Ltd. CD-ROM.
- Steele & Co., 2001, Ariel Resources Limited financial statement: Vancouver, British Columbia, Canada, Steel & Co., September 30, unpaginated.
- Stell, Jeannie, 2001, 2001 Worldwide refining survey: Oil & Gas Journal, v. 99, no. 52, December 24, p. 76.
- Tiomin Resources Inc., 2001, Tiomin Resources transfers Cerro Colorado copper project to Aur Resources Inc. for value of US\$2.3 million: Toronto, Ontario, Canada, Tiomin Resources Inc. news release, 2 p.

Internet References Cited

- Cementos de Nicaragua S.A., [undated], Información corporativa, accessed April 16, 2001, at URL <http://www.cemenic.com/infocorp.htm>.
- CEMEX S.A. de C.V., 2001, CEMEX Costa Rica, accessed April 8, 2002, at URL http://www2.cemex.com/gl/gl_cr.asp.
- El Heraldo, 2002 (June 11), Cementeras invertiran mas para afianzarse en mercado nacional, accessed August 28, 2002, via URL <http://www.hondurasri.com>.
- Geomaque Explorations Ltd., 2002, Management's discussion and analysis of financial results—Overview, accessed June 13, 2002, at URL <http://www.geomaque.com>.
- Glamis Gold Ltd., 2001, Form 6-K for the month of September, 2001—Exploration, accessed August 28, 2002, via URL <http://www.sec.gov>.
- U.S. Central Intelligence Agency, 2000, Central America, Country Analysis Briefs, accessed June 3, 2002, at URL <http://www.eia.doe.gov/emeu/cabs/centam.html>.
- U.S. Central Intelligence Agency, 2002a, Belize, World Factbook, accessed April 8, 2002, at URL <http://www.cia.gov/cia/publications/factbook/geos/bh.html>.
- U.S. Central Intelligence Agency, 2002b, Costa Rica, World Factbook, accessed April 8, 2002, at URL <http://www.cia.gov/cia/publications/factbook/geos/cs.html>.
- U.S. Central Intelligence Agency, 2002c, El Salvador, World Factbook, accessed April 8, 2002, at URL <http://www.cia.gov/cia/publications/factbook/geos/es.html>.
- U.S. Central Intelligence Agency, 2002d, Guatemala, World Factbook, accessed April 8, 2002, at URL <http://www.cia.gov/cia/publications/factbook/geos/gt.html>.
- U.S. Central Intelligence Agency, 2002e, Honduras, World Factbook, accessed April 8, 2002, at URL <http://www.cia.gov/cia/publications/factbook/geos/ho.html>.
- U.S. Central Intelligence Agency, 2002f, Nicaragua, World Factbook, accessed April 8, 2002, at URL <http://www.cia.gov/cia/publications/factbook/geos/nu.html>.
- U.S. Central Intelligence Agency, 2002g, Panama, World Factbook, accessed April 8, 2002, at URL <http://www.cia.gov/cia/publications/factbook/geos/pm.html>.
- U.S. Department of State, April 2000, Costa Rica, Background Note, accessed April 10, 2001, at URL <http://www.state.gov/r/pa/bgn/index.cfm?docid=2019>.
- U.S. Energy Information Administration, 2000, Panama, Country Analysis Brief, accessed August 28, 2002, at URL <http://www.eia.doe.gov/emeu/cabs/panama.html>.
- U.S. Energy Information Administration, [undated], An energy overview of Colombia, accessed August 28, 2002, at URL <http://www.fe.doe.gov/international/colbover.html>.
- Vannessa Ventures Ltd., 2001, Costa Rica—Key projects and updates, accessed December 19, 2001, at URL <http://www.vannessaventures.com>.

Major Sources of Information

Belize

Geology and Petroleum Office
Ministry of Natural Resources
84-36 Unity Blvd.
Belmopan, Belize

Costa Rica

Ministerio de Recursos Naturales, Energía y Minas
Dirección de Geología, Minas e Hidrocarburos
Apartado 10104, Zona 1000
San José, Costa Rica
Telephone: (506) 33-2360

El Salvador

Dirección de Recursos Minerales
Avenida Norte No. 233
San Salvador, El Salvador

Guatemala

Ministerio de Energía y Minas
Diagonal 17, entre 20 y 30 Calles, Zona 11
Guatemala City, Guatemala
Telephone: (502) (2) 76-0679 or 76-3091

