

# 2005 Minerals Yearbook

**COLOMBIA** 

### THE MINERAL INDUSTRY OF COLOMBIA

### By Ivette E. Torres

Colombia was Latin America's fourth largest economy after Brazil, Mexico, and Argentina. In 2005, it had a gross domestic product of \$123.2 billion<sup>1</sup> or \$337.3 billion in terms of purchasing power parity (International Monetary Fund, 2006§2). The country's economy grew by 5.23% in 2005 after an increase of 4.89% (revised) in 2004, in part due to the strength of the construction sector. The output of the construction sector, which increased for the fourth consecutive year, grew by 12.1% in 2005. Mining and quarrying, which includes hydrocarbons (natural gas and petroleum), increased by 2.4%; this growth was commensurate with that achieved in 2004. However, when hydrocarbons are excluded, the output of the mining sector increased by 5.3%. In recent years, the performance of the mining sector was attributable in great part to the development of the coal sector, and, to a lesser extent, to the trend toward increased prices for precious metals (Ministerio de Minas y Energía, 2006, p. 13; Departamento Administrativo Nacional de Estadística, 2006a§).

Colombia's economy and mineral production were dominated by the fuel sector. The country was the fifth ranked producer of crude petroleum in Latin America and the Caribbean and contributed about 5% of the Latin American output (BP p.l.c., 2006, p. 8). Colombia was also the leading producer of coal in Latin America. Historically, Colombia has been recognized as an important producer and the world's leading exporter of emerald. In addition, Colombia was an important producer of ferronickel and the only producer of platinum in Latin America. The country also produced copper, iron ore, steel, and silver. Colombia was an important producer of cement in Latin America and produced construction materials and industrial minerals (table 1).

Since 2003, foreign direct investment in Colombia's mining sector (excluding petroleum) had been increasing significantly. In 2002, foreign direct investment in mining was only \$466 million. By 2004, the amount totaled \$1.2 billion, and it reached \$1.98 billion in 2005. The Government attributed this growth to an increase in exploration and production of gold in a time of high prices. Although the increase of foreign investment was slightly less dramatic for petroleum, the total foreign direct investment in the petroleum sector increased from \$449 million in 2002 (after dipping to \$278 million in 2003) to \$1.24 billion in 2005. Total foreign direct investment in 2005 more than tripled to \$10.2 billion. This means that, together, the mining and petroleum sectors took in more than 30% of total foreign direct investment for the year (Ministerio de Minas y Energía, 2006, p. 76).

#### **Production**

After petroleum, the principal minerals produced in Columbia were, in terms of value, coal, emerald, gold, and platinum. In 2005, production of coal and nickel increased compared with that of 2004 and production of gold was 64% higher than that of 2001. During the same period, production of coal increased by 35% and that of nickel in ferronickel, by 37%. Colombia was the leading producer of coal in Latin America and accounted for almost 70% of the region's output. Although it was the world's 10th ranked producer, Colombia produced only about 1% of the world total (World Coal Institute, 2006§). Despite a decrease in the production of gold for the second consecutive year and losing ground in regional output, Colombia continued to be an important producer of gold and was the fourth ranked producer in Latin America and the Caribbean (after Peru, Brazil, and Chile), producing about 8% of the regional total and about 1% of the world total. The country, which was the leading producer of mine nickel in Latin America and the Caribbean, accounted for 30% of the region's total. As one of the region's four producers of ferronickel, Colombia accounted for 51% of the region's total. It was also an important producer of cement in Latin America, ranking third in the region after Brazil and Mexico.

Colombia was the fifth ranked producer of crude petroleum in Latin America and the Caribbean and accounted for 5% of the region's total. It was the seventh ranked producer of natural gas in the region, and accounted for about 4% of the region's total (BP p.l.c., 2006, p. 8, 24).

