2008 Minerals Yearbook

PARAGUAY AND URUGUAY

U.S. Department of the Interior
U.S. Geological Survey

August 2010

The Mineral Industries of Paraguay and Uruguay

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PARAGUAY

In 2008, Paraguay's mineral industries included cement, iron and steel, and petroleum derivatives. The country's Parana River is a large source of hydroelectric power. The Itaipu Dam is the world's second ranked hydroelectric generator. The dam was built and operated jointly with Brazil. Other dams include the Central Acaray, which was managed by the state-owned Administración Nacional de Electricidad, and the Yacyreta, which was a joint venture with Argentina. Paraguay lacks significant mineral or petroleum resources. To meet its crude oil and petroleum derivatives demand, Paraguay relied on imports of approximately 28,000 barrels per day (bbl/d) of crude oil based on May 15, 2009, estimates (U.S. Department of State, 2009; U.S. Energy Information Administration, 2009; World Bank, The, 2009).

Paraguay welcomes foreign investment and its laws treat national and foreign investors on equal terms. The economy is dependent on exports of agricultural goods and electricity generation. Paraguay works quite closely with its Southern Cone Common Market (MERCOSUR) partners (Argentina, Brazil, and Uruguay) on many political, economic, and social issues. Bilateral trade with the United States has increased during the past 6 years—U.S. imports from Paraguay were valued at $68 million in 2007 (the latest year for which data were available) compared with $58 million in 2006. U.S. exports to Paraguay in 2007 were valued at $1.2 billion compared with $910 million in 2006 (U.S. Department of State, 2009).

In 2008, the sectors that contributed to Paraguay's gross domestic product (GDP) were agriculture (42.3%), services (39.4%), industry (11.6%), and others (6.7%). A combination of economic growth in Argentina and Brazil, which led to increased demand for Paraguayan exports, and high world prices for Paraguay's agricultural exports helped improve Paraguay's economy. Paraguay also depended on trade with its partners in MERCOSUR, which, in terms of trade value, was the second ranked trade association in the Americas and the eighth ranked trade association worldwide (Banco Central del Paraguay, 2009, p. 9; U.S. Central Intelligence Agency, 2009; World Bank, The, 2009).

In 2008, Paraguay's total exports were valued at about $7.9 billion compared with $5.5 billion in 2007 and included such products as cement, cotton, electricity, leather, meat, soybean, and wood. Export partners included Argentina (28.1%), Uruguay (15.2%), Brazil (12.7%), Chile (5.9%), Germany (4.9%), Russia (4.5%), and others (28.7%). Imports of such goods as consumer goods, chemicals, electrical machinery, petroleum products, tobacco, and vehicles totaled about $8.9 billion compared with $6 billion in 2007. Import partners included Brazil (30.4%), the United States (22.8%), Argentina (14.4%), China (8.6%), and others (23.8%). The mining sector accounted for about 1% of the GDP (Banco Central del Paraguay, 2009; U.S. Central Intelligence Agency, 2009).

Production

In 2008, Paraguay produced mostly cement, clays, petroleum derivatives, pig iron, and steel. Paraguay's mineral reserves and resources were unknown. Data on mineral production are in table 1.

Structure of the Mineral Industry

The mineral industry of Paraguay was owned mostly by Paraguayan state-owned firms (table 2). Since 2007, the structure of the country's mineral industry had changed to a privately owned and Government-regulated regime. This regime is managed by the Paraguayan Ministry of Industry and Commerce's Office of Sistema Unificado de Apertura de Empresas (SUAE). SUAE facilitates the process of initiation and gives the approval for foreign private companies to conduct mining operations in the country (Ministerio de Industria y Comercio, 2009b, p. 9-11).

Paraguay's foreign direct investment (FDI) inflows decreased to $150 million in 2008 from a revised $196 million in 2007, or by 23.5%; this decrease was mostly attributed to the effects of the international economic crisis. As a result, companies—particularly those operating in the natural resources sector—began cautiously to revise their plans and adjust their investment strategies (Economic Commission for Latin America and the Caribbean, 2009).

Commodity Review

Metals

Iron and Steel.—In 2008, based on the World Steel Association's world steel production report, Paraguay was part of the 67 reporting countries that accounted for more than 98% of world crude steel production. In 2008, Paraguay produced 129,600 metric tons (t) of crude steel compared with 132,000 t in 2007, which was a decrease of almost 2%. The production of pig iron totaled 145,420 t in 2008 compared with 148,000 t in 2007, or decreased by about 1.7% (table 1; World Steel Association, 2009).

