



2010 Minerals Yearbook

ECUADOR [ADVANCE RELEASE]

THE MINERAL INDUSTRY OF ECUADOR

By Susan Wacaster

In 2010, Ecuador was not a significant producer of mineral commodities despite having significant deposits of base and precious metals. Petroleum and refinery products output generally decreased compared with that of 2009 owing to major changes in the production contracts between the Government and petroleum producing companies; nevertheless, the country maintained its position as the fifth ranked petroleum producer in Central America and South America (BP p.l.c., 2011, p. 8).

Minerals in the National Economy

In 2010, the value contributed to the gross domestic product (GDP) from the exploitation of mines and quarries increased by only 0.2% compared with that of 2009 to about \$2.97 million, or about 12% of the GDP. The average value of mining and quarrying for all years since 2000 was 13.4% of the GDP with a maximum of about 16% in 2004.

Government Policies and Programs

The Government of Ecuador had passed a mining mandate in April 2008 that called for a suspension of mineral exploration activities for 180 days or until a new mining act was approved and subsequently revoked about 75% of the greater than 4,000 mining concessions and 1,200 concession requests. Some of those concessions had been acquired by private interests beginning in the late 1980s when investor-friendly regulations were in place to promote foreign direct investment and exploration of the country's precious mineral occurrences. Ultimately, however, the regulations resulted in situations that were unsatisfactory to the citizens and the Government of Ecuador, including extensive speculation, unregulated artisanal mining, environmental damage, and a loss of revenue for the country.

A new mining act that was published in January 2009 and regulations created to govern the Mining Act that were issued in November 2009 became the new Mining Law (composed of the Mining Act and regulations). The new mining law places no limits on the number of mining concessions that an entity can hold, and the concessions have renewable 25-year term limits. Royalties of not less than 5% based on sales must be paid to the Government. Concise timelines are required to be followed for project exploration and development, and each company is required to establish production contracts with the Government that set out specific terms and conditions of the mining operation.

Two new agencies were formed as a result of mining sector reorganization, including the Ministry of Nonrenewable Natural Resources (MRNR) and the Agency for Regulation and Control of Mining (ARCOM). The two agencies were created to manage the nonfuel mineral, natural gas, and petroleum resources of the state. The database of mineral production statistics that had previously been published by the Ministry of Mines and Energy (MME) became available through the ARCOM in 2010, but the

data were current only to 2007. On December 31, 2009, a new state mining company, Empresa Nacional Minera (ENAMI EP), was created by Executive decree (Dynasty Metals & Mining, 2011, p. 1–2).

Throughout 2010, some foreign companies were reportedly working out the details of individual contracts in order to proceed with development of their projects. It was reported that the Government would demand that some mining companies pay from \$100 million to \$200 million in royalties before they could begin extracting minerals and that mining companies might be required to pay up to 8% in royalties (Dynasty Metals & Mining, 2011, p. 1–2; Mineweb.com, 2011).

Production

Data on mineral production are in table 1. Since early 2008, it has been increasingly difficult or impossible to obtain any new information regarding nonfuel mineral production in Ecuador. Little or no exploration or production has been done by foreign companies.

Structure of the Mineral Industry

Table 2 is a list of major mineral industry facilities.

Mineral Trade

Ecuador is a member of the Organization of the Petroleum Exporting Countries (OPEC) along with 11 other countries, all of whose petroleum reserves are orders of magnitude greater than Ecuador's. Ecuador had a negative account balance with OPEC in 2010 of \$1.04 billion and remained the organization's smallest producer, in terms of volume, and the member with the least proven petroleum reserves. In 2010, the volume of crude petroleum exported from Ecuador increased by about 30% compared with that of 2009 to about 123 million barrels (Mbbbl). Petroleum exports were valued at \$9.65 billion and accounted for about 55% of the total exports in terms of value compared with 50% in 2009. About 10 Mbbbl of petroleum products was exported in 2010 (Organization of the Petroleum Exporting Countries, 2011, p. 11).

Commodity Review

Metals

Gold.—Kinross Gold Corp. of Canada had continued to negotiate a production agreement with the Ecuadorean Government for its Fruta del Norte gold and silver project, submitted environmental impact assessments, and projected a startup date of late 2014. Total reserve and resource estimates included nearly 340,000 kilograms (kg) (reported as

11 million troy ounces) of gold and about 530,000 kg (reported as 17 million troy ounces) of silver (Kinross Gold Corp., 2011).

