



# 2010 Minerals Yearbook

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## INDONESIA

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# THE MINERAL INDUSTRY OF INDONESIA

By Chin S. Kuo

Indonesia is rich in mineral resources, including coal, copper, gold, natural gas, nickel, and tin. The country also has less significant quantities of bauxite, petroleum, and silver. The country's industrial production came from the cement, metal mining, and oil and gas industries. Indonesia was among the five leading producers of copper and nickel in the world, and its tin output was ranked second after China. It was also ranked among the world's top 10 countries in the production of gold and natural gas. Indonesia was one of the world's leading exporters of liquefied natural gas (LNG) after Qatar but was a net importer of oil.

## Minerals in the National Economy

Indonesia's real gross domestic product (GDP) growth was 6.1% in 2010. The country's industrial output accounted for 24.8% of its total GDP based on purchasing power parity of \$1.03 trillion. The industrial sector grew by 4.5% in 2010. The development of minerals and oil and gas continued to play a significant role in the country's economic growth. The value of mineral commodity production accounted for 11.2% of the GDP, and the fertilizer industry and the mining and quarrying industries grew by 4.7% and 3.5%, respectively, during the year. The cement and iron and steel industries showed slight increases in growth, whereas the oil and gas industry registered negative growth. The Government encouraged investment in new oil and gas exploration to stem the decline in production (Ministry of Industry, 2011, p. 25).

## Government Policies and Programs

Indonesia issued two new regulations under its 2009 Mining Law to allow firms to start obtaining mining permits. One regulation deals with mining lands and the other concerns the business of mining. Both regulations were applied retroactively and were thus effective as of February 1, 2010. Miners who had applied for a mining contract of work before the new coal and mining law was passed in December 2008 would be able to continue with their application for that type of mining license. Indo Mines Ltd. of Australia was the first mining company to obtain a mining permit under the new regulations (Reuters, 2010a).

The Government also issued the implementing regulation on mining supervision under the 2009 Mining Law, which regulates supervision, consultation, and guidance on mining activities, including mining technicalities, marketing, financing, environmental management and post-mining activities, coal and mineral resources conservation, and coal and mineral data processing. Financial oversight includes supervision of all monetary obligations, such as budgeting, investment realization, and fulfillment of dead rent, royalty, and 10% of net profit payments. Supervision of coal and mineral resources

conservation and environmental management must be conducted by a mine inspector (Mondaq.com, 2010).

In 2010, the Government agreed to a 2-year ban on permits for forest clearing after signing a \$1 billion climate aid deal with Norway aimed at reducing greenhouse gas emissions from deforestation by 41% by 2020. The moratorium went into effect in January 2011. Coal and mining projects that have a combined value of \$14 billion could be affected by the moratorium because it would make it harder for the companies to obtain forest land-use permits. Newmont Mining Corp. of the United States, BHP Billiton plc of the United Kingdom, and Freeport McMoRan Copper & Gold Inc. of the United States were among the companies whose projects could be affected. The potentially affected projects were Newmont's Elang copper project on Sumbawa Island, BHP Billiton's Maruwai coal project on Kalimantan Island, and Freeport McMoRan's forestry permit to further develop the Grasberg copper mine in Papua Province (Jakarta Globe, The, 2010a).

Under the new coal regulation issued by the Ministry of Energy and Mineral resources, Indonesian coal producers would be required to sell at least 24.17% of their output to the domestic market beginning in 2011. The domestic market for coal was mainly Perusahaan Listrik Negara (PLN), which is the state electricity company and which contributed 90% of the power generated in the country. The new regulation would affect 53 coal-mining companies involved in 42 coal contracts of work, 10 mining right and mining license holders, and PT Tambang Batubara Bukit Asam. The Government projected that coal production would reach 326.65 million metric tons (Mt) and that domestic demand would reach 78.97 Mt in 2011 (of which 66.28 Mt would be consumed by domestic powerplants). The Government was expected to allocate 55.82 Mt to PLN, 8.97 Mt to independent power producers, and 1.49 Mt to others using coal for power generation (Jakarta Post, The, 2010).

