

# THE MINERAL INDUSTRY OF INDONESIA

By Chin S. Kuo

In 1995, Indonesia joined the ranks of the world's top 10 producers of coal, copper, gold, nickel, and tin. The steel industry enjoyed booming demand for steel, and the construction sector was the main user of steel. The oil industry still formed the economic backbone of Indonesia and accounted for 10% of gross domestic product (GDP) and 25% of export earnings. The country was the world's largest exporter of liquefied natural gas (LNG) at around 25 million metric tons per year (Mt/yr). (*See table 1.*)

The country's exports rose 13.5% to \$45.4 billion<sup>1</sup> in 1995, and imports surged 25% to \$40.7 billion. However, the trade surplus fell to \$4.7 billion from \$8.1 billion in 1994.

Indonesia was the leading country in attracting foreign investment in the area of mining, particularly for base metals, in Southeast Asia. Illegal mining by Indonesians caused gold loss to the country of about 15 metric tons per year (t/yr).

The Government awarded 40 contracts of work for general mining, of which 10 would involve the exploration for and production of gold. Most of the new contracts, obtained by the foreign mining companies, were to explore and mine in eastern Provinces. In 1995, there were 16 companies operating at the exploration stage in Irian Jaya.

A new Public Mining Law was being prepared by the Government and was expected to be ratified at yearend 1995. It was to take into account new national and international economic and technological developments and conditions unforeseen when the 1967 law came into effect.

Indonesia planned to revise its oil and gas industry regulations to make the sector more competitive. The need for large investments had slowed oil exploration in the past 5 years. The Government proposed to allow for tax consolidation among production-sharing contracts of an oil company to boost exploration. Production-sharing contract terms with Pertamina, the national oil company, were most attractive in the remote eastern region; but the area was considered high risk by foreign oil companies and had little supporting infrastructure.

State-owned general mining company, P.T. Aneka Tambang, prepared to go public on the Jakarta Stock Exchange, while state tin producer, P.T. Tambang Timah, was due to be listed on the London and Jakarta Stock Exchanges in October.

Foreign investment and hence ownership makes a major

contribution to the mineral industry through contracts of work or production-sharing contracts. Two major foreign mining companies are engaging in large-scale mining and processing of copper and nickel. The private mining sector still dominates in coal development. (*See table 2.*)

In 1995, RTZ America Inc., a subsidiary of RTZ Corp. Plc. of the United Kingdom, agreed to buy a 10.4% stake in Freeport-McMoRan Copper and Gold Inc. of the United States for \$450 million. RTZ America might acquire more than 18% interest for \$875 million. Under the terms of the agreement, RTZ America would commit \$850 million to joint venture and exploration arrangements and also would spend \$100 million for a 40% stake in the Grasberg copper/gold operations and other undeveloped areas. In the block A contract of work area, RTZ America would fund 100% of the defined cost of any expansion projects up to \$750 million.

P.T. Freeport Indonesia, 86% owned by Freeport-McMoRan Copper and Gold, was expanding its Grasberg operation to a milling rate of 118,000 metric tons per day (t/d) of ore, yielding 500,000 t/yr of copper and 46,655 kilograms per year (kg/yr) of gold. A feasibility study before yearend was expected to result in further expansion to 175,000 t/d. This proposed expansion would be completed by late 1998.

Freeport Indonesia sold some of its port, marine, logistics, and construction equipment and facilities for \$100 million to P.T. Alatief P & O Port Development Co., a foreign investment company. The buyer was to own, operate, and maintain the assets and be responsible for providing the inland marine and land transport.

The first of a three-part transaction was completed for the sale of Freeport Indonesia's existing and to-be-constructed power generation facility to an Indonesian company owned by affiliates of Duke Energy Corp. (30%) and PowerLink Corp. (30%), both of the United States, and Freeport Indonesia (30%) and P.T. Austindo Nusantara Jaya (10%), both of Indonesia.

P.T. Irija Eastern Minerals Corp., which is 80% owned by Freeport McMoRan Copper and Gold and 10% each by P.T. Indocopper Investama and P.T. Setdco Ganesha, had drilled four holes in block 1 of a contract of work area covering 10,000 square kilometers (km<sup>2</sup>) for copper. Work on block 1's Kupai area began in May 1994. About 144 holes had been drilled in and around the Wabu area at Timika

composed of some of 26,000 km<sup>2</sup> contract of work area.

