



2014 Minerals Yearbook

MALAYSIA [ADVANCE RELEASE]

THE MINERAL INDUSTRY OF MALAYSIA

By Lin Shi

In 2014, Malaysia's real gross domestic product (GDP) increased by 6.0% compared with an increase of 4.7% in 2013 and an increase of 5.6% in 2012. An increase in domestic demand and growth in the country's exports contributed to economic growth. The output of the mining and quarrying sector increased by 3.1% in 2014 compared with increases of 0.7% (revised) in 2013 and 1.0% (revised) in 2012. The rate of growth in the manufacturing sector increased by 6.2% in 2014 compared with increases of 3.5% (revised) in 2013 and 4.8% in 2012. The rate of growth in the construction sector increased by 11.6% in 2014 compared with increases of 10.9% in 2013 and 18.6% in 2012 (Bank Negara Malaysia, 2015, p. 14).

Minerals in the National Economy

Malaysia has historically been a major source of tin. Most of the high-grade tin reserves in the country have been depleted, however, or were under developed lands. Malaysia had tin-associated mineral resources, such as ilmenite, monazite, struverite [a niobium (columbium) and tantalum-bearing mineral], and zircon. Malaysia also had identified mineral resources of barite, bauxite, clays, coal, copper, gold, iron ore, limestone, natural gas, petroleum, silica, and silver. After many years of exploitation, however, such minerals as barite, copper, and ilmenite were depleted. During the 20th century, mineral production played an important role in Malaysia's national economy. In 2014, the mining and quarrying activity accounted for 7.9% of the country's real GDP (Bank Negara Malaysia, 2015, p. 17).

Government Policies and Programs

In Malaysia, mineral sector activity is governed by the Mineral Development Act 1994 and the State Mineral Enactment. The Mineral Development Act 1994 defines the power of the Federal Government to regulate and inspect mineral exploration, mining, and related activities. The State Mineral Enactment gives the States the power to issue mineral prospecting and exploration licenses and mining leases. Apart from paying a corporate tax to the Federal Government, mine and quarry operators are required to pay value-based royalties to the State in which their operation is located. Royalty rates depend on the mineral commodity and on the assessment of each of the individual States (Malaysianminerals.com, 2016).

In June 2010, Malaysia issued the Tenth Malaysia Plan, which included the Government Transformation Programme and the New Economic Model, aimed at improving the country's economy, inclusiveness, and sustainability, and providing the plan for the country's development for the next 5 years. The Government Transformation Programme is in line with the national mission of achieving Vision 2020, which was introduced in 1991 and was intended to transform Malaysia into a developed country. Among its stated goals were increases

in the efficiency of public services and improvement of Government accountability. The New Economic Model was issued by the National Economic Advisory Council and last updated in 2012; it was aimed at transforming the country's economy into one that was market-based, regionally integrated, entrepreneurial, and innovative (Economic Planning Unit, 2015a: 2015b, p. 13, 98–99; 2015c; Wawasan2020.com, 2015a, b).

Production

The levels of production of most of the country's mineral commodities stayed about the same in 2014 as in 2013. The mineral commodities that had significant increases in production were bauxite, which increased by 1,461%; pig iron, by 72%; and clays, by 11%. Production decreased for several mineral commodities in 2014. Among the most significant decreases were ilmenite (gross weight), by 49%; iron ore (gross weight), by 21%; and iron ore (Fe content), by 13% (table 1).

Structure of the Mineral Industry

Metallic and nonmetallic mineral-processing facilities were operated by private companies incorporated in Malaysia. The state-owned Petroliaam Nasional Berhad (Petronas), together with its subsidiaries, operated as an integrated oil and gas company in Malaysia and internationally. Petronas engaged in the exploration, development, production (liquefaction, manufacturing, and refining), transportation, and sale (trading and marketing) of crude oil and natural gas products (liquefied natural gas [LNG] and petroleum). It also owned and operated a network of retail stations (table 2; Bloomberg, 2015).

Mineral Trade

In 2014, Malaysia's total trade increased by 5.9% to \$482.9 billion from \$456.3 billion in 2013. Total exports increased by 6.4% to \$255.3 billion from \$239.9 billion in 2013 and total imports increased by 5.3% to \$227.8 billion from \$216.4 billion in 2013. Malaysia had a trade surplus in 2014. Exports of mineral fuels, mainly LNG, accounted for 22% of total exports, and exports of chemicals accounted for 7% of total exports. Imports of mineral fuels accounted for 17% of total imports, and imports of chemicals accounted for 10% of total imports. According to the National Trade Promotion Agency of Malaysia, the country's major trading partners in 2014 were Australia, the Association of Southeast Asian Nations (whose member countries were Brunei, Cambodia, Indonesia, Laos, Myanmar [also known as Burma], the Philippines, Singapore, Thailand, and Vietnam), China (including Hong Kong), Japan, the Republic of Korea, European Union member countries, and the United States. In 2014, there was steady demand for Malaysia's mineral commodities, such as bauxite and LNG, and increased demand for Malaysia's manufactured products, in particular electrical and electronic products. Japan and the

