



2019 Minerals Yearbook

BOLIVIA [ADVANCE RELEASE]

THE MINERAL INDUSTRY OF BOLIVIA

By Yolanda Fong-Sam

In 2019, Bolivia was a globally significant supplier of ores and mineral concentrates and was among the world's leading producers of tin (6% share) and silver and zinc (4% share each). Other mineral commodities produced in Bolivia included (but were not limited to) antimony, arsenic, bismuth, cement, copper, crude petroleum, gold, gypsum, lead, rock salt, tantalum, tin, tungsten, and ulexite. Bolivia had significant reserves of antimony, which were estimated to be 21% of the world's estimated total of 1.5 million metric tons (t). Bolivia's resources of lithium were estimated to be 21 million metric tons (Mt) (table 1; Jaskula, 2020; Klochko, 2020; Anderson, 2021; Merrill, 2021; Tolcin, 2021). Economic growth in Bolivia slowed in 2019, in part owing to economic and political uncertainty surrounding the presidential elections in October. The performance of the mining sector was affected by a strike led by workers of Empresa Minera San Cristóbal S.A., which negatively affected lead, silver, and zinc output, and by the decrease in the demand for natural gas from Bolivia's main trading partners, Argentina and Brazil. The slowdown of the economy was partially offset by better performance in the agriculture, construction, fisheries, and services sectors (Banco Central de Bolivia, 2020a, p. VII, XVII, 40–41; Morales, 2020).

Minerals in the National Economy

In 2019, according to the Instituto Nacional de Estadística [National Institute of Statistics] (INE), Bolivia's gross domestic product (GDP) at current prices was \$34.2 billion.¹ The value added of the petroleum and natural gas production was \$1.5 billion, which was a decrease of 5% from the sector's output value of \$1.6 billion in 2018. The output value of the petroleum and natural gas sector accounted for about 4% of the country's GDP. According to the INE, the output value of the "metallic mineral" and "nonmetallic mineral" production decreased by 13% to about \$2.5 billion from about \$2.8 billion in 2018. These industries accounted for about 7% of the country's GDP. The construction sector contributed about 3% to the country's GDP, or about \$1.2 billion. The decrease in the performance of Bolivia's economy in 2019 was partly attributed to weak regional economies, lower demand for Bolivia's mineral commodities, and lower global commodity prices (Banco Central de Bolivia, 2020a, p. 12, 41–42; Instituto Nacional de Estadística, 2021).

In 2019, foreign direct investment (FDI) in Bolivia was valued at \$560 million, which was a decrease of 38% compared with the total FDI of \$905 million in 2018. The hydrocarbon sector received \$242 million in FDI (the most of any other sector) compared with \$316 million in 2018; this was a 23% decrease, year on year. The mining sector received \$13 million in FDI compared with \$133 million in 2018 (a decrease of

90%). The Economic Commission for Latin America and the Caribbean noted that the decreased FDI was likely owing to perceptions of institutional and legal instability in the country, which increased uncertainty when estimating variables for future profitability associated with investments. The largest FDI transactions recorded in 2019 were two investment agreements for the industrialization of lithium that were reached by the Government through its wholly owned company Yacimientos de Litio Boliviano Corporación (YLB), and the Xinjiang TBEA Group-Baocheng consortium of China. In August, the companies announced the formation of a joint venture and estimated an initial investment of approximately \$2.4 billion for the lithium projects. In 2019, an investment project was agreed upon between Aéroports de Paris of France and the Government of Bolivia for the design, construction, operation, maintenance, and finance of the Viru International Airport in Santa Cruz de la Sierra, Bolivia. The project, which could require materials from the local industrial minerals sector, had an initial investment estimated to be \$420 million (Xinhuanet.com, 2019; Banco Central de Bolivia, 2020a, p. 16–17; Economic Commission for Latin America and the Caribbean, 2020, p. 68).

Government Policies and Programs

The Ministerio de Minería y Metalurgia [Ministry of Mining and Metallurgy] is regulated by law No. 535, "Ley de Minería y Metalurgia [Law of Mining and Metallurgy] of May 28, 2014," and it is the agency responsible for directing and developing the mining and metallurgical industries in Bolivia. The Ministry also oversees the implementation of policies and regulations that make up the framework for metallurgical mining activities in the country. Law No. 535 establishes the guidelines and procedures for granting, holding, and revoking mining rights, the development of projects, and the continuation of the mining and metallurgical activities in a responsible, planned, and sustainable manner. According to law No. 535, all mineral resources in the ground belong to the people of Bolivia (Ministerio de Minería y Metalurgia, 2014; 2018, p. 25; 2019). Law No. 928, "Ley de la Empresa Pública Nacional Estratégica de Yacimientos de Litio Bolivianos [Law of the National Public Company for Bolivian Lithium Deposits] (YLB) of April 2017," was established to create the state-owned company YLB, which operates under the Ministry of Energy. YLB is responsible for carrying out all activities related to the development of the country's lithium resources, including exploration, development, mining, operation, administration, industrialization, and commercialization. More specifically, the YLB is tasked with developing the processing protocols for evaporite resources for the production and commercialization of various products, such as lithium carbonate, lithium chloride, lithium hydroxide, and lithium sulfate, as well as potassium chloride, potassium nitrate, potassium sulfate, and other derivatives and intermediate salts and products associated with evaporites.

¹Where necessary, values have been converted from Boliviano (BOB) to U.S. dollars (US\$) at the average rate of LCU\$6.91=US\$1.00 for 2019.

In 2008, Bolivia started developing plans for the implementation of the National Strategy for the Industrialization of Evaporite Resources, which gave way to Decree No. 29496. The decree started the industrialization of Bolivia's evaporite resources. The Corporación Minera de Bolivia [Mining Corporation of Bolivia] (COMIBOL) is the body responsible for the industrialization of the evaporite resources of the Salar de Uyuni, which are salt flats rich in lithium (Asamblea Legislativa Plurinacional, 2017; Yacimientos de Litio Bolivianos, 2021).

The Agencia Nacional de Hidrocarburos [National Hydrocarbons Agency] (ANH) was formed to replace the Superintendency of Hydrocarbons. The ANH is the agency responsible for regulating, monitoring, and supervising the entire hydrocarbon supply chain, including exploration, production, marketing, and consumption. The ANH was established by Supreme Decree 29894 of February 7, 2009, "System of Sectoral Regulation and System of Regulation of Non-Renewable Natural Resources," which is a regulatory framework that subsequently allowed the creation of the ANH through Administrative Resolution 474/2009 of May 7, 2009 (Agencia Nacional de Hidrocarburos, 2019).

Production

In 2019, refined gold production was estimated to have increased by approximately 43%, and mined gold, by about 40%. The increase in refined gold production was likely influenced by the increase in gold export prices. Other mineral commodities for which production increased notably in 2019 were hydraulic cement, the production of which increased by about 15%; cement clinker, by 14%; and kerosene, by 12%. Notable decreases were reported for the production of rough ametrine, which decreased by about 79%; boric acid, by about 68%; refined bismuth, by 62%; arsenic, by nearly 50%; copper mine concentrate, by 33%; and tantalite, by about 31%. Other commodities for which production decreased notably were barite, the production of which decreased by about 30%; tungsten and mined lead, 22% each; distillate fuel oil, by about 19%; liquefied petroleum gas, by nearly 15%; bismuth ore and concentrate and natural gas liquids, by 13% each; natural gas, by 12%; amethyst and crude petroleum, by 11%; and automotive lubricants, motor gasoline, and smelted tin, by 10% each. Data on mineral production are in table 1.

