



2012 Minerals Yearbook

INDONESIA

THE MINERAL INDUSTRY OF INDONESIA

By Chin S. Kuo

Indonesia is rich in reserves of copper and gold. In addition, the country has abundant mineral resources, such as coal, natural gas, nickel, tin, and, in smaller amounts, bauxite, petroleum, and silver. Indonesia's tin output was ranked second in the world after China (Carlin, 2013). The country was ranked among the world's 5 leading producers of copper and nickel and among the world's top 10 producers of gold and natural gas. Indonesia was one of the world's leading exporters of bituminous coal, liquefied natural gas (LNG), and refined tin (Ministry of Industry, 2013, p. 9).

Minerals in the National Economy

Indonesia's real gross domestic product (GDP) growth was 6.2% in 2012. The country's industrial output accounted for 23.9% of its total GDP. The value of mineral commodity production accounted for 11.8% of the GDP. The country's mineral industry—primarily the cement, metal mining, and oil and gas industries—contributed mostly to domestic industrial production. The industrial sector grew by 5.7% in 2012. The fertilizer industry and the mining and quarrying industries grew by 10.3% and 1.5%, respectively, during the year. The cement and iron and steel industries increased by 7.9% and 6.5%, respectively, whereas the oil and gas industry registered negative growth of 2.7% (Ministry of Industry, 2013, p. 9, 50–51).

Government Policies and Programs

In 2012, the Government established a team to evaluate the adjustment of contracts of work (COW) and coal contracts of work (CCOW), as required by the 2009 Law on Mineral and Coal Mining. In addition, the evaluation team was to determine the Government's position on mining work areas and Government revenue and to enforce COW and CCOW holders' obligations regarding processing and refining of minerals and coal. Funding of the team would come from the Ministry of Energy and Mineral Resources (Surowidjojo, 2012a).

Regulation No. 7 of 2012 on increasing the added value of minerals through processing and refining was passed on February 6, 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 include metals, nonmetallic minerals, coal, and stone. The regulation sets out the minimum levels of processing that the minerals must be subjected to prior to export and prohibits the export of unprocessed minerals (minerals in raw form). This 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, to activities to undertake processing and (or) refining, and to the joint

development of processing and (or) refining facilities or infrastructure (Surowidjojo, 2012b).

The regulation to restrict ore exports went into effect on May 1, 2012, beginning with bauxite and certain other unprocessed metal ores. Tin ore exports had been banned in 2010, and PT Timah had built smelters and exported refined tin. It was estimated that the export ban that began in May could result in a 75% decrease in the exports of bauxite and nickel ore (together) for the year (Yieh Corp., 2012).

On May 6, the Government also imposed a 20% duty on 14 mineral ore exports that were not yet subject to the export ban, including copper, gold, and nickel. Later in the year, the list was extended to include 21 other mineral commodities. In total, 65 specific types of mineral ores and concentrates were subject to the duty. The export duty does not apply to coal. The duty is designed to increase revenues from the mining sector and is part of the Government's effort to push mining companies to process raw ore domestically and export higher-value finished metals (Mining Weekly, 2012).

Under additional new rules that went into effect in 2012, the Government requires foreign companies to reduce their stakes in mines by the 10th year of production so that domestic ownership is at least 51%. The move is part of a global trend toward increased resource nationalization but is likely to hinder new investments in mining (Thafer and Chatterjee, 2012). Meanwhile, the Government was renegotiating existing contracts with Freeport McMoRan Copper & Gold Inc. and Newmont Mining Corp., both of the United States. Freeport McMoRan owned 90.64% of the joint venture that operated the Grasberg copper and gold mine and the Government owned 9.36%; the company agreed to divest a 9.36% interest to a potential acquirer, such as the Province of Papua. Rio Tinto plc of the United Kingdom was expected to retain the rights to 40% of production from the Grasberg Mine from 2021. Newmont Mining had already divested some of its interest in PT Newmont Nusa Tenggara in 2009 and owned only a minority stake in 2012. Newcrest Mining Ltd. of Australia, which owned an 82.5% stake in the Gosowong Mine [state-owned PT Antam Tbk (Antam) owned 17.5%], would not be affected until its existing COW runs out in 2029. Kingsrose Mining Ltd. of Australia under its existing COW was supposed to start selling down its 85% stake in PT Natarang Mining to 49% beginning in 2012. Intrepid Mines Ltd., also of Australia, which had a mining concession for the Tujuh Bukit copper-gold-silver mine in East Java Province, might also be affected (Australia's Paydirt, 2012a).