Indonesia's oil production could be reduced by one-half of its 965,000-barrel-per-day (bbl/d) target within 2 to 3 years as the oil industry adjusts to the new environmental law that was enacted in 2009. Because oil companies use enhanced technology (steam produced by boiling water) to recover oil, one of the new regulations requires oil companies to lower the temperature of liquid waste by 5 degrees Celsius. Another regulation limits the average mercury concentration in crude oil sold to 40 parts per million. Operations of Chevron Pacific Indonesia, ConocoPhillips Corp. of the United States, and Pertamina EP could be affected. Concerns of oil and gas firms about the regulations developed under the new environmental law could result in a modification of those regulations (Alexander's Gas & Oil Connections, 2010b).

## Production

In 2010, production of bauxite increased by 12.3% after a decrease of 19% in 2009. Production of mined copper decreased by 12% owing to the lower grade of the ore mined at Grasberg. The output of gold and silver decreased by 24.3% and 24.5%, respectively, reflecting the same trend as copper. Production of pig iron increased by 10.6% owing to a slight increase in iron sand mining. The output of nickel in matte increased by 13.1% owing to the higher nickel price. Because of the Government's crackdown on illegal tin mining, small tin smelters received less tin ore. As a result, production of tin metal decreased by 14.7%. The country produced less bituminous coal and much more anthracite in 2010 (table 1).

## Structure of the Mineral Industry

State-owned PT Antam Tbk produced bauxite, gold, nickel, and silver. 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. Private-sector 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 and PT Newmont Nusa Tenggara (NNT) were involved 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 2010, Indonesia's total exports were valued at \$157.7 billion, of which the oil and gas industry accounted for 17.8%, and the mineral industry, 16.9%. The export items included coal, LNG, natural gas, and petroleum. The major export markets were China, India, Japan, the Republic of Korea, Malaysia, Singapore, Taiwan, and the United States. Total imports were valued at \$135.6 billion, and the import items included crude petroleum, iron and steel, and petroleum products. The major import partners were China, Japan, the Republic of Korea, Malaysia, Singapore, Thailand, and the United States (Ministry of Industry, 2011, p. 27–29).

## Commodity Review

### Metals

**Copper and Gold.**—NNT owned and operated the Batu Hijau gold mine on Sumbawa Island. The Nusa Tenggara Partnership (Newmont Mining and Japan's Sumitomo Corp.) had divested a percentage of its shares in NNT because foreign mining companies were not allowed to have majority control. PT Pukuafu Indah (PTPI) threatened to file criminal charges and seek civil remedies to overturn an agreement made at a special shareholders meeting of NNT to offer 1 million new shares through an initial public offering planned for the first quarter of 2011. PTPI wished to have a right to acquire the divestiture

share; however, the Government has an explicit right of first refusal under the contract of work (Mineweb.com, 2010b).

Central China Goldfields plc of the United Kingdom began field work at its 7,982-hectare Cikoleang gold project. The initial work program included detailed geologic mapping to extend the existing area of mineralization followed by drilling late in 2010. The company planned to focus on surface and underground exposures of known gold vein areas and to conduct soil geochemical surveys. The deposit consisted of intermediate sulfidation epithermal gold mineralization occurring as multiple quartz and carbonate base-metal veins and vein breccias hosted in late Eocene to Pliocene volcanic and sedimentary rocks. Twenty-two rock samples of outcrop from artisanal workings were collected, of which 7 returned 1 to 22.2 grams per metric ton (g/t) gold and 15 had grades of 5 to 398 g/t silver (London Stock Exchange Ltd., 2010a).

Finders Resources Ltd. of Australia completed its reverse-circulation drilling program at the Ojolali gold-silver project on Sumatra Island on June 25. The purpose of the program was to increase the oxide resources minable by an open pit to a level sufficient to support a viable mining operation. Thirty-six holes totaling 3,550 meters were completed. The project included the Jambi prospect and the Tambang vein system, which were of epithermal origin. Development of the gold resource at Jambi by a carbon-in-leach or carbon-in-pulp method was planned (London Stock Exchange Ltd., 2010c).