Structure of the Mineral Industry

In addition to the functions carried out by the Ministry of Mining and Metallurgy in the mining sector, other entities that participate in the administration of the sector are as follows: the Autoridad Jurisdiccional Administrativa Minera (AJAM) [Mining Administrative Jurisdictional Authority] manages and supervises mining activities in the country and maintains the mining registry. COMIBOL and its subsidiaries oversee all public mining companies. The Servicio Geológico Minero [Bolivian Geological Survey] (SERGEOMIN), Centro de Investigaciones Minero Metalúrgicas [Mining and Metallurgical Research Center] (CEIMM), and Servicio Service for the Registration and Control of the Marketing of Minerals and Metals] (SENARECOM) register and control

the commercialization of minerals and metals. The Fondo de Apoyo a la Reactivación de la Minería Chica [Support Agency for the Reestablishment of Small-Scale Mining] (FAREMIN) and the Fondo de Financiamiento para la Minería Cooperativa [Fund for the Financing of Cooperative Mining] (FOFIM) serve as financial benefactors for the mining sector by granting loans (Ministerio de Minería y Metalurgia, 2018, p. 43; Servicio Nacional de Registro y Control de Comercialización de Minerales y Metales, 2022). COMIBOL is responsible for ensuring that the rules regarding the right to commercialize mining activities are followed. COMIBOL also oversees other mining activities, such as mineral concentration, refining, and smelting; it also oversees the exploration and prospecting for and the mining of minerals, metals, and precious and semiprecious stones present in the mining areas under its administration and those of its subsidiary companies. COMIBOL finances its mining operations with its own resources or resources obtained through credit from private or public banks and credit securities institutions, or external financing according to Article 50 of law No. 466 [Law of Public Company of December 26, 2013] (Ministerio de Minería y Metalurgia, 2018, p. 56).

COMIBOL's partially or wholly owned mines included the Coro copper mine [jointly owned by Korea Resources Corp. of the Republic of Korea (53%) and COMIBOL through Empresa Minera Corocoro (47%)]; the Huanuni tin mine (100% owned by COMIBOL through its subsidiary Empresa Minera Huanuni); the Bolivar and Porco indium, lead, silver, and zinc mine [a joint venture between COMIBOL (55.45%) and Glencore plc of Switzerland, through its wholly owned subsidiary Sociedad Minera Illapa S.A. (45.55%)]; and the Colquiri silver, tin, and zinc mine (100% owned by COMIBOL through Empresa Minera Colquiri). Sumitomo Corp. of Japan's wholly owned subsidiary Empresa Minera San Cristóbal S.A. operated the San Cristobal lead, silver, and zinc mine, which is located in Potosi Department. Glencore owned the Sinchi Wayra S.A. group of mines, which operated the Colquechaquita, the Reserva, and the Tres Amigos Mines. The mines, which are located in Potosi Department, produced mainly tin and zinc (with some lead and silver) (Sumitomo Corp., 2019, p. 48; Glencore plc, 2020, p. 224).

Yacimientos Petrolíferos Fiscales Bolivianos (YPFB) is a state corporation in charge of the hydrocarbon sector. YPFB manages the development and operation of the hydrocarbon supply chain in Bolivia to ensure the supply to domestic markets and the compliance with export contracts. Table 2 is a list of major mineral industry facilities, together with the major owners and operators (Yacimientos Petrolíferos Fiscales Bolivianos, 2021).

Mineral Trade

The total value of Bolivia's exports decreased in 2019 by about 1.5% to \$8.9 billion from \$9 billion in 2018. The value of nonfuel mineral exports, which included antimony, copper, gold, lead, silver, tin, tungsten, zinc, and other minerals, increased by 5% to \$4.2 billion from \$4 billion in 2018 and accounted for 47% of total exports. Hydrocarbon exports, which included crude petroleum, gasoline, liquefied natural gas, and natural gas, decreased by 10% to \$2.8 billion from \$3.1 billion in 2018

and accounted for 31% of total exports. Both natural gas and petroleum were exported, but natural gas exports of \$2.7 billion accounted for 98% of the value of hydrocarbon exports in 2019. In 2019, Bolivia's leading nonfuel mineral export commodities were, in descending order of export value, gold, zinc, and silver, which had a combined total value of \$3.7 billion (Banco Central de Bolivia, 2020b, e).

The export value of gold increased by 49% to about \$1.7 billion in 2019 from about \$1.2 billion in 2018. The export value of copper decreased by 49% to \$8.2 million; tungsten, by 39% to \$17 million; lead, by about 30% to \$171 million; antimony, by 26% to \$17.4 million; zinc, by about 12% to \$1.3 billion; and tin metal, by 10% to about \$285 million. In terms of export value, Brazil was the leading destination for Bolivia's total exports in 2019, accounting for 17%, followed by Argentina, 15%; Japan, 8%; and the United States, 5% (Banco Central de Bolivia, 2020b, e).

In terms of volume, gold exports saw the greatest increase in 2019, increasing by 34% to 39,000 kilograms (kg), followed by zinc exports, which increased by 1.4% to 520,106 t. Copper exports decreased by about 43% to 1,370 t, followed by tungsten, by 22% to 1,342 t; antimony, by about 10% to 2,585 t; tin, by 4% to 15,237 t; and silver, by 3% to 1,158,000 kg (Banco Central de Bolivia, 2020f).

In the hydrocarbon category, gasoline had the largest percentage decrease in the export value in 2019, decreasing by 84% to \$188,000 from about \$1.2 million in 2018. Other hydrocarbons for which the export value decreased in 2019 were crude petroleum (decreased by 70% to \$21.5 million from \$72.1 million); liquefied petroleum gas (by about 26% to \$38.8 million from \$52.3 million); and natural gas (by 9% to \$2.7 billion from about \$3 billion) (Banco Central de Bolivia, 2020d).

Bolivia's total exports to the United States were valued at about \$455 million in 2019, of which mineral and mineral-related commodities accounted for about \$310 million, or 68%. In terms of value, the main commodity exported to the United States was tin (valued at \$115 million), followed by precious metals (\$91 million), nonmonetary gold (\$55 million), steelmaking materials (\$31 million), copper (\$10 million), sulfur (\$5.6 million), nonferrous metals (\$1.5 million), and bauxite and alumina (\$1.2 million) (U.S. Census Bureau, 2021b).

In 2019, the value of goods imported into Bolivia decreased by 2.6% to about \$9.8 billion from \$10 billion in 2018. The decrease was driven primarily by a decrease in imports of industrial machinery and construction tools and because of the lower price of imports. The import value of commodities related to the mineral industry, such as construction materials, mining equipment and machinery, mineral fuels and related materials, and mining products, was about \$2.5 billion, which was equivalent to about 26% of total imports in 2019 compared with about \$5 billion in 2018. The leading countries of origin of total imports to Bolivia in 2019, which together accounted for 62% of the total value, were China (which supplied 22% of Bolivia's imports), Brazil (16%), Argentina (11%), Peru (7%), and the United States (6%) (Banco Central de Bolivia, 2020a, p. 13–14; 2020b, c).

Bolivia's imports from the United States were valued at \$552 million in 2019, of which mineral and mineral-related commodities were valued at \$51.3 million. In terms of value, the main imported commodities were other petroleum products valued at \$34 million; fuel oil, \$13.8 million; nonmetallic minerals, \$1.3 million; iron and steel products, \$1.2 million; and nonmonetary gold, \$380,000 (U.S. Census Bureau, 2021a).