United States were Malaysia's key export markets, and in 2014, emerging markets, such as Kenya, Mexico, and other countries in Africa, Central Asia, and South Asia, increased their demand for Malaysia's commodities. The value of Malaysia's exports to the United States totaled \$30,420 million, and the value of goods imported from the United States totaled \$13,068 million, with about a 50% surplus in trade in 2014 (National Trade Promotion Agency of Malaysia, The, 2015; U.S. Census Bureau, 2015).

Commodity Review

Metals

Aluminum and Bauxite and Alumina.—According to the Malaysian Chamber of Mines, bauxite was produced in Malaysia from a mine located in the State of Johore. Production of bauxite in 2014 was estimated to be 3.26 million metric tons (Mt) compared with 208,770 metric tons (t) in 2013 and 121,873 t in 2012. All the production was exported to the other Asian countries. Malaysia's remaining bauxite reserves were small, but bauxite resources were recently discovered in the States of Sabah and Sarawak. In 2014, Malaysia exported about 3.7 Mt of bauxite and imported 11,184 t of bauxite compared with exports of 17,422 t (revised) and imports of 5,221 t in 2013. Because Indonesia banned exports of bauxite (and some other mineral commodities and materials) early in the year, Malaysia became an important bauxite supplier to China. Demand for Malaysian bauxite in international markets was expected to continue to increase. Press Metal Sarawak Sdn Bhd (a subsidiary of Press Metal Berhad) operated aluminum smelters at Mukah and at Similajau in the State of Sarawak. Press Metal expected to have the capacity to produce 890,000 metric ton per year (t/yr) of aluminum, including 121,000 t/yr of billet, in place by 2016 (China Metal Bulletin, 2014; Aluminum Market Outlook, 2015, p. 2–14; Clean Malaysia, 2015; Home, 2015; Malaysianminerals.com, 2015b; Monthly Statistical Bulletin, 2015; Moran, 2015).

Copper.—In 2014, Malaysia had no reported output of copper concentrates and did not produce refined copper products. The country imported copper from India, the Republic of Korea, and Russia to meet its demand. A drilling campaign conducted in the 1980s identified the Mengapur polymetallic deposit located in Pahang State and estimated 224 Mt of reserves at an average grade of about 0.6% copper equivalent with a cutoff grade of about 0.3% copper equivalent. Monument Mining Ltd. of Canada, through its Malaysian subsidiary Monument Mengapur Sdn Bhd (MMSB), acquired a 100% interest in the Mengapur Mine in 2012. The company conducted a resource survey and an evaluation study of the mine in 2013 and continued a preliminary economic assessment in 2014 to maximize the economic value of the project. The Mengapur polymetallic project is located in the State of Pahang approximately 130 kilometers (km) southeast of Monument's wholly owned Selinsing gold mine and 75 km northwest of the Malaysian port city of Kuantan (Monthly Statistical Bulletin, 2015; Monument Mining Ltd., 2015a).

Gold.—Malaysia's operating gold mines were located in the States of Kelantan, Pahang, and Terengganu. More than

90% of mined gold was from the State of Pahang, which was the location of metal refining facilities for Avocet Mining plc United Kingdom's gold mine at Penjom, Monument's Selinsing gold mine at Bukit Selinsing Koyan, and Raub Australian Gold Mining Sdn Bhd's gold mine at Raub. Malaysia produced about 4,000 kilograms (kg) of gold in 2014, which was an increase of about 5% from the 3,800 kg (revised) produced in 2013, and a decrease of about 13% from the 4,600 kg produced in 2012. The Selinsing gold mine was a leading gold producer in the country and reported to produce 1,119 kg (35,983 troy ounces) in fiscal year 2014 (ending June 30) compared with 1,648 kg (52,982 troy ounces) in fiscal year 2013 and 1,387 kg (44,585 troy ounces) in fiscal year 2012. Monument Mining's processing plant processed more than 1 Mt of ore at an average grade of 1.31 grams per metric ton (g/t) gold in fiscal year 2014; ore processed in 2013 had an average grade of 2.07 g/t gold and, in 2012, 4.24 g/t gold (Monthly Statistical Bulletin, 2015; Monument Mining Ltd., 2015b).

