

# ECUADOR

By Pablo Velasco

The economy of Ecuador continued to be heavily dependent on petroleum production and exports of agricultural commodities and seafood. In 1999, the economy generated an estimated gross domestic product of about \$17.05 billion<sup>1</sup> and provided jobs for about a million people. Ecuador was experiencing difficult economic and political conditions. In the wake of a spiraling inflation rate of about 60%, an unemployment rate of 19%, a currency collapse, a banking crisis, and social unrest in 1998-99, the Government announced plans for dollarization in mid-January 2000. The International Monetary Fund (IMF) and the World Bank have approved loans to help Ecuador recover from its economic difficulties. The IMF loan required the removal of domestic fuel subsidies, which increased the price of gasoline by 60%. Since oil was discovered in Ecuador in the 1970's, it has become an increasingly important part of the Ecuadorian economy. In 1999, the country had 2.1 billion barrels of proven oil reserves, and production averaged 380,000 barrels per day (bbl/d). Of this, 40% was consumed domestically; the remaining 60% was exported. Oil exports were the main source of Government revenue for Ecuador. Petroecuador, which is the state-operated oil company, planned to proceed with a tender next year to attract foreign investment to boost combined production to 60,000 and 100,000 bbl/d. in the country's five largest oilfields: Auca, Cononaco, Libertador, Sacha, and Shushufindi. Privatization of Petroecuador was expected in the coming year or two. Progress toward that end is expected in the near term. Joint ventures between Petroecuador and private oil companies are becoming increasingly common. However, Ecuador has experienced recurring problems between oil producers and the Government on one side, and indigenous people on the other. The native tribes that inhabit most of the highly productive southeastern area of Ecuador do not get any monetary compensation for the drilling in this territory (U.S. Energy Information Administration, July 2000, Ecuador—General background, accessed January 28, 2001, at URL <http://www.eia.doe.gov/emeu/cabs/ecuador.html>).

Petroecuador which oversees all the hydrocarbon operations, and accounted for about 80% of the country's total production. In 1999, Ecuador produced about 395,000 bbl/d; Petroecuador, about 300,000 bbl/d; and private companies, an estimated 95,000 bbl/d. Ecuador's net oil export was 236,000 bbl/d, most of which went to the United States (100,000 bbl/d), as well as to Asia, the Caribbean, and Chile, (U.S. Energy Information Administration, July 2000, Ecuador—Oil, accessed January 28, 2001, at URL <http://www.eia.doe.gov/emeu/cabs/ecuador.html>).

<sup>1</sup>Where necessary, values have been converted from Ecuadorian sucres (S) at the rate of S/24,860.7=US\$1.00.(January 2000).

The biggest problem in the development of the Ecuadorian oil industry has been its lack of transportation capability, which operated at full or near-full capacity. This problem has caused transportation bottlenecks throughout the country. Petroecuador officials estimated that up to 100,000 bbl/d of potential production was shut in because there was no way to export it. Meanwhile, analysts have indicated that the country's main export line—the trans-Ecuadorian oil pipeline system—was on the verge of collapse owing to deferred maintenance. The pumping stations were in danger of breaking down. To take care of this problem, the Government was working with private oil companies to build a new heavy oil pipeline. This important project was expected to begin in late 1999. United States's Occidental Petroleum Inc., Arco Oriente Inc., and Oryx Inc.; Spain's Repsol Petróleo S.A.-Yacimientos Petrolíferos Fiscales S.A.; and Canada's Pacalta Resources Ltd. were active in Ecuador and have signed a memorandum of understanding to build and operate a pipeline to carry heavy oil from the Amazon region to the port of Balao. The construction of this new pipeline was estimated to take from 18 to 20 months and to cost about \$400 million. The initial capacity would be more than 100,000 bbl/d and be expandable to 300,000 bbl/d of heavy oil between 16<sup>0</sup> API and 22<sup>0</sup> API gravity. The new pipeline would run parallel to the present Transecuadorian Pipeline. Petroecuador officials have estimated that when completed, it could bring more than \$2 billion in additional foreign investments to the hydrocarbon industry sector and enable oil production to more than double by 2003 (U.S. Energy Information Administration, July 1999, Ecuador—Pipelines, accessed January 27, 2000, at URL <http://www.eia.doe.gov/emeu/cabs/ecuador.html>).

