



2015 Minerals Yearbook

COLOMBIA [ADVANCE RELEASE]

THE MINERAL INDUSTRY OF COLOMBIA

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In 2015, Colombia was the second-ranked coal producer in the Western Hemisphere after the United States, producing 85.5 million metric tons (Mt). The Organization of the Petroleum Exporting Countries (OPEC) reported that Colombia maintained its position as the fourth-ranked petroleum producer in Latin America in 2015. Colombia's nominal gross domestic product (GDP) was \$291.6 billion,¹ which was a decrease of 23% compared with that of 2014. The country's year-on-year rate of GDP growth was 3.1% compared with 4.4% in 2014. Despite a slight decline in the growth rate from that of the previous year, Colombia's economy remained among the fastest growing ones in Latin America in 2015. The mineral sector in Colombia was dominated by the coal, copper, emerald, gold, iron and steel, limestone, nickel, platinum, natural gas, petroleum, silver, and sulfur industries. Colombia was the world's 13th-ranked producer of nickel, accounting for nearly 3% of world production. The country accounted for 90.7% of Latin America's total coal production and about 10% of Latin America's total crude petroleum production in 2015. Colombia was also the only platinum-producing country in Latin America and was recognized worldwide as a source of quality emerald (BP p.l.c., 2016, p. 32; Departamento Administrativo Nacional de Estadística, 2016a; Enerdata, 2016; International Gem Society, LLC, 2016; Loferski, 2016; Organization of the Petroleum Exporting Countries, 2016, p. 28; World Bank, The, 2016; Schnebele, 2017).

In 2015, unlicensed gold miners in Colombia were reported by the Government to have accounted for about 80% of all the gold produced in the country. Illegal mining in the country had negatively affected the environment, including river pollution and deforestation. The Ministry of Mines and Energy (MME) reported that 1,405 informal mining operations began the process of formalization in 2015. The Government has identified about 7,000 mining operations across 16 Departments in the country that were eligible to begin the formalization process (Business News Americas, 2016; Jamasmie, 2016).

Minerals in the National Economy

In 2015, the industrial manufacturing sector accounted for about 11% of the country's GDP; the construction sector, about 10%; and the mining and quarrying sector (including hydrocarbons), about 6.8% compared with 8.4% in 2014. In 2015, the value contributed to the GDP from mineral production (including hydrocarbons) was \$19.9 billion. Production of mineral fuels was valued at about \$14.6 billion, production of coal was valued at \$3.1 billion, production of metallic minerals was valued at \$1.2 billion, and production of nonmetallic minerals was valued at \$1.1 billion (Departamento Administrativo Nacional de Estadística, 2016a).

¹Where necessary, values have been converted from Colombian pesos (COP) to U.S. dollars (US\$) at an annual average exchange rate of COP2,746.47=US\$1.00 in 2015 and COP2,000.68=US\$1.00 for 2014.

In 2015, Colombia's foreign direct investment (FDI) inflows amounted to \$11.6 billion, which was a decrease of about 28% compared with the \$16.2 billion (revised) in FDI inflows in 2014. The overall decline in FDI was driven by decreased investment in the mining and petroleum sectors. Based on preliminary data from the Central Bank of Colombia, the total amount of FDI directed towards the mining and petroleum sectors was about \$3 billion, which was a decrease of about 52% compared with that of 2014. Despite registering its lowest FDI level since 2010, Colombia remained among the leading recipients of investment in Latin America owing to its overall mining potential and sound regulatory framework. About 26% of the country's FDI in 2015 was designated for the mining, quarrying, and hydrocarbon sectors (Banco Central de Colombia, 2016; Ministerio de Minas y Energía, 2016d, p. 112).

Government Policies and Programs

The Ministry of Mines and Energy (MME) was created by Decree 636 of April 10, 1974, and is the principal mining authority in Colombia in charge of managing mining resources and formulating mining policies. Colombia has experienced rapid growth of the mining industry since the establishment of Decree 636, and as a result, numerous legislative actions have been adopted. In recent years, the country has taken steps to incorporate mining regulations that enable artisanal and small-scale mining to succeed while formalizing those activities. The Government has also identified areas that have been abandoned and degraded by the illegal extraction of minerals in order to mitigate the damage to those areas and implement strategies for their recovery (Ministerio de Minas y Energía, 2016a, b).