Dirección General de Minería
Diagonal 17, 29-78, Zona 11
Apartado Postal 1421
Guatemala City, Guatemala
Dirección General de Hidrocarburos
Diagonal 17, 29-78, Zona 11
Guatemala City, Guatemala
Telephone: (502) (2) 76-3175

Honduras

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Licda. Mirna Celeste Hall (Secretaria General)
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Tegucigalpa, M.D.C., Honduras
Telephone: (504) 232-6335, 6721, 8613

Nicaragua

Corporación Nicaraguense de Minas (INMINE)
Apartado Postal No. 195
Managua, Nicaragua
Telephone: (505) 2-52071
Fax: (505) 2-31193

Panama

Dirección General de Recursos Minerales
Ministerio de Comercio e Industrias
P.O. Box 8515, Panama 5, Panama
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Fax: (507) 36-3173

TABLE 1
CENTRAL AMERICA: PRODUCTION OF MINERAL COMMODITIES 1/ 2/

(Metric tons unless otherwise specified)

Country and commodity	1997	1998	1999	2000	2001
BELIZE e/					
Clays thousand tons	2,600	2,600	2,600	2,600	2,600
Dolomite do.	30	30	30	31	31
Gold kilograms	5	6	6	6	6
Lime	1,200	1,250	1,250	1,250	1,200
Limestone thousand tons	310	315	320	320	320
Marl do.	1,300	1,300	1,300	1,300	1,300
Sand and gravel do.	350	360	360	360	360
COSTA RICA					
Cement	940,000	1,085,000	1,100,000 e/	1,150,000 e/	1,100,000 e/
Clays, common e/	412,000	415,000	415,000	418,000	420,000
Diatomite	1,194	16,255 r/	18,000 r/ e/	34,704 r/	26,350
Gold kilograms	502	742 r/	165 r/ e/	51 r/ e/	100 e/
Iron and steel, semimanufactures	78,773	84,074	80,025 r/	80,000 r/ e/	80,000 e/
Lime e/	9,800	9,800	9,800 r/	9,800	9,000
Petroleum, refinery products e/ thousand 42-gallon barrels	4,500	5,475 3/	5,480	5,500	5,500
Pumice e/	8,000	8,000	8,000	8,000	8,000
Salt, marine e/	37,000	37,000	37,000	37,000	37,000
Silver kilograms	100 e/	69	112 r/	100 r/	100 e/
Stone, sand and gravel:					
Crushed rock and rough stone thousand tons	1,350 e/	1,060	109 r/	201 r/	200 e/
Limestone and calcereous materials e/ do.	1,500	1,600	978 r/ 3/	905 r/ 3/	900
Sand and gravel e/ do.	1,400	1,640 3/	1,650	1,650	1,500
Sandstone e/ do.	2,500	3,262 3/	3,300	3,300	3,300
EL SALVADOR 4/					
Aluminum, metal including alloys, semimanufactures e/	2,600	2,650	2,650	2,650	2,650
Cement, hydraulic	1,020	1,065	24,250 r/	25,036 r/	25,000 e/
Fertilizer materials: e/					
Phosphatic materials	13,500	13,500	13,700	13,600	13,600
Other mixed materials	56,000	56,500	56,500	56,500	56,500
Gold kilograms	110	98	71 r/ e/	-- r/	--
Gypsum e/	5,500	5,600	5,600	5,600	5,600
Limestone e/ thousand tons	3,000	3,000	3,200	3,200	3,200
Petroleum, refinery products e/ thousand 42-gallon barrels	6,200	6,300	6,300	6,300	6,300
Salt, marine	95,335	88,948	741,500 r/	715,260 r/	710,000 e/
Silver kilograms	23	39	20 r/	-- r/	--
Steel, semimanufactures	44,868 r/	43,162 r/	33,501 r/	35,000 r/ e/	40,000 e/
GUATEMALA					
Antimony: e/					
Mine output, Sb content	1,020 r/	400 r/	-- r/	-- r/	--
Trioxide	250 r/	340 r/	-- r/	-- r/	--
Barite e/	3,000 r/	-- r/	75 r/	113 r/	100
Cement, hydraulic e/ thousand tons	1,280	1,500	1,600	1,600	1,600
Clays:					
Bentonite	4,000 r/ e/	2,278 r/	4,301 r/	3,317 r/	3,000 e/
Kaolin e/	130 r/	7,150 r/	61 r/	77 r/	100
Unspecified e/	10,000 r/	25,000 r/	20,000 r/	20,000 r/	20,000
Feldspar	11,400 r/ e/	17,248 r/	17,072 r/	17,804 r/	17,000 e/
Gas, natural, gross e/ thousand cubic meters	25,000	35,000	750	750	750
Gold kilograms	100	100	4,449 r/	4,500 r/	4,500 e/
Gypsum	3,000 r/ e/	52,216 r/	110,173 r/	212,109 r/	100,000 e/
Iron and steel:					
Iron ore, gross weight	5,000 r/ e/	5,102 r/	10,536 r/	16,254 r/	15,000 e/
Steel, semimanufactures	120,184 r/	119,398 r/	119,056 r/	119,000 r/ e/	119,000 e/
Lead metal, including secondary e/	6 r/	74 r/	115 r/	570 r/	500
Lime e/	73,000	73,000	74,000	74,000	73,000
Petroleum:					
Crude thousand 42-gallon barrels	8,395	9,308	8,833	8,900 e/	8,900 e/
Refinery products do.	7,300	7,300 e/	7,300	7,300 e/	7,300 e/
Pumice cubic meters	6,935 r/	130,420 r/	381,481 r/	419,116 r/	420,000 e/
Salt e/	48,000	48,000	50,000	50,000	50,000