Sumatra Copper and Gold plc of the United Kingdom planned to invest in its Tembang gold-silver project in South Sumatra Province. A prefeasibility study indicated a resource of 53.7 Mt at a grade of 1 g/t gold and 11 g/t silver. Plans called for a throughput of 2.5 million metric tons per year (Mt/yr) to produce 4,300 kilograms per year of gold for 8 years. Tembang was a low-sulfidation epithermal deposit. The company allocated a budget of \$6 million to explore a recently discovered polymetallic deposit at Sontang in West Sumatra Province during a 2-year period (Australia's Paydirt, 2010b).

Development of Archipelago Resources plc of the United Kingdom's 85%-owned Toka Tindung gold project in North Sulawesi Province was in progress and production was expected to begin at the end of 2010. The company reactivated its mining contract with Leighton Asia of Hong Kong; Leighton would conduct the mining activities and Archipelago Resources would manage the ore grade and process the ore. Pre-strip mining started at the deposit in preparation for ore mining in the second half of 2010. High-grade intersections had been reported from beneath the proposed starter pit at Toka Tindung. Archipelago Resources was a gold mining and exploration company with projects in Indonesia, the Philippines, and Vietnam (London Stock Exchange Ltd., 2010d).

**Iron and Steel.**—PT Krakatau Steel and Pohang Iron and Steel Co. Ltd. (Posco) of the Republic of Korea signed a joint-venture agreement to build a \$6 billion integrated steel mill in Cilegon, Banten Province. Posco would have a 70% stake and Krakatau Steel would have a 30% stake. Krakatau Steel would have the option to increase its stake to 45% from 30% in the future when the project doubles its capacity to 6 Mt/yr. Krakatau Steel would invest \$1.2 billion in the first phase by raising \$392 million through a public offering. The venture would

create 173,000 jobs during the construction phase beginning in 2010 and 63,000 jobs when production begins (scheduled for 2014). The mill would have an initial capacity of 3 Mt/yr. The mill would eventually boost Krakatau Steel's capacity to nearly 9 Mt/yr (Jakarta Globe, The, 2010c).

Indonesia had about 2,400 Mt of iron ore reserves and about 13,000 Mt of coal reserves. To operate the mill at full capacity, Krakatau Steel would need to import an additional 5 Mt/yr of iron ore for the mill. In 2010, the country imported 9 Mt of steel to help meet domestic demand of 11 Mt, which was continuing to increase at a rate of 10% per year.

Construction of PT Meratus Jaya Iron Steel's ironmaking plant in South Kalimantan Province was in progress. The plant would have a capacity of 315,000 metric tons per year (t/yr) and was expected to begin production in 2012. PT Indoferro completed the construction of a 4,500-cubic-meter blast furnace in Cilegon, Banten Province, in 2010. The plant had the capacity to produce 500,000 t/yr of steel billet (Southeast Asia Iron & Steel Institute, 2010).

Indo Mines Ltd. planned to produce 1 Mt of pig iron from its project on Java Island in 2012. The company held a 70% share in PT Jogja Magasa Iron, which planned to begin mining iron sand in 2011 and to set up a pig iron plant in the Yogyakarta region. The \$1.1 billion project also included a 350-megawatt powerplant and a port facility. Jogja Magasa Iron planned to renegotiate an initial agreement to supply 100,000 metric tons (t) of pig iron to Krakatau Steel (Australia's Paydirt, 2010a).

**Tin.**—The country's tin production decreased by 6.1% to about 43,000 t owing to inclement weather that disrupted mining operations. Declining reserves and a crackdown on illegal mining were also factors in the decreased output. Indonesia was the world's leading supplier of tin and exported 85% of its production. PT Tambang Timah Tbk was the country's leading producer followed by PT Koba Tin, which was 75% owned by Malaysia Smelting Corp. The Bangka-Belitung Islands were Indonesia's main tin-producing region. The country approved an export permit for a new smelter (PT Stanindo Inti Perkasa on Bangka Island), bringing the total number of smelters allowed to export the metal to 32 (Jakarta Globe, The, 2010d).

