



2012 Minerals Yearbook

INDONESIA [ADVANCE RELEASE]

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, activities to undertake processing and (or) refining, and 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 were 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 (Thaher 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 (Syritt, 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; a 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. While 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 capacity would reach 22.5 Mt/yr from 20 Mt/yr in 2011 from Tuban. With the operation of the Tonasa V cement plant in South Sulawesi Province in the second quarter of 2012, the company's capacity increased to 25 Mt/yr at yearend from Tonasa. 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 Tungal 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 open cut 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 Government's regulation focusing on value-added mineral products and banning 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.

References Cited

- Aggregate Research, 2012, Anhui Conch plans US\$400m plant for South Kalimantan: Aggregate Research, March 19. (Accessed March 21, 2012, at <http://www.aggreatresearch.com/article.aspx?id=24720>.)
- Australia's Paydirt, 2012a, Australian miners play down Indonesia law impact: Australia's Paydirt, April, v. 1, issue 193, p. 92.
- Australia's Paydirt, 2012b, Robust's maiden monkey off its back: Australia's Paydirt, February, v. 1, issue 191, p. 8.
- Boston.com, 2012, Padang Resources Ltd.'s acquisition of Paser Resources Pte. Ltd.: Boston.com, April 16. (Accessed May 8, 2013, at <http://finance.boston.com/boston/news/read?guid=21084168>.)
- Carlin, J.F. Jr., 2013, Tin: U.S. Geological Survey Mineral Commodity Summaries 2013, p. 170–171.
- Cokal Ltd., 2012a, Cokal expands met coal potential into West Kalimantan: Brisbane, Australia, Cokal Ltd. media release, April 26, 3 p.
- Cokal Ltd., 2012b, Results of barge scoping study for metallurgical coal project in Central Kalimantan, Indonesia: Brisbane, Queensland, Australia, Cokal Ltd. media release, February 16, 2 p.