#### Trade

Colombia's exports, of which petroleum and coal were the two main export earners, totaled \$21.2 billion. Imports totaled \$19.8 billion. The United States was Colombia's main trading partner, accounting for 40% of Colombia's exports and 28% of its imports. Other important partners were countries of the Comunidad Andina de Naciones (Andean Community of Nations), whose members were, in 2005, Bolivia, Colombia, Ecuador, Peru, and Venezuela; the European Union; and the Asociación Latinoamericana de Integración (Latin American Integration Association (ALADI) (Departamento Administrativo Nacional de Estadística, 2006b§, c§). In 2005, in addition to Colombia, ALADI countries included Argentina, Bolivia, Brazil, Chile, Cuba, Ecuador, Mexico, Paraguay, Peru, Uruguay, and Venezuela.

In 2005, mineral exports (including base metals, coal, ferronickel, and industrial minerals but excluding petroleum) totaled \$3.95 billion, or 18.6% of total exports. Coal (including coke), which was by far the leading export item of the mining sector, had a value of almost \$2.6 billion, which was a 40% increase compared with that of 2004 and represented 12% of Colombia's total exports. The main areas of export for

<sup>&</sup>lt;sup>1</sup>Where necessary, values have been converted from Colombian pesos (Col\$) to U.S. dollars (US\$) at the rate of Col\$2,321.5=US\$1.00.

<sup>&</sup>lt;sup>2</sup>References that include a section mark (§) are found in the Internet References Cited section.

Colombian coal were Europe and North America. Exports of ferronickel totaled \$738 million in 2005 compared with \$628 million in 2004. Exports of gold decreased by 8.5% to \$517 million, and the value of official emerald exports (\$72 million) continued to decrease (Ministerio de Minas y Energía, 2006, p. 75).

The value of petroleum exports from Colombia increased by 33.6% to \$2.8 billion. In terms of volume, exports of petroleum decreased by 1.37%. The largest contributor to the total was the Vasconia crude petroleum, which accounted for \$961.5 million of Colombia's petroleum exports in 2005. Imports of petroleum tripled to \$30.7 million; this increase was due mainly to increased imports of diesel (Ministerio de Minas y Energía, 2006, p. 53; Presidencia de la República de Colombia, 2006§).

#### Structure of the Mineral Industry

The Ministerio de Minas y Energía was the Government entity entrusted with oversight of the minerals and energy sectors. Several agencies either reported directly to the Ministry or were associated with it; some of these agencies were the Agencia Nacional de Hidrocarburos (ANH), the Comisión de Regulación de Energía y Gas, the Dirección de Energía, the Dirección de Gas, the Dirección de Hidrocarburos, the Dirección de Minería, Ecopetrol S.A., Empresa Colombiana de Gas, 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 entirely by the private sector. Natural gas and petroleum were produced by the Government through publicly owned Ecopetrol, which operated the country's petroleum refinery production. The Government also entered into partnership with the private companies by way of direct contracts between Ecopetrol and the companies. As part of the reorganization of the the Ministerio de Minas y Energía in 2003, Ecopetrol became a publicly owned company stripped of all administrative and regulatory functions (these functions were given to ANH), and the requirement that Ecopetrol have a minimum participation of 30% with the private sector was eliminated. Consequently, private foreign companies were able to operate in Colombia without being associated with Ecopetrol. Carbocol S.A., Instituto de Fomento Industrial, and Minercol Ltda. were in liquidation (Ministerio de Minas y Energía, 2004, p. 102, 115).

#### **Commodity Review**

#### Metals

Gold.—Despite increased interest in exploration and recent strong performance in output, official gold production decreased for the second consecutive year in 2005 (table 1). The Department of Antioquia had the highest level of production and accounted for 63% of Colombia's total production. The production level of this Department decreased slightly from that of 2004. The Department of Bolivar was the second ranked producer with 12% of the country's production. This Department, which had ranked third after the Department of Cordoba in 2004, gained in ranking because of a 41%

increase in output. The Department of Cordoba, which in 2004 had ranked second in gold production, had a 49% decrease in production and was the third ranked producer in 2005, accounting for 10% of the production (Unidad de Planeación Minero Energética, 2006a, p. 23).

