



# 2020–2021 Minerals Yearbook

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**PHILIPPINES [ADVANCE RELEASE]**

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# THE MINERAL INDUSTRY OF THE PHILIPPINES

By Ji Won Moon

**Note: In this chapter, information for 2020 is followed by information for 2021.**

In 2020, the Philippines was the second-ranked producer of nickel in the world, accounting for 13% of the world's production and 5.1% of the world's reserves, and the fourth-ranked producer of cobalt, accounting for 3.2% of the world's production and 3.4% of the world's reserves. The country also produced other mineral commodities, such as cement, chromium, clay, coal, copper, feldspar, gold, iron ore, natural gas, petroleum, rare earths, salt, silver, and stone (table 1; McRae, 2022; Shedd, 2022).

## Minerals in the National Economy

The Philippines' real gross domestic product (GDP) decreased by 9.6% in 2020 compared with an increase of 6.0% in 2019 owing to economic disruptions caused by the coronavirus disease 2019 (COVID-19) pandemic. The nominal GDP was \$361 billion<sup>1</sup> (PHP17.9 trillion). The mining and quarrying sector accounted for 0.8% of the GDP and its revenue decreased by 18.9% in 2020 compared with an increase of 3.6% in 2019. In 2020, the mining and quarrying sector employed 184,000 people compared with 190,000 people in 2019, which accounted for 0.5% of the total employment in the country (Mines and Geosciences Bureau, 2020, 2021e; Asian Development Bank, 2021, p. 311; Philippine Statistics Authority, 2021b, p. 24, 31; 2022b, p. 22, 25, 32, 34).

In 2020, the value of "metallic mineral" production increased by 1.1% to \$2.66 billion. Primary metallic mineral commodities were nickel ore and nickel-related byproducts, such as mixed nickel-cobalt sulfide intermediate and scandium oxalate (valued at \$1.38 billion), gold (\$959 million), and copper (\$300 million). Production of silver, chromite, and iron accounted for less than 1% of the value of metallic mineral production (Mines and Geosciences Bureau, 2021b).

## Government Policies and Programs

The principal laws and regulations that regulate the mineral industry are the Philippine Mining Act of 1995 (Mining Act), the Clean Air Act of 1999, the Clean Water Act of 2004, and the Department of Environment and Natural Resources (DENR) Administrative Order No. 2010-21. Presidential Decree No. 87 (Oil Exploration and Development Act) of 1972 mandates that the Government undertake petroleum exploration and production. Presidential Decree No. 972 (Coal Development Act) of 1976 mandates that the Government undertake active exploration, development, and production of coal resources or

execute coal operating contracts. The DENR had canceled 73 exploration-stage projects in February 2017 and, in April 2017, had announced a ban on new open pit mining after issuing a permanent closure order to 22 out of 41 operating open pit mines that had failed to pass audits for environmental violations. In 2020, the Philippine Mineral Resources Act was proposed by a Senator to help provide a framework for the management and use of mineral resources; uphold the rights of various stakeholders, including companies and local communities; and secure the Government's 10% share of the gross revenue generated during the development and use of mineral resources (Department of Energy, 1972; Deutsche Welle, 2017; Philippine Extractive Industries Transparency Initiative, 2018, p. 6, 15, 17, 18; Bunye, 2019; Simeon, 2020).

## Production

In 2020, the most significant changes were the production of marble (dimension), which increased by 210 times; and pumice, by 35 times. Kaolin production increased by 310% (estimated) compared with that in 2019; pozzolan (for cement), by 65%; zeolites, by 17%; copper (smelter, primary), by 13%; and lime, by 12%. Iron ore production restarted after the stoppage in 2017. Kerosene production decreased by 56%; raw steel, by 53%; fuel oil, by 49%; liquefied petroleum gas, by 47%; silica, by 46%; gasoline, by 45%; salt, by 37% (estimated); diesel, by 36%; refined petroleum (other), by 34%; volcanic cinder (crushed), by 32%; crushed stone (other), by 26%; bentonite, by 25%; phosphate rock (P<sub>2</sub>O<sub>5</sub> content), by 24% (estimated); silver (mine, Ag content) and steel products, by 23% each; dolomite, by 22%; condensate and shale (crushed), by 21% each; sand and gravel (construction), by 20%; unspecified clay, by 18%; cement, by 17% (estimated); limestone, by 16%; copper (mine, Cu content), by 15%; coal, by 13%; and crude petroleum, by 10%. Data on mineral production are in table 1.

## Structure of the Mineral Industry

The Philippines' mineral industry was dominated by privately owned enterprises, including private ownership by foreign entities, under mineral production-sharing agreements. The Mines and Geosciences Bureau under the DENR reported that, as of 2020, the Philippines had 50 operating metal mines, including 30 nickel mines, 10 gold-silver mines, 4 copper-gold-silver mines, 3 chromite mines, and 3 iron mines. The country also had 60 nonmetallic mines, 2 gold ore processing plants, 2 nickel processing plants, and 1 copper smelter. In 2020, the Philippines had a total of 580 approved mining tenements, which was an increase of 13% compared with 512 in 2019. These tenements were composed of 309 mineral production-sharing agreements, 176 industrial sand and gravel permits,

<sup>1</sup>Where necessary, values have been converted from Philippine pesos (PHP) to U.S. dollars (US\$) at an annual average exchange rate of PHP 49.2546=US\$1.00 for 2021, PHP49.6241=US\$1.00 for 2020, and PHP51.7958=US\$1.00 (revised) for 2019.

82 processing plant permits, and 13 exploration permits. Table 2 is a list of major mineral industry facilities (Mines and Geosciences Bureau, 2021c, e).

## Mineral Trade

In 2020, the Philippines' total exports of goods decreased by 8.1% to \$65.2 billion. Exports of mineral products increased by 8.9% to \$5.09 billion. Of this amount, copper metal accounted for \$1.44 billion; gold, \$1.22 billion; copper concentrates, \$205 million, and other mineral products, including nickel concentrates and nickel-cobalt sulfide intermediate, \$2.06 billion. In 2020, the Philippines' major export partners were Japan and the United States (received 15.4% of the Philippines' exports each), China (15.1%), Hong Kong (14.1%), and Singapore (5.8%) (Philippine Statistics Authority, 2021a, table 6; 2022a, tables 6, 7).

In 2020, the Philippines' total imports of goods decreased by 19.5% to \$89.8 billion. The import value of mineral fuels, lubricants, and related materials decreased by 42.9% to \$7.64 billion. Of this amount, coal and coke accounted for \$1.38 billion; crude petroleum, \$1.29 billion; and other products, \$4.97 billion. Major imported raw materials and intermediate goods included iron and steel valued at \$3.76 billion; metal products, \$1.83 billion; and nonferrous metals, \$918 million. In 2020, the Philippines' major import partners were China (supplied 23.2% of the Philippines' total imports), Japan (9.6%), the Republic of Korea and the United States (7.7% each), and Indonesia (6.4%) (Philippine Statistics Authority, 2021a, table 12; 2022a, tables 12, 13).

