

THE MINERAL INDUSTRY OF ECUADOR

By Pablo Velasco

The Ecuadorean economy is undergoing a modernization process and a series of structural, administrative, and legal reforms have been promoted during several years with the objective of opening the economy to foreign markets and attracting foreign capital to develop and strengthen the non-traditional productive sectors, particularly mining. Ecuador has engaged in a broad reform program to restore the macroeconomic balance and reorganize its economy. The measures adopted have yielded positive results. Sustained growth has improved the international perception of the way the economy was being managed. The economic indicators of the past four years show a positive balance. Inflation deceleration was remarkable from levels higher than 60% in 1992 to about 26% in 1996. (The Ministry of Foreign Affairs, Mining in Ecuador an Option to Invest, 1996a.)

According to statistics released by the Central Bank of Ecuador, the mineral industry of Ecuador during approximately 26 years has depended on its hydrocarbon industry to sustain more than 50% of its economy, but in 1996 this contribution decreased to about \$1.8 billion or about 36.4% of the country's total \$4.8 billion¹ export revenues. Despite of the limited mining activity in the sector, some progress in exploration and mine development was made. However, considering the country's mineral potential, the implementation of new mining policies, and the number of foreign mining companies already exploring in the country, this sector could become economically important in the near future.

In 1996, metal mining was oriented towards gold. Nonmetallic production was oriented toward cement and industrial minerals. Minerals accounted for only 1.4% of the country's GDP. The sector employed about 60,000 workers or about 2.1 % of Ecuador's labor force. It represents 2.3% of exports, equivalent to about \$70 million per year. In turn Ecuador imports \$126 million of minerals and derivative, which represented to almost 5.7% of total imports.

The mining industry is still small in size and largely informal and unregulated. From 1991 to 1996, the National Directorate of Mining (DINAMI) granted almost 300 exploration titles covering 900,000 hectares (ha), 288 exploitation titles covering 100,000 ha, 27 permits for the construction of plants related to the mining industry, 160 trading licences, and 450 small-scale mining permits. There are currently more than 2,000 applications for exploration of 6.6 million ha. But despite the

presence of some prominent international mining firms, capital flow is still sparse and high levels of risk capital in exploration have not materialized. Geological studies, made the country look promising, but they are still relatively scarce (Metals & Minerals, Latin America a Metal Bulletin 1997a.)

According to the Ecuadorian Central Bank, the Ecuadorian economy grew by 1.8% in real terms during 1996, led by trade, manufacturing, foodstuffs, and mineral production (including oil). The inflation rate increased to about 26%, compared with 22.8% in 1995.

The current Ecuadorian Mining Law- Law No.126, published in the Official Registry No.695, of May 31, 1991 and the reforms to the General Regulations of the Mining Law promulgated and published in the Official Registry No.839 of December 11, 1995, constitute the specific legal base for mining activities in the country. This legal framework has been designed to offer incentives to foreign and national investors, in technology transfer, and provide guarantees for the development of this sector. (Ministry of Foreign Affairs, Mining in Ecuador an Option to Invest, 1996b.)

The Ecuadorean Mining Law offers incentives such as: (1) repatriation of profits without limitations, (2) tax base of 25% over profits, (3) 4-year amortization system for exploration expenses, (4) foreign investors are not compelled to have nationals as partners or counterparts, (5) foreign investments may be made in cash, machinery or services, (6) the law provides almost full exceptions on custom duties for imports of machinery, laboratories, equipment, and supplies of raw materials required in all the phases of mining operations, (7) exemption from the value-added tax (VAT) on the imports of mining implements, as long as they are not domestically manufactured, (8) no taxes are charged for the registration of foreign loans, regardless of the terms and amount, (9) foreign investors may own any percentage of company stock, (10) approval of foreign investments are swift and tax-free, (11) minerals sold to the Central Bank of Ecuador shall be considered as exports, (12) mineral exports made under the Mining Law need only to obtain the relevant export permit. Exemption from all taxes does not imply exemption from service fees.