Production

In 2012, production of bauxite decreased by an estimated 27.5% owing to Government's restriction on bauxite exports, which led to a cutback in output. Production of mined copper decreased by 33.7% owing to the lower grade of the ore mined

at Grasberg. As a result, the output of smelted copper also decreased by 27.6% compared with that of 2011. The output of gold and silver—both byproducts of copper mining—decreased by 38.8% and 19.5%, respectively. Because of strong domestic demand (fueled in part by the Government's support for housing and infrastructure development), production of cement increased by 13.3%. Output of phosphate rock was estimated to have increased by 33% after several years of steady production owing to increasing demand for phosphorus fertilizers (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 Tungal 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 International Nickel Indonesia Tbk produced nickel ore and matte, and PT Koba Tin produced tin ore and tin metal (table 2).

Mineral Trade

In 2012, Indonesia's total exports were valued at \$190.0 billion; mineral commodity exports included minerals and metals (bauxite, copper, nickel, and tin) and mineral fuels (coal, LNG, natural gas, and petroleum). The major export partners were, in descending order of export value, China, Japan, the United States, India, Singapore, Malaysia, and the Republic of Korea. Total imports were valued at \$191.7 billion, and mineral commodity imports included crude petroleum, iron and steel, and petroleum products. The major import partners were, in descending order of the value of the imports received, China, Japan, the United States, Singapore, Thailand, the Republic of Korea, and Malaysia (Ministry of Industry, 2013, p. 9, 54–55).

Commodity Review

Metals

Bauxite and Alumina.—Indonesia was the sixth-ranked bauxite producing country in the world. Outotec Oyj of Finland agreed with Antam to carry out a feasibility study for a smelter-grade alumina refinery to be built in North Sumatra Province. The feasibility study would include comprehensive mineralogical investigations, laboratory-scale hydrometallurgical tests, and basic engineering of the alumina refinery using Outotec® alumina refining technologies. The country had an aluminum smelter in North Sumatra Province that imported alumina from Australia (Outotec Oyj, 2012).

The Government awarded mineral export permits to 22 companies, including two permits for bauxite producers. Bauxite ore was exported principally to China and Japan.

Indonesian exports accounted for 49% of global bauxite exports in 2011. The export restrictions on unprocessed minerals that Indonesia imposed in 2012 caused Japan to consider taking action against Indonesia through the World Trade Organization. China reduced its domestic alumina and aluminum production capacities in June and might increase its bauxite imports from Australia (Syrett, 2012).

Copper.—PT Emas Mineral Murni's Beutong copper project is located in Aceh Province, 180 kilometers (km) southeast of Banda Aceh. The tenement covered an area of 100 square kilometers and was held under an exploration license. Tigers Realm Minerals Pty. Ltd. held a 40% equity interest in the project and had an agreement with Emas Mineral Murni to earn up to 80% equity interest, depending on the results of exploration. The project was a large porphyry copper (with gold and molybdenum) deposit; skarn-hosted copper-gold mineralization was located approximately 300 meters (m) north of the porphyry system. Tigers Realm completed 4,150 m of drilling focused on infill and extension of the higher grade central core of the porphyry deposit and on defining and expanding the skarn-hosted high-grade copper-gold mineralization. The goal of the exploration program was to develop a resource of 100 million metric tons (Mt). A feasibility study and open pit mining were planned pending development of the resource (Tigers Realm Group, 2012).

Gold and Silver.—G-Resources Group Ltd. of Hong Kong revised its schedule for first commercial production of gold at its Martabe mining project in North Sumatra Province to July 2012. Initial ore mining began at the Purnama pit, and the project was about 80% complete by mid-February. The mine had a resource of 245 metric tons (t) (7.86 million troy ounces) and 2,290 t (73.48 million troy ounces) of contained gold and silver, respectively. Production in 2012 called for 7.8 metric tons per year (t/yr) (250,000 troy ounces per year) of gold and 60 to 90 t/yr (2 million to 3 million troy ounces per year) of silver (G-Resources Group Ltd., 2012).

