

THE MINERAL INDUSTRY OF COLOMBIA

By Ivette E. Torres

Colombia was the fourth largest country in Latin America and the Caribbean, and in terms of purchasing power parity, it had the fourth largest economy in the region after Brazil, Argentina, and Chile. Colombia's gross domestic product was \$77.6 billion¹ at current prices and \$282 billion based on purchasing power parity. The country's economy grew by 3.7% after modest increases of 1.6% (revised) and 1.4% (revised) in 2002 and 2001, respectively (International Monetary Fund, 2004§²). This economic growth was propelled, in part, by a significant growth in the mining and quarrying (included hydrocarbons) and construction sectors, which increased in real terms by 12.4% and 11.7%, respectively. The large contributors to the increase in the mining and quarrying sector were metallic minerals and coal with increases of 73% and 33%, respectively (Departamento Administrativo Nacional de Estadística, 2004a§-c§).

Colombia's mineral production was dominated by the fuel sector. The country was the fifth leading producer of crude petroleum in Latin America and contributed about 6% of the regional output (Organization of the Petroleum Exporting Countries, 2004, p. 54). Colombia was also the leading producer of coal in the region. Historically, Colombia has been recognized as an important producer and the world's leading exporter of emeralds. In addition, Colombia was an important producer of ferronickel and the only producer of platinum in Latin America. Colombia also produced copper, iron ore, lead, steel, silver, and zinc. Colombia was an important producer of cement in Latin America and produced small amounts of construction materials and industrial minerals (table 1).

Government Policies and Programs

Colombia's mining law in force was law 685, which came into effect in 2001. Under this law, the Federal mining authority was the Ministerio de Minas y Energía (MME). In 2003, the Government of Colombia continued to reorganize entities that reported directly to the MME and those that are associated with it. In June, Presidential Decree 1760 removed the responsibility of administering Colombia's hydrocarbon reserves from the Empresa Colombiana de Petróleos S.A. (Ecopetrol). Ecopetrol, which has been in existence since 1951, had become the Government administrator, producer, and regulator of the industry, which, in addition to producing individually, was producing in association contracts with the private sector. Decree 1760 also created the Agencia Nacional de Hidrocarburos (ANH) as the new entity responsible for administering Colombia's reserves. Within this authority, the

new agency became responsible for assigning hydrocarbons areas for exploration and production; evaluating the hydrocarbon potential of the country; designing, promoting, negotiating, and administering new exploration and production contracts; and collecting royalties on behalf of the Government. The decree also created the Sociedad Promotora de Energía de Colombia S.A., which had as its main objective participation and investment in energy-related companies. With the creation of the two organizations, Ecopetrol's name was changed to Ecopetrol S.A., and the entity, which became a public company tied to the MME, was responsible for exploring and producing from areas under contract prior to December 31, 2003, those that had been operated by Ecopetrol directly, and those to be assigned to it by ANH. Ecopetrol also had the responsibility for Colombia's exploration and production in foreign countries, refining and processing of hydrocarbons and their derivatives, the distribution of hydrocarbons, derivatives, and products in and outside of Colombia, transportation, and marketing (Ecopetrol S.A., 2004a§).

In September, the Government of Colombia through the Consejo Nacional de Política Económica y Social, Departamento Nacional de Planeación, published Document 3245, which recommended that Ecopetrol extend its contracts with the private sector that were in effect on or before December 31, 2003, for the economic life of the fields. The purpose of the recommendation was to avoid delays in future production from said contract areas and to encourage continued investment in exploration in areas in production and maximize the management of these areas (Ministerio de Minas y Energía, 2004, p. 57).

In January 2004, the Government approved several decrees to restructure the Government mineral-producing company Minercol Ltda. (in liquidation), the Instituto Colombiano de Geología y Minería (Ingeominas), and the Unidad de Planeación Minero Energética (UPME). With the new structure, Ingeominas retained the responsibilities of the national geological survey and acquired the responsibilities of Minercol—contracts, titles, and taxation. Carbones de Colombia S.A. (Carbocol) and IFI-Concesión de Salinas (IFI) were in liquidation (Ministerio de Minas y Energía, 2004, p. 105, 115).

Environmental Issues

In 2003, law 216 created the Ministerio de Ambiente, Vivienda and Desarrollo Territorial. This new ministry replaced the Ministerio del Medioambiente, which had been created in 1993 by law 99 as the highest Government authority with responsibility for environmental matters. The Corporaciones Autónomas are responsible for administering natural resources and controlling environmental deterioration associated with extracting activities, such as mining.

¹References that include a section mark (§) are found in the Internet References Cited section.

²Where necessary, values have been converted from Colombian pesos (CP) to U.S. dollars (US\$) at the rate of 2,875.92 CP=US\$1.00.