Ecuador planned to tender the 46,000-bbl/d La Libertad refinery near Guayaquil via a 20-year concession to a private investor by the end of 1999. Petroecuador officials estimated that the cost of modernizing the facility and expanding the capacity to 60,000 bbl/d could range from about \$150 million to \$200 million. The concession was expected to garner from about \$400 million to \$500 million. La Libertad refinery, which is located in the southern part of Guayas Province, produced about 60% of the country's fuel demand; the remaining 40% was provided by the refinery in Esmeraldas in northwestern Ecuador. (U.S. Energy Information Administration, July 1999, Ecuador—Refining, accessed January 27, 2000, at URL <http://www.eia.doe.gov/emeu/cabs/ecuador.html>).

In 1999, Ecuador had an estimated 104.8 billion cubic meters of natural gas reserves, but the country lacked the necessary infrastructure to use these resources. For that reason, the gas market was not significant. This could change, however, with the development of gasfields in the Gulf of Guayaquil and the Oriente Province.

The U.S.-based Energy Development Corporation (EDC) invested \$170 million in a natural gas project in the Gulf of Guayaquil—the Amistad Gas Field—that would produce an estimated 2.0 million cubic meters per day of gas within 15 years. EDC was still deciding whether the gas pipeline would bring gas onshore to either the city of Guayaquil or Machala. (U.S. Energy Information Administration, July 1999, Ecuador—Natural gas, accessed on January 27, 2000, at <http://www.eia.doe.gov/emeu/cabs/ecuador.html>). The downturn in metal prices slowed the rate of mineral exploration in Ecuador particularly by junior companies that were unable to secure adequate funding.

Ecuador has extensive but underdeveloped gold resources, as well as other minerals. In 1999, recorded gold production was about 4,000 kilograms, much of which was produced by Minera Bira S.A. in the Portovelo Zaruma gold district; Minera Bira was the largest formal gold producer. The mining sector shrank considerably because international mining companies left Ecuador and artisan miners were unable to reach their mines as a result of the flooding caused by El Niño. Legal reforms, in other hand improved protection for property rights, and consistent Government policies were required for Ecuador to attract large-scale foreign investment in its mining sector (U.S. Embassy, Quito, Ecuador, 1999).

In 1998, the Under Secretary of Mines of Ecuador introduced an important new Government Agency, Dirección Nacional de Geología (DINAGE), which replaced Corporación de Desarrollo e Investigación Geológico-Minero-Metalúrgico. DINAGE will be responsible for basic geological investigation for the national mining sector and other applied geological activities, under the Ministerio de Energía y Minas.

The Ecuadorian Mining Law (No. 126), which was published in the Official Registry No. 695 on May 31, 1991, and reforms to the General Regulations of the Mining Law, which were promulgated and published in the Official Registry No. 839 of December 11, 1995, for the specific legal context for mining activities in the country were designed to offer important incentives for foreign and national investments and technology transfer processes.

The United States continued to be the major trading partner of Ecuador, followed by Colombia, Japan, Germany, and Venezuela. During 1999, the major export products were crude oil (28%), bananas (23%), and shrimp (14%), and the major import products were raw materials for industry (43%), consumer goods (21%), and capital goods (28%). Most Ecuadorian products enjoy duty-free access to the U.S. market under the Andean Trade Preferences Act (U.S. Embassy, Quito, Ecuador, 1999).

The slow pace of exploration and mining activities reflected low metal prices and, most of all, the uncertainties and disappointments that the country experienced politically and economically. A number of major mining companies continued various regional exploration of potential porphyry-type mineralization targets. The most active mining companies were Newmont Overseas Explorations Ltd. of the United States and Billiton International Metals B.V. of The United Kingdom while Noranda Inc. of Canada, Placer Dome Inc. of Canada, and Gold Fields of South Africa Ltd. have all shown interest in exploration.