Iron and Steel.—Malaysia's crude steel production consisted of cast semimanufactured products, such as billets, blooms, and slabs. Malaysia's iron mines are located in the States of Johor, Pahang, Perak, and Terengganu. Iron ore mined in Malaysia was either consumed by domestic industries or exported to China. Malaysian iron and steel producers imported lumps and pellets and steel scrap as raw materials for steelmaking. In 2014, Malaysia mined about 9.6 Mt of iron ore, and produced about 2.8 Mt of iron and steel bars and rods. In 2014, the MMSB (the owner of the Mengapur project) entered into a binding purchase and profit-sharing agreement with Malaysia's Malaco Mining Sdn. Bhd (Malaco), which was the previous owner of the project and the present owner of the magnetite found in the iron-rich topsoil that overlies much of the project. The agreement granted Monument the right to process and sell magnetite extracted from the topsoil that overlies Area C. Monument would also purchase approximately 1.2 Mt of stockpiled magnetite as initial inventory at the area (Monthly Statistical Bulletin, 2015, p. 53, 68; Monument Mining Ltd., 2015a; World Steel Association, 2015, p. 4).

Manganese.—Malaysia's manganese output gradually increased from 2005 to 2014, corresponding with the increase in world manganese prices. The country's manganese output was exported to China owing to a lack of domestic demand. Malaysia's manganese resources were located in the States of Johor, Kelantan, Pahang, and Terengganu. In 2014, Sakura Ferroalloys Sdn Bhd, which was a joint venture of three companies—Assmang Proprietary Ltd. of South Africa (a manganese mining company), Sumitomo Corp. of Japan (a diversified trading company), and China Steel Corp. of China (a steel producer)—constructed a 163,000-t/yr ferromanganese plant at Sarawak. The ferromanganese plant was expected to commence production in 2016 (South East Asia Iron and Steel Institute, 2013; Stewart, 2015).

Tin.—In 2014, Malaysia produced about 3,800 t of tin concentrates compared with 3,700 t each in 2013 and 2012. The country imported 31,610 t of tin concentrates (from Indonesia) in 2014 compared with 30,273 t in 2013 and 26,537 t in 2012. Refined tin production was 35,018 t in 2014, compared with 32,633 t in 2013 and 37,823 t in 2012. Domestic tin

consumption was 1,581 t in 2014 compared with 1,835 t in 2013 and 2,083 t in 2012. Malaysia exported 35,221 t of tin metal in 2014 compared with 36,363 t in 2013 and 37,212 t in 2012. Malaysia Smelting Corp. Bhd. (MSC) owned and operated the Butterworth tin refinery in Penang, which was Malaysia's sole tin refinery. MSC also owned a 40% share in Redring Solder Sdn Bhd, which manufactured solder products for jointing and semiconductor applications in the electrical and electronics industries. Solder was the leading tin-consuming sector in Malaysia, followed by tinplate and pewter producers; however, decreased demand from the solder and pewter sectors resulted in reduced domestic tin consumption (Malaysianminerals.com, 2015c; Malaysia Smelting Corp. Bhd., 2015).

Industrial Minerals

Cement.—Cement Industries of Malaysia Berhad (CIMA), Lafarge Malaysia Cement Bhd, and YTL Cement Bhd were the three major companies in Malaysia's cement sector. These companies accounted for about 78% of the country's total cement output capacity. CIMA had two plants and about 3 million metric tons per year (Mt/yr) of cement production capacity through its subsidiary Negeri Sembilan Cement Industries Sdn Bhd. Lafarge was Malaysia's leading cement producer with four plants and 14.7 Mt/yr of production capacity, representing 52.9% of the country's total integrated capacity. YTL Cement had two plants and 4.95 Mt/yr of production capacity. In 2014, Malaysia had 11 active integrated cement plants and 27.8 Mt/yr of cement production capacity. Cement manufacturer CMS Cement Sdn Bhd (a subsidiary of Cahya Mata Sarawak Bhd) planned to invest in its third cement-grinding plant, which would increase the company's total capacity to 2.75 Mt/yr by 2016 (table 2; Global Cement, 2014; Saunders, 2015).

Clay and Shale.—Malaysia had about 112 Mt of kaolin reserves, which were located in the States of Johore, Kelantan, Pahang, Perak, Sarawak, and Selangor. The active kaolin mines were operated mostly in the Bidor and Tapah Districts in Perak. Production of kaolin in 2013 (the latest year for which reported data were available) increased to 513,587 t from 438,923 t in 2012 (Malaysianminerals.com, 2015a).