Freeport McMoRan Copper and Gold, Mitsubishi Materials Corp. of Japan, and Fluor Daniel Inc. of the United States planned to proceed with the \$550 million copper smelter-refinery project at Gresik on East Java. Construction began in October 1995, and production using Mitsubishi's continuous smelting process was expected for the second half of 1998 at a capacity of 200,000 t/yr of copper cathode. A joint venture would be funded by the three companies at 20%, 70%, and 10%, respectively. Fluor Daniel would be the project manager, while Mitsubishi Materials would operate the smelter-refiner and market copper cathode and other products. Freeport Indonesia would supply the smelter's copper concentrate feedstock estimated at 600,000 t/yr. A major fertilizer plant operated by P.T. Petrokimia Gresik would use up to 500,000 t/yr of sulfuric acid generated as a byproduct of the smelting process.

Diamond drillings by P.T. Nabire Bakti Mining indicated significant copper/gold mineralization in its contract of work area on the western neck of Irian Jaya. Trenching also showed the presence of near-surface mineralization. The company is 90% owned by Enaratoli Gold Project Ltd., which is in turn owned by Bureau de Recherches Geologiques et Minières (34%) of France, Newcrest Ltd. (10%) of Australia, and Felstone Investment Ltd. (56%), controlled by Gencor of South Africa.

Aurora Gold Ltd. of Australia poured the first doré metal in February from its Mount Muro gold and silver mine in Kalimantan. Production capacity was expected to be 3,888 kilograms (kg) of gold and 73,093 kg of silver. Mount Muro is an open pit operation with a mine life of 8 years. Capital expenditure on project development was \$64.2 million. Major infrastructure included tailings dam, airstrip, and haulroad development. The company also focused on an advanced prospect at Toka Tindung and three early-stage exploration prospects in gold-bearing regions. Euro-Nevada Mining Corp. of Canada acquired an interest in the Mount Muro project for \$18.5 million.

Bre-X Minerals of Canada terminated a joint-venture agreement with Aurora Gold concerning the Sangihe gold project. The company and an Indonesian partner applied for a contract of work covering two blocks on the southern half of Sangihe Island and the northern half of neighboring Karakelong Island. Meanwhile, the company reported progress on its Busang gold project in East Kalimantan. Kilborn Engineering had been engaged to provide an update of resource estimates.

Carrie Pacific Holdings Ltd. of Australia began gold production at its Melawi River alluvial gold project. The company mined 1.68 million cubic meters (m<sup>3</sup>) of alluvial ore to produce 467 kg of gold.

Construction of Newmont Gold's \$131 million Minahasa gold project on Sulawesi was underway, and production was expected to begin in early 1996 at 4,354 kg/yr. Open pit mining was planned for three deposits with a combined

reserve of 9.6 million metric tons (Mt) grading 6.4 grams per metric ton (g/t).<sup>2</sup> Newmont Gold owns 80% of the venture, and the remaining 20% is owned by P.T. Tanjung Serapung. Newmont Gold also has 80% of the Batu Hijau project on Sumbawa Island, from which gold production might begin in late 1997. Capital costs were estimated at \$1.5 billion.

Meekatharra Minerals Ltd. of Australia conducted a mine feasibility study of the Way Linggo North Vein gold project in South Sumatra; the study indicated an initial target production of between 1,244 and 1,866 kg/yr of gold and 15,552 kg/yr of silver. Ore treatment would be undertaken in a 120,000-t/yr carbon-in-pulp plant. The deposits had an average grade of 13.3 g/t of gold and 177 g/t of silver.<sup>3</sup> Meekatharra Minerals holds a 40.8% interest in the project, Aurora Gold Ltd. has 44.2%, and an Indonesian business executive has the remaining 15%. In August, Meekatharra Minerals agreed to buy out Aurora Gold's 52% stake in the holding company of P.T. Natarang Mining. The holding company has an 85% equity interest in P.T. Natarang Mining, which owns the contract of work including Way Linggo North Vein.

P.T. Dwi Tunggal Inti Sakti reported that it discovered gold deposits in the districts of Viqueque and Baucau on East Timor. Laverton Gold of Australia discovered substantial new gold-bearing deposits at its Rawas gold project in southern Sumatra. More than 9,331 kg of gold had been identified in reserves from its three present pits at the project. China National Gold Corp. considered the possibility of cooperating with P.T. Aneka Tambang in the mining of gold in Sumatra and Kalimantan. The former would supply equipment and workers, and Aneka Tambang would supply funding.