Industrial Minerals

Cement.—The Industria Nacional del Cemento (INC), which was a Paraguayan state-owned company, was the only cement producer in Paraguay. INC produced about the same amount of cement as in 2007. The Villeta cement plant was expected to be able to meet about 20% of the future (2009-12) demand for cement in Paraguay. In 2008, the National Customs Department reported almost 150,000 t of imported cement. Nearly 80% of Paraguay's consumption (700,000 t) was satisfied by domestic production (550,000 t); the remaining 20% was met by imports (Ministerio de Industria y Comercio, 2009b).

Mineral Fuels and Related Materials

Natural Gas.—Paraguay had the potential to produce natural gas; however, the country did not consume natural gas because of the lack of domestic production capacity and the absence of import pipelines. The Ministry of Industry and Commerce was planning to install a biogas plant between Concepcion and San Pedro. The plant would use banana, mango, and pineapple peelings as fuel feed to produce the biogas. According to the Paraguayan Government, German investors were interested in this project to produce gas amiable with the environment (Ministerio de Industria y Comercio, 2009a).

Petroleum.—State-owned Petróleos Paraguayos (Petropar) had a monopoly on all crude oil and petroleum product sales and imports in Paraguay. Petropar operated the country's sole refinery, the 7,500-bbl/d Villa Elisa unit. Paraguay consumed 28,000 bbl/d in 2008. Energy cooperation between Paraguay and Venezuela could be possible by the latter building an oil refinery in Paraguay that could process its heavy crude oil. This effort could help satisfy Paraguay's crude demand, and Venezuela's supply to Paraguay could reach 15,000 bbl/d in the form of gasoil. The Paraguayan Government announced that crude oil had been discovered in the western Chaco region and that exploration for oil in the Emilia well, which is located within the Boqueron field, would continue. In 2008, however, no hydrocarbon reserves had been proven at the Emilia prospect, which was considered the country's most potentially productive unit. The recoverable resource at the Emilia prospect was estimated to be 40 million barrels of oil (Ministerio de Industria y Comercio, 2009b; U.S. Energy Information Administration, 2009).

Uranium.—The Government announced the possibility of building a nuclear- powered electricity-generating plant that would use uranium to be produced eventually from deposits located in the zone of Yuty (Caazapa, San Antonio), southeast of Asuncion. Paraguay was considering requesting France's assistance to develop a nuclear power program (Mercosur Noticias, 2008a, b).

Outlook

Paraguay's economy was expected to continue to grow in spite of the decrease in the growth of its GDP to 5.8% in 2008 from 6.8% in 2007; the projected growth of its economy will be highly dependent on MERCOSUR's economic stability, however. The cement industry's production is expected to increase and to be able to meet about 50% of Paraguay's future (2009-13) cement demand; the remaining demand would be covered by imports. The Paraguayan mineral fuels industry is set to continue its exploration activities by 2010 and beyond because of the continued exploration efforts in the Chaco region (Banco Central del Paraguay, 2009).

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URUGUAY

Uruguay's GDP continued to grow, increasing by 8.9% in 2008 compared with 7.4% in 2007, as a result of high commodity prices for Uruguayan exports, a strong local currency (peso), and lower international interest rates. The sectors that contributed to the country's GDP were services (57.4%), industry (32.8%), and agriculture (9.8%). The mining sector accounted for less than 1% of the GDP. Unemployment decreased to 7.6% in 2008 from 9.2% in 2007. Uruguay's economy was characterized by an export-oriented agricultural sector. Uruguay's FDI inflows increased to $2.04 billion in 2008 compared with $1.22 billion in 2007, which was the largest foreign investment in Uruguay's history (Banco Central del Uruguay, 2009; Economic Commission for Latin America and the Caribbean, 2009; U.S. Central Intelligence Agency, 2009; World Bank, The, 2009).

