



2013 Minerals Yearbook

INDONESIA [ADVANCE RELEASE]

THE MINERAL INDUSTRY OF INDONESIA

By Susan Wacaster

In 2013, Indonesia accounted for 38% of the crude petroleum produced by the leading petroleum producing countries of southeast Asia, along with Malaysia (28%), Thailand (20%), and Vietnam (14%). Among the region's leading natural-gas-producing countries, Indonesia and Malaysia each accounted for 31% of the total, followed by Thailand (19%), Bangladesh (10%), Brunei (5%), and Vietnam (4%). Indonesia's production of both commodities, however, was decreasing in recent years owing to aging wells and a lack of exploration for and discovery of new resources. Most of the country's gas and oil deposits are located along the eastern coast of Sumatra and in and around Kalimantan. Indonesia is also rich in reserves of copper, gold, and nickel. In 2013, the country was ranked among the world's 5 leading producers of mined copper and mined nickel and among the world's top 10 producers of gold. In addition, the country has mineral resources such as bauxite, coal, nickel, silver, and tin. Indonesia's major mineral resources of bauxite are found on Bintan Island. Coal is primarily in Kalimantan and Sumatra; copper and nickel in Jawa Timur, Kalimantan, Maluku, Nusa Tenggara, Papua, and Sulawesi; and tin in Bangka and Belitung. Diamonds and rubies are also found in Indonesia. Much of Indonesia's territory with more than 17,500 islands has not been intensively explored for minerals (BP p.l.c., 2014; Ministry of Industry, 2014, p. 8).

Minerals in the National Economy

In 2013, Indonesia's economy was the 16th largest in the world and the largest in the Association of Southeast Asian Nations. As global economic growth decreased in 2013 and global prices for Indonesia's mineral commodities also continued to decrease, the country's economic growth was primarily in the industrial sector unrelated to manufacturing and production of gas and oil. Owing to domestic consumption and investment from both domestic and foreign sources, Indonesia's real gross domestic product (GDP) rate of growth was 6.1% in 2013 (5.8% excluding gas and oil activities) compared with 6.2% in 2012. Total industrial output including gas and oil activities accounted for 39.9% of the GDP in 2013. The value of mining and quarrying activities accounted for 11.2% of the GDP in 2013 compared with 11.8% in 2012. The mining sector was the second leading sector in terms of domestic investment, receiving \$1.8 billion and the leading sector in terms of foreign direct investment (FDI), receiving \$4.8 billion (which accounted for 14.7% of FDI in 2013) (Asian Development Bank, 2014; Ministry of Industry, 2014, p. 5, 31, 56).

Government Policies and Programs

In 2009, Indonesia's Parliament passed a new Mining Law [law No. 4 of 2009 on Mineral and Coal Mining (law No. 4)]. Prior to the passage of law No. 4, foreign-owned companies seeking to conduct mining activities in Indonesia signed

production sharing contracts directly with the Government. The Contract of Work (COW) system was replaced with a two-stage permitting process [Izin Usaha Pertambangan (IUP) or permit to carry on mining business] that includes the issuance of an Exploration IUP and an Exploitation IUP. Contracts of Work that remained in effect were supposed to be adjusted to comply with the requirements of the new mining law. Among the requirements was a prohibition of the export of unprocessed minerals, which would be implemented gradually and placed into full effect in January 2014, and a requirement for mining companies to process and refine their products in Indonesia. Also, foreign shareholders in companies with an Exploitation IUP were required to divest shares within 10 years from the start of commercial production in order to achieve majority Indonesian ownership. In 2012, the Government established a team to evaluate the adjustment of COWs and coal contracts of work (CCOW) required by the 2009 law. In addition, the evaluation team was to enforce COW and CCOW holders' obligations regarding processing and refining of minerals and coal (Surowidjojo, 2012; Scott and Tan, 2014).