Production

In terms of value (after petroleum) coal, emeralds, gold, and platinum were the principal minerals produced in Colombia. In 2003, production of coal, emeralds, gold, nickel, platinum, and silver increased when compared with those of 2002. Colombia was the leading producer of coal in Latin America with 60% of the region's output. It was the second leading producer of gold (after Peru); it produced 11% of the regional total but less than 2% of the world total. The country was also the second leading producer of mine nickel (after Cuba) with 29% of Latin America's total and the third leading producer of cement (after Brazil and Mexico).

Trade

Colombia's total exports were estimated to be \$13.09 billion. Petroleum exports totaled \$3.38 billion and represented about 26% of total exports. Total imports were \$13.02 billion. Despite Colombia being a net exporter of petroleum, it imported \$233 million in petroleum products. The United States was Colombia's main trading partner with 44% of Colombia's exports and 29% of its imports. Other important partners were countries from the Latin American Integration Association, the Andean Community Countries, and the European Union (Departamento Administrativo Nacional de Estadística, 2004c§).

Mineral exports (excluded petroleum) totaled \$2.8 billion or 21% of total exports. Coal (included coke) was the leading export item with \$1.42 billion, which was a 43.7% increase from the revised figure of 2002. The main areas of export for Colombian coal were Europe (43%) and North America (32%). Exports of ferronickel totaled \$294.8 million. This was an increase of 2.4% from that of 2002. Official exports of emeralds decreased by 13.1%. The value of gold exports increased by more than six times the level achieved in 2002 (Ministerio de Minas y Energía, 2004, p. 108).

Colombia exported about 40 crude minerals and more than 10 processed minerals. In 2003, exports of platinum totaled \$17.42 billion. Platinum was exported to France and the United States. The value of exports of limestone was \$4.7 million (Ministerio de Minas y Energía, 2004, p. 109).

Structure of the Mineral Industry

The MME was the Government entity entrusted with the oversight for the minerals and energy sectors. Several agencies either reported directly to it or were associated with it. Some of these were the Dirección de Energía, the Dirección de Gas, the Dirección de Hidrocarburos, the Dirección de Minas, Empresa Comobiana de Gas, Ecopetrol, Ingeominas, and the Unidad de Planeación Minero Energética.

The production of minerals and energy was by the public and private sectors. Nickel and coal were produced in their entirety by the private sector. Natural gas and petroleum were produced by the Government through Ecopetrol and in partnership with the private companies with direct contracts between Ecopetrol and the companies. By law, Ecopetrol must have a minimum of 30% in joint ventures with the private sector. Ecopetrol owned

and operated the country's petroleum refinery production. After the reorganization of the ministry, Ecopetrol became a publicly owned company stripped of all administrative and regulatory functions. Minercol, Carbocol, and IFI were in liquidation (Ministerio de Minas y Energía, 2004, p. 102, 115).

Commodity Review

Metals

Gold.—Official gold production in 2003 more than doubled from that of 2002 to 46,515 kilograms; this was a historical high (table 1). This increase was stimulated, in part, by the increase in gold price. The largest production increases were from the Antioquia and the Bolivar Departments; production in these two Departments more than tripled. Antioquia remained the leading producing department with 53% of Colombia's gold production. The areas of Remedios and Segovia were estimated to produce from 70% to 80% of the total gold produced in the Antioquia Department. Together, the Antioquia, the Bolivar, and the Cordoba Departments produced 85% of the total (Ministerio de Minas y Energía, 2004, p. 322; Cock and López, 2001§).

Most of Colombia's gold production was from small- and medium-sized alluvial operations, which used artisanal methods for extraction by the informal mining sector. Colombia's largest alluvial operation was El Bagre in the Rio Nechi, which was owned by the domestic producer *Mineros de Antioquia S.A.* *Mineros de Antioquia* also produced in the Marmanto and the Zaragoza districts. In Antioquia, another domestic producer (*Frontino Gold Mines Ltd.*) produced gold from two vein-type mines (El Silencio in the Segovia district and Providencia in the Remedios district). El Silencio Mine has been the leading gold producer in Colombia's mining history. The quartz-pyrite mine has minor quantities of sphalerite and galena and sometimes calcite. Scheelite and pyhrotite have been found, and gold and silver occur free or in sulfides (Instituto de Investigación Geocientífica Minero-Ambiental y Nuclear, 1999, p. 84-85).

In June, *Frontino Gold* transferred the abandoned Castillo Mine to the subsistence miners who had been operating in areas of El Silencio Mine. The Government came to an agreement with *Frontino Gold* after determining that the area where the subsistence miners had been working was unsafe. This effort was part of a project managed by *Minercol* (now in liquidation) to benefit subsistence miners in the areas of Remedios and Segovia (*Red Latinoamericana sobre Industrias Extractivas y Desarrollo Sostenible*, 2003§).

