

THE MINERAL INDUSTRY OF PAPUA NEW GUINEA

By Travis Q. Lyday

The mineral industry was the cornerstone of the country's economy in 1995, as it has been since 1972 when the world-class Panguna porphyry copper-gold deposit on Bougainville Island in North Solomons Province concluded its first full year of production. Mining consisted of large, modern, mechanized operations, such as the Ok Tedi copper mine in Western Province and the Misima open-pit and Porgera underground-open pit gold operations in Milne Bay and Enga Provinces, respectively, as well as panning and crude sluicing activity by individuals and small gold mining companies. Papua New Guinea's petroleum industry began in 1991 with commencement of production from the Iagifu-Hedinia Oilfield, discovered in 1987.

The Government approved in March the long-awaited Special Mining Lease (SML) for the gold project on Lihir Island, New Ireland Province, as well as a reduction in the tax rate on mining leases held by small and medium sized mining companies. Clayfield Pty. Ltd.'s newly commissioned Tolukuma Mine, Central Province, was the first to benefit from the lower tax. The Government announced its intention to sell a major portion of the equity in its US\$1.25 billion State-owned Mineral Resources Development Co. (MRDC), which was to become the sole vehicle for holding State equity in any future projects.

At yearend, there were four metal mines (Misima, Ok Tedi, Porgera, and Tolukuma), one gas project (Hides), and two petroleum fields (Agogo and Iagifu-Hedinia). These produced virtually all of the country's mineral production, excluding minor amounts of alluvial gold by individual panners and clays, sand and gravel, and stone for construction purposes. A fifth mine, the Panguna, remained closed throughout the year owing to civil unrest by Bougainville Revolutionary Army militants.

Minerals and petroleum exports represented about 68% of the country's total exports and an estimated 23% of the gross domestic product in 1995. Papua New Guinea remained the sixth largest exporter of gold in the world in 1995, primarily shipping to the Perth, Western Australia, refinery and mint.

Gold from the Porgera Mine continued to account for about 40% of all export revenues and 10% of the Government's income. Virtually all nonfuel mineral production was exported in the form of doré, bullion, and copper-gold-silver concentrates. All petroleum production also was exported.

The country's only cement company, PNG-Halla Cement Pty. Ltd. in Lae, Morobe Province, secured its first contract for supplying cement overseas. Under an agreement with the Melanesian Spearhead Group, PNG-Halla will supply 600 metric tons per month of cement to Vanuatu, renewable after the first year. Reportedly, similar agreements were being negotiated with Australia, Indonesia, and other Pacific Islands.

Since the closure of Bougainville Copper Ltd.'s Panguna Mine on Bougainville Island in North Solomons Province in 1989, all of the country's copper production continued to be from the Ok Tedi Mine on Mount Fubilan in the Star Mountains of Western Province, 18 kilometers (km) east of the border with the Indonesian Province of Irian Jaya.

Australia's Victoria State Supreme Court ruled near yearend that it had the jurisdiction to hear the case against BHP Minerals Holdings Pty. Ltd., the managing shareholder of the Ok Tedi Mine that has its headquarters in Melbourne, Victoria. The lawsuit was filed in May 1994 on behalf of a group of Papua New Guinean landowners by the Australian specialist law firm Slater and Gordon of Melbourne, Victoria. The lawsuit has sought compensation for alleged environmental damage resulting from the dumping of 80,000 metric tons per day of tailings from the Ok Tedi Mine into the Fly River system via the Ok Tedi River. The Ok Tedi River drains southward, joining the Fly about 200 km downstream; the Fly flows for another 300 km, emptying into the Gulf of Papua New Guinea.

The Ok Tedi Mine was the world's eighth largest individual copper mine in 1995. Excluding expenditure on infrastructure development, purchasing programs, and aid development for communities in the mining lease area and along the Ok Tedi-Fly River systems, Ok Tedi Mining Ltd., operator of the joint venture, has paid about US\$408 million to the National and Provincial governments in taxes, duties, fees, royalties, and dividends.

The Government granted in March the SML for the Lihir gold project on Lihir Island, 600 km northeast of the Papua New Guinea mainland in New Ireland Province, enabling the joint-venture partners to begin mine development at the remote site for a projected startup of mining by 1998. Development of the project originally was due to commence in 1993, but lengthy negotiations between the partners, the Government, and local landowners delayed final approval and granting of the SML until an agreement was reached between the parties early in the year.

At settlement, ownership consisted of Southern Gold (Bahamas) Ltd., a subsidiary of RTZ Corp. Plc., 40%; Niugini Mining Ltd., 30%; and the State of Papua New Guinea through its MRDC, 30%. (Under the agreement, the landowners were to receive one-half of the Government's share, to be paid for from dividends the mine expected to be paying in 1998). The three partners assigned their respective holdings to a new company, Lihir Gold Corp., to develop and manage the project, and Lihir Gold was floated for public offering in midyear on the Australian Stock Exchange.