Uruguay continued to produce significant quantities of clays, gold, iron and steel, sand and gravel, semiprecious gemstones, and stone. In 2008, exports were valued at $6 billion and included such commodities as dairy products, dolomite, fish, gold, leather, meat, rice, and wool. Export partners included Brazil (15.5%), the United States (9.4%), Argentina (8.4%), Mexico (6.6%), China (6.1%), Germany (4.8%), and others (49.2%). Imports of such goods as chemicals, machinery, petroleum and derivatives, and vehicles were valued at $7 billion in 2008. Import partners included Brazil (19.1%), Argentina (17.9%), the United States (9.5%), China (9.1%), Paraguay (7.7%), Nigeria (4.7%), and others (32%). Uruguay had no proven natural gas or oil reserves but it does have substantial hydroelectric capacity (Banco Central del Uruguay, 2009; U.S. Central Intelligence Agency, 2009; U.S. Department of State, 2009).

Production

In 2008, Uruguay produced mostly agate, cement, clays, gold, iron ore, marble, sand and gravel, and steel. Data on mineral production are in table 1.

Structure of the Mineral Industry

The mineral industry of Uruguay was mostly owned by Uruguayan state-owned firms and privately owned companies (table 2).

Commodity Review

Metals

Gold.—Uruguay Mineral Exploration Inc. (UME) of Canada was the only gold producer in Uruguay. UME's Gregorio gold mine produced 2,182 kilograms (kg) (70,147 troy ounces) in 2008 compared with 2,820 kg (90,668 troy ounces) in 2007. UME's exploration budget was $10 million for 2008 (table 1; Uruguay Minerals Inc., 2009a, b).

Industrial Minerals

Cement.—Cementos Artigas S.A. (CASA) was owned by Cía. Uruguaya de Cemento Portland S.A. (Cemolins International SL of Spain, 50%, and Uniland International B.V. of the Netherlands, 50%). CASA was the only cement producer in Uruguay; it had a production capacity of 620,000 t/yr. The cement industry continued to be an important employer because of the ongoing construction in Uruguay's coastal cities. In 2008, CASA produced about the same amount of cement as in 2007 (table 1; Cementos Artigas S.A., 2009).

Mineral Fuels

Natural Gas.—In 2008, the Uruguayan Government announced the completion of an appraisal of natural gas reserves in Uruguay's offshore Punta del Este basin. According to the Administración Nacional de Combustibles, Alcohol y Portland (ANCAP), significant natural gas discoveries in the continental shelf could contain up to 85 billion cubic meters (3 trillion cubic feet) of proven reserves and production could start by 2015 (Business News Americas, 2008).

Two pipelines supply Uruguay with natural gas from Argentina. The first, CR. Federico Slinger or Gasoducto del Litoral, runs 20 kilometers (km) from Colon, Argentina, to Paysandu, Uruguay. The pipeline, which was constructed and operated by ANCAP, had an operating capacity of 138,800 cubic meters per day (4.9 million cubic feet per day). The second is the Gasoducto Cruz del Sur (GCDS), which was operated by a consortium led by British Gas plc. This pipeline extends 210 km from Argentina's natural gas grid to Montevideo and had a capacity of 5.1 million cubic meters per day (180 million cubic feet per day). The GCDS project also held a concession for a possible pipeline extension of 870-km to Porto Alegre, Brazil. Argentina, however, had begun to decrease its natural gas exports to Chile and Uruguay because of natural gas output shortages (U.S. Energy Information Administration, 2009).

Petroleum.—The state-owned oil company ANCAP operated Uruguay's single oil refinery, La Teja, which had a production capacity of 50,000 bbl/d. To meet its oil consumption, Uruguay relied completely on imports (mainly from Venezuela) of approximately 35,700 bbl/d based on 2007 estimates. In 2007, ANCAP and its Venezuelan counterpart, Petróleos de Venezuela S.A. (PDVSA), signed a joint-venture agreement to explore for and produce heavy oil from Ayacucho Block 6, which is located in Venezuela's Orinoco heavy oil belt (LatinPetroleum Magazine, 2009; U.S. Energy Information Administration, 2009).

YPF SA (a subsidiary of the Spanish oil firm Repsol YPF SA) won a bid to explore for oil along the coast of Punta del Este. Exploration in that project was to take place in the first quarter of 2010. YPF would have a 40% stake in the exploration project; the other partners were Petrobrás Uruguay, which was a subsidiary of Petróleo Brasileiro S.A. (Petrobrás) (40%), and Portugal's Galp Energia, SGPS, S.A. (GALP) (20%). YPF did not say how much money it planned to invest in the project. Petrobrás and BP p.l.c.-controlled Pan American Energy were also part of the consortium, and they were planning to invest $98 million in the project by 2009 (Turner, 2009).