In 2001, the Government issued Mining Code, Law 685. The mining law formalized mining operations that are small, operate intermittently, do not produce greater than 250 metric tons per year (t/yr) of material, and rely on hand-operated tools and human power. The law granted unlicensed miners working on state-owned land 3 years to register with the national mining registry in order to legalize their operations. The law introduced the concept of special reserve areas for mining and defined these reserve areas as places where geologic and mining studies could take place. In these areas, cooperatives and small-scale mining groups were given priority with regard to the granting of mining concessions. Under the mining law, other special privileges were given to mining cooperatives, including financing; technical assistance and training; tax credits and exemptions; and business, legal, and financial training. The mining law and a related penal code describe an obligation to control illegal mining, the powers of municipalities to carry out decommissioning and suspension of illegal operations, and the confiscation of minerals found to be traded or transported without invoices or proof of the mines from which they came (Ministerio de Minas y Energía, 2014, p. 11–13).

The MME integrated several mining-related powers as a result of Decree 70 of 2001; among its special administrative units were the Unidad de Planeación Minero Energética [Mining and Energy Planning Unit] (UPME) and the Comisión de Regulación de Energía y Gas [Energy and Gas Regulatory Commission] (CREG). Related public institutions included the Instituto de Investigación e Información Geocientífica, Minero Ambiental y Nuclear (INGEOMINAS); the Instituto de Planificación y Promoción de Soluciones Energéticas (IPSE); and related companies, including Empresa Colombiana de Petróleos (ECOPETROL), Empresa Colombiana de Gas (ECOGAS), and Empresa Nacional Minera Ltda. (MINERCOL), among others (Ministerio de Minas y Energía, 2016b).

The Agencia Nacional de Hidrocarburos [National Hydrocarbon Agency (ANH)] was created by Decree 1760 of June 26, 2003, to bring about comprehensive management of hydrocarbon reserves. In 2004, as a result of Decree 252 of January 28, INGEOMINAS was restructured and became the Instituto Colombiano de Geología y Minería [Colombian Institute of Geology and Mining], retaining the same acronym for its short-form name. The agency was charged with performing and promoting mineral exploration and managing mining activities in the country (Ministerio de Minas y Energía, 2016b).

In 2011, the Government initiated a reorganization of the country's mining and energy sectors and adopted Decree 4131 of November 3, 2011. In accordance with the decree, INGEOMINAS's name was changed to the Colombian Geological Survey (CGS). The CGS continues to be under the administration of the MME and is affiliated with the National System of Science, Technology and Innovation. The Agencia Nacional de Minería (ANM), which is the mining authority in Colombia, was also created to help strengthen mining sector institutions in the country. The primary responsibilities of the ANM (as outlined in Decree 4134 of November 3, 2011) include managing Colombia's mineral resources and granting rights for exploration and mining, managing contracts and concessions, collecting and overseeing the transfer of royalties, coordinating mine safety, and developing and implementing strategies to promote the exploration for and extraction of the country's mineral resources (Agencia Nacional de Minería, 2016; Servicio Geológico Colombiano, 2016).

Production

In 2015, the production of iron ore increased to 902,000 metric tons (t), or by 33.4% compared with that of 2014. Production of copper increased by 32.7% to 5,463 t, all of which originated from Atico Mining Corp. of Canada. Crude (raw) steel production increased by 12.2% to about 1.2 Mt. Production of ferronickel (Ni content) decreased by 11.0% to 36,671 t, and silver production decreased by 11.7% to 10,155 kilograms (kg). Among the industrial minerals produced in Colombia, sulfur production increased by 30.3% to 63,236 t, and production of emerald increased by 10.2% to 2,167,000 carats (table 1).

Structure of the Mineral Industry

In 2015, the majority of mines and nonfuel mineral production facilities in Colombia were controlled or owned by the private sector. Table 2 is a list of major mineral industry facilities.

Mineral Trade

Colombia's geographic location as the only South American country with both Caribbean and Pacific coastlines has proved to be strategically and historically important to the country's economy. In 2015, mining led the Colombian export sector, accounting for about 54% of the country's total exports, in terms of value. The value of mineral commodity exports, which included extractive and combustible products (coal, coke, natural gas and related manufactured products, petroleum, and petroleum derivatives) decreased by about 47% to \$19.2 billion. Coal, which was the country's leading mineral commodity export, accounted for about \$4.6 billion, or 24% of total mineral commodity exports. Ferronickel exports decreased by about 33% to \$430 million compared with that of 2014. The downward trend in mineral commodity exports was owing mainly to lower commodity prices on the international market. In 2015, Colombia exported more than 268 million barrels (Mbbbl) of crude petroleum (Departamento Administrativo Nacional de Estadística, 2016c; Ministerio de Minas y Energía, 2016d, p. 113; Organization of the Petroleum Exporting Countries, 2016, p. 52).