Indonesian police seized 5 t of illegal tin ore in the Bangka-Belitung tin-producing area on January 15 and 37 t on January 22 as part of a crackdown on illegal mining of tin. The crackdown forced some small tin smelters to stop operations (Thomson Reuters, 2010).

### **Industrial Minerals**

**Cement.**—PT Semen Gresik planned to construct two new cement plants and a powerplant in the next 2 years as part of an expansion program requiring an investment of \$765 million. The two cement plants would cost a total of \$630 million and be located on Java Island and Sulawesi Island. The company's total capacity would be increased from 19 Mt/yr in 2010 to 25 Mt/yr in 2012 and to 29 Mt/yr in 2015 (World Cement, 2010a).

PT Holcim Indonesia Tbk planned to build a new \$450 million cement plant with a capacity of 1.6 Mt/yr near Tuban in East Java Province. The new plant would have open sea loading and unloading facilities and would go into operation

in the first half of 2013. Holcim Indonesia had two cement plants and a grinding station in the Provinces of West Java and Central Java with a combined capacity of 8.6 Mt/yr and which together employed a workforce of 2,500 (Holcim Ltd., 2010).

PT Indocement Tunggal Prakarsa Tbk planned to increase its production capacity by 1.5 Mt/yr to 20.1 Mt/yr as two new cement plants were scheduled to begin production in May 2010. The two new plants would cost \$35 million to operate. The company also planned to construct a new 1.5-Mt/yr-capacity cement plant at Citeureup; the plant was scheduled to come onstream in 2012 (World Cement, 2010b).

### **Mineral Fuels**

**Coal.**—Indonesia was the world's second ranked exporter of coal and produced about 257 Mt in 2010. Kalimantan Island was the country's leading coal-producing region and its Central Kalimantan Province held reserves of 1,400 Mt of high-quality metallurgical coal. The Province produced 1.5 Mt/yr of high-grade coal from 15 coal mining companies.

Thai Banpu PCL confirmed that it had ceased operations of its Jorong coal mine on Kalimantan Island in February 2010 owing to a problem with its conformance with the mining regulations. Output from the mine was 1.97 Mt in 2009, which represented 8.6% of Banpu's 2020 target of 23 Mt. Operations at the mine were resumed in August 2010 by PT Indo Tambangraya Megah Tbk, in which Thai Banpu owned a 73.72% share (Reuters, 2010b).

BHP Billiton planned to develop the 774-Mt Maruwai deposit in East and Central Kalimantan Provinces to produce 6 Mt/yr of combined thermal and coking coal by 2014 and to expand output to between 15 and 20 Mt/yr. The company held a 75% interest in the project and PT Adaro Energy Tbk held the remaining 25% interest. PT Marunda Graha Mineral, in which Itochu Corp. of Japan held a 23.5% interest, planned to increase production at its MGM coking coal mine by 25% to 2 Mt/yr. Minerals Energy Commodities Holdings (MEC) of the United Arab Emirates expected a coal railway to start operating at the end of 2012 when its coal mine in East Kalimantan Province begins producing a limited amount (1 Mt/yr) of coal; the company planned to begin exporting 14 Mt of coal to Chinese and Indian power producers beginning in 2013. MEC had cooperation agreements in place to acquire the land for the \$1 billion 140-kilometer (km) railway project and had arranged a \$750 million loan to finance the railway (Forexpros.com, 2010).

Kangaroo Resources Ltd. of Australia acquired Indonesian coal conglomerate PT Bayan Resources Tbk, including 99% of the Pakar thermal coal project in East Kalimantan Province, for \$277 million. The Pakar project hosted a total coal resource of 3,800 Mt, including a total coal reserve of 116 Mt, and was ready for production in 2011. Bayan Resources would become Kangaroo Resources' major shareholder with a 57% stake. Bayan Resources' operations spanned eight mining concessions in East Kalimantan and West Kalimantan Provinces. Kangaroo Resources' other Indonesian coal assets included the 100%-owned Mamahak coking coal project, the Tanur Jaya thermal coal project, and the GPK thermal coal project (Mineweb.com, 2010a).

