

COLOMBIA

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Colombia began a process of economic recovery following the recession of 1999, which affected almost every area of the economy. The recession had significantly reduced the country's gross domestic product (GDP) by 4.25% in 1999. Nonetheless, in 2000, the country's GDP grew by 2.8% to reach \$82.8 billion¹; inflation continued to decline and reached 8.75%, which was its lowest point since 1970. In contrast, the mining sector's annual growth rate, which had increased by 4.74% in 1999, declined by 5.7% in 2000 (Banco de la República, Colombia, 2000, Economic performance in 2000, accessed October 15, 2001, at URL <http://www.banrep.gov.co/estad/ingles/pg3004.htm>).

Many problems have hindered Colombia's mineral industry's development. Inadequate infrastructure and armed conflicts between the country's two main rebel groups and the Government have continued to dissuade foreign investment. The National Liberation Army has focused its attention on the oil industry by blowing up pipelines and kidnapping oil executives for ransom; these ransoms provide a major source of revenue for the guerrillas (LeoGrande and Sharpe, 2000). Likewise, attacks to electric infrastructure by blowing up grid interconnections were straining the power system. As a result, plans to privatize transmission company Interconexión Eléctrica S.A. (ISA) and federal generator Isagen S.A. were put on hold. Another issue that has threatened Colombia's economic stability and progress has been the rapid depletion of key hydrocarbon reserves in the country. At the end of 1998, the remaining Colombian hydrocarbon reserves were nearly 2.5 billion barrels (Gbb) of crude petroleum and 196.4 billion cubic meters of natural gas (reported as 6,938 giga cubic feet), and were estimated to last 8 and 15 to 20 years, respectively (U.S. Department of Commerce, National Trade Data Bank, November 3, 2000, Colombia, New exploration projects, accessed September 27, 2001, at URL <http://www.tradeport.org/ts/countries/colombia/mrr/mark0028.html>). Analysts have estimated that by 2005, Colombia may become a net importer of crude petroleum if rigorous measures are not taken to promote oil exploration and foreign investments.

Despite the aforementioned problems confronted by Colombia in recent years, there has been measurable political, social, and economic progress. The country remains the fourth largest economy in Latin America and continues to meet its foreign debt (National Interest, June 2001, Extracts from Colombia—Crossing a dangerous threshold, No. 62, accessed October 10, 2001 at URL <http://www.nationalinterest.org/issues/62/jenkins.html>).

Government Policies and Programs

In 1999, the Government developed Plan Colombia, the

¹Where necessary, values have been converted from Colombian Pesos (Cop) to U.S. dollars at the rate of Cop2,083.69 =US\$1.00.

purpose of which was aimed to overcome the country's current and future economic challenges by resolving the conflicts between guerilla groups, fighting illegal drug trafficking, modernizing Colombia's legal and military institutions, and strengthening the economy. This continued in 2000 (U.S. Energy Information Administration, March 2001, Colombia—Background, Country Analysis Brief, accessed October 12, 2001, at URL <http://www.eia.doe.gov/emeu/cabs/colombia.html>). This strategic plan was one of many steps the Government has taken to address the restructuring of the mining industry. Another initiative deals with the integration, coordination, and collaboration of the state's mining sector entities, namely the Instituto de Información e Investigación Geocientífica Minero-Ambiental y Nuclear, the state mining company Empresa Nacional Minera Ltda. (MINERCOL), and Unidad de Planeación Minera-Energética with the private sector. The Government offered incentives to encourage foreign investments in petroleum and natural gas exploration. One of these initiatives is the Ronda 2000 bidding round project. Under Ronda 2000, exploration, development, and production licenses for 13 groups of blocks were offered to interested investors through a competitive process.

In April 2000, the approval of a new mining law, which will replace the existing legislation that came into force in 1989, was submitted to the National Congress. By yearend, progress on the proposed mining code had come to a halt owing to a controversy generated by plans to liquidate MINERCOL, which regulates Colombia's mining sector. Under the proposed law, tax incentives will be offered to mining companies, concessions will be granted for up to 50 years and may be extended for another 25 years, and Government procedures to obtain concession permits will be reduced. In addition, exploration areas can comprise 10,000 hectares, and concessions will be transferable (Metal Bulletin Monthly, 2000). The purpose of the proposed mining law is to develop the country's metal sector as well as other minerals, such as coal and emeralds. Under the current Mining Code (Decree 2655 of 1988), nonrenewable natural resources are the property of the State, and exploration, development, and production of these resources is prohibited unless a title is granted by the Ministerio de Minas y Energía.