Aneka Tambang and Pacific Wildcat Resources Corp. (WRC), 26% owned by Gwalia Consolidated of Australia, formed a joint venture to explore a 300-km<sup>2</sup> gold property on Sulawesi. P.T. Bimantara Duta Samudra and another minor equity partner formed an association with WRC to earn an 85% interest in the project. Separately, WRC received approval from the Government to negotiate a contract of work on the Jambi gold project.

South Pacific Resources of Australia began exploration on three previously identified mineral properties on Kalimantan. One of them, the Masuparia project, is adjacent to the Mount Muro Mine and has 14 gold prospects. The other two properties are the Mandor project, a copper/gold porphyry target, and the Sampoit-Sori Hill project, an epithermal gold prospect.

Diadem Resources and Waseco Resources, both of Canada, entered into a letter of intent to earn a 60% interest in the Tewah alluvial gold project in central Kalimantan by either spending \$1.5 million on exploration or funding a full feasibility study. The joint venture's other partner was P.T. Mercu Buana Raya Contractors.

P.T. Krakatau Steel was to be privatized in early 1996. The company also discussed possible joint ventures with

Pohang Iron and Steel Co. of the Republic of Korea and BHP Steel of Australia. Krakatau Steel operates 2 direct-reduction iron facilities and 10 electric furnaces. Raw steel output was around 2.5 Mt/yr. Steel exports accounted for 20% of sales, of which 10% was flat products to North America.

Kanematsu Corp. of Japan and Alumindo Light Metal Industry of Indonesia formed a joint-venture company, P.T. Maspion Stainless Steel Indonesia, in Manyar-Gresil, East Java, to build a \$60 million, 50,000-t/yr stainless steel cold-rolling mill. Startup of production was scheduled for July 1997. The two companies were funding \$48 million in equity, and the Export-Import Bank of Japan was to extend \$12 million in loans. Sumitomo Metal Industries Ltd. would supply technology to the project and hot-rolled coil from Japan and other sources. Demand for stainless steel was estimated at 40,000 t/yr and was expected to grow to 60,000 t/yr by 1997.

Sanyo Special Steel Co. and Tomen Corp., both of Japan, planned to build a tool steel processing plant in Jakarta to produce and market dies. Construction of the plant was to begin in September 1995. The venture was capitalized at \$2.38 million with Sanyo holding 85% and Tomen 15%. Some \$8.33 million was to be invested in the projected facility.

P.T. Inco's \$500 million expansion project at Soroako, Sulawesi involved construction of a fourth smelting line and increasing hydroelectric generation capacity on the Larona River. The upgraded facility would increase nickel matte production to 68,000 t/yr by late 1998. The project also included the exploration and development of two new deposits in the same general area. In addition, a potential \$1 billion plan was to further expand its nickel output to 100,000 t/yr by 2010. However, the plan depended upon future nickel markets and economic conditions. Inco Ltd. of Canada owns 58% of P.T. Inco, which employs 3,000 workers. P.T. Inco was to sign an extension agreement with the Government of its contract of work that would expire in 2025.

P.T. Aneka Tambang produced 2.5 Mt of nickel ore. Part of the nickel ore was exported to Japan and Australia. Completion of a second nickel smelter in 1994 enabled its production and exports of ferronickel to double to around 11,000 metric tons (t) in 1995. The company expanded its ferro-nickel market to the Republic of Korea, Taiwan, and South Africa. It signed a long-term contract with Yieh United Steel Corp. of Taiwan for a total of 25,000 t of ferronickel to be supplied over the next 3 years. Aneka Tambang also made a deal with Pohang Iron and Steel Co. for 12,000 t over 5 years.

P.T. Koba Tin was to construct a tin smelter at its operations on Bangka Island. The new smelter would have an initial capacity of 13,000 t/yr and begin production in mid-1996. The \$4 million plant would include two reverberatory furnaces and refining equipment and would

treat the concentrate from Koba's mine. The company also planned to expand mining operations at Koba with the addition of a dredge.