Commodity Review

Metals

Copper, Gold, and Silver.—Orvana Minerals Corp. of Canada through its subsidiary Empresa Minera Paititi S.A. (EMIPA) operated the Don Mario Mine Complex, which consisted of an open pit gold-copper-silver mine located in Santa Cruz Department in southeastern Bolivia. The Don Mario Mine Complex included the Cerro Felix open pit, Las Tojas ore body, the lower mineralized zone (LMZ), the upper mineralized zone (UMZ), and processing facilities. As of September 2019, the Don Mario Mine Complex was producing only dore bars. In the past, the facility had also produced copper concentrates and silver; however, the production was halted owing to the shifting of mining operations to other areas within the complex. In the second half of 2019, the mining activities at Don Mario were transitioned from the Cerro Felix deposit to the open pit operation in Las Tojas; however, operations were suspended by December 31. The company indicated that it was not economically feasible to continue work at Las Tojas owing to gold extraction issues encountered in inconsistent and narrow mineralized structures in the deposit, which resulted in higher costs per ounce of gold mined. During fiscal year 2019, which ended on September 30, the Don Mario Mine produced 1,024 kg (reported as 32,932 troy ounces) of gold compared with 1,404 kg (reported as 45,125 troy ounces) of gold in 2018. The average grade mined in fiscal year 2019 was 1.51 grams per metric ton (g/t) gold compared with 2.16 g/t gold in 2018. The 27% decrease in gold production was attributed to the mining transition from the LMZ and Cerro Felix deposits in 2018, to mining the Las Tojas deposits in 2019. The company stopped mining at Cerro Felix owing to the depletion of the deposit. During the first quarter of fiscal year 2020, the company decided to suspend mining operations at Las Tojas owing to discontinued mineralized structures that made the mining of the deposit economically not feasible. In 2020, the company planned to implement a few measures at the Don Mario complex, which included placing the Don Mario Mine on care-and-maintenance status, restructuring the workforce, and developing new plant circuit for the processing of oxide stockpiles (Orvana Minerals Corp., 2019, p. 5, 7, 9, 25).

In 2019, EMIPA worked on two other projects within the Don Mario Mine Complex. These projects were (1) analysis of the viability to reprocess tailings for the recovery of gold, which had been accumulated since the Don Mario project commenced; and (2) the oxide stockpile project, which was under evaluation to determine the feasibility of processing oxides stockpiled from mining activities collected during the past few years. The company reported that the oxides stockpile had a measured resource of about 2.1 Mt with average grades of 1.85 g/t gold

and 1.89% copper. According to economic and technical studies performed for the stockpiles project, the company was expected to start production in fiscal year 2021 by using a sulfidization process to extract the oxides (Orvana Minerals Corp., 2019, p. 7, 9, 27).

Pan American Silver Corp. of Canada operated the San Vicente underground silver-zinc mine located in Potosi Department. Pan American Silver owned 95% of the mine, and the remaining 5% was held by COMIBOL. In 2019, silver production at the San Vicente Mine remained comparable to that in 2018; it decreased by less than 1% to 109,733 kg (reported as 3,528,000 troy ounces compared with 110,231 kg (reported as 3,544,000 troy ounces) in 2018. Silver production in 2019 accounted for 9.5% of Bolivia's total silver mine output. The polymetallic mine also produced 420 t of lead (which represented a 46% decrease compared with that in 2018); 6,010 t of zinc (a decrease of 20%); 850 t of copper (a decrease of 17%); and about 15 kg of gold (a decrease of 4%). The decrease in silver production and other byproducts was mainly owing to the mining of lower grade ore. As of June 2019, the proven reserves of silver at the mine were reported as 1.4 Mt at an average grade of 414 g/t silver with a silver content of 578,500 kg. The San Vicente Mine was expected to produce between 109,000 kg and 112,000 kg of silver in 2020 (table 1; Pan American Silver Corp., 2020, p. 15, 21, 26, 33, 77).

New Pacific Holdings Corp. of Canada and its wholly owned subsidiary New Pacific Investment Corp. Ltd. acquired Empresa Minera Alcira S.A in 2017. The Minera Alcira project, Silver Sand, was located in Potosi Department. In January 2019, the company entered into a mining production contract with COMIBOL as part of an expansion plan of the Silver Sand project. The contract also involved the exploration and mining of an area adjacent to Silver Sand. In July 2018, the company had entered into an agreement to acquire 100% interest in various mineral concessions located on the properties adjacent to Silver Sand. In June 2019, it was estimated that the company had acquired a total of \$2 million in mineral concessions (New Pacific Holdings Corp., 2019, p. 16–17).

Industrial Minerals

Lithium and Potash.—In August, the state-owned YLB and Xinjiang TBEA Group-Baocheng, a consortium from China, announced an agreement for the creation of a joint venture for the development of lithium reserves in Bolivia. The locations included salt flats in Coipasa (Department of Oruro, located in the western part of Bolivia) and salt flats in Pastos Grandes (Department of Potosi, located in the northwestern part of the country). YLB would hold a 51% share in these projects. The estimated costs for the construction of the lithium industrial plant in Coipasa was \$1.32 billion for the installation of five plants: a potassium sulfate plant with a designed capacity of 450,000 metric tons per year t/yr; a boric acid plant with a designed capacity of 60,000 t/yr; a lithium hydroxide plant with a designed capacity of 60,000 t/yr; a bromine plant with a designed capacity of 10,000 t/yr, and a sodium bromide plant with a designed capacity of 10,000 t/yr. The investment in the salt flats of Pastos Grandes was expected to reach \$1.07 billion for the construction and installation of a total of three plants

for the production of lithium chloride, lithium carbonate, and lithium metal. Under the agreement, the joint venture also included the construction of a lithium battery plant in China (Xinhuanet.com, 2019).

Mineral Fuels

Natural Gas.—In 2019, TotalEnergies SE of France announced that the Incahuasi natural gas processing plant increased its production capacity from 8 million cubic meters per day of gas to 11 million cubic meters per day. The plant's capacity expansion was part of the company's plan to invest \$160 million for improvements in its global projects. The company started the production of natural gas at the Incahuasi gasfield, which is located in the Aquio and Ipati Blocks, in 2016. The Incahuasi gas processing plant is located 250 kilometers south of the city of Santa Cruz de la Sierra. Other projects that the company worked on in Bolivia included the connection of the ICS-3 well to its gas treatment plant in 2018 and the drilling of the ICS-5 well in 2019. TotalEnergies held six licenses in Bolivia, five of which were in the production stage and one was in the exploration stage. The producing licenses included the Aquio and Ipati Blocks (for which TotalEnergies was the operator and had a 50% share in each), the XX Tarija Oeste Block also known as Itau (41% share), the San Alberto Block (15% share), and the San Antonio Block (15% share). In 2019, the company continued the drilling of the NCZ-X1 exploration well within the Azero exploration license (operator, 50%) (TotalEnergies, 2019; 2020, p. 69).

In September, the YPFB announced that it had signed various agreements to sell natural gas to Brazil. One of the agreements involved the selling of a maximum of 5.5 million cubic meters per day of natural gas to the State of Sao Paulo. The other agreement was signed between YPFB and Mato-Grossense de Gas (MTGas) of Brazil, in which Bolivia would export natural gas to the State of Mato Grosso. Under the agreement, Bolivia would gradually increase the amount of gas sold to the State of Mato Grosso until it reached a total of 1 million cubic meters per day over a period of 15 months (Bnamericas, 2019b, c).

