



2014 Minerals Yearbook

PHILIPPINES

THE MINERAL INDUSTRY OF THE PHILIPPINES

By Yolanda Fong-Sam

In 2014, one of the main mineral commodities produced in the Philippines was nickel. The Philippines accounted for about 21% of the world production of nickel, and about 4% of mined cobalt. The country also produced other mineral commodities, such as cement, chromium, copper, gold, marine salt, and silver (table 1; Kuck, 2016; Shedd, 2016).

Minerals in the National Economy

In 2014, the mining and quarrying sector (at constant 2000 prices) contributed about 5% to the Philippines' gross domestic product (GDP) compared with 1% in 2013. The construction sector contributed about 10% to the GDP compared with 5.6% in 2013. The value of metallic mineral production was \$3.1 billion¹, compared with \$2.3 billion in 2013. The value of nickel produced in 2014 was \$1.8 billion (1.1% of GDP); gold, \$742.7 million (0.5% of GDP); and copper, \$512.7 million (0.3% of GDP) (Bangko Sentral ng Pilipinas, 2015; Mines and Geosciences Bureau, 2015b–c).

Government Policies and Programs

In January 2014, the Department of Environment and Natural Resources (DENR) announced the creation of the Philippine Extractive Industries Transparency Initiative (PH-EITI), which is a policy adopted by the Government to establish and improve accountability and transparency within the country's mining sector, specifically the extractive industry sector. The PH-EITI requires all companies operating in the mining sector to disclose the taxes and fees paid to the Government and the social expenditure programs the companies implement in the communities that it serves. The companies are required to sign a waiver to allow the Bureau of Internal Revenue to disclose the dues paid to the Government. In turn, the Government has to disclose what it has received from companies in an annual country report. As of October 2014, not all companies involved in the extractive industry sector have agreed to fully disclose their dues. In 2013, the DENR was designated as the agency in charge of implementing the Extractive Industries Transparency Initiative (EITI) in the country. The EITI is an international effort designed to set the standards for transparency in the management of revenue derived from extractive industries, such as mining and oil and natural gas extraction. The initiative is voluntary and requires participating countries to publish the receipts from their extractive mining activities. On May 22, 2013, the EITI International Board admitted the Philippines as a candidate country for its commitment to implement the transparency initiative (Agub, 2013, p. 9; Jamasmie, 2014; Mayer Brown Consulting, 2014, p. 3).

¹Where necessary, values have been converted from Philippine pesos (PHP) to U.S. dollars (US\$) at an average rate of PHP44.40=US\$1.00 for 2014 and PHP42.45=US\$1.00 for 2013.

On January 27, the Senate Bill 2086 (SB 2086) was introduced to the Senate Office of the Secretary, which would mandate a competitive public bidding process for the granting of all mining rights and mining tenements over areas with known and verified mineral resources and reserves, including those owned by the Government and all expired tenements. For the bidding process, the Mines and Geosciences Bureau (MGB) is in charge of preparing a competitive bid package and formulating the guidelines and procedures to conduct such activities (Binay, 2014).

By mid-2014, two bills were filed in the Philippines Congress proposing that exporting of unprocessed mineral ores be halted. The proposed measures were House Bill 4728 (HB 4728) and Senate Bill 4728 (SB 4728), which both sought to revise several provisions in the Philippine Mining Act of 1995, also known as the Republic Act 7942 (RA 7942). The purpose of the provisions is to define mineral processing as the process of separating commercially valuable minerals from their mineral ores, to redefine the ore transport permit to include destinations within the Philippines, and to clearly specify that extracted mineral ores should be processed within the Philippines or otherwise be subjected to sanctions and penalties for violations. The Secretary of the DENR suggested adding a provision to the draft bills that supports the creation and establishment of processing plants. Some of the objectives of the proposed bills are to attract foreign investments, to increase the generation of domestic income, and to create more domestic jobs. No timeframe was proposed to ban the mineral ore exports (Aquino, 2014; Mayer Brown Consulting, 2014, p. 2–3; Valencia, 2014).

Since Executive Order 79 was implemented in 2012, the Government and the extractive mining industry have been in talks to establish a new revenue-sharing scheme. Executive Order 79 created the Mining Industry Coordinating Council (MICC) as an interagency body in charge of conducting dialogue with stakeholders, reviewing all existing mining-related laws and regulations, conducting public auctions for mining tenements, ensuring that contractors have the proper environmental insurance coverage and perpetual liability, implementing other industry reforms, and supervising the drafting of a new mining law. In 2014, the MICC proposed the imposition of either a 10% tax on gross revenues or a 55% tax on adjusted mining revenues (defined as the difference between gross sales and direct costs, which included mining costs and administrative expenses), in addition to a percentage of windfall profit, whichever is higher. The proposed revenue-sharing scheme would apply to metallic mining projects holding a Financial or Technical Assistance Agreement (FTAA) and a mineral production-sharing agreement (MPSA). As of December, the scheme was still awaiting a decision from the Office of the President (Valencia, 2014).