## Commodity Review

### Metals

**Copper.**—Copper production (mine, Cu content) in 2020 decreased to 60,856 metric tons (t) from 71,892 t in 2019. Carmen Copper Corp., a wholly owned subsidiary of Atlas Consolidated Mining and Development Corp. (Atlas Mining), produced 48,576 t of copper at its Toledo copper mine in 2020 compared with 48,642 t in 2019. The milling volume at the mine increased by 5%, whereas the copper grade of the ore decreased to 0.304% from 0.319%. Philex Mining Corp. produced 11,964 t of copper at its Padcal copper mine in 2020 compared with 11,675 t in 2019. In 2020, Philex was in the process of optimizing the profitability at the Padcal Mine, which was expected to close in 2022 owing to ore depletion after 61 years in operation (table 1; Atlas Consolidated Mining and Development Corp., 2021; Lagare, 2021; Mines and Geosciences Bureau, 2021b, p. 3; 2021c, p. 2).

The Didipio copper mine, which was owned by OceanaGold (Philippines) Inc. (a fully owned subsidiary of OceanaGold Corp. of Australia), was not in production in 2020. The mine produced 10,254 t of copper in 2019. The Financial or Technical Assistance Agreement (FTAA) for the mine had come up for renewal in June 2019, and the company was awaiting approval of its renewal application. After receiving the Governor of Nueva Vizcaya's closure order in July owing to the legal lapse of the pending FTAA, the company formally suspended

operations in October 2019 and put the mine on care-and-maintenance status. The mine had proven and probable reserves of 150,000 t of copper, 40 t of gold, and 84 t of silver as of December 2020 (Mines and Geosciences Bureau, 2005, p. 1; 2021c, p. 2; Ignacio, 2020b; OceanaGold Corp., 2020, p. 1, 5; 2021a; Miraflor, 2021b).

Three pending copper projects had been delayed owing to the ban on new open pit mining—the \$750 million Silangan project (located in Surigao del Norte Province and operated by Philex Mining), which had total measured and indicated resources of 3 million metric tons (Mt) of copper and 350 t of gold; the \$5.9 billion Tampakan copper-gold project (located in South Cotabato Province and fully owned by Indophile Resources NL of Australia and operated by Sagittarius Mines Inc.), which had a resource of 15 Mt of copper and 570 t of gold; and the \$2 billion King-king copper-gold project (located in Davao de Oro Province and operated by St. Augustine Gold and Copper Ltd. of Singapore), which had total proven and probable reserves of 1.9 Mt of copper and 240 t of gold. The Tampakan project was estimated to have approximately one-half of the Philippines' copper reserves and resources at 15 Mt (Chavez, 2020; Mining Technology, 2020; Ignacio, 2021b; Ocampo, 2021; Philex Mining Corp., 2023; St. Augustine Gold and Copper Ltd., 2023).

**Gold.**—In 2020, production of mined gold increased by 1.9% to 21,030 kg from 20,646 kg in 2019, which was likely attributable to the increase in the world market price in 2020. The average gold price increased by 27% to \$56,920 per kilogram in 2020 from \$44,724 per kilogram in 2019. In 2020, Filminera Resources Corp. (mine owner) and Philippines Gold Processing & Refining Corp. (processing plant owner) produced 6,185 kg of gold at the Masbate Mine, Philsaga Mining Corp. (mine owner) and Mindanao Mineral Processing and Refining Corp. (processing plant owner) produced 3,147 kg of gold at the Co-O gold mine, and Apex Mining Co. Inc. produced 2,116 kg of gold at the Maco gold mine (table 1; Mines and Geosciences Bureau, 2021b–d; 2022c).

At yearend 2020, Philsaga Mining completed a comprehensive study and concluded that it was possible to expand the reserves at the mine by 10,900 kg through construction to a deeper level. Monterey Minerals Inc.'s Alicia Project explored the Baloy vein, the Pamaraw-Sumihig vein, and the Sandi vein in Zamboanga Sibugay Province. Samples obtained from shallow drilling into the Baloy vein showed ore grades of 116 grams per metric ton (g/t) gold, 1,263 g/t silver, 6.3% copper, 6.5% zinc, and 47.9% lead at a depth of 1.2 meters (m) and 40 g/t gold, 437 g/t silver, 1.1% copper, 3.6% zinc, and 62.9% lead at a depth of 1.5 m (Medusa Mining Ltd., 2020, p. 1; 2021, p. 7; Monterey Minerals Inc., 2021).

**Iron and Steel.**—In early 2020, Steel Asia Manufacturing Corp., which was the largest rebar producer in the country, announced its plan to build 3 to 5 steel manufacturing facilities across the country within 3 years. Steel Asia had partnered with Badische Stahl Engineering GmbH (BSE) of Germany to develop a training center and an education program to provide 20,000 skilled workers. Steel Asia and Simple Homes Development Corp. negotiated with Baowu Steel Corp. Ltd. of China for a 10-million-metric-ton-per-year (Mt/yr) integrated

steel mill in the Phividec Industrial Zone in Tagoloan, Misamis Oriental Province (table 1; Dagooc, 2020; Villegas, 2020).

**Iron Ore.**—Atro Mining-Vitali Inc., which was a subsidiary of Atro International (FZE) of the United Arab Emirates, restarted iron ore production in 2020 and produced 42,795 t of iron ore at its iron ore mine in Vitali. The country had not produced iron ore since 2017 owing to the ban on operation of companies that had failed the Government's environmental audit. In 2020, Strong Built Mining Development Corp. was allowed to resume operations at its Leyte iron sand project in San Pedro after receiving approval from the Office of the President in July regarding its compliance with mining laws. JDVC Resources Corp., a subsidiary of Apollo Global Capital Inc., expected to start magnetite extraction from the seabed in 2021 using deep-sea mining siphon vessels in a 19-square kilometer (km<sup>2</sup>) area located 14 kilometers offshore Gonzaga, Cagayan Province. The probable ore reserve at the deposit was estimated to be 631.7 Mt of magnetite, and the mine life was expected to be 47 years (table 1; Miraflor, 2020b; Mines and Geosciences Bureau, 2021d; Philippine Center for Investigative Journalism, 2021).

