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The Mineral Industries of Paraguay and Uruguay

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PARAGUAY

Paraguay's mineral industry was dominated by cement, crushed stone, gypsum, and iron and steel. In 2014, Paraguay's real gross domestic product (GDP) increased by 4.4% compared with that of 2013. The mining sector made only a minor contribution of about 0.1% to the country's GDP. The country continued to rely on imports of crude oil and refinery products to meet demand. In 2014, Argentina supplied about 40% of Paraguay's imports of fuels and lubricants (Banco Central del Paraguay, 2015a).

The Government-owned Administración Nacional de Electricidad (ANDE) was engaged in the generation, transmission, and distribution of electric power in the country. ANDE operated three hydroelectric plants—Acaray hydroelectric plant, Itaipu Binacional plant (a joint project with Brazil), and Yacyreta Binacional plant (a joint project with Argentina). In 2014, electricity and water accounted for about 1.7% of the Paraguay's GDP, and exports of electric power accounted for about 24% of the country's total exports. Of the total electricity generated in the country in 2013 (the latest year for which data were available), 78% was exported, 15% was consumed, and 7% was in the "other" category. Brazil and Argentina received 84% and 16% of Paraguay's electricity exports, respectively (Ministerio de Obras Publicas y Comunicaciones, 2014, p. 1–2; 2015; Banco Central del Paraguay, 2015a).

Government Policies and Programs

The Dirección de Recursos Minerales, which is part of the Ministerio de Obras Públicas y Comunicaciones (MOPC, Ministry of Public Works and Communications), is the Government entity responsible for the administration of the mining sector. The mineral sector is regulated by Mining Law No. 31.180/2007, which was modified by law No. 4.269/11 in 2011 and by law No. 4.935/2013 in 2013. Law No. 4.935/2013 states that mining rights can be assigned for those who qualify and meet the conditions required by the law, with prior authorization from the MOPC, and for those who enroll in the official mining cadaster (Republica del Paraguay, 2013, p. 1–2).

Production

Data on mineral commodities produced are in table 1.

Structure of the Mineral Industry

Table 2 is a list of major mineral industry facilities.

Mineral Trade

In 2014, the total value of Paraguay's exports was about $9.7 billion compared with about $9.4 billion in 2013. The country's major export partners in 2014 were, in decreasing order of value, Brazil (which received 31% of Paraguay's exports), Russia (10%), the Bahamas (8%), and Argentina and Chile (7% each). Iron and steel exports were valued at about $31.1 million in 2014 compared with $28.0 million in 2013. The total value of Paraguay's imports was about $11.3 billion in 2014, which was about the same amount as in 2013. The country's major import partners in 2014 were, in decreasing order of value, Brazil (which supplied 28% of Paraguay's imports), China (25%), Argentina (15%), and the United States (8%). Imports of fuels and lubricants in 2014 were valued at about $1.7 billion, which accounted for about 15% of total imports; cement, about $40 million; and asphalt, about $15 million (Banco Central del Paraguay, 2015b).

Paraguay continued to be a member of the Mercado Común del Cono Sur (MERCOSUR), a trade association in the Americas which also includes the countries of Argentina, Bolivia, Brazil, Uruguay, and Venezuela. In 2014, Paraguay's exports to MERCOSUR accounted for about 40% of the country's exports, and imports from MERCOSUR accounted for about 44% of the country's imports. MERCOSUR received about $7.2 million of Paraguay's iron and steel exports and supplied about $166 million of the country's iron and steel imports (Banco Central del Paraguay, 2015b; Mercado Común del Cono Sur, 2015).

Commodity Review

Metals

Gold.—Latin American Minerals Inc. (LAMI) of Canada continued with its bulk-sampling operation at Paso Yobai gold project, which is located in the Department of Guaira, about 160 kilometers (km) east of the capital city of Asuncion. In 2012, LAMI began its bulk-sampling operation at Paso Yobai's Independencia Mine, which planned the evaluation of the grades and the continuity and characteristics of the gold mineralization and the production of gold dore from samples to generate cash flow. In June, the company began the construction of its 32,000-metric-ton-per-year-capacity heap-leach gold-recovery facility at the mine, which included four leach pads. At yearend, LAMI had completed the construction of three of four planned leach pads. The company expected to increase its bulk-sampling capacity at the project in 2015. Exploration work at seven target areas within Paso Yobai were underway (Latin American Minerals Inc., 2015, p. 4–9).