PT Adani Global (98%), which was owned by Adani Group of India, signed an agreement with PT Tambang Batubara Bukit Asam (2%) to build and operate a \$1.6 billion 270-km railway to transport coal from Bukit Asam's coal mine at Tanjung Enim to Tanjung Api-api in South Sumatra Province where Adani Global planned to build a coal terminal. Construction of the rail line would take 3 years to complete, and Adani Global was to operate the new line for 30 years. South Sumatra Province had produced 11 Mt of coal in 2009, and Bukit Asam planned to produce an additional 34 Mt/yr from the Tanjung Enim Mine when the railway opened. Sumatra Island had 11,500 Mt of coal resources. The coal terminal would have the capacity to handle 50 Mt/yr of coal. In another development, Reliance Power Ltd. of India planned to invest \$5 billion in three coal mines and another railway line in South Sumatra Province (Jakarta Globe, The, 2010b).

Essar Power Ltd. of India signed an agreement to purchase the Aries coal mines in the Kutai region of East Kalimantan Province. The mines were estimated to have a resource of 100 Mt and a minable reserve of 64 Mt of thermal coal. The company had a thermal coal reserve of 275 Mt in India (Bloombergtv.com, 2010).

Churchill Mining plc of Australia's feasibility study of its East Kutai thermal coal project in East Kalimantan Province indicated that a 30-Mt/yr open pit mining operation was proposed for an initial 25-year period. The resource was high-quality subbituminous, low ash and low sulfur coal for use in a thermal powerplant and estimated to total 2,730 Mt. The average calorific value was 5,151 kilocalories per kilogram of coal. The direct capital expenditure was estimated to be \$1.2 billion. Churchill Mining (75%) teamed up with its Indonesian partner Ridiatama Group (25%) for the project (London Stock Exchange Ltd., 2010b).

**Natural Gas.**—China National Petroleum Corp. (CNPC) withdrew in June 2010 from its bid to be a potential partner in the \$40 billion Natuna natural gas project. The Natuna Block accounted for 25% of Indonesia's total commercially recoverable gas reserves of 5.15 trillion cubic meters. In 2008, the Government named eight potential partners—Chevron Corp. and Exxon Mobil Corp. of the United States, CNPC, Eni S.p.A. of Italy, Petronas of Malaysia, Royal Dutch Shell plc of the Netherlands, Statoil ASA of Norway, and Total S.A. of France. In another development, the Bontang LNG export project signed a memorandum of understanding with Pertamina to supply 11.5 Mt/yr to the LNG receiving terminal near Jakarta. BP p.l.c.'s Tangguh LNG project in West Papua Province was ready to supply from 0.5 to 0.7 Mt/yr of LNG to a floating receiving terminal, also located near Jakarta and with a capacity of 3 Mt/yr, by the end of 2011 (Petroleum Economist, 2010c).

Indonesia planned to begin coalbed methane (CBM) production with an eye on a growing domestic gas market for power generation and the possibility of export. The country's CBM resource was estimated to be 12.7 trillion cubic meters, which remained in the ground in the South Sumatra basin and on the Island of Sumatra. The Government wanted small-scale CBM output to come onstream in 2011, starting at 42.45 million cubic meters per day and targeting LNG production based on the CBM resource by 2014. CBM Asia of Canada signed a

joint-operating agreement with PT Medco Energi to explore the Sekayu Block in the South Sumatra basin and had production-sharing contracts (PSCs) in the South Sumatra and Kutai basins. BP and Eni had a joint venture to start producing CBM from the Sanga-Sanga Block in East Kalimantan Province, which held 113.2 billion cubic meters of CBM. ExxonMobil expected to start drilling an initial 20-well CBM test program in the Barito basin in late 2010. Arrow Energy Pty Ltd. of Australia had two PSCs in place for CBM development in the South Sumatra basin (Petroleum Economist, 2010a).

**Petroleum.**—The Government planned to produce 1 million barrels (Mbbbl) of oil in 2012. Production would be increased in the Cepu Block and in Chevron's field. The Government offered 50 new work fields for investors in 2010. Pertamina found 61 Mbbbl of oil and 17.5 million cubic meters of gas in blocks explored at Indramayu and Bekasi in West Java Province and in South Sumatra Province (Petroleum Economist, 2010d).