**Nickel.**—In 2020, production of nickel ore (mine, Ni content) increased by 1.6% to 328,372 t from 323,325 t in 2019 and that of mixed nickel-cobalt sulfide decreased by 2.9% to 49,647 t from 51,144 t in 2019. In 2020, only 19 mines produced mined nickel out of 29 operating nickel mines. Top nickel producers in the country included Taganito Mining Corp., which produced 67,324 t of nickel in 2020; Rio Tuba Nickel Mining Corp., 46,571 t; Platinum Group Metals Corp., 32,848 t; and Cagdianao Mining Corp., 28,461 t. Some previously suspended mines restarted nickel production during the year, including LNL Archipelago Mineral Inc., which restarted in the second quarter; Zambales Diversified Metals Corp., in June; and Benguet Corp. Nickel Mines Inc., in November. The total production at the mines owned by Nickel Asia Corp., which accounted for 44% of the total nickel production in the country, decreased by 18% from that in 2019 owing to suspensions of operations caused by the COVID-19 pandemic (tables 1, 2; Dela Cruz, 2020; Mines and Geosciences Bureau, 2021b, 2022c; J. Sappor and M. Sumangil, S&P Global, written commun., February 23, 2023).

The Philippines' annual output of mined nickel was previously expected to increase to 550,000 t by 2025 owing to Indonesia's export ban on raw materials, including nickel ores. However, this increase was unlikely to happen because of the effects of the global pandemic. In addition, the ban on open pit mining was still in effect, which meant that suspended mines were unable to operate and development of new projects was difficult, although national policy granted some exceptions to the ban, such as allowances for the shipment of mineral ores and processed products for export in Visayas and Mindanao Islands (Ignacio, 2020a; Miraflor, 2020a; Gomez, 2021).

### *Industrial Minerals*

**Cement.**—The Philippines's cement production was estimated to be 23 Mt in 2020, which was a 17% decrease compared with that in 2019. The output of the construction sector decreased by 26% in 2020 owing mainly to the

COVID-19 pandemic. In January, Philcement Corp. commissioned a 2-Mt/yr grinding cement plant using imported clinker from Song Lam Cement J.S.C. of Vietnam through terminal facilities in Bataan Province. In 2020, Republic Cement & Building Material Inc. started a few new mills in Bulacan and Iligan with a total (combined) capacity of 2 Mt/yr. Eagle Cement Co. planned to add a new 1.5-Mt/yr mill to three existing lines at the Bulacan plant in San Ildefonso, Bulacan Province, which would increase the plant's total capacity to 8.6 Mt/yr. Taiheiyo Cement Philippines Inc. planned to build a new 3.0-Mt/yr production line at its San Fernando cement plant based on the company's anticipation of increased domestic demand for cement in the coming years (Cemnet.com, 2020; Global Cement, 2020a, c; Aboitiz Equity Ventures Inc., 2021, p. 90; Cemex Holding Philippines Inc., 2021, p. 3; Philippine Statistics Authority, 2022b, p. 11).

In May, Holcim Philippines Inc. (a subsidiary of LafargeHolcim Ltd. of Switzerland) decided not to divest an 85.7% stake in its own company. This planned divestiture had been part of an earlier agreement with First Stronghold Cement Industries Inc. (an indirect subsidiary of San Miguel Corp.) to purchase the stake. The agreement was canceled because the Philippines Competition Authority did not give its approval for the sale, indicating that its decision was in order to prevent the formation of a monopoly. In November, Holcim merged Bulkcem Philippine Inc. (a wholly-owned subsidiary of Holcim, which leased its grinding plant) and Mabini Grinding Mill Corp. in Batangas Province to Holcim (Global Cement, 2019, 2020b; Gonzales, 2020).

### *Mineral Fuels*

**Natural Gas.**—Natural gas production in the Philippines decreased by 9% to approximately 4 billion cubic meters in 2020. The Malampaya gasfield, which was the only gasfield in the country, was expected to be depleted in 2027, and thereafter the country was expected to rely more on imports. In 2020, FGEN LNG Corp., which was a subsidiary of First Gen Corp., selected BW Gas Ltd., Dynagas Ltd., and Hoegh LNG Asia Pte. Ltd. as contractors to build a floating storage and regasification unit for a 5-Mt/yr liquefied natural gas terminal offshore Batangas City, Southern Luzon Island. The terminal was expected to begin operating in the third quarter of 2022 (table 1; Oil & Gas Journal, 2020; Crismundo, 2021; Chow, 2022).

**Petroleum.**—In 2020, production of condensate decreased by 21% to 3.5 million barrels and crude petroleum production decreased by 10% to 700,000 barrels owing to natural decline and low petroleum demand during the COVID-19 pandemic. China International Mining Petroleum Co. Ltd. (CIMP), which was a subsidiary of Polyard Petroleum International Group Ltd. of Hong Kong, completed exploration and eight months of production at the Alegria oilfield in Cebu Province. In January, CIMP contracted for the drilling of six production wells with East Asia Oil Engineering Group Ltd. of Hong Kong to be completed by the end of 2020. Shortly after the announcement, however, the work in the Alegria oilfield was halted for the next 2 years owing to the COVID-19 pandemic-driven lockdown (table 1; Saulon, 2020; Erram, 2022).

In May, Pilipinas Shell Petroleum Corp. permanently closed the Tabangao refinery in Batangas and began to operate an import terminal at the site in August. Prior to the closure, Pilipinas Shell had significantly reduced its refinery production owing to reduced demand under the global pandemic situation. Overall production of refinery products decreased by 42% to 34.6 million barrels. Amid the Philippines' decreasing refinery capacity, CIMP determined that East Asia would invest in an onsite refinery at the Alegria field that would have a production capacity of 800,000 barrels per year (Brelsford, 2020; Flores, 2020; Saulon, 2020).

In October, the President lifted a moratorium on petroleum exploration in the South China Sea, which had been imposed in 2014 owing to a territorial dispute with China. Following the lifting of the moratorium, Forum Energy Ltd. (a subsidiary of PXP Energy Corp.) resumed activity at the suspended exploration project in Service Contract 72 that covers the disputed Reed Bank, located 250 kilometers northwest of Palawan Island (tables 1, 2; Lema and others, 2020; Offshore Technology, 2021; Pilipinas Shell Petroleum Corp., 2021, p. 16).

## MINERAL INDUSTRY HIGHLIGHTS IN 2021

### Minerals in the National Economy

In 2021, the growth rate of the Philippines' real GDP was 5.6% and the nominal GDP was \$394 billion (PHP19.4 trillion). The mining and quarrying sector, which accounted for 0.9% of the GDP, had a growth rate of 2.6% in 2021 compared with a negative 18.9% in 2020. In 2021, the mining and quarrying sector employed 183,852 people (Mines and Geosciences Bureau, 2022d; Philippine Statistics Authority, 2022b, p. 22, 25, 32, 34).

In 2021, the value of metallic mineral production increased by 20.3% to \$3.27 billion. Of this amount, the value of the production of nickel ore and the nickel-related byproducts (including mixed nickel-cobalt sulfide and scandium oxalate) accounted for \$1.82 billion; gold, \$1.07 billion; and copper, \$351 million. The increase was mainly attributed to a 17% increase in nickel ore production and increased metal market prices, such as the price of copper, which increased by 50.3% in 2021; nickel, by 33.6%; silver, by 24.4%; and gold, by 1.7% (table 1; Mines and Geosciences Bureau, 2022a–c).