Regulation No. 7 of 2012 on increasing the added value of minerals through processing and refining was passed on February 6, 2012 with the aim of developing the country's domestic mineral processing industry and deriving more revenue from its mineral sector. Value-added minerals affected by the regulation included metals, nonmetallic minerals, coal, and stone. The regulation sets out minimum levels of processing that the minerals must be subjected to prior to export and prohibits the export of minerals in raw form. The ban on unprocessed mineral exports was to be imposed gradually, beginning in May 2012 with full implementation in 2014. The regulation provides for cooperation among the holders of mining permits and other parties with respect to the sale and purchase of ores or concentrates, activities to undertake processing and (or) refining, and the joint development of processing and (or) refining facilities or infrastructure (Surowidjojo, 2012).

The regulation to restrict ore exports went into effect on May 1, 2012, beginning with bauxite and certain other unprocessed metal ores, and set out the minimum levels of processing to which minerals had to be subjected prior to export. On May 6, 2012, in order to discourage massive exports of raw minerals before the export ban came into full force, the Government also imposed a 20% duty on exports of 14 mineral ores that were not yet subject to the export ban, including copper, gold, and nickel. Tin ore exports were banned in 2010, and PT Timah had built smelters and exported refined tin. Later in the year, the list was extended to include 21 other mineral commodities. In total, 65 specific types of mineral ores and concentrates, not including coal, were subject to the duty. The duty was designed to increase revenues from the mining sector and was part of the Government's effort to push mining

companies to process raw ore domestically and export higher value finished metals (Scott and Tan, 2014).

In late 2013, however, few mining companies in Indonesia had complied with the requirement to incorporate processing plants into their operations. Owing to the importance of the mining sector to the country's economy, the Federal Government appealed to the Parliament to amend the mining law in order to extend the date for compliance with the processing requirement, but the appeal was denied, and the Government implemented a two-tier solution through the creation of new regulations. Government Regulation No. 1 of 2014, which addresses the value added through domestic processing and refining (GR1/2014), decreased the purity threshold for many minerals (excluding bauxite, chromium, gold, nickel, silver, and tin for which smelting capacity existed) for 3 years to allow the continued export of partially processed minerals. Commodities for which the purity level was decreased included copper, ilmenite, lead, manganese, titanium, and zinc. Under GR1/2014, the purity requirement for copper was reduced to 15% from 99%; ilmenite to 56% from 98%; lead to 57% from 99.82%; manganese to 49% from various previous purity requirements; titanium to between 56% and 58% from 98%; and zinc to 52% from 90% (Scott and Tan, 2014).

According to the second regulation, Ministry of Finance Regulation No. 6 of 2014 (MoFR 6/2014), which addresses the determination of export goods that are subject to export duty and the export duty tariff, partially processed minerals are subject to an export duty during the 3-year period of reduced purity thresholds at a progressive rate starting at 25% (for copper concentrates) and 20% for other specified concentrates and increasing to 60% after the 3-year period. Both GR1/2014 and MoFR 6/2014 apply to all mining companies regardless of whether the company holds a COW or an IUP. It was unclear, however, what would happen when the terms of any still active COWs were in conflict with new regulations, and there were other inconsistencies that needed to be clarified regarding the compromises brought into effect through GR1/2014 and MoFR 6/2014. Also, the Ministry of Trade (MOT) and the Ministry of Energy and Mineral Resources (ESDM) announced an export regime on February 3, 2014, requiring all mineral exporters to be registered at the MOT and to undergo preshipment verification that the exporter has met the level of purity for processed minerals (Scott and Tan, 2014).

Production

The value of the mining sector decreased in 2013, but production of some metals and bulk commodities increased compared with that of 2012. Large variations in the production of mined metals in 2012 and 2013 were primarily a reaction to uncertainty in terms of Indonesia's recent processing and trade regulations. In 2013, production of bauxite increased by 77%; production of mined copper increased by 28%; and the output of smelted and refined copper increased by 9.7% and 8.7%, respectively. The output of gold and silver—both byproducts of copper mining—decreased, however, by 11.5% and an estimated 20%, respectively. The decrease in gold and silver production was related to lower grade ores from the Grasberg Mine. Production of pig iron and crude steel increased by 44.5%

and 17.3%, respectively, as a result of increased demand from Indonesia's industrial sector to support domestic growth. In 2013, the nickel content of mine production increased by 28.7%, that of nickel matte was estimated to have increased by 28.6%, and that of ferronickel increased by 23.9%. The tin content of mine output and the tonnage of tin metal production decreased by an estimated 7.1% and a reported 5.1%, respectively. Production of cobalt was estimated to have increased by 30.6% (table 1).

