

THE MINERAL INDUSTRY OF INDONESIA

By Chin S. Kuo

Indonesia's economic growth was 7.8% in 1996, slower than the 8.2% achieved in 1995. The economy was stable despite a large current account deficit which was caused by surging imports together with sluggish export growth due to weak oil prices and slow demand for nonoil exports. The balance of payments was vulnerable due to the country's high external debt that was estimated at \$104 billion at the end of 1996. This made Indonesia the third largest debtor of developing countries, after Brazil and Mexico. The inflation rate for the 9 months of 1996 declined to 4.9%. Per capita income was around \$1,150.

Indonesia's mineral and energy sectors have played a significant role in the country's economic development and attracted increasing foreign investment. Total approved foreign investment reached \$33 million in 1996 that included large infrastructure, mining, and chemical projects.

The Government discovered coal, metal, and other industrially useful minerals, improving Indonesia's rank among potential countries for mining investment. The identified copper, gold, nickel, and silver resources are in Kalimantan, Sulawesi, Irian Jaya, Sumatra, and some parts of Java. Resources of rare metals, industrial minerals, coal, and peat were found in Sumatra. Gold, other precious metals, base metals, and phosphates were found in Java. Coal, peat, precious stones, and industrial minerals were reported to exist in Kalimantan and Sulawesi.

The Government might allow mining companies to hold a second contract of work in the same or a different concession area from the first contract of work. The exploration and development costs from the second contract of work could be offset against any tax paid on profits from an operation on the first contract of work. The Government had not reached a decision on the subject with the taxation authorities.

The Government intended to decide on the deregulation bill of the oil industry in 1996 which would give foreign companies access to the domestic retail market. The country projected a 4.5% decline in oil exports to an average of 785,300 barrels per day (bbl/d) in 1996. Japan was expected to be hardest hit with a fall to 337,700 bbl/d. Imports of crude oil were expected to rise to 171,000 bbl/d. Imports from the Middle East would rise to 83,400 bbl/d and those from Malaysia would more than double to an average of 47,000 bbl/d. However, imports from Australia would be eliminated. The Government raised the tariff surcharge on propylene and ethylene imports from 5% to 25%.

P.T. Indonesia Asahan Aluminum's smelter in North Sumatra produced 225,000 metric tons per year (t/yr) of aluminum. The Government has a 41% stake with the rest held by the Nippon Asahan Aluminum Co. of Japan. Domestic consumption of

aluminum was around 60,000 t/yr. There were no immediate plans to raise the production capacity of the smelter.

P.T. Freeport Indonesia Co. disclosed proven and probable reserves at the Grasberg Mine to be 1.97 billion metric tons (t) averaging 1.17% copper, 1.17 grams per metric ton (g/t) gold, and 3.78 g/t silver at December 31, 1996 (Freeport-McMoRan Copper & Gold, Inc., 1997). A prefeasibility study aimed at expanding mining and milling capacity to approximately 200,000 metric tons per day (t/d) was completed. The company currently operated at 125,000 t/d. RTZ Corp. Plc of the United Kingdom had an option to spend up to \$750 million in existing operations, including a coal-fired powerplant and related facilities, to earn a 40% stake. By 1999, Freeport Indonesia was to raise its copper output from the current 499,000 to 680,000 t/yr and gold output from 51,300 to 62,200 kilograms per year (kg/yr).

Financing of Freeport Indonesia's new \$650 million, 200,000-t/yr copper smelter and refinery at Gresik was underway. A \$410 million syndicated loan was underwritten by joint arrangers. The company would have a 25% stake and Mitsubishi Materials of Japan the remaining 75%. Fluor Daniel Inc. of the United States completed design and preliminary site preparation and pulled out of the ownership of the project. Construction began in mid-1996 and completion was expected in the second half of 1998.

International Skyline Gold Corp. agreed in principle to acquire interests in 5.4 million hectares (ha) of gold-copper prospect in Irian Jaya from the Mutiara Resources Group. The areas include acreage adjacent to the Grasberg/Ertsberg operations of Freeport Indonesia.