Industrial Minerals

Diamond, Niobium, and Rare-Earth Elements.—During 2014, LAMI sought joint-venture partners to advance the Itapoty diamond project, which was located about 150 km northeast of Asuncion. Itapoty included two 100%-owned exploration property claims, which totaled 155,800 hectares. At yearend, LAMI reported that it was unable to conclude any joint-venture agreements to advance its Chiriguelo niobium and rare-earth project, which is located 330 km northeast of Asuncion. The project was written off owing to cash constraints and market conditions (Latin American Minerals Inc., 2014, p. 9, 11; 2015, p. 9, 16).

Mineral Fuels

Petroleum.—Amerisur Resources plc of the United Kingdom held 100% interest in five blocks (Curupayty and San Pedro exploration and production permits and Coronillo, Espartillar, and Las Palmas prospecting permits) covering an area of about 6.4 million hectares. Exploration work at the blocks was underway, which included seismic, gravity, and aeromagnetic studies. The company planned to drill its first exploration well in the San Pedro permit area (Jaguarete-1), which is located in the Parana Basin, by 2016. In 2014, at least two additional companies were engaged in the exploration of mineral fuels in Paraguay—President Energy PLC of the United Kingdom and Crecent Group Corp. of the United States (Amerisur Resources plc, 2015).

Outlook

Paraguay forecasted GDP growth at a rate of 4.0% for 2015 (International Monetary Fund, 2015, p. 58). Exploration for mineral fuels is expected to continue in 2015. The country will continue to rely on imports of crude oil and refinery products to meet its demand. In the long term, if mineral fuel explorations come to fruition, it is likely to increase interest in mineral fuel prospecting and to attract foreign direct investment. The development of the Paso Yobai gold project is likely to increase interest in nonfuel mineral prospecting and to provide significant revenue to the country.

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URUGUAY

Uruguay's mineral industry was dominated by the production of cement, crude steel, gold, industrial minerals, and petroleum refinery products. Industrial minerals produced in the country included clays, crushed stone, dolomite, granite, and limestone. The country also produced natural gemstones, such as agate and amethyst. In 2014, the country's GDP increased by about 3.5% compared with a revised 5.1% in 2013. Petroleum refinery products accounted for 1.2% of the total GDP and mining and quarrying accounted for about 0.3%. Uruguay relied completely on imports of crude oil and natural gas, and in 2014, imports of crude oil were about 13.7 million barrels and natural gas was about 54 million cubic meters. Argentina supplied all the country's natural gas imports through the Gasoducto del Litoral (CR. Federico Slinger) and the Gasoducto Cruz del Sur pipelines. In 2014, renewable energy sources accounted for about 93% of the country's electric power and fossil fuels accounted for about 7% (Banco Central del Uruguay, 2015; Ministerio de Industria, Energía y Minería, 2015a, p. 3, 5, 7, b–c).

Government Policies and Programs

The Ministerio de Industria, Energia y Mineria (MIEM, Ministry of Industry, Energy and Mining) is the Government agency responsible for the administration of the energy, industry, mining, and telecommunications sectors. The Direccion Nacional de Mineria y Geologia (National Directorate of Mines and Geology), which is part of the MIEM, is the authority that regulates mining activities in the country and issues mineral licenses. The mineral sector is regulated by the Mining Code (law No. 15.242 of January 8, 1982), which was modified for law No. 18.813 of September 23, 2011, and the Environmental Law No. 17.283. The Administración Nacional de Combustibles, Alcoholes y Portland (ANCAP) is a Government-owned holding company created by law No. 8764 of October 15, 1931. Among its other duties, the ANCAP is involved in the production of alcohol, petroleum derivatives, and portland cement. A new Large-Scale Mining Law No. 19.126 (Mineria de Gran Porte) became effective on September 25, 2013. The new law establishes taxes and environmental standards for potential large-scale mining projects (Republica Oriental del

Uruguay, 1982, 2000; Administración Nacional de Combustibles, Alcohol y Portland, 2015; Ministerio de Industria, Energía y Minería, 2015d).