Pertamina planned to drill 25 new oil wells on Java Island in 2010 with the aim of increasing oil production there to 26,000 bbl/d. The company and its partner PetroChina Co. Ltd. also planned to bring onstream the Sukowati well, which would increase output from the Bojonegoro project to 40,000 bbl/d (Petroleum Economist, 2010b).

The Government offered 18 oil and gas blocks and 9 CBM blocks to investors in the first-phase tender in 2010. Six of the tenders for the oil and gas blocks were called through a direct appointment mechanism and 12 others were offered through regular tenders. For the CBM blocks, four were offered through direct appointment and five were offered through regular tenders (Alexander's Gas & Oil Connections, 2010a).

## Outlook

Indonesia's mineral prospects are expected to remain high. Extensive exploration is likely to result in the discovery of more mineral deposits in the next few years. With the Toka Tindung gold project scheduled to begin production in 2011, Indonesia is expected to increase gold output in addition to the gold produced from Grasberg. In 2012, two pig iron plants are expected to come onstream to feed Krakatau Steel's steel plant. Krakatau Steel and Posco's new steel plant is expected to increase production of steel within the next 4 years and to reduce steel imports. Declining reserves and the renewed crackdown on illegal tin mining will likely reduce the number of small tin smelters and the country's tin output but Indonesia is expected to remain the leading exporter of tin in Asia. Production and exports of coal are expected to increase owing to the commissioning of new coal mines and the development of several thermal coal projects. The Natuna natural gas project will add new capacity to Indonesia's gas production. The country's LNG production capacity is expected to increase from the existing Bontang LNG project and the new Tangguh LNG plant. Indonesia is expected, therefore, to continue to be one of the leading exporters of LNG in the world. In addition, the country is expected to begin CBM production to supplement its LNG output and exports.

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TABLE 1  
INDONESIA: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Metric tons unless otherwise specified)