Although Colombia has not benefited from the large investment in mining seen in other Latin American countries, some companies were beginning to show interest and were acquiring exploration properties in the country as they perceived that recent Government policies were creating a more welcoming and stable environment for investment. AngloGold Ashanti Ltd. of South Africa (which was one of the world's leading producers of gold), Colombia Goldfields Ltd., and Greystar Resources Ltd. were some of the companies that had established exploration projects in Colombia (Dow Jones Newswire, 2005§).

During the year, Colombia Goldfields acquired the option to buy three gold properties, known as the Caramanta Concessions, in the Marmato Mountain mining district, which is a historical gold producer. The company could earn 100% interest in the concessions by investing \$2.99 million in exploration and development in 3 years (Colombia Goldfields Ltd., 2005).

AngloGold Ashanti, which had been in Colombia since 1999, moved its South American operations from Peru to Colombia in 2005; the company was in the early stages of exploration in the country and had eight projects ready to be drilled. The company's goal was to have at least one project in the prefeasibility stage by 2008 (Mining News, The, 2005§).

Greystar Resources owned 100% interest in the Angostura project, which is located in northern Colombia approximately 35 kilometers from Bucaramanga, Department of Santander. The company held several exploration and mining permits in the 6,670-hectare project. Based on information up to mid-2006 that was obtained after about 162,000 meters of drilling, the company estimated indicated resources in oxides and sulfides of almost 220,000 kilograms (kg) (reported as 6.98 million troy ounces) of gold and almost 964,000 kg (reported as 30.98 million troy ounces) of silver (Greystar Resources Ltd., 2006§).

Iron and Steel.—Colombia was Latin America's seventh ranked producer of steel and had an estimated output of 830,000 metric tons (t). 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) of steel. The company had been under restructuring since 2003.

The leading producer of rebar in Colombia was Diaco S.A. In 2005, Gerdau Group (a Brazilian steelmaker that had been a minority owner) purchased additional interest in Diaco for \$75 million to become the majority owner of the company with a 57.1% share. The company also purchased the Siderúrgica del Pacífico S.A (Sidelpa). Gerdau planned to invest \$30 million in 2006 in Diaco to improve efficiency and productivity. Diaco and Sidelpa had steel production capacities of 400,000 t and 60,000 t, respectively (American Metal Market, 2005; Proexport, 2006§). Gerdau's crude steel production from the two plants was about 400,000 t in 2005. The company planned to increase production to 600,000 t by 2008. Facilities also included two downstream operations and four rebar plants. The company employed 2,000 people in 2005, and as of June 2005,

95% of the production was for the domestic market (Gerdau Group, 2005).

Nickel.—Colombia was the world's second ranked producer of ferronickel after Japan. Cerro Matoso, S.A. was Colombia's only producer of ferronickel. The mine and ferronickel plant were located in Montelibano, Department of Cordoba; the company was owned by BHP Billiton plc through its subsidiary QNI Ltd. In 2005, mine production of nickel from Cerro Matoso was about 81,000 t; this was an 8% increase compared with that of 2004 (table 1). The company produced ferronickel that had a nickel content of more than 52,700 t, which was an 8% increase compared with that of 2004 and an increase of 37% compared with that of 2001. The 2005 production was about 96% of the company's production capacity, which had been expanded in early 2001. As of June 30, 2006, Cerro Matoso's reserves totaled 61 million metric tons (Mt) at a grade of 1.67% nickel, which was sufficient for almost 20 years of production at current rates (BHP Billiton plc, 2006, p. 75).

**Platinum.**—Colombia was the only producer of platinum in South America. Production of platinum decreased to 1,082 kilograms (kg) in 2005; this was a 10.5% decrease compared with that of 2004 but was a more than 60% increase compared with that of 2001. Almost all the platinum production (1,078 kg) was from the Department of Choco. Other producing Departments were Antioquia, Cauca, Cordoba, and Nariño; these Departments produced less than 1.5 kg each (Unidad de Planeación Minero Energética, 2006a, p. 25).