Structure of the Mineral Industry

State-owned PT Antam Tbk (Antam) produced bauxite, gold, nickel, and silver. Other state-owned companies—PT Krakatau Steel, PT Pertamina, PT Tambang Batubara Bukit Asam, and PT Tambang Timah Tbk—were engaged in the production of steel, oil, coal, and tin, respectively. Privately owned PT Indocement Tunggul Prakarsa Tbk was the leading cement producer in the country. International companies were active in Indonesia's metals-mining and -processing industries. Partially foreign-owned PT Freeport Indonesia Co. and PT Newmont Nusa Tenggara were engaged in the mining of copper and gold. PT Vale Indonesia Tbk produced nickel ore and matte, and PT Koba Tin produced tin ore and tin metal (table 2).

Mineral Trade

In 2013, Indonesia's total exports were valued at \$182.5 billion compared with \$190.0 billion in 2012. The major export partners were, in descending order of export value, China, Japan, the United States, India, Singapore, Malaysia, and the Republic of Korea, which was the same as in 2012. The value of exported mineral commodities included \$24.4 million worth of coal; \$15.7 million of natural gas (of which about \$10.6 million was liquefied natural gas); \$12.2 million of crude petroleum; \$3.0 million of copper ore, \$1.7 million of nickel ore (of an unreported purity); and \$1.4 million of bauxite (Bank of Indonesia, 2015a; Ministry of Industry, 2014, p. 58).

Commodity Review

Metals

Bauxite and Alumina.—Indonesia accounted for almost 12% of global bauxite production in 2013 and was China's leading supplier of the bulk commodity. The value of Indonesia's bauxite exports increased by 107% in 2013 compared with that of 2012, and monthly totals increased throughout the year leading up to the implementation of the export ban (Bank of Indonesia, 2015a). China imported about 71 million metric tons of bauxite in 2013, which was an increase of almost 80% compared with 2012, and Indonesia accounted for about 65% of the supply (Russell, 2014; Bray, 2015).

Copper.—The value of Indonesia's copper ore exports decreased by 16% in 2013 compared with that of 2012, but the tonnage increased by 31.2%. At yearend 2013, Freeport McMoRan Copper and Gold Inc., which operated the Grasberg Mine, was still in negotiations with the Government of Indonesia regarding implementation of the mineral ore ban. The company reported that it stood to suffer a \$5 billion loss

of revenue in 2014, which would account for 65% of its total revenue in Indonesia, if subjected to the ban on the export of unprocessed minerals. Freeport processed 40% of its ore from the Grasberg Mine at one Indonesian smelter, but stated that mining output would have to be reduced if there were no compromise with the Government. In August, Freeport signed two memoranda of understanding with Indonesian companies planning to build smelters to process the ore, but neither had begun construction and neither was expected to be completed before 2017 (Jensen, 2013; Bank of Indonesia, 2015b).

Tin.—Indonesia was the world's leading exporter of tin. The country exported 98,817 metric tons (t) of tin in 2012 and although tin exports were expected to decrease in 2013, 55,011 t of tin was exported in the first half of 2013, which was an increase of 16% compared with the same period in 2012. An estimated 14 tin smelters in Indonesia halted production after tin prices fell in August. While other smelters were still operating, they decreased their output by between 20% and 40%. PT Timah Tbk was the country's leading producer of tin but lost market share to private smelters that purchased most of the small-scale mine output. The increase in exports in the first half of 2013 was attributable to the easing of purity restrictions, which was expected to allow smelters to increase production for the year by as much as 33% (Rusmana and Listiyorini, 2012, 2013).