In 2021, the value of the Philippines' total exports of goods increased by 14.5% to \$74.6 billion. Exports of mineral products increased by 15.8% to \$5.90 billion. Of this amount, copper metal accounted for \$2.08 billion; gold, \$881 million; copper concentrates, \$318 million; and other mineral products, including nickel concentrates and nickel-cobalt sulfide mixture, \$2.53 billion. In 2021, the value of the Philippines' total imports of goods increased by 31.1% to \$118 billion. The import value of mineral fuels, lubricants, and related materials increased by 91.3% to \$14.6 billion. Of this amount, coal and coke accounted for \$2.60 billion; crude petroleum, \$1.86 billion; and other products, \$10.1 billion. The value of iron and steel imports increased by 40.9% to \$5.30 billion, and metal products, by 24.0% to \$2.27 billion. Nonferrous metals imports decreased in value by 57.4% to \$1.45 billion (Philippine Statistics Authority, 2022a, tables 6, 12).

## Production

In 2021, production of crushed stone (other) increased by 96%; shale, by 64%; iron ore (Fe content), by 60%; silica, by 38%; limestone, by 36%; silver (mine, Ag content) and bentonite, by 28% each; scandium oxalate and dolomite, by 25% each; gold (mine, Au content), by 20%; nickel (laterite ore, Ni content), by 18%; cement, by 17%; volcanic tuff, by 11%; and pozzolan (for cement), by 10%. Production of volcanic cinder decreased by 96%; fuel oil, by 92%; marble (dimension), by 71%; salt, by 66% (estimated); pumice, by 50%; unspecified clay, by 45%; kaolin, by 31%; zeolites, by 28%; kerosene, by 20%; diesel, by 17%; condensate, by 16%; copper (mine, Cu content) and natural gas, by 15% each; chromite, by 13%; cobalt, by 12% (estimated); nickel intermediate (Ni content), by 12%; copper (smelter, primary) and gasoline, by 11% each; and crude petroleum, by 10% (table 1).

## Structure of the Mineral Industry

On April 14, 2021, the President of the Philippines signed the Implementing Rules and Regulation (IRR) of Executive Order (EO) 130, which lifted the moratorium on new mining imposed by EO 79 in 2012. Following this, DENR Administrative Order (DAO) No. 2021–25 provided the procedures and requirements for the processing and approval of new mining applications in August. Phase 1 of DAO No. 2021–25, which became effective in 2021, authorized 36 new nonmetallic mining projects for the production of construction materials. Phase 2 mostly pertained to metal mining projects and was expected to go into effect beginning in 2022. In December, the DENR Secretary signed DAO No. 2021–40, which lifted the ban on open pit mining for copper, gold, silver, and polymetallic ores that was imposed by DAO No. 2017–10 in 2017 (Dela Cruz, 2021a, b; Ignacio, 2021b; Mines and Geosciences Bureau, 2021a; Yumol, 2021).

## Commodity Review

**Copper.**—OceanaGold's Didipio Mine resumed operations in August 2021 after the renewal of the FTAA was approved by the Government in July 2021 for another 25 years. The lifting of the ban on open pit mines at yearend 2021 was expected to facilitate the development of some major copper projects, such as the Tampakan project, the King-king project, and the Silangan project in the near future (table 1; Ignacio, 2021b; Mirafior, 2021a; Ocampo, 2021; OceanaGold Corp., 2022, p. 13).

**Gold.**—In 2021, production of mined gold increased by 20% to 25,332 kg, including 6,924 kg from the Masbate Mine, 2,626 kg from the Co-O Mine, and 2,312 kg from the Maco Mine. OceanaGold produced 462 kg of gold as a byproduct of its copper production. As of 2021, the country had in place 47 small-scale mining contracts (SSMCs) between the Government and individuals, partnerships, or corporations; of the contracts, 39 were for gold. The area of an SSMC may not exceed 0.2 km<sup>2</sup> and the extracted gold is to be sold to the Philippines' Central Bank (table 1; OceanaGold Corp., 2021b, p. 1; Mines and Geosciences Bureau, 2022a, b, c).

**Iron and Steel.**—In March, Steel Asia Manufacturing was in the process of resuming construction of its first steel beam plant

in Lemery, Batangas Province; construction of the plant had been suspended owing to quarantine measures in 2020 resulting from the COVID–19 pandemic. The new plant would have a capacity of 1.1 Mt/yr, was expected to start up operations by 2023, and would use approximately 800,000 t/yr of recycled scrap from imports as raw material. Platinum Group Metals planned to develop a steel mill at Claver, Surigao del Norte Province, on its own because its partner, Huarong Asia Ltd. of Hong Kong, had withdrawn from the project owing to the COVID–19 pandemic. Construction of the 600,000-t/yr-capacity plant was scheduled to begin in 2022 (Campos, 2021; Choo and Zhuo, 2021; SteelOrbis, 2021).

**Iron Ore.**—Production of iron ore increased by 59% to 68,191 t in 2021, of which 58% was from the Leyte project and 42% was from the Camachin iron ore project in Bulacan Province owned by Ore Asia Mining and Development Corp.; both companies had had no production in 2020. Atro Mining-Vitali’s mine in Vitali did not produce iron ore in 2021 (table 1; Mines and Geosciences Bureau, 2022a, p. 2).

**Nickel.**—In 2021, production of mined nickel (Ni content) increased by 18%; however, that of intermediate (mixed nickel-cobalt sulfide) decreased by 12%. Mined nickel production increased by 29% year-on-year during the first three quarters, but the rate of increase decreased to 6% in the last quarter because of inclement weather. Taganito Mining Corp. produced 73,023 t of nickel, which was an 8% increase from that produced in 2020; Rio Tuba Nickel Mining Corp., 41,414 t, an 11% decrease; Platinum Group Metals Corp., 36,990 t, a 13% increase; and Cagdianao Mining Corp., 34,738 t, a 22% increase. In 2021, 22 out of 32 nickel mines in the country were in production (table 1; Ignacio, 2021a; Mines and Geosciences Bureau, 2022a, p. 1, 2; 2022c; 2022d, p. 2).

## Outlook

In 2022, the growth rate of the Philippines’ real GDP was expected to be 6.5% owing to recovery from the COVID–19 pandemic. Following the lifting of the ban on open pit mining and the lifting of the moratorium on new mining in 2021, the mines that had suspended operations as a result of these policies are expected to resume production in the short term. The Philippines’ copper production is expected to increase in the next few years if the Tampakan project launches successfully in 2022 as planned (Ignacio, 2021b; International Monetary Fund, 2022).