Straits Resources Ltd. controlled and operated the Mt. Muro gold mine west of Balikpapan, Central Kalimantan Province, through its 100%-owned subsidiary PT Indo Muro Kencana. The company upgraded the mine's resource by 56% and extended the mine life to 6 years. The mine was operated under a third-generation COW, which covered 47,940 hectares (ha). Production at Mt. Muro was expected to ramp up to targeted output of 3.11 t (100,000 troy ounces) of gold equivalent in 2012 (Straits Resources Ltd., 2012).

PT Agis Resources signed an agreement to acquire a 60% stake in a gold mining company in West Sumatra Province. The gold mining company held a mining license on a 2,500-ha area. Agis Resources was a joint venture between PT Agis (51%) and Fujian Xinjifu Enterprises Group Co. Ltd. of China (49%). PT China Coal Geology Mining would be the contractor for gold exploration and exploitation (Jakarta Post, The, 2012).

Sumatra Copper and Gold plc of Australia brought a relatively small-scale Tembang brownfield gold mining project in West Sumatra Province into production. The project included two small open pits and an underground mine, and the company planned to keep construction and mining costs as low as possible. The expected life of the operation was relatively short,

but might be extended as additional exploration in and around the mining area was underway. The Tembang vein system was an intermediate-sulfidation epithermal gold mineralization with gold- and silver-bearing quartz veins hosted by Tertiary volcanics. Proven and probable reserves were estimated to contain 12.5 t (403,000 troy ounces) of gold and 171 t (5.5 million troy ounces) of silver (Mineweb.com, 2012).

Robust Resources Ltd. finished a scoping study of its Lakuwahi polymetallic project on Romang Island in 2012. After completing more than 150 drill holes at the Bata Hitam, Batu Jagung, and Batu Mas prospects, a resource of 36.7 t (1.18 million troy ounces) gold equivalent was estimated. In terms of precious and base metals, there were 18.4 t (592,000 troy ounces) of gold, 862 t (27.7 million troy ounces) of silver, 43,100 t of copper, 316,000 t of lead, and 308,000 t of zinc. The oxide ore would be for heap leaching, and production of gold and silver was slated for 2014. More drilling would require \$15 million from the company's funds (Australia's Paydirt, 2012b).

Tin.—An estimated 14 tin smelters in Indonesia halted production after tin prices fell in August. Although other smelters were still operating, they scaled back their output by between 20% and 40%. PT Timah was the country's leading producer of tin but lost market share to the private smelters, which purchased most of the small-scale mine output. PT Koba's COW was due to expire in March 2013, and all operations were expected to be suspended pending the outcome of an application for a 10-year extension. Indonesia was the world's leading exporter of tin, accounting for 40% of global exports. Tin was used in electronics and packaging (Rusmana and Listiyorini, 2012).

Industrial Minerals

Cement.—State-owned PT Semen Gresik Tbk completed the new \$304 million Tuban IV cement plant in East Java Province with a production capacity of 2.5 million metric tons per year (Mt/yr) in May. The main equipment was the vertical cement mill, which had the capacity to produce 500 metric tons per hour. The company's total production capacity at Tuban would be increased to 22.5 Mt/yr from 20 Mt/yr in 2011. With the start of operations at the Tonasa V cement plant in South Sulawesi Province in the second quarter of 2012, the company's production capacity at Tunasa increased to 25 Mt/yr by yearend. The company planned to build two new cement plants with a capacity of 3 Mt/yr each in 2013—one at Padang, West Sumatra Province, and the other at Rembang, Central Java Province—for a cost of \$756 million. The company also planned to change its name to Semen Indonesia to raise its international image (PT Semen Gresik Tbk, 2012).

PT Indocement Tunggal Prakasa planned to build a \$500 million cement plant with a production capacity of 3 Mt/yr in the Regency of Pati, Central Java Province. The process of licensing the plant was expected to be completed in 2012, followed by construction work. The plant was expected to be operational in 2015 (Global Cement News, 2012).

