



2016 Minerals Yearbook

INDONESIA [ADVANCE RELEASE]

THE MINERAL INDUSTRY OF INDONESIA

By Meralis Plaza-Toledo

In 2016, Indonesia was the world's third-ranked producer of mined tin, accounting for 18% of the world's production and 17% of the world's reserves. Indonesia also accounted for 9.5% of the world's mine production of nickel, 3.6% of the world's mine production of copper, and 3.5% and 2.6% of the world's production of nitrogen and gold, respectively. In addition, Indonesia was one of the world's leading producers of coal, with a 2.2 % share of the world production (BP p.l.c., 2017, p. 38; Anderson, 2018; Apodaca, 2018; Flanagan, 2018; George, 2018; McRae, 2018).

Minerals in the National Economy

In 2016, Indonesia's real gross domestic product (GDP) growth rate was 5% compared with 4.8% in 2015. The mining industry accounted for approximately 7.2% of the GDP in 2016. By the end of 2016, total employment in the mining and quarrying sector was 1,476,000 (Bank of Indonesia, 2017b, p. 42; International Monetary Fund, 2017, p. 4).

Government Policies and Programs

In 2014, the ban on unprocessed mineral exports in Indonesia came into full effect. The ban was mandated under the Indonesian Mining Law of 2009 and included provisions prohibiting the export of unprocessed minerals as well as requiring that mineral products be processed and refined in Indonesia prior to export. The mineral ban was designed to encourage miners to build smelters and process raw minerals within the country. In 2015, Indonesia's mining companies deliberated with the Government regarding the type of minerals that could be exported and the level of processing required before export. As of 2016, the Government was drafting a revision of the regulations, possibly to allow exports of several unprocessed ores and minerals and giving mining companies up to 5 more years to build smelters (Sharma, 2016; Library of Congress, 2017; PricewaterhouseCoopers Inc., 2017).

PT Pertamina was the state-owned oil and gas company. The Oil & Gas Law of 2001 regulates oil and gas activities in Indonesia. The law grants the Government the exclusive rights to oil and gas extraction and requires all private companies wishing to explore for and extract oil and gas resources to enter into production-sharing contracts with the Government (GBG Indonesia, 2015).

Production

In 2016, production of electrowon-leached copper increased by 833%; that of alumina, by 757%; zirconium mineral concentrates, by 256%; bauxite, by 197%; copper (smelter), by 28%; copper (refinery), by 27%; copper (mine output), by 24%; ferronickel (Ni content), by 18%; and silver, by 10%. Production of iodine decreased by 67%; refined tin, by 31%; and gold, by 14%. Large variations in the production of mined

metals in Indonesia was mostly owing to changes in the mining law. Data on mineral production are in table 1.

Structure of the Mineral Industry

In 2016, state-owned PT Aneka Tambang Tbk (PT Aneka) produced bauxite, ferronickel, gold, nickel, and silver. State-owned companies PT Bumi Resources Tbk, PT Krakatau Steel, PT Pertamina, and PT TIMAH (Persero) Tbk were engaged in the production of coal, steel, petroleum, and tin, respectively. International companies were also active in Indonesia's metals mining and processing industries. Partially foreign-owned companies PT Freeport Indonesia Co. and PT Newmont Nusa Tenggara were engaged in the mining of copper and gold, respectively. Foreign owned PT Vale Indonesia Tbk produced nickel ore, and PT Koba Tin produced tin ore and metal (table 2).

Mineral Trade

In 2016, the value of Indonesia's exported goods, including petroleum and natural gas, was \$144 billion compared with \$149 billion in 2015. Mining exports were valued at an estimated \$18.2 billion compared with \$19.5 billion in 2015; petroleum and natural gas exports were valued at an estimated \$12.9 billion compared with \$17.2 billion in 2015. The value of exported coal was \$14.5 billion compared with \$16 billion in 2015; copper exports were valued at \$3.4 billion compared with \$3.3 billion in 2015; and bauxite exports were valued at \$431 million compared with \$744 million in 2015. The value of imported goods in 2016 amounted to \$129 billion compared with \$135 billion in 2015. Mining imports were valued at \$1.4 billion compared with \$1.5 billion in 2015. Indonesia's top export destinations were, in order of export value, China, the United States, Japan, Singapore, and India (Bank of Indonesia, 2017a, p. 265, 268, 271, 276; International Monetary Fund, 2017).

