INDONESIA

By Ir. Achmad Prijono

After the accession of Megawati Sukarnoputri as fifth President of the Republic of Indonesia in mid-2001, the political climate became relatively quiet and stable, with very few street demonstrations. Initially, there were great expectations among the public that Mrs Megawati's presidency would bring about the long-awaited reform process in the post-Suharto era, including more resolute measures to fight the prevailing rampant corruption and firmer law-enforcement.

As the year 2002 proceeded, however, few such measures materialised. Except for a greater freedom to stage rallies and demonstrations, and more freedom of speech in the mass-media, the reform process was more or less at a standstill. Legal proceedings against corruption cases, if any, were slow and lengthy, with few judicial decisions being followed-up. A case in point was the legal proceeding against Akbar Tanjung, chairman of the Parliament and who still remains at liberty even though the court has found him guilty (see *MAR* 2002). It was no great surprise, therefore, that the public and the press in general became disillusioned and grew more critical of Mrs Megawati's leadership, feelings being aggravated by her natural tendency to remain silent, even on issues of national importance.

The unexpected and horrific Bali-bombing on October 12, which claimed about 190 lives, mostly foreign tourists, heightened the tensions as a crackdown was begun by the security forces against members of the extreme Jema'ah Islamiah movement, accused of being behind the attack. The movement has since been banned by the government.

Fortunately, the suspects, including the main perpetrators of the atrocity, were seized by the Indonesian police in a relatively short time. Nevertheless, the bombing has dealt a major blow to the tourism industry – of which Bali is the largest contributor (61%) – and has contributed further to the deteriorating investment climate in Indonesia.

The previous, relatively quiet political situation, turned sour and unruly at the start of 2003 when the government announced simultaneous price rises for electricity, telephones and fuel. The action prompted mass street demonstrations, particularly by several student organisations, reminiscent of Abdurachman Wahid's era of presidency, and even some Members of Parliament joined the protests. The price hikes were necessary in order to reduce the massive government subsidies to the utilities, but the demonstrators were adamant (in their protests) as the price rises would have a direct impact on the general economy, increasing prices of daily necessities and putting an additional burden on the vast majority of the population with marginal income.

These simultaneous price hikes, the lack of determination to fight corruption and the recently decreed Release and Discharge Act, which relieved from prosecution certain ‘ultra-rich’ bank owners who had misused massive credit funds provided by Bank Indonesia, led the demonstrators, in particular the student organisations, to demand the resignation of President Megawati and Vice President Hamzah Haz, and a change of leadership.

The Indonesian economy, despite having endured its fifth consecutive year of crisis, with foreign direct investment (FDI) declining further and scores of companies closing down, did manage to make some progress, with the macro-economy showing some stability and foreign exchange reserves strengthening.

GDP growth, mainly driven by household and government spending, grew by 3.7%, slightly up on the previous year’s figure of 3.5%, and exports rose, albeit slightly, by 1.21% to US$57 billion. The rate of inflation grew by 11.9% (2001: 11.5%) but an encouraging feature was the strengthening of the rupiah from Rp10,400 at the start of the year, stabilising to Rp8,800:US$1.00 at the end of the year. As a result, bank interest rates declined progressively. However, the investment outlook, in particular FDI, remains gloomy. FDI approvals plummeted by 35% from US$15 billion in 2001 to US$9.7 billion in 2002, but a grimmer picture is demonstrated by the 57% drop in domestic investment approvals to Rp25.26 trillion.

Legal uncertainties, lingering labour conflicts and the chaotic implementation of regional autonomy policies are mainly responsible for the drop in investment. Security conditions are generally stable except in Aceh in the extreme west and, on a smaller scale, in Papua Province (Irian Jaya) in the extreme east of Indonesia.

Security conditions in Aceh Province remain fragile despite the signing of a so-called ‘Cessation of Hostilities Agreement’ between the Free Aceh Movement (GAM) and the Indonesian Government under the mediation of the Swiss-based Henry Dunant Centre in early December 2002. Armed clashes continued and caused casualties on both sides, and as GAM is still pursuing a separate independent state, it seems likely that the government will withdraw from the peace agreement and embark on full-scale military operations against the rebels.