Mineral Fuels

Coal.—In 2014, Malaysia produced about 2.7 Mt of coal, exported 31,201 t of coal, and imported about 2.1 Mt of coal. Coal demand increased during the past several years. The country's major coal consumers were cement plants, iron and steel plants, and powerplants. The country met its domestic demand by importing coal from Australia, China, and Indonesia. Malaysia's coal resources are located in the States of Perak, Perlis, Sabah, Sarawak, and Selangor. In 2014, five active coal mines employed 838 workers. Coal was produced from the areas of Bintulu, Merit-Pila, Silantek, and Tutoh in the State of Sarawak. The country had coal resources of about 1.7 billion metric tons (Gt), of which 274 Mt was measured, 347 Mt was indicated, and 1.1 Gt was inferred. About 80% of these resources are located in the State of Sarawak, 19% in the

State of Sabah, and 1% in Peninsular Malaysia. Owing to the lack of infrastructure, most of the coal in the interior areas of the country had not been exploited. The Sabah coal resource was located in the Maliau Basin Conservation Area, which the Government had designated as a protected area. Mining and exploration for coal were conducted only in Sarawak (Monthly Statistical Bulletin, 2015; Malaysianminerals.com, 2015a, Saunders, 2015).

Natural Gas and Petroleum.—In 2014, Petronas owned and operated three refineries in Malaysia—Petronas Penapisan (Melaka) Sdn Bhd (PP[M]SB) and the Malaysian Refining Co. (MRC), which were both located in Melaka, and Petronas Penapisan (Terengganu) Sdn Bhd (PP[T]SB), which was located in Terengganu. Crude oil produced offshore of the States of Sarawak and Terengganu was refined into petroleum products by PP[M]SB and PP[T]SB for domestic consumption and export. The two plants had the capacity to refine 130,000 and 124,000 barrels per day (bbl/d), respectively. The MRC had the capacity to refine 170,000 bbl/d. The company acquired crude oil mainly from countries in the Middle East. Petronas also owned the Engen Refinery (Enref) in Durban, South Africa, through a majority shareholding in Engen Petroleum Ltd. The refinery had the capacity to refine 135,000 bbl/d of crude oil (Petroleum Nasional Berhad, 2015, p. 7–8).

Outlook

Malaysia's increasing private and public investment and spending will likely continue to support the country's economic growth. The Government is expected to continue to encourage domestic minerals production and mineral commodity exports. It is likely to continue to promote investment opportunities to provide a more competitive economic environment. The Tenth Malaysia Plan promotes production increases in the cement and the iron and steel sectors. Exports of bauxite to China are expected to increase in the near future.

References Cited

- Aluminum Market Outlook, 2015, Table 2.7—Australia and other Asian production: CRU International Ltd., October, p. 2–14.
- Bank Negara Malaysia, 2015, Economic developments in 2014: Bank Negara Malaysia, 39 p. (Accessed January 31, 2016, at <http://www.bnm.gov.my/files/publication/ar/en/2014/cp01.pdf>.)
- Bloomberg, 2015, Company overview of Petroleum Nasional Berhad, November 24: Bloomberg. (Accessed November 24, 2015, at <http://www.bloomberg.com/research/stocks/private/snapshot.asp?privcapId=884391>.)
- China Metal Bulletin, 2014, China turns to Malaysia to feed bauxite needs: China Metal Bulletin, November 21. (Accessed November 27, 2015, at <http://www.metallbulletin.com/Article/3402697/China-turns-to-Malaysia-to-feed-bauxite-needs.html#axzz3shy9VBGR>.)
- Clean Malaysia, 2015, Chinese metal pricer exposes Malaysian bauxite mining activity: Clean Malaysia, October 2. (Accessed November 27, 2015, at <http://cleanmalaysia.com/2015/10/02/chinese-metal-pricer-exposes-malaysian-bauxite-mining-activity/>.)
- Economic Planning Unit, 2015a, Government Transformation Programme (GTP): Economic Planning Unit. (Accessed December 8, 2015, at <http://www.epu.gov.my/en/development-plans/gtp>.)
- Economic Planning Unit, 2015b, New Economic Model: Economic Planning Unit, 193 p. (Accessed December 8, 2015, at <http://www.epu.gov.my/sites/default/files/nem.pdf>.)
- Economic Planning Unit, 2015c, Tenth Malaysia Plan (10th MP): Economic Planning Unit. (Accessed December 8, 2015, at http://onlineapps.epu.gov.my/rmke10/rmke10_english.html.)