Bre-X Minerals Ltd. of Canada's find of an epithermal gold deposit at Busang in East Kalimantan was reported to have a resource averaging 3 g/t and containing some 1,400 t of gold (Mining Magazine, 1996). The company sought joint-venture partners to develop the deposit and Barrick Gold Corp. and Placer Dome Inc., both of Canada, were involved in the bids for participation in the project. Subsequently, under a joint-venture agreement, Bre-X Minerals would own 45% of Busang; two local partners, P.T. Askatindo Karya Minerals and P.T. Amsya Lyna, 30%; Freeport-McMoRan Copper & Gold, 15%; and the Government of Indonesia, 10%. As of this writing, tests of samples by Freeport-McMoRan Copper & Gold showed that the deposit might contain insignificant amounts of gold. An interim report prepared for Bre-X Minerals by Strathcona Mineral Services Ltd. of Canada indicated there was virtually no possibility of an economic gold deposit at Busang.

Indomin Resources of Canada applied for contracts of work

for its Busang North project in Kalimantan, for its gold project in East Sulawesi, and for its Kumanba heavy minerals beach sand project in northern Irian Jaya. The company owns 85% of the Busang North gold project and P.T. Amsya Lyna has a 15% interest. In East Sulawesi, an aeromagnetic survey and a bulk leach extractable gold program were planned for June and September 1996, respectively. Indomin Resources has a 90% interest and P.T. Indo Mineratama, 10%. An exploration program outlined a resource of 450 million metric tons (Mt) with a minimum of 5% heavy minerals (Mining Journal, 1996b). The company has a 60% interest, P.T. Telandan Utama, 30%, and P.T. Indo Mineratama, 10%.

Laverton Gold NL of Australia proceeded with the development of its Rawas gold-silver project in South Sumatra. The project was designed to produce 2,000 kg/yr over a mine life of at least 10 years. Rothschild Australia would provide \$16 million with a \$2 million contingency to fund the project. Laverton Gold would raise additional funds by issuing new shares.

The North Vein of Meekatharra Minerals of Australia's (85%) Way Linggo gold prospect in Sumatra was reported to have ore reserves of 349,000 t grading 10.4 g/t gold and 143 g/t silver (Engineering & Mining Journal, 1995). Underground mining was planned via a decline access. Mining was planned to start in early 1997 at a rate of 100,000 t/yr, producing 1,100 kg/yr of gold and 15,600 kg/yr of silver. Capital costs were estimated at \$15 million. The company also acquired from Gold Mines of Australia of its 70% holding in the P.T. Paragon Perdana Mining's 6,606-ha contract of work. The company's Ciemas gold project (55%) in West Java delineated three major gold-bearing quartz vein zones. They were new discoveries. Meekatharra Minerals planned to spend a further \$700,000 over the next 2 years.

Euro-Nevada Mining Corp. acquired an interest in the Mount Muro project in Kalimantan for the consideration of \$18.5 million on the first 47,000 kilograms (kg) of gold as well as all silver produced. The project is 90%-owned and controlled by a subsidiary of Aurola Gold Ltd. of Australia. Barrick Gold Corp. of Canada would develop two large gold projects in East Kalimantan. They were the 747,800-ha International Pursuit concession at Kutai and the 100,100-ha Dayak Goldfields concession at Berau.

Production startup of Newmont Mining Corp.'s Minahasa gold project in North Sulawesi was scheduled in March 1996 and output level was expected to be 78,000 kg in 1997. It was estimated that the contract of work area contained enough gold to support 13 years of production. Newmont's Batu Hijau copper-gold find on Sumbawa was reported to have a resource base containing 457,000 kg of gold, 858,000 kg of silver, and 5.13 Mt of copper (Southeast Asia Mining Letter, 1996). The company owns 45% of the property, Sumitomo Corp. of Japan 35% with the remaining 20% privately held by P.T. Pukuafu Indah. The \$1.5 billion project was expected to produce 245,000 t/yr of copper and 15,600 kg/yr of gold in concentrate over a mine life of 20 years. Construction of a major new copper-gold mine was set to start in 1996 and production in 1999. Fluor Daniel of the United States was chosen to provide

engineering, procurement, construction, and project management services in a contract worth \$1 billion.