The Ecuadorian legislation offers additional advantages such as: (1) there is no limit in the number of concessions for an operator company, although the law does limit the maximum surface area for each concession; (2) the law has remarkably simplified the procedures for granting concessions; (3) the Tariffs Committee has established lower tariffs for the importation of machinery, laboratories, equipment, utility

¹Where necessary, values have been converted from Ecuadorian sucres (S/) to U.S. dollars at the rate of S/ 3,500 = US \$1.00.

vehicles, spare parts and supplies required for mining operation; (3) exports of minerals are free from all taxes or duties, except the 0.5% tax over the FOB export value; (4) low labor costs constitute, without any doubt, an important element to consider at the moment of examining the advantages offered by Ecuador as compared with other countries.

Current labor laws provide for a 40-hour work week (8 hours/day), and basic monthly wages of approximately \$160, according to the latest salary revision of July 1996.

The Ecuadorian Government regulates the mineral industry through the Ministry of Energy and Mines (MEM)'s Subsecretaría de Minas, and administers the mineral industry through its three agencies: CODIGEM, DINAMA, and DINAMI. CODIGEM, the Corporation for Geological, Mining and Metallurgical Research and Development, is responsible for development and maintenance of geologic, mapping, and mining data bases. CODIGEM also provides technical assistance to miners, in addition to supporting mining, geology, metallurgy, and seismic research. DINAMA, the National Environmental Directorate, is concerned with environmental aspects of resource development. DINAMI, The National Mining Directorate, grants mineral concessions, exploration and exploitation permits. Petroecuador, the state-owned petroleum corporation, reorganized in 1992, produce, refined, stored, transported, and sold crude oil and petroleum products. Petroecuador's operating subsidiaries, Petroamazonas and Petroproducción, were combined to form Petroproducción .

International petroleum companies such as: YPF SA, Maxus Energy Corp., Oryx Energy Co., Occidental Exploration and Production, ARCO Oriente Inc., Elf Aquitaine and Tripetrol SA, produced crude oil and natural gas under contract with the Government and were involved in downstream trade.

MEM through its Subsecretariat of Mining, DINAMI, DINAMA, and CODIGEM, together administered, coordinated, and enforced the new environmental laws and regulations. The efforts to modernize the mining sector and adopt measures to protect the environment are desperately needed because of the damage the sector continues to wreak upon the environment and nearby communities. Informal miners still use mercury to process gold ore without any controls. The consumption of water from mercury-contaminated streams causes gingivitis among the infant population; 48% of the population in the mining towns of Zaruma and Portovelo (in mountainous Region of the El Oro Province that produces about 58% of Ecuador's gold) wear a dental prosthesis. The cyanide that is used in gold processing accumulates in soil and damages the flora and fauna. The indiscriminate destruction of trees associated with informal mining operations has led to excessive erosion and deforestation.

To a significant extent, Ecuador already has laws that prohibit these practices; however, the Government's unwillingness to confront the 100,000 people in the informal mining communities, along with the lack of any serious enforcement regime, prevents Ecuador from addressing these problems forthrightly.

Petroleum was the basis for Ecuador's mineral exports. In 1996, accounted for 14.6% of GDP, 36.5% of export earnings,

and 30% of public sector revenues. In 1996, total crude production was 140.2 million barrels (Mbbbl), up .34% compared with that of 1995. Ecuador has extensive, but underdeveloped, deposits of gold and other minerals. In 1996, gold production increased to more than 17 metric tons (mt) valued at more than \$225 million, of which 80% was artisanal production concentrated in the mining districts of Nambija, Zaruma-Portovelo, Ponce Enriquez, and other areas in the south. International petroleum companies produced crude oil and natural gas under contract with the Government and were involved in downstream trade. Small-scale intermittently producing gold-mining operations were spread throughout the country. Ore was extracted from diggings and processed in small gravitational, amalgamation, and cyanide-based plants. The primitive ore treatment plants only recovered between 30% to 50% of the gold. Alluvial gold operations also were numerous. On the other hand, the output of polymetallic minerals was small and falling, standing at around 200 metric tons per year (t/yr) and representing an annual value of \$500,000 to \$1 million. However, production of non-metallic minerals has been increasing in the past 4 years, especially in limestone for the cement industry, common salt, as well as other industrial minerals. It is worth noting that Ecuador holds one of the largest reserves of pumice stone in the western hemisphere. In 1996, non-metallic production in Ecuador exceeded \$20 million, accounting for 13.5% of the national mining production.