- Global Cement, 2014, CMS Cement to increase capacity to 2.75 Mt/yr: Global Cement, January 20. (Accessed December 7, 2015, at <http://www.globalcement.com/news/item/2222-cms-cement-to-increase-capacity-to-275mt-yr>.)
- Home, Andy, 2015, Bauxite supply no hindrance to China's aluminum boom: Thomson Reuters, June 9. (Accessed November 27, 2015, at <http://www.reuters.com/article/2015/06/09/us-bauxite-alumina-ahome-idUSKBN0OP25220150609>.)
- Malaysianminerals.com, 2015a, Mineral resources: Malaysianminerals.com. (Accessed November 27, 2015, at http://malaysianminerals.com/index.php?option=com_content&task=view&id=21&Itemid=45.)
- Malaysianminerals.com, 2015b, Mineral statistics: Malaysianminerals.com. (Accessed November 27, 2015, at http://malaysianminerals.com/index.php?option=com_content&task=view&id=31&Itemid=54.)
- Malaysianminerals.com, 2015c, Tin statistics: Malaysianminerals.com. (Accessed November 27, 2015, at http://malaysianminerals.com/index.php?option=com_content&task=view&id=149&Itemid=141.)
- Malaysianminerals.com, 2016, Legislation: Malaysianminerals.com. (Accessed September 12, 2016, at http://malaysianminerals.com/index.php?option=com_content&task=view&id=218&Itemid=168.)
- Malaysia Smelting Corp. Bhd., 2015, Corporate profile: Malaysia Smelting Corp. Bhd. (Accessed December 15, 2015, at http://www.msmelt.com/abt_cp.htm.)
- Monthly Statistical Bulletin, 2015, Department of Statistics, Putrajaya, Malaysia, September, p. 52–68.
- Monument Mining Ltd., 2015a, Mengapur project: Monument Mining Ltd. (Accessed November 27, 2015, at <http://www.monumentmining.com/s/mengapur.asp>.)
- Monument Mining Ltd., 2015b, Selinsing gold mine production: Monument Mining Ltd. (Accessed November 27, 2015, at http://www.monumentmining.com/s/selinsing_mine.asp?ReportID=484290.)
- Moran, Craig, 2015, Malaysia's bauxite boom: World policy blog, November 3. (Accessed November 27, 2015, at <http://www.worldpolicy.org/blog/2015/11/03/malysias-bauxite-boom>.)
- National Trade Promotion Agency of Malaysia, The, 2015, Trade performance—December 2014 and January–December 2014: The National Trade Promotion Agency of Malaysia. (Accessed November 28, 2015, at <http://www.matrade.gov.my/en/malaysia-exporters-section/218-trade-performance-2014/3765-trade-performance-december-2014-and-january-december-2014>.)
- Petroliaam Nasional Berhad, 2015, Petronas annual report 2014: Petroliaam Nasional Berhad, 249 p. (Accessed November 27, 2015, at <http://www.petronas.com.my/investor-relations/Documents/Annual%20Report%202014.pdf>.)
- Saunders, Amy, 2015, The cement industries of Southeast Asia: Global Cement, April 14. (Accessed November 27, 2015, at <http://www.globalcement.com/magazine/articles/922-the-cement-industries-of-southeast-asia>.)
- South East Asia Iron and Steel Institute, 2013, China Steel to invest in Malaysian joint venture to secure raw material supply: Selangor Danul Ehsan, Malaysia, SEASI Newsletter, June, p. 7.
- Stewart, Dylan, 2015, Malaysia ferroalloys project EPC 71% complete: Creamer Media's Mining Weekly, May 22. (Accessed November 27, 2015, at <http://www.miningweekly.com/print-version/completion-of-epc-for-malaysia-ferroalloy-project-at-71-sa-company-2015-05-22>.)
- U.S. Census Bureau, 2015, Trade in goods with Malaysia: U.S. Census Bureau. (Accessed November 29, 2015, at <https://www.census.gov/foreign-trade/balance/c5570.html>.)
- Wawasan2020.com, 2015a, Malaysia as a fully developed country—One definition: Wawasan2020.com. (Accessed December 8, 2015, at <http://www.wawasan2020.com/vision/p2.html>.)
- Wawasan2020.com, 2015b, Vision 2020: Wawasan2020.com. (Accessed December 8, 2015, at <http://www.wawasan2020.com/vision/>.)
- World Steel Association, 2015, Steel statistical yearbook 2015—Table 2—Crude steel production by product: Brussels, Belgium, World Steel Association, 126 p. (Accessed December 31, 2015, at <https://www.worldsteel.org/dms/internetDocumentList/bookshop/2015/World-Steel-in-Figures-2015/document/World%20Steel%20in%20Figures%202015.pdf>.)