In January 2011, Dynasty Mining & Metals Inc. of Canada had applied to the MRNR to start negotiations that would complete a production contract for the company's Zaruma property. The company expected the contract to be finalized within 6 months after the application was accepted. Under the previous mining law, Dynasty had received permits to construct and operate a mill that would be capable of processing 500,000 metric tons per year (t/yr) of ore. By yearend, the company reported that the installed capacity of the plant, excluding a wet section, was about 800,000 t/yr (which would allow for expansion without incurring significant capital costs later) and that the target for the first steady state production level was 300,000 t/yr. The company tested the plant to near capacity during 2010 with a combination of resource and nonresource material stockpiled during mine development. It also completed its first export of about 190 kg (reported as 6,100 troy ounces) of gold to a Canadian refinery. By the end of 2010, the company had produced about 60 kg (reported as 1,850 troy ounces) of gold and about 800 kg (reported as 26,000 troy ounces) of silver contained in dore bars for which an estimated 5% royalty was to be paid to the Government. The total estimated resources for the Zaruma property included about 44,000 kg (reported as 1.4 million troy ounces) (Dynasty Metals & Mining Inc., 2011, p. 3–4).

In 2010 and into early 2011, Ecometals Ltd. of Canada's Condor gold, silver, and zinc project was being acquired by Ecuador Capital Corp. of Canada (ECC). ECC was created as a private exploration and mining company to acquire the Condor project. Upon completion of the acquisition, ECC was reportedly planning to list on the Toronto Stock Exchange and to change the company's name to Inca Gold Corp. When the deal was initiated, ECC was called Alca Gold Ltd., and during 2010, Alca Gold had requested an extension to the closing of the agreement. The Condor project's estimated reserves and resources included about 26,000 kg (reported as 825,000 troy ounces) of gold (Ecometals Ltd., 2010a, b; Cambridge House International Inc., 2011).

Mineral Fuels

Petroleum.—Foreign companies involved in petroleum production were affected by reforms to the country's Oil Law, which had nullified their previous production-sharing contracts. The new law requires the oil companies to negotiate service provider contracts under which the Government pays a fixed tariff to the companies that operate the oilfields and, in turn, receives all windfall profits from the field. Seven of 16 foreign oil companies operating in Ecuador were reported to have pulled out of the country; some of those that pulled out were operating in marginal oilfields (those that had already been exploited for 15 to 20 years) (Interpress Service News Agency, 2011).

Outlook

In 2010, very little information about nonfuel domestic exploration and (or) production in the country was available,

but progress continued to be made in the organization of the mining industry. The MRNR released a national mining plan for the period from 2011 through 2015 that addresses the country's goal of developing a responsible mining industry. The plan provides information on areas of opportunity for development and programs that aim to accelerate the development of the mining sector, define mining areas and execute large-scale mining projects, eradicate illegal mining, and manage artisanal and small-scale mining projects in a responsible and socially profitable manner.

When, and whether or not, the country will be able to attract new investment in its mineral resources remains to be seen, as does the extent to which the mining industry will benefit the citizens, which was the justification for the reorganization of the industry. Ecuador may have lost a considerable amount of revenue during the global recession that started in 2008 compared with what might have been earned if near-term projects had been brought into production when gold prices were increasing. The companies that remained invested and in negotiations with the Government were working on large projects from which the country could recoup losses, provided those projects are brought into production in the foreseeable future and that demand and (or) prices for precious metals remains high in global markets; however, lengthy contract negotiations and large initial costs could be deterrents for some companies (Ministerio de Recursos Naturales no Renovables, 2011, p. 107).