Commodity		2006	2007	2008	2009	2010 <sup>e</sup>
METALS						
Aluminum:						
Bauxite, wet basis, gross weight	thousand metric tons	1,502	1,251	1,152	935 <sup>r</sup>	1,050 <sup>2</sup>
Metal, primary		250,300	242,100	242,500	250,000 <sup>e</sup>	252,000
Chromite sand, dry basis <sup>c</sup>		1,000	1,000	1,000	1,000	1,000
Cobalt, metal <sup>c</sup>		1,600	1,600	1,300	1,200	1,600
Copper:						
Mine, Cu content		818,000	796,900	632,600	998,530 <sup>r</sup>	878,376 <sup>2</sup>
Metal:						
Smelter, primary		201,200	277,100	253,300 <sup>r</sup>	263,300 <sup>r</sup>	264,200 <sup>2</sup>
Refinery, primary		217,600	277,000 <sup>r</sup>	254,000 <sup>r</sup>	289,200 <sup>r</sup>	280,000
Gold, mine output, Au content <sup>3</sup>	kilograms	93,176	117,851	64,390	140,488 <sup>r</sup>	106,316 <sup>2</sup>
Iron and steel:						
Iron sand, dry basis		87,970	61,077	65,000 <sup>e</sup>	44,552 <sup>r</sup>	45,610 <sup>2</sup>
Metal:						
Ferroalloys:						
Ferronickel		72,300	92,500	87,800	62,800 <sup>r</sup>	65,000
Ferromanganese <sup>e</sup>		12,000	12,000	12,000	12,000	12,000
Silicomanganese <sup>e</sup>		5,000	6,000	7,000	7,000	8,000
Pig iron, direct-reduced iron	thousand metric tons	1,290	1,420	1,290	1,230 <sup>r</sup>	1,360 <sup>2</sup>
Steel, crude	do.	3,759	4,160	3,915	3,500 <sup>e</sup>	3,700
Steel, semimanufactured <sup>c</sup>	do.	5,150 <sup>2</sup>	5,400	5,200	5,000	4,900
Nickel:						
Mine output, Ni content <sup>4</sup>		157,200	229,200	192,600	202,800	210,000
Matte, Ni content		72,782	77,928	73,356	68,228 <sup>r</sup>	77,186 <sup>2</sup>
Ferronickel, Ni content		14,474 <sup>r</sup>	18,532 <sup>r</sup>	17,566 <sup>r</sup>	12,550 <sup>r</sup>	13,000
Silver, mine output, Ag content	kilograms	261,398	268,967	226,051	359,451 <sup>r</sup>	271,534 <sup>2</sup>
Tin:						
Mine output, Sn content		80,933	66,137	53,228	46,078 <sup>r</sup>	43,258 <sup>2</sup>
Metal <sup>5</sup>		65,357	64,127	53,471	51,418 <sup>r</sup>	43,832 <sup>2</sup>
Zirconium concentrates, gross weight		65,000	111,000	65,000 <sup>e</sup>	63,000 <sup>e</sup>	62,000
INDUSTRIAL MINERALS						
Cement, hydraulic <sup>c</sup>	thousand metric tons	35,000	36,000	36,000 <sup>r</sup>	22,195 <sup>r,2</sup>	28,000
Clays: <sup>e</sup>						
Bentonite		5,500	5,500	6,000	6,000	6,500
Fire clay	thousand metric tons	2,000	2,100	2,100	2,200	2,200
Kaolin powder		150,000 <sup>r</sup>	150,000 <sup>r</sup>	150,000 <sup>r</sup>	186,010 <sup>r,2</sup>	170,000
Diamond: <sup>e</sup>						
Industrial	thousand carats	23	23	28	28	30
Gem	do.	7	7	7	7	7
Total	do.	30	30	35	35	37
Feldspar <sup>c</sup>		25,000	25,000	26,000	10,730 <sup>r,2</sup>	20,000
Gypsum <sup>c</sup>		6,000	6,000	6,000	8,133 <sup>r,2</sup>	7,000
Iodine <sup>c</sup>		75	75	75	75	75
Nitrogen, N content of ammonia <sup>c</sup>	thousand metric tons	4,300	4,400	4,500	4,600	4,800
Phosphate rock <sup>c</sup>		600	600	600	600	600
Salt, all types <sup>c</sup>	thousand metric tons	700	700	700	585 <sup>r,2</sup>	600
Stone: <sup>c</sup>						
Dolomite		3,200	3,200	3,300	1,885 <sup>r,2</sup>	2,500
Granite	thousand metric tons	4,200	4,300	4,400	4,500	4,600
Limestone	do.	1,600	1,700	1,800	1,912 <sup>r,2</sup>	1,900
Marble	do.	6,000 <sup>r</sup>	6,500 <sup>r</sup>	7,000 <sup>r</sup>	7,489 <sup>r,2</sup>	8,000
Quartz sand and silica stone		35,000 <sup>r</sup>	35,000 <sup>r</sup>	38,000 <sup>r</sup>	32,105 <sup>r,2</sup>	36,000
Sulfur, elemental <sup>c</sup>		500 <sup>r</sup>	500 <sup>r</sup>	500 <sup>r</sup>	473 <sup>r,2</sup>	500
Zeolite <sup>c</sup>		1,400 <sup>r</sup>	1,400 <sup>r</sup>	1,400 <sup>r</sup>	1,530 <sup>r,2</sup>	1,400

See footnotes at end of table.

TABLE 1—Continued  
INDONESIA: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Metric tons unless otherwise specified)

Commodity	2006	2007	2008	2009	2010 <sup>c</sup>
<b>MINERAL FUELS AND RELATED MATERIALS</b>					
Coal:					
Anthracite <sup>c</sup>	52,000	53,000	54,000	34,348 <sup>r,2</sup>	118,988 <sup>2</sup>
Bituminous	181,061	178,791	188,717	196,209 <sup>r</sup>	137,801 <sup>2</sup>
Gas, natural:					
Gross	102,300	79,410	81,842	73,587 <sup>r</sup>	77,741 <sup>2</sup>
Marketed <sup>c</sup>	52,000	76,664 <sup>2</sup>	78,985 <sup>2</sup>	70,000 <sup>r</sup>	75,000
Petroleum, crude including condensate	367,000	305,000	311,000	346,000 <sup>r</sup>	341,000 <sup>2</sup>

<sup>c</sup>Estimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. <sup>r</sup>Revised. <sup>do.</sup> Ditto.