Billiton's exploration during the past 5 years in the Rio Zamora area in southeastern Ecuador outlined a porphyry district with at least six separate large porphyry copper systems. These discoveries will be followed up by a joint venture among Corrientes Resources Inc. Lowell Mineral Exploration, and Billiton. Headed by Corrientes, it will focus work on four main targets within these systems—the Warintza, the San Carlos, the Panantza, and the Sutzu areas (Puig, 2000).

For more extensive coverage of the mineral industry of Ecuador, see the 1997 Minerals Yearbook, volume III, The Mineral Industries of Latin America and Canada.

## References Cited

Puig, Carlos, 2000, Ecuador: Mining Journal Annual Review 2000, CD - ROM. U.S. Embassy, Quito, Ecuador, 1999, 1998-1999 economic trends report: U.S. State Department Telegram 003311, June 26, 23 p.

## Major Sources of Information

Ministry of Energy and Mines  
Santa Prisca 223 y 10 de Agosto  
Quito, Ecuador  
Telephone: (593-2) 572-011, Fax: (593-2) 570-350  
National Director of Mining (DINAMI)  
Calle General Baquedano No. 222 y Reina Victoria Edificio Araucaria, Piso 1  
Quito, Ecuador  
Telephone: (593-2) 554-110 - 554-809 - 432-831 - 464-418  
Fax: (593-2) 554-110 - 509-006  
Dirección Nacional de Geología, (DINAGE)  
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Quito, Ecuador  
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Central Bank of Ecuador  
Av. 10 de Agosto y Briceño  
Quito, Ecuador  
Telephone: (593-2) 583-051 - 583-054  
Fax: (593-2) 570-703  
Ecuador Chamber of Mining  
Av. República de El Salvador y Irlanda  
Quito, Ecuador  
Telephone: (593-2) 437-701 - 462-939  
Fax: (593-2) 462-939

## Major Publications

Boletín Anuario. Banco Central del Ecuador-División Técnica, annual.  
Country Commercial Guide. U.S. Embassy, Quito, Ecuador, annual.

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

(Metric tons unless otherwise specified)