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TABLE 1
ECUADOR: PRODUCTION OF MINERAL COMMODITIES^{1,2}

(Metric tons unless otherwise specified)

Commodity	2006	2007	2008	2009	2010 ^e
METALS					
Gold, mine output, Au content kilograms	5,168	4,587 ^r	800	500 ^{r,e}	1,300
Silver, mine output, Ag content do.	159	449	112	100 ^{r,e}	800
Steel, crude, continuously cast, electric furnace	85,000	87,000	128,000 ^{r,3}	259,000 ^{r,3}	372,000 ³
INDUSTRIAL MINERALS					
Carbon dioxide (CO ₂)	592	358 ^r	300 ^{r,e}	300 ^e	300
Cement, hydraulic ^c thousand metric tons	4,110	4,420	5,493 ³	5,000	5,000
Clays (unspecified)	1,400 ^{r,e}	1,427 ^r	1,400 ^{r,e}	1,400 ^{r,e}	1,400
Feldspar	67,844	63,558 ^r	60,000 ^{r,e}	60,000 ^{r,e}	60,000
Gypsum, crude	1,478	-- ³	-- ^e	-- ^e	--
Pozzolan	700,007	803,502 ^r	800,000 ^e	800,000 ^e	800,000
Pumice	150,000 ^{r,e}	153,500	100,000 ^e	100,000 ^e	100,000
Sand	36,208	33,907 ^r	35,000 ^e	35,000 ^e	35,000
Stone, sand and gravel:					
Limestone thousand metric tons	5,457	6,326 ^r	6,000 ^{r,e}	6,000 ^{r,e}	6,000
Marble	31,840	-- ³	-- ^{r,e}	-- ^{r,e}	--
MINERAL FUELS AND RELATED MATERIALS					
Gas, natural:					
Gross million cubic meters	1,309	1,196	1,200	1,200	1,275 ³
Of which, marketable do.	680	830	680 ³	600	600
Liquefied natural gasoline thousand 42-gallon barrels	300	299	300	300	300
Petroleum: ³					
Crude do.	195,948	186,669	184,780 ^r	177,620	177,374
Refinery products:					
Liquefied petroleum gas do.	2,311	1,614	1,924	2,200	3,618
Gasoline ⁴ do.	7,273	7,311	17,090	18,600	17,786
Jet fuel do.	2,699	2,913	NA	NA	NA
Distillate fuel oil ⁵ do.	12,677	11,789	8,561	8,000	9,219
Residual fuel oil ⁶ do.	21,969	23,052	13,251	10,400	7,752
Asphalt do.	1,025	990	NA	NA	NA
Turpentine do.	35	45	NA	NA	NA
Solvents, including rubber solvent do.	41	62	NA	NA	NA
Other, including oils and lubricants ⁷ do.	5,310	4,447	12,267	15,100	12,341
Total do.	53,340	52,223	53,093	54,300	50,716

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

NA Not available. -- Zero.

¹Table includes data available through October 4, 2011.

²In addition to the commodities listed, some additional construction materials are produced, including kaolin, sand and gravel, and sulfur, but available information is inadequate to make reliable estimates.

³Reported figure.

⁴Data for gasoline are reported as a sum total of two grades of gasoline—super and extra—for the years 2008 through 2010.

⁵Reported as Fuel Oil #4.

⁶Reported as Fuel Oil #6.

⁷Data for other refinery products for the years 2008 through 2010 were reported to include asphalt, jet fuel, turpentine, and solvents.

TABLE 2
ECUADOR: STRUCTURE OF THE MINERAL INDUSTRY IN 2010

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity ^e
Cement		Holcim Ecuador S.A. (Holcim Ltd., 92.1%, and other private, 7.9%)	Cerro Blanco plant, Guayaquil, Guayas Province, and San Rafael grinding plant, Latacunga, Cotopaxi Province	3,500
Do.		Cementos Selva Alegre S.A. (Lafarge S.A., 98.2%, and other private, 1.8%)	Cement plant near capital city of Quito, Pichincha Province	700
Gold		Dynasty Metals and Mining Inc., 100%	Zaruma gold mine in El Oro Province	800
Petroleum:				
Crude	thousand 42-gallon barrels	Petroproducción S.A. [Empresa Publica de Hidrocarburos del Ecuador (EP Petroecuador) (Government, 100%)]	About 26 active fields, led by Sacha, Sucumbios Province, and Shushufindi, Napo Province	127,700
Refinery products	do.	Empresa Publica de Hidrocarburos del Ecuador (EP Petroecuador) (Government, 100%)	Esmeraldas refinery, Esmeraldas Province	40,200
Do.	do.	do.	Libertad refinery, Guayas Province	16,800
Do.	do.	do.	Amazonas refinery and gas plant, Napo Province	7,300
Do.	do.	do.	Lago Agrio refinery, Sucumbios Province	375

^eEstimated; estimated data are rounded to no more than three significant digits. Do., do. Ditto.