In September, YPFB began drilling the Yarara X1 exploratory well in search of natural gas and liquid hydrocarbons in the Yantata geologic formation. The exploratory well is located near Yapacani in the Department of Santa Cruz. If successful, this well could lead to the drilling and commissioning of three additional wells, which could have a maximum combined production capacity of approximately 507,000 cubic meters per day of natural gas by 2023. The Yarara X1 well is located near the Boqueron, Sirari, and Yapacani fields, which were already in production. Given the location of the exploratory well among producing fields, the company had high expectations that drilling would result in a producing well, which would serve to replenish the current hydrocarbon reserves that supply the domestic market as well as the export market. The exploratory work had an assigned budget of \$9.8 million and was expected to be completed by late 2020 (Bnamericas, 2019d).

In September, YPFB invested \$113 million for the installation of a compression system at the Sabalo natural gas plant, which is located in the Department of Tarija. The new compression system was designed to increase natural gas production by

2.1 million cubic meters per day. The increase in performance could help the country increase its hydrocarbon exports to neighboring countries (Bnamerica, 2019a).

Outlook

For 2020, the Central Bank of Bolivia projected an increase in the GDP of about 3.5%; however, the Bank was cautious of the forecast given the possible negative impact of the coronavirus disease 2019 (COVID-19) pandemic on commercial activities. At a rather decreased pace, Bolivia was expected to improve its performance in the mining sector as international prices and the country's production increase. The hydrocarbon sector was expected to increase its production in the near future as the improvements to existing facilities are finalized, designed capacities are reached, and new discoveries are potentially encountered in existing exploration wells. A slight recovery is expected in the export of natural gas, as shipments to Brazil increase, in part fueled by the agreements signed between the two countries. In the case of Argentina, exports are expected to be based on the minimum volumes established according to previous contracts signed between Argentina and YPFB (Banco Central de Bolivia, 2020a, p. 49–50, 52).

References Cited

- Agencia Nacional de Hidrocarburos, 2019, Identidad institucional [Institutional identity]: La Paz, Bolivia, Agencia Nacional de Hidrocarburos. (Accessed February 22, 2019, at <https://www.anh.gob.bo/w2019/contenido.php?s=1>.) [In Spanish.]
- Anderson, C.S., 2021, Silver: U.S. Geological Survey Mineral Commodity Summaries 2021, p. 150–151.
- Asamblea Legislativa Plurinacional, 2017, Ley de la empresa pública nacional estratégica de Yacimientos de Litio Bolivianos (YLB) [Law of the strategic national public company YLB]: La Paz, Bolivia, Asamblea Legislativa Plurinacional, April 27. (Accessed Feb 7, 2019, at <http://www.derechoteca.com/gacetabolivia/ley-no-928-del-27-de-abril-de-2017/>.) [In Spanish.]
- Banco Central de Bolivia, 2020a, Bolivia, informe de Política Monetaria [Monetary policy report]: La Paz, Bolivia, Banco Central de Bolivia, January, 56 p. (Accessed May 26, 2021, at https://www.bcb.gob.bo/webdocs/politicascbb/IPM%20Enero%202020_0.pdf.) [In Spanish.]
- Banco Central de Bolivia, 2020b, Comercio exterior clasificado por zonas económicas y países [Foreign trade classified by economic zones and countries]: La Paz, Bolivia, Banco Central de Bolivia, 1 p. (Accessed July 7, 2021, at https://www.bcb.gob.bo/webdocs/2020/informacion_economica/estadisticas/estadisticas_por_sectores/07/10_1.pdf.) [In Spanish.]
- Banco Central de Bolivia, 2020c, Composición de las importaciones según uso o destino económico [Composition of imports according to use or economic destination]: La Paz, Bolivia, Banco Central de Bolivia, 1 p. (Accessed July 7, 2021, at https://www.bcb.gob.bo/webdocs/2020/informacion_economica/estadisticas/estadisticas_por_sectores/01/31_0.pdf.) [In Spanish.]
- Banco Central de Bolivia, 2020d, Exportación de hidrocarburos- valor y volumen [Hydrocarbon exports- by value and volume]: La Paz, Bolivia, Banco Central de Bolivia, 1 p. (Accessed July 7, 2021, at https://www.bcb.gob.bo/webdocs/2020/informacion_economica/estadisticas/estadisticas_por_sectores/07/09-10.pdf.) [In Spanish.]
- Banco Central de Bolivia, 2020e, Exportaciones por producto [Exports by products]: La Paz, Bolivia, Banco Central de Bolivia, 2 p. (Accessed July 7, 2021, at https://www.bcb.gob.bo/webdocs/2020/informacion_economica/estadisticas/estadisticas_por_sectores/07/15_1.pdf.) [In Spanish.]
- Banco Central de Bolivia, 2020f, Producción, exportación de minerales [Production, export of minerals]: La Paz, Bolivia, Banco Central de Bolivia, 1 p. (Accessed July 7, 2021, at https://www.bcb.gob.bo/webdocs/2020/informacion_economica/estadisticas/estadisticas_por_sectores/07/22_1.pdf.) [In Spanish.]
- Bnamerica, 2019a, Campo Sábalo incrementa su producción y garantiza mayores ingresos [Campo Sábalo increases its production and guarantees higher export earnings]: Bnamerica comunicado de prensa, September 26. (Accessed November 6, 2023, at <https://www.bnamerica.com/es/noticias/campo-sabalo-incrementa-su-produccion-y-garantiza-mayores-ingresos-por-exportacion>.) [In Spanish.]
- Bnamerica, 2019b, La distribuidora de gas más grande de Brasil firma acuerdo con YPFB [Brazil's largest gas distributor signs agreement with YPFB]: Bnamerica comunicado de prensa, September 5. (Accessed November 6, 2023, at <https://www.bnamerica.com/es/noticias/la-distribuidora-de-gas-mas-grande-del-brasil-firma-acuerdo-con-ypfb>.) [In Spanish.]
- Bnamerica, 2019c, MTGas del Brasil inicia compra de nuevos volúmenes de gas boliviano [MTGas of Brazil begins purchase of new volumes of Bolivian gas]: Bnamerica comunicado de prensa, September 26. (Accessed November 6, 2023, at <https://www.bnamerica.com/es/noticias/mtgas-del-brasil-inicia-compra-de-nuevos-volumenes-de-gas-boliviano>.) [In Spanish.]
- Bnamerica, 2019d, YPFB inicia perforación en Ypacaní para incrementar reservas de gas [YPFB begins drilling in Ypacaní to increase gas reserves]: Bnamerica comunicado de prensa, September 17. (Accessed November 6, 2023, at <https://www.bnamerica.com/es/noticias/ypfb-inicia-perforacion-en-yapacani-para-incrementar-reservas-de-gas>.) [In Spanish.]
- Economic Commission for Latin America and the Caribbean, 2020, Foreign direct investment in Latin America and the Caribbean: Santiago, Chile, 189 p. (Accessed June 6, 2021, at https://repositorio.cepal.org/bitstream/handle/11362/46541/1/S2000594_en.pdf.)
- Glencore plc, 2020, 2019 Annual report: Zug, Switzerland, Glencore plc, 251 p. (Accessed April 22, 2022, at <https://www.glencore.com/publications>.)
- Instituto Nacional de Estadística, 2021, Bolivia, valor agregado bruto a precios corrientes según actividad económica 1988-2021 [Bolivia, gross value added at current prices according to economic activity 1988-2021]: La Paz, Bolivia, Instituto Nacional de Estadística. (Accessed November 3, 2022, at <https://nube.inec.gob.bo/index.php/s/oeelLe448PGgDIP/download>.) [In Spanish.]
- Jaskula, B.W., 2020, Lithium: U.S. Geological Survey Mineral Commodity Summaries 2020, p. 98–99.
- Klochko, Kateryna, 2020, Antimony: U.S. Geological Survey Mineral Commodity Summaries 2020, p. 22–23.
- Merrill, Adam, 2021, Tin: U.S. Geological Survey Mineral Commodity Summaries 2021, p. 172–173.
- Ministerio de Minería y Metalurgia, 2014, Ley de minería y metalurgia [Law of mining and metallurgy]: La Paz, Bolivia, Ministerio de Minería y Metalurgia, 95 p. (Accessed April 22, 2022, at <http://www.mineria.gob.bo/juridica/20140528-13-6-11.pdf>.) [In Spanish.]
- Ministerio de Minería y Metalurgia, 2018, Compendio normativo minero metalúrgico [Normative compendium of mining and metallurgy]: La Paz, Bolivia, Ministerio de Minería y Metalurgia, 510 p. (Accessed February 7, 2019, at http://www.senarecom.gob.bo/files/leyes/Compendio_Normativo_Minero_Metalurgico_SENARECOM.pdf.) [In Spanish.]
- Ministerio de Minería y Metalurgia, 2019, Institucional [Institutional]: La Paz, Bolivia, Ministerio de Minería y Metalurgia. (Accessed February 22, 2019, at <http://www.mineria.gob.bo/documentos/cpresentacion.php>.) [In Spanish.]
- Morales, J.A., 2020, The economic challenges facing Bolivia's next Government: New York, New York, Americas Quarterly, January 6. (Accessed November 3, 2022, at <https://www.americasquarterly.org/article/the-economic-challenges-facing-bolivias-next-government/>.)
- New Pacific Holdings Corp., 2019, New Pacific Consolidate financial statement, June 30, 2019 and 2018: Vancouver, British Columbia, Canada, New Pacific Holdings Corp., September, 29 p. (Accessed July 16, 2021, at <https://static1.squarespace.com/static/5a288a65cf81e0ed653cd33b/t/5d782088af65426247b97187/1568153738293/FINAL+FY2019+NUAG+IFRS+FS.PDF>.)
- Orvana Minerals Corp., 2019, Annual information form for fiscal year ended September 30, 2019: Toronto, Ontario, Canada, Orvana Minerals Corp., December 27, 76 p. (Accessed July 16, 2021, at https://www.minedocs.com/20/OrvanaMineralsCorp_AIF_2019.pdf.)
- Pan American Silver Corp., 2020, Annual report 2019: Vancouver, British Columbia, Canada, Pan American Silver Corp., 149 p. (Accessed July 16, 2021, at <https://www.panamericansilver.com/assets/Financial-documents/2019/64c707b5cd/2019-Annual-Report.pdf>.)