When Executive Order 79 was approved, it immediately imposed a moratorium on the approval of new mining projects

until Congress passes a legislative measure to increase royalty fees. After the Order came into effect, the mining industry was at a standstill as new mining contracts were put on hold. In early 2013, the MGB resumed accepting applications for FTAA exploration permits. The lifting of the ban did not apply to MPSA (Agub, 2013).

In October, the MGB imposed a moratorium on the issuance of mineral ore export permits for magnetite (black sand) operations on the grounds that the MICC has a pending order to review the safety and legality of existing magnetite operations. Magnetite is mainly used as a component in the production of steel, and it is mainly exported to China (Valencia, 2014).

Production

Based on import trade data, in 2014, the Philippines produced 523,000 metric tons (t) of nickel, which was an increase of 12.7% compared with that of 2013. The increase could be attributed to the full year of operation of Taganito Mining Corp.'s (a subsidiary of Nickel Asia Corp.) high-pressure acid-leach (HPAL) plant. Other mineral commodities for which production increased significantly compared with that of 2013 included manganese (130.8%), cobalt (92.6%), chromite (33.4%), perlite (20.7%), lime (17.7%), and coal (15.6%). Zinc production was reported as zero in 2014, owing to the closure of the two plants operating in country (details in the commodity review section). Other commodities for which production decreased in 2014 included silver (42.5%), iron ore (21.8%), and smelted and refined copper (15.8% and 15%, respectively), which could be attributed to the closure of the milling operations at the Canatuan Mine) (table 1; Nickel Asia Corp., 2014; TVI Pacific Inc., 2014a, p. 10; 2014b).

Structure of the Mineral Industry

In 2014, an estimated 235,000 people, or 0.6% of the total number of people employed in the country, worked in the mining and quarrying industry. As of February, and according to the MGB, the Philippines had a total of 755 approved mining tenements, which were distributed as 339 MPSA, 228 industrial sand and gravel permits, 123 mineral processing permits, 55 exploration permits, 6 FTAA, and 4 mining lease contracts. In addition, as of October, the country had a total of five processing plants (two for gold, two for nickel, and one for copper), 45 operating metallic mines, and 55 operating nonmetallic mines (Billedo, 2014; Mayer Brown Consulting, 2014, p. 2; Mines and Geosciences Bureau, 2015a).

Some of the main producers of mineral commodities in the Philippines were Benguet Corp. of the Philippines (chromite); Lepanto Consolidated Mining Co. of the Philippines (gold and silver); Philex Mining Corp. of Canada (copper, gold, and silver); Taganito Mining Corp. (nickel); and TVI Resources Development Philippines Inc. (TVIRD), which was the Philippines affiliate of TVI Pacific Inc. of Canada (gold and silver). The country's major mineral industry facilities are listed in table 2.

Mineral Trade

In 2014, total trade between the Philippines and the world increased by 7% to \$127.5 billion from \$119.1 billion in 2013. The country's total exports were valued at \$62.1 billion compared with \$56.7 billion in 2013, which was an increase of 9.5%; also, the total value of imports in 2014 increased by 4.8% to \$65.4 billion from \$62.4 billion in 2013. According to the MGB, in 2014, mineral exports of selected metals from the Philippines amounted to \$4.01 billion compared with \$2.67 billion in 2013, and included copper, gold, and nickel. These increases are likely attributable to changes in global metal prices and increases in the production of these commodities. Main destinations included Australia, Canada, China, and Japan. Imports of iron and steel and mineral fuels and related materials were valued at nearly \$15 billion (which was about 23% of the country's total import value) compared with \$14.6 billion in 2013 (Mines and Geosciences Bureau, 2015c; National Statistics Office of the Philippines, 2015).

In 2014, the Philippines' leading trading partner was Japan, which accounted for 15% (\$19.2 billion) of the country's total trade, including \$13.9 billion in exports to Japan and \$5.3 billion in imports from Japan. The second-ranked trading partner was China, which accounted for 14.3% (\$18.4 billion) of total trade; exports to and imports from China were valued at \$8.5 billion and \$9.9 billion, respectively. The third-ranked trading partner was the United States, which accounted for 11.2% (\$14.4 billion) of total trade; exports to and imports from the United States were valued at \$8.7 billion and \$5.7 billion, respectively. The country's fourth- and fifth-ranked trading partners were Singapore and the Republic of Korea, which accounted for 7.1% and 6%, respectively, of the Philippines' total trade. Exports to Singapore were valued at \$4.5 billion, and imports from Singapore were valued at \$4.6 billion. Exports to the Republic of Korea were valued at \$2.6 billion, and imports from the Republic of Korea were valued at \$5.1 billion. Total trade with the countries of the European Union accounted for \$14.3 billion, which was equivalent to 11.2% of the country's total trade (National Statistics Office of the Philippines, 2015).