Mineral Fuels

Natural Gas and Petroleum.—Most natural gas and crude petroleum exploration and production has taken place in western Indonesia. The main oil producing regions include the Java Sea, East Kalimantan, and Sumatra. Of Indonesia's 60 sedimentary basins, 14 are in production. Another 39 Tertiary and Pre-Tertiary basins have been identified as having strong potential for hydrocarbon resources. As production from Indonesia's aging production facilities waned, the Indonesian Petroleum Association (IPA) estimated that exploration activity would need to be increased by at least three times its current rate in order to meet the country's projected energy demand in 2025. One of the key recommendations for the gas and oil industry as outlined by the IPA of Indonesia was that the country increase its exploration activity and that it do so in deep offshore locations of eastern Indonesia, but the group also noted that to do so would require large investments for exploration work in logistically challenging areas. The gas and oil sector has been the major contributor to state revenue since the 1970s. The emphasis, however, has been on increasing oil production at the expense of exploration. In 2013, Indonesia's reserve replacement ratio for crude petroleum was 47% and that for gas was 90%. Average daily oil production in 2013 was about half the country's peak production of 1.65 million barrels per day in 1977. Spending on exploration and production could, however, decrease if global prices for gas and oil remain low as some projects will no longer be viable (Asmarini, 2014; Indonesian Petroleum Association, 2014, p. 7; Mahfoedz, 2014).

Outlook

The outlook for Indonesia's mineral industry was characterized by a high level of uncertainty at the end of 2013.

Government regulations focusing on value-added mineral products, new purity requirements for exported minerals, the requirement for divestment of foreign investment, decreasing global prices for mineral commodities, and the lack of a definition regarding COWs are all factors that could influence investment in the country's mining sector. The Government is expected to encourage investment in new oil and gas exploration to stem the decline in production and to satisfy domestic demand. Indonesia has large quantities of globally important nonfuel mineral resources, but the outlook for investment in those resources is questionable given the current regulatory environment and owing to uncertainties regarding the outlook for external demand and potential shifts in sources of supply.

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TABLE 1
INDONESIA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity		2009	2010	2011	2012	2013
METALS						
Aluminum:						
Bauxite, wet basis, gross weight	thousand metric tons	14,720 ^r	27,410 ^r	40,644 ^r	31,443 ^r	55,655
Metal, primary		257,600	253,300	244,100	248,000	255,300
Chromite sand, dry basis ^e		1,000	1,000	1,000	1,200	1,200
Cobalt, mine, Co content ^e		1,200	1,600	3,200 ^r	3,600 ^r	4,700
Copper:						
Mine, Cu content		998,530	878,376	535,000 ^r	394,000 ^r	504,000
Metal:						
Smelter, primary		310,200 ^r	262,700 ^{r,e}	276,200	198,400 ^r	217,700
Refinery, primary		287,127 ^r	278,892 ^{r,e}	276,000 ^r	197,200 ^r	214,300
Gold, mine output, Au content	kilograms	140,488	119,726 ^{r,e}	68,220 ^r	69,291 ^r	61,357
Iron and steel:						
Iron sand, dry basis	thousand metric tons	4,561 ^r	8,976 ^{r,e}	11,815 ^r	11,546 ^r	11,500 ^e
Metal:						
Ferroalloys:						
Ferronickel		12,550 ^r	18,688 ^{r,e}	19,690 ^r	18,372 ^r	18,249
Ferromanganese ^e		12,000	12,000 ^{r,e}	12,000	13,000	12,000
Silicomanganese ^e		7,000	8,000 ^{r,e}	8,000	9,000	8,000
Pig iron, direct-reduced iron	thousand metric tons	1,119 ^r	1,274 ^{r,e}	1,228 ^r	524 ^r	757
Steel, crude	do.	3,501 ^r	3,664 ^{r,e}	3,621 ^r	2,254 ^r	2,644
Steel, semimanufactured ^e	do.	5,000	4,900 ^{r,e}	5,100	5,000	5,000
Manganese:						
Ore and concentrate, gross weight		253,600	207,400 ^{r,e}	119,100	138,000	120,000 ^e
Mn content		88,800	72,600 ^{r,e}	41,700	39,500	38,000 ^e
Nickel:						
Mine output, Ni content		202,800	300,800 ^{r,e}	564,400 ^r	648,400 ^r	834,200
Matte, Ni content		69,000 ^r	78,400 ^{r,e}	67,800 ^r	69,000 ^r	78,800
Ferronickel, Ni content		12,550	18,688 ^{r,e}	19,700	18,400 ^r	22,800
Silver, mine output, Ag content	kilograms	359,451	335,040 ^{r,e}	227,173 ^r	250,000 ^{r,e}	200,000 ^e
Tin:						
Mine output, Sn content		53,228 ^r	46,078 ^r	43,258	49,300 ^r	45,800
Metal ³		53,471 ^r	51,418 ^r	43,832	51,400 ^{r,e}	48,800
Titanium mineral concentrates, ilmenite, gross weight ^c		9,000	60,000	18,000	20,000	20,000
Zirconium concentrates, gross weight ^e		63,000	50,000	130,000	120,000	100,000
INDUSTRIAL MINERALS						
Cement, hydraulic	thousand metric tons	36,910	37,800 ^r	52,000 ^r	60,600	65,000 ^e
Clays: ^e						
Bentonite		6,000	6,500	6,500	7,000	6,000
Fire clay	thousand metric tons	2,200	2,200	2,300	2,300	2,100
Kaolin powder		186,010 ²	170,000	175,000	180,000	175,000
Diamond: ^e						
Industrial	thousand carats	28	30	30	31	30
Gem	do.	7	7	7	7	7
Total	do.	35	37	37	38	37
Feldspar ^e		10,730 ²	20,000	18,000	19,000	18,000
Gypsum ^e		8,133 ²	7,000	7,500	8,000	7,000
Nitrogen, N content of ammonia ^c	thousand metric tons	4,600	4,800	5,000	5,100	5,000
Phosphate rock ^e		600	600	600	800	700
Salt, all types ^e	thousand metric tons	585 ²	600	650	700	650
Stone: ^e						
Dolomite		1,885 ²	2,500	2,400	2,600	2,500