Despite the unfavourable investment conditions, overall mine production remained stable and relatively upbeat; whereas production of some mineral commodities such as gold, silver and nickel fell, others such as copper, tin and coal posted increases. Even so, the lack of new investments in the minerals sector – except for the oil industry – does not bode well for the future of the Indonesian mining industry.

This lack of new investment is being caused not only by the factors mentioned earlier, but more especially by the outstanding and unresolved issue of Forestry Law No.41 of 1999 which inhibits open-pit mining in protected forests, the VAT Law No.18 of 2000 and Government Regulation 144, which categorises coal, gold and silver as non-taxable commodities. This last-mentioned government regulation would preclude those mining companies producing coal, gold and silver from receiving restitution for their VAT payments on purchased goods, raw material and services, the net effect being a significant raise in operating costs.

Despite the approvals for Contracts of Work by the Department of Mineral Resources and Energy (DMRE) for 22 mining companies to conduct mining operations in protected forest areas before the enactment of said Forestry Law, the Forestry Minister remains adamant. He claims that the Forestry Law can only be amended by Parliament and the law remains unchanged despite more than two years of intensive lobbying by the mining associations. Another factor hampering investment is the implementation of regional autonomy policy, with regional governments often carrying out policies that are unattractive for an investor.

Coal

Indonesia's coal sector in 2002 continued its uninterrupted annual production increases of the past two decades, with output rising by 12% to 103.1 Mt. This is the first time that annual production has exceeded 100 Mt.

Although coal production has risen continuously for more than 20 years, there are grave concerns that this trend may not continue and that output could flatten out within two years, simply because no significant new developments or large-scale exploration have taken place recently. An exception is the discovery of an additional 230 Mt of exportable coal reserves at Kungkilan in south Sumatra by PT Tambang Batubara Bukit Asam (PTBA) the state-owned coal company. However, the additional reserves are located inland and early development seems unlikely because of the lack of infrastructure and the high cost of transporting the coal to an export coal port.

Many of the coal companies who signed Contacts of Work with the government since 1998 have suspended their investment and development plans, due to the less conducive investment conditions brought about by the introduction of certain new laws by the central government as well as by regional governments. Examples include:

- Forestry Law No. 41/1999 which inhibits open-pit mining in protected forests is having a significant impact on the coal sector as most coal-seams are at shallow depths and conducive to low cost open-pit operations;
- unlicensed miners are still operating in certain areas;
- VAT Law No. 18/2000 and Government Regulation No. 144 prevent coal-mining companies from receiving restitution on VAT payments on purchased capital goods, spare-parts, raw material and services, a factor that adds significantly to overall operational costs;
- implementation of the Regional Autonomy Law has encouraged regional
- governments to impose new laws on mining companies which are not in accordance with the mandatory taxes stipulated in the original Contract of work agreements. For example, some regional governments have

imposed a so-called vehicle tax on mining contractors' heavy equipment, but such equipment is used exclusively in the mining areas and is not included in the tax requirements as stated in the basic CoW agreements. Taxing capital-intensive heavy equipment puts an additional burden on the companies concerned.

There are certain other similar new government laws containing articles which are in clear defiance of the so-called first and second generation Coal Co-operation Contracts as well as the subsequent Coal Contracts of Work (CCoW), causing concern among existing operators and scaring off potential new investors in the sector of coal.

Such impediments do not create a conducive climate for investment, and are obstructing President Megawati's call for 2003 to be named as Indonesia's 'Investment Year'.

Notwithstanding the above adverse circumstances and the depressed coal prices during 2002, Indonesia's coal production jumped by 12% to 103.2 Mt, and exports by 9% to 72.4 Mt. Production came from 17 operating coal contractors, state-owned PTBA, 11 private Indonesian mining companies (the so-called KP-holders) and minor amounts from a few local co-operatives. Of the 17 coal contractor companies, three have now ceased or suspended their operations, the others all increased their output in 2002.