Iron and Steel.—Colombia was Latin America's seventh leading producer of steel with an output of 668,000 metric tons (t) during 2003 (table 1). The only integrated steel producer in Colombia was *Acerías Paz del Río, S.A.*, which had a capacity of about 400,000 metric tons per year (t/yr), but has been producing at levels of less than 300,000 t/yr. The company was under financial restructure because of high debt. In early 2003, the Government and the employees were trying to reach an agreement to save the company from liquidation. In July, the company and the employees signed an agreement. Under the agreement, the employees and retirees increased their ownership of the company from 13% to 43%. The Government of Boyaca

reduced its interest in the company to 22% from 32% , and the Government's Institute of Industrial Development reduced its share to 9% from 14%. The remaining 26% of the company was owned by universities and small investors. The employees agreed to give up salary increases and a number of other benefits and to create a capitalization fund. With the savings, they will purchase the company's debt from the Institute of Industrial Development at 25% of its value. With the reduction of the debt to the Institute, the company decreased its total debt to \$27.8 million. The agreement also included plans to increase the company's production capacity and to improve production technology. Initially, production capacity was scheduled to be expanded by 40,000 t (Presidencia de la República, 2003).

Nickel.—Cerro Matoso S.A. was Colombia's only producer of ferronickel. The mine and ferronickel producer was located in Montelibano, Cordoba Department. The company was owned by BHP Billiton plc. In 2003, mine production of nickel from Cerro Matoso was 70,844 t; this was an increase of almost 22% from that of 2002 (table 1). The company produced ferronickel with a nickel content of 47,868 t, which was a 9% increase from that of 2002 and a 73% increase from that of 2000. The 2003 production was about 87% of the company's production capacity, which was expanded in early 2001. Cerro Matoso's total reserves as of June 30, 2003, totaled 43.2 million metric tons (Mt) with a grade of 1.93% nickel (BHP Billiton plc, 2003, p. 208).

Industrial Minerals

Cement.—Colombia was Latin America's third leading producer of cement after Brazil and Mexico. Production in 2003 was estimated to have increased by 10% to 7.3 Mt (table 1). Since 1999, production has decreased by an estimated 21%. The leading cement producer in Colombia was Sindicato Antioqueño with about 50% of Colombia's market share through Cementos del Caribe S.A. and Cementos del Valle S.A. A subsidiary of CEMEX S.A. de C.V., which was one of the world's largest cement companies, was Colombia's second leading producer. CEMEX owned more than 98% of CEMEX Colombia, S.A., which had five cement plants and a capacity of 4.8 million metric tons per year (Mt/yr). In 2003, Colombia's share of CEMEX's worldwide sales of cement and concrete was 3%. Housing represented 40% of CEMEX's cement demand in Colombia (CEMEX S.A. de C.V., 2004, p. 21, 26, 42).

Gemstones (Emerald).—Official production of emerald, which was based on export data, increased by 66% after declining in 2001 and 2002 (Ministerio de Minas y Energía, 2004, p. 321). According to Government estimates, 10% of the emeralds were sold in the country, and 90% were destined for export. Emerald deposits in Colombia are located in the central region of the country in the sedimentary basin of the Cordillera Oriental. Production was from the Boyaca and the Cundinamarca Departments in the Cinturon Esmeraldifero Oriental (Eastern Emerald Belt) and the Cinturon Esmeraldifero Occidental (Western Emerald Belt) regions with a combined area of 730,000 hectares. More than 60 production licenses awarded by the Government were active (Empresa Nacional Minera Ltda., undated§).

Salt.—Production of salt in 2003 was 447,265 t, of which 247,901 t was marine salt (table 1). This was a 15.2% decrease from that of 2002. Most of the decrease was from the production of marine salt, which decreased by 26%. Salt production was from three rock salt mines and two marine salt operations. Since 1970, four of the five operations were managed by IFI, but because of the new mining law of 2001, these operations (Galerazamba in the Bolivar Department, Nemocon and Zipaquira in the Cundinamarca Department, and Upin in the Meta Department) were to be offered as concessions to the private sector. The bids offered in October 2002 were closed and had not been reopened by yearend 2003.

The fifth producer, the Manaure marine salt operation, which is located in La Guajira Department and was the leading producer, was to be transferred from IFI to the Mayuu indigenous community. In recent years, Manaure has been producing about 60% of Colombia's salt total (Unidad de Planeación Minero Energética, 2003; IFI-Concesión de Salinas, 2004; Organización Nacional Indígena de Colombia, 2003§).

Mineral Fuels

Coal.—Colombia, which was the leading producer of coal in Latin America, produced 49.3 Mt; this was an increase of 25% compared with that of 2002 (table 1). The leading producing company was Carbones del Cerrejón LLC in La Guajira Department. Carbones del Cerrejón produced almost 22 Mt during the year. The second leading producer was Drummond Ltd. from its property in La Loma, Cesar Department, with 16.4 Mt. The Cesar and La Guajira Departments produced more than 85% of Colombia's total coal production. Most of Colombia's output was thermal coal. Only a small amount (about 1 Mt) was metallurgical. Most of Colombia's coal production was for export. Domestic consumption was about 3.9 Mt. Of the total, 70% of the consumption was by the industrial sector; 27%, by the power sector; and the remainder, by the residential sector (Ministerio de Minas y Energía, 2004, p. 324, 326).