Anhui Conch Cement of China planned to begin construction of a \$400 million cement plant at Tanjung, South Kalimantan Province, in 2012. The plant planned to produce 2.5 Mt/yr of

cement for domestic use. The plant included a cement-grinding line, a port, a 60-megawatt-capacity powerplant, and other supporting infrastructure. The company was waiting for the completion of the land acquisition process and an operation license (Aggregate Research, 2012).

PT Holcim Indonesia Tbk planned to increase its cement production capacity by 1.7 Mt/yr in 2014 when its new \$450 million Tuban cement plant in East Java Province is completed. The company's grinding capacity in 2012 was 8.2 Mt/yr. The plant would serve Java and the inter-island cement market. Coal for the kiln would be sourced from the island of Kalimantan. The company secured a loan of \$150 million from BNP Paribas and KWF IPEX-Bank of Germany (International Cement Research, 2012b).

PT Semen Bosowa Maros had a cement plant at Maros in South Sulawesi Province that underwent a phase 2 expansion to reach a capacity of 3.75 Mt/yr. The project involved an investment of \$326 million and was scheduled for completion in 2014. The company also planned to construct cement plants at Rembang in Central Java Province and at Banyuwangi in East Java Province and planned to have in place a total capacity of 11 Mt/yr in 2015 (International Cement Research, 2012a).

Mineral Fuels

Coal.—PT Adaro Energy Tbk reported the estimated coal resources of its subsidiary PT Mustika Indah Permai (MIP)'s property at Lahat in South Sumatra Province to be 286.4 Mt, of which 272.6 Mt was the estimated coal reserves. At a production level of 10 Mt/yr, the coal reserves were sufficient to sustain a mine life of 26 years. The concession area contained three main coal seams and two minor coal seams. The seams were suitable for extraction by open pit mining. Coal production was expected to begin in the second half of 2012. Mining and hauling contractor PT Saptaindra Sejati would be used to mine and transport coal. Adaro Energy owned a 75% equity interest in MIP, which was acquired from Elite Rich Investment Ltd. of Hong Kong for \$222.5 million. The MIP production license was granted in April 2010 for a period of 20 years and was extendable up to two times. The coal was relatively low in sulfur and low in ash, and would be marketed to China, India, Indonesia, the Philippines, Taiwan, Thailand, and Vietnam (PT Adaro Energy Tbk, 2012).

Realm Resources Ltd. of Australia reported a 29% increase in the coal resources of its Katingan Ria project, which is located northwest of Palangkarya in Central Kalimantan Province, to 102.2 Mt. The concession area covered about 4,250 ha. A feasibility study was undertaken to develop the project by the opencut mining method. The project was permitted to allow mining operations to begin in June 2011. The company also completed its phase 2 exploration drilling program (42 holes for 2,844 m). Realm Resources held a 51% interest in Katingan Ria and had an option to increase its ownership to 75% (Realm Resources Ltd., 2012).

Padang Resources Ltd. of Australia planned to acquire a 70% interest in Paser Pte. Ltd. of Singapore, which, in turn, planned to acquire a 100% joint-venture interest with

PT Gunung Mentari Mining in a coal project at Petangis, Batu Engau District, East Kalimantan Province. The project covered an area of 43 ha, and Padang Resources was in the process of doing reconnaissance and drilling work to validate the economic viability of the project. The company received a due diligence report on the permit holder, who had obtained a mining license for the production, transport, and sales of coal (Boston.com, 2012).

Yinfu Gold Corp. of the United States agreed to acquire a 51% interest in Hitric Resources Pte. Ltd. of Singapore, which owned an 80% interest in a coal mine in Tanah Bumbu, South Kalimantan Province. The exploration license covered 1,116 ha and was upgraded into a production license with an expected period of 15 years. Production was scheduled to start in March 2013 with an initial output of 150,000 t/yr of bituminous coal and was expected to double to 300,000 t/yr in the second year of production (GlobeNewswire, 2012).