P.T. Aneka Tambang and First Dynasty Mines of the United States signed a memorandum of understanding which would examine and recommend privatization strategies for the Gunung Pongkor gold mine and related exploration properties. The mine, developed by Aneka Tambang in West Java, contains reserves of over 93,300 kg of gold in ore (Mining Journal, 1995). The ores occur in three principal veins: the Ciguha, Kubang Cicau, and Ciurug veins. Current capacity was 2,500 kg/yr of gold with plans to increase to 5,000 kg/yr by 1997. Some \$34.5 million would be invested to accomplish the expansion. The ownership of the Gunung Pongkor Mine would be transferred to First Dynasty in return for \$120 to \$145 million worth of shares in the company. First Dynasty also would acquire all related exploration concessions in West Java.

Consolidated Valley Venture Ltd. of Canada carried out an airborne geophysical survey and an extensive ground sampling in May over the 600 square kilometers (km²) area covered by its Riam Kusik project in Southwest Kalimantan. Limited diamond drilling and underground development delineated a geological reserve within one structure of 1.8 Mt grading 10% lead, 28 g/t silver, and 10% zinc (Mining Journal, 1996a). Diadem Resources began drilling at its partly owned zinc-lead-silver property on Belitung Island to confirm its tonnage and grade potential. Diadem Resources holds 30% of the property and Bresea Resources Ltd. 60%, with the remaining 10% held by an Indonesian firm. Bre-X Minerals Ltd., which is 23%-owned by Bresea Resources, was the operator.

South Pacific Resources identified three gold targets in two contract of work areas in Central Kalimantan. The Ongkang District and the Batu Putih and Mursani prospects might be part of a single mineralized structure. The company signed a memorandum of understanding with P.T. Tambang Timah. Under the agreement, South Pacific Resources would explore for hard rock mineral targets on the Timah property adjoining its Mandor contract of work area on which Timah would be granted exclusive rights for alluvial targets.

P.T. Krakatau Steel awarded a \$50 million environmental contract to Voest-Alpine Industrieanlagenbau of Austria to design, engineer, and construct a dedusting plant and water treatment and power utilities for its Cilegon works. The company also awarded Morgan Construction Co. of the United States a second contract for improvements to its rod-producing plant at Cilegon. The contract would include an addition of a new strand which should increase production to 600,000 t/yr in March 1998. An earlier contract was to increase plant output by 20% to 300,000 t/yr in March 1997. The company agreed to provide engineers and technical experts to work with Ausmelt Ltd. of Australia in the establishment and operation of a demonstration pig iron plant in South Australia.

P.T. Krakatau Steel might install a blast furnace to raise its crude steel production to 5.5 million metric tons per year (Mt/yr) within the next 3 years. Plans were to build a new 3-Mt/yr blast furnace and a 2-Mt/yr basic oxygen converter shop at Cilegon. The installation of the blast furnace would start in 1997. The company intended to close some of its direct

reduction plants and canceled plans to install a new 1.2-Mt/yr Midrex plant. P.T. Krakatau Steel signed a memorandum of understanding with Krupp Thyssen Nirosta of Germany to produce stainless steel cold-rolled coil and sheet. The \$100 million project would start operations by the end of 1997 at an initial capacity of 50,000 t/yr.

Posco of the Republic of Korea signed a contract with P.T. Krakatau Steel to form a joint venture to develop a \$500 million plate steel mill at Cilegon. The mill was expected to be completed by September 1999 with a planned capacity of 1 Mt/yr but with an ultimate capacity of 2 Mt/yr after investment of an additional \$300 million. The mill would be fed with mainly scrap steel. Posco and Krakatau Steel hold a 40% interest each and the remaining is equally held by P.T. Nusamba and Korindo of the Republic of Korea.

P.T. Bakrie & Brothers ordered an arc-welded pipe mill to be built in South Sumatra from Mannesmann Demag Huttentechnik's Meer division. The mill would produce pipes from 61 to 122 centimeters in diameter starting in late 1997.

Extension of P.T. Inco's contract of work had been approved by the Government. The present contract expires in 2008 and was expected to be extended to 2025. The contract area covers 218,530 ha in Sulawesi. P.T. Inco planned a \$580 million expansion at Soroako to raise output to 68,000 t/yr of nickel in matte by the year 2000. The expansion included the addition of a fourth smelting line and construction of an additional hydroelectric facility. A \$421.2 million financing scheme with North American and Japanese banks to handle expansion plans and existing debts was finalized. The company is 58.7% owned by Inco Ltd. of Canada. An explosion occurred in one of its three electric furnaces in September 1996. The furnace which accounted for one-third of annual production of 45,359 t of nickel in matte was out of service for 8 weeks. Nickel output loss in 1996 was around 2,270 t.