In 2003, Carbones del Caribe S.A. planned to expand the capacity of its La Jagua coal mine in the Cesar Department to 4.5 Mt and to build a new port facility for export in Rio Cordoba. The mine, which produced 2.3 Mt in 2003 from two open pits and an underground longwall operation, exported more than 60% (1.5 Mt) of its production for the year. Expansion of the mine would be for another open pit. The capacity of the new port was planned to handle 8 Mt, which would allow for exports by small third-party producers. Total cost of the project was estimated to be \$55 million. The \$5 million loan that the company was seeking from the International Finance Corporation was approved in August (Ministerio de Minas y Energía, 2004, p. 324, 326; International Finance Corporation, 2003§; Sustainable Energy & Development Economy Network, 2004§).

Natural Gas.—By yearend 2003, Colombia's proven natural gas reserves decreased by 7% from those of 2002 to 189 billion cubic meters (reported as 6,689.7 billion cubic feet). Of these reserves, 60% was classified as marketable and 40% was classified as nonmarketable and for internal consumption; 98%

of marketable reserves was in the hands of associations and 3% was in Ecopetrol's direct production operations. Of total reserves, 40% was in the hands of Ecopetrol (Ministerio de Minas y Energía, 2004, p. 376; Ecopetrol S.A., 2004b§).

The leading producer of natural gas in Colombia was the subsidiary of ChevronTexaco Corporation, ChevronTexaco Colombia (formerly Texas Petroleum Company), in association with Ecopetrol in La Guajira Department. This association produced natural gas from two platforms in the Chuchupa offshore field and from the Ballena onshore field; it produced 80% of Colombia's natural gas production (ChevronTexaco Corp., 2004§).

In December 2003, ChevronTexaco Colombia and Ecopetrol signed an agreement to extend the association contract for the commercial life of the fields. The agreement was approved by the newly formed NAH. Ecopetrol estimated that the investment of \$175 million in the Guajira area would increase access to an additional 28 billion cubic meters of gas (reported as 1,000 gigafeet). With the extension of the contract, ChevronTexaco's participation increased to 57% from 50%; the royalties remained at 20% (ChevronTexaco Corporation, 2004§; Ecopetrol S.A., 2003§).

Petroleum.—At yearend 2003, Colombia's petroleum reserves totaled 1.5 billion barrels. This was a 5.4% decrease compared with that of 2002 (Ministerio de Minas y Energía, 2004, p. 61, 283; Ecopetrol S.A., 2004c§). Production during the year totaled 198 million barrels, which was a 6.4% decrease from that of 2002. At this production rate, crude petroleum reserves would be depleted in about 7.8 years. Because hydrocarbons was Colombia's leading economic subsector, for years the Government has focused its efforts in increasing foreign investment in exploration and production of crude petroleum and its associated natural gas and the production and productivity of the refineries. The country results, however, have been limited because of issues of the security of infrastructure and production facilities.

Ecopetrol produced almost 21% of Colombia's crude production in 2003. BP p.l.c. and Occidental Petroleum Corp. were the two largest private producers in Colombia that worked in association with Ecopetrol with 50% and 23% of total association production, respectively. BP Exploration Company (Colombia) Limited (a subsidiary of BP) was the operator of the Cupiagua and the Cusiana oilfields. The company produced about 38% of the country's crude petroleum output (BP p.l.c., 2004§). Occidental was the operator of the Cano Limon oilfield. In 2003, Occidental produced almost 18% of the country's total crude output (Ecopetrol S.A., 2004b§).

Refinery Products.—Despite being a net exporter of crude petroleum, Colombia was an importer of refinery products (mainly gasoline). In 2003, the country operated four refineries with a production capacity of 128.6 billion barrels per year. Capacity utilization for the year was 82%. In terms of output, the largest of the refineries was Barrancabermeja in the Santander Department, which processed almost 74% of Colombia's crude petroleum during the year. With about 25% of Colombia's refining capacity, the Cartagena refinery in the Bolivar Department was the second largest refinery. The other two refineries, Apiay and Orito,

produced about 1%. Colombia's refining system was owned and operated by the Government though Ecopetrol (Ecopetrol S.A., 2004a§).

Infrastructure

Colombia had 110,000 kilometers (km) of highways, of which 26,000 km was paved. The country's 10 major ports and harbors were Bahia de Portete, Barranquilla, Buenaventura, Cartagena, Leticia, Puerto Bolivar, San Andres, Santa Marta, Tumaco, and Turbo. The country's railway system covered 3,304 km. Coal production from the largest coal producers was transported by railway. The Cerrejon Norte line was used by Carbones del Cerrejón. Drummond used a portion of the Atlantic Richfield Co. line for its transportation of coal. The smaller coal producers transported their coal by trucks and barges.