Commodity Review

Metals

Bauxite and Alumina.—In 2016, PT Aneka produced 241,202 metric tons (t) of bauxite compared with 201,517 t in 2015. PT Aneka bauxite sales were delivered to PT Indonesia Chemical Alumina, which was a joint venture between PT Aneka and Showa Denko K.K. of Japan. PT Indonesia Chemical Alumina started preproduction on the Tayan chemical-grade alumina plant (Tayan CGA) in 2015 and produced 102,465 t of chemical-grade alumina in 2016. As of 2016, Tayan CGA was still in the rampup period; when the plant reaches full production, it would have the capacity to process 850,000 million wet metric tons per year of washed bauxite, resulting in a production capacity of 300,000 metric tons per year of chemical-grade alumina (Aneka Tambang PT Persero Tbk, 2017a, p. 126; 2017b, p. 3).

In 2016, China Hongqiao Group Ltd. (Hongqiao) and PT Cita Mineral Investindo Tbk (Cita) finished the construction of a smelter to produce smelter-grade alumina in Ketapang, West Kalimantan. The smelter would have the capacity to produce 1 million metric tons per year (Mt/yr) during its first phase of operations. The second phase would involve the expansion of the smelter capacity to 2 Mt/yr and was expected to be completed by the end of 2018 (Amianti, 2016).

In 2016, PT Aneka and PT Indonesia Asahan Aluminium (INALUM) signed a joint-venture agreement to develop the Mempawah SGAR project (Mempawah), which would be a smelter-grade alumina plant. The production capacity of the Mempawah plant was projected to be 2 Mt/yr of smelter-grade alumina. Throughout the development of the Mempawah project, PT Aneka expected to process its own bauxite reserves and INALUM expected to acquire alumina feed for processing aluminum from domestic plants and thus to lower Indonesia's dependence on alumina imports (Aneka Tambang PT Persero Tbk, 2017a).

Copper.—Freeport-McMoRan Inc. of the United States and its subsidiary PT Freeport Indonesia Co. (PT-FI) managed one of the world's largest copper and gold deposits at the Grasberg minerals district in Papua, Indonesia. The Grasberg minerals district had the following three operating mines: an open pit, the Deep Ore Zone underground mine, and the Big Gossan underground mine. PT-FI's recoverable copper production in 2016 was 482,168 t compared with 341,101 t in 2015. In 2016, PT-FI was in discussion with the Government regarding long-term operating rights under the company's contract of work as well as PT-FI's right to export copper concentrate without restriction. In August 2016, PT-FI's export permit was renewed through January 11, 2017 (Freeport McMoRan Inc., 2016; 2017, p. 38, 40).

Gold.—In 2016, PT-FI reported production of 33,001 kilograms (kg) of gold at the Grasberg Mine compared with 38,319 kg in 2015. PT-FI reported that sequencing mining in areas with varying ore grades caused a fluctuation in production as well as issues related to a 10-day work stoppage in September 2016 (Freeport McMoRan Inc., 2016; 2017, p. 20).

PT Aneka's main gold and silver production came from the Cibaliung and the Pongkor Mines located in Banten and West Java, respectively. In 2016, PT Aneka's gold production was 2,207 kg compared with 2,210 kg in 2015. The low level of gold production was mainly owing to below-target gold production at the Cibaliung Mine (Aneka Tambang PT Persero Tbk, 2017a, p. 241).

Nickel.—PT Vale Indonesia Tbk (a subsidiary of Vale S.A. of Brazil) reported production of 77,581 t of nickel in matte in 2016 compared with 81,777 t in 2015. The decrease in production was owing to lower ore grades and a furnace mechanical malfunction at the end of 2016. PT Aneka's nickel ore production in 2016 was 1,635,000 wet metric tons compared with 1,654,796 wet metric tons in 2015. PT Aneka reported that its ferronickel production in 2016 was 20,293 t of nickel contained in ferronickel compared with 17,211 t (revised) in 2015 (Aneka Tambang PT Persero Tbk, 2017a, p. 101; Vale, S.A., 2017, p. 38).