See footnotes at end of table.

TABLE 1—Continued
INDONESIA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity	2009	2010	2011 ^e	2012	2013
INDUSTRIAL MINERALS—Continued					
Granite thousand metric tons	4,500	2,172 ^{r,2}	3,317 ^{r,2}	3,500 ^r	4,000
Limestone do.	1,912 ²	1,900	2,000	2,000	2,000
Marble do.	7,489 ²	8,000	7,800	8,000	8,000
Quartz sand and silica stone	32,105 ²	36,000	37,000	38,000	38,000
Sulfur, elemental ^e	473 ²	500	520	540	500
Zeolite ^e	1,530 ²	1,400	1,500	1,600	1,500
MINERAL FUELS AND RELATED MATERIALS					
Coal: thousand metric tons	228,807 ^r	325,326 ^r	415,765 ^r	466,307 ^r	443,000
Gas, natural: million cubic meters	71,900 ^r	82,000 ^r	75,900 ^r	71,100 ^r	70,400
Petroleum, crude including condensate thousand 42-gallon barrels	346,300 ^r	344,888 ^r	329,249 ^r	314,666 ^r	302,079

^eEstimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. ^rRevised. do. Ditto.

¹Table includes data available through March 9, 2015.

²Reported figure.

³Output by Central Government-controlled foreign contractor operations. Output from small tin smelters is not available but may be as much as 40,000 t/yr