Gencor Ltd. of South Africa held talks with P.T. Aneka Tambang to set up a joint venture to explore and develop nickel laterite deposit on the Halmahera Islands. Meanwhile, Gencor applied for a contract of work covering an area of 4,500 km² in Irian Jaya. Aneka Tambang currently produces nickel from its mine in Sulawesi. Ore output was increased to 3.31 Mt in 1996. Most of the nickel ore was exported to Australia and Japan. The company's Pomalaa ferronickel plant planned its production to be 10,650 t/yr in 1996 from the previous 10,735 t/yr and could not meet export demands. The countries with greatest demand for ferronickel were Japan, the Republic of Korea, and Taiwan. Plans were underway to build two more plants, each with a capacity of 5,500 t/yr. These plants were targeted to be completed by 1999. The company was reported to have a plan of setting up a stainless steel producing plant. Aneka Tambang also planned to build a \$200 million hydroelectrical powerplant at Lasolo River to meet the required capacity of 90 megawatts (MW).

Battle Mountain Gold Co. of the United States, together with P.T. Mutiara Iriana Minerals, discovered an area of lateritic nickel mineralization at its Siduarsi prospect in Irian Jaya. The area of mineralization showed average grades of 0.92% nickel and 0.08% cobalt over an average thickness of 2.7 meters.

P.T. Koba Tin, a subsidiary of Renison Goldfields Consolidated Ltd. of Australia, completed two major capital projects to expand its tin operations. A dredge would increase tin production by 33% to 10,000 t/yr in March 1996. The second project was the construction of a tin smelter which was commissioned in December 1995.

P.T. Tambang Timah obtained five exploration licences covering 17,900 km² in Kalimantan and planned to conduct exploration program for both gold and diamonds on these concessions. The company would diversify its interests beyond core tin production. Timah entered an agreement with P.T. Aneka Tambang for the possible joint development of the concessions. P.T. Tambang Timah's tin smelter output was targeted to increase from 42,000 t in 1996 to 47,000 t in 1997. A project to increase smelter capacity to 50,000 t/yr would be completed by the end of October.

P.T. Tambang Timah planned to establish new subsidiaries in an effort to boost production and increase efficiency. The company expected to set up P.T. Perusahaan Investasi which was intended to coordinate the firm's existing subsidiaries. The company also planned to set up subsidiaries, P.T. Kawasan Industri Bangka and P.T. Timah Engineering Co. The former would be involved in utilizing the firm's existing deep sea harbor and other infrastructure on Bangka Island and the latter was aimed at improving productivity at the firm's workshops, dockyards, and other infrastructure.

China Development Corp. of Taiwan signed a memorandum of understanding with Djajanti Group to build a \$600 million joint-venture cement plant with a capacity of 3.4 Mt/yr in eastern Indonesia. P.T. Semen Tonasa was to build a fifth production unit at Pangkep with a capacity of 2.3 Mt/yr. The project would start in the second half of 1996 and was scheduled to begin operations in the year 2000. Meanwhile, P.T. Semen Padang was to expand its plant by an additional production capacity of 2.3 Mt/yr with an investment of \$358 million.

Ashton Mining reported that the Danau Seran palaeochannel was inferred to contain a dredgeable diamond grade volume of 25 million cubic meters with an estimated stripping ratio of 3.4:1. At the larger Cempaka palaeochannel, it was inferred to contain 236 million cubic meters of dredgeable gravels.

Ocean Resources NL of Australia took a \$5 million option to purchase two dredges and a fleet of support vessels for its Sunda Shelf offshore alluvial diamond project off the southeast coast of Kalimantan. Dredging began in April and work in the first bulk sample area was completed in July. The concession area covers 1,500 km² where drill samples recovered gold and indicator minerals for diamonds. Platinum was also present. There was the existence of a substantial palaeochannel system containing an estimated 36 million cubic meters of gravels. Trans-Hex International agreed to spend \$5 million on exploration and the completion of a feasibility study to earn a 30% interest in the project and secure the financing of the development of the project. Indomin's free-carried 30% holding in the project would be reduced to 21%. If a mining plant was successfully commissioned, Trans-Hex had the option to increase its equity in the project to 50%.