The Lihir gold project was being designed for a mine life of 37 years, with open pit operations scheduled for the first 15

years. Ore production from the open pit was to be split into higher-grade direct process ore, and sent to the process plant as mined; the lower-grade stockpile ore would be treated at the end of the 15 years. Annual production during the first 15 years was to average about 19,000 kilograms (kg) of gold, decreasing to an annual rate of about 7,000 kg of gold for the remaining 22 years of operation when the stockpile material was to be processed.

Placer Niugini Pty. Ltd.'s Misima Mine on Misima Island, Milne Bay Province, poured its 2-millionth troy ounce (tr oz), or 62.2 metric tons (t), of gold early in August, after 6 years of production. Originally, the mine was estimated to contain 2.2 million tr oz, or 68.4 t, of recoverable gold; Placer Niugini has reestimated that the mine has about 6 years of operation remaining.

Clayfield Pty. Ltd., a wholly owned subsidiary of Dome Resources NL of Sydney, Australia, poured early in December the first gold at its Tolukuma gold mine, about 100 km north of Port Moresby in the Fane area of Central Province. The mine was scheduled to produce about 1,500 kilograms per year (kg/yr) of gold and 4,300 kg/yr of silver over a 5-year mine life. The project is accessible only by air.

Australia's Union Mining NL, operator-manager with a 51% interest, and Macmin NL, 49%, poured in late December the first gold at their Wapolu gold mine on Fergusson Island, 350 km east of Port Moresby in Milne Bay Province. Initial production was expected to be approximately 1,000 kg/yr from the Dagwalala and Didigayagaya pits during the mine's minimum projected 4-year life.

Exploration work was expected to resume early in 1996 at the Mount Kare hardrock gold project, 18 km southwest of the Porgera Mine in Enga Province, following Papua New Guinea's National Court decision that has apparently resolved a 2-year dispute over ownership. The National Court confirmed late in the year that Matu Mining Pty. Ltd., a wholly owned subsidiary of Carpenter Pacific Resources Ltd., held the hardrock mining rights in the Mount Kare exploration license area. The decision followed a Papua New Guinea Supreme Court ruling in July that overturned a 1993 National Court decision awarding landowner Kare-Puga Development Corp. (KDC) the hardrock rights for the area over which it held the alluvial-colluvial rights. Matu Mining has agreed to give a 10% share of the hardrock mining rights in the exploration license area to KDC; KDC continues to hold 100% of the alluvial-colluvial mining rights.

PNG Oil Refinery Pty. Ltd., developer of the planned Kopi oil refinery on Motukea Island in Fairfax Harbour, Gulf Province, signed in October agreements with the chief contractor, CBI Constructors, and chief engineer, Howe-Baker Engineers Inc., for process, design, and fabrication of the facility. The refinery was to be able to process 30,000 barrels per day of crude using conventional processing technology. Oil from the Kutubu Project was to be used as the main component, although other light crudes also would be able to be refined. The refinery, in addition to direct import substitution, would establish a valued-added industry of 12.5% and provide employment for 250, mainly local, people.

All of the country's petroleum production was exported from

the marine export terminal in the Gulf of Papua and sold to refineries in Australia, Japan, and Southeast Asia. Natural gas production from the Hides Gasfield production was flared, except for the small amount used at the Porgera Mine. The country's only refinery, the small topping Iagifu Ridge Refinery 200 meters above Lake Kutubu in Southern Highlands Province, produced a small quantity of aviation and diesel fuels from condensate both for sale within the country and in conjunction with the Kutubu Project itself.

¹Text prepared Apr. 1996.

Major Sources of Information

Department of Mining and Petroleum
P.O. Box 1032
Port Moresby, Papua New Guinea
Telephone: +675 212 988
Fax: +675 217 107

Department of Minerals and Energy
P.O. Box 352
Konedobu, Papua New Guinea
Telephone: +675 227 617
Fax: +675 213 701

TABLE 1
PAPUA NEW GUINEA: PRODUCTION OF MINERAL COMMODITIES 1/

Commodity 2/		1991	1992	1993	1994	1995
Copper, mine output, Cu content	metric tons	204,459	193,359	203,945	206,239	212,737
Gold, mine output, Au content	kilograms	60,780	71,190	60,587	60,287 r/	52,635
Petroleum, crude	thousand 42-gallon barrels	68 r/	19,313 r/	45,884 r/	44,008 r/	36,344
Silver, mine output, Ag content	kilograms	124,880	95,498	96,094	77,758 r/	65,226

r/ Revised.

1/ Table includes data available through Apr. 2, 1996.

2/ In addition to the commodities listed, cement and crude construction materials (common clays, sand and gravel, and stone) are produced, but output is not reported quantitatively, and available general information is inadequate to make reliable estimates.