P.T. Tambang Timah increased its tin production capacity from 33,500 to 42,400 t/yr with the commissioning of a sixth furnace. A seventh furnace was planned to boost its capacity to 50,000 t/yr. The state-owned tin mining company planned to increase production of nickel ore to 2.75 Mt/yr and ferronickel to 11,000 t/yr in 1996. The company accounted for 80% of the country's total tin output. Indonesia exported 30,500 t of tin in 1995, the same amount as in 1994. Tambang Timah was one of the lowest cost tin producers in the world. The company planned to diversify into coal, gold, and diamond mining in Kalimantan.

Semen Gresik paid \$483 million for two Government-owned cement companies, Semen Tonasa and Semen Padang. The acquisition more than doubled the company's capacity to 10.9 Mt/yr. The Government's stake in Semen Gresik fell to 65%. Semen Gresik started construction of its Tuban II project late in 1995; the new cement plant was scheduled for commissioning in mid-1997 and was to include a 7,800-t/d production line.

Ocean Resources signed a \$5 million option agreement to purchase two dredges and a fleet of support vessels from Aokkam Thai of Thailand to search for diamonds on the Sunda Shelf offshore of southeast Kalimantan. The search area covered 1,500 km<sup>2</sup> and included the Muluka paleochannel.

Ashton Mining finalized a joint-venture agreement with respect to the Cempaka alluvial diamond project. Parties in the joint venture are Aneka Tambang and Ashton-MMC, which is jointly owned by Ashton Mining and Malaysia Mining Corp. Compilation of drill-hole and bulk-sample results for the Danau Seran paleochannel was underway. Ground geophysical survey had begun at the Cempaka paleochannel. They were to be followed by Bangka drilling.

The country planned to lessen dependence on oil in favor of a mix of other energy sources such as coal, hydroelectric, and nuclear power, since Indonesia soon would become a net oil importer. Coal reserves in Indonesia were estimated at about 36,000 Mt. Coal production was 38.5 Mt in 1995 and would increase to about 80 Mt by the year 2000. Coal exports were expected to be 26.4 Mt, increasing to 35 Mt.

P.T. Adaro Indonesia was to supply a total of 120 Mt of coal over 30 years to the Paiton power generating plant in eastern Java. The company exported 3 Mt/yr of coal in 1995. P.T. Batubara Butik Asam (PTBA) exported about 2.2 Mt/yr of coal to National Power Corp. of the Philippines. Kaltim Prima Coal, a joint venture between British Petroleum and CRA Ltd. of Australia, planned to float a portion of its shares on the Jakarta Stock Exchange. The company is Indonesia's largest coal producer and has a 30-year contract of work in East Kalimantan. Production for 1995 was expected to be similar to that recorded for 1994.

PTBA was to be restructured with regard to its

organization and capital. The restructuring of organization was intended to focus more on the mining and production of coal as its core business, and that of capital would mainly cover the reduction of unproductive assets.

Banpu International Ltd. of Thailand and P.T. Sitrade Nusaglobus agreed to cooperate with P.T. Batubara Bukit Asam in exploring coal over an area of 85,000 hectares (ha) in Sinamar, West Sumatra, and in Mampun, Jambi. Meanwhile, P.T. Esindo Ereshhamas joined Eltin Co. of Australia in a coal mining venture in Padang Sidempuan, South Tapanuli, with an investment of \$140 million. Coal deposits were estimated to be between 75 and 100 Mt.<sup>4</sup> The two companies expected to supply 1.5 Mt/yr of coal to a 200-megawatt (MW) powerplant in South Tapanuli to be built by P.T. Ikabina Pabola consortium.

Construction of a coal terminal at Pulau Laut in Kalimantan went ahead after National Australia Bank and Banque Nationale de Paris agreed to provide \$75 million to finance the project, which was due to be completed in 1998. Loading capacity was expected to be between 8 and 10 Mt/yr. The terminal would handle vessels up to 100,000 deadweight tons. The facility was to be used predominantly by P.T. Adaro, and, from the terminal, about 4.3 Mt/yr of coal would be supplied to the Paiton Power project.

The country and Exxon Corp. of the United States signed an agreement in January to invest \$40 billion in the Natuna natural gas project in the South China Sea. The exploration and exploitation of natural gas would be conducted by Pertamina and an Exxon affiliate, Esso Exploration & Production Natuna Inc. Tests indicated that the natural gas had high carbon-dioxide content at 70%. Gas reserves were estimated to be about 1.27 trillion m<sup>3</sup>. Full development of the project would require 18 offshore platforms and 200 production wells. Production at a rate of 56.6 million cubic meters per day (m<sup>3</sup>/d) of natural gas could last for 30 years. Japan was given the top priority to buy natural gas from the Natuna Field.