In 1996, Ecuadorian exports totaled \$ 4.9 billion in 1996, and imports amounted to \$ 3.5 billion. Ecuador's trade surplus was \$1.4 billion. During 1996, the United States maintained its position as both the primary market for Ecuadorian exports and the key supplier of Ecuador's import needs. According to the Central Bank data, the United States purchased 37.9% of Ecuador's exports in 1996, worth \$1.9 billion, up 4.7 % from that of 1995. Most Ecuadorian products enjoyed duty-free access to the U.S market under the Andean Trade Preferences Act (ATPA). In 1996 the U.S. imported 46% of Ecuador's crude oil and supplied 31.5% of Ecuador's total imports. According to U.S. data, in 1996, Ecuador imported \$1.3 billion worth of U.S. goods. Ecuador's eight largest non-U.S. suppliers are Brazil, Chile, Colombia, Germany, Japan, Mexico, Spain, and Venezuela.

Ecuador has Free Trade Agreements with Chile, Colombia, and Venezuela, and obtained 18.4% of its imports from those countries. Ecuador instituted a common external tariff system with Colombia and Venezuela and joined the world trade organization (WTO) in January 1996.

In 1996, gold and silver exports exceeded \$90 million, thus becoming the major non-traditional exports of Ecuador.

In 1996, about 400 registrations for artisanal miners and about 1,800 applications for exploration covering 6.6 million ha, were filed, demonstrating an increasing interest in exploration. The presence of major multinational mining companies, including Newmont Overseas Explorations Ltd., of the United States; Gold Fields Ltd. of South Africa; Rio Tinto Zinc Mining and Exploration (RTZ) Plc, of the United Kingdom; Gencor of South Africa; Cogema of France; Odin Mining Inc. of the United States; Echo Bay Mines Ltd. of

Canada; Teck Corp. of Canada; TVX Gold Inc. of Canada; Ag Armeno Mines and Minerals of Canada; Río Amarillo Mining Ltd. of Canada; Battle Mountain Gold Corp. of the United States; Cyprus Amax Corp. of the United States; Granges Inc. of Canada; Zamora Gold Corp. of Canada; Ecuadorian Minerals Corp. of Canada; Climax Inc. of Australia; Placer Dome of Canada; Latin American Gold Field Ltd. of the United States; Northfield Minerals of Canada; Zappa Resources Ltd. of Canada; Cambior of Canada, Jersey Golfcorp. of Canada, and Codelco of Chile. Together, these indicated a very promising mining outlook for Ecuador.

Toronto, Canada-based junior Ecuadorian Minerals Corp. (EMC), has notified Ag Armeno Mines and Minerals and Ecuadorian Copperfields that Ecuadorian Minerals had elected to withdraw from the option agreement on the Chaucha property, located in southern Ecuador, because it did not warrant further exploration expenditures (Metals and Minerals, Latin America, Metal Bulletin, 1997b). Ecuadorian Minerals also reported that a drill program was planned to commence in May 1997 on the Gaby gold property. The property comprises of 5,100 ha, in two exploration concessions, in the Chaucha copper-gold property, which lies southeast of Guayaquil. Several areas of gold mineralization have recently been identified by Armeno/ECI from stream sediment sampling programs. Follow-up soil sampling in the Naranjos copper zone included gold values ranging up to 6 grams per ton (g/t) of gold. In the 1970's and 1980's, Japanese and Belgian interests drilled out 130 million to 140 Mmt of mineralized resources grading 0.39% to 0.41% copper. About 12,300 m of core were drilled, but to date none has been analyzed for gold.