Tin.—PT TIMAH (Persero), which was the leading tin producer in Indonesia, reported total tin reserves of 335,909 t in 2016. PT TIMAH (Persero) produced 24,121 t of tin ore in 2016 compared with 26,361 t in 2015. The decline was attributed to weather conditions, the reduction of mining units, and maintenance in some of the production facilities. In addition, PT Refined Bangka Tin (RBT) stopped refining operations in February owing to environmental concerns (International Tin Association, 2016; PT TIMAH (Persero) Tbk, 2017, p. 37).

Mineral Fuels

Coal.—As of 2016, Indonesia was the world's ninth-ranked producer of coal and had total proved reserves of 25.6 billion metric tons. PT Bumi Resources of Indonesia, which was one of the country's leading coal producers, reported production of 87.68 million metric tons of coal, or about 20% of the country's total coal production in 2016 (BP p.l.c., 2017, p. 38; PT Bumi Resources Tbk, 2017, p. 60).

Petroleum.—As of 2016, Indonesia had 3.3 billion barrels of proven crude petroleum reserves and was ranked among the world's top producers of crude petroleum. East Kalimantan, the Java Sea, Natuna, and Sumatra were the main petroleum-producing regions of Indonesia. State-owned PT Pertamina reported production of about 114 million barrels of crude petroleum in 2016, representing an increase of 11% from that of 2015. Indonesia's production of crude petroleum had decreased during the past decade owing to depletion of reserves and maturation of oilfields as well as only limited investment (BP p.l.c., 2017, p. 14; Indonesian Petroleum Association, 2017; PT Pertamina, 2017, p. 22).

Outlook

For decades, the mining sector has made a substantial contribution to Indonesia's GDP, exports, employment, Government revenues, and the economic development of remote regions where mining sites are located. Indonesia's GDP is projected to expand by 5.1% in 2017, led by higher exports and investment in response to stronger commodity prices, low interest rates, and a recovery in external demand. It is expected that further changes to the mining regulations will help economic growth by allowing the resumption of exports of some mineral concentrates, which had been banned since 2014 (International Monetary Fund, 2017, p. 4).

References Cited

- Amianti, D.G., 2016, Cita Minerals to produce Indonesia's first alumina: The Jakarta [Indonesia] Post, June 17. (Accessed February 16, 2018, at <https://www.pressreader.com/indonesia/the-jakarta-post/20160617/281968901973511>.)
- Anderson, C.S., 2018, Tin: U.S. Geological Survey Mineral Commodity Summaries 2018, p. 172–173.
- Aneka Tambang PT Persero Tbk, 2017a, Annual report 2016, crafting opportunities during crisis: Aneka Tambang PT Persero Tbk, 712 p. (Accessed February 16, 2018, at http://www.antam.com/images/stories/joget/file/annual/2016/ar_antam_2016.pdf.)
- Aneka Tambang PT Persero Tbk, 2017b, Quarterly report PT Antam (Persero) Tbk: Aneka Tambang PT Persero Tbk, 7 p. (Accessed February 16, 2018, at http://www.antam.com/images/stories/joget/file/quarterly/2016/asx_report_4_Q16-en.pdf.)