Environmental Issues

Under Law 99/93, the Ministerio del Medioambiente became the State's agency responsible for regulating and setting policies concerning environmental issues in Colombia. At a regional level, the Corporaciones de Desarrollo Regional are responsible for the administration of the country's natural resources and for the regulation of issues associated with mining activities that may represent a threat to the environment. Among the benefits of the current environmental law to the mining sector is Decree 266/2000. Under this decree, the time allowed for

environmental evaluation when a project is being developed has been reduced, and new mechanisms have been introduced to speed up the licensing process. The decree also sets the term of a year for the Instituto Geográfico Agustín Codazzi to produce maps that identify areas occupied by indigenous and black communities before development begins and empowers the Ministerio del Medioambiente to decide in the event of a disagreement between mining enterprises and the community. Also, a new scheme for environmental licensing, which will modify Decree 1753/94, was under consideration. In 1999, the Ministry of the Environment adopted several environmental management plans—Resolution 1167 regulates prospecting, Resolution 1173 relates to general mining operations and the manufacturing of cement, Resolution 1168 deals with coal mining operations, Resolution 1169 covers the licensing of mining operations of construction and industrial minerals, Resolution 1170 manages the mining of sedimentary materials, and Resolution 1171/72 administers the mining of gold (Empresa Nacional Minera Ltda., Instituto de Información e Investigación Geocientífica Minero-Ambiental y Nuclear, Unidad de Planeación Minero-Energética, 2000, p. 19-21).

According to the Government, drug dealers have destroyed approximately 1 million hectares of tropical forests in areas where the presence of the State is limited to grow illegal coca. As a consequence, millions of gallons of toxic chemicals used to manufacture cocaine are dumped into the river systems (Office of the President of Colombia, May 29, 2001, Colombia in a global political and economic community, accessed October 10, 2001, at URL <http://www.presidencia.gov.co/webpresi/discurso/2001/mayo/2001052901.htm>). These practices are jeopardizing both of these essential resources.

Production

Colombia is a significant producer of coal, crude petroleum, emeralds, ferronickel, gold, and silver, as well as of other nonmetals and industrial minerals, and is second to Brazil in hydroelectric potential in Latin America. The country has the largest high-quality bituminous coal reserves in Latin America (table 1). Coal production rose to 38.1 million metric tons (Mt) in 2000 from 29.6 Mt in 1996. For gold and such precious minerals as emeralds, volumes of production have been significant, but the old technology used for extraction makes operations less efficient (Empresa Nacional Minera Ltda., Instituto de Información e Investigación Geocientífica Minero-Ambiental y Nuclear, and Unidad de Planeación Minero-Energética, 2000).

Trade

Coal and oil, together with coffee, generated 35% of the Governments export revenues in 2000 (U.S. Energy Information Administration, March 2001, Colombia—Background, Country Analysis Brief, accessed October 12, 2001, at URL <http://www.eia.doe.gov/emeu/cabs/colombia.html>). Although the volume of exported petroleum decreased, higher world prices resulted in an increase in petroleum export revenues. Total value of exports, which reached \$13.1 billion, registered a growth of \$1.5 billion, or 13.4%, owing mainly to an increase in industrial goods (\$874 million), petroleum sales (\$12 million), and to a lesser extent, to mining sales (\$100 million). About 50% of exports was sent to the United States, which continued

to be Colombia's main trading partner. About 16.6% was destined to the Andean Group, and 12.7% to the European Union (Banco de la República, Colombia, 2000, Economic indicators/Economic performance in 2000, accessed October 15, 2001, at URL <http://www.banrep.gov.co/estad/ingles/pg3004.htm>).

Structure of the Mineral Industry

Although privatization was being emphasized by the Government, ownership of the mineral industry in Colombia was, nonetheless, mixed. The Government participated directly in the production of minerals through several companies associated with the Ministry of Mines and Energy. Minercol managed, developed, and promoted the exploitation of minerals, except coal, petroleum, and radioactive minerals. The Empresa Colombiana de Petróleos S.A. negotiated all petroleum contracts with the private sector on behalf of the Government and participated in the production of petroleum and natural gas directly and in association with the private sector (Doan, 2000).