Borneo Resource Investments Ltd. began producing bituminous coal from its PT Integra Prima Coal concession in East Kalimantan Province, which covered an area of 1,300 ha and had an estimated reserve of 8 Mt of coal. Analysis of the coal showed a high thermal value of 7,400 British thermal units per metric ton and low ash and sulfur content. The company negotiated a 1-year supply contract with an India-based buyer to provide 50,000 metric tons per month of coal (Yahoo! Finance, 2012).

United Tractors (a unit of Astra International of Indonesia), which was Indonesia's leading heavy equipment distributor, was considering the acquisition of two coal mines in East Kalimantan Province and Central Kalimantan Province, respectively, with funds from its \$700 million rights issuance in 2011. The mines would increase the company's coal production capacity to 6.5 Mt/yr from 4.5 Mt/yr in 2011. Coal mining was the company's new business division and contributed 10% of the company's revenue in 2011 (Jakarta Globe, The, 2012).

Cokal Ltd. of Australia, which was a global metallurgical coal group, completed an initial report for the Bumi Barito Mineral (BBM) coal project in Central Kalimantan Province on using barges on the Barito River as the primary transportation mode for coal. The report included options to increase the tonnage per trip and the number of operating days for barging operations. The company reported an inferred resource of 60 Mt of metallurgical coal from the BBM project and continued to define further coal resources (Cokal Ltd., 2012b). Cokal also acquired a 75.2% interest in PT Silangkop Nusa Raya, which held three exploration licenses (about 13,000 ha) in West Kalimantan Province. Local Indonesian partners held the remaining equity interest. Analysis of surface samples of coal from surrounding areas showed good coking coal properties. Initial mapping and preliminary geologic work were expected in the second half of 2012 (Cokal Ltd., 2012a).

Indonesia and Joint Stock Company Russian Railways planned to build a \$2.4 billion rail line in East Kalimantan Province that would be used initially to transport coal and was expected to be operational in the first quarter of 2017. The Russian company did not plan to invest directly in the project but would work on its technical and economic feasibility

studies. Construction of the rail line was to begin in 2013. The first phase of the project would cost \$1.7 billion and would include 185 km of rail line to carry 20 Mt/yr of coal. The line would begin in Balikpapan Port and run through Kutai Barat Regency to the border of Central Kalimantan Province in Murung Raya Regency; an extension of 60 km would be added in the second phase. Funding would come from the private sector and the Russian state development bank Vnesheconombank. Indonesia's bituminous coal was exported mostly to China and India in 2012 (Reuters, 2012).

Natural Gas.— PT Pertamina and state-owned electricity utility Perusahaan Listrik Negara (PLN) might delay their joint development of eight mini-LNG receiving terminals and powerplants because Pertamina had not yet managed to secure the LNG to feed the regasification plants. The eight mini-regasification plants would have a combined capacity of 1 Mt/yr of LNG and had been expected to come into operation during the period from 2012 to 2014. The facilities were intended to supply gas to PLN-operated powerplants at 10 sites (Petroleum Economist, 2012).

Petroleum.— Pertamina awarded a contract to Foster Wheeler AG of Switzerland for management of an upgrade of its 348,000-barrel-per-day (bbl/d) Cilacap oil refinery on Java Island. The project included construction of a 62,000-bbl/d residual fluid catalytic cracking complex, a liquefied petroleum gas (LPG) Merox unit, and propylene recovery and gasoline hydrotreating units. The upgrade would increase production of LPG by 350,000 t/yr and produce 140,000 t/yr of propylene (Oil & Gas Journal, 2012).

Outlook

The new Government regulations that focus on value-added mineral products and ban exports of unprocessed minerals are expected to stimulate domestic and foreign investments in downstream mineral extraction industries. Antam's alumina refinery project is an example of following the regulation on value-added products in the years to come. For the near future, production of tin is expected to decrease because of the continued depressed tin prices. The cement industry is in the process of expanding capacity and is expected to add about 13 Mt/yr in the next 2 to 3 years. The Government is expected to encourage investment in new oil and gas exploration to stem the decline in production.