**Silver.**—Production of silver in Colombia decreased by 16% in 2005. Production of silver was from more than 11 Departments. The Department of Antioquia produced 61% of the output but its production decreased by 16% from that of 2004. The Department of Caldas produced 27% of the total and its output increased by 13%. Production from the Department of Cordoba, which had the third largest output in 2004, decreased by 78%. As a result, the Department of Bolivar became the third ranked silver producing Department in 2005 with about 4% of the total (Unidad de Planeación Minero Energética, 2006a, p. 24).

#### **Industrial Minerals**

Cement.—Colombia was Latin America's fourth ranked producer of cement after Mexico, Brazil, and Venezuela. Production in 2005 increased by 27.3% from the revised figure of 2004 to almost 10 Mt (table 1). Increased demand for building materials and the continued growth of the construction sector were the main reasons for this increase. The leading cement producer in Colombia was Cementos Argos Colombia (a subsidiary of Cementos Argos, S.A.) with about 8.2 million metric tons per year (Mt/yr) of capacity. Cementos Argos Colombia was formed in 2005 by the merger of Cales y Cementos de Toluviejo, S.A., Cementos del Caribe, S.A., Cementos del Nare, S.A., Cementos del Valle, S.A., Cementos El Cairo, S.A., Cementos Ríoclaro, S.A., Cementos Paz del Río, S.A., and Cía Colombiana de Clinker. During the year, Cementos Argos Colombia represented 50% (7.8 Mt) of domestic sales (Cementos Argos, S.A., 2006§, Instituto Colombiano de Productores de Cemento, 2006§).

CEMEX Colombia, S.A (a subsidiary of CEMEX, S.A.B. de C.V., which was one of the world's leading cement companies) was Colombia's second ranked producer and had about 30% of Colombia's production capacity. CEMEX owned 99.7% of CEMEX Colombia, which had five cement plants that had a combined capacity of 4.8 Mt/yr.

**Emerald.**—Colombia was the world's leading producer of emerald. Official production of emerald (based on export data) decreased by 31% after increasing significantly in 2003 and 2004. According to Government estimates, 98% of the emerald was destined for export and 2% was sold in the country. Recent Government estimates indicate that Colombia produced about 50% of the world's emerald. Other estimates have the number as high as 60%, along with 80% of the high-quality stones (Unidad de Planeación Minero Energética, 2006a, p. 26; Emerald Empire, The, 2006§).

**Salt.**—Production of salt in 2005 decreased by almost 10% after an increase of almost 18% in 2004. Although marine salt production increased, the increase was not enough to offset the decrease in rock salt production. Since 2002, however, salt exports have increased by 87% to more than 82,000 t and imports have decreased by almost 75%. During the period, Colombia went from being a net importer to being a net exporter of salt (Ministerio de Minas y Energía, 2006, p. 88).

The Government of Colombia's efforts to privatize its salt industry through the granting of concessions was delayed. The bid process, which was expected to be held in February 2005, was postponed until new legislation was passed to address the issue. The proposed legislation was debated once by Congress during the year (Ministerio de Minas y Energía, 2006, p. 88).

#### Mineral Fuels

Coal.—Colombia, which had the largest reserves and was the leading producer of coal in Latin America, produced 59.1 Mt of coal; this was an increase of 10% compared with that of 2004, an increase of 35% since 2001, and an increase of 80% since 1999 (table 1; Unidad de Planeación Minero Energética, 2006a, p. 21). The leading coal producer was Carbones del Cerrejón LLC in the Department of La Guajira. Carbones del Cerrejón produced 27 Mt during the year, which was an increase of almost 8% compared with that of 2004, and exported 25.5 Mt (Carbones del Cerrejón LLC, 2006b§). In 2005, 59% of Carbones del Cerrejón's exports went to Europe, and 22% went to North America (Carbones del Cerrejón LLC, 2006a§).