- Apodaca, L.E., 2018, Nitrogen (fixed)—Ammonia: U.S. Geological Survey Mineral Commodity Summaries 2018, p. 116–117.
- Bank of Indonesia, 2017a, 2016 Economic report on Indonesia—Appendices: Bank of Indonesia, 48 p. (Accessed February 16, 2018, at <http://www.bi.go.id/en/publikasi/laporan-tahunan/perekonomian/Documents/Appendices.pdf>.)
- Bank of Indonesia, 2017b, 2016 Economic report on Indonesia—Part II, Domestic economy: Bank of Indonesia, 126 p. (Accessed February 16, 2018, at <http://www.bi.go.id/en/publikasi/laporan-tahunan/perekonomian/Documents/Part-II-Rev.pdf>.)
- BP p.l.c., 2017, BP statistical review of world energy: London, United Kingdom, BP p.l.c., June, 52 p. (Accessed February 15, 2018, at <https://www.bp.com/content/dam/bp/en/corporate/pdf/energy-economics/statistical-review-2017/bp-statistical-review-of-world-energy-2017-full-report.pdf>.)
- Flanagan, D.M., 2018, Copper: U.S. Geological Survey Mineral Commodity Summaries 2018, p. 52–53.
- Freeport McMoRan Inc., 2016, Freeport-McMoRan reports third-quarter and nine-month 2016 results: Freeport McMoRan Inc. press release, October 25. (Accessed February 16, 2018, at <https://investors.fcx.com/investors/news-releases/news-release-details/2016/Freeport-McMoRan-Reports-Third-Quarter-and-Nine-Month-2016-Results/default.aspx>.)
- Freeport McMoRan Inc., 2017, Driven by value—2016 annual report: Freeport McMoRan Inc., 138 p. (Accessed February 16, 2018, at https://s22.q4cdn.com/529358580/files/doc_financials/annual/FCX_AR_2016.pdf.)
- GBG Indonesia, 2015, Indonesian oil and gas sector—Legal framework: GBG Indonesia, April 22. (Accessed February 16, 2018, at http://www.gbgindonesia.com/en/main/legal_updates/indonesian_oil_and_gas_sector_legal_framework.php.)
- George, M.W., 2018, Gold: U.S. Geological Survey Mineral Commodity Summaries 2018, p. 70–71.
- Indonesian Petroleum Association, 2017, Oil: Indonesian Petroleum Association. (Accessed February 16, 2018, at <http://www.ipa.or.id/page/oil>.)
- International Monetary Fund, 2017, 2016 Article IV Consultation—Press release; staff report; and statement by the executive director for Indonesia: Washington, DC, International Monetary Fund Country Report no. 17/37, 82 p. (Accessed February 15, 2018, at <https://www.imf.org/~media/Files/Publications/CR/2017/cr1737.ashx>.)
- International Tin Association, 2016, PT Refined Bangka Tin announces end to tin operations: International Tin Association press release, February 23. (Accessed February 15, 2018, at <http://www.internationaltin.org/pt-refined-bangka-tin-announces-end-to-tin-operations/>.)
- Library of Congress [United States], 2017, Indonesia—Revision of mining regulation: Washington, DC, Library of Congress, January 24. (Accessed February 16, 2018, at <http://www.loc.gov/law/foreign-news/article/indonesia-revision-of-mining-regulation/>.)
- McRae, M.E., 2018, Nickel: U.S. Geological Survey Mineral Commodity Summaries 2018, p. 112–113.
- PricewaterhouseCoopers Inc., 2017, Mining in Indonesia—Investment and taxation guide (9th ed.): PricewaterhouseCoopers Inc. Indonesia, May, 132 p. (Accessed February 16, 2018, at <https://www.pwc.com/id/en/energy-utilities-mining/assets/mining/mining-guide-2017-web.pdf>.)
- PT Bumi Resources Tbk, 2017, A promising turning point—2016 report: PT Bumi Resources Tbk, 390 p. (Accessed February 16, 2018, at http://www.bumiresources.com/index.php?option=com_financialinfo&task=download&id=565&Itemid=52.)
- PT Pertamina, 2017, Annual report 2016—Embracing change, leveraging challenges: PT Pertamina, 706 p. (Accessed February 16, 2018, at <http://www.pertamina.com/media/fb6e8c5a-b144-473c-a230-955d8a780b3e/AR-2016-PERTAMINA.pdf>.)
- PT TIMAH (Persero) Tbk, 2017, Stronger in facing challenges for the nation's glory—2016 integrated report: PT TIMAH (Persero) Tbk, 696 p. (Accessed February 16, 2018, at <http://www.timah.com/v3/css/img/report/fileaFFB7702F3046B49586A66C617DC9599C.pdf>.)
- Sharma, D., 2016, Indonesia mulls revision to mining regulations to allow concs, nickel ore exports: Metal Bulletin, October 4. (Accessed February 16, 2018, at <https://www.metalbulletin.com/Article/3590827/Indonesia-mulls-revision-to-mining-regulations-to-allow-concs-nickel-ore-exports.html>.)
- Vale, S.A., 2017, Building tomorrow sustainably—2016 annual report: Jakarta, Indonesia, PT Vale Indonesia TDK, 458 p. (Accessed February 16, 2018, at <http://www.vale.com/indonesia/EN/investors/information-market-id/annual-reports/doc/AR%202016%20PT%20Vale%20Indonesia%20Tbk.pdf>.)