According to the Department of National Statistics (DANE), the value of Colombia's total exports decreased by about 34.9% to \$35.7 billion from \$54.8 billion in 2014, and that of imports decreased by about 15.5% to \$54.1 billion from \$64.0 billion in 2014. The United States was Colombia's principal trading partner, accounting for about 27.7% (\$9.9 billion) of Colombia's exports and 28.7% (\$15.5 billion) of Colombia's imports. Ecuador was Colombia's second-ranked export partner, accounting for nearly 4.0% (\$1.4 billion), and China was its second-ranked import partner, accounting for 18.5% (\$10.0 billion). Other major trading partners were Brazil, Germany, Japan, Mexico, Peru, and Venezuela (Departamento Administrativo Nacional de Estadística, 2016b, c).

Commodity Review

Metals

Copper.—Atico's El Roble Mine was Colombia's only commercial copper mine in production in 2015. Atico completed the acquisition of 90% of Minera El Roble S.A., including claims surrounding the El Roble Mine, in 2013. The remaining 10% of the property was retained by Minera El Roble, which consisted of several private owners. Located within Choco Department, the El Roble Mine consisted of an underground mine that produced copper and gold contained in a copper concentrate at a current production rate of 650 metric tons per day (6 days per week), using mechanized cut-and-fill stoping methods, with waste rock or cemented rock as backfill. El Roble had eight mineral concessions covering a total of 6,779 hectares. The mine used conventional crushing, grinding, and flotation processes to produce a copper-gold concentrate. The concentrate

from El Roble contained 21.2% copper and 15.3 grams per metric ton gold. The El Roble Mine had been operating continuously since 1990, except during 1993 and for a 6-week period in 2013 (Atico Mining Corp., 2016, p. 7, 11, 26–27, 36–37, 124, 135).

Gold.—Gold production in Colombia increased by 3.8% to 59,202 kg in 2015. The Department of Antioquia in the central-northwestern part of the country produced about 40% of the country's total output. Other major source areas—the Departments of Choco and Narino in western Colombia—accounted for about 37% of the country's total output. In 2015, Mineros S.A. produced about 3,000 kg of gold. Gold production from Gran Colombia Gold Corp. of Canada's Segovia and Marmato operations was about 2,640 kg and 680 kg, respectively, in 2015. Gran Colombia was the country's leading underground gold and silver producer in 2015, with several underground mines and two processing plants in operation (table 1; Gran Colombia Gold Corp., 2016; Mineros S.A., 2016, p. 7; Sistema de Información Minero Colombiano, 2016).

Nickel.—The country's nickel production originated from the Cerro Matoso Mine in Montelibano, Department of Cordoba, in northern Colombia, where it had been operating since 1982. Cerro Matoso was an open-cut lateritic nickel mine and ferronickel smelter that produced high-purity, low-carbon ferronickel granules. The mine was the only active nickel operation in Colombia and was among the leading producers of ferronickel in the world, with a capacity of 50,000 t/yr. The ore mined was blended with ore from stockpiles and then dried in rotary kilns and smelted in two electric arc furnaces where ferronickel was produced. In May 2015, the mine operator, BHP Billiton, spun off its nickel asset into a company called South32 Ltd. in order to focus on generating value for its core portfolio, which included, coal, copper, iron ore, petroleum, and potash assets. As of June 30, 2015, Cerro Matoso had estimated proven and probable reserves, including stockpiled ore, of 45 million dry metric tons with an average grade of 1.2% nickel (table 1; BHP Billiton Ltd., 2016, p. 9, 19, 94; South32 Ltd., 2016a, p. 102; 2016b).