Commodity Review

Metals

Copper, Gold, Silver, and Zinc.—In 2014, mined copper production in the country totaled 91,922 t of copper content, which was an increase of 1.2% compared with the 90,861 t produced in 2013. Although the increase was modest, the sector's performance was relatively strong given the closure of Rapu-Rapu Processing Inc.'s polymetallic project and the announced closure of the Canatuan mining project (which produced only from stockpile in 2014). Mined gold production increased by 6.8% in 2014 to 18,423 kilograms (kg) from 17,248 kg in 2013. In 2014, the Didipio project (OceanaGold Corp. of Australia, 92% interest) increased its production of copper by 19% to 25,010 t from 20,986 t in 2013, and gold, by 59.7% to 3,305 kg from 2,069 kg in 2013. The Didipio project, which started production in April 2013, is located in the north of Luzon Island in northern Philippines, approximately

270 kilometers (km) north of the capital city of Manila. OceanaGold estimated a mine life of 15 years. OceanaGold expected to mine the Didipio deposit as an open pit until 2017, to start underground development in late 2017, and to concurrently run the open pit and underground activities until depletion. A full mining rate of 1.6 million metric tons per year (Mt/yr) of ore was expected by 2020 (table 1; TVI Pacific Inc., 2014a, p. 10; 2014b; Mines and Geosciences Bureau, 2015b; OceanaGold Corp., 2015, p. 7, 17).

In March, St. Augustine Gold and Copper Ltd. of Hong Kong and its joint-venture partner, Nationwide Development Corp., announced the approval of the environmental impact statement for its King-King copper and gold project and received the environmental compliance certificate from the Philippines Environmental Management Bureau. Based on preliminary studies, the project was expected to recover about 1.4 million metric tons (Mt) of copper and about 168,000 kg (reported as 5.4 million troy ounces) of gold during the mine's expected 25-year life. The mineral reserve was determined to be about 618 Mt at grades of 0.3% copper and 0.395 gram per metric ton (g/t) gold. The King-King project is located 35 km northeast of Davao City in the southeastern part of Mindanao Island. The company expected the project to start construction in 2016, and to begin heap leach production in 2018 and mill production in 2019 (St. Augustine Gold & Copper Ltd., 2015a, b).

Carmen Copper Corp., which was a wholly owned subsidiary of Atlas Consolidated Mining and Development Corp. (Atlas Mining) of the Philippines, had operating rights for the Toledo copper mine, which included the mineral resources of the Biga, the Carmen, and the Lutopan mineral deposits. The Toledo copper mine consisted of an area covering 1,674 hectares. In March, Carmen Copper commissioned the expansion of its processing plant and posted a 20% increase in the total amount milled. Carmen Copper planned to install the required technology to boost its production of byproduct molybdenum in concentrate by installing a collector in the copper flotation process. The installation was scheduled for mid-2015 with an expected production startup in the fall of 2015. To ensure enough long-term power supply to cover the new expansion requirements, Carmen Copper reached an agreement with Toledo Power Co. for an additional 15 megawatts (MW) of electric generating capacity, which the latter incorporated by completing the construction of an 82-MW-capacity coal-fired powerplant in December 2014. Also in 2014, the company implemented improvements to the nearby port facilities as it forecasted an increase in shipping volumes. The improvements included an extension in the conveyor house, installation of a fire hydrant system, and construction of a 1,560-square-meter concrete pad for drying copper concentrates (Atlas Consolidated Mining and Development Corp., 2015).

Production of silver decreased by 42.5% to 23,005 kg in 2014 from 40,043 kg in 2013 owing mainly to the closure of the Rapu-Rapu polymetallic project. In June, Phylax Mining Corp. announced its plans to consider developing the Silangan project as an open pit in order to reduce costs. The current estimated cost for the project was \$1.5 billion and would involve underground mining. By changing the mining method, the company was expected to save about two-thirds of the cost.

The project is located in Surigao del Norte on the northern part of Mindanao Island, and would combine the development of the Bayugo and the Boyongan deposits, which include copper, gold, and silver. In 2014, operational problems prompted the company to delay startup of production until 2018. The estimated reserves for the project were about 4.1 Mt of copper and about 280,000 kg (reported as 9 million troy ounces) of gold during the mine's projected 25-year life (table 1; Thomson Reuters, 2014; TVI Pacific Inc., 2014a, p. 10; 2014b).