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TABLE 1  
PHILIPPINES: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Metric tons, gross weight, unless otherwise specified)

Commodity <sup>2</sup>	2017	2018	2019	2020	2021
<b>METALS</b>					
Chromium, mine, chromite	20,849	45,011	36,423 <sup>r</sup>	35,112	30,721
Cobalt, mine, Co content <sup>3</sup>	3,800 <sup>r</sup>	3,600 <sup>r</sup>	4,300 <sup>r</sup>	4,100	3,600
Copper:					
Mine, concentrate, Cu content	68,156	69,933	71,892	60,856	51,586
Smelter, primary	240,000	170,900	217,800	247,000	219,800
Refinery, primary	205,000	170,800	217,300	220,900	206,200
Gold, mine, Au content kilograms	22,749	20,765	20,646	21,030	25,332
Iron ore, mine:					
Gross weight	--	--	--	42,795	68,191
Fe content	--	--	--	26,700	42,600
Iron and steel:					
Raw steel	1,378,000	1,475,000	1,915,000 <sup>r</sup>	892,000	900,000 <sup>e</sup>
Products, hot rolled	4,300,000	4,864,000	4,727,000 <sup>r</sup>	3,658,000	3,700,000 <sup>e</sup>
Lead, refinery, secondary <sup>c</sup>	10,000	10,000	10,000	10,000	9,800
Nickel, Ni content:					
Mine, laterite ore	339,377	344,966	323,325	328,372	387,047
Intermediate, nickel-cobalt sulfide	50,553	48,633	51,144	49,647	43,493
Rare earths, scandium oxalate kilograms	--	1,618	4,355	4,490 <sup>e</sup>	5,600 <sup>e</sup>
Silver, mine, Ag content do.	31,737	29,782	31,267	24,024	30,856
<b>INDUSTRIAL MINERALS</b>					
Cement, hydraulic thousand metric tons	26,000 <sup>e</sup>	27,700 <sup>r</sup>	27,700 <sup>r</sup>	23,000 <sup>e</sup>	27,000 <sup>e</sup>
Clay:					
Bentonite	2,618	4,558	6,329	4,720	6,059
Kaolin	10,000 <sup>e</sup>	10,000 <sup>e</sup>	10,000 <sup>e</sup>	41,000	28,200
Unspecified	332,644	251,064	235,228	191,907	105,633
Lime	135,618	128,650	142,568	159,141	147,577
Perlite	11,545	9,696	6,608	-- <sup>e</sup>	4,631
Phosphate rock:					
Gross weight	8,600	1,236	740	570	--
P <sub>2</sub> O <sub>5</sub> content	2,900	420	250	190	--
Pumice and related materials:					
Pumice	9,911	792	114	4,010	2,020
Volcanic tuff	48,000 <sup>e</sup>	30,241	26,297	26,100	29,100
Salt, sea salt <sup>e</sup>	125,000	192,000	190,000	120,000	41,000
Sand and gravel, industrial, silica thousand metric tons	507	1,220	1,225	660	908
Stone, sand and gravel, construction:					
Sand and gravel do.	27,439	47,107	40,793	32,600	34,500
Stone:					
Crushed:					
Dolomite	1,584,507	1,560,737	1,521,681	1,180,899	1,471,771
Limestone <sup>4</sup> thousand metric tons	77,909	28,723	27,624	23,067	31,466
Pozzolan, for cement	NA	37,516	634,982	1,048,334	1,150,585
Shale	2,316,234	2,360,913	2,728,902	2,142,439	3,505,376
Volcanic cinder	9,200 <sup>e</sup>	9,200 <sup>e</sup>	9,200 <sup>e</sup>	6,300	280
Other <sup>5</sup> thousand metric tons	14,303	12,057	14,623	10,774	21,072
Dimension, marble	229,130	224,786	922 <sup>r</sup>	194,000	55,700
Zeolites	4,127	3,600	5,222	6,126	4,391

See footnotes at end of table.

TABLE 1—Continued  
 PHILIPPINES: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Metric tons, gross weight, unless otherwise specified)

Commodity <sup>2</sup>	2017	2018	2019	2020	2021
<b>MINERAL FUELS AND RELATED MATERIALS</b>					
Coal: thousand metric tons	13,283 <sup>r</sup>	13,056 <sup>r</sup>	15,273 <sup>r</sup>	13,267	14,300
Natural gas, gross million cubic meters	3,940	4,268 <sup>r</sup>	4,401 <sup>r</sup>	4,011	3,427
<b>Petroleum:</b>					
Condensate thousand 42-gallon barrels	3,914	4,061	4,406	3,494	2,936
Crude do.	1,587	1,264	776	700	632
<b>Refinery:</b>					
Diesel do.	27,762	33,181	23,333	14,901	12,410
Fuel oil do.	6,467	4,881	4,644	2,359	195
Gasoline do.	18,557	20,989	14,562	8,070	7,177
Kerosene do.	7,507	8,444	6,544	2,849	2,271
Liquefied petroleum gas do.	5,196	5,924	3,331	1,774	1,749
Other do.	10,492	12,539	7,085	4,667	4,988
Total: do.	76,000	86,000	59,500	34,600	28,800

<sup>6</sup>Estimated. <sup>r</sup>Revised. do. Ditto. NA Not available. -- Zero.

<sup>1</sup>Table includes data available through September 14, 2022. 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.

<sup>2</sup>In addition to the commodities listed, bauxite, refined cobalt, refined gold, platinum-group metals as byproducts of other metal production, quartz, sulfur, refined tin (secondary), and refined tungsten (secondary) may have been produced, but available information was inadequate to make reliable estimates of output.

<sup>3</sup>Cobalt contained in the following materials: nickel-cobalt sulfide produced in the Philippines and lateritic nickel ore exported to Australia.

<sup>4</sup>Includes limestone for agriculture, cement manufacturing, industrial use, and other.

<sup>5</sup>Includes materials described as aggregates; basalt; boulder; limestone for construction; mixed aggregates; pebbles; sandstone; and stones, cobbles and boulders.