Amongst the coal contractors, PT Adaro achieved the biggest production increase, to 20.82 Mt, followed by PT Kaltim Prima Coal with 17.57 Mt, PT Kideco Jaya Agung with 11.5 Mt, PT Arutmin with 10.56 Mt, Berau Coal with 7.12 Mt, PT Indominco Mandiri with 5.3 Mt, PT Gunung Bayan Pratama with 2.6 Mt, PT Jorong Barutama Geston with 2.3 Mt, PT Bahari Cakrawala Sebuku with 2.06 Mt, PT Tanito Harum with 1.8 Mt, PT Multi Harapan Utama with 0.97 Mt, Lana Harita Indonesia with 0.95 Mt, PT Sumber Kurnia Buana with 0.85 Mt, PT BHP Kendilo Coal with 0.77 Mt, PD Baramerta with 0.68 Mt, PT Tanjung Alam Jaya with 0.59 Mt and PT Antang Gunung Meratus with 0.47 Mt.

PT Adaro's 3.1 Mt increase was attributed to larger volumes sold to the domestic market (9.3 Mt) and increased exports (12.7 Mt). PT Kaltim Prima Coal raised its exports by 1.6 Mt to 16.63 Mt. PT Kideco Jaya Agung benefited from the increased domestic demand for coal, selling 4.5 Mt to the local market, in particular to the Paiton and Suralaya power-plants. Total production by the coal contractors amounted to 86.95 Mt, or 84.3% of overall Indonesian output. KP holders increased their production by 53% to 6.69 Mt.

Production by the state-owned coal mining company, PT Tambang Batubara Bukit Asam (PTBA) declined by 6% to 9.59 Mt. The Tanjung Enim mining unit in south Sumatra contributed 8.42 Mt, and the Ombilin operationt in west Sumatra, faced with depleting open-pit reserves, only produced 360,000 t, a 35% decrease compared with 2001. PTBA's subsidiary, PT Batubara Bukit Kendi, which operates to the south of Tanjung Enim, contributed 800,000 t.

Taking account of the approaching exhaustion of open-pit reserves at Ombilin, in recent years PTBA has invited several foreign investors to participate in the exploitation of the deeply located reserves of high-quality bituminous coal seams which exist at Ombilin, in particular the prospective Waringin and Sugar deposits. It eventually selected China National Technology Import Export Corp. (CNTIEC) as an acceptable partner, as it has considerable experience in underground operations and because of its competitive bid. CNTIEC has reportedly set aside US$62 million in export credits, and further negotiations to finalise a co-operation agreement are expected to commence soon.

The decline in PTBA's overall production, aside from the sharp plunge in output at Ombilin, was caused by the limited rail transportation capacity from Bukit Asam to the Tarahan terminal and the Kertapati barge terminal. PTBA's sales of
9.57 Mt comprised 7.71 Mt to the domestic market and 1.86 Mt to the export market. Net profits fell by more than 30% to Rp177.96 billion.

The prospects of PTBA increasing coal production in the near future are looking quite bright, with the likelihood that it will supply two projected mine-mouth power plants in south Sumatra and Riau. In 2002, in co-operation with PT Indonesia Power (a subsidiary of PLN) and a consortium of local private investors, PTBA signed an MoU for the construction of the Banjarsari (south Sumatra) mine-mouth power plant with a capacity of 2 x 100 MW. It should start operating in 2006 and will be fed by sub-bituminous C type coal from PTBA's Muara Tiga Besar North mine at a rate of 0.9-1.0 Mt/y.

Another MoU in 2002 was signed between PTBA, PT Indonesia Power and the the government of Riau Province to form a co-ordinated team with the objective of building a 2 x 250 MW mine-mouth power plant at Peranap, Cerenti. PTBA will supply the coal from the large lignite deposit at Cerenti at a rate of 2.5-3.0 Mt/y. With the commissioning of both projects, PTBA would be able to boost its production capacity significantly without depending on an improved railway system to transport the coal to an export harbour.