TABLE 1
MALAYSIA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

| Commodity ² | 2010 | 2011 | 2012 | 2013 | 2014 | |
|---|----------------------------|----------------------|----------------------|----------------------|------------------------|------------------------|
| METALS | | | | | | |
| Aluminum: | | | | | | |
| Bauxite, gross weight | 124,474 ^r | 182,931 ^r | 121,873 | 208,770 ^r | 3,258,000 | |
| Aluminum | -- | -- | 120,000 ^e | 290,772 | -- | |
| Gold, mine output, Au content ³ | kilograms | 3,766 ^r | 4,219 | 4,625 | 3,823 ^r | 4,038 |
| Iron and steel: | | | | | | |
| Iron ore: | | | | | | |
| Gross weight | thousand metric tons | 3,558 ^r | 8,078 | 10,886 ^r | 12,134 ^r | 9,615 |
| Fe content ^e | do. | 1,970 | 4,600 | 6,900 | 6,900 | 6,000 |
| Pig iron, direct-reduced iron, and hot-briquetted iron | do. | 2,390 | 2,876 | 2,329 | 1,399 | 2,400 |
| Steel, crude | do. | 5,693 | 5,941 | 5,612 | 4,693 | 4,316 |
| Magnesium metal ^e | | -- | 200 | 5,000 | 5,000 | 5,000 |
| Manganese, gross weight | | 899,703 | 597,917 | 1,099,585 | 1,045,412 ^r | 1,000,000 ^e |
| Niobium (columbium)-tantalum metals, struverite, gross weight | | 84 | 110 | 262 | 190 | 190 ^e |
| Silver, mine output, Ag content ³ | kilograms | 436 | 459 | 1,628 | 361 | 360 ^e |
| Tin: | | | | | | |
| Mine output, Sn content | | 2,668 | 3,340 | 3,725 ^r | 3,697 | 3,777 |
| Metal, refined | | 38,771 ^r | 40,281 ^r | 37,823 ^r | 32,633 ^r | 35,018 |
| Titanium: | | | | | | |
| Ilmenite concentrate, gross weight | | 19,039 ^r | 28,782 | 22,275 | 16,043 | 8,159 |
| Rutile | | 7,567 | 10,810 | 20,008 | 5,983 | 6,000 ^e |
| Zirconium, zircon concentrate, gross weight | | 1,267 | 1,685 | 442 | 379 | 380 ^e |
| INDUSTRIAL MINERALS | | | | | | |
| Barite | | 1,000 | -- | -- | 500 ^r | -- |
| Cement, hydraulic | thousand metric tons | 19,762 | 21,198 | 21,726 | 21,457 | 21,700 |
| Clays | do. | 27,543 | 28,384 | 30,690 | 28,045 | 31,000 |
| Feldspar | | 455,497 | 379,628 | 482,906 | 348,112 ^r | 350,000 ^e |
| Kaolin | | 530,331 | 442,500 | 438,923 | 513,587 ^r | 300,000 |
| Mica | | 4,515 | 4,245 | 3,967 | 4,242 ^r | 4,000 |
| Rare earths, monazite and xenotime, gross weight | | 732 | 779 | 179 | 358 | 946 |
| Sand and gravel | thousand metric tons | 30,678 | 37,339 | 28,592 | 29,000 ^r | 30,000 ^e |
| Silica sand | | 932,159 | 1,340,013 | 931,880 | 394,163 ^r | 400,000 ^e |
| Stone: | | | | | | |
| Aggregate | thousand metric tons | 101,809 | 118,510 | 110,339 | 100,000 ^e | 100,000 ^e |
| Dolomite ^e | | 50,900 | 50,000 | 50,000 | 50,000 | 50,000 |
| Limestone | thousand metric tons | 32,398 | 34,300 | 36,580 | 24,000 ^r | 24,000 ^e |
| MINERAL FUELS AND RELATED MATERIALS | | | | | | |
| Coal | thousand metric tons | 2,397 | 2,916 | 2,942 | 2,907 ^r | 2,688 |
| Gas, natural: ^e | | | | | | |
| Gross | million cubic meters | 72,000 | 73,000 | 74,000 | 74,000 | 74,000 |
| Net ⁴ | do. | 61,136 | 61,400 | 62,000 | 62,000 | 62,000 |
| Liquefied natural gas | thousand metric tons | 24,363 | 25,822 | 23,986 | 25,957 | 26,000 |
| Petroleum: | | | | | | |
| Crude and condensate | thousand 42-gallon barrels | 232,100 | 207,696 | 214,317 | 208,141 | 210,000 ^e |
| Refinery products ^e | do. | 210,000 | 215,000 | 215,000 | 215,000 | 215,000 |

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

¹Table includes reported data available through November 27, 2015.

²In addition to the commodities listed, a variety of materials, including ammonia, copper, fertilizers, lead (secondary), and salt, were produced but not reported, and available information was inadequate to make reliable estimates of output.

³Includes byproduct from tin mines in Peninsular Malaysia and gold mines in Peninsular Malaysia and the State of Sarawak.

⁴Includes production from Peninsular Malaysia and the States of Sabah and Sarawak.

Sources: Ministry of Primary Industry, Minerals and Geoscience Department (Kuala Lumpur), Malaysian Minerals Yearbook 2012, and World Steel Association, Steel Statistical Yearbook 2015.