A joint venture by MIM holdings Ltd. of Australia (33.3%) and Apache Oil (38.9%) and Parker & Parsley Petroleum Co. (27.8%), both of the United States, discovered natural gas and condensates in Bentu block, central Sumatra.

Maxus Energy Corp. of the United States discovered natural gas in a well drilled on its 2.06-million-ha Northwest Java concession offshore in the Java Sea. Maxus Energy holds a 24% interest in the concession, and Atlantic Richfield Co., also of the United States, was the project operator with a 46% interest under a production-sharing contract with Pertamina.

Mobil Oil Indonesia planned to develop three new gasfields to supply the Arun LNG plant in Aceh, North Sumatra. Two new fields on South Lhok Sukon were expected to come on-stream in 1997, and the third field, offshore Arun, would be operational by the year 2000.

The Trans-Indonesia Gas Transmission System would connect an existing pipeline on Java with the rest of the

country at a cost of \$2.7 billion. The Natuna Gasfield in the South China Sea also would be connected to the grid. The first phase included a pipeline between Gresik and Duri on Sumatra. The World Bank was conducting a study on the second phase between Jakarta and Gresik.

A consortium of the Asian Development Bank (\$217 million), the European Investment Bank (\$58 million), and the Export-Import Bank of Japan (\$195 million) agreed to finance Perusahaan Gas Negara's (PGN) first-phase 800-kilometer (km) gas pipeline on Sumatra with a total cost of \$588 million. PGN would provide \$18 million and plan to issue convertible bonds to raise \$100 million. The line would run from Asamera's Corridor Block gasfields to Caltex's Duri oilfields and on to Batam Island as a spur. The main line was scheduled for commissioning in December 1997 and the spur in September 1998. The gas would be used at Duri as fuel for the steamflood system currently in operation.

Six Japanese companies agreed to extend contracts to buy LNG worth \$20.1 billion from the Arun plant in Aceh Province and the Bontang plant in East Kalimantan until 2018. They were to import about 11.94 Mt/yr of LNG. Indonesia's annual output of LNG was about 26.27 Mt, or about 30% of the world's total, and was produced from 12 trains. Pertamina also offered 30-year contracts for the LNG from the Natuna Gasfield, which would become its third LNG center, producing 15 Mt/yr. In 1995, Indonesia exported more than 20 Mt/yr of LNG to Japan, the Republic of Korea, and Taiwan. Pertamina would supply 1.8 Mt/yr of LNG to Chinese Petroleum Corp. of Taiwan for 20 years in a deal worth \$6 billion.

The Export-Import Bank of Japan led a group of banks to provide 70% of the \$970 million towards the cost of constructing a seventh processing train at the Bontang LNG plant. Building of the 2.6-Mt/yr unit was due to start in 1995, with completion set for mid-1997. The refinery was expected to increase Bontang production capacity to 18 Mt/yr, making it the largest LNG plant in the world. Natural gas from Lasmo's Sanga Sanga production sharing contract area would be processed at the plant.

Pertamina planned to drill 128 oil exploration wells in 1995, 11 in the eastern areas and 117 in the west. The total number of production wells was expected to increase to 586. Seismic line operations were expected to rise to 78,800 km. A total of 33 onshore and offshore areas was open for production-sharing contracts. Pertamina signed 18 production-sharing contracts in 1995.

The oil industry produced 1.5 million barrels per day (bbl/d) of crude oil and was dominated by Pertamina. About 70% of the country's output was for domestic consumption, and only 30% was for export. Pertamina launched a cost-cutting program and planned to lay off 13,000 of its 46,000 employees over the next 5 years. The company also considered spinning off its domestic chain of retail gasoline stations.

An export-oriented oil refinery was opened in May 1995. The plant operated at 120,000 bbl/d, near its capacity of 125,000 bbl/d, and its residue catalytic cracker at 80,000 bbl/d, near the 83,000-bbl/d capacity. The refinery produced 54,500 bbl/d of gasoline; 10,400 bbl/d of kerosene; 14,900 bbl/d of industrial diesel; 24,400 bbl/d of automotive diesel fuel; and 7,230 bbl/d of fuel oil. P.T. Hammet Oil Refinery planned to build the eighth new export-oriented refinery in Serang, West Java. The \$2 billion refinery would process imported Middle East crude oil.