Outlook

Uruguay's economy is expected to continue to grow during 2008-10. This growth, however, is highly dependent on better prices for its exports, strong currency, lower international interest rates, continued regional economic stability (particularly in Argentina and Brazil, which are the leading members of MERCOSUR), and reliable supplies of imported natural gas and petroleum.

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TABLE 1
PARAGUAY AND URUGUAY: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons unless otherwise specified)

Country and commodity		2004	2005	2006	2007	2008
PARAGUAY[2]						
Cement, hydraulic[e]	thousand metric tons	470	550	600	600	600
Clays:[e]						
Kaolin		66,600	66,000	66,000	66,000	66,000
Other, unspecified		230,000	230,000	230,000	230,000	230,000
Gypsum[e]		4,500	4,500	4,500	4,500	4,500
Iron and steel:						
Pig iron		119,000 [3]	124,000 [3]	136,000	148,000	145,420
Semimanufactures[e]		51,600	51,500	51,500	51,500	45,120
Steel, crude		109,000 [3]	101,000 [3]	118,000	132,000	129,600
Lime[e]		90,000	90,000	90,000	90,000	90,000
Petroleum, refinery products:[e]						
Distillate fuel oil	thousand 42-gallon barrels	600	600	600	600	600
Gasoline	do.	660	660	660	660	660
Jet fuel	do.	20	20	20	20	20
Kerosene	do.	250	250	250	250	250
Liquefied petroleum gas	do.	630	630	630	630	630
Residual fuel oil	do.	460	460	460	460	460
Unspecified	do.	40	40	40	40	40
Total	do.	2,660	2,660	2,660	2,660	2,660
Pigments, mineral, natural, ocher[e]		250	250	250	250	250
Sand, including glass sand[e]		25,500	25,500	25,500	25,500	25,500
Stone:[e]						
Dimension	thousand metric tons	70	70	70	70	70
Crushed and brokened:						
Limestone, for cement and lime		16,300	16,000	16,000	16,000	16,000
Marble		750	750	750	750	750
Other		2,000	2,000	2,000	2,000	2,000
Talc, soapstone, pyrophyllite[e]		200	200	200	200	200
URUGUAY						
Aluminum, secondary[e]		45	45	45	45	45
Barite[e]		15	15	15	15	15
Bentonite		122 [4]	195 [4]	515	515	515
Cement, hydraulic	thousand metric tons	620 [r]	620 [r]	620 [r]	620 [r]	620
Clays, unspecified		47,519 [4]	70,209 [4]	82,162	82,200	82,200
Coke, gashouse[e]		5,000	5,000	5,000	5,000	5,000
Feldspar		2,450 [4]	2,150 [4]	2,470	2,500	2,500
Gemstones, semiprecious:						
Agate		14,560 [4]	10,166 [4]	18,369	18,400	18,400
Amethyst		435 [4]	433 [4]	468	500	500
Gold[5]	kilograms	2,334	3,151	3,000	2,820	2,182
Gypsum[e]	thousand metric tons	1,130	1,130	1,150	1,150	1,150
Iron and steel:						
Iron ore		9,319 [4]	12,436 [4]	15,525	15,525	15,525
Metal:						
Ferroalloys, electric-furnace ferrosilicon crust[e]		200	200	200	200	200
Semimanufactures[e]		32,000	32,000	32,000	32,000	28,000
Steel, crude		58,000 [3]	64,000 [3]	57,000	71,000	69,700

See footnotes at end of table.

TABLE 1—Continued

PARAGUAY AND URUGUAY: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons unless otherwise specified)