- Servicio Nacional de Registro y Control de Comercialización de Minerales y Metales, 2022, Mission and Vision, Ministerio de Minería y Metalurgia: Servicio Nacional de Registro y Control de Comercialización de Minerales y Metales. (Accessed November 3, 2022, at <https://www.senarecom.gob.bo/institucion-mision-vision.php>.)
- Sumitomo Corp., 2019, Reporte de sostenibilidad 2019 [Sustainability report 2019]: Tokyo, Japan, Sumitomo Corp., 163 p. (Accessed April 24, 2022, at https://www.minerasancristobal.com/v3/es/wp-content/uploads/2020/09/Reporte_de_Sostenibilidad_2019_MSC.pdf.) [In Spanish.]
- TotalEnergies, 2019, The Incahuasi plant expanded its production capacity: Courbevoie, France, Total Energies, December 20. (Accessed July 7, 2021, <https://corporate.totalenergies.bo/en/news/incahuasi-plant-expanded-its-production-capacity>.)
- TotalEnergies, 2020, Total Energies factbook 2019: Courbevoie, France, Total Energies, July 27, 130 p. (Accessed July 6, 2021, at https://totalenergies.com/sites/g/files/nytnzq121/files/documents/2020-07/Factbook_2019.pdf.)
- Tolcin, A.C., 2021, Zinc: U.S. Geological Survey Mineral Commodity Summaries 2021, p. 190–191.
- U.S. Census Bureau, 2021a, U.S. exports to Bolivia by 5-digit end-use code 2011 – 2020: Washington, DC, U.S. Census Bureau. (Accessed July 16, 2021, at <http://census.gov/foreign-trade/statistics/product/enduse/exports/c3350.html>.)
- U.S. Census Bureau, 2021b, U.S. imports from Bolivia by 5-digit end-use code 2011 – 2020: Washington, DC, U.S. Census Bureau. (Accessed July 16, 2021, at <https://www.census.gov/foreign-trade/statistics/product/enduse/imports/c3350.html>.)
- Xinhuanet.com, 2019, Bolivia and China create joint venture to industrialize salt flats of Pastos Grandes and Coipasa: Xinhuanet.com, August 21. (Accessed July 7, 2021, at http://spanish.xinhuanet.com/2019-08/21/c_138325593.htm.)
- Yacimientos de Litio Bolivianos, 2021, Breve reseña histórica [Brief historical review]: La Paz, Bolivia, Yacimientos de Litio Bolivianos. (Accessed June 10, 2021, at https://www.ylb.gob.bo/inicio/acerca_de_YLB.) [In Spanish.]
- Yacimientos Petrolíferos Fiscales Bolivianos, 2021, YPFB misión y visión [YPFB mission and vision]: La Paz, Bolivia, Yacimientos Petrolíferos Fiscales Bolivianos. (Accessed July 17, 2021, at <https://www.ypfb.gob.bo/es/informacion-institucional/mision-y-vision.html>.) [In Spanish.]

TABLE 1
BOLIVIA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons, gross weight, unless otherwise specified)