Production

Data on mineral production are in table 1.

Structure of the Mineral Industry

Table 2 is a list of major mineral industry facilities.

Mineral Trade

In 2014, the total value of Uruguay's exports was about $9.2 billion compared with $9.1 billion in 2013. The country's major export partners in 2014 were, in decreasing order of value, Brazil (which received 18% of Uruguay's exports), China (17%), and the United States (5%). Gold (unwrought or in semimanufactured forms) accounted for about $69.7 million of these exports and petroleum oils about $34.5 million in 2014. The total value of Uruguay's imports (excluding petroleum oils and [or] derivatives) was about $9.6 billion in 2014 compared with $9.5 billion in 2013. Uruguay's major import partners in 2014 were, in decreasing order of value, China (which supplied 22% of Uruguay's imports), Brazil (17%), Argentina (15%), and the United States (9%). Petroleum gas and other gaseous hydrocarbons accounted for about $57.7 million of these imports; anhydrite, gypsum, and plasters, $3.8 million; and kaolin and other kaolinic clays, $960,600 (Uruguay XXI, 2015a, p. 8–9; 2015b–c).

Uruguay's exports to the United States were valued at about $457 million in 2014 compared with about $423 million in 2013 (including $131,000 in coal and related fuels). Imports from the United States were valued at about $1.6 billion in 2014 compared with about $1.8 billion in 2013. Fuel oil accounted for about $137 million of these imports in 2014; petroleum products, about $29 million; excavating machinery, about $23 million; and drilling and oilfield equipment and specialized mining equipment, about $2 million each (U.S. Census Bureau, 2015a, b).

Commodity Review

Metals

Gold.—Orosur Mining Inc. (OMI) of Canada was Uruguay's only producer of gold, and it operated the San Gregorio project, which is located in the Department of Rivera about 450 km north of the capital city of Montevideo. The project included the Arenal Deeps underground mine and several open pits (Crucera, Santa Teresa, Sobresaliente, Vaca Muerta, and Zapucay-Argentinita) in the San Gregorio District. During the fiscal year (May 31, 2013, to May 31, 2014), the project produced 1,709 kilograms (kg) of gold compared with 1,842 kg in 2013. Arenal Deeps accounted for about 80% of the ore mined during the fiscal year. As of 2014, total proven and probable reserves at San Gregorio were estimated to be 3.02 million metric tons at an average grade of 2.01 grams per metric ton gold. The mine life of San Gregorio was extended between 4 to 6 years owing to new reserve estimates at Arenal Deeps, Laureles pit (located 18 km northeast of the San Gregorio plant), and Vaca Muerta, which began operation during the year. The company planned to continue exploration work to delineate new resources and reserves around the existing mines in fiscal year 2015. Orosur planned to produce between 1,420 kg and 1,560 kg of gold in fiscal year 2015, and Arenal Deeps was expected to contribute between 70% to 75% of the total gold production (Orosur Mining Inc., 2014, p. 1, 6–7; 2015).

Iron Ore.—Zamin Ferrous Ltd. of Jersey, through its subsidiary Mineria Aratiri, owned the Valentines iron ore project, which is located in the Department of Durazno and covers a total area of about 14,505 hectares. In 2013, the Government declared the Valentines a mega mining project, based on the Large-Scale Mining Law. The Valentines project includes five open pit mines (Las Palmas, Maidana, Morochos, Mulero, and Uria), a beneficiation plant, and a 234-km slurry pipeline (to transport the iron ore to a terminal to be built on the coast). The project was expected to have the capacity to produce about 18 million metric tons per year of iron concentrate during a mine life of 20 years. In August, the company submitted to the Direccion Nacional del Medio Ambiente a partial update of its environmental impact assessment, which has been awaiting approval since 2011 (Presidencia de la Republica Oriental del Uruguay, 2013; Mineria Aratiri, 2014, p. 1–5; 2015).