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TABLE 1
INDONESIA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

| Commodity | | 2008 | 2009 | 2010 ^c | 2011 ^c | 2012 ^c |
|---|----------------------|---------------------|----------------------|------------------------|------------------------|----------------------|
| METALS | | | | | | |
| Aluminum: | | | | | | |
| Bauxite, wet basis, gross weight ^e | thousand metric tons | 17,000 | 15,000 | 27,000 | 40,000 | 29,000 |
| Metal, primary | | 242,500 | 257,600 | 253,300 ² | 244,100 ² | 248,000 ² |
| Chromite sand, dry basis ^e | | 1,000 | 1,000 | 1,000 | 1,000 | 1,200 |
| Cobalt, mine, Co content ^e | | 1,300 | 1,200 | 1,600 | 1,200 ^r | 1,300 |
| Copper: | | | | | | |
| Mine, Cu content | | 632,600 | 998,530 | 878,376 ² | 542,700 ² | 360,000 |
| Metal: | | | | | | |
| Smelter, primary | | 253,300 | 295,900 | 276,800 ² | 276,200 ² | 200,000 |
| Refinery, primary | | 254,000 | 289,200 | 278,200 ² | 257,000 ² | 272,000 |
| Gold, mine output, Au content ³ | kilograms | 64,390 | 140,488 | 106,316 ² | 96,100 ² | 58,800 ² |
| Iron and steel: | | | | | | |
| Iron sand, dry basis ^e | | 65,000 | 44,552 ² | 45,610 ² | 46,000 | 48,000 |
| Metal: | | | | | | |
| Ferroalloys: | | | | | | |
| Ferronickel | | 87,800 | 62,700 | 93,300 ² | 98,200 ^r | 100,000 |
| Ferromanganese ^e | | 12,000 | 12,000 | 12,000 | 12,000 | 13,000 |
| Silicomanganese ^e | | 7,000 | 7,000 | 8,000 | 8,000 | 9,000 |
| Pig iron, direct-reduced iron | thousand metric tons | 1,290 | 1,230 | 1,360 ² | 1,200 ^r | 1,300 |
| Steel, crude ^e | do. | 3,915 ² | 3,500 | 3,700 | 3,600 ^r | 3,700 |
| Steel, semimanufactured ^e | do. | 5,200 | 5,000 | 4,900 | 5,100 | 5,000 |
| Manganese: | | | | | | |
| Ore and concentrate, gross weight ² | | 183,000 | 253,600 | 207,400 | 119,100 | 138,000 |
| Mn content | | 64,100 | 88,800 | 72,600 | 41,700 | 39,500 ² |
| Nickel: | | | | | | |
| Mine output, Ni content ^{2, 4} | | 219,300 | 202,800 | 235,800 | 218,200 | 228,000 |
| Matte, Ni content | | 73,356 | 68,228 | 77,186 ² | 67,800 ^{r, 2} | 70,000 |
| Ferronickel, Ni content | | 17,566 | 12,550 | 18,688 ² | 19,700 ² | 20,000 |
| Silver, mine output, Ag content | kilograms | 226,051 | 359,451 | 271,534 ² | 310,400 ² | 250,000 |
| Tin: | | | | | | |
| Mine output, Sn content | | 53,228 | 46,078 | 43,258 ² | 42,000 | 41,000 |
| Metal ⁵ | | 53,471 | 51,418 | 43,832 ² | 43,000 | 42,000 |
| Titanium mineral concentrates, ilmenite, gross weight | | 9,000 | 9,000 | 60,000 | 18,000 | 20,000 |
| Zirconium concentrates, gross weight ^e | | 65,000 | 63,000 | 50,000 | 130,000 | 120,000 |
| INDUSTRIAL MINERALS | | | | | | |
| Cement, hydraulic | thousand metric tons | 38,530 ^r | 36,910 ^r | 39,500 ^{r, 2} | 45,000 ^{r, 2} | 51,000 ² |
| Clays: ^e | | | | | | |
| Bentonite | | 6,000 | 6,000 | 6,500 | 6,500 | 7,000 |
| Fire clay | thousand metric tons | 2,100 | 2,200 | 2,200 | 2,300 | 2,300 |
| Kaolin powder | | 150,000 | 186,010 ² | 170,000 | 175,000 | 180,000 |
| Diamond: ^e | | | | | | |
| Industrial | thousand carats | 28 | 28 | 30 | 30 | 31 |
| Gem | do. | 7 | 7 | 7 | 7 | 7 |
| Total | do. | 35 | 35 | 37 | 37 | 38 |
| Feldspar ^e | | 26,000 | 10,730 ² | 20,000 | 18,000 | 19,000 |
| Gypsum ^e | | 6,000 | 8,133 ² | 7,000 | 7,500 | 8,000 |
| Nitrogen, N content of ammonia ^e | thousand metric tons | 4,500 | 4,600 | 4,800 | 5,000 | 5,100 |
| Phosphate rock ^e | | 600 | 600 | 600 | 600 | 800 |
| Salt, all types ^e | thousand metric tons | 700 | 585 ² | 600 | 650 | 700 |