Country and commodity		2004	2005	2006	2007	2008
URUGUAY—Continued						
Lime[e]		10,000	10,000	10,000	10,000	10,000
Petroleum, refinery products:[e]						
Distillate fuel oil	thousand 42-gallon barrels	8,810 [6, 7]	8,476 [6, 7]	8,500	8,500	8,500
Gasoline	do.	1,793 [6, 7]	1,830 [6, 7]	1,850	1,850	1,850
Kerosene	do.	75 [6, 7]	67 [6, 7]	100	100	100
Liquefied petroleum gas	do.	915 [6, 7]	1,005 [6, 7]	1,000	1,000	1,000
Residual fuel oil	do.	3,650	3,650	3,650	3,650	3,650
Unspecified	do.	401 [6, 7]	201 [6, 7]	200	200	200
Total	do.	15,600	15,200	15,300	15,300	15,300
Sand and gravel:						
Sand, common	thousand metric tons	1,270 [4]	1,666 [4]	1,940	2,000	2,000
Gravel		48,023 [4]	71,711 [4]	68,309	68,400	68,400
Stone:						
Flagstone		5,605 [4]	5,869 [4]	5,900 [e]	6,000 [e]	6,000 [e]
Granite:						
Dimension		4,834 [4]	6,270 [4]	7,643	7,650	7,650
Crushed and brokened, alum schist	thousand metric tons	625 [4]	699 [4]	700 [e]	700 [e]	700 [e]
Other, rough stone[5]		4,950	10,299	10,300 [e]	10,300 [e]	10,300 [e]
Diorite	thousand metric tons	798 [4]	226 [4]	169	170	170
Dolomite		9,839 [4]	11,159 [4]	10,152	10,200	10,200
Limestone	thousand metric tons	1,052	1,185	1,200 [e]	1,200 [e]	1,200 [e]
Marble, in blocks and broken:[e]						
Onyx		122 [4, 6]	120	120	120	120
Traventine		-- [4, 6]	--	--	--	--
Other, unspecified		120	39 [4, 6]	40	40	40
Marl		3,310 [4]	4,350 [4]	6,320	6,400	6,400
Quartz		1,130 [4]	104 [4]	150	150	150
Other, including ballast	thousand metric tons	1,453 [4]	1,811 [4]	1,800	2,000	2,000
Sulfur, elemental, byproduct[e]		3,000	3,000	3,000	3,000	3,000
Talc, soapstone, pryophyllite		1,042 [4]	1,131 [4]	1,150	1,150	1,150
Tuff, tufa	thousand metric tons	142 [4]	244 [4]	250	250	250

[e]Estimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. [r]Revised. do. Ditto. -- Zero.

[1]Table includes data available through June 30, 2009.

[2]In addition to the commodities listed, construction materials (clays, miscellaneous rock, sand, and weathered tuffs) were presumably produced, but available information is inadequate to make reliable estimates of output.

[3]Source: International Iron and Steel Institute.

[4]Source: Dirección Nacional de Minería y Geología (Minerals Questionaire 2007-08) and Cementos Artigas S.A., July 2009.

[5]Source: Uruguay Mineral Exploration Inc. Data are for fiscal year ending March 31, 2009.

[6]Reported figure.

[7]Source: Administración Nacional de Combustible, Alcohol y Portland (ANCAP). Numbers were converted into 42-gallon barrels (bbl) from thousand cubic meters using the U.S. Energy Information Administration conversion factor of 1 cubic meters = 6.289812 bbl.

TABLE 2
PARAGUAY AND URUGUAY: STRUCTURE OF THE MINERAL INDUSTRIES IN 2008

Country and commodity		Major operating companies and major equity owners	Location or deposit name	Annual capacity
PARAGUAY				
Cement	thousand metric tons	Industria Nacional del Cemento (INC), 100%	Plantas Vallemi y Villeta	675
Petroleum, refinery products	thousand 42-gallon barrels	Petróleos Paraguayos (Petropar)	Villa Elisa refinery at Villa Elisa municipality	2,700
Steel	thousand metric tons	Consorcio Siderúrgico de Paraguay (Cerro Lorito, 67%, and Cooperativa de Trabajadores de ACEPAR, 33%)	ACEPAR steel mill at Villa Hayes	150
URUGUAY				
Cement	thousand metric tons	Cementos Artigas S.A. (Cia. Uruguaya de Cemento Portland S.A., 100%)	Mine and clinker plant in Lavalleja Department	620
Gold	kilograms	Uruguay Mineral Exploration Inc. (UME), 100%	Minas de Corrales Gold in Rivera Department	3,000
Iron and steel	thousand metric tons	Gerdau Laisa S.A.	Gerdau Laisa S.A.	70
Petroleum, refinery products	thousand 42-gallon barrels	Administración Nacional de Combustibles, Alcohol, y Portland (ANCAP)	La Teja oil refinery near Montevideo	18,000