TABLE 1
INDONESIA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons, gross weight, unless otherwise specified)

Commodity ²	2012	2013	2014	2015	2016	
METALS						
Aluminum:						
Bauxite, wet basis	thousand metric tons	31,443	57,024 ^r	2,555	472 ^r	1,400 ^e
Alumina		--	--	--	70,000	600,000 ^e
Aluminum metal, primary		248,000	255,300	210,500	168,000 ^{f, e}	250,000 ^e
Chromite, mine production, sand, dry basis ^e		10,000	19,000	7,000	5,600	5,600
Cobalt, mine production, Co content ^{e, 3}		1,700	1,700	1,300	1,300	1,300
Copper:						
Mine production, concentrate, Cu content		398,200 ^r	509,000 ^r	376,000 ^r	577,300 ^r	715,600
Leaching, electrowon		--	--	1,400	1,200	11,800
Refinery production, primary		207,000 ^r	215,000 ^r	231,800	198,400	252,000
Smelter production, primary		207,000 ^r	215,000 ^r	232,000 ^r	197,100 ^r	252,000
Gold, mine production, Au content	kilograms	69,291	59,804	69,349 ^r	99,339 ^r	85,000 ^e
Iron and steel:						
Pig iron, including direct-reduced iron ^c	thousand metric tons	520	760	120	120	120
Raw steel	do.	2,254 ^r	2,644	4,428	4,854 ^r	4,900 ^e
Iron sand, dry basis:						
Gross weight	do.	11,546 ^r	22,353 ^r	5,951 ^r	3,839 ^r	3,900 ^e
Fe content	thousand metric tons	7,220 ^r	14,000 ^r	3,720 ^r	2,400 ^r	2,400 ^e
Lead, refinery production, secondary ^e		45,000	45,000 ^r	45,000 ^r	45,000 ^r	46,000

See footnotes at end of table.

TABLE 1—Continued
INDONESIA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons, gross weight, unless otherwise specified)

Commodity ²	2012	2013	2014	2015	2016
METALS—Continued					
Manganese: ^c					
Mine production:					
Gross weight	138,000	120,000	120,000	120,000	120,000
Mn content	39,500	38,000	38,000	38,000	38,000
Ferromanganese	13,000	12,000	12,000	12,000	12,000
Silicomanganese	9,000	8,000 ^r	8,000 ^r	8,000 ^r	8,000
Nickel:					
Mine production, Ni content, laterite ore ^c	648,000	834,000	177,000	130,000 ^r	130,000
Intermediate production, Ni content, matte	69,000 ^r	78,800 ^r	78,700	81,177	77,581
Ferronickel:					
Gross weight	91,500 ^e	91,000 ^e	82,600 ^e	85,700 ^e	89,900 ^e
Ni content	18,372 ^r	18,249 ^r	16,851 ^r	17,211 ^r	20,293
Silver, mine production, Ag content	247,827	123,000 ^{r,e}	119,189 ^r	151,934 ^r	167,000 ^e
Tin:					
Mine production, Sn content	49,300	45,800	70,000 ^r	52,195 ^r	52,000 ^e
Smelter production, primary	51,400	48,800	58,233	65,000 ^r	45,000 ^e
Titanium mineral concentrates, ilmenite and leucoxene	103,413 ^r	26,633 ^r	1,485 ^r	23,000 ^e	20,000 ^e
Zirconium mineral concentrates ^c	109,000 ^r	49,400 ^r	21,000 ^r	30,900 ^r	110,000
INDUSTRIAL MINERALS					
Cement, hydraulic	52,350 ^r	56,690 ^r	56,760 ^r	59,850 ^r	62,000 ^e
Clay and shale, bentonite ^c	7,000	6,000	6,000	6,000	6,000
Iodine	44	43	56	45	15
Nitrogen, N content, ammonia ^c	5,100	5,000	5,000	5,000	5,000
Salt	2,071,601 ^r	1,087,715 ^r	2,192,168 ^r	600,000 ^e	600,000 ^e
Stone, sand, and gravel:					
Silica, mine production, unspecified ^c	38,000	35,000	35,000	35,000	35,000
Stone, crushed, granite ^c	3,500	4,000	4,000	4,000	4,000
MINERAL FUELS AND RELATED MATERIALS					
Coal:					
Bituminous	80,000,802	91,671,000 ⁴	88,485,000 ⁴	73,177,000 ^e	74,000,000 ^e
Lignite	44,773,724	49,105,000 ⁴	47,399,000 ⁴	48,785,000 ^e	49,000,000 ^e
Metallurgical	97,787,580	108,530,200 ⁴	104,758,000 ⁴	89,439,000 ^e	90,000,000 ^e
Subbituminous	221,927,694	238,182,300 ⁴	229,906,000 ⁴	195,139,000 ^e	196,000,000 ^e
Total	444,489,800	487,488,500	470,548,000	203,270,000 ^e	204,000,000 ^e
Natural gas	84,000	83,500	84,700	83,500 ^e	81,500 ^e
Petroleum, crude, including condensate	314,666	301,199	289,100	287,948	306,443