Commodity ²	2015	2016	2017	2018	2019
METALS					
Antimony:					
Gross weight	3,843	2,669	2,881	3,110	3,000 ^c
Refinery, metal and trioxide ³	3,089	2,334	2,410	2,501	2,500 ^c
Bismuth:					
Ore and concentrate	20	28	6	23	20 ^c
Refinery	--	8	8	39	15 ^c
Copper:					
Mine, concentrates, Cu content	7,690	6,519	4,450	2,102 ^r	1,400 ^c
Leaching, electrowon	1,789	2,199	2,269	3,114	3,100 ^c
Gold:					
Mine, Au content ⁴ kilograms	12,810	12,811	29,524	29,976	42,040
Refinery, primary ^c do.	600	600	1,400	1,400	2,000
Lead:					
Mine, Pb content	75,273	89,510	111,566	112,140	88,000 ^c
Refinery, primary	459	41	1,160	635	600 ^c
Niobium and tantalum, mine, tantalite concentrate:					
Gross weight kilograms	1,276	--	8,533	58,800	60,000 ^c
Ta content do.	314	--	2,100	14,400	10,000 ^c
Silver:					
Mine, Ag content ⁵ do.	1,306,098	1,353,202	1,196,416	1,191,024	1,158,000
Refinery, primary do.	169,782	194,443	152,974	159,723	155,000 ^c
Tin:					
Mine, Sn content	20,135	17,460	18,341	17,251	17,000 ^c
Smelter, primary	15,464	16,810	16,648	15,611	14,000 ^c
Tungsten, mine, concentrate, W content	1,460	1,110	994	1,365	1,064
Zinc, mine, Zn content	442,154	486,955	527,206	519,630	527,000 ^c
INDUSTRIAL MINERALS					
Arsenic trioxide ³	33	38	20	238	120
Barite	46,732	16,632	29,114	53,163	37,000 ^c
Boron:					
Boric acid	17,713	17,239	15,127	15,865	5,000 ^c
Ulexite, natural	148,738	182,685	208,388	216,403	200,000 ^c
Cement:					
Clinker ^c thousand metric tons	1,700	1,750	1,750	1,750	2,000
Hydraulic do.	3,468	3,601	3,611	3,650 ^c	4,200 ^c
Clay, bentonite	1,023	525	68	2	2 ^c
Gemstones:					
Amethyst, rough kilograms	242,641	152,154	221,585	243,487	216,000 ^c
Ametrine, bolivianite, rough do.	824	315	1,628	474	100 ^c
Gypsum	650	1,182	473	1,136	1,100 ^c
Salt, rock	2,216	4,534	3,358	5,373	5,300 ^c
MINERAL FUELS AND RELATED MATERIALS					
Natural gas liquids thousand 42-gallon barrels	4,457	4,289	4,200	3,900 ^{r, c}	3,400 ^c
Natural gas:					
Gross million cubic meters	22,174	21,336	20,800 ^{r, c}	19,300 ^{r, c}	17,000 ^c
Marketable do.	21,998	21,144	20,532	19,179 ^r	16,893

See footnotes at end of table.

TABLE 1—Continued
BOLIVIA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons, gross weight, unless otherwise specified)

Commodity ²	2015	2016	2017	2018	2019
MINERAL FUELS AND RELATED MATERIALS—Continued					
Petroleum:					
Crude thousand 42-gallon barrels	17,907	16,572	15,722	14,657 ^r	12,974
Refinery:					
Asphalt do.	1,144 ^r	2,392 ^r	1,655 ^r	1,460 ^r	1,443
Distillate fuel oil, including diesel do.	6,323	5,821	5,327	5,175 ^r	4,180
Gasoline:					
Aviation do.	38	34	37	42 ^r	44
Motor do.	6,904	8,848	8,659	8,331 ^r	7,534
Jet fuel do.	1,497	1,481	1,489	1,398 ^r	1,386
Kerosene do.	124	138	120	139 ^r	156
Liquefied petroleum gas do.	1,185 ^r	1,284 ^r	1,196 ^r	1,152 ^r	985
Lubricants:					
Automotive do.	151	159	153	150 ^r	135
Greases do.	338 ^r	276 ^r	321 ^r	268 ^r	263
Total	17,700 ^r	20,400 ^r	19,000 ^r	18,100 ^r	16,100

^rEstimated. ^rRevised. do. Ditto. -- Zero.

¹Table includes data available through March 2, 2021. All data are reported unless otherwise noted. Totals and estimated data are rounded to no more than three significant digits; may not add to totals shown.

²In addition to the commodities listed, indium, iron ore, manganese, refined zinc, and a variety of industrial minerals (crushed and broken stone, dimension stone, lime, sand and gravel, native sulfur, and quartz) may have been produced, but available information was inadequate to make reliable estimates of output.

³Reported as exported production.

⁴May include production of refined gold.

⁵May include production of refined silver.

TABLE 2
BOLIVIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2019

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity ^c
Antimony		Amalgamated Gold and Silver Inc., 70%, and Raptor Ventures LLC (Planet Resource Recovery Inc., 100%), 30%	San Antonio de Turiri Mine, Potosi Department	30,000
Do.		Empresa Minera Unificada S.A. (EMUSA) (private, 100%)	Caracota, Chilcobija, and Espiritu Santo Mines, Potosi Department	1,100
Do.		Small-scale mining operations and cooperatives (private, 100%)	San Jose Mine, Oruro Department; mines in Caracota District, Nor Chichas, Quijarro, and Sud Chichas Provinces, Potosi Department	4,500
Antimony, metal (regulus)		Empresa Metalúrgica Vinto S.A. (Government, 100%)	Vinto antimony plant, Carretera Vinto, Oruro Department	6,000
Antimony, metal		Fundestaño de Oruro S.A. (Empresa Minera Unificada S.A., 100%)	Smelter, City of Oruro, Oruro Department	1,100
Do.		Operaciones Metalúrgicas S.A. (private, 100%)	Huajara Industrial Park, east Oruro, Oruro Department	3,000
Arsenic trioxide		Empresa Minera Bernal Hermanos S.A. (private, 100%)	Palala smelter, Tupiza, Potosi Department	1,900
Bismuth		Cooperativa Minera Locatarios Tasna Ltda.	Tasna Mine, near Oruro, Oruro Department	200
Bismuth, refined		Corporación Minera de Bolivia (COMIBOL) (Government, 100%)	Telamayu bismuth refinery, Telamayu, Potosi Department	350
Do.		Empresa Metalúrgica Vinto S.A. (Government, 100%)	Vinto smelting complex, Carretera Vinto, Oruro Department	90
Cement	thousand metric tons	Cooperativa Boliviana de Cemento Ltda.	Irpa Irpa plant, near Cochabamba	825
Do.	do.	Fábrica Nacional de Cemento S.A. (Chuquisaca Provincial Government, 33.34%; Municipal Government of Sucre, 33.33%; Universidad San Francisco Xavier de Chuquisaca, 33.33%)	Cal Orcko industrial complex near Sucre, including grinding plant, and Fancesa cement plant near Chuquisaca	1,100
Do.	do.	ITACAMBA Cemento S.A.	Plant, Santa Cruz Department	200
Do.	do.	Sociedad Boliviana de Cemento S.A. (Consorcio Cementero del Sur S.A., 47.02%, and other private, 52.98%)	El Puente (near Tarija), Emisa (near Oruro), Viacha (near La Paz), and Warnes (near Santa Cruz) plants	1,800
Copper		Compañía Minera PAS (Bolivia) S.A. [Pan American Silver Corp., 95%, and Corporación Minera de Bolivia (COMIBOL) (Government, 100%), 5%]	San Vicente Mine, Potosi Department	1,300
Do.		Empresa Minera Paititi S.A. {Orvana Minerals Corp. [Fabulosa Mines Ltd. (Minera S.A., 100%), 52.5%, and other private, 47.5%], 100%}	Don Mario Mine, Chiquitos Province, Santa Cruz Department	7,000
Do.		Minera Corocobre S.A. [Korea Resources Corp. 53%, and Corporación Minera de Bolivia (COMIBOL) (Government, 100%), through Empresa Minera Corocoro, 47%]	Coro Coro Mine, La Paz Department	3,600
Do.		Small-scale mining operations and cooperatives (private, 100%)	Mining operations in Chuquisaca, La Paz, Oruro, and Potosi Departments	650
Gemstones, ametrine		Minerales y Metales del Oriente S.R.L.	Anahi Mine, Santa Cruz Department	NA
Gold	kilograms	Empresa Minera Inti Raymi S.A. (Compañía Procesadora de Minerales S.A., 88%, and Zeland Mines S.A., 12%)	Kori Chaca open pit mine and Kori Kollo leaching plant, near Oruro	1,000
Do.	do.	Empresa Minera Paititi S.A. {Orvana Minerals Corp. [Fabulosa Mines Ltd. (Minera S.A., 100%), 52.5%, and other private, 47.5%], 100%}	Don Mario Mine, Chiquitos Province, Santa Cruz Department	2,300
Do.	do.	Grupo Minero La Roca S.A. (private, 100%)	Mine at La Paz Department	200
Do.	do.	Small-scale mining operations and cooperatives (private, 100%)	Tipuani, Guanay, Mapiri, Huayta, Kaka, and Teoponte Rivers, La Paz Department	4,350
Do.	do.	Threegold Resources Inc. (private, 100%)	Cangalli Mine, La Paz Department	150

See footnotes at end of table.