TABLE 2  
PHILIPPINES: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity <sup>c</sup>
Bauxite		Alumina Mining Philippines Inc. (Marcventures Mining and Development Corp., 100%)	Mines in Motiong, San Jose de Buan, and Wright, Samar Province	NA
Do.		Bauxite Resources Inc. (Marcaventures Mining and Development Corp., 100%)	Mines in Gandara and Paranas, Samar Province	NA
Cement	thousand metric tons	APO Cement Corp. (Cemex Holding Philippines Inc., 100%)	APO cement plant, Naga, Cebu Province	5,700
Do.	do.	Big Boss Cement Inc.	Pampanga grinding plant, Pampanga Province	750
Do.	do.	Eagle Cement Co. (Far East Cement Corp., 60.2%, and other, 39.8%)	Bulacan cement plant (three production lines), Akle, San Ildefonso, Bulacan Province	7,100
Do.	do.	do.	Grinding plant in Limay, Bataan Province	470
Do.	do.	Goodfound Cement Corp.	Plant in Camalig, Albay Province	1,200
Do.	do.	Holcim Philippines Inc. (Holcim Ltd., 85.7%, and others, 14.3%)	Bulacan plant, Norzagaray, Bulacan Province; Lugait plant, Lugait, Misamis Oriental Province	5,800
Do.	do.	do.	Davao plant, Davao del Sur Province	2,400
Do.	do.	do.	La Union plant, Bacnotan, La Union Province	1,800
Do.	do.	do.	Mabini grinding plant, Mabini, Batangas Province	NA
Do.	do.	Northern Cement Corp. (San Miguel Corp., 70%, and Norther Cement Corp., 30%)	Cement plant in Sison, Pangasinan Province	1,460
Do.	do.	Petra Cement Inc.	Zamboanga grinding plant, Zamboanga del Sur Province	1,000
Do.	do.	Philcement Corp. (Phinma Corp., 100%)	Bataan grinding plant and terminal facility, Mariveles, Bataan Province	2,000
Do.	do.	Republic Cement & Building Materials Inc. [AEV CRH Holdings Inc., 99.1% (Aboitiz Equity Ventures, 60%, and CRH Holdings, 40%)]	Batangas plant, Taysan, Batangas Province; Bulacan plant, Norzagaray, Bulacan Province; Danao plant, Danao City, Cebu Province; Iligan plant, Ilagan City, Lanao del Norte Province; Norzagaray plant, Norzagaray, Bulacan Province; Teresa plant, Teresa, Rizal Province	9,500
Do.	do.	Solid Cement Corp. (Cemex Holdings Philippines Inc., 100%)	Antipolo cement plant, Antipolo, Rizal Province	1,900
Do.	do.	Taiheiyo Cement Philippines Inc.	San Fernando cement plant, Cebu Province	2,400
Chromite		Consolidated Mines Inc. (owner), and Benguet Corp. (operator)	Masinloc chromite mine, Coto, Zambales Province	5,000
Do.		Chromiteking Inc. (owner), and Techiron Resources Inc. (operator)	Chromiteking-Techiron Homonhon mining project, Homonhon Island, Eastern Samar Province	17,000
Do.		Krominco Inc.	Redondo Mine, Loreto, Dinagat Island Province	26,000
Clay		Orophil Stonecraft Inc.	Mine in Baao, Camarines Sur Province	NA
Do.		UBS Marketing Corp.	Mine in Legazpi, Albay Province	NA
Coal	thousand metric tons	Semirara Mining and Power Corp. (DMCI Holdings Inc., 56.65%, and others, 43.35%)	Mines in Semirara Island, Antique Province	14,300
Cobalt:				
Mine, Co content		Rio Tuba Nickel Mining Corp. (Nickel Asia Corp., 60%; Pacific Metals Co. Ltd., 36%; Sojitz Corp., 4%)	Rio Tuba nickel project, Barrio Rio Tuba, Bataraza, Palawan Province	1,400
Do.		Taganito Mining Corp. (Nickel Asia Corp., 65%; Pacific Metals Co. Ltd., 33.5; Sojitz Corp., 1.5%)	Taganito Mine, Claver, Surigao del Norte Province	2,400
Refined		Coral Bay Nickel Corp. (Sumitomo Metal Mining Co. Ltd., 84.375%, and Nickel Asia Corp., 15.625%)	Coral Bay nickel high-pressure acid-leach (HPAL) plant, Rio Tuba, Bataraza Municipality, Palawan Province	1,300
Do.		Taganito HPAL Nickel Corp. (Sumitomo Metal Mining Co. Ltd. (operator), 75%; Mitsui Co. Ltd., 15%; Nickel Asia Corp., 10%)	Taganito nickel high-pressure acid-leach (HPAL) plant, Surigao del Norte Province, Mindanao Island	2,300

See footnotes at end of table.

TABLE 2—Continued  
PHILIPPINES: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity <sup>e</sup>
<b>Copper:</b>				
Mine, Cu content		Carmen Copper Corp. (Atlas Consolidated Mining and Development Corp., 100%)	Toledo copper mine (Biga, Carmen, and Lutopan deposits), Cebu Province	49,000
Do.		Lepanto Consolidated Mining Corp.	Victoria and Teresa Mines, Mankayan, Benguet Province	700
Do.		OceanaGold (Philippines) Inc. (OceanaGold Corp., 100%)	Didipio copper-gold mine, Nueva Viscaya Province	25,000
Do.		Philex Mining Corp.	Padcal copper mine, Tuba and Itogon, Benguet Province	21,000
Refined		Philippine Associated Smelting and Refining Corp. (PASAR) (Glencore International plc., 78.2%, and others, 21.8%)	Smelter and refinery at Leyte Industrial Development Estate in Isabel, Leyte Province	215,000
Feldspar		Paladino Management & Development Corp., 60%, and AIM Exploration Inc., 40%	NA	NA
<b>Gold:</b>				
Mine, Au content	kilograms	APEX Mining Co. Inc.	Maco gold mine, Mabini, Davao de Oro Province	2,000
Do.	do.	Benguet Corp.	Acupan Mine, Itogon, Benguet Province	300
Do.	do.	Carmen Copper Corp. (Atlas Consolidated Mining and Development Corp., 100%)	Toledo copper mine (Biga, Carmen, and Lutopan deposits), Cebu Province	1,200
Do.	do.	Filminera Resources Corp. (mine owner) (Zoom Mineral Holdings Inc., 60%, and B2Gold Corp., 40%), and Philippines Gold Processing & Refining Corp. (plant owner) (B2Gold Corp., 100%)	Masbate gold mine and processing plant, Aroroy, Masbate Province	7,000
Do.	do.	FCF Minerals Corp. (Metals Exploration Plc, 100%)	Runruno gold-molybdenum mine, Nueva Viscaya Province, Luzon Island	3,000
Do.	do.	Greenstone Resources Corp. (TVI Resource Development Philippines Inc., 100%)	Siana gold mine, Surigao del Norte Province, Mindanao Island <sup>1</sup>	1,000
Do.	do.	Itogon-Suyoc Resources Inc. (Apex Mining Co. Ltd., 100%)	Sangilo (or Itogon-Suyoc) Mine, Mankayan, Benguet Province	100
Do.	do.	Lepanto Consolidated Mining Corp.	Victoria and Teresa Mines, Mankayan, Benguet Province	1,000
Do.	do.	OceanaGold (Philippines) Inc. (OceanaGold Corp., 100%)	Didipio copper-gold mine, Nueva Viscaya Province	5,700
Do.	do.	Philex Gold Philippines Inc. (Philex Mining Corp., 100%)	Padcal copper mine, Tuba and Itogon, Benguet Province	5,000
Do.	do.	Philsaga Mining Corp. (mine owner) (Ten Sixty Four Ltd., 40%, and others, 60%) and Mindanao Mineral Processing and Refining Corp. (Ten Sixty Four Ltd., 100%)	Co-O gold mine and processing plant, Agusan del Sur Province	3,500
Do.	do.	Tribual Mining Corp.	Kematu gold-silver mine, South Cotabato Province	55
Do.	do.	TVI Resources Development Philippine Inc.	Balabag gold-silver mine, Balabag, Zamboanga del Norte Province, Mindanao Island	250
Refined	do.	Bangko Sentral ng Pilipinas	Mint and Refinery Operations Department, Quezon City	6,950
Iron ore, concentrate		Atro Mining-Vitali Inc. [Atro International (FZE), 100%]	Mine in Vitali, Zamboanga del Sur Province <sup>2</sup>	43,000
Do.		Ore Asia Mining and Development Corp.	Camachin iron mine, Dona Remedios Trinidad, Bulacan Province	33,000
Do.		MacArthur Iron Projects Corp., and Strong Built Mining Development Corp.	Mine in San Pedro, MacArthur, Leyte Province	46,000