Colombia had five petroleum pipelines that covered a total of 3,585 km. The 805-km Orensa, the 788-km Cano Limon, the Alto Magdalena, and the Colombia connected production fields to Covenas. TransAndino transported petroleum from Colombia's Orito field to Tumaco in the Pacific. For years, petroleum pipelines have been the targets of terrorist attacks. Natural gas, natural gas liquids, and petroleum products were also transported by pipelines.

In recent years, the Government has been planning infrastructure improvements. Slow economic growth, however, has curbed the progress of these plans.

References Cited

- BHP Billiton plc, 2003, Company annual report 2003: London, United Kingdom, BHP Billiton plc, June, 212 p.
- CEMEX S.A. de C.V., 2004, Annual report—2003: Mexico City, Mexico, CEMEX S.A. de C.V., 78 p.
- IFI-Consección de Salinas, 2004, Boletín de prensa No. 2: Bogota, Colombia, IFI-Consección de Salinas, August, 3 p.
- Instituto de Investigación e Información Geocientífica Minero-Ambiental y Nuclear, 1999, Inventario Minero Nacional Departamento de Antioquia Escala 1:500,000: Bogota, Colombia, Instituto de Investigación e Información Geocientífica Minero-Ambiental y Nuclear, 142 p. plus annexes.
- Ministerio de Minas y Energía, 2004, Memorias al Congreso de la República 2003-2004: Bogota, Colombia, Ministerio de Minas y Energía, 395 p.
- Organization of the Petroleum Exporting Countries, 2004, OPEC annual statistical bulletin 2003: Vienna, Austria, Organization of the Petroleum Exporting Countries, 130 p.
- Presidencia de la República, 2003, Se salvo Paz del Río: Bogota, Colombia, Presidencia de la República press release, July 10, 3 p.
- Unidad de Planeación Minero Energética, 2003, Producción y comercio de la sal en Colombia: Bogota, Colombia, Unidad de Planeación Minero Energética, October, 13 p.

Internet References Cited

- BP p.l.c., 2004, Colombia, accessed November 14, 2004, at URL <http://www.bp.com/sectiongenericarticle.do?categoryId=454&contentId=2000603>.
- ChevronTexaco Corporation, 2004 (April), Colombia fact sheet, accessed November 13, 2004, at URL <http://www.chevrontexaco.com/operations/docs/colombia.pdf>.
- Cock, Jorge Eduardo, and López, Wilfredo, 2001, Conflicto y colaboración en la minería de oro en Segovia y Remedios, accessed November 3, 2004, at URL http://web.idrc.ca/en/ev-64543201-1-DO_TOPIC.html.

- Departamento Administrativo Nacional de Estadística, 2004a, Pib oferta constante con ilícitos sv (sindeseestacionalizar) 1994-I a 2004 II, accessed October 29, 2004, at URL http://www.dane.gov.co/inf_est/pib.htm.
- Departamento Administrativo Nacional de Estadística, 2004b, Pib oferta constante sin ilícitos sv (desestacionalizada) 1994-I a 2004 II, accessed October 29, 2004, at URL http://www.dane.gov.co/inf_est/pib.htm.
- Departamento Administrativo Nacional de Estadística, 2004c, Colombia, Balanza Comercial, accessed November 2, 2004, at URL http://www.dane.gov.co/inf_est/cio_ext.htm.
- Ecopetrol S.A., 2003 (December 15), Se extiende contrato de asociación Guajira, accessed November 14, 2004, at URL http://www.ecopetrol.com.co/paginas.asp?pub_id=36179&cat_id=859&idCategoriaprincipal=11&cat_tit=Sala de Prensa.
- Ecopetrol S.A., 2004a, Cargas a refinerías, accessed November 1, 2004, at URL <http://www.ecopetrol.com.co/especiales/estadisticas2003/04refinacion/Cargas-Refinerias.html>.
- Ecopetrol S.A., 2004b, Decreto de la transformación de Ecopetrol, accessed November 1, 2004, at URL http://www.ecopetrol.com.co/paginas.asp?pub_id=36129&cat_id=13&idCategoriaprincipal=1&cat_tit=Perfil de la Empresa.
- Ecopetrol S.A., 2004c, Distribución de reservas remanentes de hidrocarburos Diciembre 31, 2003, accessed November 14, 2004, at URL <http://www.ecopetrol.com.co/especiales/estadisticas2003/03produccion/Distribucion-Reservas-Remanentes-Hid-2003.htm>.
- Empresa Nacional Minera Ltda., [undated], Análisis del mercado de esmeraldas en Colombia, accessed July 17, 2002, at URL http://minercol.gov.co/user_files/esmeraldas.pdf.
- Estatuto Orgánico del Sistema Financiero, 2004, Decreto 1760 de 2003 (Junio 26), accessed November 1, 2004, at URL http://www.laleycolombiana.com/lle_contenido/Normas/2003/Decretos/1760P1.htm.
- International Finance Corporation, 2003 (June), Summary of project information, Carbones del Caribe S.A., accessed November 13, 2004, at URL <http://www.ifc.org/ifcext/lac.nsf/Content/SelectedProject?OpenDocument&UNID=A8263668130DDDB85256D1A007D4E79>.
- International Monetary Fund, 2004, Colombia, World Economic Outlook Database, accessed October 29, 2004, at URL <http://www.imf.org/external/pubs/ft/weo/2004/02/data/index.htm>.
- Organización Nacional Indígena de Colombia, 2003 (April 1), La sal de los Waya Wayúu, accessed November 9, 2004, at URL <http://colombia.indymedia.org/news.2003/04/2581.php>.
- Red Latinoamericana sobre Industrias Extractivas y Desarrollo Sostenible, 2003 (June 19), Frontino Gold entrega El Castillo a mineros informales, accessed November 3, 2004, at URL [http://biblioteca.unmsm.edu.pe/redlieds/Proyecto/noticias/Junio2003/19_06\(3\).htm](http://biblioteca.unmsm.edu.pe/redlieds/Proyecto/noticias/Junio2003/19_06(3).htm).
- Sustainable Energy & Development Economy Network, 2004, Project profile—Carbones del Caribe coal mine, port, accessed November 14, 2004, at URL <http://www.seen.org/db/Dispatch?action=ProjectWidget:856-detail=1>.