Mineral Fuels

Natural Gas.—The Government-owned companies—Administracion Nacional de Usinas y Transmisiones Electricas and ANCAP, through its subsidiary Gas Sayago S.A.—planned the development of Proyecto GNL del Plata. The project included an offshore terminal, which would be located about 2.5 km from the shoreline at Punta Sayago, a floating storage and regasification unit, and a jetty, protected by a 1.5-km breakwater. The terminal would have a storage capacity of about 263,000 cubic meters and regasification capacity of about 10 million cubic meters per day of natural gas. In 2013, Gas Sayago signed a 15-year contract (to build, own, operate, and transfer) with GDF SUEZ S.A. of France for the new liquefied natural gas (LNG) import terminal at a cost of about $1.1 billion. The import terminal was expected to increase Uruguay's energy supply, reduce imports of oil, and also allow the country to export natural gas to Argentina through the GCDS pipeline. The project's import terminal and the breakwater were expected to be completed by 2015 and the floating storage and regasification unit by 2016 (GDF SUEZ S.A., 2013, 2014; Gas Sayago S.A., 2013, p. 9; 2015; Thomson Reuters, 2013).

Petroleum.—Uruguay is not an oil producing country and has no proven hydrocarbon reserves. ANCAP had the monopoly on production, export, and import of oil and byproducts. The company was also responsible for carrying out all activities, business, and operations of the hydrocarbon industry. In onshore exploration, ANCAP could partner with a contractor for up to 50% in the exploration stage, and in offshore exploration, the degree of partnership with ANCAP could be between 20% and 40%. As of 2014, nine offshore and three onshore exploration and production contracts were in place. Companies engaging in onshore exploration included Petrel Energy Ltd. of Australia,

Schuepbach Energy LLC of the United States, and Total S.A. of France. The Government also planned to offer additional hydrocarbon exploration blocks in its Uruguay Round III tender in 2015 (Uruguay XXI, 2014, p. 3, 6; Uruguay Round III, 2015).

BG Group plc of United Kingdom held 100% interest and is the operator of three offshore exploration blocks (Blocks 8, 9, and 13) in the country. The company completed a 13,080 square kilometers (km^2) three-dimensional (3D) seismic program in February and additional exploration work, such as subsurface analysis and prospect mapping is underway. BP p.l.c. of the United Kingdom held 100% interest in the offshore exploration Blocks 11 and 12, which are located in the Pelotas Basin, and Block 6, which is located in the Punta del Este Basin. The three offshore blocks cover a total area of about 26,000 km^2. BP completed the acquisition of about 13,000 km^2 of three-dimensional (3–D) seismic data in 2014 and planned to acquire about 3,000 km^2 of two-dimensional seismic data by 2015. The consortium among Royal Dutch Shell plc of the United Kingdom (40%), Yacimientos Petroliferos Fiscales of Argentina (40%), and Galp Energia Group of Portugal (20%), held two offshore exploration blocks (Blocks 3 and 4) located in the Punta del Este Basin. In 2014, the consortium requested an extension of the second phase of the exploration period for Block 3, which covers an area of 5,500 km^2. Exploration work at Block 3 was underway in 2014 and a 3–D seismic data interpretation was expected to be completed by 2015. During the year, the consortium decided to relinquish Block 4, which covers an area of 3,000 km^2, after an evaluation of its prospectivity. Additional companies engaging in offshore exploration of hydrocarbons in the country included INPEX Corp. of Japan and Tullow Oil plc, Block 15, and Total, Block 14 (BG Group plc, 2015, p. 30; BP p.l.c., 2015, p. 214; Galp Energia Group, 2015a, p. 36; 2015b).

Outlook

Uruguay forecasted an increase in the GDP of 2.8% for 2014 (International Monetary Fund, 2015, p. 58). The Government is expected to continue its efforts to increase interest in offshore and onshore hydrocarbons exploration in 2015. In the short term, the country is expected to continue to rely on imports of crude oil and natural gas to meet domestic demand. The presence of international companies engaged in hydrocarbons exploration also suggests that foreign investment in the mineral fuels sector is likely to increase in the coming years. In the long term, projects in the nonfuel mineral sector, such as the development of the Valentines iron ore project and the expansion of the San Gregorio gold project, are likely to increase interest in nonfuel mineral prospecting in the country.