P.T. Pupuk Kaltim planned to expand its fertilizer plant at

Bontang in East Kalimantan by 15% to 1,350 t/d of ammonia and 1,725 t/d of urea. M. W. Kellogg of the United States would manage the retrofit and expansion. Completion was scheduled for mid-1998. The ammonia plant was expected to cost \$200 million and the urea plant \$90 million. The company currently produced 1.5 Mt/yr of ammonia and 2 Mt/yr of urea. Meanwhile, P.T. Pupuk Kujang planned to build a 330,000-t/yr ammonia plant and a 570,000-t/yr urea plant at Cikampek in western Java. The new \$295 million plants would be operational by 1998.

P.T. Tambang Batubara Bukit Asam was developing four new coal mines in South Sumatra. Coal demand at the expanding Suralaya powerplant in West Java was expected to reach 6.8 Mt/yr in 1997. The mines would bring the company's output to 13.5 Mt/yr by 1998. The company currently operates two coal mines at Tanjung Enim, South Sumatra, and Ombilin, West Sumatra. Output from these two mines in 1996 was 8.7 Mt. The company also planned to develop more new mines, infrastructure, coal upgrading facilities, and mine mouth powerplants. The construction of a port and rail loading stations started in 1996. The company, P.T. Panca Sahabat Abadi, and Mapco Inc. of the United States entered into a joint agreement to develop several projects. The company planned to go public by 1998 in a bid to increase coal production.

P.T. Kaltim Prima Coal planned to increase its coal output from 11.5 Mt in 1996 to 15 Mt in 1997 and 22 Mt in 1998 from only one mine in East Kalimantan. The company produced one-fourth of Indonesia's coal output and exported its coal to Europe, Hong Kong, Japan, Taiwan, and the United States. The company is jointly owned by British Petroleum and CRA of Australia.

Straits Resources of Australia agreed to acquire Straits Sebuku Pte Ltd. of Singapore which has an 80% interest in the Sebuku coal project for \$20.6 million. The deal also provided Straits Resources with a 64% interest in the Sungei Durian coal exploration project. The Sebuku project's mine life, at a production rate of 1.35 Mt/yr, was estimated to be 11 years. The Sungei Durian project covers an area of 100,000 ha in South Kalimantan and the company agreed to fund \$1.5 million to cover exploration expenses. BHP of Australia operates three joint-venture coal mines in East Kalimantan with a total output of 7 Mt/yr of thermal coal, of which 95% was exported. The main markets were powerplants in Hong Kong, Japan, and the Philippines with exports also going to Chile, Malaysia, Thailand, and the United States.

Itochu Corp. of Japan and three banks would loan \$450 million to Gulf Canada Resources Ltd. and Talisman Energy Inc., both of Canada, to develop a natural gas field in South Sumatra. The two developers planned to produce 8.49 million cubic meters per day of natural gas by 1998 from the \$600 million Corridor Block project. Itochu Corp. would supply the natural gas to an oil facility held by Caltex Petroleum Corp. of the United States and receive 45,000 bbl/d of crude oil for the 9-year contract term. Caltex Pacific Indonesia found oil at two sites on Sumatra. Caltex Petroleum, Indonesia's biggest oil producer, pumped 663,900 bbl/d out of a national total of 1.5 million barrels per day. Gulf Canada Resources received

approval in principle from Pertamina to develop gas reserves in the Block A area in Northwest Sumatra. The gas would be liquefied at the P.T. Arun liquefied natural gas (LNG) plant and LNG was destined for sale in eastern Asia.

Mobil Corp. of the United States signed an agreement in principle with Pertamina to acquire a 26% interest in the Natuna "D" Alpha production sharing contract. The Natuna Gasfield in the South China Sea had an estimated recoverable reserves of 1.27 trillion cubic meters of natural gas. Pertamina has a 24% interest in the project and Esso, the operator, 50%. Mobil and Pertamina have been supplying LNG from the Arun Gasfield for 20 years.