Zinc production was zero in 2014 owing to the closure of the two projects operating in the country—the Canatuan mining project and the Rapu-Rapu polymetallic project. In January, TVIRD announced that it had ceased milling operations at the Canatuan copper and zinc mine. TVIRD was actively assessing the opportunities to extend and expand the life of the mine as a result of the depletion of stockpiled material at the mine. During 2014, the company was expecting new discoveries as a result of exploration drilling near the outskirts of the Canatuan facility. By September, TVIRD was still awaiting approval from the Government to retrieve two shipments from its Rapu-Rapu Mine and polymetallic processing project, which are located in Albay Province in central-eastern Philippines and closed at the end of 2013 (table 1; TVI Pacific Inc., 2014a, p. 10; 2014b).

In March, Red Mountain Mining Ltd. of Australia announced the completion of the scoping study for the Batangas gold project, which is located on Luzon Island in the northern Philippines. The study confirmed the potential to develop a gold mining and processing project using an open pit mining method and a carbon-in-leach process to produce the high-grade gold resources. In April, the company finalized the submission of the permit application for the development, mining, and processing of gold at the project. In June, the company announced an upgrade to the indicated and inferred resources of the Batanga project, which included the Archangel prospect and the Lobo prospect, to 6.19 Mt at a grade of 2.2 g/t gold, for a total of about 13,800 kg (reported as 444,000 troy ounces) of gold (Red Mountain Mining Ltd., 2014).

Nickel.—In 2014, based on information compiled using trade data, the production of nickel in the Philippines increased to 523,000 t compared with 464,000 t (revised) in 2013 (table 1). During 2014, the nickel sector faced some uncertainty regarding the export of nickel ores by the proposed measures, HB 4728 and SB 4728, to ban the export of unprocessed mineral ores. In early 2014, a similar bill introduced in Indonesia banned all exports of unprocessed minerals, such as bauxite, and nickel and tin ores. After the implementation of the ban in Indonesia, the Philippines was considered the main supplier of nickel ore to the nickel pig iron industry in China. Taking into consideration the various outcomes if the proposed bills were approved by the Philippines, the nickel sector raised concerns that the mining industry in the country might not be large enough to attract investments to build smelting plants or to develop a strong downstream processing operation that would produce a variety of finished products. Nickel prices would be affected, and business with trading partners could be jeopardized. By banning the export of nickel ores, the Government sought to increase the contribution of the mining sector to the country's economy by attracting investors to develop the mining

processing sector. The Government did not offer a timeframe for imposing the ban (Aquino, 2014; Mayer Brown Consulting, 2014, p. 2–3; Ritzema, 2014; Valencia, 2014).

Industrial Minerals

Cement.—In 2014, the production of cement in the Philippines was estimated to have increased by about 9% to 22 Mt from 20.1 Mt in 2013 (table 1). The increase in production was driven mainly by the continuous growth in the construction sector following the destruction caused by Typhoon Haiyan, which struck the islands in November 2013. In 2014, the Government increased the reconstruction budget for infrastructure to \$9 billion from \$6.6 billion in 2013 (table 1; Global Cement, 2015)

In February, Holcim Philippines Inc. announced the delay of its plans to build a 2.5-Mt/yr cement plant to be located at Norzagaray, Balucan, near Quezon City on Luzon Island. The proposed project was projected to cost \$550 million and was originally planned for startup in 2016. In March, Lafarge Republic, Inc. announced plans to invest \$25 million in the construction of a new 850,000-metric-ton-per-year-capacity cement mill at its plant in Bulacan. The company expected the project to be fully operational by mid-2015. In November, Pacific Cement Co. (PACEMCO) announced that it was extending the suspension of operations at its cement plant for another 3 months pending negotiations regarding the financing needed to reopen the plant, which had been closed since May (Global Cement, 2015).

Outlook

By the end of 2014, the proposed revenue- and production-sharing scheme proposed by the MICC was still awaiting a decision from the Office of the President. Meanwhile, investors were cautious about the higher taxes proposed by the scheme. The metals sector also faced uncertainty owing to the several bills that had been proposed banning the export of unprocessed mineral ores and encouraging investors to set up more domestic processing facilities in order to increase revenues by increasing foreign investment opportunities and lowering transportation costs. The export ban on ores from the Philippines could potentially influence metal prices in the Southeast Asia region as demand increases but the availability of ores for import decreases. The ban could also jeopardize trading among partners.

In the next several years, the Philippines expects several mining investment projects that progressed in 2014 to be commissioned, including Lafarge's construction of a new cement mill (to be commissioned in 2015), Carmen Copper's molybdenum production project (to be commissioned in 2015), and the King-King copper and gold project (to start construction in 2016). The Government is expected to increase its construction budget as the country rebuilds its infrastructure, and cement production is expected to increase to meet demand.