Industrial Minerals

Cement.—Cementos Argos Colombia S.A. (Argos) continued to be the country's leading cement producer and the fifth-ranked producer in Latin America. Argos had 59 concrete facilities, 36 distribution centers, 9 cement plants, and 1 port in Colombia in 2015. The tonnage of cement sold by Argos in Colombia in 2015 (6.2 Mt) was the highest in the history of the company. The company employed almost 5,000 employees during the year. In 2015, gray cement production from all companies in Colombia increased by about 6.2% to 13.2 Mt, and shipments increased by about 6.7% to 12.8 Mt. Marketed cement shipments increased by 3.2% to 6.4 Mt; shipments to concrete plants increased by 7.1% to 3.0 Mt, and shipments to construction and contracting businesses increased by 17.4% to 2.7 Mt. All other shipments were received or consumed by manufacturers of fiber cement and prefabricated products (Cementos Argos S.A., 2016, p. 8, 19; Departamento Administrativo Nacional de Estadística, 2016d).

Gemstones.—Colombia has historically produced about two-thirds of the world's emerald supply. In 2015, Colombia's emerald production was primarily sourced from three mining

deposit areas in Boyaca Department: Chivor (privately owned), Coscuez, and Muzo. Colombia's Ministry of Mines and Energy reported that Gemfields PLC of the United Kingdom would begin mining emerald in 2015. The company entered into binding agreements to acquire controlling interests in the Coscuez Emerald Mine, located in Boyaca Province, and selected greenfield exploration prospects in other, undisclosed, parts of the country (Gemfields, PLC, 2016; Ministerio de Minas y Energia, 2016c).

Mineral Fuels

Coal.—In 2015, Cesar and La Guajira Departments produced 45.4 Mt and 33.7 Mt of coal, respectively, accounting for a combined total of 92.5% of the coal produced in the country. The country's coal production was dominated by two major coal companies: Carbones del Cerrejón LLC., which was a joint venture of Anglo American plc of the United Kingdom (33.3%), BHP Billiton Group (33.3%), and Glencore plc of Switzerland (33.3%); and Drummond Ltd. of the United States. Cerrejón produced about 25 Mt of coal from La Guajira Department. Cerrejón was the country's largest coal mine and one of the largest open pit mines in the world. Drummond was the top-ranked coal-producing company in Cesar Department, where it produced about 16.1 Mt of coal from La Loma Mine and 11.9 Mt from El Descanso Mine, all of which was exported (Sistema de Información Minero Colombiano, 2016).

Petroleum.—In 2015, production of petroleum in Colombia increased to 367.1 Mbbl, or by about 1.5% compared with that of 2014. About 58.3% of the country's production came from oilfields operated by Ecopetrol S.A. Proven crude petroleum reserves were 3.2 billion barrels at yearend 2015, which was a 5.6% decrease compared with reserves in 2014. There were 12 active oil rigs in Colombia in 2015 compared with 46 in 2014. Colombia's drilling rig industry was hampered by low oil prices (Organization of the Petroleum Exporting Countries, 2016, p. 22–23, 28; Ecopetrol S.A., 2016, p. 135).

Outlook

According to the International Monetary Fund, Colombia's economy and the value added of its mineral industry are expected to decelerate owing to the decrease in the international price of petroleum, as well as the tightening of macroeconomic policies. Colombia's mineral industry will need to overcome significant challenges in terms of road infrastructure and security in order to take advantage of its full economic potential, which includes attracting FDI. A study conducted by BBVA Research in 2016 projected that the country's nickel production would decrease by as much as 9.0%; crude petroleum production, by 8.6%; and coal production, by almost 6.0%. Copper production, however, is expected to increase once Atico completes its expansion of the El Roble Mine by doubling the production capacity and completing a new tailings dam facility. The Government is committed to the overall future sustainable development of its extractive industry as it seeks to end the country's 50-year armed conflict with local guerrillas (BBVA Research, S.A., 2016, p. 8; International Monetary Fund, 2016, p. 20; Norwegian Peacebuilding Resource Center, 2016, p. 4).