Bakrie Group, through its Kondur Petroleum subsidiary, bought 34.46% of the Lasmo Oilfield at Riau, Sumatra. The company planned to invest \$75 million in operating the oilfield. Other shareholders are China National Oil Co. with 39.51% and Novus Petroleum with 26.03%. Pertamina set its production target for crude oil and condensates at 1.5 million barrels per day in the fiscal year of 1998-99. Current output of crude oil was 1.33 million barrels per day.

Pertamina awarded Fluor Daniel of the United States a \$633 million contract for the debottlenecking of the existing Cilacap refinery and the addition of a new lube oil complex. Construction began in early 1996. When completed in early 1999, throughput of crude oil in the refinery would be increased by 16% with a 71% increase in lube oil production capacity. Pertamina was upgrading the 257,000-bbl/d refinery at Balikpapan. The 10,000 to 12,000-bbl/d reforming unit at Musi was due on-stream by the end of 1996.

Pertamina planned to privatize its downstream sector. The country needed new distillation capacity or upgrading facility. There was a reluctance to start building export refineries. British Petroleum pulled out of a joint venture with Itochu Corp. to build an export refinery.

A deep sea bulk port was under construction by P.T. Indonesia Bulk Terminal on an island off the Kalimantan coast. The first stage would be completed in 1997 to serve various customers but mainly the local coal industry. It was expected to be the largest in Southeast Asia.

Chevron Corp. and Texaco Inc.'s jointly held affiliate, Amoseas Indonesia, was to build a 70-MW powerplant in the Darajat area of western Java at a cost of \$125 million. An additional \$500 million might be invested in three more plants over the next 8 years. A consortium of 38 national banks would provide \$512 million in 30-year loans to finance 2 powerplant projects being developed by an Indonesian business executive. The projects were the 200-MW Tenaga Listrik Sibolga powerplant in North Sumatra and the 110-MW Tenaga Listrik Amurang powerplant in South Sulawesi.

Energy Equity Corp. of Australia received approval to build a \$225 million, 135-MW natural gas-fired powerplant in South Sulawesi. The Sengkang project is a joint venture with Tenneco Energy Australia. Tenneco would buy a 50% of Energy Equity's interest in the powerplant and related gasfield development for \$21 million. Enron Corp. of the United States was to build and operate a \$508 million natural gas-fired powerplant on Java. A 20-year agreement to sell power to the

state-owned utility to serve Java and Bali was reached. P.T. East Java Power, 50.1%-owned by Enron, expected to start construction in 1998 and sell electricity in the year 2000. The remaining stake in the project is held by a group of Indonesian investors.

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Major Sources of Information

Department of Mines and Energy
Jl. Jend. Gatot Subroto Kav. 49
Jakarta 12950, Indonesia
Directorate of Mineral Resources and Geological
Research and Development Center
Jl. Diponegoro 57
Bandung 40122, Indonesia
Directorate General of Oil and Gas
Jl. M.H. Thamrin No. 1
Jakarta Pusat, Indonesia