Major Sources of Information

- Cerro Matoso S.A.
Carr. 7a No. 26-20, Piso 8
Santa Fe de Bogota, D.C., Colombia
Telephone: (571) 288-7066
Fax: (571) 285-7974
- Ecopetrol S.A.
CRA 7 No. 36-24
Santa Fe de Bogota, D.C., Colombia
Telephone: (571) 285-6400
- Instituto de Fomento Industrial
Calle 16 No. 6-66, Piso 7
Santa Fe de Bogota, D.C., Colombia
Telephone: (571) 282-2055
Fax: (571) 286-8166
- Instituto de Geología y Minería
Diagonal 53, No. 34-53
Santa Fe de Bogota, D.C., Colombia
Telephone: (571) 283-0797
Fax: (571) 283-0797

TABLE 1
COLOMBIA: PRODUCTION OF MINERAL COMMODITIES^{1,2}

(Metric tons unless otherwise specified)

Commodity	1999	2000	2001	2002	2003
METALS					
Copper, mine output, Cu content	2,295	2,065	2,192	1,853	1,578
Gold kilograms	34,599	37,018	21,813	20,823 ^r	46,515
Iron and steel:					
Iron ore and concentrate	576,414 ^r	660,109 ^r	636,837 ^r	688,106 ^r	625,002
Pig iron	264,362 ^r	272,254 ^r	318,953 ^r	311,459 ^r	283,333
Steel, crude	534,038 ^r	659,882 ^r	638,259 ^r	663,724 ^r	668,410
Semimanufactures, hot-rolled ^e	650,000 ^r	650,000 ^r	552,000 ³	575,000 ^e	550,000 ^e
Lead:					
Mine output, Pb content	166	226	220 ^e	220 ^e	220
Refined (secondary) ^e	12,000	12,000	12,000	12,000	12,000
Nickel:					
Mine output, Ni content	39,274	58,927	52,962	58,196	70,844
Ferronickel, Ni content	28,260 ^r	27,730 ^r	38,438 ^r	43,987	47,868
Platinum kilograms	488	339	674	661	1,393
Silver do.	7,593	7,970	7,242	6,986	9,511
Zinc, mine output, Zn content	27	42	40 ^e	40 ^e	40
INDUSTRIAL MINERALS					
Asbestos, mine output ^e	61,125 ^r	59,249 ^r	96,140 ^r	62,785 ^r	60,000 ^e
Barite ^e	600	600	600	600	600
Cement, hydraulic thousand tons	9,200 ^e	9,750 ^e	6,830	6,604	7,300 ^e
Clays:					
Bentonite ^e	8,500	8,500	8,500	8,500	8,500
Common clay and kaolin ^e thousand tons	8,000	8,400	8,400	8,400	8,400
Diatomite ^e	4,000	4,000	4,000	4,000	4,000
Feldspar ^e	55,000	55,000	55,000	55,000	55,000
Fluorite ^e	800	800	800	800	800
Gemstones, emerald ⁴ thousand carats	6,800 ^e	8,454	5,499	5,390	8,963
Gypsum ^e	560,000	560,000	560,000	560,000	560,000
Lime, hydrated and quicklime thousand tons	13,000 ^e	13,000 ^e	11,472	10,624	11,000 ^e
Magnesite ^e	10,500	10,500	10,500	10,500	10,500
Mica ^e	55	55	55	55	55
Nitrogen, N content of ammonia	75,400	92,900	95,200	110,900 ^r	111,000
Phosphate rock	43,148	42,615	43,000 ^e	43,000 ^e	43,000 ^e
Salt:					
Rock	156,933	177,690	110,212	191,554	199,364
Marine	304,433	282,188	285,073	335,783	247,901
Total	461,366	459,878	395,285	527,337	447,265
Sodium compounds, n.e.s., sodium carbonate ^e	125,000	125,000	125,000	125,000	125,000
Stone and sand: ^e					
Calcite	6,500	6,500	6,500	6,500	6,500
Dolomite thousand tons	45	45	45	45	45
Limestone do.	10,933	11,987	11,475	14,865 ^r	16,389
Marble ^e	190,000	190,000	190,000	190,000	190,000
Sand, excluding metal-bearing	925,000	925,000	925,000	925,000	925,000
Sulfur:					
Native (from ore)	-- ^r	16,057 ^r	13,120 ^r	12,035 ^r	11,714
Byproduct, from petroleum ^e	16,000	16,000	15,465	15,500 ^e	15,500 ^e
Total ^e	16,000 ^r	32,057 ^r	28,585 ^r	27,535 ^r	27,214
Talc, soapstone, pyrophyllite ^e	15,000	15,000	15,000	15,000	15,000
MINERAL FUELS AND RELATED MATERIALS					
Carbon black ^e	24,000	24,000	24,000	24,000	24,000
Coal thousand tons	32,754	38,142	43,441	39,532	49,318
Coke, all types ^e do.	615	615	615	615	615