^eEstimated. ^rRevised. do. Ditto. -- Zero.

¹Table includes data available through February 7, 2018. All data are reported unless otherwise noted. Estimated data are rounded to no more than three significant digits; may not add to totals shown.

²In addition to the commodities listed, dolomite, feldspar, gypsum, kaolin, lead mine production, limestone, marble, phosphate rock, quartz sand, sulfur, and zeolites may have been produced in Indonesia, but available information was inadequate to make reliable estimates of output.

³Data represent estimated recoverable cobalt only.

⁴Source: U.S. Energy Information Administration.

TABLE 2
INDONESIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2016

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Locations of main facilities	Annual capacity ^e
Aluminum:			
Bauxite	PT Aneka Tambang Tbk (Government, 65%)	Kijang, Bintan Island, Riau	1,300
Do.	do.	Kalimantan, Borneo	600
Chemical-grade alumina	Tayan CGA (PT Aneka Tambang Tbk, 80%, and Showa Denko K.K., 20%)	Mempawah, West Kalimantan	300
Metal	PT Indonesia Asahan Aluminium (Inalum) (Nippon Asahan Aluminum Co. Ltd., 59%, and Government, 41%)	Kual Tanjung, North Sumatra	250
Cement	PT Indocement Tunggak Prakarsa Tbk	Cirebon and Citeureup, West Java; and Tarjun, South Kalimantan	18,600
Do.	PT Lafarge Cement Indonesia	Besar, Aceh	1,400
Do.	do.	Lhok, Aceh	1,600
Do.	PT Semen Baturaja	Baturaja-Ogan Komering Ulu, South Sumatra	1,250
Do.	PT Semen Bosowa Maros	Kabupaten Maros, South Sulawesi	1,800
Do.	PT Holcim Tbk	Narogong, East Java	9,700
Do.	PT Semen Gresik Tbk	Gresik and Tuban, East Java	10,700
Do.	PT Semen Padang	West Sumatra	5,440
Do.	PT Semen Tonasa	Pangkep and Tonasa, South Sulawesi	6,000
Coal	PT Adaro Indonesia (New Hope Corp., 50%; PT Asminco Bara Utama, 40%; Mission Energy, 10%)	Paringin and Tutupan, South Kalimantan	35,000
Do.	PT Arutmin Indonesia (PT Bumi Resources Tbk, 80%, and Bakrie Group, 20%)	Mulia, Senakin, and Satui, South Kalimantan; and Asam-Asam, East Kalimantan	20,000
Do.	PT Berau Coal (PT United Tractor, 60%; PT Armadian, 30%; Nissho Iwai, 10%)	Berau, East Kalimantan	13,000
Do.	PT Bumi Resources Tbk—Kaltim Prima Coal Co. (PT Sitrade Coal, 32.4%; Bhira Investments Ltd., 30%; Sangatta Holding Ltd., 9.5%; Kalimantan Coal Ltd., 9.5%; Kutai Timur Sejahtera, 5%)	East Kutai Regency, East Kalimantan	55,000
Do.	PT Kideco Jaya Agung (Samtan Co. Ltd., 100%)	Pasir, East Kalimantan	12,000
Do.	PT Tambang Batubara Bukit Asam (state owned)	Tanjung Enim and Ombilin, South Sumatra	19,000
Do.	United Tractors	Central Kalimantan and East Kalimantan	6,500
Copper:			
Concentrate	PT Freeport Indonesia Co. (PT-FI) (Freeport-McMoRan Copper & Gold Inc., 90.64%, and Government, 9.36%)	Grasberg Mine, Papua	600
Do.	PT Newmont Nusa Tenggara (Nusa Tenggara Partnership B.V., 56%; PT Multi Daerah Bersaing, 24%; PT Pukuafu Indah, 17.8%; PT Indonesia Masbaga Investama, 2.2%)	Sumbawa Island, West Nusa Tenggara	300
Metal	PT Smelting Co. (Mitsubishi Materials Corp., 60.5%; PT Freeport Indonesia Co. (PT-FI), 25%; others, 14.5%)	Gresik, East Java	270
Gas:			
Coalbed methane	Ephindo Energy Pvt. Ltd. (PT Pertamina, 52%, and Dart Energy Ltd., 24%)	Sangatta, East Kalimantan	22,600
Natural	millon cubic meters per day ExxonMobil Oil Indonesia	Arun and Aceh, North Sumatra	48
Do.	do. Roy M. Huffington (HUFFCO Group)	Badak, East Kalimantan	28
Do.	do. Total Indonesia	Offshore East Kalimantan	59
Liquefied	PT Arun LNG Co. Ltd. (Government, 55%; Mobil Oil Co., 30%; Japan Indonesia LNG Co., 15%)	Balang Lancang and Aceh, North Sumatra	12,500
Do.	PT Badak LNG Co. Ltd. (Government, 55%; HUFFCO Group, 30%; Japan Indonesia LNG Co., 15%)	Bontang, East Kalimantan	22,500