- Global Cement News, 2012, New Java plant for Indocement: Global Cement News, January 31. (Accessed February 13, 2012, at http://www.globalcement.com/news/itemlist/tag/gcw34?utm_source=newsletter&utm_medium=email&utm_campaign=gcw34.)
- GlobeNewswire, 2012, Yinfu Gold Corp. acquires interest in Kalimantan coal mine: GlobeNewswire, November 1. (Accessed November 7, 2012, at <http://www.globenewswire.com/news-release/2012/11/01/501697/10010701/en>.)
- G-Resources Group Ltd., 2012, G-Resources updates schedule for Martabe project: Hong Kong, China, G-Resources Group Ltd. media release, February 22, 2 p.
- International Cement Research, 2012a, Bosowa's eastern initiatives: International Cement Research, June, p. 32.
- International Cement Research, 2012b, Holcim improves Java operations: International Cement Research, June, p. 30.
- Jakarta Globe, The, 2012, United Tractors considers coal deals: The Jakarta Globe, April 20. (Accessed April 23, 2012, at <http://www.thejakartaglobe.com/business/united-tractors-considers-coal-deals/512866>.)
- Jakarta Post, The, 2012, Electronic retailer Agis to acquire gold miner: The Jakarta Post, December 18, p. 13.
- Mineweb.com, 2012, New Sumatra low cost gold project eyes peers Way Linggo and Martabe: Mineweb.com, April 25. (Accessed April 26, 2012, at <http://www.mineweb.com/mineweb/view/mineweb/en/page103118?oid=150140&sn=detail&pid=72730>.)
- Mining Weekly, 2012, Indonesia to impose 20% tax on raw metal exports: Mining Weekly, May 3. (Accessed May 4, 2012, at <http://www.miningweekly.com/print-version/indonesia-to-impose-20-tax-on-raw-metal-exports-2012-05-03>.)
- Ministry of Industry, 2013, Industry facts and figures: Jakarta, Indonesia, Ministry of Industry, June, 65 p.
- Oil & Gas Journal, 2012, Contract let for Cilacap refinery upgrade: Oil & Gas Journal, March 27. (Accessed April 16, 2012, at <http://www.ogj.com/articles/2012/03/contract-let-for-cilacap-refinery-upgrade.html?cmpid=EnlRefiningApril162012>.)
- Outotec Oyj, 2012, Outotec to conduct feasibility study for the first alumina refinery to be built in Indonesia: Espoo, Finland, Outotec Oyj press release, March 8, 1 p.
- Petroleum Economist, 2012, News in brief: Petroleum Economist, v. 79, no. 4, May, p. 49.
- PT Adaro Energy Tbk, 2012, Adaro Energy completes JORC report for Mustika Indah Permai coal reserves: Jakarta, Indonesia, PT Adaro Energy Tbk news release, March 22, 5 p.
- PT Semen Gresik Tbk, 2012, SMGR's new cement plant of Tuban IV operates: PT Semen Gresik Tbk, April 9. (Accessed August 2, 2012, at <http://www.semengresik.com/eng/post/SMGRe28099S>.)
- Realm Resources Ltd., 2012, Flagship coal project increases resources by 29%: Sydney, New South Wales, Australia, Realm Resources Ltd. media release, March 19, 4 p.
- Reuters, 2012, Indonesia, Russian firm plan \$2.4 billion rail line: ThomsonReuters, February 7. (Accessed February 9, 2012, at <http://www.reuters.com/article/2012/02/07/indonesia-infrastructure-russia-idUSL4E8D72R520120207>.)
- Rusmana, Yoga, and Listiyorini, Eko, 2012, Indonesian tin smelters halt output amid bear market rout: Bloomberg Businessweek, August 7. (Accessed August 13, 2012, at <http://www.businessweek.com/printer/articles/302258?type=bloomberg>.)
- Straits Resources Ltd., 2012, Operations—Mt Muro gold mine: Straits Resources Ltd. (Accessed May 6, 2013, at <http://www.straits.com.au/operations/mt-muro-gold.html>.)
- Surowidjojo, Lubis, 2012a, Establishment of an evaluation team for contract of work and coal contract of work adjustments: Legal500.com, February. (Accessed March 8, 2012, at <http://www.legal500.com/c/indonesia/developments/17230>.)
- Surowidjojo, Lubis, 2012b, Minister of Energy and Mineral Resources implementing regulation on domestic mineral processing: Legal500.com, February. (Accessed March 8, 2012, at <http://www.legal500.com/c/indonesia/developments/17561>.)
- Syritt, Laura, 2012, Indonesia issues additional bauxite mining permits: Industrial Minerals, July 3, 1 p.
- Thaher, Reza, and Chatterjee, Neil, 2012, Indonesia rattles foreign miners with '51% after 10 years' ownership change: Mineweb.com, March 7. (Accessed March 8, 2012, at <http://www.mineweb.com/mineweb/view/mineweb/en/page72068?oid=146885&sn=detail&pid=110649>.)
- Tigers Realm Group, 2012, The Beutong copper project: Tigers Realm Group. (Accessed October 11, 2012, at <http://www.tigersrealmgroup.com/beutong-copper-project.php>.)
- Yahoo! Finance, 2012, Borneo Resource Investments Ltd. commences surface coal harvesting at its PT Integra Prima Coal concession: Yahoo! Finance, June 28. (Accessed June 29, 2012, at <http://finance.yahoo.com/news/borneo-investments-ltd-commences-surface-130000772.html>.)
- Yieh Corp., 2012, Indonesia bans bauxite exports: Yieh Corp. Market News, May 3. (Accessed May 4, 2012, at <http://www.yieh.com/2.2.01.01stainlesssteelnews.aspx?no=57277&division=A7>.)

TABLE 1
INDONESIA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity	2008	2009	2010 ^e	2011 ^e	2012 ^e	
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: ^e					
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 ^e	1,400	1,530 ²	1,400	1,500	1,600
MINERAL FUELS AND RELATED MATERIALS					
Coal:					
Anthracite ^e	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. ^fRevised. 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 ^e
Aluminum:			
Bauxite	PT Antam Tbk (Government, 65%)	Kijang, Bintan Island, Riau	1,300
Metal	PT Indonesia Asahan Aluminum (Nippon Asahan Aluminum 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		PT Antam Tbk (Government, 65%)	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.