References Cited

- Agub, Sherwynne B., 2013, Realizing the Philippines' mining potential: Policy brief—Senate Economic Planning Office, Senate of the Philippines, 13 p. (Accessed October 3, 2014, at http://www.senate.gov.ph/publications/PB%202013-12%20-%20Mining_Policy%20Brief_final_revised_010614.pdf.)
- Aquino, Paolo Benigno, 2014, Senate Bill 2374—An act providing for the mandatory domestic processing of all mineral ores, amending for the Purpose Republic Act No. 7942 otherwise known as The Philippine Mining Act of 1995 and for other purposes: Sixteenth Congress of the Republic of the Philippines, Senate Office of the Secretary, 3 p. (Accessed August 11, 2015, at <http://www.senate.gov.ph/lisdata/1969716822!.pdf>.)
- Atlas Consolidated Mining and Development Corp., 2015, Carmen Copper Corp.—Overview: Mandaluyong City, Philippines. (Accessed August 11, 2015, at <http://www.atlasmining.com.ph/about-us/carmen-copper-corporation>.)
- Bangko Sentral ng Pilipinas, 2015, Gross national income (GNI) and gross domestic product by industrial origin—Table 31: Bangko Sentral ng Pilipinas, 1 p. (Accessed August 11, 2015, at http://www.bsp.gov.ph/statistics/spei_pub/Table_31.pdf.)
- Billedo, E.B., 2014, The Philippine mining industry—A situationer: Department of Environment and Natural Resources, Mines and Geosciences Bureau presentation, 21 p.
- Binay, M.L.N.S., 2014, Senate Bill 2086—An act mandating the conduct of cooperative public bidding of mining rights and tenements, providing for Swiss challenge procedures and amending for the Purpose Republic Act No. 7942 or the Philippine Mining Act of 1995: Sixteenth Congress of the Republic of the Philippines, Senate Office of the Secretary, 4 p. (Accessed August 11, 2015, at <http://www.senate.gov.ph/lisdata/1859515733!.pdf>.)
- Global Cement, 2015, The cement industries of Southeast Asia—Philippines: Global Cement, April 14. (Accessed September 1, 2015, at <http://www.globalcement.com/magazine/articles/922-the-cement-industries-of-southeast-asia>.)
- Jamasmie, Cecilia, 2014, The Philippines creates 'mining accountability' body: Mining.com, January 7. (Accessed June 19, 2015, at <http://www.mining.com/the-philippines-creates-mining-accountability-body-64901/>.)
- Kuck, P.H., 2016, Nickel: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 114–115.
- Mayer Brown Consulting, 2014, Asia trade update—Philippines: Mayer Brown Consulting, October, 6 p. (Accessed March 19, 2015, at <https://www.mayerbrown.com/files/Publication/7f5b96fe-053c-49dc-883e-f8df9eb6ad2a/Presentation/PublicationAttachment/4e21df8e-d989-4987-ac2e-fec7bc5947b9/MBC-AsiaTradeUpdate-Newsletter-SepOct2014.pdf>.)
- Mines and Geosciences Bureau, 2015a, Employment—Mining industry statistics: Quezon City, Philippines, Mines and Geosciences Bureau, 1 p. (Accessed September 30, 2015, at <http://www.mgb.gov.ph/Files/Statistics/MineralIndustryStatistics.pdf>.)
- Mines and Geosciences Bureau, 2015b, Table 1—Philippine metallic mineral production—As of March 2015: Quezon City, Philippines, Mines and Geosciences Bureau, 2 p. (Accessed August 11, 2015, at <http://www.mgb.gov.ph/Files/Statistics/MetallicProduction.pdf>.)
- Mines and Geosciences Bureau, 2015c, The Philippine minerals industry at a glance: Quezon City, Philippines, Mines and Geosciences Bureau, 1 p. (Accessed August 11, 2015, at <http://www.mgb.gov.ph/Files/ItemLinks/ThePhilippineMineralsIndustryAtAGlance.pdf>.)
- National Statistics Office of the Philippines, 2015, Foreign trade statistics of the Philippines 2014, Manila, Philippines, National Statistics Office press release no. 2014-049, July 1. (Accessed August 11, 2015, at <https://psa.gov.ph/content/foreign-trade-statistics-philippines-2014>.)
- Nickel Asia Corp., 2014, About: Taguig City, Philippines, Nickel Asia Corp. (Accessed September 12, 2014, at <http://www.nickelasia.com/about.php>.)
- OceanaGold Corp., 2015, Fact book 2015: Melbourne, Victoria, Australia, OceanaGold Corp., 48 p. (Accessed August 4, 2015, at <http://www.oceanagold.com/assets/documents/annual-reports/OceanaGold-2015-Fact-Book.pdf>.)
- Red Mountain Mining Ltd., 2014, Annual report 2014: Red Mountain Mining Ltd., Perth, Western Australia, Australia, 98 p. (Accessed August 11, 2015, at <http://www.redmm.com.au/files/nrteUploadFiles/152F102F201443A403A29PM.pdf>.)