The mandated sale by PT Kaltim Prima Coal (KPC) of 51% of its shares, valued at US$419 million, to Indonesian participants has yet to be implemented. However the dispute between the East Kalimantan provincial government and KPC concerning the divestment process abated last year when the provincial government withdrew its lawsuit. Following this, the Government of Indonesia and KPC signed a Framework Agreement in August 2002, enabling the original 2001 offer of 51% of KPC shares to proceed. A consensus was reached whereby the provincial government would be awarded 31% of the shares, with the balance of 20% to be allocated to one or two state-owned companies, preferably PTBA, which has the same core business as KPC.

However, up until January 31, 2003, the expiry date of the Framework Agreement, no sales of KPC shares had been concluded. Uncompleted due diligence reviews by the assigned buyers and some funding problems were given as reasons for the delay. The government indicated that the deadline should be extended for a further three months, and the parties (KPC and the assigned buyers) were recommended to restart negotiations to arrive at a deal.

The intended sale of 60% of PT United Tractors' shares in PT Berau Coal has not been executed (see *MAR* 2002) and PT UT remains the 90% holder of PT Berau Coal's shares.

Copper

Continuing its robust production performance of 2001, copper concentrate output by PT Freeport Indonesia's Tembagapura copper mine rose by a substantial 17%, from 2.42 Mt in 2001 to 2.83 Mt in 2002 with a copper content of 869,056 t.
This was due mainly to the higher copper grade in the milled ore (1.14% versus 1.00% in 2001) as the tonnage milled was slightly lower, 235,600 t/d versus 237,800 t/d in 2001. Around 83% of the ore was contributed by the huge Grasberg open pit.

Gold production has decreased in line with the steady decline in gold grade, and last year the gold content of the copper concentrates fell to 95,646 t from 109.13 t in 2001. By-product silver output increased to 190.53 t from 165.26 t in the previous year.

Other ore production contributors at Tembagapura were the Deep Ore Zone (DOZ) and the Intermediate Ore Zone (IOZ) underground mines, with respective outputs of 21,800 t/d (5,500 t/d in 2001) and 19,300 t/d. Reserves at the IOZ mine will be depleted by the end of 2003. The unit cash cost of production at Tembagapura for copper, after gold and silver credits, was US$0.07/lb, unchanged from 2001.

Proven and probable ore reserves in the orebodies scattered within the 24,700 ha Block A area, as at December 31, 2002, amounted to 2,580 Mt containing 24.2 Mt of recoverable copper, 62.8 Moz (1,953 t) of recoverable gold and 147.6 Moz (4,590 t) of recoverable silver, sufficient for another three decades of mining operations. The lesser proven and probable reserves mentioned in *MAR 2002* were PTFI's share of recoverable reserves based on its current mine plan prior to the end of 2001, the expiry date of the Contract of Work for Block A. At that expiry date, PTFI expects to have mined about 58% of its current proven and probable reserves. The current mine plan is based on the exploitation of the balance of reserves until 2041 on the assumption that PTFI will be granted two ten-year extensions after the expiry of the current contract

In February 2002, Freeport McMoRan Copper & Gold Inc. (FCX) increased its ownership of PTFI from 85.9% to 90.6% as well as in Eastern Minerals from 95% to 100% as a result of its acquisition of the 51% interest held by PT Nusamba in PT Indocopper Investama (which owned 9.4% of PTFI common stock). Nusamba had purchased its interest in Indocopper Investama which includes a 10% stake in Eastern Minerals for a sum of US$315 million, but was unable to repay the bank loans it secured for the purchases. Besides there was a repayment shortfall of US$68.9 million through the end of 2001 which had been covered by FCX in accordance with an earlier agreement. In early 2002 Nusamba announced that it was unable to repay the bank loans and FCX's loan at maturity. As a result, in February 2002 FCX undertook to repay all the remaining bank loans, and in doing so acquired Nusamba's 51% interest in PT Indocopper Investama.

A tragic and unforeseen accident happened at Tembagapura during the year when a group of unidentified assailants shot at several vehicles transporting teachers from an international school on the road near the mine killing three people and wounding 11 others. The Indonesian Government, assisted by the US Federal Bureau of Investigations, are continuing investigations to find the perpetrators.