TABLE 2
INDONESIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2013

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Locations of main facilities	Annual capacity ^c	
Aluminum:				
Bauxite	PT Antam Tbk (Government, 65%)	Kijang, Bintan Island, Riau	1,300	
Metal	PT Indonesia Asahan Aluminium (Nippon Asahan Aluminium Co. Ltd., 59%, and Government, 41%)	Kual Tanjung, North Sumatra	250	
Cement	PT Indocement Tungal Prakarsa Tbk	Cirebon and Citeureup, West Java; Tarjun, South Kalimantan	18,600	
Do.	PT Semen Andalas Indonesia (Lafarge S.A., 99%)	Besar, Aceh	1,400	
Do.	do.	Lhok, Aceh	1,600	
Do.	PT Semen Baturaja	Baturaja-Ogan Komerling Ulu, South Sumatra	1,250	
Do.	PT Semen Bosowa Maros	Kabupaten Maros, Sulawesi Selatan	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 Kaltim Prima Coal Co. (PT Bumi Resources Tbk, 100%)	East Kutai Regency, East Kalimantan	36,000	
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. (Freeport-McMoRan Copper & Gold Inc., 81.28%; Government, 9.36%; others, 9.36%)	Ertsberg and Grasberg, Papua	800	
Do.	PT Newmont Nusa Tenggara (Newmont Mining Corp., 45%; Sumitomo Corp., 35%; PT Pukuafu Indah, 20%)	Sumbawa Island, West Nusa Tenggara	300	
Metal	PT Smelting Co. (Mitsubishi Materials Corp., 60.5%; PT Freeport Indonesia Co., 25%; others, 14.5%)	Gresik, East Java	270	
Gas:				
Natural	million cubic meters per day	ExxonMobil Oil Indonesia	Arun and Aceh, North Sumatra	48
Do.	do.	Roy M. Huffington (subsidiary of 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 amd 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
Coalbed methane		Ephindo Energy Pvt. Ltd. (PT Pertamina, 52%, and Dart Energy Ltd., 24%)	Sangatta, Muara Enim, and Tanjung Enim, East Kalimantan	22,600
Gold	metric tons	Aurora Gold Ltd., 100%	Balikpapan, Central Kalimantan	60
Do.	do.	Archipelago Resources plc, 95%	Tok Tindung, North Sulawesi	5
Do.	do.	G-Resources Group Ltd.	Martabe, North Sumatra	8
Do.	do.	PT Antam Tbk (Government, 65%)	Bogor, West Java	3
Do.	do.	PT Freeport Indonesia Co. (Freeport-McMoRan Copper & Gold Inc., 81.28%; Government, 9.36%; others, 9.36%)	Ertsberg and Grasberg, Papua	110
Do.	do.	PT Indo Muro Kencana (Straits Resources Ltd., 100%)	Balikpapan, Central Kalimantan	4
Do.	do.	PT Newmont Nusa Tenggara (Newmont Mining Corp., 45%; Sumitomo Corp., 35%; PT Pukuafu Indah, 20%)	Sumbawa Island, West Nusa Tenggara	16

See footnotes at end of table.

TABLE 2—Continued
 INDONESIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2013

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Locations of main facilities	Annual capacity ^e
Gold—Continued	metric tons	PT Nusa Halmahera (PT Aneka Tambang Tbk, 17.5%, and PT Newcrest Mining Ltd., 82.5%)	Halmahera Island, Maluku	24
Do.	do.	PT Prima Lirang Mining (Billiton BV, 90%, and PT Prima Maluku Indah, 10%)	Lerokis, Wetar Island	3
Do.	do.	Sumatra Copper & Gold plc	Tembang, West Sumatra	NA
Nickel:				
Ferronickel	metric tons	PT Antam Tbk (Government, 65%)	Pomalaa, South Sulawesi	100
In ore		do.	Pomalaa, South Sulawesi, and on Gebe Island	80
Do.		PT Vale Indonesia Tbk (Vale Canada Ltd., 59%; Sumitomo Metal Mining Co. Ltd., 20%; others, 21%)	Soroako, South Sulawesi	70
In matte		PT Antam Tbk (Government, 65%)	Pomalaa, South Sulawesi	24
Do.		PT Vale Indonesia Tbk (Vale Canada Ltd., 59%; Sumitomo Metal Mining Co. Ltd., 20%; others, 21%)	Soroako, South Sulawesi	68
Nickel-iron, ore		PT Yiwang 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	506
Do.		PT Pupuk Iskandar Muda (Government, 100%)	do.	506
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 barrels per day	BP Indonesia (a subsidiary of 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. (subsidiary of Maxus Energy)	Cinta and Rama, offshore southeast Sumatra	95
Do.	do.	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 (subsidiary of Total S.A.)	Handi and Bakapai onshore and offshore East Kalimantan	180
Refined	do.	PT Pertamina (Government, 100%)	6 locations	1,047
Silver	metric tons	PT Antam Tbk (Government, 65%)	Bogor, West Java	25
Do.	do.	PT Freeport Indonesia Co. (Freeport-McMoRan Copper & Gold Inc., 81.28%; Government, 9.36%; others, 9.36%)	Ertzberg 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, crude		PT Ispat Indo	Sidoarjo, Surabaya	700
Do.		PT Krakatau Steel (Government, 100%)	Cilegon, West Java	2,400
Do.		PT Komatsu Indonesia Tbk	Jakarta	8
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.