The second ranked producer of coal was Drummond Ltd., which produced 22.1 Mt from its property in La Loma, Department of Cesar; this output was a 7% increase compared with that of 2004 and a 25% increase compared with that of 2003. Combined, the Departments of Cesar and La Guajira produced more than 93% of Colombia's total coal production. In 2005, the Department of Cesar, which had led production since 2004, produced 46.9% of Colombia's total coal production, and the Department of La Guajira produced 46% of the total (Unidad de Planeación Minero Energética, 2006a, p. 22). Most of Colombia's output was thermal coal. Only a small amount (less than 1.4 Mt in 2003) was metallurgical. Most of Colombia's coal production (58 Mt) was for export. Domestic

consumption in 2004 (the latest year for which information was available) was about 3.1 Mt, which was a 16.2% decrease compared with that of 2003 when it was 3.7 Mt (revised). Of the total, 75% of the consumption was by the industrial sector; 21%, by the power sector; and the remainder, by the residential sector (Ministerio de Minas y Energía, 2006, p. 248).

**Natural Gas.**—The leading producer of natural gas in Colombia was Chevron Texaco Colombia (a subsidiary of Chevron Corporation) in association with Ecopetrol in the Department of La Guajira. This association produced natural gas from two platforms in the Chuchupa offshore field and from the Ballena and the Riohacha onshore fields; it produced more than 75% of the natural gas produced in Colombia (Chevron Corporation, 2006§).

**Petroleum.**—At yearend 2005, Colombia's petroleum reserves totaled 1.453 billion barrels. Although this was a decrease, it was a less than 2% reduction compared with that of 2004 (Ministerio de Minas y Energía, 2006, p. 30). Production during the year was about 192 million barrels (Mbbl), which was a less than 0.5% decrease compared with that of 2004. At this production rate, crude petroleum reserves would be depleted in about 8 years. Because hydrocarbons was Colombia's leading economic subsector, the Government was focusing its efforts on increasing foreign investment in exploration and production of crude petroleum and its associated natural gas and the production and productivity of the refineries. Even though depletion of reserves has slowed down, exploration so far has not resulted in increased reserves. Investment in exploration in 2005 was \$343 million, which was an almost 60% increase compared with that of 2004. Of this total amount of investment, \$167 million was by the private sector, \$96 million was by Ecopetrol, and \$80 million was by AHN (Ministerio de Minas y Energía, 2006, p. 22).

Ecopetrol produced 26% of Colombia's crude petroleum production in 2005 and participated in additional production through association contracts with the private sector. In total, Ecopetrol participated in about 59% of the country's total production (Ecopetrol S.A., 2006b§). BP p.l.c. and Occidental Petroleum Corp. were the two leading private producers in Colombia that worked in association with Ecopetrol. BP Exploration Company (Colombia) Limited (a subsidiary of BP) was the operator of the Cupiagua and the Cusiana oilfields. Occidental was the operator of the Caño Limon oilfield.

Refinery Products.—Despite Colombia being a net exporter of crude petroleum, it was an importer of refinery products (mainly gasoline). Production of refinery products for the year was 109.2 Mbbl, which was the equivalent of a capacity utilization of 84% in 2005. Two refineries operated during the year—Barrancabermeja in the Department of Santander, which was the largest of the refineries, processed 75% of Colombia's crude petroleum during the year, and the Cartagena refinery in the Department of Bolivar processed the remainder. Colombia's refining system was owned and operated by the Government through Ecopetrol (Ecopetrol S.A., 2006a§).

#### Outlook

The Government of Colombia published a National Plan for the development of the mining sector to 2019 (Unidad de

Planeación Minero Energética, 2006b). The plan reinforces the position that the mineral industry should be developed by the private sector, while recognizing the important role of the Departments and local authorities.

Based on information provided by the coal producers in Colombia, the Government expects the production of coal to increase to 124.9 Mt in 2011 and to 134.2 Mt in 2019; the largest increase would be in the Department of Cesar. The production from the Departments of Cesar and La Guajira is expected to continue to be exported in its entirety. The Government outlook for coal is somewhat higher than that of other analysts.

The Government also expects the production of gold to increase significantly, with additional companies expected to begin production in the near future and with the modernization of existing operating mines. Production is expected to more than double to 90,000 kg by 2011 and to continue to increase and exceed 230,000 kg by 2019. The Government observed that, historically, production in Colombia has increased when the gold price becomes more attractive to the small-scale producers, which contribute a large portion of the country's output. With recent interest in exploration by the international gold producers, small-scale producers may have less impact on output levels.