See footnotes at end of table.

TABLE 1--Continued
CENTRAL AMERICA: PRODUCTION OF MINERAL COMMODITIES 1/ 2/

(Metric tons unless otherwise specified)

Country and commodity	1997	1998	1999	2000	2001
GUATEMALA--Continued					
Stone and sand and gravel:					
Dolomite	17,000 r/ e/	-- r/	-- r/	-- r/	--
Limestone	thousand tons 1,300 r/ e/	10,062 r/	4,396 r/	4,532 r/	4,500 e/
Marble:					
Block e/	cubic meters 3,900 r/	3,700 r/	3,800 r/	3,800 r/	3,800
Chips and pieces	550 r/ e/	130,802 r/	112,290 r/	245,178 r/	230,000 e/
Sand and gravel	thousand cubic meters 6,642 r/	360 r/ e/	1,085 r/	1,663 r/	1,500 e/
Silica sand	cubic meters 50,000 r/ e/	50,000 e/	46,249 r/	69,374 r/	69,000 e/
Stone, crushed e/	1,300	1,300	50,000	50,000	50,000
Talc e/	700	948 r/	-- r/	-- r/	--
HONDURAS					
Antimony, mine output e/	300	--	--	--	--
Building materials: e/					
Limestone	450,000	450,000	985,743 r/ 3/	1,230,478 r/ 3/	1,230,000
Marble	square meters 95,000	95,000	95,000	95,000	95,000
Cadmium, Cd content of lead and zinc concentrates e/	75	75	75	75	75
Cement	1,041,000	895,500	980,000	1,100,000	1,100,000
Gold e/	kilograms 150	150	879 r/ 3/	878 r/ 3/	880
Gypsum e/	28,000	30,000	55,848 r/ 3/	59,211 r/ 3/	59,500
Iron oxide	--	--	--	69,969	70,941
Lead, mine output, Pb content	5,900	4,329	3,764 r/	3,768 r/	3,775
Petroleum, refinery products e/ 5/	thousand 42-gallon barrels 2,100	2,200	2,200	2,200	2,200
Pozzolan	--	--	--	186,948	189,999
Rhyolite	--	--	--	35,680	32,700
Salt e/	25,000	25,000	25,000	25,000	25,000
Silver	kilograms 35,000 e/	42,964	38,153 r/	31,958 r/	35,000 e/
Zinc, mine output, Zn content	39,500	36,639	31,095 r/	43,064 r/	48,485
NICARAGUA 6/					
Bentonite	926 e/	875 e/	5,280 r/	6,490 r/	6,000 e/
Cement	377,000	377,000	350,000 e/	360,000 e/	360,000 e/
Gold, mine output, Au content	kilograms 2,562	3,834	4,450 r/	3,672 r/	3,650 e/
Gypsum and anhydrite, crude	15,820	22,660	26,880 r/	28,170 r/	28,100 e/
Lime	7,285 r/	58,527 r/	58,000 r/ e/	58,000 r/ e/	55,000 e/
Limestone:					
For cement	--	--	281,050	266,740	270,000 e/
For other uses	--	--	325,580	293,470	310,000 e/
Petroleum, refinery products	thousand 42-gallon barrels 5,559	5,600	5,600 e/	5,650 e/	5,650 e/
Salt, marine	13,619	15,132	26,880 r/	28,170 r/	28,100 e/
Sand and gravel	thousand tons 434	696	1,843 r/	1,339 r/	1,300 e/
Silver, mine output, Ag content	kilograms 3,000	4,000	1,780 r/	1,589 r/	1,590 e/
Stone, crushed	--	--	688,792	1,136,824	900,000 e/
PANAMA					
Cement e/	700,000	750,000 3/	760,000	760,000	760,000
Clays:					
For cement	40,112	45,000	46,000	45,500	45,000 e/
For products	7,217	7,200	7,400	7,300	7,300 e/
Gold	kilograms 1,202	1,500	1,500	1,500	1,500 e/
Lime	3,246	3,500	3,500	3,500	3,500 e/
Petroleum, refinery products e/	thousand 42-gallon barrels 10,000	10,000	10,000	10,000	10,000
Salt, marine e/	22,000	22,500	22,500	22,500	22,500
Silver	kilograms 2,178	2,000	2,000	2,000	2,000 e/
Stone and sand and gravel: e/					
Limestone:					
For cement	263,338 3/	270,000	275,000	270,000	270,000
For other uses	62,500	62,500	63,000	63,000	63,000
Sand and gravel	thousand tons 3,000	3,000	3,000	3,000	3,000