- Ritzema, Fleur, 2014, Analysis—Philippines export ban proposal and the nickel market [updated]: Metal Bulletin, September 4. (Accessed September 5, 2014, at <http://www.metalbulletin.com/Article/3376739/ANALYSIS-Philippines-export-ban-proposal-and-the-nickel-market-%5BUPDATED%5D.html#axzz3nuY7LjNv>.)
- Shedd, K.B., 2016, Cobalt: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 52–53.
- St. Augustine Gold & Copper Ltd., 2015a, St. Augustine announces approval of King-King environmental impact statement (EIS): St. Augustine Gold & Copper Ltd. press release, March 2, 2 p. (Accessed May 30, 2017, at http://www.sagcmining.com/wp-content/uploads/2015/05/20150302_PressRelease.pdf.)
- St. Augustine Gold & Copper Ltd., 2015b, St. Augustine (TSX:SAU) is developing the King-King copper-gold project, a world-class greenfield deposit with a 618Mt mineral reserve, in the Philippines: St. Augustine Gold & Copper Ltd. fact sheet, Spring, 2 p.
- Thomson Reuters, 2014, Philippines' Philex eyes open-pit method for \$1.5-bln mine project: Thomson Reuters, July 25. (Accessed June 26, 2014, at <http://af.reuters.com/article/metalsNews/idAFL4N0P627I20140625>.)
- TVI Pacific Inc., 2014a, Management's discussion and analysis—For the nine months ended in September 30, 2014 and 2013: Calgary, Alberta, Canada, 47 p. (Accessed June 30, 2015, at http://www.tvipacific.com/files/doc_financials/quarterly/FY2014-Q3-MD-A.pdf.)
- TVI Pacific Inc., 2014b, TVI Pacific Inc. announces closure of milling operations at its Canatuan Mine: Calgary, Alberta, Canada, 3 p. (Accessed March 24, 2015, at <http://www.tvipacific.com/news/News-Release-Details/2014/TVI-Pacific-Inc-Announces-Closure-of-Milling-Operations-at-its-Canatuan-Mine/default.aspx>.)
- Valencia, Czeriza, 2014, Yearender—Gov't mining sector remain at odds over revenue issue: The Philippine Star [Manila, Philippines], December 26. (Accessed August 11, 2015, at <http://www.philstar.com/business/2014/12/26/1406470/yearender-govt-mining-sector-remain-odds-over-revenue-issue>.)

TABLE 1
PHILIPPINES: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity ²	2010	2011	2012	2013	2014
METALS					
Chromium, chromite, gross weight	14,807	25,483	36,628	35,281 ^f	47,056
Cobalt, mine output, Co content ³	2,100 ^e	2,000 ^e	2,269 ^f	2,126 ^f	4,094
Copper:					
Mine output, Cu content	58,412	63,835	65,444	90,861	91,922
Metal:					
Smelter	216,200	205,000	97,000	181,900	153,200
Refined	171,900	164,100 ^f	90,400	153,000 ^f	130,000
Gold, mine output, Au content kilograms	40,847	31,120	14,596	17,248	18,423
Iron and steel:					
Iron ore, gross weight	--	468,000	1,800,000	1,056,694 ^f	826,745
Iron ore, Fe content (62.5%)	--	292,608	1,148,232	793,130	516,716
Steel, crude thousand metric tons	1,050	1,200	1,260 ^f	1,308	1,196
Lead, metal, secondary refined	30,000	34,000	32,000	32,000 ^e	30,000
Manganese:					
Gross weight	11,300	4,300	500	3,100	6,900
Mn content (43%)	4,900	1,900	200	1,300	3,000
Nickel, mine output, Ni content ^{4,5}	150,000	202,000	322,000	464,000 ^f	523,000
Silver, mine output, Ag content kilograms	41,004	45,530	49,211	40,043	23,005
Zinc, mine output, Zn content	9,268	18,170	19,559	16,730	--
INDUSTRIAL MINERALS					
Cement, hydraulic thousand metric tons	15,900	16,063	18,907	20,150	22,000 ^e
Clays:					
Bentonite	1,475	2,087	2,699	3,329	3,369
Kaolin	NA	NA	NA	6,568	7,050
Red	7,050	8,243	9,405	9,551	10,512
White	8,857	12,246	13,623	17,532	18,769
Other	5,878	8,143	10,338	13,560	15,655
Feldspar	15,882	22,050	24,969	30,388	34,232
Lime	4,524	5,934	6,631	6,690	7,877
Perlite	4,756	6,272	9,221	14,249	17,194
Phosphate rock:					
Gross weight	2,308	2,778	2,952	3,478	3,897
P ₂ O ₅ content	779	945	1,004	1,183	1,325
Salt, marine	557,644	720,146	774,815	992,640	1,016,263
Sand and gravel:					
Silica sand thousand metric tons	296	352	260	429	467
Other ⁶ thousand cubic meters	49,009	58,815	66,664	90,300	100,908

See footnotes at end of table.