The Government expects the production of ferronickel to increase moderately and platinum production to increase significantly. Colombia expects to increase its share of the world emerald market with the certification of origin and quality for emerald (a scheme similar to the Kimberley Process established for diamond) when it becomes effective.

Other minerals of increasing importance are the construction minerals. The Government of Colombia expects the production of many of these minerals to double by 2010.

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#### **Major Sources of Information**

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 $\label{eq:table1} \textbf{TABLE 1}$   $\textbf{COLOMBIA: PRODUCTION OF MINERAL COMMODITIES}^1$ 

(Metric tons unless otherwise specified)

Commodity	2001	2002	2003	2004	2005
METALS					
Copper, mine output, Cu content	2,192	1,853	1,578	1,701	1,259
Gold kilograms	21,813	20,823	46,515	37,739	35,785
Iron and steel:					
Iron ore and concentrate	636,837	688,106	625,002	507,711 <sup>r</sup>	498,623
Pig iron	318,953	312,879 г	288,214 <sup>r</sup>	316,025 г	345,000 <sup>e</sup>
Steel, crude	638,259	663,724	668,410	730,000	830,000 <sup>e</sup>
Semimanufactures, hot-rolled <sup>e</sup>	552,000 <sup>2</sup>	575,000	550,000	575,000	650,000 <sup>e</sup>
Lead:					
Mine output, Pb content <sup>e</sup>	r	r	r	r	
Refined (secondary) <sup>e</sup>	12,000	12,000	12,000	12,000	12,000
Nickel:					
Mine output, Ni content	52,962	58,196	70,844	75,032	81,000 e
Ferronickel, Ni content	38,438 <sup>r</sup>	43,987	47,868	48,818	52,749
Platinum kilograms	674	661	828	1,209	1,082
Silver do.	7,242	6,986	9,511	8,533	7,142
Zinc, mine output, Zn content <sup>e</sup>	r	r	r	r	
INDUSTRIAL MINERALS					
Asbestos, mine output	96,140	62,785	60,000 <sup>e</sup>	60,000 <sup>e</sup>	60,000 <sup>e</sup>
Barite <sup>e</sup>	600	600	600	600	600
Cement, hydraulic <sup>3</sup>	6,830,423 <sup>r</sup>	6,063,895 <sup>r</sup>	7,337,398 <sup>r</sup>	7,822,386 <sup>r</sup>	9,959,223
Clays: <sup>e</sup>	-,,	.,,	. , ,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	- , ,
Bentonite	8,500	8,500	8,500	8,500	8,500
Common clay and kaolin thousand metric tons	8,400	8,400	8,400	8,400	8,400
Diatomite <sup>e</sup>	4,000	4,000	4,000	4,000	4,000
Feldspar <sup>e</sup>	55,000	93,452 <sup>2</sup>	100,000 r	100,000 <sup>r</sup>	100,000
Fluorite <sup>c</sup>	800	800	800	800	800
Gemstones, emerald <sup>4</sup> thousand carats	5,499	5,390	8,963	9,825	6,746
Gypsum <sup>e</sup>	560,000	560,000	560,000	560,000	700,000
	1,300 <sup>r</sup>	1,300 <sup>r</sup>	1,300 <sup>r</sup>	1,300 <sup>r</sup>	1,300
Lime, hydrated and quicklime <sup>e</sup> thousand meric tons  Magnesite <sup>e</sup>	10,500	10,500	10,500	10,500	10,500
Mica <sup>e</sup>	10,300	10,300	10,300	10,300	10,300
Nitrogen, N content of ammonia	95,200	110,900 <sup>r</sup>	107,800 <sup>r</sup>	98,200 <sup>r</sup>	100,000 °
	93,200	110,900	107,800	98,200	100,000
Phosphate rock: <sup>e</sup> Gross weight	43,000	42,000	42,000	42,000	43,000
P <sub>2</sub> O <sub>5</sub> content	8,000	43,000 8,000	43,000 8,000	43,000 8,000	8,000
Salt:	8,000	8,000	8,000	8,000	8,000
Rock	110,212	191,554	199,364	231,721	162,941
Marine	285,073	335,783	247,901	294,343	311,055
Total	395,285	527,337	447,265	526,064	473,996
Sodium compounds, n.e.s., sodium carbonate <sup>e</sup>	125,000	125,000	125,000	125,000	125,000
Stone and sand:	123,000	123,000	123,000	123,000	123,000
Calcite <sup>c</sup>	6,500	6,500	6,500	6,500	6,500
	45	45	45	45	45
	9,075 <sup>r</sup>	9,047 <sup>r</sup>	9,887 <sup>r</sup>	10,087 <sup>r</sup>	
Limestone for cement do.  Marble <sup>c</sup>	190,000	190,000	190,000	190,000	12,082 190,000
	925.000				925,000
Sand, excluding metal-bearing <sup>e</sup>	923,000	925,000	925,000	925,000	923,000
Sulfur:	60 244 F	60 162	72.024	07 506 1	64 660
Native (from ore)	69,344 <sup>r</sup>	60,162	73,024	97,596 <sup>r</sup>	64,660
Byproduct, from petroleum	15,465 84,809 <sup>r</sup>	15,500 e	15,500 e	15,500 e	15,500
Total		75,662 <sup>r</sup>	88,524 <sup>r</sup>	113,096 <sup>r</sup>	80,160
Talc, soapstone, pyrophyllite <sup>e</sup>	15,000	15,000	15,000	15,000	15,000