The Empresa Colombiana de Carbón Ltda., which had the responsibility of managing the country's coal resources and promoting coal production, was privatized in 2000. The Government sold its 50% share of the Cerrejón Zona Norte coal operation in October. The acquisition was made by the consortium of Anglo American plc and Billiton plc of the United Kingdom and Glencore International AG of Switzerland. Each company acquired one-third of the shares. With this, the consortium, holds the rights to mine three world-class, high-grade coal reserves located in the Guajira Department in northeastern Colombia (Anglo American plc, Billiton plc, and Glencore International AG, 2000).

About 41% of power distribution assets in Colombia were in private hands, principally by Chilgener, Endesa, Electricidad de Caracas, and U.S.-based Houston Industries. The Government planned to sell its 76% controlling stakes in ISA and ISAGEN (U.S. Energy Information Administration, March 2001, Colombia—Electric power, Country Analysis Brief, accessed October 12, 2001, at URL <http://www.eia.doe.gov/emeu/cabs/colombia.html>). Legal issues postponed the sale of ISA indefinitely, and the sale of ISAGEN was postponed until June 2001. ISAGEN generated 14% of the country's total electricity; the Government held 76% of its shares.

Commodity Review

Metals

Copper.—Colombian production of copper concentrate in 2000 was 9,501 metric tons (t) with a metal content of 2,061 t, which was a decrease of about 7% compared with that of 1999. Colombia has several porphyry copper deposits that are similar to porphyry-type mineralization elsewhere in the Cordillera of North America and South America (Doan, 2001). Copper was produced at the Roble gold mine in Chocó, southwest of Medellín. All production of copper concentrate, which had an average grade of 21.73% copper, was exported. Colombia produces secondary copper from scrap. About 28% of scrap recovered was refined, and 72% was consumed directly (Empresa Nacional Minera Ltda., Instituto de Información e Investigación Geocientífica Minero-Ambiental y Nuclear, and Unidad de Planeación Minero-Energética, 2000, p. 78-79).

Gold.—Gold production showed a moderate increase in 2000—up to 37,018 kilograms (kg), or 7% more than that of 1999, when production reached 34,599 kg. Most of the country's output comes from alluvial operations by small- and medium-sized companies and by artisanal mining. Exploration was being carried out at the Murindó copper-gold mine and the Piedra Sentada Guachávez epithermal gold prospect; several other exploration projects were, however, on hold in 2000 owing to security problems and mining rights negotiations (Del Corral and Jaramillo, 2001). Mineros de Antioquía S.A. continued to extract gold from the country's largest alluvial operation El Barge, which is located along the Nechi River. In the 1980s, gold mining was performed by bucket line dredges. The company then added suction dredges to improve the stripping of the overburden that covers the auriferous gravel. In 2000, mining operations at El Barge consisted of three bucket line dredges and three Beaver dredges that processed approximately 15 million cubic meters per year. Stripping by suction dredges improved gold recovery and reduced costs by about 40%, thus making the mining of a very low grade deposit (0.072 gram per metric ton gold) a more effective process (Mining Magazine 2000f).

Greystar Resources Ltd. continued exploration on the Angostura gold-silver project located in northeastern Colombia. In August, the company announced positive results from bottle roll metallurgical testing of six different composite samples. The Angostura project has resources of 152,400 kg of gold and 559,900 kg of silver (reported as 4.9 million ounces of gold and 18 million ounces of silver, respectively) (Mining Magazine 2000c).

Iron and Steel.—Colombia's steel industry represented only 2.3% of total manufacturing output. The country was one of Latin America's three major steel importers, and its only integrated steelmaker was Acerías Paz del Río with a capacity of 270,000 metric tons per year (t/yr) of crude steel (Metal Bulletin, 2000a). In August 2000, Brazil's Iron and Steel Consulting and U.S.-based Lockwood Greene Engineering & Construction were working on a feasibility study for the construction of a steel plant at a cost of \$1.8 billion. If the study recommends that the plant be built, then the facility could be one of Latin America's largest steel plants. The consortium was led by Andean Development Corporation and Brazil's Companhia Vale do Rio Doce with other Brazilian and Colombian companies financing the preliminary studies. The plant was expected to produce 2.4 Mt of hot-rolled steel and close to 9.6 million metric tons per year of flat steel (Metal Bulletin 2000b, Thursday 15, June 2000; LatinTrade.com, August 31, 2000, Steel Plants talk to Colombian Government to start construction, accessed October 5, 2001, via URL <http://www.latintrade.com>).