TABLE 2—Continued
BOLIVIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2019

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity ^c
Indium, run of mine		Compañía Minera PAS (Bolivia) S.A. [Pan American Silver Corp., 95%, and Corporación Minera de Bolivia (COMIBOL) (Government, 100%), 5%]	San Vicente Mine, Potosi Department	15
Do.		Corporación Minera de Bolivia (COMIBOL) (Government, 100%), 55%, and Sociedad Minera Illapa S.A. (Glencore plc, 100%), 45%	Bolivar and Porco Mines, Oruro and Potosi Departments	35
Do.		Empresa Minera Colquiri [Corporación Minera de Bolivia (COMIBOL) (Government, 100%), 100%]	Colquiri tin and zinc mine, Inquisivi Province, La Paz Department	5
Do.		Sinchi Wayra S.A. (Glencore plc, 100%)	Colquechaquita, Reserva, and Tres Amigos Mines, Potosi Department	35
Lead		Compañía Minera PAS (Bolivia) S.A. [Pan American Silver Corp., 95%, and Corporación Minera de Bolivia (COMIBOL) (Government, 100%), 5%]	San Vicente Mine, Potosi Department	700
Do.		Corporación Minera de Bolivia (COMIBOL) (Government, 100%)	Cerro Rico Mine, Potosi Department, and in areas immediately surrounding the San Cristobal Mine	10,200
Do.		Corporación Minera de Bolivia (COMIBOL) (Government, 100%), 55%, and Sociedad Minera Illapa S.A. (Glencore plc, 100%), 45%	Bolivar and Porco Mines, Oruro and Potosi Departments	1,000
Do.		Empresa Minera San Cristóbal S.A. (Sumitomo Corp., 100%)	San Cristobal Mine, Potosi Department	82,000
Do.		Empresa Minera Santa Lucía Ltda.	Santa Lucia lead-silver-zinc mine, Potosi Department	200
Do.		Sinchi Wayra S.A. (Glencore plc, 100%)	Colquechaquita, Reserva, and Tres Amigos Mines Potosi Department	7,000
Lead, metal		Empresa Metalúrgica de Karachipampa [Corporación Minera de Bolivia (Government, 100%), 100%]	Karachipampa lead, silver, and zinc refinery, Potosi Department	51,000
Do.		Empresa Metalúrgica Vinto S.A. (Government, 100%)	Vinto smelting complex, Carretera Vinto, Oruro Department	120
Natural gas	million cubic meters	Operated by Empresa Petrolera Andina S.A. [Yacimientos Petrolíferos Fiscales Bolivianos (YPFB) - Andina S.A. (Government, 100%), 51.08%, and Repsol YPF, S.A., 48.92%] and owned by Empresa Petrolera Andina, S.A., 50%; Petróleo Brasileiro S.A., 35%; Total S.A., 15%	Boqueron, Los Sauces, Rio Grande, Sirari, Vibora, and Yapacani Fields, Santa Cruz Department	2,700
Do.	do.	Operated by Petróleo Brasileiro S.A. (Petrobras Bolivia S.A.) (Government of Brazil, 32.2%, and private, 67.8%), and operation license owned by Total S.A., 41%; Petróleo Brasileiro S.A., 30%; Shell Bolivia Corp., 25%; Yacimientos Petrolíferos Fiscales Bolivianos (YPFB) Chaco S.A., 4%	Itau Field, Block XX Tarija Oeste, Tarija Department	NA
Do.	do.	Operated by Petróleo Brasileiro S.A. (Petrobras Bolivia S.A.) Owned by Yacimientos Petrolíferos Fiscales Bolivianos (YPFB)-Andina S.A. and Total E&P Bolivie, S.A.	Sabalo Field, San Antonio Block; San Alberto Field and Block, Tarija Department	8,000
Do.	do.	Operated by Pluspetrol Bolivia Corporation S.A. (owned by Pluspetrol S.A., 100%)	Bermejo and Madrejones Fields, Tarija Department; Tacobo Field, Santa Cruz Department	520
Do.	do.	Operated by Repsol YPF, S.A., and owned by Shell Bolivia Corp., 37.5%; Repsol YPF S.A., 37.5%; Pan American Energy LLC (BP p.l.c., 60%, and BRIDAS Corp., 40%), 25%	Margarita Field, Caipipendi Block, Tarija Department; Paloma Field, Mamore Block, Cochabamba and Santa Cruz Departments	1,300
Do.	do.	Operated and owned by Shell Bolivia Corp., 100%	La Vertiente, Los Suris, and Tarija XX Este Blocks; La Vertiente gas processing plant, all located in Tarija Department	630

See footnotes at end of table.

TABLE 2—Continued
BOLIVIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2019