TABLE 1—Continued
PHILIPPINES: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity ²	2010	2011	2012	2013	2014	
INDUSTRIAL MINERALS—Continued						
Stone:						
Crushed, broken, other ⁷	thousand cubic meters	3,258	4,259	5,502	6,873	7,480
Dolomite		1,259,152	1,431,118	1,627,028	2,611,853	2,948,034
Limestone ⁸	thousand metric tons	35,540	42,526	53,708	73,359	77,665
Marble, dimension, unfinished	cubic meters	6,001	8,043	11,311	20,154	23,661
Pumice		2,274	2,797	2,895	5,566	6,018
Tuff		19,166	22,106	22,295	26,930	28,884
Volcanic cinder ⁹	cubic meters	7,325	9,219	9,408	11,292	11,620
MINERAL FUELS AND RELATED MATERIALS						
Coal, all grades	thousand metric tons	6,650	6,881	9,600	10,732	12,406
Gas, natural, gross	million cubic meters	3,681	3,975	4,000 ^e	4,000 ^e	4,000
Petroleum, crude	thousand 42-gallon barrels	3,059	2,326	2,500 ^e	2,500 ^e	2,500

^eEstimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. ^fRevised. NA Not available. -- Zero.

¹Table includes data available through October 1, 2015.

²In addition to the commodities listed, the Philippines produced platinum-group metals as byproducts of other metal production, quartz, sulfur, and such refinery products as liquefied petroleum gas, gasoline, jet fuel, kerosene, distillate fuel oil, residual fuel oil, and refinery fuel, but available information was inadequate to make reliable estimates of output.

³The majority of the nickel laterite produced in the Philippines was exported to China, but whether cobalt content was recovered is not known.

⁴Nickel mine output Ni content production, in metric tons, reported by the Government, was 2010—184,330; 2011—319,363; 2012—317,621; 2013—315,633; and 2014—410,789. The numbers in the table have been adjusted to take into account data received from individual company sources as well as trade statistics (see footnote 5).

⁵Data compiled using trade data from the United Nations Comtrade database (<http://comtrade.un.org>) for nickel ores and concentrates (code 2604) exported from the Philippines to Australia, China, Hong Kong, and Japan.

⁶Includes “pebbles” and “soil” not further described.

⁷Includes materials described as rock, crushed or broken and blasted; stones, cobbles, and boulders; pebbles; rock aggregates; and broken adobe.

⁸Includes limestone for agriculture, cement manufacturing, industrial use, and other.

⁹Reported as “black cinder” for years 2010–11 by the Philippines Mines and Geosciences Bureau.