Nickel.—Mine production of nickel was 58,927 t in 2000, and production of nickel content of ferronickel was 27,736 t from Colombia's only nickel producer Cerro Matoso S.A. The Cerro Matoso deposit, located in the Department of Córdoba, southwestern Colombia, was considered to be one of the highest grade lateritic nickel deposits in the world. The ore, which comprises a zone of saprolite and saprolitized peridotite, has proven and probable reserves of more than 35 Mt at a grade of 2.3% nickel (Ni) using a 1.5% Ni cutoff grade and up to 60 Mt at 1% Ni cutoff grade (Porter Geoconsultancy, 2000, Nickel

2000, May, accessed on November 2, 2001, at URL <http://www.portergeo.com.au/tours/nickel2000/m2a.html#matoso>). Through its wholly owned subsidiary QNI Ltd., Billiton operated Cerro Matoso's lateritic nickel mine and ferrochrome smelter. In 1999, Billiton planned to expand the mine and smelter at a cost of \$353 million. The expansion plan called for the smelter capacity to be increased from about 30,000 t/yr of contained nickel in ferronickel to 55,000 t/yr of contained nickel.

By the end of 2000, 98% of the engineering, procurement, and construction of the second line at Cerro Matoso was completed, and by January 1, 2001, the first new ferronickel was produced. Full production was expected to be achieved within the following 18 months (Billiton plc, 2001a, b; Metals & Minerals Latin America, 2001).

Platinum.—Platinum production fell by 30% in 2000, from 488 kg in 1999 to 339 kg; this was a decrease of almost 30%. In Colombia, all platinum production is from placer deposits; gold is produced as a byproduct.

Silver.—Silver production increased by 5% to 7,970 kg compared with that of 1999. In Colombia, silver is recovered as a byproduct of gold mining; no company was exclusively dedicated to the production of silver. The main silver-producing Departments were Antioquía and Córdoba, with one-half and one-third, respectively, of the country's total production (Empresa Nacional Minera Ltda., Instituto de Información e Investigación Geocientífica Minero-Ambiental y Nuclear, and Unidad de Planeación Minero-Energética, 2000, p. 73).

Industrial Minerals

Cement.—Production levels in the Colombian cement industry exceed the national demand. Excess of cement and clinker was exported to Brazil, the Caribbean, and the United States. In 2000, production was estimated to have increased by 6% to 9.7 Mt compared with that of 1999. The country's three main producers were Cementos Boyacá, Cementos Diamante, and Sindicato Antioqueño; Sindicato Antioqueño controlled 54% of Colombia's market through seven other cement producers. Other cement producers were Cementos Andino, Cementos Caribe S.A., [67% owned by the Cementos Argos Group (a group of 10 cement producing and 5 concrete-producing companies)], and Cementos Polpaico (International Cement Review, 2000).

Emerald.—Emerald production totaled 8.45 million carats in 2000, which was an increase of about 24% compared with that of 1999. Exports reached \$94.3 million. Colombia is the world's major supplier of high-quality emeralds with 50% to 60% of total world exports (Empresa Nacional Minera Ltda., Instituto de Información e Investigación Geocientífica Minero-Ambiental y Nuclear, and Unidad de Planeación Minero-Energética, 2000, p. 73-74).

Mineral Fuels

Colombia was a major exporter of petroleum and coal and was the seventh largest source of U.S. oil imports in 2000 (U.S. Energy Information Administration, March 2001, Colombia—

Oil, Country Analysis Brief, accessed October 12, 2001, at URL <http://www.eia.doe.gov/emeu/cabs/colombia.html>).