See footnotes at end of table.

## $\label{thm:colombia} \textbf{TABLE 1--Continued}$ $\textbf{COLOMBIA: PRODUCTION OF MINERAL COMMODITIES}^1$

(Metric tons unless otherwise specified)

Commodity		2001	2002	2003	2004	2005
MINERAL FUELS AND RELATED M.	ATERIALS					
Carbon black <sup>e</sup>		24,000	24,000	24,000	24,000	24,000
Coal	thousand metric tons	43,911	39,484	50,028	53,693	59,064
Coke, all types <sup>e</sup>	do.	615	615	615	615	615
Gas, natural:						
Gross	million cubic meters	35,850	33,789	36,417	35,600	36,000 e
Marketed	do.	6,207	6,234	5,975	6,404	6,708
Natural gas liquids <sup>e</sup> thou	sand 42-gallon barrels	2,600	2,600	2,600	2,600	2,600
Petroleum:						
Crude	do.	220,460	211,007	197,586	192,866	191,990
Refinery products:						
Liquefied petroleum gas	do.	8,503	8,089	8,797	7,257	7,300
Gasoline:						
Aviation	do.	142	69	315	320	509
Motor	do.	43,296 <sup>r</sup>	40,009 <sup>r</sup>	40,250 <sup>r</sup>	41,897 <sup>r</sup>	35,555
Jet fuel	do.	9,032	9,032	9,770	7,521	7,300
Kerosene	do.	162	151	1,093	256	136
Medium distillate fuel oil	do.	24,220	23,678	23,912	26,573	26,451
Lubricants <sup>e</sup>	do.	397	398	400	400	400
Residual fuel oil (black oil)	do.	20,638 <sup>r</sup>	21,036 <sup>r</sup>	19,413	21,990 <sup>r</sup>	20,240
Asphalt	do.	1,125 <sup>r</sup>	883 <sup>r</sup>	1,311 <sup>r</sup>	970 <sup>r</sup>	1,117
Refinery fuel and losses and unspecified produ	icts <sup>e</sup> do.	3,190 <sup>e</sup>	2,620 e	2,124 <sup>r</sup>	5,067 <sup>r</sup>	10,205
Total	do.	110,705	105,965	107.385 г	112,251 <sup>r</sup>	109.213

<sup>&</sup>lt;sup>e</sup>Estimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. <sup>r</sup>Revised. -- Zero.

<sup>&</sup>lt;sup>1</sup>Includes data available through November 30, 2006.

<sup>&</sup>lt;sup>2</sup>Reported figure.