TABLE 2
MALAYSIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2014

(Thousand metric tons unless otherwise specified)

| Commodity | | Major operating companies and major equity owners | Location of main facilities | Annual capacity |
|---------------------|------------------------------|--|--|---------------------------------|
| Aluminum, metal | | Press Metal Sarawak Sdn Bhd (Press Metal Berhad) | Mukah, Sarawak | 120. |
| Do. | | do. | Similajau, Sarawak | 320. |
| Bauxite | | 5 enterprises, as follows: Johore Mining and Stevedoring Co. Sdn Bhd | Locations: Teluk Rumania and Sg. Rengit, Johor | 15,300. ^e |
| | | Golden Prosperous | NA | |
| | | Good Man Venture | NA | |
| | | Top International Holding | NA | |
| | | Seng Hiap Metal | NA | |
| Cement ^f | | Cement Industries of Malaysia Berhad (CIMA) (United Engineers Malaysia Group Berhad., 53.97%, and others, 46.03%) | Kangar, Perlis | 2,000 cement; 1,650 clinker. |
| Do. | | do. | Bahau, Negeri Sembilan | 1,580 cement; 1,300 clinker. |
| Do. | | CMS Cement Sdn Bhd (a subsidiary of Cahya Mata Sarawak Bhd) | Bintulu, Sarawak | 750 cement. |
| Do. | | do. | Kuching, Sarawak | 1,000 cement. |
| Do. | | Holcim (Malaysia) Sdn Bhd (Holcim Ltd.) | Pasir Gudang, Johor | 1,300 cement. |
| Do. | | Lafarge Malaysia Cement Bhd. (a subsidiary of Lafarge S.A.) | Rawang, Selangor, Langkawi, Kedah | 6,810 cement; 4,900 clinker. |
| Do. | | do. | do. | 5,370 cement; 3,300 clinker. |
| Do. | | do. | Pasir Gudang, Johor | 770 cement. |
| Do. | | YTL Cement Berhad (a subsidiary of YTL Group) | Bukit Sagu, Pahang | 1,300 cement; 1,200 clinker. |
| Do. | | do. | Padang Rengas, Perak | 3,400 cement; 3,000 clinker. |
| Do. | | do. | Pasir Gudang and Westport, Johor | 1,000 cement. |
| Do. | | Tasek Corp. Bhd (publicly owned company) | Ipoh, Perak | 2,300 cement; 2,300 clinker. |
| Coal, mine | | Kuala Lumpur, Raub, and Kuching | Multiple mines in Sarawak | 2,700. |
| Copper, mine | | Monument Mengapur Sdn Bhd (a subsidiary of Monument Mining Ltd.) | Sri Jaya, Pahang | NA. |
| Gas: | | | | |
| Natural | million cubic meters per day | ExxonMobil Exploration and Production Malaysia, Inc. | Offshore Terengganu | 45. |
| Do. | do. | Sabah Shell Petroleum Co. Ltd. | Offshore Sabah | 3. |
| Do. | do. | Sarawak Shell Bhd. | Offshore Sarawak | 80. |
| Liquefied | | Malaysia LNG Sdn. Bhd. [Petroleum Nasional Berhad (Petronas), 65%; Shell Gas N.V., 15%; Mitsubishi Corp., 15%; Sarawak State government, 5%] | Tanjung Kidurong, Bintulu, Sarawak | 8,100. |
| Do. | | Malaysia LNG Dua Sdn. Bhd. [Petroleum Nasional Berhad (Petronas), 60%; Shell Gas N.V., 15%; Mitsubishi Corp., 15%; Sarawak State government, 10%] | do. | 7,800. |
| Do. | | Malaysia LNG Tiga Sdn. Bhd. [Petroleum Nasional Berhad (Petronas) 60%; Shell Gas N.V., 15%; Nippon Oil LNG (Netherlands) BV, 10%; Sarawak State government, 10%; Diamond Gas Netherlands BV, 5%] | do. | 6,800. |
| Gold, refined | kilograms | PT J Resources Asia Pasifik Tbk (J&Partners, L.P., 100%) | Penjom, Pahang | 4,000. |
| Do. | do. | Raub Australian Gold Mining Sdn. Bhd (Peninsular Gold Ltd., 100%) | Raub, Pahang | 500. |
| Do. | do. | Monument Mining Ltd. of Canada | Bukit Selinsing Koyan, Pahang | 1,500. |
| Do. | | Avocet Mining plc | Penjom, Pahang | NA. |
| Iron and steel: | | | | |
| Iron ore | | CAA Resources Ltd. of China | Bukit Ibam, Pahang | NA. |
| Do. | | Monument Mining Ltd. of Canada | Sri Jaya, Pahang | NA. |
| Direct-reduced iron | | Lion DRI Sdn Bhd (The Lion Group) | Banting, Selangor | 1,540. |
| Do. | | Perwaja Steel Sdn. Bhd. (Kinsteel Bhd, 51%, and Maju Holdings Sdn. Bhd., 49%) | Kemaman, Terengganu | 1,800. |

See footnotes at end of table.