Batu Hijau the world class copper-mine on Sumbawa Island, owned 45% by Newmont Mining Corp., 35% by Sumitomo and 20% by PT Pukuafu Indah, achieved record production in 2002. Mill throughput increased by 7% to 47 Mt (about 147,000 t/d) and copper concentrate output reached 935,505 t containing 298,312 t of copper metal, an increase of 7.3% over 2001. The current target is to achieve a daily mill throughput of 155,000 t by December 2003. Copper sales during the year reached 292,113 t (644 Mlb) and net production costs amounted to US$0.31/lb, 16% lower than in 2001.

Exploration in conjunction with optimisation work added 589.6 t (1,300 Mlb) of copper to the reserve base, plus 1.4 Moz (43.5 t) of gold. During 2003 and 2004, a US$5 million drilling programme will be directed to a further evaluation of the down-dip extension of the Batu-Hijau deposit.

PT Smelting, the copper smelter at Gresik in East Java Province, 25% owned by PTFI and 75% by Mitsubishi, was fed entirely by concentrates from PTFI's Tembagapura mine. It treated 719,600 t of concentrate in 2002, 2% more than in 2001, despite a 28-day maintenance period, although production of anode copper declined from 217,500 t to 211,200 t, and cathode production declined from 212,500 t in 2001 to 192,400 t. Cash production costs per pound of cathode produced averaged US$0.14 compared with US$0.12 in 2001, reflecting the impact of the 28-day maintenance shutdown in May 2002. The design capacity of the smelter is 200,000 t/y.

Nickel

The prospects for nickel improved during 2002 and world demand grew by 7.6%, primarily because of a 10% increase in consumption by the stainless steel sector where production rose by 6.4% to 19.8 Mt in 2002. Nickel prices on the London Metal Exchange increased from US$2.58/lb at the start of 2002 to US$3.22/lb by year end.

Indonesia's largest producer, PT Inco, operates a mining and smelting complex at Soroako in Sulawesi. In 2002, it achieved sales revenue of US$321 million, up from US$296.4 million in 2001, with earnings rising to US$30.28 million, from US$9.26 million in 2001. The price received by PT

Inco for its nickel matte product averaged US$2.32/lb compared with only US$2.19/lb during 2001. The operation also benefited from a higher grade of nickel in the ore-feed (1.77% Ni versus 1.70% Ni in 2001) although production of nickel in matte declined from 62,600 t to 59,545 t owing to the unexpected complexity of the ore and the decision to bring forward the start of the rebuild programme of the No.3 furnace from 2003 until the fourth quarter of 2002. This rebuilding work will be completed duing the first quarter of 2003.

As at December 31, 2002, PT Inco's reserves in the Soroako area amounted to 51 Mt of proven reserves averaging 1.71% Ni and 40 Mt of probable reserves averaging 1.76% Ni. The company expects to be able to exceed the 68,000 t (150 Mlb)/y design capacity of the Sorako plant by introducing better blending practices which should result in optimal plant feed chemistry and grade.

Exploration in the Petea area, which included extensive drilling and test pitting, bore fruit with the addition of 13.6 Mt of proven and probable reserves averaging 1.79% Ni. Further exploration and development is being carried out this year, with production planned to start at Petea in 2004.

On February 1, 2003, PT Inco signed a Co-operative Resources Agreement with PT Aneka Tambang (Antam) to develop Inco's Pomalaa East nickel deposit in southwest Sulawesi and supply ore to Antam's Pomalaa ferronickel plant. The saprolite ore will contain a minimum of 2.30% Ni and a maximum moisture content of 31%. Under the agreement, US$2.8 million will be spent on defining reserves sufficient for an initial two years of production. Inco is committed to supply 1 Mt/y of ore, with mining expected to commence by mid-2005.

For PT Aneka Tambang (Antam), Indonesia's second largest nickel producer, operating profits in 2002 fell by 23% to Rp290 billion, reflecting higher fuel and labour costs, and the weaker US dollar (most of Antam's products are exported). Sales revenue from all of the company's metals and metallic ores amounted to US$187 million, with nickel contributing 63% of this total, or US$116 million. The company produces and sells ferro-nickel and three types of lateritic nickel ore: high-grade saprolite (>2.3% Ni), low-grade saprolite (1.8-2.2% Ni) and limonite (1.5-1.6% Ni). Ferro-nickel sales amounted to US$55 million, high-grade saprolite ore sales US$53 million and lower- grade ores US$8 million.