| Commodity                                  |                            | 1995       | 1996       | 1997       | 1998 e/       | 1999 e/ |
|--|----------------------------|------------|------------|------------|---------------|---------|
| <b>METALS</b>                              |                            |            |            |            |               |         |
| Cadmium, mine output, Cd content e/        | kilograms                  | 200        | 200        | 200        | 200           | 200     |
| Copper, mine output, Cu content e/         |                            | 100        | 100        | 100        | 100           | 100     |
| Gold, mine output, Au content              | kilograms                  | 7,410      | 7,208      | 3,070      | 3,500         | 4,000   |
| Iron and steel:                            |                            |            |            |            |               |         |
| Steel, crude                               |                            | 34,641     | 20,477 r/  | 43,700     | 45,784 3/     | 46,000  |
| Semimanufactures                           |                            | 26,566     | 20,477     | 43,700     | 45,784 3/     | 46,000  |
| Lead concentrate, Pb content e/            |                            | 200        | 200        | 200        | 200           | 200     |
| Silver, mine output, Ag content            | e/                         |            | 1,325      | 2,135      | 2,000         | 2,000   |
| Zinc, mine output, Zn content e/           |                            | 100        | 100        | 100        | 100           | 100     |
| <b>INDUSTRIAL MINERALS</b>                 |                            |            |            |            |               |         |
| Cement, hydraulic                          | thousand tons              | 2,616      | 3,028 r/   | 2,900 r/   | 2,900 r/      | 3,000   |
| Clays:                                     |                            |            |            |            |               |         |
| Bentonite                                  |                            | 511        | 431,758    | 205,445    | 200,000       | 200,000 |
| Common:                                    |                            |            |            |            |               |         |
| For cement e/                              | thousand tons              | 2,000      | 2,000      | 2,000      | 2,000         | 2,000   |
| Other                                      |                            | 53,822     | 835,867    | 485,234    | 450,000       | 450,000 |
| Kaolin                                     |                            | 45,054     | 86,541     | 7,345      | 7,000         | 7,000   |
| Feldspar                                   |                            | 10,297     | 10,321     | 60,328     | 60,000        | 50,000  |
| Gypsum, crude                              |                            | 2,430      | 2,038      | 1,510      | 1,500         | 1,500   |
| Sand:                                      |                            |            |            |            |               |         |
| Silica (glass sand)                        |                            | 26,486     | 24,070     | 43,240     | 40,000        | 39,500  |
| Ferruginous e/                             |                            | 10,000     | 10,000     | 10,000     | 10,000        | 9,950   |
| Stone, sand and gravel:                    |                            |            |            |            |               |         |
| Limestone (for cement manufacture)         | thousand tons              | 4,089      | 3,491      | 4,261      | 4,200         | 4,150   |
| Marble                                     |                            | 10,948     | 17,225     | 1,089      | 1,000         | 1,000   |
| Pozzolan e/                                |                            | 88,000     | 88,000     | 85,000     | 80,000        | 70,000  |
| Pumice                                     |                            | 9,000 e/   | 231,875    | 368,269    | 320,000       | 330,000 |
| Sand and gravel                            | thousand tons              | 170 e/     | 1,325      | 2,135      | 2,100         | 2,100   |
| Salt (common) e/                           |                            | 224,309 3/ | 110,000    | 100,000    | 100,000       | 95,000  |
| Sulfur: e/                                 |                            |            |            |            |               |         |
| Native                                     |                            | 4,000      | 4,000      | 4,000      | 4,000         | 4,000   |
| Byproduct:                                 |                            |            |            |            |               |         |
| From petroleum                             |                            | 5,000      | 5,000      | 5,000      | 5,000         | 5,000   |
| From natural gas                           |                            | 5,000      | 5,000      | 5,000      | 5,000         | 5,000   |
| Total                                      |                            | 14,000     | 14,000     | 14,000     | 14,000        | 14,000  |
| <b>MINERAL FUELS AND RELATED MATERIALS</b> |                            |            |            |            |               |         |
| Gas, natural:                              |                            |            |            |            |               |         |
| Gross                                      | million cubic meters       | 189        | 187        | 189        | 190           | 190     |
| Marketed e/                                | do.                        | 119        | 115        | 118        | 119           | 120     |
| Liquefied natural gasoline e/              | thousand 42-gallon barrels | 3,290      | 3,290      | 1,830      | 1,830         | 1,900   |
| Petroleum:                                 |                            |            |            |            |               |         |
| Crude                                      | do.                        | 143,080 r/ | 144,540 r/ | 141,620 r/ | 136,875 r/ 3/ | 144,000 |
| Refinery products:                         |                            |            |            |            |               |         |
| Liquefied petroleum gas                    | do.                        | 4,774      | 3,040      | 2,555 r/   | 3,000         | 2,600   |
| Gasoline                                   | do.                        | 10,497     | 10,789     | 10,950 r/  | 10,800        | 11,000  |
| Jet fuel                                   | do.                        | 1,602      | 1,690      | 1,460 r/   | 1,700         | 1,500   |
| Kerosene                                   | do.                        | 595        | 730        | 365 r/     | 720           | 370     |
| Distillate fuel oil                        | do.                        | 20,725     | 12,700     | 9,490 r/   | 12,700        | 9,500   |
| Residual fuel oil                          | do.                        | 10,906     | 22,239     | 19,710 r/  | 22,300        | 19,700  |
| Unspecified                                | do.                        | 2,573      | 8,369      | 8,030 r/   | 8,430         | 8,100   |
| Total                                      | do.                        | 51,672     | 59,557     | 52,560 r/  | 59,700        | 52,800  |

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

1/ Includes data available through December 2000.

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

3/ Reported figure.