Newmont reported earning a 60% interest in the Fierro Urco copper-gold property, jointly owned by Ag Armeno and Trans Atlantic Enterprises Inc. of Canada. Ag Armeno operated the underground San Bartolome silver mine. Ag Armeno also owned the large Peggy copper-gold property, optioned to Curlew Lake Resources Inc. of Canada, which could acquire 50% interest of the property, and the Chaucha copper-molybdenum property. RTZ suspended work at the San Jose de Salinas prospect and has focused on two other copper-gold prospects: El Pueblo and La Victoria, both in the Western Cordillera. RTZ has found interesting results at the El Corazón property in northwestern Ecuador. A possible epithermal gold and silver mineralization. RTZ's Ecuadorean subsidiary was exploring intensively a quartz-adularia epithermal system at its Llano Largo prospect in the southwest. An initial 2,950 m of drilling has been completed to test the extension of the mineralization. North of Llano Largo, the company is exploring a second mineralized structure that hosts the well-known El Alumbre copper porphyry system, and another mineralised porphyry some 30 km north of El Alumbre. El Alumbre was never evaluated for its gold potential and most recent surveys have outlined sufficiently widespread areas of gold mineralization to encourage more exploration work.

The Australian company, Odin Mining & Investing Co. Ltd., reportedly was the largest formal gold producer in the country, recovering more than 600 kg of gold from its placer operations, the Biron Mine and the Río Chico Mine. Canada's TVX Gold

Corp. has approved the development of the Pachicutza gold mine in Ecuador, following completion of a successful exploration program. The company has conducted some 21,400 m of drilling and 8,100 m of drifting on the high-grade zone of Pachicutza to delineate close to 1 million tons of proven, probable, and possible reserves assaying some 12 to 13 g/t of gold.

EMC reported that the Gaby gold property appears to contain far more gold than the previous owner, Ecuadorian Minerals, had thought. Ecuadorian has added 1.9 million oz. of gold to its March 1995 estimate of 1.6 million oz of gold for a new total of 3.5 million oz of gold reserves. The total includes a gold resource of 1.3 million oz., for the northern part of the Guadalupe concession (51% Ecuadorian, 49% Vancouver-listed Zappa Resources).

Zamora Gold Corp. continues exploring its 90,000-ha land package in the Province of Zamora Chinchipe. The package includes blocks surrounding Nambija. Initial work has focused on the Mina Real concession, adjacent to Nambija's artisan workings. The concession's geologic setting was described by the company as a large porphyry-skarn system, with a later epithermal gold overprint at the Tumi d'Oro Zone. Zamora estimates the total length may extend beyond 1 km. The first phase of drilling tested 250 m of strike length in the northwestern extension of the zone. A further seven holes are planned at the Mina Real concession. Four holes will test the Tumi d'Oro structure, while three will test the Guaysimi Sur Breccia target. Northfield Minerals will acquire its second gold property in Ecuador. The company has signed an agreement to gain a 65 % interest in the Nambija Uno mining concession, which comprises 627 ha in the Zamora-Chinchipe Province. Previous work by Goldfields of South Africa and Northfield's joint-venture partner, Compañía Minera Gribipe, outlined four major targets. The most advanced of these is the Diamante, in the northeastern sector of the concession. Based on the work done, Gribipe estimates the target may contain a resource of more than 124,414 kg of gold. To earn the 65% interest Northfield must pay \$6.5 million to Gribipe and the mining cooperative over 5½ years. It must also issue to Gribipe 1 million common shares of Northfield and options to buy another 1 million shares.

Gold Fields of South Africa Ltd. entered a joint venture on a cooperative's concession in the Nambija area. With the cooperative's consent, Gold Fields started exploration, but local citizens blocked access to the area, because they were afraid that the international firms would swallow all of the region's operations, instead of working only on its concession area. TVX Gold Inc. has entered into a contract with the Ecuadorian Army's Industry Division (DINE), to explore the Pachicutza gold property. Pachicutza lies approximately 60 km southeast of Loja and consists of three claim blocks totaling 120 square km. Prior work by other companies has identified major gold-bearing structures and outlined an open-pit mine resource of several million tons of ore grading 2 to 3 g/t of gold. A detailed drilling program was planned.