Mining is carried out at Pomalaa (southeast Sulawesi), Gebe Island (north Moluccas) where reserves will be depleted by the end of 2003, and in the Buli area (east Halmahera Island, north Moluccas) where mining has only recently begun, namely on Gee Island and the Tanjung Buli peninsula. Total proved and probable reserves as at December 31, 2002, amounted to 64.2 Mt (wet) of saprolite ore and 75.5 Mt (wet) of limonite ore. These reserves exclude most of the inland laterite potential of the Buli Bay area (eg Sangaji) which is believed to be considerable. Production of high-grade saprolite has increased significantly since the opening of the Tanjung Buli mine in August 2001.

Of the total of 4.4 Mt of wet ore produced by PT Antam, 2.42 Mt comprising high- grade saprolite were exported to Japan via Gokokai, a Japanese consortium. A decrease in the export of low-grade limonite ore was offset by the decision to begin mining and exporting low-grade saprolite ore from Pomalaa. Both types, amounting to a little over 1.0 Mt of wet ore were exported to Queensland Nickel Pty, Australia. Antam operates two ferro-nickel smelters at Pomalaa with a combined capacity of 11,000 t/y. In 2002, production declined by 17% to 8,804 t owing to repairs, lower-grade ore feed and a five-day strike.

A plan by Antam to build a third smelter at Pomalaa (FeNi III) is well advanced and a memorandum of understanding (MoU) was signed with Inco in 2002, whereby saprolite ore will be supplied from Inco's Pomalaa East area, located just across the eastern border of Antam's working area. As already mentioned, this MoU has recently been followed by the signing of a Co-operative Resources Agreement between Inco and Antam which contains a commitment by Inco to supply 1 Mt/y of wet saprolite ore grading at least 2.3% Ni and commencing no later than June 30, 2005.

After about three years of protracted negotiations with Industrie Kredit Bank (IKB) of Germany and Hermes (the German Export Credit Agency) for the construction of the 13,000 t/y capacity third ferro-nickel smelter (FeNi III), Antam decided early this year to halt the negotiations. Financing the construction of the project through IKB/Hermes, which would include a power plant, would cost the equivalent of US$380 million based on a euro-currency financing scheme. Because of the strengthening of the euro against the US dollar recently, the cost of the investment had become excessive and the project was not deemed feasible. An alternative financial scheme has been adopted, using a dollar-based bank loan of US$150 million from Bank Mandiri, complemented by Antam's own equity capital of US$80 million. The new scheme requires that the power plant be built by an independent power company which would sell the generated electricity to the smelter. It is estimated that this would reduce the project's costs to US$230 million.

The PT Weda Bay nickel laterite project in central Halmahera, a joint venture between Strand Minerals Pte, Ltd and Antam, and located to the east of the Buli Bay project area, has been put on hold. Apart from the fact that open-pit mining is prohibited by Forestry Law No.41, the joint-venture partners are seeking the participation of third parties in order to raise the large capital investment required. Meanwhile, differences have been resolved between Weda Bay and Antam regarding refining-cost issues, should the project go ahead.

The extensive nickel laterites in the Buli Bay area of east Halmahera are, as noted, already being exploited by Antam at two locations, Gee Island and Tanjung Buli. The total resource at Buli Bay including the inland laterites, is reported to be even larger than the resource on Gag Island and negotiations are currently under way between Antam and Falconbridge of Canada to consider the possibility of establishing a joint venture company to develop the entire Buli Bay area, including the large deposits inland.

As reported in the 2001 edition of *MAR*, the Gag Island nickel laterite project, a joint venture between BHP Asia Pacific Nickel Pty Ltd and PT Aneka Tambang, has been suspended since the end of March 2002, pending the abrogation of Forestry Law No.41 of 1999.