TABLE 1
INDONESIA: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity	1992	1993	1994	1995	1996 e/
METALS					
Aluminum:					
Bauxite, gross weight	804	1,320	1,342	899	1,000
Metal, primary	173,000	205,526	221,900	220,000 e/	225,000
Chromite sand, dry basis e/	2,000	2,500	2,500	10,000 r/	13,300
Copper, mine output, Cu content	280,819	298,648	322,190	443,618	507,484 2/
Gold, mine output, Au content 3/	37,983	42,097	42,600	62,909	65,000
Iron and steel:					
Iron sand, dry basis	287,821	341,335	334,895	340,000 e/	335,000
Metal:					
Ferrous alloys: Ferronickel e/	26,000	27,000	27,000	27,000	27,000
Steel, crude	3,171,072	1,947,511	3,220,000 r/	3,500,000 e/	3,400,000
Manganese: e/					
Ore	13,000	14,000	14,000	19,000	19,000
Ferromanganese	--	10,000	10,000	14,000	14,000
Nickel:					
Mine output, Ni content 4/	77,600	65,800	81,100	88,183	90,000
Metallurgical products:					
Matte: Ni content	39,307	36,987	48,446 r/	49,333	49,000
Ferronickel: Ni content	5,506	5,266	5,745	10,735	11,000
Silver, mine output, Ag content	99,941	90,301	107,000	182,982	185,000
Tin:					
Mine output, Sn content	29,400	29,000 e/	30,610	38,378	38,500
Metal	31,915	30,415	31,100	38,628	39,000
INDUSTRIAL MINERALS					
Cement, hydraulic	17,280	18,934	19,000 e/	19,500 e/	20,000
Clays:					
Bentonite	17,960	13,707	14,409	26,057	26,000
Fireclay e/	1,900,000	1,950,000	1,950,000	2,000,000	2,000,000
Kaolin powder	230,550	42,365	53,236	14,373	15,000
Diamond: e/					
Industrial stones	21	20	22	22	22
Gem	6	7	6	7	7
Total	27	27	28	29	29
Feldspar	16,719	27,835	40,483	49,415	50,000
Gypsum	400,000 e/	1,646	1,286	1,327	1,400
Iodine	35,000 e/	14,180	89,098	76,824	75,000
Nitrogen: N content of ammonia	2,687,818	2,888,000	2,800,000 e/	2,850,000 e/	2,875,000
Phosphate rock e/	8,000	7,000	7,000	7,500	7,500
Salt, all types e/	630	650	650	670	670
Stone:					
Dolomite	11,414	4,534	4,386	4,056	4,000
Granite	2,907	2,767	5,129	3,066	3,100
Limestone	3,796	4,000 e/	20,814	13,143	15,000
Marble	1,989	3,000	15,286	10,446	12,000
Quartz sand and silica stone	400,000 e/	239,769	588,429	278,925	300,000
Sulfur, elemental e/	3,600	3,500	3,500	3,500	3,500
Zeolite	70	60	70	70 e/	75
MINERAL FUELS AND RELATED MATERIALS					
Coal	22,357	27,583	31,470 r/	41,429	45,000
Gas, natural:					
Gross	2,582,641	2,661,878	2,940,000	2,900,000 e/	2,950,000
Marketed e/	1,600,000	1,600,000	1,700,000	1,700,000	1,700,000
Petroleum:					
Crude including condensate	550,668	557,661	588,000	580,000 e/	575,000
Refinery products: e/					
Liquefied petroleum gas	4,224 2/	3,600	3,800	3,900	4,000
Gasoline	43,814 2/	45,000	45,000	46,000	46,000
Jet fuel	6,341 2/	6,000	6,200	6,200	6,300
Naphtha	12,435 2/	20,000	18,000	19,000	19,000
Paraffin wax	140 2/	190	200	200	200
Kerosene	48,996 2/	50,000	50,000	51,000	51,000
Distillate fuel oil	82,046 2/	77,000	80,000	79,000	80,000
Lubricants	1,724 2/	1,600	1,800	1,700	1,700
Residual fuel oil	28,992 2/	30,000	30,000	30,000	30,000
Unfinished oil for processing	50,820 2/	43,000	45,000	46,000	46,000
Refinery fuel and losses	12,569 2/	14,000	15,000	15,000	16,000
Unspecified	842 2/	2,500	2,000	2,200	2,200
Total	292,943 2/	292,890	297,000	300,200	302,400

See footnotes at end of table.

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

e/ Estimated. r/ Revised.

1/ Table includes data available through May 16, 1997.

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 18 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 1996

(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. Adaro Indonesia (Indonesia Coal Pty. Ltd. of Australia, 50%; ENADIMSA of Spain, 20%; P.T. Tirtamas Majutama, 15%; and P.T. Asminco Bara Utama, 15%)	Paringin and Tutupan, south Kalimantan	6,000
Do.	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 & Gold Inc. of the United States, 80%; Government, 10%; and others, 10%)	Ertsberg and Grasberg, Irian Jaya	500
Gold	metric tons do.	do.	50
Do.	P.T. Kelian Equatorial Mining (Kelian Pty Ltd. of Australia, 90%; and P.T. Harita Jaya Raya of Indonesia, 10%)	Sangatta, east Kalimantan	15
Do.	P.T. Prima Lirang Mining (Billiton BV of the Netherlands, 90%; and P.T. Prima Maluku Indah of Indonesia, 10%)	Lerokis, Wetar Island	2
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

TABLE 2--Continued
INDONESIA: STRUCTURE OF THE MINERAL INDUSTRY FOR 1996

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Locations of main facilities	Annual capacity
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