Similar to metallic mine potential the economic potential of industrial minerals was being investigated and considered as a

way to satisfy the National demand for building materials, thus saving importation expenditures. Of importance, because of their volume, are the limestone deposits found in 15 provinces of Ecuador, which supply the raw material for the four main cement plants in the country. In the south, a ceramic industry was using kaolin and feldspar reserves. In the east, the country has considerable extensions of siliceous sands in the Sub-Andean Zone. Actually, important deposits are being mined to supply small glass bottle factories, ceramic and Ph (degree of acidity or of basicity of a solution) correctors of the limestone for the production of cement. Gypsum production is concentrated in the southern part of the country, in the Loja Province. Exploitation of pumice stone has become an important activity, especially in the central provinces of the highlands. For years, this raw material has been exported to countries of Latin America, the United States and Eastern Asia. Technical economic support are required to transform this resource into a large-scale operation. Construction materials are available in all provinces, representing 90% of the industrial materials needed in the country. The most significant industrial mineral operations were the cement and cement-related industries involving limestone and clays. Other industrial mineral operations included the marble quarries of Industria Marmolera Ecuatoriana S.A., Mármoles Andinos Cía. Ltda., Mármoles Santa Rosa Cía. Ltda., and Marmolera Chimborazo; the calcium carbonate operations of Cecál S.A.; Charasól's bentonite mines; and the barite pit of Mineral Bomboiza.

Since Ecuador left the Organization of Petroleum Exporting Countries in January 1996, oil production had been increasing to 385,000 bbl/d, in 199. The country also continued to increase its reserves. By yearend 1996, reserves were more than 2 billion barrels. Despite an environmental damage suit brought against Texaco by Ecuadorian Indian organizations and the threat of another suit by the Government, a fairly good response was received to the seventh bidding round that concluded in June 1996, a keystone in the Government's effort to increase reserves to 4.2 billion barrels by the end of this decade. Bids were received from 21 companies for 8 of the 13 blocks being offered. The first awards were announced in June. Still pending in mid-1996 was a decision on the \$600 million expansion of pipeline capacity, offered to private investors under a 15-year contract. The Trans-Ecuadorian pipeline was a main bottleneck, transporting 325,000 bbl/d of the country's 390,000 bbl/d output. Another 30,000 bbl/d flowed through the Trans-Andean pipeline via Colombia. The Government planned to expand the main crude oil line of 463 km by adding another section totaling 172 km, increasing total capacity to 400,000 bbl/d. Some 20 foreign companies were reportedly interested in the venture

Ecuador produced crude oil mostly from fields in the Amazon basin operated by Petroecuador. Of the remaining proven reserves of 21 billion barrels, 3.5 billion barrels could be extracted using current methods and 11.8 billion barrels could be extracted using advanced technology. The country's proven crude oil reserves should last well into the next century at the present rate of production.

Petrocommercial, a subsidiary of Petroecuador, was responsible for the transportation of oil. Crude oil was

transported from the oilfields in the Oriente region through the Ecuadorian Transandean oil pipeline system via Quito to Esmeraldas or Guayaquil for export, processing, and domestic distribution. This pipeline repeatedly exceeded design capacity during the year. Additional production was shunted through the Transandean pipeline in southern Colombia to the export terminal at Tumaco. A new 150,000-bbl/d capacity pipeline, parallel to the existing Ecuadorian pipeline, from Lago Agrio to Esmeraldas was proposed. Maxus Energy Corporation of Dallas, Texas, also had 352 km of pipeline under construction in the east.

The mining sector, especially gold, silver, and base metals could supplement petroleum as an important source of revenue. However, significant foreign investment would be needed to create adequate infrastructure and the Government would need to boost investor's confidence by maintaining and improving the fiscal and legal environment for mineral exploration and development.

Ecuador's infrastructure was cited by Government officials as a restricting factor in mineral development. Mine production was transported by truck on the Nation's 43,709 km of highways or by the 965 km of state-operated rail to processing plants and shipping ports.

Despite the problems that plague Ecuador's mining industry, Government officials were confident that revenue generated by mining will rise in coming years, provided that Ecuador remains committed to attracting foreign investment. Gold has already become a significant second-level export, ranking with such products as cocoa, fish, and cut flowers. Gold production would increase by titling concessions to the informal miners, responsible for 85% of Ecuador's gold production, and improving gold recovery from the current level of 40% to 90% by using modern technology. Mining Officials envisioned that revenue generated by gold production could represent 3% of Ecuador's GDP, while minerals export could generate \$ 1 billion in revenues by the year 2006.

Foreign investment, together with Government adequate policies and strategies and support of the World Bank, will no doubt achieve the development of modern mining projects in Ecuador.