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

(Thousand metric tons unless otherwise specified)

| Commodity | Major operating companies and major equity owners | Location of main facilities | Annual capacity | |
|--|--|--|---------------------|------|
| Iron and steel—Continued: | | | | |
| Hot-briquetted iron | Amsteel Mills Sdn Bhd (The Lion Group) | Labuan Island, offshore Sabah | 880. | |
| Crude steel | do. | Banting, Selangor | 1,250. | |
| Do. | do. | Klang, Selangor | 750. | |
| Do. | Ann Joo Steel Bhd (Ann Joo Group) | Prai, Penang | 900. | |
| Do. | Antara Steel Sdn. Bhd. (The Lion Group) | Pasir Gudang, Johr | 600. | |
| Do. | Kinsteel Sdn Bhd | Kuantan, Pahang | 500. | |
| Do. | Megasteel Sdn Bhd (The Lion Group) | Banting, Selangor | 700. | |
| Do. | Malaysia Steel Works Bhd | Bukit Raja, Selangor | 450. | |
| Do. | Perwaja Steel Sdn Bhd (Kinsteel Bhd, 51%, and Maju Holdings Sdn Bhd, 49%) | Kermaman, Terengganu | 1,500. | |
| Do. | Southern Steel Bhd. [Camerlin (a member of Hong Leong Group Malaysia), 40.75%; Natsteel Ltd., 27.03; others, 32.22%] | Prai, Penang | 1,300. | |
| Kaolin | Tasek Corp. | Perak | 520. | |
| Magnesium, metal | CVM Minerals Ltd. | Kamunting Raya, Perak | NA. | |
| Nitrogen, ammonia | Asean Bintulu Fertilizer Sdn. Bhd. (Petroleum Nasional Berhad (Petronas) 63.5%; P.T. Pupuk Sriwidjaja Indonesia, 13%; Thai Ministry of Finance, 13%; Philippines National Development Co., 9.5%; Singapore Temasek Holdings Pte. Ltd., 1%) | Bintulu, Sarawak | 395. | |
| Do. | Petronas Fertilizer Kedah Sdn Bhd [a wholly owned subsidiary of Petroleum Nasional Berhad (Petronas)] | Gurun, Kedah | 378. | |
| Do. | Petronas Ammonia Sdn. Bhd. (a wholly owned subsidiary of Petroleum Nasional Berhad) | Kerth, Terengganu | 370. | |
| Petroleum, crude | thousand 42-gallon barrels per day | ExxonMobil Exploration and Production Malaysia, Inc. | Offshore Terengganu | 390. |
| Do. | do. | Sabah Shell Petroleum Co. Ltd. | Offshore Sabah | 100. |
| Do. | do. | Sarawak Shell Bhd. | Offshore Sarawak | 184. |
| Do. | do. | Malaysian Refining Company (MRC) | Melaka | 170. |
| Do. | do. | Penapisan (Melaka) Sdn Bhd (PP(M)SB) | do. | 130. |
| Do. | do. | Petronas Penapisan (Terengganu) Sdn Bhd (PP(T)SB) | Terengganu | 124. |
| Do. | do. | Petronas Carigali Sdn Bhd | Offshore Terengganu | 22. |
| Do. | do. | Murphy Sarawak Oil Co. Ltd. | Offshore Sarawak | 15. |
| Rare earths (REO equivalent), rare-earth compounds | Lynas Corp. Ltd. of Australia | Kuantan, Pahang | 11. | |
| Tin: | | | | |
| Concentrate | Delima Industries Sdn Bhd | Dengkil, Selangor | 1,100. | |
| Do. | Maiju Sama Sdn Bhd | Puchong, Selangor | 1,600. | |
| Do. | New Lahat Mines Sdn. Bhd. | Lahat, Perak | 300. | |
| Do. | Omsam Telecommunication Sdn Bhd | Bakap and Batu Gajah, Perak | 500. | |
| Do. | Rahman Hydraulic Tin Bhd. | Klian Intan, Perak | 3,000. | |
| Do. | S.E.K. (M) Sdn Bhd | Kampar, Perak | 400. | |
| Do. | Tasek Abadi Sdn Bhd. | Senudong and Kampar, Perak | 500. | |
| Refined | Malaysia Smelting Corp. Bhd. (The Straits Trading Co. Ltd., 37.44%; Malaysia Mining Corp., 37.44%; others, 25.12%) | Butterworth, Penang | 40. | |
| Titanium dioxide | Huntsman Trioxide Sdn Bhd (a subsidiary of Huntsman Trioxide) | Kemaman, Terengganu | 56. | |

⁶Estimated; estimated data are rounded to no more than three significant digits. Do., do. Ditto. NA Not available.

¹All companies operated integrated plants.