See footnotes at end of table.

TABLE 2—Continued  
PHILIPPINES: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity <sup>e</sup>	
Lime	H.T. Mining Products Resources Corp.	Plant in Barangay Tinandog, Atimon Quezon Province	40,000	
Do.	Unichamp Mineral Philippines Inc.	Plant in Rio Tuba Economic Processing Zone, Palawan Province	135,000	
Do.	Upward Agro Industrial Corp.	Plant in Bacolod, Negros Occidental Province	NA	
Natural gas	million cubic meters	MEXP Holding Pte. Ltd. [Udena Corp., 90%, and Philippine National Oil Co. (PNOC) Exploration Corp., 10%]	Malampaya gasfield, 50 kilometers offshore Palawan Island	4,300
<b>Nickel, Ni content:</b>				
Mine	AAM-PHIL Natural Resources Exploration	Dinagat chromite-nickel project, and Esperanza, Dinagat Islands Province	1,800	
Do.	Adnama Mining Resources Inc.	Urbiztondo nickel project, Pangasinan Province	7,900	
Do.	Agata Mining Ventures Inc. (TVI Resources Development Philippines Inc., 60%; Minimax Mineral Exploration Corp., 25%; MRL Nickel Philippines Inc. 15%)	Agata nickel laterite project, Tubay, Agusan del Norte Province	25,100	
Do.	Benguet Corp. Nickel Mines Inc.	Santa Cruz nickel mining project, Santa Cruz, Laguna Province	100	
Do.	Berong Nickel Corp. (DMCI Holdings Inc., 75%, and Atlas Mining Co. Ltd., 25%)	Berong nickel project, Palawan Province	10,000	
Do.	Cagdianao Mining Corp. (Nickel Asia Corp., 100%)	Cagdianao nickel project, Valencia, Dinagat Islands Province	28,500	
Do.	Carrascal Nickel Corp.	Carrascal nickel project, Bon-ot, Carrascal, Surigao del Sur Province	21,800	
Do.	Century Peak Corp.	Esperanza nickel project, Loreto, Dinagat Islands Province	7,200	
Do.	Cit nickel Mines and Development Corp. (Oriental Peninsula Resource Group Inc., 100%)	Toronto Narra Mine and Pulot Sofronio nickel mine, Palawan Province	6,700	
Do.	CTP Construction & Mining Corp.	Adlay nickel project, Adlay, Carrascal, Surigao del Sur Province	20,700	
Do.	do.	Dahican nickel project, Mindanao, Surigao del Sur Province	5,900	
Do.	Hinatuan Mining Corp. (Nickel Asia Corp., 100%)	Tagana-an nickel project, Talavera, Surigao del Norte Province	3,400	
Do.	Libjo Mining Corp.	Libjo nickel laterite mining project, Tubajon and Libjo, Dinagat Islands Province	3,300	
Do.	LNL Archipelago Mineral Inc.	LNL AM Santa Cruz mining project, Santa Cruz, Zambales Province	4,400	
Do.	Marcventures Mining and Development Corp.	Cantilan nickel project, Cantilan, Surigao del Sur Province	15,300	
Do.	Platinum Group Metals Corp. (Global Ferronickel Holdings Inc., 100%)	Cagdianao nickel project, Surigao del Norte Province	37,000	
Do.	Rio Tuba Nickel Mining Corp. (Nickel Asia Corp., 60%; Pacific Metals Co. Ltd., 36%; others, 4%)	Rio Tuba nickel project, Barrio Rio Tuba, Bataraza, Palawan Province	46,600	
Do.	San Roque (SR) Metals Inc.	SR nickel project, Tubay, Agusan del Norte Province	22,600	
Do.	Taganito Mining Corp. (Nickel Asia Corp., 65%, and others, 35%)	Taganito Mine, Claver, Surigao del Norte Province	73,000	
Do.	Zambales Diversified Metals Corp. (DMCI Holdings Inc., 100%)	Santa Cruz-Candelaria nickel project, Zambales Province	5,100	

See footnotes at end of table.