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TABLE 1
COLOMBIA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity ²	2011	2012	2013	2014	2015
METALS					
Copper, mine output, Cu content	889	858	725	4,118 ^r	5,463
Gold kilograms	55,908	66,178	55,745	57,015	59,202
Iron ore and iron and steel:					
Iron ore (gross weight) thousand metric tons	174	809	710	676 ^r	902
Pig iron do.	302 ^r	345	307 ^r	234	240
Steel, crude do.	1,290	1,324	1,297	1,079	1,211
Nickel, ferronickel, Ni content	37,817	51,975	49,319	41,221 ^r	36,671
Platinum kilograms	1,231	1,460	1,836	1,135	861
Silver do.	24,045	19,368	13,968	11,498	10,155
INDUSTRIAL MINERALS					
Cement, hydraulic thousand metric tons	10,777	10,925	11,252	12,384	13,153
Gemstones, emerald thousand carats	3,402	1,211 ^r	2,627	1,967	2,167
Salt:					
Marine	151,986	77,841	113,226	105,577	78,634
Rock	305,706	229,344	319,184	340,263	338,804
Total	457,692	307,185	432,410	445,840	417,438
Limestone	13,365	13,548	13,954	15,374 ^r	16,312
Sulfur, native	58,073	63,790	52,470	48,513	63,236
MINERAL FUELS AND RELATED MATERIALS					
Coal thousand metric tons	85,803	89,024 ^r	85,465	88,578 ^r	85,548
Gas, natural, gross million cubic meters	11,000	12,000	12,600	11,431 ^r	11,710
Petroleum:					
Crude thousand 42-gallon barrels	334,100	344,633 ^r	367,993 ^r	361,460 ^r	367,044
Refinery products:					
Light distillates:					
Gasoline:					
Motor (extra) do.	1,240	1,230	1,253	1,200	1,280 ^e
Motor (regular) do.	25,263	25,438	25,584	25,000	25,500 ^e
Medium distillates:					
Diesel fuel do.	34,993	34,730	34,152	34,000	34,000 ^e
Jet propellant do.	8,830	8,817	9,361	9,000	8,900 ^e
Kerosene do.	217	379	473	500	530 ^e
Other:					
Aromatic tar do.	446	450 ^e	450 ^e	450 ^e	450 ^e
Asphalt do.	2,360	2,500	2,500	2,500	2,500 ^e
Avigas do.	88	89	101	100	100 ^e
Cyclohexane do.	153	150	150	150	150 ^e
Fuel oil do.	27	26	37	35	40 ^e
Lubricants do.	510	550	550	500	550 ^e
Parrafin do.	257	250	250	200	200 ^e
Propane do.	6,489	6,843	7,000	7,000	7,000 ^e
Solvents do.	1,261	750	750	700	700 ^e
Total do.	82,134	82,200	82,600	81,300	81,900 ^e

^eEstimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. ^rRevised. do. Ditto.

¹Table includes data available through November 4, 2016.

²In addition to the commodities listed, Colombia also produced clay, coke, feldspar, gypsum, magnesite, phosphate rock, sand and gravel, secondary iron and lead, semimanufactures, sulfur (as a byproduct of petroleum processing), thorium, and uranium, but available information was inadequate to make reliable estimates of output.