In another development, a consortium led by P.T. Gigaraya International planned to build a \$3.1 billion oil refinery in East Java. Other partners would be Mitsui of Japan and Saudi Arabian Oil Co. Construction was to begin in early 1997, and the refinery would be completed in 3 to 4 years. The refinery was to be supplied with 150,000 bbl/d of crude oil from the Middle East and would produce 2.3 Mt/yr of gasoline, 3 Mt/yr of gas oil, and 2.3 Mt/yr of kerosene and fuel oil.

Marathon Petroleum Indonesia of the United States produced crude oil at 40,000 bbl/d from the KG and KRA fields in the Natuna Sea. The fields would increase output with the existing Kakap facilities to 50,000 bbl/d. Marathon Petroleum Indonesia has a 37.5% interest in the Kakap production-sharing contract, and the other partners are Lasmo (18.75%), Oryx (18.75%), LL&E (15%), and Pertamina (10%). In 1995, Lasmo sold its 18.75% interest to Minora Resources for \$29.5 million.

P.T. Caltex Pacific Indonesia, equally owned by Texaco and Chevron of the United States, accounted for nearly one-half of the country's total oil output from four production-sharing contract areas on Sumatra. The Duri steamflood oilfield was the largest such operation in the world.

Unocal Indonesia Ltd., a unit of Unocal Corp. of the United States, discovered a new oil and natural gas field in the Mahakam Delta off eastern Kalimantan. Stirling Resources produced first oil from the offshore Camar oil and gasfield in January. The company has a 16% interest in the Camar Field and associated production facilities. Phillips Petroleum Co. and its partners discovered natural gas and condensate offshore in the Timor Gap.

Total (30%) of France signed an exploration contract with Asamera (45%), a subsidiary of Gulf Canada Resources, for drilling in the Jambi B production-sharing contract area in South Sumatra. Pertamina owns the remaining 25% of the project.

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<sup>1</sup>Where necessary, values have been converted from Indonesian rupiahs (Rp) to U.S. dollars at the rate of Rp2,204=US\$1.00 for 1995.

<sup>2</sup>Northern Miner, Jan. 16, 1995, p. 1.

<sup>3</sup>Mining Magazine, Jan. 1995, p. 57.

<sup>4</sup>Southeast Asia Mining Letter, Mar. 17, 1995, p. 8.

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### Major Publications

Central Bureau of Statistics, Jakarta: Monthly Statistical Bulletin—Economic Indicator.  
Department of Mines and Energy, Jakarta: Indonesian Mining Yearbook, annually.  
Directorate General of Oil and Gas, Jakarta: Petroleum and Natural Gas Industry of Indonesia, monthly.