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TABLE 1

PARAGUAY AND URUGUAY: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons unless otherwise specified)

Country and commodity		2010	2011	2012	2013	2014
PARAGUAY[2]						
Cement, hydraulic[e]	thousand metric tons	650 [3]	650 [3]	650	650	650
Gypsum[e]		4,400 [3]	4,500	4,500	4,500	4,500
Iron and steel:[4]						
Pig iron		81,000	42,000	67,000	69,000 [r]	71,000
Steel, crude		59,000	30,000	44,000	45,000	47,000
Stone, crushed and broken[e]	thousand metric tons	13,500 [3]	14,795 [3]	14,800	14,800	14,800
URUGUAY[5, 6]						
Bentonite		430	1,210	5,530	8,990 [r]	7,800
Cement, hydraulic	thousand metric tons	834 [7]	968 [7]	872 [7]	850 [r, e]	820
Clays, unspecified		43,330	31,350	26,670	19,558 [r]	23,120
Dolomite		18,470	13,160	19,410 [r]	23,010 [r]	19,666
Gold, mine output[8]	kilograms	1,743	1,740	1,725	2,022	1,889
Granite		5,100	5,620	2,850 [r]	4,718	2,900
Iron and steel:						
Iron ore		16,800	8,360	9,500	9,978	15,050
Steel, crude[4]		65,000	81,000	78,000	91,000 [r]	93,000
Limestone	thousand metric tons	1,432	1,489	1,458 [r]	1,506	1,474
Natural gemstones, agate and amethyst		18,356	20,490	20,380 [r]	20,900 [r]	16,200
Stone, crushed	thousand metric tons	920	1,472	3,025 [r]	1,949 [r]	1,552
Petroleum, refinery products[9]	thousand 42-gallon barrels	14,291	10,082	14,564	15,731	14,891

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

[1]Table includes data available through October 21, 2015.

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

[3]Reported figure.

[4]Source: World Steel Association.

[5]In addition to the commodities listed feldspar, marble, quartz, and talc were produced in small quantities.

[6]Source: Ministerio de Industria, Energía y Minería (MIEM) - Dirección Nacional de Minería y Geología (DINAMIGE), Produccion nacional de minerales, por año, segun mineral 2010–2014. Data are for fiscal year beginning April 1 and ending March 31.

[7]Source: Federacion Interamericana del Cemento, Statistical Report 2013.

[8]Source: Orosur Mining Inc. Data are for fiscal year ending on March 31.

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

TABLE 2
PARAGUAY AND URUGUAY: STRUCTURE OF THE MINERAL INDUSTRIES IN 2014

(Thousand metric tons unless otherwise specified)

Country and commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity[e]
PARAGUAY				
Cement		Industria Nacional del Cemento	Puerto Vallemi plant, about 350 kilometers northwest of Asuncion	1,060
Do.		do.	Villeta plant, about 25 kilometers south of Asuncion	730
Do.		Yguazu Cementos S.A. (Camargo Correa Group, Concret-Mix S.A. and Votorantim Cimentos S.A.)	Villa Hayes plant in Presidente Hayes Department.	400
Petroleum, refinery products	thousand 42-gallon barrels	Petróleos Paraguayos	Villa Elisa refinery at Villa Elisa municipality	2,700 [1]
Steel		Consorcio Siderúrgico de Paraguay (Cerro Lorito, 67%, and Cooperativa de Trabajadores de ACEPAR, 33%)	ACEPAR steel mill at Villa Hayes, about 25 kilometers northeast of Asuncion	150
URUGUAY				
Cement		Cementos Artigas S.A. (Votorantim Cimentos, 51%, and Cementos Molins S.A., 49%)	Mine and clinker plant in Lavalleja Department	500
Do.		Cementos del Plata S.A. (Administración Nacional de Combustibles, Alcohol, y Portland, 99.25%)	Paysandu plant in Paysandu Department and Minas plant in Lavalleja Department	530
Gold	kilograms	Minera San Gregorio S.A. (Orosur Mining Inc., 100%)	San Gregorio in Rivera Department, about 450 kilometers north of Asuncion	2,000
Iron and steel		Gerdau Laisa S.A.	Montevideo	90
Petroleum, refinery products	thousand 42-gallon barrels	Administración Nacional de Combustibles, Alcohol, y Portland	La Teja oil refinery near Montevideo	18,000

[e]Estimated. Do., do. Ditto.

[1]Production operations were suspended in 2005. Evaluation of the feasibility of restarting the refinery is ongoing.