See footnotes at end of table.

TABLE 1--Continued
 COLOMBIA: PRODUCTION OF MINERAL COMMODITIES^{1,2}

(Metric tons unless otherwise specified)

Commodity	1999	2000	2001	2002	2003	
MINERAL FUELS AND RELATED MATERIALS--Continued						
Gas, natural:						
Gross	million cubic meters	30,064 [†]	34,023	35,850	33,789	36,417
Marketed	do.	5,237 [†]	5,982	6,207	6,234	5,975
Natural gas liquids ^e	thousand 42-gallon barrels	2,600	2,600	2,600	2,600 ^e	2,600 ^e
Petroleum:						
Crude	do.	297,840	250,755	220,460	211,007	197,586
Refinery products:						
Liquefied petroleum gas	do.	7,840	8,177	8,503	8,089	8,797
Gasoline:						
Aviation	do.	183	147	142	69	315
Motor	do.	40,605	41,636	43,259	39,775	40,250
Jet fuel	do.	7,097	8,263 [†]	9,032	9,032	9,770
Kerosene	do.	1,060	213	162	151	1,093
Medium distillate fuel oil	do.	21,209	22,604	24,220	23,678	23,912
Lubricants	do.	402	383	397 ^e	398 ^e	400 ^e
Residual fuel oil (black oil)	do.	20,797	19,408	20,639	20,767	19,413
Asphalt	do.	876 [†]	1,242 [†]	1,000 ^e	1,000 ^e	1,000 ^e
Refinery fuel and losses and unspecified products ^e	do.	3,624	4,087	3,190	2,620	549
Total	do.	103,693	106,160	110,544	105,579	105,499

^e Estimated. [†] Revised. -- Zero.

¹ Includes data available through November 15, 2004.

² Estimated data are rounded to no more than three significant digits; may not add to the totals shown.

³ Reported figure.

⁴ Based on registered exports by the Banco de la República.