Coal.—In 2000, production of coal grew by about 16% to 38.1 Mt compared with that of 1999 production. As of 1999, Colombia's proven coal reserves were 6,368 Mt of hard coal (anthracite and bituminous) and 381 Mt of other types of coal (subbituminous and lignite) for a total of 6,749 Mt (Mining Magazine, 2000g). In 2000, the country was the largest coal producer in Latin America, and its coal, with a sulfur content of less than 1%, was relatively clean burning. Coal was Colombia's third largest export in terms of revenue (U.S. Energy Information Administration, March 2001, Colombia—Coal, Country Analysis Brief, accessed October 12, 2001, at URL <http://www.eia.doe.gov/emeu/cabs/colombia.html>). Coal was produced at the Cerrejón Norte and the Cerrejón Sur mines. The Cerrejón Norte was owned in equal parts by the consortium of Anglo American, Billiton, and Glencore, which acquired the Government's 50% share in the property in October 2000. The other partner in the joint venture was Exxon Corporation. In 1999, the Cerrejón Sur, which is a combination of the Cerrejón Centro and the Cerrejón Oreganal properties, was owned by the consortium of Anglo American, Glencore, and Río Tinto plc. In 2000, Río Tinto sold its one-third interest in the property to the other owners (Mining Magazine 2000b). A feasibility study to expand the Cerrejón Centro's rail and port capacity was under consideration. The expansion was expected to increase rail and port capacity from 17 million metric tons per year (Mt/yr) to 21 Mt/yr. Also another feasibility study to increase production to 9 Mt/yr was close to being finalized (Mining Magazine 2000a). The Colombian coal and cement company Grupo Caribe was planning to build a \$3 million materials handling terminal in the Magdalena Department. The terminal will handle some 300,000 t/yr of coal and 500,000 t/yr of cement, as well as clinker and petcoke (Mining Magazine, 2000e).

Natural Gas and Crude Petroleum.—Owing mainly to natural declines in productivity at the Caño Limón field, production of crude petroleum decreased by about 18% to 255 million barrels compared with that of 1999. Although the largest producer in Colombia, Caño Limón's reserves have been estimated to be close to depletion. The other main petroleum fields are the Cupiagua and the Cusiana. The country exported almost 50% of the petroleum produced during the year to the United States. Total exports declined mainly because of the continuation of attacks to the country's main pipelines by rebel groups. Caño Limón alone was bombed 98 times in 2000. The country's proven oil reserves are about 2.6 Gbbl (U.S. Energy Information Administration, March 2001, Colombia—Oil, Country Analysis Brief, accessed October 12, 2001, at URL <http://www.eia.doe.gov/emeu/cabs/colombia.html>).

Legislative reforms to promote foreign investment in the sector that were passed in 1999, became successful in 2000. The reforms included royalty relief, accelerated environmental licensing, and a reduction in Ecopetrol's participation requirement from 50% to 30%. As a result, 32 exploration and incremental production contracts were signed by yearend. Of the projects, 13 were awarded in the bidding round Ronda 2000, and the remainder, outside the round. Some of the companies working on exploration permits in Colombia were Emerald Energy plc, Harken Energy, Hunt Oil South America,

International Technical Solutions Inc. of Houston, Texas, Mera Petroleum Inc. and its partner Millennium Energy, Nexen Inc. of Canada (formerly Canadian Occidental Petroleum), and Petrolex Energy Corporation. Nexen was exploring the Samoré Block, which is located near the Venezuela border. Despite the company's efforts, progress in exploration activities was interrupted by the U'wa Indian tribe protests against drilling on the land. In June 2000, Nexen and its partner Petróleo Brasileiro S.A. discovered a major oilfield in the vicinity of Boquerón along the eastern Los Andes mountains. The field, which is named Guando, was originally considered to contain as much as 200 million barrels (Mbbbl) of light (30 gravity) petroleum. Estimated total of petroleum in place is now believed to be 1.4 Gbbl with probable recovery factors between 20% and 40% (Colombia Oil News, January 6, 2001, The Guando field; . . ., accessed November 5, at URL <http://www.colombiaoil.com/Guando.htm>). Attacks on Nexen's Caño Limón field's pipeline continued throughout the year forcing the company to declare force majeure in August 2000. Also in August, Nexen acquired 100% control of two new exploration blocks in Colombia—Fusa and Villarica, both are contiguous to Boquerón (LatinTrade.com, August 25, 2001, Canadian Oxy relinquishes Paramo oil block in Colombia, accessed October 10, 2001, at URL <http://www.latintrade.com/newsite/content/bna.cfm?storyID=2630>).

All Colombia's refineries were 100% owned and operated by Ecopetrol. In 2000, the country's refining capacity was about 285,850 barrels per day. Although a net exporter, Colombia, imported gasoline in 2000 to meet domestic product demand. Heavy crude petroleum was also imported from Ecuador and Venezuela to produce lower cost derivatives, such as diesel, solvents, and jet fuel, thus allowing the country to export more of its light sweet crude (U.S. Energy Information Administration, March 2001, Colombia—Oil, Country Analysis Brief, accessed October 12, 2001, at URL <http://www.eia.doe.gov/emeu/cabs/colombia.html>).