TABLE 2
COLOMBIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2015

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Cement		Cía. Colombiana de Clinker S.A. (Cementos Argos Colombia S.A., 100%)	Plant at Cartagena, Bolivar Department	1,250
Do.		Cementos del Caribe S.A. (Cementos Argos Colombia S.A., 74%)	Barranquilla, Atlantico Department	1,500
Do.		Cementos del Valle S.A. (Cementos Argos Colombia S.A., 70%)	Yumbo, Valle del Cauca Department	1,500
Do.		Cales y Cementos de Toluviéjo S.A. (Cementos Argos Colombia S.A., 95%)	Toluviéjo, Sucre Department	980
Do.		Cementos del Nare S.A. (Cementos Argos Colombia S.A., 100%)	Puerto Nare, Antioquia Department	210
Do.		Cementos El Cairo S.A. (Cementos Argos Colombia S.A., 100%)	Montebello, Antioquia Department	450
Do.		Cementos Paz del Río S.A. (Cementos Argos Colombia S.A., 62%)	Belencito, Boyaca Department	880
Do.		Cementos Rioclaro S.A. (Cementos Argos Colombia S.A., 99%)	Sonson, Antioquia Department	1,400
Do.		Cementos Boyacá S.A. (Holcim Group, 100%)	Nobsa, Boyaca Department	1,500
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 Department	3,980
Coal		Carbones del Cerrejón LLC (Anglo American plc, 33.3%; BHP Billiton Group, 33.3%; Glencore plc, 33.3%)	Cerrejon Centro, Cerrejon Sur, Cerrejon Zona Norte, and Oreganal Mines, La Guajira Department	32,000
Do.		Drummond Ltd. (Drummond Co. Inc., 80%, and Itochu Corp., 20%)	La Loma Mine, Cesar Department	20,000
Do.		do.	El Descanso Mine, Cesar Department	12,000
Do.		Glencore plc, 100%	Calenturitas Mine, Cesar Department	16,000
Do.		do.	La Jagua Mine, Cesar Department	7,000
Do.		Pacific Coal Resources Ltd., 100%	La Caypa Mine, La Guajira Department	1,300
Do.		do.	Cerro Largo Mine, Cesar Department	600
Do.		Colombia Energy Resources, 100%	Ruku Mine, Boyaca Department	80
Do.		Continental Coal Ltd., 50%	Colombia Mine, Guainía Department	NA
Do.		Carbones San Fernando S.A., 100%	San Fernando Mine, Antioquia Department	330
Do.		Mineral & Rocks Corp., 100%	Boyacá Mine, Boyaca Department	50
Do.		Colombian Natural Resources, 100%	El Hatillo Mine, Cesar Department	3,600
Do.		Glencore plc, 100%	Prodeco Mine, Cesar Department	14,500
Do.		CarboCoque, 100%	Soacha Mine, Cundinamarca Province	3,000
Do.		Colombia Natural Resources, 100%	El Hatillo Mine, Cesar Province	1,800
Do.		Andean Coal (BVI) Ltd., 51%, and Carbid SAS, 49%	Escalones Mine, Boyaca Department	NA
Copper	metric tons	Atico Mining Corp., 90%, and Minera El Roble S.A., 10%	El Roble Mine, El Carmen, Choco Department	5,500
Gemstones, emerald		Fura de Colombia S.A. (Fura Gems Inc., 100%)	Coscuez Mine, Boyaca Department	NA
Gold	kilograms	Gran Colombia Gold Corp., 90%, and Investco LTD, 10%	Segovia Operations, Antioquia Department, 220 kilometers northeast of Medellin, including El Silencio Mine, Providencia Mine, and Sandra K Mine; Carla Mine, 10 kilometers southeast of Segovia Operations	2,800
Do.	do.	do.	Marmato Mine, Caladas Department, 80 kilometers south of Medellin	850
Do.	do.	Míneros S.A., 100%	Antioquia Mine (Mina La Ye), Antioquia Department, 50 kilometers northwest of Medellin	4,200

See footnotes at end of table.

TABLE 2—Continued
 COLOMBIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2015

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Gold—Continued	kilograms	Atico Mining Corp., 90%, and Minera El Roble S.A., 10%	El Roble Mine, El Carmen, Choco Department	300
Do.	do.	NA	Rafael Mine, Antioquia Department	NA
Do.	do.	Red Rock Resources Plc, 50%	El Mango Mine, Antioquia Department	NA
Do.	do.	Private interest	Suarez Min, Cauca Department	NA
Do.	do.	Mineras Nacionales SA, 100%	Zona Baja Mine, Caldas Department	NA
Do.	do.	Cordillera Gold, Ltd., 100%	Santa Paublina, Antioquia Department	NA
Iron and steel, steel		Diaco S.A. (Gerdau S.A.)	Tuta and Duitama, Boyaca; Cali, Valle del Cauca; Tocancipa, Cundinamarca; Muna, near Bogota	NA
Iron ore		Acerías Paz del Río S.A. (Votorantim Industrial, S.A., 82.42%)	El Uvo, Pírgua, and Ubalá Mines, Boyaca Department	2,000
Do.		Votorantim Industrial S.A., 82.42%	Paz del Río Mine, Boyacá Department	600,000
Natural gas	million cubic meters	Ecopetrol S.A. (Government, 100%)	North coast, La Guajira Department (national gasfields)	4,500
Nickel		Cerro Matoso S.A. (South32 Ltd., 99.98%, and mine workers, 0.02%)	Cerro Matoso Mine and ferronickel plant, Montelibano, Cordoba Department	50
Do.		do.	Montelibano Refinery, Cordoba Department	50
Petroleum	thousand 42-gallon barrels	Ecopetrol S.A. (Government, 100%)	116 fields in various Departments	130,000
Petroleum products	do.	do.	Barrancabermeja refinery, Norte de Santander Department	79,200
Do.	do.	do.	Cartagena refinery, Bolivar Department	28,800
Silver	kilograms	Gran Colombia Gold Corp., 90%, and Investcol Ltd., 10%	Marmato Mine, Caladas Department, 80 kilometers south of Medellin	40,400

Do., do. Ditto. NA Not available.