Petroecuador was expected to expand its production and transport capacity, most notably the construction of a liquified petroleum gas terminal and petroleum product pipelines. However, Petroecuador's mandated domestic sale of refined products at steeply subsidized prices was expected to continue to encourage product smuggling and eventually enervate Petroecuador's competitive stance.

References Cited

Ministry of Foreign Affairs, Mining in Ecuador an option to invest, August, 1996, p.4-14.
Metal Bulletin, v.2, no. 4. February 26, 1997, p. 4-5.

Major Sources of Information

Ministry of Energy and Mines

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Major Publications

Banco Central del Ecuador-Division Tecnica; Boletin Anuario.
U.S. Embassy-Quito: Country Commercial Guide, annual.

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

(Metric tons unless otherwise specified)

Commodity	1992	1993	1994	1995	1996 e/
METALS					
Cadimium: Mine output, Cd content e/ kilograms	260	260	250	200	200
Copper: Mine output, Cu content e/ kilograms	100	100	100	100	100
Gold: Mine output, Au content kilograms	12,300	12,500	13,000	15,500	17,700
Iron and steel:					
Steel, crude	19,877 r/	27,426 r/	32,451 r/	32,000 r/	33,000
Semimanufactures	199,325 r/	200,294 r/	110,830 r/	200,400 r/	260,000
Lead concentrate, Pb content e/ kilograms	200	200	200	200	200
Silver: Mine output, Ag content e/ kilograms	60	60	60	60	60
Zinc: Mine output, Zn content e/ kilograms	35	33	100	100	100
INDUSTRIAL MINERALS					
Cement, hydraulic thousand tons	2,250 e/	2,098	2,164	2,300	2,400
Clays:					
Bentonite	278 r/	268 r/	420 r/ e/	380 r/	390
Common:					
For cement thousand tons	3,100	1,820	2,000 e/	2,000 e/	2,000
Other	278,000	267,479	42,099	350,000	350,000
Kaolin	6,381 r/	12,000	6,883	8,000 r/	7,000
Feldspar	3,251 r/	8,015 r/	5,692 r/	7,000 r/e/	7,000
Gypsum, crude	105,500	104,900	108,000 e/	110,000 e/	100,000
Sand:					
Silica (glass sand)	35,500	48,751	33,535	36,000 r/	35,000
Ferruginous e/	15,000	10,000	10,000	10,000	10,000
Stone, sand and gravel:					
Limestone (for cement manufacture) thousand tons	3,160 r/	3,707 r/	6,229	6,200 r/	6,000
Marble	1,963 r/	8,620	9,500	10,000 r/	10,000
Pozzolan	84,560	83,920	86,560	88,000 e/	88,000
Salt (common)	68,166	67,419	70,000	224,309	110,000
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
MINERAL FUELS AND RELATED MATERIALS					
Gas, natural:					
Gross million cubic meters	195	200 e/	204 r/	193 r/	190
Marketed e/ do.	90	90	90	90	80
Liquefied natural gasoline thousand 42-gallon barrels	397	400 e/	400 e/	455 r/	550
Petroleum:					
Crude do.	117,000	126,000	138,000	139,726 r/	140,200 3/
Refinery products:					
Liquefied petroleum gas do.	2,550	2,550 e/	2,550 e/	2,500 r/	3,700
Gasoline do.	11,500	11,500 e/	11,500 e/	11,900 r/	10,300
Jet fuel do.	1,530	1,500 e/	1,530 e/	1,650 r/	4,250
Kerosene do.	786	800 e/	787 e/	790 r/	680
Distillate fuel oil do.	10,500	10,500 e/	10,600 e/	10,400 r/	13,100
Lubricants do.	256	260 e/	260 e/	210 r/	260
Residual fuel oil do.	16,600	16,700 e/	16,600 e/	23,000 r/	22,060
Unspecified do.	374	400 e/	374 e/	700 r/	700
Total do.	44,200	44,200 e/	44,200 e/	51,150 r/	55,050 3/

e/ Estimated. r/ Revised.

1/ Includes data available through May 1997.

2/ Estimated data and totals are rounded to three significant digits; may not add to totals shown.

3/ Reported figure.