Electricity.—In 2000, Colombia's electricity generation capacity was 12.8 gigawatts. Of the total power generated, 73% was hydroelectric and 27% was generated by steam (gas and coal). Because the construction of coal- and natural-gas-fired powerplants was being encouraged for the medium to long term, hydropower's share of generation was expected to decline. Repeated attacks on electric infrastructure by rebel separatist groups were straining the system and causing prices to spiral. Grid interconnections have been blown up, thus leaving the country divided into several smaller grids and preventing repair crews from reconnecting the fragments. These problems have delayed privatization in the sector, which had progressed throughout the late 1990s (U.S. Energy Information Administration, March 2001, Colombia—Electric power, Country Analysis Brief, accessed October 12, 2001, at URL <http://www.eia.doe.gov/emeu/cabs/colombia.html>).

Infrastructure

One of Colombia's major problems in the development of the mining industry has been the lack of basic infrastructure to support mining activities. Although the Government was encouraging investments in the sector through the establishment of the National Development Plan for 1998-2002, efforts to foster it in 2000, were hindered by the recession in 1999.

Colombia's road network has deteriorated, has not been maintained, and has insufficient geographic coverage, which has limited the connection between the mining production areas and the trunk network. Coal produced at César and La Guajira, however, has good access to the highway network and the railways that lead to the country's Caribbean and Pacific coast ports. El Cerrejón coal project in La Guajira and the Drummond coal project in César have their own ports in Bolívar and Magdalena, respectively. Other districts with mining potential, especially gold and emeralds, however, are located in areas with poor road infrastructure. More than 80% of the country's cargo (more than 80 Mt/yr) was being transported by roads. The Colombian Ministerio de Transporte and the Instituto Nacional de Carreteras have opened new highway concession projects with which the Government expects to increase investments in highway construction and upgrades during the coming years (Corporate Information, Industry Analysis, [undated], Colombia—Construction Machinery, Industry Overview, accessed October 10, at URL <http://www.corporateinformation.com/cosector/Construction.html>).

Outlook

Colombia has a potential for the development of minerals, such as copper, gold, iron, nickel, and platinum, as well as for the development of industrial minerals, such as cement and emeralds. Investment program initiatives to develop these commodities and coal and oil taken in 2000 suggest future microeconomic stability of the sector. The decline in oil reserves represents a major challenge. The oil sector is the country's largest export earner. If new reserves are not discovered Colombia is at risk of becoming a net oil importer by the year 2005. On a monetary basis the possibility of depletion of the country's oil reserves will have significant implications on the economic stability of Colombia. The country may continue on its way towards strong economic growth if efforts to curtail the violence, and strengthen its physical infrastructure, which has been damaged by insurgent groups. With the exception of 1999, Colombia's record of economic growth for the past 70 years, especially for 2000, suggest that such

accomplishments are possible.

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TABLE 1
COLOMBIA: PRODUCTION OF MINERAL COMMODITIES 1/ 2/

(Metric tons unless otherwise specified)