### Major Sources of Information

Department of Mines and Energy

TABLE 1  
INDONESIA: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity	1991	1992	1993	1994	1995 e/
<b>METALS</b>					
<b>Aluminum:</b>					
Bauxite, gross weight	1,406	804	1,320	1,342	899 2/
thousand tons					
Metal, primary	187,000	173,000	205,526	221,900	220,000
Chromite sand, dry basis e/	1,950 2/	2,000	2,500	2,500	2,500
Copper, mine output, Cu content	211,692	280,819	298,648	322,190	443,618 2/
Gold, mine output, Au content 3/	16,879	37,983	42,097	42,600	62,800 2/
kilograms					
<b>Iron and steel:</b>					
Iron sand, dry basis	173,242	287,821	341,335	334,895	340,000
<b>Metal:</b>					
Ferroalloys: Ferronickel e/	25,000	26,000	27,000	27,000	27,000
Steel, crude	3,250,000	3,171,072	1,947,511	2,000,000 e/	2,050,000
<b>Manganese: e/</b>					
Ore	13,253 2/	13,000	14,000	14,000	14,000
Ferromanganese	--	--	10,000	10,000	10,000
<b>Nickel:</b>					
Mine output, Ni content 4/	71,681	77,600	65,800	81,100	88,183 2/
<b>Metallurgical products:</b>					
Matte: Ni content	27,433	39,307	36,987	45,300	46,129 2/
Ferronickel: Ni content	5,318	5,506	5,266	5,745	10,735 2/
Silver, mine output, Ag content	80,294	99,941	90,301	107,000	182,982 2/
kilograms					
<b>Tin:</b>					
Mine output, Sn content	30,061	29,400	29,000 e/	30,610	38,378 2/
Metal	30,415	31,915	30,415	31,100	38,628 2/
<b>INDUSTRIAL MINERALS</b>					
Cement, hydraulic	16,153	17,280	18,934	19,000 e/	19,500
thousand tons					
<b>Clays:</b>					
Bentonite	21,512	17,960	13,707	14,409	26,057 2/
Fireclay e/	1,850,000	1,900,000	1,950,000	1,950,000	2,000,000
Kaolin powder	139,915	230,550	42,365	53,236	14,000
<b>Diamond: e/</b>					
Industrial stones	24	21	20	22	22
thousand carats					
Gem	8	6	7	6	7
do.					
Total	32	27	27	28	29
do.					
Feldspar	13,674	16,719	27,835	40,483	49,415 2/
Gypsum	404,310	400,000 e/	1,646	1,286	1,327 2/
Iodine	36,353	35,000 e/	14,180	89,098	76,821 2/
kilograms					
Nitrogen: N content of ammonia	2,706,268	2,687,818	2,888,000	2,800,000 e/	2,850,000
Phosphate rock e/	6,384 2/	8,000	7,000	7,000	7,500
Salt, all types e/	610	630	650	650	670
thousand tons					
<b>Stone:</b>					
Dolomite	10,000 e/	11,414	4,534	4,386	4,056 2/
Granite	1,200 e/	2,907	2,767	5,129	3,066 2/
thousand tons					
Limestone	2,573	3,796	4,000 e/	20,814	13,143 2/
do.					
Marble	378	1,989	3,000	15,286	10,446 2/
square meters					
Quartz sand and silica stone	429,251	400,000 e/	239,769	588,429	278,925 2/
Sulfur, elemental e/	3,600	3,600	3,500	3,500	3,500
Zeolite	600 e/	70	60	70	70
<b>MINERAL FUELS AND RELATED MATERIALS</b>					
Coal	13,688	22,357	27,583	30,934	41,080 2/
thousand tons					
<b>Gas, natural:</b>					
Gross	2,035,058	2,582,641	2,661,878	2,940,000	2,900,000
million cubic feet					
Marketed e/	1,400,000	1,600,000	1,600,000	1,700,000	1,700,000
do.					
<b>Petroleum:</b>					
Crude including condensate	581,232	550,668	557,661	588,000	580,000
thousand 42-gallon barrels					
<b>Refinery products:</b>					
Liquefied petroleum gas	3,453	4,224	3,600 e/	3,800 e/	3,900
thousand 42-gallon barrels					
Gasoline	42,137	43,814	45,000 e/	45,000 e/	46,000
do.					
Jet fuel	6,580	6,341	6,000 e/	6,200 e/	6,200
do.					
Naphtha	14,078	12,435	20,000 e/	18,000 e/	19,000
do.					
Paraffin wax	183	140	190 e/	200 e/	200
do.					
Kerosene	47,326	48,996	50,000 e/	50,000 e/	51,000
do.					
Distillate fuel oil	76,592	82,046	77,000 e/	80,000 e/	79,000
do.					
Lubricants	1,462	1,724	1,600 e/	1,800 e/	1,700
do.					
Residual fuel oil	26,975	28,992	30,000 e/	30,000 e/	30,000
do.					
Unfinished oil for processing	44,251	50,820	43,000 e/	45,000 e/	46,000
do.					

See footnotes at end of table.

TABLE 1--Continued  
INDONESIA: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity	1991	1992	1993	1994	1995 e/
MINERAL FUELS AND RELATED MATERIALS--Continued					
Petroleum: Refinery products--Continued:					
Refinery fuel and losses	do.	12,490	12,569	14,000 e/	15,000 e/
Unspecified	do.	2,936	842	2,500 e/	2,000 e/
Total	do.	278,463	292,943	292,890 e/	297,000 e/

e/ Estimated.

1/ Table includes data available through May 21, 1996.

2/ Reported figure.

3/ Includes Au content of copper ore and output by Government-controlled foreign contractors' 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 15 metric tons per year.