See footnotes at end of table.

TABLE 1—Continued
INDONESIA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

| Commodity | 2008 | 2009 | 2010 ^e | 2011 ^e | 2012 ^e |
|---------------------------------------|---------------------|---------------------|----------------------|-------------------|-------------------|
| INDUSTRIAL MINERALS—Continued | | | | | |
| Stone: ^c | | | | | |
| Dolomite | 3,300 | 1,885 ² | 2,500 | 2,400 | 2,600 |
| Granite | 4,400 | 4,500 | 4,600 | 4,700 | 4,800 |
| Limestone | 1,800 | 1,912 ² | 1,900 | 2,000 | 2,000 |
| Marble | 7,000 | 7,489 ² | 8,000 | 7,800 | 8,000 |
| Quartz sand and silica stone | 38,000 | 32,105 ² | 36,000 | 37,000 | 38,000 |
| Sulfur, elemental ^c | 500 | 473 ² | 500 | 520 | 540 |
| Zeolite ^c | 1,400 | 1,530 ² | 1,400 | 1,500 | 1,600 |
| MINERAL FUELS AND RELATED MATERIALS | | | | | |
| Coal: | | | | | |
| Anthracite ^c | 54,000 | 34,348 ² | 118,988 ² | 110,000 | 100,000 |
| Bituminous | 188,717 | 196,209 | 137,801 ² | 150,000 | 140,000 |
| Gas, natural: | | | | | |
| Gross | 81,842 | 73,587 | 77,741 ² | 80,000 | 79,000 |
| Marketed ^c | 78,985 ² | 70,000 | 75,000 | 76,000 | 74,000 |
| Petroleum, crude including condensate | 311,000 | 346,000 | 341,000 ² | 340,000 | 342,000 |

^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 September 11, 2013.

²Reported figure.

³Includes Au content of copper ore and output by Government-controlled foreign contractor operations. Gold output by operators of so-called people's mines and illegal small-scale mines is not available but may be as much as 20 metric tons per year (t/yr).

⁴Includes a small amount of cobalt that was not recovered separately.

⁵Output by Central Government-controlled foreign contractor operations. Tin 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 2012

(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 Tunggul 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 Komering 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 |

See footnotes at end of table.

TABLE 2—Continued
 INDONESIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2012

(Thousand metric tons unless otherwise specified)

| Commodity | | Major operating companies and major equity owners | Locations of main facilities | Annual capacity ^e |
|------------------|------------------------------|--|---|------------------------------|
| 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 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 |
| Coalbed methane | | Ephindo Energy Pvt. Ltd. (PT Pertamina, 52%; Dart Energy Ltd., 24%) | Sangatta, 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-Resurces 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 |
| Do. | do. | 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 Yiwon 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 |

See footnotes at end of table.

TABLE 2—Continued
 INDONESIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2012

(Thousand metric tons unless otherwise specified)

| Commodity | | Major operating companies and major equity owners | Locations of main facilities | Annual capacity ^c |
|-------------------|--------------------------|---|---|------------------------------|
| 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 | | PT Antam Tbk (Government, 65%) | Bogor, West Java | 25 |
| Do. | | PT Freeport Indonesia Co. (Freeport-McMoRan Copper & Gold Inc., 81.28%; Government, 9.36%; others, 9.36%) | Ertsberg and Grasberg, Papua | 220 |
| 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 |

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