Tin

PT Timah, Indonesia's leading tin producer, survived its ordeal in 2001 when profitability was hit by extremely low-tin prices and when operations were disrupted by a 'plague' of illegal miners overrunning some of its working areas on Bangka Island. These, small, unruly unlicensed mining operations have had a very significant adverse impact on Indonesia's efforts to conserve reserves and conduct tin mining in an environmentally sustainable manner.

The problem of illegal mining was exacerbated by the regional government granting the miners the right to export their concentrates. The situation in 2002, although still worrisome, abated somewhat as a result of a ban on the export of tin concentrates by unlicensed miners imposed by the central government. The decree by the Minister of Trade and Industry became effective on June 1, 2002. As a result of the ban, the unlicensed miners, comprising around 6,500 units, were compelled to sell their concentrates either to PT Timah or PT Koba Tin.

As a consequence, combined tin production by PT Timah and PT Koba Tin rose dramatically in 2002 to a record 79,765 t of tin-in-concentrate, a level unprecedented in the long history of tin-mining in Indonesia.

PT Timah's tin-in-concentrate production in 2002 jumped by 36% to 55,038 t. Of
this amount, 25% or 13.531 t was contributed by PT Timah's off-shore dredges, (9.2% lower than 2001 output due to temporary stoppages of several dredges especially during the rainy season). Onshore, gravel-pump mining units increased output by 62% to 41,507 t. However since PT Timah's onshore contract-mining partners had decreased to 95 units (from 185 units in 2001), 93% of the onshore tin-in-concentrate production, or 38,749 t, came from unlicensed mining. Not surprisingly, tin-in-concentrate inventories soared, to 10,491 t from 2,736 t in 2001. Refined production at Timah's smelter in Mentok increased by 14% to 43,528 t.

Although sales volume of tin were higher in 2002, at 42,832 t versus 39,999 t in the previous year, net profit decreased to Rp11.3 billion from Rp36.8 billion in 2001. This was as a result of lower average prices for tin on the London Metal Exchange and the strengthening of the rupiah against the dollar.

PT Koba Tin, now owned 25% by PT Timah and 75% by Malaysia Smelting Corp. (which purchased all of Iluka Mining's shares in PT Koba Tin in 2001), also sharply increased its production of tin-in-concentrate to 24,737 t (21,338 t in 2001). Refined metal output increased to 23,785 t (15,715 t in 2001). The increases were due to the purchase of tin-concentrate from 1,200 unlicensed mining units and toll-smelting of concentrates at other tin-smelters, including PT Timah's Mentok facility.

Gold and silver

Indonesia's gold production in 2002 fell by 16% to 139.65 t, from an all time record of 166.1 t in the previous year. The fall was due mainly to the drop in associated gold production at PTFI's Tembagapura copper mine in Papua Province which declined from 109.18 t (2001) to 97.84 t as result of lower gold grades in the copper ore that was mined.

Significant production decreases were also recorded at PT Newmont Minahasa Mining's Raya gold mine in north Sulawesi where operations were limited to the processing of stockpiled ore (see *MAR* 2002). Production fell from 11.13 t to 5.16 t. Also, at the nearly depleted Gosowong gold mine in central Minahasa owned by PT Nusa Halmahera Minerals, gold production plunged from 8.84 t to 2.36 t.

Producers which more or less sustained production at the previous year's levels included PT Aneka Tambang's Pongkor gold and silver mine near Bogor in west Java, with 3.81 t of gold (and 25.4 t of silver); the Kelian mine of PT Kelian Equatorial Mining (KEM) in Kalimantan, with 15.5 t (plus 9.94 t of silver); and the Batu Hijau copper mine of PT Newmont Nusa Tenggara in west Sumbawa, with15.3 t (plus 56.18 t of silver).

Total silver production was down by 17% for the year, at 289.45 t. The decline was mainly due to the termination of operations at the Indomuro mine in central Kalimantan, which had contributed 80.6 t in 2001.

Gold and silver production is expected to decline further during 2003, with PT Newmont Minahasa Mining having ceased mining operations and KEM expected to conclude its mining operations by year-end, although KEM expects to treat stockpiled ore for a further year. The Gosowong mine of PT Nusa Halmahera Minerals has ended its operations due to exhaustion of reserves. There are some reserves remaining in the neighbouring Toguraci area but this is located in a protected forest.