<sup>&</sup>lt;sup>3</sup>Excludes white portland cement produced in the country. Production capacity of white portland was about 200,000 metric tons.

<sup>&</sup>lt;sup>4</sup>Based on registered exports by the Banco de la República.

### ${\bf TABLE~2}$ COLOMBIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2005

(Thousand metric tons unless otherwise specified)

Comr	nodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Carbon black	Hourty	Cabot Colombiana, S.A. (private, 100%)		NA.
		* '	Cartagena, Bolivar Department (plant)	
Do.		Productos Petroquímicos, S.A. (private, 100%)	Cali, Valle del Cauca Department (two plants)	12.
Cement		Cía. Colombiana de Clinker, S.A. (Cementos Argos Colombia, 100%)	Cartagena, Bolivar Department (plant)	1,250.
Do.		Cementos del Caribe, S.A. (Cementos Argos Colombia, 74%)	Barranquilla, Atlantico Department	1,500.
Do.		Cementos del Valle, S.A. (Cementos Argos Colombia, 70%)	Yumbo, Valle del Cauca Department	1,500.
Do.		Cales y Cementos de Toluviejo, S.A. (Cementos Argos Colombia, 95%)	Toluviejo, Sucre Department	980.
Do.		Cementos del Nare, S.A. (Cementos Argos Colombia, 100%)	Puerto Nare, Antioquia Department	200.
Do.		Cementos El Cairo, S.A. (Cementos Argos Colombia, 100%)	Montebello, Antioquia Department	450.
Do.		Cementos Paz del Río, S.A. (Cementos Argos Colombia, 62%)	Belencito, Boyaca Department	880.
Do.		Cementos Ríoclaro, S.A. (Cementos Argos Colombia, 99%)	Sonson, Antioquia Department	1,400.
Do.		Cementos Boyacá, S.A. (Holcim Group, 100%)	Nobsa, Boyaca Department	1,800.
Do.		CEMEX Colombia, S.A. (CEMEX, S.A.B. de C.V., 99.7%)	Bucaramanga, Santander Department; Buenos Aires, Tolima Department; Pamplona, Norte de Santander Department; La Calera, Cundinamarca	4,800.
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	27,500.
Do.		Drummond Ltd. (Drummond Co. Inc., 100%)	La Loma Mine (Pribbenow), Cesar Department	22,000.
Do.		C.I. Prodeco S.A. (Glencore International AG, 100%)	Calenturitas in Cesar Department	5,000.
Do.		Acerías Paz del Río, S.A. (private, 100%)	Paz del Rio, 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.	do.	Grupo de Bullet S.A.	El Limon 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 Rio, Boyaca Department (mine)	800.
Iron and steel, steel		do.	Boyaca Department	400.
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.

See footnotes at end of table.

### TABLE 2--Continued COLOMBIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2005

(Thousand metric tons unless otherwise specified)

		Major operating companies		Annual
	Commodity	and major equity owners	Location of main facilities	capacity
Nickel		Cerro Matoso, S.A. [QNI Ltd. 100% (owned	Cerro Matoso Mine, Montelibano,	55 plant.
		by BHP Billiton plc, 100%)]	Cordoba Department	
Nitrogen		Abonos de Colombia (private, 100%)	Cartagena, Bolivar Department (plant)	100.
Do.		Monómeros Colombo-Venezolanos, S.A.	Barranquilla, Atlantico Department	85.
		(private, 100%)	(plant)	
Petroleum <sup>1</sup>	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.	Ecopetrol S.A.	Barrancabermeja refinery, Norte de	81,400.
			Santander Department	
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, Boyacá Department	20.
Do.		Siderúrgica del Boyacá, S.A. (private, 100%)	Santa Fe de Bogota	NA.
Do.		Siderúrgica del Medellín, S.A. (private, 100%)	Medellin, Antioquia Department	NA.
Do.		Siderúrgica del Muna, S.A. (private, 100%)	Chusaca, Federal District	NA.
Do.		Siderúrgica del Pacífico, 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

<sup>&</sup>lt;sup>1</sup>These 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.