TABLE 2—Continued  
PHILIPPINES: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity <sup>e</sup>
<b>Nickel, Ni content:—Continued</b>				
Intermediate, nickel-cobalt sulfide		Coral Bay Nickel Corp. (Sumitomo Metal Mining Co. Ltd., 54%; Sojitz Philippines Corp., 18%; Nickel Asia Corp., 10%; Rio Tuba Nickel Mining Corp., 10%)	Coral Bay nickel high-pressure acid-leach (HPAL) plant, Rio Tuba, Bataraza, Palawan Province	24,000
Do.		Taganito HPAL Nickel Corp. (Sumitomo Metal Mining Co. Ltd., 75%; Mitsui Co. Ltd., 15%; Nickel Asia Corp., 10%)	Taganito nickel high-pressure acid-leach (HPAL) plant, Surigao del Norte Province	36,000
<b>Petroleum:</b>				
Condensate	thousand 42-gallon barrels	Malampaya Energy Group (Udena Group), 45%; Shell Philippines Exploration B.V. (SPEX) (Royal Dutch Shell), 45%; Philippine National Oil Co. (PNOC) Exploration Corp., 10%	Malampaya gasfield, 80 kilometers offshore Palawan Province	4,000
Crude	do.	China International Mining Petroleum Co. Ltd. (CIMP, operator) (Polyard Petroleum International Group Ltd., 50.4%; Skywealth Group Holdings Ltd., 16%; Phil-Mal Energy International Inc., 4%; others, 29.6%)	Alegria oilfield, Cebu Province	20
Do.	do.	Consortium of Philodrill Corp., Alcorn Petroleum, Oriental Petroleum, Nido Production, AC Energy Philippines Inc., and Forum Energy Plc	Nido (14A) and Matinloc (14B) oilfields, northwestern Palawan Province <sup>3</sup>	NA
Do.	do.	Nido Production (Galoc) Pty Ltd. (Tamarind Resources Pte Ltd., 78.83%; The Philodrill Corp., 10.18%; Oriental Petroleum and Minerals Corp., 7.78%; PXP Energy Corp., 3.21%)	Galoc oilfield, 60 kilometers northwest of Culion Island, Palawan Province	750
Refinery	do.	Petron Corp. (SEA Refinery Corp., 50.1%; San Miguel Corp., 18.2%; others, 31.7%)	Petron Bataan refinery, Limay, Bataan Province	65,700
Do.	do.	Pilipinas Shell Petroleum Corp. (Shell plc, 55.21%, and others, 44.79%)	Tabangao refinery, Batangas City, Batangas Province <sup>4</sup>	40,200
Phosphate rock		Philippine Phosphate Fertilizer Corp. (PhilPhos)	Fertilizer plant in Isabel, Leyte Province	NA
Salt		Pacific Farms Inc. (Salinas Corp., 100%)	Salterns in Bolinao, Pangasinan Province	35,000
Do.		Small scale salterns	Salterns in Dasol, Pangasinan Province	18,000
Silver, mine Ag content	kilograms	APEX Mining Co. Inc.	Maco gold mine, Maco and Mabini, Davao de Oro Province, Mindanao Island	9,630
Do.	do.	Benguet Corp.	Acupan Mine, Itogon, Benguet Province	300
Do.	do.	Carmen Copper Corp. (Atlas Consolidated Mining and Development Corp., 100%)	Toledo copper mine (Biga, Carmen, and Lutopan deposits), Cebu Province	3,000
Do.	do.	Filminera Resources Corp. (mine owner and operator), and Philippines Gold Processing & Refining Corp. (processing plant owner and developer) (B2Gold Corp., 100%)	Masbate gold mine, Aroroy, Masbate Province	5,000
Do.	do.	Greenstone Resources Corp. (TVI Resource Development Philippines Inc., 100%)	Siana gold mine, Surigao del Norte Province, Mindanao Island <sup>1</sup>	1,000
Do.	do.	Lepanto Consolidated Mining Co.	Victoria and Teresa Mines, Mankayan, Benguet Province	4,000
Do.	do.	Philsaga Mining Corp. (mine owner) (Ten Sixty Four Ltd., 40%, and others, 60%) and Mindanao Mineral Processing and Refining Corp. (Ten Sixty Four Ltd., 100%)	Co-O gold mine and processing plant, Agusan del Sur Province	1,000
Do.	do.	OceanaGold Philippines Inc. (OceanaGold Corp., 100%)	Didipio copper-gold mine, Nueva Viscaya Province	9,000
Do.	do.	Philex Mining Corp.	Padcal copper mine, Tuba and Itogon, Benguet Province	5,000

See footnotes at end of table.

TABLE 2—Continued  
PHILIPPINES: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity <sup>e</sup>
Silver, mine Ag content	kilograms	TVI Resources Development Philippine Inc.	Balabag gold-silver mine, Balabag, Zamboanga del Norte Province, Mindanao Island	7,200
Steel:				
Raw	thousand metric tons	Calaca Works (Steel Asia Manufacturing Corp.)	Integrated plant in Calaca, Batangas Province	500
Do.	do.	Philippine Sinter Corp. (JFE Steel Corp.)	Plant in Villanueva, Misamis Oriental Province	1,000
Products	do.	Capitol Steel Corp.	Plant in Quezon, Metro Manila	500
Do.	do.	Cathay Pacific Steel Corp. (CAPASCO)	do.	300
Do.	do.	JFE Shoji Steel Philippines Inc. (JFE Shoji Corp.)	Plant in Binan, Laguna Province	NA
Do.	do.	PAG-ASA Steel Works Inc.	Plant in Binan, Laguna Province	800
Do.	do.	Philsteel Holding Corp.	Plant in Bmunting-Tubing, Balayan, Batangas	350
Do.	do.	Sagarthama Steel Trading Corp.	Plant in Binan, Laguna Province	NA
Do.	do.	Steel Asia Manufacturing Corp., which included— Calaca Works	Of which— Rebar plant in Batangas Province	500
Do.	do.	Carcar Works	Plant in Cebu Province	300
Do.	do.	Davao Works	Plant in Davao del Sur Province	500
Do.	do.	Meycauayan Works	2 rebar roll mills in Bulacan Province	450
Do.	do.	Villanueva Works	Plant in Misamis Oriental Province	250
Do.	do.	Compostela Steel Inc.	Plant in Compostela, Cebu Province	NA
Stone:				
Crushed, limestone		Eagle Cement Co. (Far East Cement Corp., 60.2%, and other, 39.8%)	Quarry in San Ildefonso, Bulacan Province	NA
Do.		Holcim Mining and Development Corp. (HMDC)	Quarries in Bacnotan and Balaoan, La Union Province	NA
Do.		do.	Quarries in Davao City and Maasim, Sarangani Province	NA
Do.		do.	Quarries in Iligan City and Lugait, Misamis Oriental Province	NA
Do.		do.	Quarries in Kiwalan and Iligan City, Lanao del Norte Province	NA
Do.		do.	Quarry in Norzagaray, Bulacan Province	NA
Do.		Holcim Resources and Development Corp.	Quarries in Iligan City and Lugait, Misamis Oriental Province	NA
Do.		Northern Cement Corp.	Quarry in Sison, Pangasinan Province	NA
Do.		Republic Cement Land and Resources Inc.	Quarries in Norzagaray and San Jose del Monte, Bulacan Province	NA
Do.		Republic Cement Mindanao Inc.	Quarry in Iligan City, Lanao del Norte Province	NA
Do.		Republic Cement & Building Materials Inc.	Quarry in Norzagaray, Bulacan Province	NA
Do.		do.	Quarry in Taysan, Batangas Province	NA
Do.		do.	Quarry in Teresa, Rizal Province	NA
Dimension, marble		Quarry Vnetures Philippines Inc.	Quarries in Cebu, Naga, Pinamungahan, and Toledo municipalities, Cebu Province	NA
Do.		Teresa Marble Corp.	Quarry in Antipolo City, Rizal Province	NA
Tin, refined, secondary		O.M. Manufacturing Philippines Inc. (O.M. Co. Ltd., 100%)	Plant in Rosario, Cavite Province	NA
Tungsten, refinery, secondary		Philippine Chuangxin Industrial Co. Inc.	Plant in Marilo, Bulacan Province	NA

<sup>e</sup>Estimated. Do., do. Ditto. NA Not available.

<sup>1</sup>Properties under suspension order since February 2019.

<sup>2</sup>No production in 2021.

<sup>3</sup>Operation closed owing to depletion in the first quarter of 2019.

<sup>4</sup>Refinery operation closed in May and transformed to a full import terminal in September 2020.