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

TABLE 2  
INDONESIA: STRUCTURE OF THE MINERAL INDUSTRY FOR 1995

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Locations of main facilities	Annual capacity
Aluminum:			
Bauxite	P.T. Aneka Tambang (Government, 100%)	Kijang, Bintan Island	1,300
Metal	P.T. Indonesia Asahan Aluminium (Nippon Asahan Aluminum Co. of Japan, 59%; and Government, 41%)	Kual Tanjung, north Sumatra	225
Cement	P.T. Indocement	Citeureup, west Java	8,000
Do.	P.T. Semen Cibinong	Narogong, east Java	1,400
Do.	P.T. Semen Gresik	Gresik, east Java	1,500
Do.	P.T. Semen Padang	Indarung, west Java	2,200
Coal	P.T. Allied Indo Coal (Allied Indonesia Coalfields Pty. Ltd. of Australia, 60%; and P.T. Mitra Abadi Sakti of Indonesia, 20%)	Parambahan, west Sumatra	500
Do.	P.T. Tambang Batubara Bukit Asam (Government, 100%)	Bukit Asam, south Sumatra	4,000
Do.	Perum Tambang Batubara (Government, 100%)	Ombilin, west Sumatra	1,000
Copper, in concentrate	P.T. Freeport Indonesia Co. (Freeport McMoRan Copper and Gold Inc. of the United States, 80%; Government, 10%; and others, 10%)	Ertzberg and Grasberg, Irian Jaya	350
Granite	P.T. Karium Granite (subsidiary of P.T. Pandawa Sempurna of Indonesia)	Karium Island	2,000
Petroleum, crude	Atlantic Richfield Indonesia, Inc. (subsidiary of ARCO of the United States)	Arjuna and Arimbi, offshore, west Java	170
Do.	Maxus Southeast Asia Ltd. (subsidiary of Maxus Energy of the United States)	Cinta and Rama, offshore, southeast Sumatra	95
Do.	PERTAMINA (Government, 100%)	Jatibarang, west Java, and Bunyu, offshore east Kalimantan	80
Do.	P.T. Caltex Pacific Indonesia (Texaco Inc., 50%; and Chevron 50%, both of the United States)	Minas, Duri, and Bangko, central Sumatra	700
Do.	Total Indonesia (subsidiary of Compagnie Francaise des Petroles of France)	Handi and Bakapai onshore and offshore east Kalimantan	180
Gas:			
Natural	Mobil Oil Indonesia, Inc. (subsidiary of Mobil Corp. of the United States)	Arun, Aceh in north Sumatra	1,700
Do.	Roy M. Huffington (subsidiary of HUFFCO of the United States)	Badak, east Kalimantan	1,000
Liquefied	P.T. Arun LNG Co. Ltd. (Government, 55%; Mobil Oil, 30%; and the Japan Indonesia LNG Co., 15%)	Balang Lancang, Aceh in north Sumatra	10,000
Do.	P.T. Badak LNG Co. Ltd. (Government, 55%; HUFFCO Group, 30%; and the Japan Indonesia LNG Co., 15%)	Bontang, east Kalimantan	7,900
Nickel:			
In ore	P.T. Aneka Tambang (Government, 100%)	Pomalaa, south Sulawesi and on Gebe Island, Moluccas	34
In matte	P.T. International Nickel Indonesia (Inco Ltd. of Canada, 78%; Sumitomo Metal Mining Co. Ltd. of Japan, 20%; other, 2%)	Soroako, south Sulawesi	45
Nitrogen	P.T. Aseah-Aech Fertilizer (Government, 60%; other members of Asean 40%)	Lhokseumawe, north Sumatra	506
Do.	P.T. Pupuk Iskandar Muda (Government, 100%)	do.	506
Do.	P.T. Pupuk Kalimantan Timur (Government, 100%)	Bontang, east Kalimantan	1,012
Do.	P.T. Pupuk Sriwijawa (Government, 100%)	Palembang, south Sumatra	1,438
Steel, crude	P.T. Krakatau Steel (Government, 100%)	Cilegon, west Java	2,000
Tin:			
In ore	P.T. Koba Tin (Government, 25%; Renison Goldfields Consolidated Ltd. of Australia, 75%)	Koba, Bangka Island	6
Do.	P.T. Tambang Timah (Government, 100%)	Onshore and offshore islands of Bangka, Belitung, and Singkep	32
Metal, refined	Peleburan Timah Indonesia (Government, 100%)	Mentok, Bangka Island	32