See footnotes at end of table.

TABLE 2—Continued
INDONESIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2016

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Locations of main facilities	Annual capacity ^e
Gold, mine output		Bluenose Gold Corp., 80%, and Zinton Investments Ltd., 20%	Buduk Mine, East Kalimantan	NA
Do.	metric tons	G Resources Group Ltd., 95%	Martabe Mine, North Sumatra	8
Do.	do.	Indo Resources Pacific Inc., 75%	Woyla Mine, Aceh	1
Do.	do.	Kingrose Mining Ltd., 85%, and private Indonesian investors, 15%	Way Linggo Mine, Lampung	1
Do.	do.	Newcrest Mining Ltd., 75%, and PT Aneka Tambang Tbk, 25%	Gosowong Mine, North Maluku	14
Do.		Newcrest Mining Ltd., 85%, and PT Aneka Tambang Tbk, 15%	Toguraci Mine, Maluku	NA
Do.	metric tons	PT Freeport Indonesia Co. (PT-FI) (Freeport-McMoRan Copper & Gold Inc., 90.64%, and others, 9.36%)	Ertzberg and Grasberg, Papua	110
Do.	do.	Private Indonesian investors, 55%	Mirah Mine, Central Kalimantan	1
Do.		Private owner, 100%	Manado Mine, North Sulawesi	NA
Do.	metric tons	PT Aneka Tambang Tbk, 100%	Logam Mulia Refinery Jakarta Raya, Jakarta	60
Do.	do.	do.	Cibaliung Mine, Banten	1
Do.	do.	do.	Pongkor Mine, West Java	3
Do.		PT Newmont Nusa Tenggara (Newmont Mining Corp., 45%; Sumitomo Corp., 35%; PT Pukuafu Indah, 20%)	Sumbawa Island, West Nusa Tenggara	NA
Do.	metric tons	PT J Resource Asia Pasifik Tbk, 100%	Seruyung Mine, East Kalimantan	2
Do.	do.	PT J Resource Asia Pasifik Tbk, 80%	Bakan Mine, North Sulawesi	46
Do.	do.	PT Rajawali Corp., 100%	Toka Tindung Mine, North Sulawesi	5
Do.	do.	Straits Resources Ltd., 100%	Mt Muro Mine, Central Kalimantan	6
Do.		PT J Resource Asia Pasifik Tbk, 79.10%, and local interest, 0.90%	North Lanut Mine, North Sulawesi	NA
Nickel:				
Ferronickel	metric tons	PT Aneka Tambang Tbk (Government, 65%; domestic institutions 18.08%; domestic retail investors, 11.92%; foreign institutions, 4.92%; foreign retail investors, 0.08%)	Pomalaa, South Sulawesi	100
Do.		PT Vale Indonesia Tbk (Vale Canada Ltd., 58.73%; Sumitomo Metal Mining Co. Ltd., 20%; others 21.27%)	Sorowako, South Sulawesi	70
In matte		PT Aneka Tambang Tbk (Government, 65%; domestic institutions 18.08%; domestic retail investors, 11.92%; foreign institutions, 4.92%; foreign retail investors, 0.08%)	Pomalaa, South Sulawesi	24
Do.		do.	Sorowako, South Sulawesi	NA
Nickel-iron, ore		PT Yiwan Mining (China Nickel Resources Holdings Co. Ltd., 80%)	Mekarsari, West Java	3,000
Nitrogen		PT Asean-Aceh Fertilizer (Government, 60%, and other members of the Association of Southeast Asian Nations, 40%)	Lhokseumawe, North Sumatra	500
Do.		PT Pupuk Iskandar Muda (Government, 100%)	do.	500
Do.		PT Pupuk Kalimantan Timur (Government, 100%)	Bontang, East Kalimantan	1,850
Do.		PT Pupuk Kujang	Cikampek, West Java	330
Do.		PT Pupuk Sriwijawa (Government, 100%)	Palembang, South Sumatra	1,440
Petroleum:				
Crude	thousand 42-gallon barrels per day	BP Indonesia (BP p.l.c.)	Arjuna and Arimbi, offshore West Java	170
Do.	do.	China National Offshore Oil Co.	Offshore southeastern Sumatra	100
Do.	do.	Maxus Southeast Asia Ltd. (Maxus Energy)	Cinta and Rama, offshore southeastern Sumatra	95
Do.	do.	Mobil Cepu Ltd., 45%; Ampolex Cepu PTE Ltd., 45%; Cepu Block Cooperation Body, 10%	Cepu Block, Central Java and East Java	165