<sup>1</sup>Table includes data available through September 15, 2011.

<sup>2</sup>Reported figure.

<sup>3</sup>Includes 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).

<sup>4</sup>Includes a small amount of cobalt that was not recovered separately.

<sup>5</sup>Output 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 2010

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Locations of main facilities	Annual capacity <sup>c</sup>
<b>Aluminum:</b>			
Bauxite	PT Antam Tbk (Government, 65%)	Kijang, Bintan Island, Riau	1,300
Metal	PT Indonesia Asahan Aluminium (Nippon Asahan Aluminium Co. Ltd., 59%, and Government, 41%)	Kual Tanjung, North Sumatra	250
Cement	PT Indocement Tungal Prakarsa Tbk	Cirebon and Citeureup, West Java; Tarjun, South Kalimantan	18,600
Do.	PT Semen Andalas Indonesia	Aceh Besar	1,400
Do.	PT Semen Baturaja (Persero)	Baturaja-Ogan Komering Ulu, South Sumatra	1,250
Do.	PT Semen Bosowa Maros	Kabupaten Maros, Sulawesi Selatan	1,800
Do.	PT Holcim Tbk (formerly known as PT Semen Cibinong)	Narogong, East Java	9,700
Do.	PT Semen Gresik (Persero) Tbk	Gresik and Tubar, East Java	8,200
Do.	PT Semen Padang (Persero)	West Sumatra	5,440
Do.	PT Semen Tonasa (Persero)	Pangkep, Sulawesi Selatan	3,480
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
<b>Copper:</b>			
Concentrate	PT Freeport Indonesia Co. (Freeport-McMoRan Copper & Gold Inc., 81.28%; Government, 9.36%; others, 9.36%)	Ertzberg and Grasberg, Papua	800
Do.	PT Newmont Nusa Tenggara (Newmont Gold Mining Co., 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	210
<b>Gas:</b>			
Natural	ExxonMobil Oil Indonesia	Arun and Aceh, North Sumatra	48
Do.	Roy M. Huffington (subsidiary of HUFFCO Group)	Badak, East Kalimantan	28
Do.	Total Indonesia	Offshore East Kalimantan	59

See footnotes at end of table.



TABLE 2—Continued  
INDONESIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2010

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Locations of main facilities	Annual capacity <sup>c</sup>	
<b>Gas—Continued:</b>				
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	
Gold	metric tons	Aurora Gold Ltd. (100%)	Balikpapan, Central Kalimantan	60
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%)	Ertzberg and Grasberg, Papua	110
Do.	do.	PT Newmont Nusa Tenggara (Newmont Gold Mining Co., 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
<b>Nickel:</b>				
In ore	PT Antam Tbk (Government, 65%)	Pomalaa, South Sulawesi and on Gebe Island	80	
Do.	PT International Nickel Indonesia Tbk (Inco 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 International Nickel Indonesia (Inco Ltd., 59%; Sumitomo Metal Mining Co. Ltd., 20%; others, 21%)	Soroako, South Sulawesi	68	
Nitrogen	PT Aseah-Aech 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	1,010	
Do.	PT Pupuk Kujang	Cikampek, West Java	330	
Do.	PT Pupuk Sriwijawa (Government, 100%)	Palembang, South Sumatra	1,440	
Petroleum, crude	thousand barrels per day	Atlantic Richfield Indonesia, Inc. (subsidiary of Arco Co.)	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.	P.T. 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. of France)	Handi and Bakapai onshore and offshore East Kalimantan	180
Petroleum, refined	do.	P.T. 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%)	Ertzberg 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	
<b>Tin:</b>				
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	

<sup>c</sup>Estimated; estimated data are rounded to no more than three significant digits. Do., do. Ditto.