	1996	1997	1998	1999	2000
METALS					
Bauxite e/	1,700	1,700	1,700	1,700	1,700
Copper, mine output, Cu content	2,200	1,800	1,400	2,295 r/	2,062
Gold kilograms	22,073	18,811	18,810	34,599 r/	37,018
Iron and steel:					
Iron ore and concentrate thousand tons	600	640	530 e/	576 r/	660
Pig iron do.	286 r/	324 r/	256 r/	264 r/	285
Steel, crude do.	695 r/	734 r/	636 r/	534 r/	660
Semimanufactures, hot-rolled e/ do.	650	650	650	650	650
Lead:					
Mine output, Pb content	375 r/	311 r/	272 r/	166 r/	226
Refined (secondary)	10,000	10,000	12,000	12,000	12,000 e/
Manganese, mine output, mn content	-- r/	-- r/	-- r/	-- r/	--
Nickel:					
Mine output, Ni content	27,700	31,230	29,422	39,274 r/	58,927
Ferronickel, Ni content	22,934	25,171	28,143 r/	28,342 r/	27,736
Platinum-group metals kilograms	672	406 r/	411 r/	488 r/	339
Silver do.	6,407	3,515	5,218	7,593 r/	7,970
Zinc, mine output, Zn content	57 r/	59 r/	41 r/	27 r/	42
INDUSTRIAL MINERALS					
Asbestos, mine output	123,300 r/	136,700	136,000 e/	136,000 e/	136,000 e/
Barite	6,800	900 r/	600 e/	600 e/	600 e/
Cement, hydraulic thousand tons	8,907	8,446	9,190	9,200 e/	9,750
Clays:					
Bentonite e/	9,000	8,640	8,500	8,500	8,500
Common clay and kaolin thousand tons	3,957	8,040	8,000 e/	8,000 e/	8,400 e/
Diatomite e/	4,000	4,000	4,000	4,000	4,000
Feldspar	78,093	66,845	55,000 e/	55,000 e/	55,000 e/
Fluorite e/	700 3/	802 3/	800	800	800
Gemstones, emerald thousand carats	7,151 4/	6,688 4/	9,360 4/	6,800 r/	8,454
Gypsum	522,236	564,680	560,000 e/	560,000 e/	560,000 e/
Lime, hydrated and quicklime e/ thousand tons	1,300	1,300	1,300	1,300	1,300
Magnesite	12,634	44,517 r/	10,500 e/	10,500 e/	10,500 e/
Mica e/	55	55	55	55	55
Nitrogen, N content of ammonia	101,500	80,900	100,300	75,400	92,900
Phosphate rock	40,484	44,517 2/	43,688 r/	43,148 r/	42,615
Salt:					
Rock thousand tons	153	142 r/	166 r/	157 r/	178
Marine do.	424	232	330	304 r/	282
Total do.	577	374 r/	496 r/	461 r/	460
Sodium compounds, n.e.s., sodium carbonate e/	121,000	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.	14,161 r/ 3/	13,392 3/	15,000	15,000	15,000
Marble	170,000	191,250 3/	190,000	190,000	190,000
Sand excluding metal-bearing	900,000	900,000	925,000	925,000	925,000
Sulfur:					
Native (from ore)	49,425	1,008 r/	52,727 r/	89,024 r/	91,966
Byproduct, from petroleum	16,000	14,872	15,000 e/	16,000 e/	16,000
Total	65,425	15,880 r/	67,727 r/	105,024	107,966
Talc, soapstone, pyrophyllite e/	14,800	14,832 3/	15,000	15,000	15,000
MINERAL FUELS AND RELATED MATERIALS					
Carbon black e/	24,000	24,000	24,000 3/	24,000	24,000
Coal thousand tons	29,564	32,742	33,751	32,754 r/	38,142
Coke, all types e/ do.	600	610	615	615	615
Gas, natural:					
Gross million cubic meters	9,424	13,019	13,000 e/	13,100	13,200 e/
Marketed do.	5,200 e/	5,905	5,347	5,761	5,937
Natural gas liquids e/ thousand 42-gallon barrels	2,500	2,600	2,600	2,600	2,600

See footnotes at end of table.

TABLE 1--Continued
 COLOMBIA: PRODUCTION OF MINERAL COMMODITIES 1/ 2/

(Metric tons unless otherwise specified)

Commodity	1996	1997	1998	1999	2000	
MINERAL FUELS AND RELATED MATERIALS--Continued						
Petroleum:						
Crude	thousand 42-gallon barrels	227,395 r/	237,980 r/	267,545 r/	297,840 r/	252,215
Refinery products:						
Liquefied petroleum gas	do.	7,955	7,881	7,491	7,500 e/	7,500 e/
Gasoline:						
Aviation	do.	136	142	145	145 e/	145 e/
Motor	do.	38,320	37,920	38,371	38,500 e/	38,500 e/
Jet fuel	do.	6,036	5,792	6,188	6,200 e/	6,200 e/
Kerosene	do.	1,523	1,180	1,025	1,100 e/	1,100 e/
Medium distillate fuel oil	do.	24,518	24,265	23,209	24,000 e/	24,000 e/
Lubricants	do.	400 e/	442	431	450 e/	450 e/
Residual fuel oil (Black oil)	do.	19,361	19,730	18,759	19,000 e/	19,000 e/
Asphalt and bitumen	do.	2,995	3,077	2,081	3,000 e/	3,000 e/
Refinery fuel and losses and unspecified products e/	do.	15,000	15,000	4,375 3/	5,000	5,000
Total	do.	116,244	115,429	102,075	105,000 e/	105,000 e/

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

1/ Includes data available through October 31, 2001.

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.