See footnotes at end of table.

TABLE 2—Continued
INDONESIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2016

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Locations of main facilities	Annual capacity ^e
Petroleum:—Continued				
Crude— Continued	thousand 42-gallon barrels per day	PT Pertamina (Government, 100%)	Jatibarang, West Java, and Bunyu, offshore East Kalimantan	80
Do.	do.	PT Caltex Pacific Indonesia (Texaco Inc., 50%, and Chevron Corp., 50%)	Minas, Duri, and Bangko, central Sumatra	700
Do	do.	Total Indonesia (Total S.A.)	Handi and Bakapai onshore and offshore East Kalimantan	180
Refined	do.	PT Pertamina (Government, 100%)	6 locations	1,000
Silver	metric tons	PT Aneka Tambang Tbk (Government, 65%)	Bogor, West Java	25
Do.	do.	PT Freeport Indonesia Co. (PT-FI) (Freeport-McMoRan Copper & Gold Inc., 90.64%, and Government, 9.36%)	Ertsberg and Grasberg, Papua	220
Do.	do.	PT Kelian Equatorial Mining (Rio Tinto Group, 90%, and PT Harita Jaya Raya, 10%)	180 kilometers west of Samarinda	10
Steel, raw		PT Ispat Indo	Sidoarjo, Surabaya	700
Do.		PT Krakatau Steel (Government, 100%)	Cilegon, West Java	2,400
Do.		PT Wahana Garuda Lestari	Pulogadung, Jakarta	410
Tin:				
In ore		PT Koba Tin (Malaysia Smelting Corp., 75%, and PT Tambang Timah Tbk, 25%)	Koba, Bangka Island	25
Do.		PT Tambang Timah Tbk (Government, 65%)	Onshore and offshore islands of Bangka, Belitung, and Singkep	60
Metal		Mentok Tin Smelter (PT Tambang Timah Tbk)	Mentok, Bangka Island, South Sumatra	68
Do.		Koba Tin Smelter (PT Koba Tin)	Koba, Bangka Island, South Sumatra	25

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