Unless new gold and silver mines are developed and commissioned soon, which seems unlikely at the present time, production in the coming years will be largely restricted to the associated gold produced as a by-product in copper concentrates, mainly at Tembagapura and Batu Hijau, and to primary output at Pongkor, the sole remaining gold and silver mine.

Antam's Pongkor mine is an underground operation and possesses reserves of 6.63 Mt, sufficient for another 17 years at the current annual production rate of 400,000 t. In 2002, Pongkor applied conventional cut-and-fill mining and treated 401,517 t of ore averaging 11.36 g/t Au and 141 g/t Ag to produce 3,813 kg of gold and 25,397 kg of silver. Output was 4% less than in 2001 because average grades were lower. Exploration is continuing and detailed work on the Gunung Handak vein, which has included 4,019 m of drilling, has added 1.0 Mt averaging 8.43 g/t Au and 121.24 g/t Ag to the indicated

resource. The development of Gunung Handak was expected to enter the production stage in February 2003.
Antam's gold division also includes the country's sole precious metals refinery, Logam Mulia (LM) in Jakarta. The refinery has an annual capacity of 75 t of gold and 275 t of silver. In 2002, it refined 31.5 t of gold, 27% down on the previous year. In addition to processing gold from Pongkor and from the operations of Antam's subsidiary, International Antam Resources Ltd, at Cikidang near Cikotok, LM also refined gold from other gold producers including PT Nusa Halmahera Minerals, KEM and PT Newmont Minahasa Raya. Antam's gold division contributed US$52 million, or 28% of Antam's total sales revenues in 2002.

Bauxite and iron sands
In 2002, the last remaining deposits of export-grade bauxite were being mined by Antam at Lomesa on the island of Bintan in Riau Province. Production was about 3.7% higher than in 2001, at 1.28 Mt. It is estimated reserves will be exhausted during 2003. Bauxite exports, mainly to Japan, contributed US$14 million or 7% of total Antam's revenue. The contribution was 10% less than in 2001, owing to the stronger rupiah and a slightly lower fob price of US$11.10/t.

If Antam's customers can accept bauxite with a higher silica content and lower alumina grade, the mine life at Lomesa could be extended for at least five years. However, it is questionable whether the price offered for this lower-grade bauxite could compensate for the increased cash operating costs which currently amount to US9.08/t.

With the imminent closure of the Lomesa bauxite operations, Antam is considering the development of either the Kendawangan deposit in Ketapang Regency in West Kalimantan Province, located close to the coast, or the deposit at Tayan which is located further inland, on the Kapuas River, also in West Kalimantan.

In 2002, iron-sand production from the southern coast of central Java, at Cilacap and Kutoarjo, declined by 19% to 378,587 t. The Cilacap deposit is nearly depleted and is being prepared for closure, but demand in Indonesia is declining in any case because of the increasing use of copper slag by cement plants as a substitute for iron sand.

Table next page.

Mineral Production ('000 t except where stated)

	2000	2001	2002
Petroleum and condensate. (Mbbl)	494.0	489.30	456.0
Natural gas ('000 billion ft^3)	2.98	2.80	3.04
LNG (Mt)	27.32	24.35	23.85
LPG	2,087	2,188	2,111
Tin in concentrate	49.4	56.25	79.77
Tin metal	46.4	53.47	66.62
Coal	76,465	91,928	103.130
Bauxite	1,151	1,237	1,283
Iron sand	489	469.4	378.5
Nickel ore	3,039	3,619	4,406
Ferro-nickel (contained Ni)	10.1	10.3	8.8
Nickel-matte (contained Ni)	59.2	62.6	59.5
Copper concentrate	3,270	3,290	3,765
Copper in concentrate	1,012.0	1,048.7	1,167.4
Copper metal	173.8	217.5	211.2
Gold (kg)	127,192	166,090	139.650
Silver (kg)	314,032	348,332	289.450
Granite	5,941	3,975	4,965

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