See footnotes at end of table.

TABLE 1--Continued
CENTRAL AMERICA: PRODUCTION OF MINERAL COMMODITIES 1/ 2/

e/ Estimated. r/ Revised. -- Zero.

1/ Estimated data are rounded to no more than three significant digits.

2/ Table includes data available through March 2002.

3/ Reported figure.

4/ In addition to commodities listed, construction materials (clays, gravel, miscellaneous rock, sand, and weathered tuffs) were presumably produced. Available information is inadequate to make reliable estimates of output levels of these commodities.

5/ Includes liquefied petroleum gas, aviation and motor gasoline, diesel, kerosene, and distillate fuel oil.

6/ In addition to the commodities listed, Nicaragua produced a variety of industrial minerals to meet domestic needs. Output of these materials were not reported, and information was inadequate to make reliable estimates.

TABLE 2
CENTRAL AMERICA: STRUCTURE OF THE MINERAL INDUSTRY IN 2001

(Thousand metric tons unless otherwise specified)

Country and commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
COSTA RICA				
Cement		Industria Nacional de Cemento, S.A. (INCSA) (Cementfabrik Holderbank AG, 44%; private, 56%)	Aguas Calientes, Cartago, Cartago Province	550 e/
Do.		Cementos del Pacifico, S.A. (CEMPASA) (CEMEX S.A. de C.V., 95.3%; Government, 4.7%)	Near Colorado, Guanacaste	850 e/
Clays		CEMPASA	Tajo Finca, near Platanar, Guanacaste Province	100 e/
Gold	kilograms	Ariel Resources, Ltd. of Canada, sold its interest in several gold mines	El Valiente Ascari S.A., Minas Sierra Alta S.A., Minera El Silencio S.A., Abece Griego S.A., and Cia. de Asesoría	200 e/
Do.	do.	Vannessa Ventures Ltd. of Canada (100% ownership)	Crucitas Gold project, Guancaste Province; Cerro Crucitas and Cerro Conchudita projects, San Carlos Province	160 e/
Limestone		INCSA	La Chilena quarry, near Cartago, Cartago Province	550 e/
Do.		CEMPASA	Cerro Pena Blanca Quarry, Guancaste Province	300 e/
Petroleum products	thousand 42-gallon barrels	Refinadora Costarricense de Petroleo, S.A.	Moin refinery, Limon Province	5,760 e/
EL SALVADOR				
Cement		Cemento de El Salvador S.A., de C.V.	Metapan	2,500 e/
Petroleum, crude	thousand 42-gallon barrels	Refinería Petrolera Acajutla S.A. (ExxonMobil Corp., 65%; Royal Dutch/Shell Group, 35%)	do.	6,205
GUATEMALA				
Antimony	tons	Minas de Guatemala S.A. (private, 100%)	Los Lirios and Anabella Mines, Ixtahuacan, Huehuetenango Department	1,900
Cement		Cementos Progreso S.A. (Lambert Freres et Cie., 69.8%; other, 30.2%)	San Miguel plant, Sanarate, El Progreso Department, and La Pedrera plant, Guatemala City	1,800
Nickel		Exploraciones y Explotaciones Mineras Izabal, S.A. (Inco, 70%; Government, 30%)	Mine and processing plant near El Estor, Izabal Department (inactive)	9
Iron and steel, semimanufactures		Grupo Industrial Minera Mexico S.A. de C.V. (IMSA), 100%	Guatemala City	80
Petroleum:				
Crude	thousand 42-gallon barrels	Anadarko Petroleum Corp.	Rubelsanto, West Chinaja fields, Alta Verapaz Department, and Caribe, Tierra Blanca and Xan fields, Peten Department	9,600
Products	do.	Texaco Petroleum Co. (ChevronTexaco Corp., 100%)	Refinery at Escuintla, Escuintla Department	10,000
Do.	do.	Norcen Energy Resources Ltd. (Canada; public company)	Refinery near Santa Elena, El Naranjo, Peten Department	12,000
HONDURAS				
Cement		Cementos del Norte S.A. de C.V. (private, 100%)	Rio Bijao plant, San Pedro Sula, Cortes Department	600 e/
Do.		Industria Cementera Hondurena S.A. de C.V. (LaFarge Group of France, 53%)	Piedras Azules Plant, Comayagua	610 e/