TABLE 2
PAPUA NEW GUINEA: STRUCTURE OF THE MINERAL INDUSTRY FOR 1995

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity e/
Cement	thousand tons	PNG-Halla Cement Pty. Ltd. [Halla Cement Corp. of South Korea, 50%, and State of Papua New Guinea, 50%]	Lae, Morobe Province	500
Copper	do.	Ok Tedi Mining Ltd., operator. [BHP Minerals Holdings Pty. Ltd., managing shareholder, 52%; Mineral Resources Development Co. (State of Papua New Guinea), 30%; and Inmet Mining Corp. of Canada, 18%]	Ok Tedi Mine, Mount Fubilan, Western Province	145
Do.	do.	Bougainville Copper Ltd., operator and manager. [CRA Ltd., 53.6%; public shareholders, 27.3%; and Mineral Resources Development Co. (State of Papua New Guinea), 19.1%]	Panguna Mine, Bougainville Island, North Solomons Province 1/	180
Gold		Lihir Gold Corp., developer and manager. [Southern Gold (Bahamas) Ltd., a 75:25 joint venture between RTZ Corp. Plc. and Vengold Inc., 22.8%; Mineral Resources Lihir Pty. Ltd. (State of Papua New Guinea), 17.15%; Niugini Mining Ltd., 17.15%; and public shares, 42.9%]	Lihir project, Lihir Island, New Ireland Province 2/	18
Do.		Misima Mines Pty. Ltd., operator and manager. [Placer Niugini Pty. Ltd., 80%; and Mineral Resources Development Co. (State of Papua New Guinea), 20%]	Misima Mine, Misima Island, Milne Bay Province	6
Do.		Kare-Puga Development Corp. (local landowner group), 100% for alluvial-colluvial rights. Matu Mining Pty. Ltd., subsidiary of Pacific Resources Ltd. of Australia, 90%, and Kare-Puga Development Corp., 10%, for hardrock rights.	Mount Kare deposit, 18 km southwest of the Porgera Mine, Southern Highlands Province 3/	5
Do.		Ok Tedi Mining Ltd., operator. [BHP Minerals Holdings Pty. Ltd., managing shareholder, 52%; Mineral Resources Development Co. (State of Papua New Guinea), 30%; and Inmet Mining Corp. of Canada, 18%]	Ok Tedi Mine, Mount Fubilan, Western Province	15
Do.		Bougainville Copper Ltd., operator and manager. [CRA Ltd., 53.6%; public shareholders, 27.3%; and Mineral Resources Development Co. (State of Papua New Guinea), 19.1%]	Panguna Mine, Bougainville Island, North Solomons Province 1/	10
Do.		Placer (PNG) Pty. Ltd., manager, 25%; Highlands Gold Properties Pty. Ltd., 25%; RGC (Papua New Guinea) Pty. Ltd., 25%; and Mineral Resources Porgera Pty. Ltd. (State of Papua New Guinea), 25%	Porgera Mine, 130 km west of Mount Hagen, Enga Province	30
Do.		Clayfield Pty. Ltd., wholly owned subsidiary of Dome Resources NL, 100%	Tolukuma Mine, 100 km north of Port Moresby, Central Province	2
Silver		Misima Mines Pty. Ltd., operator and manager. [Placer Niugini Pty. Ltd., 80%; and Mineral Resources Development Co. (State of Papua New Guinea), 20%]	Misima Mine, Misima Island, Milne Bay Province	100
Do.		Ok Tedi Mining Ltd., operator. [BHP Minerals Holdings Pty. Ltd., managing shareholder, 52%; Mineral Resources Development Co. (State of Papua New Guinea), 30%; and Inmet Mining Corp. of Canada, 18%]	Ok Tedi Mine, Mount Fubilan, Western Province	30
Do.		Placer (PNG) Pty. Ltd., manager, 25%; Highlands Gold Properties Pty. Ltd., 25%; RGC (Papua New Guinea) Pty. Ltd., 25%; and Mineral Resources Development Co. (State of Papua New Guinea), 25%	Porgera Mine, 130 km west of Mount Hagen, Enga Province	5
Do.		Clayfield Pty. Ltd., wholly owned subsidiary of Dome Resources NL, 100%	Tolukuma Mine, 100 km north of Port Moresby, Central Province	4
Natural gas	thousand cubic meters per day	BP Petroleum Development Ltd., operator and manager, 92.5%, and Oil Search Ltd., 7.5%	Hides Gasfield, Southern Highlands Province	425
Petroleum	thousand 42-gallon barrels per day	Chevron Niugini Pty. Ltd., operator and manager, 19.375%; BP Petroleum Development, 19.375%; Ampol Exploration Ltd., 16.46%; BHP Petroleum (PNG) Inc., 9.69%; Oil Search Ltd., 7.76%; Merlin Pacific Petroleum Co., 4.84%; and Petroleum Resources Kutubu Pty. Ltd. (State of Papua New Guinea), 22.5%	Kutubu Project (Agogo and Igifu-Hedinia Oilfields), Gulf and Southern Highlands Provinces	140
Do.	do.	Barracuda Pty. Ltd., operator and manager, 20%; Southern Highlands Petroleum, 50%; Oil Search Ltd., 20%; Nomenco PNG Oil Co., 7%; and Mountains West Exploration Inc., 3%	South East Gobe Oilfield, Gulf Province	40

e/ Estimated.

1/ Closed since May 1989 because of civil unrest.

2/ Under development for probable 1998 commissioning.

3/ Production was limited to alluvial-colluvial operations.