TABLE 2
PHILIPPINES: STRUCTURE OF THE MINERAL INDUSTRY IN 2014

(Metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Cement	Eagle Cement Co.	Plant located in Akle, San Ildefonso, Bulacan Province	1,500,000.
Do.	Fortune Cement Corp.	Bulacan plant at Norzagaray, Bulacan Province; Batangas plant at Taysan, Batangas Province	2,100,000.
Do.	Holcim Philippines, Inc.	Bulacan plant at Norzagaray, Bulacan Province; Davao plant at Barrio Ilang, Davao City; La Union plant at Bacnotan, La Union Province; Lugait plant at Lugait, Misamis Oriental Province	7,630,000.
Do.	Lafarge Republic Inc.	Batangas plant at Taysan, Batangas Province; Bulacan plant at Norzagaray, Bulacan Province; Iligan Plant at Ilagan City, Isabela Province; Norzagaray Plant at Norzagaray, Bulacan Province; Teresa plant at Teresa, Rizal Province	6,060,000.
Do.	Solid Cement Corp., APO Cement Corp., and Rizal Cement Corp. (CEMEX Philippines)	Cement plants at three locations—Naga, Cebu Province (APO Cement Corp.); Antipolo City, Rizal Province (Solid Cement Corp.); Binangonan, Rizal Province (Rizal Cement Corp.)	4,830,000.
Chromite, Cr content	Consolidated Mines Inc. (owner) and Benguet Corp. (operator)	Masinloc chromite mine (Coto chromite deposit) located in Coto 27 kilometers east of the Port of Masinloc in Zambales Province	5,000.
Do.	Heritage Resources Mining Corp.	Homonhon chromite project	17,000.
Do.	Krominco Inc.	Dinagat chromite project—Redondo Mine (Mt. Redondo deposit) located in the Loreto Municipality, Dinagat Island	26,000.
Copper, Cu content	Carmen Copper Corp. (wholly owned by Atlas Consolidated Mining and Development Corp.)	Toledo Copper Complex (Carmen and Lutopan mining) area located in the Central Highlands of Cebu Island	20,000.
Do.	Oceana Gold Philippines Inc.	Didipio Copper Gold Project located on the north of Luzon Island in northern Philippines	25,010.
Do.	Philex Mining Corp. (through its subsidiary Philex Gold Inc.), 81%	Padcal copper project located in Tuba, Benguet Province, Luzon Island	21,000.
Do.	TVI Resources Development Philippine Inc., 100%	Canatuan project, located east of Siocon, Zamboanga del Norte Province, Mindanao Island	10,000.
Copper, metal	Glencore International plc.	Philippine Associated Smelting and Refining Corp. (PASAR), located at Isabel, Leyte Province	250,000 smelter; 173,000 refinery.
Gold, Au content kilograms	APEX Mining Company Inc.	APEX Maco operation	100.
Do.	do. CGA Mining Ltd.	Masbate gold project, located 350 kilometers south of Manila, Masbate Island	6,000.
Do.	do. Lepanto Consolidated Mining Co.	Victoria and Teresa Mines located in Mankayan, Benguet Province	2,000.
Do.	do. OceanaGold Philippines Inc.	Didipio Copper Gold Project located on the north of Luzon Island in northern Philippines	3,305.
Do.	do. Philex Mining Corp. (through its subsidiary Philex Gold Inc.), 81%	Padcal Mine (Sto. Tomas II deposit) located at Tuba, Benguet Province, Luzon Island	5,000.
Do.	do. Philippine Mining Development Corp.	Diwalwal Direct State Development Project at Mount Diwalwal in Davao del Norte Province	100.
Do.	do. Philsaga Mining Corp.	Banahaw gold project	NA.
Do.	do. TVI Resources Development Philippine Inc., 100%	Canatuan project, located east of Siocon, Zamboanga del Norte Province, Mindanao Island	500. ¹
Gold, refinery	do. Bangko Sentral ng Pilipinas	Mint and Refinery Operations Department, located at Quezon City	NA.

See footnotes at end of table.

TABLE 2—Continued
PHILIPPINES: STRUCTURE OF THE MINERAL INDUSTRY IN 2014

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Nickel, Ni content		CRAU Mineral Resources Corp.	Santa Cruz-Candelaria nickel project, located in Zambales Province	1,000.
Do.		CTP Construction & Mining Corp.	Adlay-Cagdianao-Tandawa (ACT) nickel project, located at Barangay Adlay, Carrascal municipality, Surigao del Sur Province	10,000.
Do.		Hinatuan Mining Corp.	South Dinagat project, located on Nonoc Island	4,000.
Do.		do.	Tagana-an nickel project, located on Hinatuan Island	30,000.
Do.		Nickel Asia Corp., 100%	Cagdianao nickel project located near Barangay Valencia on Dinagat Island	10,000.
Do.		Taganito Mining Corp. (Nickel Asia Corp., 65%; Pacific Metals Co. Ltd., 33.5%; Sojitz Philippines, 1.5%)	Claver nickel project (Taganito) located in Surigao del Norte Province, Mindanao Island	70,000 nickel; 2,600 cobalt.
Do.		Nickel Asia Corp., 60%; Pacific Metals Co. Ltd., 36%; Sojitz Philippines, 4%	Rio Tuba nickel project, located at Barrio Rio Tuba, Bataraza Municipality in Palawan Province	5,000.
Do.		SR Metals, Inc.	SR nickel project, Tubay Mine, located at Tubay, Agusan del Norte Province	25,000.
Do.		Toledo Mining Corp. Plc., 56.1%	Berong nickel project, located on Palawan Island	10,000.
Nickel, plant		Coral Bay Nickel Corp. (Sumitomo Metal Mining Co. Ltd., 54%; Mitsui & Co. Ltd. 18%; Rio Tuba Nickel Mining Corp., 10%; Nickel Asia Corp., 6%)	Coral Bay nickel high-pressure acid-leach (HPAL) plant, located on Palawan Island	24,000 nickel; 1,800 cobalt.
Petroleum, refinery	thousand 42-gallon barrels	Petron Corp.	Limay, Bataan	3,650.
Silver, Ag content	kilograms	Lepanto Consolidated Mining Co.	Victoria and Teresa Mines, located at Mankayan, Benguet Province	4,000.
Do.	do.	Philex Mining Corp. (through its subsidiary Philex Gold Inc.), 81%	Padcal Mine (Santo Tomas II deposit), located at Tuba, Benguet Province, Luzon Island	5,000.
Do.	do.	TVI Resources Development Philippine Inc., 100%	Canatuan project, located east of Siocon, Zamboanga del Norte Province, Mindanao Island	17,000.

Do., do. Ditto. NA Not available.

¹Producing from stockpile in 2014.