See footnotes at end of table.

TABLE 2--Continued
CENTRAL AMERICA: STRUCTURE OF THE MINERAL INDUSTRY IN 2001

(Thousand metric tons unless otherwise specified)

Country and commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
HONDURAS--Continued				
Gold	kilograms	Cia. Minera Santa Barbara (Breakwater Resources Ltd., 100%)	Puerto Cortes, Cortes Department	300 e/
Do.	do.	Cia. Minerales de Copan S.A. de C.V. (Greenstone Resources Ltd., 100%)	San Andres Mine, Copan Department	2,000 e/
Lead		Cia. Minera Santa Barbara (Breakwater Resources Ltd., 100%)	El Mochito Mine, Santa Barbara Department	6 e/
Petroleum:				
Crude	thousand 42-gallon barrels	ChevronTexaco Corp.	Near the Mosquita Coast	500
Products	do.	Reneria Texaco de Honduras S.A. (ChevronTexaco Corp., 100%)	Puerto Cortes, Cortes Department	5,040 e/
Silver	kilograms	Cia. Minera Santa Barbara (Breakwater Resources Ltd., 100%)	El Mochito Mine, Santa Barbara Department	47,000 e/
Do.	do.	Cia. Minerales El Paso Mining (private, 100%)	La Pochota Mine, Valle Department	20 e/
Zinc		Cia. Minera Santa Barbara (Breakwater Resources Ltd., 100%)	El Mochito Mine, Santa Barbara Department	41 e/
NICARAGUA				
Bentonite		Empresa Rotowa S.A. [Corporacion Nicaraguense de Minas (Government, 100%)]	South of Sebaco, Matagalpa Department	4 e/
Cement		Compania Nacional Productora de Cemento (Government, 100%)	San Rafael del Sur, Managua Department	700 e/
Do.		Cementos de Nicaragua S.A.	do.	350,000
Gold-silver	kilograms	Minera de Occidente S.A. (Blackhawk Mining Inc., 95%)	El Limon Mine, Leon Department	2,000 e/
Do.	do.	Mining of Nicaragua S.A. (Greenstone Resources Ltd., 100%)	Cerro Mojon Mine, Chontales Department	1,850 e/
Gypsum		Yesera Centroamericana S.A. (Government, 100%)	Santa Rosa del Penon, Leon Department	25 e/
Petroleum products	thousand 42-gallon barrels	Esso Standard Oil S.A. Ltd. (100%)	Managua, Managua Department	5,700 e/
PANAMA				
Cement		Cementos Bayaro (CEMEX)	Calzoda Larga	500
Do.		Cemento Panama S.A.	Quebioera	400
Petroleum products	thousand 42-gallon barrels	ChevronTexaco Corp. (100%) Refineria Panama S.A.	Bahía Las Minas, near Colón	219

e/ Estimated.