TABLE 2
COLOMBIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2003

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Carbon black		Cabot Colombiana, S.A. (private, 100%)	Cartagena, Bolivar Department (plant)	NA.
Do.		Productos Petroquímicos, S.A. (private, 100%)	Cali, Valle del Cauca Department (two plants)	12.
Cement		Cía. Colombia de Clinker, S.A. (Colclinker) (private, 100%)	Cartagena, Bolivar Department (plant)	1,100.
Do.		Cementos Boyacá, S.A. (Holcim Group, 100%)	Nobsa, Boyaca Department	1,700.
Do.		CEMEX Colombia S.A. (CEMEX S.A. de C.V., 98.2%)	Five plants	4,800.
Do.		Cementos del Caribe, S.A. (private, 100%)	Barranquilla, Atlantico Department	1,000.
Do.		Cementos del Valle, S.A. (private, 100%)	Yumbo, Valle del Cauca Department	1,200.
Do.		Cementos Río Claro, S.A. (private, 100%)	Puerto Trifuno, Antioquia Department	1,750.
Coal		Carbones del Cerrejón LLC (Anglo American Plc; 33.3%; Glencor International AG, 33.3%; BHP Billiton Plc, 33.3%)	Cerrejon Centro mines, Cerrejon Sur mines, Cerrejon Zona Norte, and Oreganal Mines, La Guajira Department	22,000.
Do.		Drummond Ltd. (Drummond Co. Inc., 100%)	La Loma Mine (Pribbenow), Cesar Department	16,000.
Do.		Prodeco S.A. (private, 100%)	Calenturitas in Cesar Department	NA.
Do.		Acerías Paz del Río, S.A. (private, 100%)	Paz del Río, Boyaca Department (mine)	600.
Copper		Minera El Roble, S.A.	El Roble Mine, El Carmen, Choco Department	3.
Gemstones, emerald		Minerales de Colombia, S.A. (MINERALCO) (Government, 100%)	Chivor, Coscuez, Muzo, and Quipama Mines, Boyaca Department	NA.
Gold	kilograms	Frontino Gold Mines Ltd. (private, 100%)	El Silencio Mine, Segovia District and Providencia Mine, Remedios District, Antioquia Department	1,500.
	do.	Grupo de Bullet S.A.	El Limón Oronorte Mine, Segovia, Antioquia Department	1,000.
Do.	do.	Mineros de Antioquia, S.A. (private, 100%)	El Bagre, Rio Nechi, Antioquia Department	2,000.
Do.	do.	Small miners (cooperatives and individual prospectors)	do.	NA.
Iron ore		Acerías Paz del Río, S.A.	Paz del Río, Boyaca Department (mine)	800.
Kaolin		Cerámicas del Valle Ltda., (private, 100%)	Yumbo, Valle del Cauca Department (mine)	NA.
Natural gas	million cubic meters	Ecopetrol S.A. (Government, 100%)	North coast, La Guajira Department (national gasfields)	4,500.
Do.	do.	International Petroleum Colombia, Ltd. (International Petroleum Corp., 100%)	Barrancabermeja locale, Antioquia and Santander Departments	2,200.
Nickel		Cerro Matoso, S.A. [QNI Ltd. 100% (latter owned by BHP Billiton Plc 100%)]	Cerro Matoso Mine, Montelibano, Cordoba Department	55 plant.
Nitrogen		Abonos de Colombia (private, 100%)	Cartagena, Bolivar Department (plant)	100.
Do.		Monómeros Colombo-Venezolanos, S.A. (private, 100%)	Barranquilla, Atlantico Department (plant)	85.
Petroleum ¹	thousand 42-gallon barrels	Ecopetrol S.A.	16 fields in various Departments	70,000.
Do.	do.	HOCOL, S.A.	14 fields in various Departments	36,500.
Petroleum products	do.	Esopetrol S.A.	Barrancabermeja refinery, Norte de Santander Department	81,400.
Do.	do.	do.	Cartegena refinery, Bolivar Department	28,000.
Do.	do.	do.	Tibu, Norte de Santander Department	1,825.
Do.	do.	do.	Orito, Putumayo Department	875.
Phosphate rock		Fosfatos de Colombia, S.A. (private, 100%)	Neiva, Huila Department	30.
Do.		Fosfatos Boyacá, S.A. (Government, 100%)	Iza, Boyaca Department	20.

See footnotes at end of table.

TABLE 2--Continued
 COLOMBIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2003

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Platinum		Small miners (cooperatives and individual prospectors)	Rio San Juan, Choco Department	NA.
Salt, marine		Instituto de Fomento Industrial (IFI) (Government, 100%)	Manaure Salina, La Guajira Department	700.
Salt, rock		IFI-Concesión de Salinas (Government, 100%)	Zipaquira, Cundinamarca Department	500.
Silver	kilograms	Frontino Gold Mines Ltd.	El Silencio Mine, Segovia, Antioquia Department	2,500.
Do.	do.	Small miners (individual prospectors and cooperatives)	Rio Nechi, Antioquia Department (mines)	NA.
Steel:				
Integrated plant		Acerías Paz del Río, S.A.	Belencito, Boyaca Department	400.
Semi-integrated plants		Siderúrgica del Caribe (private, 100%)	Cartagena, Bolivar Department	NA.
Do.		Siderúrgica del Boyacá, S.A. (private, 100%)	Santa Fe de Bogota	NA.
Do.		Siderúrgica del Medellín, S.A. (private, 100%)	Medellín, Antioquia Department	NA.
Do.		Siderúrgica del Muna, S.A. (private, 100%)	Chusaca, Federal District	NA.
Do.		Siderúrgica del Pacifico, S.A. (private, 100%)	Cali, Valle del Cauca Department	NA.
Sulfur		Industrias Purace, S.A. (private, 100%)	El Vinagre Mine, Cauca Department	60.
Do.		Ecopetrol S.A.	Barrancabermeja, Santander Department	29.

NA Not available.

¹These two petroleum entries are examples only. Colombia has more than 3,000 producing wells drilled by Government and private companies; these wells have combined capacities that exceed 755,000 barrels per day of oil.