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity ^c
Natural gas— Continued	million cubic meters	Operated by Vintage Petroleum Boliviana Ltda. (owned by Occidental Petroleum Corp., 100%)	Chaco Sur and Ñupuco Fields, Tarija Department; Naranjillos Field, Santa Cruz Department	350
Do.	do.	Operated and owned by Yacimientos Petrolíferos Fiscales Bolivianos (YPFB) Chaco S.A. (Government, 100%)	Vuelta Grande Field, Chuquisaca Department; Bulo Bulo, Carrasco and Kanata Fields, on the border of Cochabamba and Santa Cruz Departments	2,200
Do.	do.	TotalEnergies, 50%; Gazprom, 20%; Tecpetrol S.A., 20%; Yacimientos Petrolíferos Fiscales Bolivianos (YPFB), 10%	Incahausi Field, Aquio and Ipati Block, 250 kilometers south of Santa Cruz de la Serra	4,010
Petroleum	thousand 42-gallon barrels	Operated by Empresa Petrolera Andina S.A. [Yacimientos Petrolíferos Fiscales Bolivianos (YPFB)- Andina S.A. (Government, 100%), 51.08%, and Repsol YPF, S.A., 48.92%] and owned by Empresa Petrolera Andina, S.A., 50%; Petróleo Brasileiro S.A., 35%; Total S.A., 15%	Los Sauces, Rio Grande, Sirari, Vibora, and Yapacani Fields, Santa Cruz Department	2,100
Do.	do.	Operated by Petróleo Brasileiro S.A. (Petrobras) (Government of Brazil, 32.2%, and private, 67.8%), and owned by Empresa Petrolera Andina S.A., 50%; Petróleo Brasileiro S.A., 35%; TotalEnergies, 15%	Sábalo Field, San Antonio Block; San Alberto Field and Block, Tarija Department	7,500
Do.	do.	Operated and owned by Yacimientos Petrolíferos Fiscales Bolivianos (YPFB) Chaco S.A. (Government, 100%)	Vuelta Grande Field, Chuquisaca Department; Bulo Bulo, Carrasco and Kanata Fields, on the border of Cochabamba and Santa Cruz Departments	2,900
Do.	do.	Operated by Repsol YPF, S.A., and owned by Shell Bolivia Corp., 37.5%; Repsol YPF S.A., 37.5%; Pan American Energy LLC (BP p.l.c., 60%, and BRIDAS Corp., 40%), 25%	Margarita Field, Caipipendi Block, Tarija Department; Paloma Field, Mamore Block, Cochabamba and Santa Cruz Departments	5,000
Do.	do.	Operated and owned by Shell Bolivia Corp., 100%	La Vertiente, Escondido and Taiguati Fields, La Vertiente Block; Los Suris Field and Block, all in Tarija Department	610
Do.	do.	Operated by Pluspetrol Bolivia Corporation S.A. (Pluspetrol S.A., 100%)	Bermejo and Madrejones Fields, Tarija Department; Tacobo Field, Santa Cruz Department	160
Do.	do.	Operated by Vintage Petroleum Boliviana Ltda. (Occidental Petroleum Corp., 100%)	Chaco Sur and Ñupuco Fields, Tarija Department; Naranjillos Field, Santa Cruz Department	140
Petroleum refinery products	42-gallon barrels per day	Operated and owned by YPFB Refinación S.A. (Government, 100%)	Gualberto Villarroel refinery in Cochabamba	40,200
Do.	do.	do.	Guillermo Elder Bell refinery in Santa Cruz	24,600
Silver	kilograms	Compañía Minera PAS (Bolivia) S.A. [Pan American Silver Corp., 95%, and Corporación Minera de Bolivia (COMIBOL) (Government, 100%), 5%]	San Vicente Mine, Potosi Department	140,000
Do.	do.	Corporación Minera de Bolivia (COMIBOL) (Government, 100%), 55%, and Sociedad Minera Illapa S.A. (Glencore plc, 100%), 45%	Bolivar and Porco Mines, Oruro and Potosi Departments	19,000
Do.	do.	Empresa Minera Inti Raymi S.A. (Compañía Procesadora de Minerales S.A., 88%, and Zeland Mines S.A., 12%)	Kori Chaca open pit mine and Kori Kollo leaching plant, near Oruro	25,000
Do.	do.	Empresa Minera Manquiri S.A. (Ag-Mining Investments, AB, 100%)	San Bartolomé Mine, by Cerro Rico, near Potosi, Potosi Department	233,000
Do.	do.	Empresa Minera Paititi S.A. {Orvana Minerals Corp. [Fabulosa Mines Ltd. (Minera S.A., 100%), 52.5%, and other private, 47.5%], 100%}	Don Mario Mine, Chiquitos Province, Santa Cruz Department	26,000
Do.	do.	Empresa Minera San Cristóbal S.A. (Sumitomo Corp., 100%)	San Cristobal Mine, Potosi Department	526,000
Do.	do.	Empresa Minera Santa Lucía Ltda.	Santa Lucia lead-silver-zinc mine, Potosi Department	30,000

See footnotes at end of table.

TABLE 2—Continued
BOLIVIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2019

(Metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity ^c
Silver—kilograms	Sinchi Wayra S.A. (Glencore plc, 100%)	Colquechaquita, Reserva, and Tres Amigos Mines Potosi Department	93,000
Continued			
Do. do.	Small-scale mining operations and cooperatives (private, 100%)	Candelaria and other mines, Cerro Rico deposit, as well as in areas immediately surrounding the San Bartolomé Mine, Oruro and Potosi Departments	280,000
Silver, metal	Empresa Metalúrgica de Karachipampa [Corporación Minera de Bolivia (Government, 100%), 100%]	Karachipampa lead, silver, and zinc refinery, Potosi Department	310
Do.	Empresa Metalúrgica Vinto S.A. (Government, 100%)	Vinto smelting complex, Carretera Vinto, Oruro Department	2
Do.	Empresa Minera Colquiri [Corporación Minera de Bolivia (COMIBOL) (Government, 100%), 100%]	Colquiri tin and zinc mine, Inquisivi Province, La Paz Department	NA
Do.	Empresa Minera Huanuni [Corporación Minera de Bolivia (COMIBOL) (Government, 100%), 100%]	Cerro Rico Mine, Potosi Department	NA
Do.	Pan American Silver Corp., 95%	San Vicente Mine, Potosi Department	110
Tin	Empresa Minera Barrosquira Ltda. (private, 100%)	Caracoles Mine, Inquisivi Province, La Paz Department	500
Do.	Empresa Minera Colquiri [Corporación Minera de Bolivia (COMIBOL) (Government, 100%), 100%]	Colquiri tin and zinc mine, Inquisivi Province, La Paz Department	18,000
Do.	Empresa Minera Huanuni [Corporación Minera de Bolivia (COMIBOL) (Government, 100%), 100%]	Huanuni Mine, Dalence Province, Oruro Department	10,000
Tin, smelter	Empresa Metalúrgica Vinto S.A. (Government, 100%)	Vinto smelting complex, Carretera Vinto, Oruro Department	18,000
Do.	Operaciones Metalúrgicas S.A. (private, 100%)	Huajara Industrial Park, east Oruro, Oruro Department	3,360
Tin-lead alloys	Empresa Metalúrgica Vinto S.A. (Government, 100%)	Vinto smelting complex, Carretera Vinto, Oruro Department	200
Tungsten, W content	Empresa Minera Himalaya [Corporación Minera de Bolivia (COMIBOL) (Government, 100%), 100%]	Himalaya Mine, Murillo Province, La Paz Department	NA
Do.	Small-scale mining operations and cooperatives (private, 100%)	Bolsa Negra, Enramada, Reconquistada Mines, near the former International Mining Co.'s Chojilla Mine, Sud Yungas Province; Chambilaya and Chicote Grande Mines, Inquisivi Province; Mercedes, San Antonio, Ucumarini Mines, Larecaja Province, La Paz Department	1,200
Zinc	Compañía Minera PAS (Bolivia) S.A. [Pan American Silver Corp., 95%, and Corporación Minera de Bolivia (COMIBOL) (Government, 100%), 5%]	San Vicente Mine, Potosi Department	8,000
Do.	Corporación Minera de Bolivia (COMIBOL) (Government, 100%), 55%; Sociedad Minera Illapa S.A. (Glencore plc, 100%), 45%	Bolivar and Porco Mines, Oruro and Potosi Departments	36,000
Do.	Corporación Minera de Bolivia (COMIBOL) (Government, 100%)	Cerro Rico Mine, Potosi Department, and in areas immediately surrounding the San Cristobal Mine	85,000
Do.	Empresa Minera Colquiri [Corporación Minera de Bolivia (COMIBOL) (Government, 100%), 100%]	Colquiri tin and zinc mine, Inquisivi Province, La Paz Department	2,700
Do.	Empresa Minera San Cristóbal S.A. (Sumitomo Corp., 100%)	San Cristobal Mine, southwestern Bolivia	270,000
Do.	Empresa Minera Santa Lucia Ltda.	Santa Lucia lead-silver-zinc mine, Potosi Department	12,000
Do.	Sinchi Wayra S.A. (Glencore plc, 100%)	Colquechaquita, Reserva, and Tres Amigos Mines Potosi Department	120,000
Zinc, refined	Empresa Metalúrgica de Karachipampa [Corporación Minera de Bolivia (COMIBOL) (Government, 100%), 100%]	Karachipampa lead, silver, and zinc refinery, Potosi Department	70,000

^cEstimated; estimated data are rounded to no more than three significant digits. Do., do. Ditto. NA Not available.